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HEAT-TRANSFER CHARACTERISTICS OF 98% H_2O_2 AT HIGH PRESSURE AND HIGH VELOCITY

D. C. Rousar and N. E. Van Huff
Aerojet-General Corporation

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FOREWORD

This special report presents the results of an investigation, conducted under Contract AF 04(611)-10785, to determine the heat-transfer characteristics of 98% H_2O_2 at high pressure and high velocity. Portions of this study have been presented in various progress reports and have been compiled herein to assist the reader in application of the technology discussed.

The investigation was part of the Advanced-Propellant Staged-Combustion Feasibility Program conducted by the Advanced Storable Engine Division of Liquid Rocket Operations, Aerojet-General Corporation, Sacramento, California.

Technical managerial control is provided by Mr. R. J. Kuntz, PE, Project Engineer. Mr. R. Beichel is Program Manager.

Contributors to this report, in addition to those noted on the title page, included the following Aerojet-General personnel:

R. F. Bechtold
A. Fink

This technical report has been reviewed and is approved.

Richard Weiss
Air Force Program Manager

ABSTRACT

High-pressure heat-transfer experiments have been conducted with both 90 and 98% H_2O_2. Electrically heated 3/16- and 1/4-in.-dia Inconel 718 and 3/16-in.-dia stainless-steel test sections were used, at pressures of 850 to 4700 psi and at coolant velocities of 25 to 198 ft/sec. Titration of the peroxide after short-duration testing indicated that little or no H_2O_2 decomposition had occurred in the test section. The short-duration burnout tests have shown that the maximum burnout heat flux is directly proportional to coolant velocity and is insensitive to coolant pressure. The Dittus-Boelter equation was found to yield a conservative estimate of heat-transfer coefficients for 98% H_2O_2 and is recommended for design purposes. Long-duration tests conducted at velocities of 50 to 150 ft/sec with Inconel 718 tubing indicated that the long-duration burnout heat flux is degenerated to about 65% of that demonstrated in short-duration tests. Titration of the peroxide after these tests indicated that minor H_2O_2 decomposition had occurred.

It can be concluded that 98% H_2O_2 would be an excellent regenerative coolant in rocket engine systems. The long-duration burnout phenomenon at high pressure can be avoided by limiting the design burnout heat flux to about 65% of the short-duration burnout point.

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I.

INTRODUCTION AND SUMMARY

I.

INTRODUCTION AND SUMMARY

Advanced concepts for storable propellant liquid rocket engines have been under extensive investigation for the past few years. These studies have shown that the performance of existing N_2O_4/AeroZINE 50 systems can be increased significantly by using high chamber pressures, a staged-combustion engine cycle, and fuels that are gelled mixtures of hydrazine and metals or metal hydrides. The system under investigation in the Advanced Propellant Staged Combustion Feasibility Program, Contract AF 04(611)-10785, employs 98% H_2O_2/Alumizine-43 propellants at a chamber pressure of 3000 psia. It has been established that a regenerative coolant for this system must be capable of accepting high heat fluxes.

Because of the low burnout-heat-flux limits and because of the uncertain heat-transfer characteristics of Alumizine (1), 98% H_2O_2 was chosen as the more suitable regenerative coolant for 98% H_2O_2 /Alumizine-43 systems. The feasibility of using H_2O_2 as a regenerative coolant has previously been demonstrated in experimental investigations with 98% H_2O_2 (2) and 90% H_2O_2 (2, 3, 4). These previous results were obtained at relatively low pressures (300 to 1100 psia) and low velocities (14 to 67 ft/sec). Data on the heat-transfer characteristics of 98% H_2O_2 at pressures up to 5000 psia and velocities up to 200 ft/sec are needed for evaluating regenerative cooling designs for high-pressure, high-heat-flux systems.

In the present investigation, 24 heat-transfer tests were conducted with 98% H_2O_2 in electrically heated round tubes with uniform heat-flux distribution. The ranges of conditions encountered in these tests were:

Pressure, psia	830 to 4700
Velocity, ft/sec	25 to 200
Bulk Temperature, °F	40 to 215
Heat Flux, Btu/in.^{2} sec	Up to 48

Thirteen of these tests were burnout tests, in which the burnout or ultimate heat flux was evaluated in electrically heated round tubes by increasing the heat flux in increments, at a fixed flow rate and at fixed pressure conditions, until failure of the tube occurred. Data on the forced-convection heat-transfer characteristics were also obtained at each heat-flux level below the burnout point.

The remaining 11 of the 98% H_2O_2 tests were extended-duration tests in which a constant heat-flux level was maintained for durations up to ten minutes. This extensive investigation of duration effects was initiated when it was found that burnouts occurred during extended operation at significantly lower heat fluxes than during the shorter-duration burnout tests.

I, Introduction and Summary (cont.)

Seven tests to determine the pressure-drop characteristics of 98% H_2O_2 at isothermal and heated conditions were also conducted.

Heat-transfer tests with 90% H_2O_2 and deionized water were conducted in addition to the 98% H_2O_2 testing. The burnout heat flux of 90% H_2O_2 was evaluated in four tests at a nominal pressure of 4000 psia, with velocities from 45 to 135 ft/sec, bulk temperatures from 140 to 205°F, and at heat fluxes up to 36 Btu/in.^{2} sec.

Testing with deionized water consisted of two burnout tests and of one extended-duration test. The water burnout tests served as loop-checkout tests, and the extended-duration test with water provided a comparison to the results of the 98% H_2O_2 extended-duration tests. Water testing was done at velocities from 38 to 150 ft/sec, pressures from 1000 to 3000 psia, and bulk temperatures from 120 to 285°F with heat fluxes up to 28 Btu/in.^{2} sec. Sections of the burned-out tubes were subjected to metallographic analysis to determine the surface changes that occurred (Appendix A).

All testing was done on Aerojet-General's high-pressure, storable-propellant heat-transfer loop. This "blowdown" type loop is pressurized with a nitrogen system capable of operating at 10,000 psia. The liquid run tank can operate at pressures up to 5500 psia. Electrical power for preheating the 98% H_2O_2 and for applying a heat flux to the test section is provided by a 200-kW-rated dc power source.

II.

TECHNICAL DISCUSSION

II.

TECHNICAL DISCUSSION

This section contains descriptions of the experimental apparatus, of the types of tests conducted, of the test procedures used, and of the method of data analysis. A discussion of the results obtained is also included.

A. EXPERIMENTAL APPARATUS

1. High-Pressure Heat-Transfer Loop

All tests were conducted on Aerojet-General's high-pressure "blowdown" heat-transfer loop shown schematically in Figure 1. The main components of the loop are the pressurization system, the run-tank assembly, the preheater-test section assembly, the heat exchanger, the flow-control valve, and the dump-tank assembly. Electrical power for the preheater-test section assembly is provided by four 15-v power supplies rated at 50 kw dc each.

The pressurization system, shown in Figure 2, consists of an 18-ft^3 10,000-psig-rated nitrogen storage vessel, of a high-pressure booster pump, and of associated piping and valve components. The run-tank assembly consists of a 115-gal 5500-psig-rated 321 stainless-steel spherical vessel, of piping and valve components, and of a control system which allows remote operation. Three interconnected 42-gal 2000-psig-rated spherical stainless-steel vessels make up the dump-tank system. The electrically operated flow-control valve is located upstream of the dump tanks. The run tank and the dump-tank assemblies are shown in Figure 3.

The preheater-test section assembly consists of a 150-kw-rated preheater coil constructed from 1/2-in.-OD by 0.058-in.-thick stainless-steel tubing, of a test-section mounting stand with attached copper bus-bar clamps for holding the test section in place; of inlet and outlet fluid-mixing sections; and of a stand for mounting pressure transducers and the thermocouple ice bath. A water-cooled, multi-pass, shell and tube-type heat exchanger is located downstream of the test section. The preheater-test section assembly and the heat exchanger can be seen in Figures 3 and 4.

2. Test Sections

Test sections were constructed from 1/4- and 3/16-in.-OD tubing with wall thicknesses from 0.015 to 0.016 in. The tube material was Inconel 718 for the majority of the tests, but some testing was done with 347 stainless-steel tubing. The basic configuration of a test section is shown in Figure 5. Dimensions of the test sections used in each test are given in Table I.

The heated lengths of the test sections were formed by silver-brazing two predrilled copper cylinders onto the tubing. These copper cylinders

II, A, Experimental Apparatus (cont.)

fit the copper bus-bar clamps. Fittings for connecting the test section to the mixing sections and to the transducer lines were then installed, together with the wall-temperature and voltage tap instrumentation. An unheated entrance length of 5 in. (yielding length-to-diameter, L/D, ratios of 23 and 31 for the 1/4- and 3/16-in.-OD tubing, respectively) was maintained on all test sections. Figure 6 shows a completed test section installed on the mounting stand.

3. Passivation Procedure

Prior to testing with 98% H_2O_2, the heat-transfer loop was thoroughly passivated. Passivation was accomplished in the following sequence: (1) the system was cleaned with solvents and flushed with deionized water; (2) 70% nitric acid was flushed through the system and left in the tanks and lines for 24 hr; (3) the system was flushed with deionized water; (4) the entire system was filled with 35% H_2O_2, was left full for about 60 hr, and was then drained; (5) the run tank was filled with 98% H_2O_2.

Test sections were also passivated prior to installation by filling the sections with 70% nitric acid and allowing the acid to remain in the tubes for four hours. The tubes were then flushed with deionized water and purged with nitrogen.

4. Instrumentation

The following measurements were made in each test:

a. Test-section outer wall temperature (at two or three axial positions),

b. Test-section inlet and outlet bulk temperature,

c. Flow rate,

d. Test-section inlet and outlet pressure,

e. Test-section current,

f. Overall test-section voltage drop, and

g. Voltage levels at incremental distances along the test section.

In addition, test-section pressure drop was measured in seven pressure-drop tests. The accuracy of the data was enhanced by taking redundant measurements whenever possible. Average readings of these measurements were used in evaluating the data.

II, A, Experimental Apparatus (cont.)

Test-section outer wall temperatures were measured with 40-gage chromel-alumel thermocouples installed upon a 0.0005-in.-thick layer of mica. They were held in place by an overwrap of glass roving. The accuracy of these measurements was evaluated by comparing the readings from two thermocouples placed opposite each other at each axial position where a wall-temperature measurement was desired. The data indicated agreement within 20 to 100°F at wall temperatures from 500 to 1500°F.

Both the inlet and the outlet bulk temperatures were measured with three copper-constantan immersion-type thermocouples installed downstream of the mixing baffles in the fluid-mixing sections. Agreement between the readings of the three thermocouples was generally within 2°F.

Flow-rate measurements were obtained from two turbine-type flow meters connected in series upstream of the preheater. Agreement between these two meters was consistently within 1.5%.

Test-section inlet and outlet pressures were measured with transducers connected to pressure-tap fittings upstream and downstream of the test-section electrical connections. Readings from these two transducers consistently agreed within 2% at the no-flow data point recorded in each test after system pressurization had been achieved. Test-section pressure-drop measurements were obtained using 0-to-100-psi and 0-to-500-psi pressure-drop transducers.

Overall test-section voltage drop was measured between the test-section electrodes. Incremental voltage levels along the test-section tube were also measured with voltage taps, which consisted of 0.005-in.-dia wire that was spot-welded to the tube. Agreement between these voltage measurements was good, and a linear voltage relationship was found to exist along the test section.

Test-section current was measured with a 50-mv shunt. The accuracy of this measurement was good, as indicated by the overall energy balances calculated for each test, which generally compared within 10% for short-duration variable-heat-flux tests and within 4% for long-duration constant-heat-flux tests.

B. TESTING

Three types of tests were conducted: (1) burnout tests, (2) extended-duration tests, and (3) pressure-drop tests. These tests are discussed separately in the following paragraphs.

II, B, Testing (cont.)

1. Burnout Tests

The objective of the burnout tests was to determine the burnout heat flux and the forced-convection characteristics of 98% H_2O_2 at given pressures, velocities, and bulk temperatures. In these tests, the heat flux was increased stepwise until the test section burned out. Forced-convection data were obtained at each heat-flux level up to the point of burnout. The duration of these tests was typically from three to four minutes. During this time, heat fluxes ranging from zero to the burnout value were applied to the test section.

Thirteen burnout tests were conducted with 98% H_2O_2, four with 90% H_2O_2, and two with deionized water (loop-checkout tests).

2. Extended-Duration Tests

Tests with extended durations at a constant heat flux were also conducted. The objective of these tests was to determine whether the burnout heat-flux limits established for 98% H_2O_2 in the burnout tests of relatively short duration were applicable for operation at longer durations. In these extended-duration tests, a predetermined heat flux was applied to the test section after the desired flow conditions had been established, and the system was then allowed to operate at steady-state conditions until the desired duration (ranging from 5 to 10 min) had been achieved or until burnout of the test section occurred.

Twelve extended-duration tests were conducted: eleven with 98% H_2O_2 and one with water.

3. Pressure-Drop Tests

Testing with 98% H_2O_2 included tests to evaluate pressure-drop characteristics at isothermal and heated conditions. Seven of these tests were conducted.

C. TEST PROCEDURES

Prior to testing, the high-pressure GN_2 receiver was pressurized to 10,000 psi by utilizing a boost-pump system. Next, the dump tanks were vented, the drain lines were closed, water flow in the heat exchanger was initiated, and the system was pressurized to a predetermined level.

The desired flow rate and outlet pressure for the test section was then initiated and controlled by slowly opening the electrically operated

II, C, Test Procedures (cont.)

flow-control valve. When the desired flow conditions had been achieved, power was applied to the preheater and the test-section inlet temperature was adjusted to the desired value. Test-section power was then raised to a predetermined level, and the wall temperature of the section was monitored on a visual gage to determine when steady-state conditions were obtained (the time required to achieve steady state was generally about 10 sec). All pertinent data were then recorded automatically on magnetic tape and oscillograph paper.

In the burnout tests, test-section power was slowly increased to a higher level and, as soon as steady-state had been achieved, the data-taking process was repeated. This step-wise increase in heat flux was repeated until burnout of the test section occurred.

The heat flux initially applied to the test section was not changed during the long-duration tests, and the system was maintained at steady state for a specified time or until the test section burned out. The high-pressure tests (outlet pressure > 2000 psia) with durations exceeding five minutes were conducted in two blowdowns of the loop.

The pressure-drop tests were conducted in essentially the same manner as the burnout and long-duration tests except that during the start sequence the system was pressurized more slowly and with the flow-control valve slightly open to avoid an excessive pressure difference across the pressure-drop transducers.

D. DATA REDUCTION

The data obtained during these tests were reduced using Aerojet-General's data-reduction computer program, Program 22105 (5). The outputs from this program for the 98% H_2O_2 and 90% H_2O_2 tests are given in Appendix B.

Local values of heat-transfer coefficient were calculated from the relationship:

$$h = \frac{\phi}{T_i - T_B}$$

where:

h = heat-transfer coefficient, Btu/in.^{2}sec °F

ϕ = local heat flux, Btu/in.^{2}sec

T_i = inside tube wall temperature, °F

T_B = local bulk temperature, °F

II, D, Data Reduction (cont.)

Values of heat flux were calculated from electrical power measurements and from the tube geometry:

$$\phi = \frac{CAEI}{\pi(ID)(\Delta L)}$$

where:

E = voltage drop

I = current, amp

ID = inside tube diameter, in.

ΔL = length between voltage taps, in.

$C = 0.000948 \frac{\text{Btu/sec}}{\text{watt}}$

Inner-wall temperatures were evaluated assuming radial conduction and no heat transfer at the outer tube wall. The thermal conductivity and the electrical resistivity of the tube wall were considered as functions of temperature. The differential equation (6) for this condition is:

$$\frac{d^2T}{dr^2} + \frac{1}{r}\frac{dT}{dr} + \frac{1}{k}\frac{dT}{dr}\frac{dk}{dr} = \frac{-CAE^2}{\rho_e k \Delta L^2}$$

where:

T = temperature, °F

r = radius, in.

k = tube-wall thermal conductivity, Btu/sec in.°F

ρ_e = tube-wall electrical resistivity, ohm-in.

Substitution of the expressions:

$$\frac{dT}{dr} = \frac{T_{n-1} - T_n}{\Delta r}$$

$$\frac{dk}{dr} = \frac{k_{n-1} - k_n}{\Delta r}$$

II, D, Data Reduction (cont.)

and

$$\frac{d^2T}{dr^2} = \frac{T_{n+1} - 2T_n + T_{n-1}}{(\Delta r^2)}$$

into the differential equation yields the finite-difference equation from which the inside tube-wall temperature was calculated:

$$T_{n+1} = T_n - (T_{n-1} - T_n)\left[\frac{\Delta r}{r_n} + \frac{k_{n-1} - k_n}{k_n} + 1\right]$$

$$\frac{CAE^2 \Delta r^2}{k_n \rho_{e_n} \Delta L^2}$$

where:

n+1, n, n-1 refer to adjacent radial increments of thickness Δr. The values of k and ρ_e used for Inconel 718 and 347 stainless steel are shown in Figure 7 and were taken from References 7, 8, and 9. Local bulk temperature was calculated assuming uniform power input along the length of the test section, i.e.,

$$T_B = T_{Bin} + (T_{Bout} - T_{Bin}) \frac{(L-X)}{L}$$

where:

T_{Bin} = inlet bulk temperature, °F

T_{Bout} = outlet bulk temperature, °F

L = heated length of test section, in.

X = distance from downstream end of heated length, in.

The local pressure was calculated from a similar expression:

$$P = P_{in} - (P_{in} - P_{out}) \left(\frac{L-X}{L}\right)$$

where:

P_{in} = inlet pressure, psia

P_{out} = outlet pressure, psia

II, D, Data Reduction (cont.)

The dimensionless forced-convection correlating parameters listed below were evaluated at the local bulk temperature and at the average film temperature:

$$Nu = \text{Nusselt Number} = \frac{h\, d_e}{k}$$

$$Re = \text{Reynolds Number} = \frac{V d_e \rho}{12\mu}$$

$$Pr = \text{Prandtl Number} = \frac{\mu C_p}{12\, k}$$

where:

V = velocity, ft/sec

d_e = equivalent diameter, in.

ρ = density, lbm/ft^3

μ = viscosity, lbm/ft-sec

C_p = specific heat, Btu/lbm°F

The overall reliability of the data was evaluated by performing an energy balance for the test section:

$$\text{Energy Balance} = \frac{Q_{in} - Q_{out}}{Q_{in}}$$

where:

Q_{in} = electrical energy input to the fluid, Btu/sec

Q_{out} = sensible energy transferred to the fluid, Btu/sec

The input energy was calculated from

$$Q_{in} = 0.000948\, E_T\, I$$

where:

E_T = total test-section voltage drop,

I = test-section current, amp

II, D, Data Reduction (cont.)

and output energy was calculated from:

$$Q_{out} = \dot{W} \left[\bar{C}_p \ (T_{Bout} - T_{Bin}) + \frac{(V_{out})^2 - (V_{in})^2}{2 g J} - \Delta T_o \right]$$

where:

$\dot{W}$ = flow rate, lbm/sec

$\bar{C}_p$ = average specific heat, Btu/lbm°F

g = 32.174 lbm ft/lbf sec^2

J = 778 ft lbf/Btu

The term ΔT_o is the bulk-temperature rise observed before application of test-section power. This temperature rise is caused by frictional heating and was observed to increase with velocity. Incorporation of this term into the energy balance also provides a zero correction for the inlet and outlet bulk-temperature thermocouples. Values of ΔT_o ranging from 0.2 to 5.0°F were observed at velocities from 25 to 200 ft/sec.

E. DISCUSSION OF RESULTS

1. 98% H_2O_2

a. Burnout Heat Flux

(1) Burnout Test Results

Thirteen burnout tests were conducted with 98% H_2O_2 in which burnout heat fluxes from 8.1 to 48.2 Btu/$in.^2$sec were encountered. Eight of these tests were conducted at pressures above the critical pressure of 3220 psia. In these tests, test-section outlet pressures ranged from 3500 to 4700 psi, velocities from 25 to 200 ft/sec, and bulk temperatures from 140 to 235°F. The remaining five burnout tests were conducted at subcritical pressure levels of 3000 and 850 psia, velocities from 50 to 170 ft/sec, and bulk temperatures from 150 to 190°F. The results of the 98% H_2O_2 burnout tests are summarized in Table II.

The burnouts observed in these tests occurred within about one inch of the downstream end of the test section. This location of the burnout point is typical and has been observed with many fluids. Two types of burnout were observed, the most common being a complete severance burnout in which failure of the tube wall occurred in a fairly even plane roughly perpendicular to the axis of the test section. In addition, splitting of the

II, E, Discussion of Results (cont.)

tube in the longitudinal direction downstream of the severance point usually occurred. Local melting on the outside of the tube at the point of severance was observed on all complete severance burnouts. Heat marks (purple-hued discolorations) were consistently observed on the inside of the tube along the edges where tube failure occurred. Typical complete severance burnouts with and without tube splitting are shown in Figures 8 and 9. The most explosive burnout occurred during Test HT-4-109 where complete severance occurred in two locations, as shown in Figure 10.

In two of the burnout tests, a tube-split failure occurred, as shown in Figure 11. These failures were accompanied by bulging of the test section in the region of the split and by heat marks on the inside of the tube. No melting of the tube wall was observed.

It is apparent that burnout resulted from a sudden excursion in tube-wall temperature since outer tube-wall temperatures ranging from 850 to 1700°F were observed just prior to burnout.

A satisfactory correlation of the burnout test results is obtained by plotting burnout heat flux as a function of velocity. The data reported in Reference 2 for pressures from 300 to 1000 psia and bulk temperatures from 213 to 298°F also correlate well. As shown in Figure 12, the variation is essentially linear, and a good representation of the data is obtained with:

$$\phi_{BO} = 0.24\ V \qquad \text{(Eq 1)}$$

No significant effect of pressure or bulk temperature is evident. All but one of the data points are within 2 Btu/in.^{2} sec and at velocities greater than 40 ft/sec are within 10% of the values predicted by Equation 1. All the data correlate within 25% for the general range of conditions:

$$P = 300 \text{ to } 4700 \text{ psia}$$

$$V = 14 \text{ to } 198 \text{ ft/sec}$$

$$T_b = 137 \text{ to } 298°F$$

The burnout obtained in Test HT-4-139 appears low in comparison to the rest of the data and lies about 25% below the line given by Equation 1. This suggests an effect of material since Test 139 was the only test conducted with a 347 stainless-steel test section instead of an Inconel 718 test section. However, the agreement of the data given in Reference 2 for 316 stainless-steel test sections with the data points for Inconel 718 tubing tends to negate this effect.

II, E, Discussion of Results (cont.)

The data obtained at subcritical pressures also correlate with the product of velocity and subcooling (ΔT_{sub}), as shown in Figure 13, from which the following equation is derived:

$$\phi_{BO} = 2.5 + 0.00034(V\Delta T_{sub}) \qquad \text{(Eq 2)}$$

where:

$\Delta T_{sub} = T_{sat} - T_B$, °F

T_{sat} = saturation temperature, °F (boiling point at operating pressure)

This type of correlation has been found to be applicable to a wide variety of subcritical fluids at high velocity and high subcooling (ΔT_{sub}) conditions (discussed in References 10, 11, and 12). Equation 2 does not yield a more precise prediction of the subcritical pressure data because deviations of up to 30% are present.

However, the applicability of Equation 2 to the 98% H_2O_2 data is questionable because this type of correlation was established for burnout caused by the transition from nucleate to film boiling. Nucleate boiling apparently did not occur in the 98% H_2O_2 subcritical-pressure tests, as evidenced by the relationship between heat flux and wall temperature shown in Figures 14 through 17. The slope in heat flux is not steep, as in nucleate boiling, and this indicates that a convective heat-transfer mechanism was present up to the point of burnout. Furthermore, these data indicate that burnout occurred at wall temperatures below the saturation temperature (boiling point). Calculated wall temperatures at burnout ranged from 350 to 400°F at 850 psia (T_{sat} = 655°F) and from 500 to 600°F at 3000 psia (T_{sat} = 850°F).

The lack of a boiling phenomenon was also noted in the data reported in Reference 2; however, these data indicated that wall temperatures at burnout exceeded the saturation temperature by as much as 300°F. The discrepancy between the two sets of data has not been explained. Comparison of inner-wall temperatures calculated from water checkout test data with the temperatures given by the superheat correlations developed for water by Bernath (13) and by Jens and Lottes (14) indicate that the inner-wall temperatures obtained in this investigation are low by about 100 to 150°F, as shown in Figure 18. This error is not sufficiently large to explain the difference between the wall temperatures obtained for 98% H_2O_2 in this investigation and those reported in Reference 2.

The tests at supercritical pressure yielded the same relationship between heat flux and wall temperature as the tests at subcritical pressure. A normal, convective heat-transfer mechanism is

II, E, Discussion of Results (cont.)

evidenced up to the point of burnout, as shown in Figures 19 through 24. This type of relationship has also been observed for AeroZINE 50 at supercritical pressures.

(2) Extended-Duration Test Results

Twelve extended-duration tests were conducted: eleven with 98% H_2O_2 and one with deionized water. These tests were conducted at velocities of 50, 100, and 150 ft/sec at pressures from 830 to 3700 psia, and at bulk temperatures ranging from 115 to 155°F. Inconel 718 test sections were employed in the high-pressure tests (2800 to 3700 psia), whereas a 347 stainless-steel test section was used for low-pressure testing. The results of these tests are summarized in Table III and Figure 25.

Six of the 98% H_2O_2 extended-duration tests terminated in test-section burnout at heat fluxes that were 20 to 35% lower than the burnout values given by the velocity correlation (Equation 1) established from the results of burnout tests at relatively short duration. Burnouts were observed at 50, 100, and 150 ft/sec, as shown in Figure 25. The time interval from start of steady state to burnout ranged from 50 sec to 8.3 min.

Testing with 98% H_2O_2 in Inconel 718 test sections (eight tests, five burnouts) at pressures of 2800 to 3700 psia resulted in burnout whenever the heat flux exceeded 65% of the burnout heat flux given by Equation 1. At heat fluxes below this critical level, durations of up to ten minutes were achieved without burnout.

Somewhat different extended-duration burnout characteristics were observed with a stainless-steel test section at lower pressure (P = 850 psia). Tests HT-4-140, -141, and -142 were conducted with a stainless-steel test section at the same flow conditions as the stainless-steel burnout test (Test 139) discussed earlier. During extended duration testing, burnout did not occur until the maximum heat flux observed in the burnout test (Test 139) was attained. This corresponds to about 75% of the value given by Equation 1. These maximum heat flux results obtained with stainless-steel tubes are what is normally expected because burnout-heat-flux limits are not usually related to duration. A general agreement between burnout-heat-flux limits of 98% H_2O_2 in short-duration and in extended-duration tests has also been noted in Reference 2 for 316 stainless-steel test sections, at a velocity of 15 ft/sec and at a pressure of 300 psia. However, Reference 4 reports anomalous behavior (e.g., transient and recurrent wall-temperature peaks) in some extended-duration tests with stainless-steel test sections.

II, E, Discussion of Results (cont.)

Again, indications are that the material may affect the burnout heat flux of 98% H_2O_2. However, tests with Inconel 718 at low pressures and with stainless steel at high pressure are needed to evaluate the effect of pressure on the maximum heat flux for extended duration.

The fact that extended-duration burnouts are a unique characteristic of 98% H_2O_2 was demonstrated by conducting a test with deionized water and an Inconel 718 test section (Test 144A, B) at the velocity, pressure, and heat-flux conditions of extended-duration tests with 98% H_2O_2 that resulted in two burnouts. This test had a duration of 11 min, and no burnout occurred.

An extended-duration test was also conducted with an Inconel 718 test section that was cleaned but not passivated (Test HT-4-143A,B). This test had a duration of 6.5 min at a heat flux about 60% of that given by Equation 1; no burnout occurred.

All the extended-duration burnouts occurred at heat fluxes equal to or greater than 65% of the Equation 1 value. Thus:

$$\phi_{BO} = 0.16\ V \qquad \text{(Eq 3)}$$

appears to represent a good upper limit for safe extended-duration operation with 98% H_2O_2 and is recommended for design purposes.

(3) Burnout Mechanism

Burnouts with fluids at subcritical pressures are normally related to the transition from nucleate to film boiling, whereas most burnouts with fluids at supercritical pressure appear to result from a degradation of the heat-transfer coefficients when the properties of the fluid near the wall begin to change rapidly. These two mechanisms are entirely different, and the burnout data at these two pressure levels cannot be expected to correlate. The fact that the burnout data for 98% H_2O_2 correlate over such a wide range of pressures (300 to 4700 psia--roughly 10 to 150% of the critical pressure) suggests that H_2O_2 burnout is governed by a mechanism other than film-boiling or variations in fluid properties.

The burnouts obtained with 98% H_2O_2 appear to be the result of a sudden deterioration of the normal forced-convective heat-transfer mechanism caused by exothermic decomposition:

$$2\ H_2O_2 \rightarrow 2\ H_2O + O_2 \qquad \text{(Eq 4)}$$

$$\Delta H = 23.4\ \text{Kcal/mole}$$

II, E, Discussion of Results (cont.)

A relationship between the burnouts and decomposition is indicated by the energy-balance calculations performed for the burnout and extended-duration tests. In the burnout tests, the energy balances tended to become increasingly negative as burnout was approached. By definition, a negative energy balance indicates an excess of sensible energy (Q_{out}) over the input electrical energy (Q_{in}). Such an excess in sensible energy was indicated at the burnout point in each of the burnout tests. As shown in Table II, the amount of excess energy ranged from 1.5 to 23%. Typical examples of the manner in which the apparent energy excess increased as burnout was approached are shown in Figure 26.

The energy balances for the extended-duration tests in which burnout occurred also indicate an increasing excess of sensible energy as burnout is approached. The magnitude of excess energy is somewhat less than observed in the burnout tests, ranging from 1.5 to 6%. As shown in Figures 27 through 32, a slowly increasing excess in sensible energy is indicated for each extended-duration test that terminated in burnout. Significantly, the energy balances for the extended duration tests where no burnout occurred do not show such a perceptible trend towards excess sensible energy. This is demonstrated in Figures 33 through 38.

The amounts of excess energy indicated at burnout are small and generally within the $\pm$ 10% energy balance tolerance normally considered sufficient to ensure reliable heat-transfer data. However, the fact that this small excess was consistently observed prior to burnout is strong evidence that burnout is caused by exothermic decomposition of the 98% H_2O_2.

Comparison of the heat of reaction (Equation 4) to the energy balances at burnout indicates that only 0.1 to 0.6% of the 98% H_2O_2 need decompose to yield the indicated excess energy. This is consistent with the fact that no large-scale H_2O_2 decomposition was observed throughout the course of testing. The lowest concentration measured was 96.3%, as shown in Table IV.

The onset of the decomposition which causes burnout is apparently quite sudden. In most of the tests, no degradation of the heat-transfer coefficient was observed prior to burnout. Only a slight degradation was indicated for some of the burnout tests and in four of the extended-duration tests which terminated in burnout. This degradation is evidenced by an increasing inner-wall temperature at relatively constant heat flux and velocity conditions, as shown in Figure 17 for Test HT-4-110 (burnout test) and in Figure 27 for Test HT-4-130 (extended-duration test).

II, E, Discussion of Results (cont.)

A plausible qualitative explanation of the 98% H_2O_2 burnout mechanism is obtained by considering a discrete packet of fluid which comes into contact with the heated wall for a certain period of time, δ, and is heated from its initial temperature, T_B (the bulk temperature of the main stream), to a new temperature T_B'.

$$T_B' = T_B + \frac{\phi \delta A_c}{C} \qquad \text{(Eq 5)}$$

where:

ϕ = heat flux, Btu/in.^{2}sec

δ = contact time, sec

A_c = effective contact area, in.^{2}

C = thermal capacity of fluid packet, Btu/°F

The packet then joins the main fluid stream and contributes to an increase in bulk temperature.

It is conceivable that a chemical decomposition begins when the temperature of the fluid packet reaches a certain value. If sufficient mixing occurs as a result of turbulence, a small amount of this decomposition can be quenched in the mainstream. Previous analyses (15) have shown that up to 0.5% of the decomposition products of 98% H_2O_2 can be dissolved in the mainstream at high pressures. This would account for the excess sensible energies observed prior to burnout. Eventually, as the heat flux is increased, the exothermic decomposition overcomes the turbulent quenching process, and high-temperature decomposition products suddenly cover the tube wall locally. Burnout is the result because of the drastic reduction in the liquid-side heat-transfer coefficient.

Equation 5 indicates that the temperature rise of a given fluid packet depends on the heat flux, ϕ, and on the contact time, δ. The contact time can be expected to decrease with an increased intensity of turbulence. Therefore, it is logical that the contact time would decrease with increased velocity. Consequently, at higher velocities, higher heat fluxes are required to raise the temperature of the packet to the point where excessive decomposition begins. This is consistent with the observed correlation between burnout heat flux and velocity; i.e., the heat flux at which burnout occurred was found to increase with velocity.

II, E, Discussion of Results (cont.)

It is not known why burnout in the extended-duration tests occurred at lower heat fluxes than expected; possibly, it may have been caused by microscopic changes in the surface of the tube walls which catalytically promoted the exothermic decomposition of H_2O_2. However, examination of burned-out test sections revealed no obvious changes of the surfaces. (See Appendix A for further discussion.)

If the extended-duration burnouts are caused by microscopic changes in the exposed surface of the tubes, the tube material, the surface finish, and the passivation technique may be important factors affecting the burnout heat flux. The tests conducted during this investigation appear to confirm that a material effect exists, as shown by the different results obtained with Inconel 718 and stainless-steel tubing. However, a pressure effect may also exist and additional tests with Inconel 718 at low pressures and with stainless steel at high pressures are needed to clarify the influence of material and pressure on 98% H_2O_2 burnout heat flux. Testing with an unpassivated (but thoroughly cleaned) Inconel 718 test section (Test 143) indicated that nitric-acid passivation does not yield significantly different extended-duration burnout limits with this material. Alternative passivation techniques should be investigated for future testing.

b. Forced Convection

Local values of heat flux, inner-wall temperature, and heat-transfer coefficient calculated at each test-section thermocouple station and for each power level of the 98% burnout tests are given in Appendix B.

The data are correlated in terms of the Nusselt, Reynolds, and Prandtl numbers in Figures 39 and 40. Data points having energy balances greater than $\pm$ 10% are not shown.

As shown in Figure 39, the two most commonly used bulk-temperature property equations do not correlate the test data very well. The most generally accepted correlation for high-velocity heat transfer is that developed by Hines (16):

$$Nu_b = 0.005\ Re^{0.95}\ Pr^{0.4} \qquad \text{(Eq 6)}$$

A plot of this correlation passes through the center of the data, but deviations up to 80% are present. Part of this deviation is caused by L/D effects. The data for L/D >20 correlate within $\pm$ 40%.

The Dittus-Boelter correlation (17):

$$Nu_b = 0.023\ Re_b^{0.8}\ Pr_b^{0.4}$$

II, E, Discussion of Results (cont.)

yields conservative values for heat-transfer coefficients that will be sufficient for most design applications.

Use of average film-temperature properties does not improve the correlation, as shown in Figure 40. A Dittus-Boelter type equation evaluated with average film properties passes through the center of the data; however, deviations of +70% and -40% exist.

The correlation presented in Reference 18:

$$Nu = (Nu') \left(\frac{\mu_b}{\mu_w}\right)^{0.11} \left(\frac{k_b}{k_w}\right)^{-0.33} \left(\frac{\bar{C}_p}{C_{pb}}\right)^{0.35} \qquad \text{(Eq 8)}$$

where:

$$Nu' = \frac{(f/8)\ Re_b\ Pr_b}{12.7\ \sqrt{f/8}\ (Pr_b^{\,2/3} - 1) + 1.07}$$

$$f = [1.82 \log_{10} Re_b - 1.64]^{-2}$$

$$\bar{C}_p = \frac{\int_{T_b}^{T_w} C_p\ dT}{T_w - T_b}$$

is compared to the observed heat flux-inner wall temperature data in Figures 19, 20, 22, and 24. This correlation predicts the general trend of the data although in some cases significant deviations are present. A modified version of this equation may yield a more precise correlation, and it is recommended that efforts be expended to obtain such a correlation. To this end, the actual data have been included in this report as Appendix B.

c. Pressure Drop

The results of the 98% H_2O_2 pressure-drop tests are shown in Tables V and VI. In two of these tests the pressure drop was evaluated during isothermal flow with bulk temperatures of 70 and 200°F. In five tests, the pressure drop with 70°F inlet temperature was evaluated at heat fluxes ranging from zero to 75% of the burnout heat flux observed in the burnout tests. These tests were conducted at pressures ranging from 3800 to 4600 psia and velocities from 50 to 200 ft/sec. Inconel 718 test sections were used in all the pressure-drop tests.

II, B, Discussion of Results (cont.)

Isothermal friction factors calculated from the data are shown in Figure 41 as a function of Reynolds number. These data generally agree with the standard charts for friction factor (19), but the dependency of experimental friction factor on Reynolds number is less than would be anticipated. The maximum deviation from the published curve for drawn tubing is about 18%. This discrepancy may have been caused by the fitting used to attach the pressure-transducer lines to the test section (the fitting is shown in Figure 10). The fitting was observed to contract the diameter of the tube slightly in the region where it was fastened, producing a slight contraction and expansion at each end of the test section. This could conceivably yield pressure-drop characteristics different from those of a constant-diameter tube.

The ratio of pressure drop with and without heat transfer is shown in Figure 42 for velocities ranging from 55 to 188 ft/sec. Data were obtained at heat fluxes of 25, 50, and (except for Test 123) 75% of the burnout heat flux. In general, these curves are similar to those obtained for hydrazine in the nonboiling region reported in Reference 20. A certain amount of error exists in these calculated ratios because the pressure-drop measurements were obtained across heated and unheated sections of approximately equal length. The unusual behavior indicated at 98 ft/sec velocity and 4400 psia pressure (Test 122) is probably a result of this error. However, the data are considered valid, and they demonstrate that heated 98% H_2O_2 does not exhibit any unusual pressure-drop characteristics.

d. Testing Difficulties

Most of the 98% H_2O_2 tests were conducted without difficulty; however, certain problems attributable to equipment failure were encountered, and these are stated in the following paragraphs as a matter of record. No explosions or detonations ever occurred simply as a result of test-section burnout.

In Test HT-4-131, an inadvertent electrical connection of the power supplies allowed current to leak through an adjacent test system and back into normally unheated portions of the high-pressure heat-transfer loop. This resulted in heating of relatively stagnant 98% H_2O_2, and ultimately caused detonations in a short length of tubing (connecting the main propellant valve to a drain valve) and in the drain lines. The test section was destroyed, apparently as a result of the pressure spikes produced by the detonations.

Test HT-4-132 was scheduled for a ten-minute duration, but was terminated after two minutes of steady power when the electrical insulator in the outlet pressure-transducer line failed and caused the 98%

II, E, Discussion of Results (cont.)

H_2O_2 in this line to heat-up and to detonate. This detonation collapsed the test-section tube at the point where the transducer line is attached, stopped the flow of 98% H_2O_2, and caused the test section to burn out.

2. 90% H_2O_2

Four burnout tests were conducted with 90% H_2O_2 at a nominal pressure of 4000 psia, at velocities of 45 to 155 ft/sec and bulk temperatures of 140 to 205°F. The 90% H_2O_2 was obtained by diluting the 98% H_2O_2 with deionized water after completion of the 98% H_2O_2 heat-transfer tests.

The results of these tests are listed in Table VII and compared to the 98% H_2O_2 data in Figure 43 together with the low-pressure 90% H_2O_2 data presented in References 2 and 4. Figure 43 shows that the burnout heat flux of 90% H_2O_2 is essentially the same as that of 98% H_2O_2 and correlates equally well with velocity. The 90% H_2O_2 forced-convection data also agree with the 98% H_2O_2 data. No extended-duration tests were conducted with 90% H_2O_2; however, it is recommended that behavior similar to that observed with 98% H_2O_2 be assumed for design purposes.

3. Water

Two burnout heat-flux tests were conducted with deionized water to checkout the loop prior to 98% H_2O_2 testing. In these water tests, pressures of 1000 and 2000 psia, velocities of 38 and 48 ft/sec, and bulk temperatures of 165 and 280°F were encountered.

The results obtained in the water tests are listed in Table VII. These results are compared in Figure 44 to the high-velocity, high-subcooling burnout data obtained for distilled and deionized water in a previous investigation (Ref 21). Good agreement with the previous data is apparent, and the expression:

$$\phi_{BO} = 5.1 + 0.000860\ (VAT_{sub})$$

yields predictions of the burnout heat flux within ± 20%.

III.

CONCLUSIONS AND RECOMMENDATIONS

III.

CONCLUSIONS AND RECOMMENDATIONS

A. The burnout heat flux of 98% H_2O_2 at pressures from 300 to 4700 psia, bulk temperatures from 130 to 298°F, and velocities from 14 to 198 ft/sec correlates with velocity. The burnout heat fluxes observed in burnout tests of relatively short duration are predicted within about 25% by the expression:

$$\phi_{Bo} = 0.24\ V$$

The burnout heat fluxes observed in the extended-duration tests were significantly lower than the burnout test values. The equation recommended for design:

$$\phi_{Bo} = 0.16\ V$$

yields a value which lies below all the observed burnout points.

B. The burnouts observed with 98% H_2O_2 appear to be caused by the sudden onset of exothermic decomposition in the boundary layer. Boiling or boiling-like phenomena were not observed at subcritical or supercritical pressures.

C. The long-duration burnout heat flux of 98% H_2O_2 is possibly dependent on tube material, surface conditions, and pressure. Further investigation of these effects is recommended.

D. No chemical attack of the Inconel 718 test sections by the 98% H_2O_2 was observed.

E. The Dittus-Boelter equation:

$$Nu_b = 0.023\ Re_b^{0.8}\ Pr_b^{0.4}$$

yields a conservative estimate of heat-transfer coefficients for 98% H_2O_2 and is recommended for design purposes. Precise correlation of the forced-convection data was not obtained, but the general trend of these data is predicted by an equation which includes bulk-to-wall-temperature fluid property ratios.

F. Ninety-eight percent hydrogen peroxide does not exhibit any unusual pressure-drop characteristics at isothermal or heated conditions.

G. Ninety-eight percent H_2O_2 can be used as a regenerative coolant.

H. Test results clearly indicate that 98% H_2O_2 will not detonate at burnout.

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TABLES

TABLE I

TEST-SECTION DIMENSIONS

Test	Material	OD, in. Nom.	OD, in. Meas.	Heated Length, in.	Measured ID, in.	Nominal Wall Thickness, in.
HT-4-105	Inc. 718	1/4	--	5.0	--	0.015
-106	347 SS	1/4	--	4.0	--	0.016
HT-4-108	Inc. 718	1/4	--	5.0	--	0.015
-109	Inc. 718	3/16	--	4.0	--	0.015
-110	Inc. 718	3/16	--	3.5	--	0.015
-111	Inc. 718	3/16	--	4.0	--	0.015
-112	Inc. 718	1/4	--	4.5	--	0.015
-113	Inc. 718	1/4	--	5.0	--	0.015
-114	Inc. 718	3/16	--	4.5	--	0.015
-115	Inc. 718	3/16	--	5.0	--	0.015
-116	Inc. 718	3/16	--	3.5	--	0.015
-117	Inc. 718	3/16	--	4.0	--	0.015
-118,-119	Inc. 718	1/4	--	5.0	--	0.015
-120 to -123, & -125	Inc. 718	3/16	--	5.0	--	0.015
-124	Inc. 718	1/4	--	4.0	--	0.015
HT-4-126	Inc. 718	3/16	--	5.0	--	0.015
-127	Inc. 718	3/16	--	6.0	--	0.015
-128	Inc. 718	1/4	--	5.0	--	0.015
-129	Inc. 718	1/4	--	4.0	--	0.015
HT-4-130	Inc. 718	3/16	0.1895	4.0	0.160	0.015
-132	Inc. 718	3/16	0.1895	5.0	0.160	0.015
-133A,B	Inc. 718	3/16	0.1895	4.0	0.159	0.015
-134	Inc. 718	3/16	--	4.5	--	0.015
-135	Inc. 718	3/16	0.1895	4.0	0.159	0.015
-136A,B	Inc. 718	3/16	0.1895	4.0	0.159	0.015
-137A,B	Inc. 718	1/4	0.2540	5.0	0.224	0.015
-138	Inc. 718	3/16	--	5.0	--	0.015
-139	347 SS	3/16	0.1865	4.5	0.154	0.016
-140,-141,-142	347 SS	3/16	0.1865	4.5	0.154	0.016
-143A,B	Inc. 718	3/16	0.1895	4.0	0.159	0.015
-144A,B	Inc. 718	3/16	0.1895	4.0	0.159	0.015

TABLE II

98% H_2O_2 BURNOUT TEST RESULTS

Test	P,psia	V,ft/sec	T_B,°F	ϕ_{Bo} Btu/in.^{2}sec	X,in.	Energy** Balance,%	Type of Failure
HT-4-134	840	101.5	156	22.0	0.1	- 5.5	Complete servance
-139	860	106.0	147	18.6	0.1	- 1.5	Complete severance
HT-4-108	3020	49.4	190	12.2	0.1	- 8.0	Complete severance
-109	3020	91.0	176	19.6	1.1	-13.7	Severance in two places
-110***	2910	169.0	154	41.5	0.6	- 7.1	Severance and split tube
-113	4020	25.3	137	8.1	0.65	-16.9	Split tube
-124	4150	44.6	235	9.4	0.3	- 7.6	Severance and split tube
-112	3950	47.9	170	12.0	0.45	-24.0	Severance and split tube
-116	3930	91.5	156	20.7	0.65	-11.5	Severance and split tube
-111***	3860	96.5	130	24.8	0.65	- 8.0	Split tube
-114	3750	161.5	144	39.6	0.1	- 5.3	Complete severance
-117	3530	198.0	143	48.2	0.1	- 5.5	Complete severance
-115	4700	95.5	153	23.0	0.5	-10.8	Severance and split tube

*X = Distance from burnout point to downstream end of heated section, in.

**Energy balance = $\frac{Q_{in} - Q_{out}}{Q_{in}} \times 100\%$

***Heat Flux based on tube resistance

TABLE III

EXTENDED-DURATION TEST RESULTS

Test Number	Nom. Vel., ft/sec	Outlet Pressure, psia	Outlet Temp., °F	Heat Flux Btu/in.^{2} sec	%BO[2]	Inner-Wall Temp., °F	Test-Section Material	Energy Balance,[4] %	Remarks
90% H_2O_2 TESTS									
HT-4-130	150	3300	135	28.0	80	380 to 460	Inc 718	+ 2.0 to - 7.0	Burnout after 3 min
135	150	3300	130	28.0	78	300 to 330	Inc 718	- 2.0 to - 4.0	Burnout after 50 sec
136A	150	2800	115	23.0	61	360 to 400	Inc 718	0.0 to - 2.0	No burnout, 5 min steady state
136B[1]	150	2800	130	24.5	67	420 to 470	Inc 718	- 1.0 to - 4.0	Burnout after 1 min
132	150	3500 to 3400	130	20.0	56	370 to 430	Inc 718	+ 2.0 to + 0.8	No burnout, 2 min steady state
133A	150	3500 to 3200	120	20.0	56	300 to 340	Inc 718	+ 0.4 to - 0.2	No burnout, 4 min steady state
133B[1]	150	3500 to 2800	120	20.0	56	360 to 470	Inc 718	+ 1.5 to + 0.8	No burnout, 6 min steady state
143A	150	3200 to 2800	120	22.5	61	360 to 380	Inc 718[3]	+ 1.0 to + 0.5	No burnout, 2 min steady state
143B[1]	150	3200	120	22.5	61	360 to 390	Inc 718[3]	+ 4.0 to + 3.0	No burnout, 4.5 min steady state
138	100	3500	155	16.0	67	480 to 330	Inc 718	+ 0.5 to - 5.0	Burnout after 1.7 min
140	100	850	130	13.5	53	340 to 360	347 S.S.	- 0.5 to - 1.0	No burnout, 9.5 min steady state
141[1]	100	830	140	17.0	68	400 to 430	347 S.S.	+ 1.0 to - 0.5	No burnout, 9 min steady state
142[1]	100	840	148	19.0	75	430 to 460	347 S.S.	- 0.2 to - 1.5	Burnout after 2 min
137A	50	3700	135	7.8	68	330 to 460	Inc 718	- 2.0 to - 4.0	No burnout, 5 min steady state
137B[1]	50	3700	140	7.9	68	320 to 400	Inc 718	- 2.0 to - 6.0	Burnout after 3.3 min
WATER TESTS									
144A	150	3000	120	28.0	N/A	280 to 320	Inc 718	+ 2.0 to + 0.5	No burnout, 6 min steady state
144B[1]	150	3000	135	28.0	N/A	280 to 330	Inc 718	+ 3.0 to + 1.0	No burnout, 5 min steady state

(1) Indicates same test section as previous test.

(2) Percentage of burnout heat flux indicated by Phase-I short-duration burnout data.

(3) Test section unpassivated

(4) $\frac{Q_{in} - Q_{out}}{Q_{in}} \times 100\%$

TABLE IV

H_2O_2 CONCENTRATION DATA

Test	Wt % H_2O_2* Before Test	Wt % H_2O_2* After Test	Date	Remarks
RT-4-108	98.00	--	10/1/66	
-109	98.09	--	10/4	
-110	96.69	--	10/13	
-112	96.35	--	10/14	
-113	96.63	96.29	10/15	Refilled unit after Test 113.
-114	98.01	97.12	10/21	
-115	97.52	97.52	10/21	
-116	96.69	96.33	10/22	
-117	96.71	96.68	10/25	
-118	96.66	--	10/29	
-119	96.66	--	10/29	
-120	96.66	--	11/1	
-121	96.65	--	11/2	
-122	96.67	--	11/2	Fresh 98% H_2O_2 added after Test 122.
-123	96.6	--	11/3	
-124	96.85	96.67	11/4	
-125	96.68	--	11/5	Diluted for 90% H_2O_2 tests after Test 125.
-126	91.05	91.72	11/10	
-127	91.04	--	11/11	
-128	90.84	--	11/12	
-129	90.03	--	11/15	
-130	98.6**	98.6**	12/17	Refilled unit prior to Test 130.
-133B	--	97.54	1/11	
-135	--	96.5	1/19	
-139	96.45	96.64	2/2	
-140	96.25	96.45	2/3	
-141	96.5	96.2	2/3	
-143B	96.45	96.35	2/7	

*Determined by titration except Test 130
**Hydrometer data

TABLE V

98% H_2O_2 ISOTHERMAL PRESSURE-DROP DATA

Test	P_{out}, psia	T_B, °F	$\dot{W}$, lb/sec	ΔP	ID, in.	Total Length, in.	$Re_b \times 10^{-5}$	f
HT-4-118	4200	68.6	1.277	23.2	0.220	9.5	1.05	0.0191
V_{nom} = 50 ft/sec	—	205.1	1.197	21.3	—	—	2.50	0.0188
	—	205.0	1.197	21.3	—	—	2.50	0.0188
	—	70.0	1.276	23.0	—	—	1.07	0.0189
HT-4-119	4100	71.1	1.286	23.1	0.220	9.5	1.08	0.0187
V_{nom} = 54 ft/sec	—	71.4	1.276	22.7	—	—	1.07	0.0186
HT-4-120	4030	64.0	1.247	108.3	0.159	9.0	1.36	0.0193
	3907	203.7	1.175	103.2			3.37	0.0195
V_{nom}=100 ft/sec	3848	66.6	1.224	104.1	—	—	1.37	0.0193
HT-4-121	4000	60.7	1.198	98.1	0.159	9.0	1.26	0.0190
V_{nom}= 100 ft/sec		61.3	1.172	93.8	—	—	1.24	0.0189
HT-4-122	4613	63.7	1.181	94.9	0.159	9.0	1.25	0.0189
V_{nom}=100 ft/sec	4289	64.3	1.182	95.0	—	—	1.28	0.0189
HT-4-123	3060	63.4	2.230	329.5	0.159	9.0	2.41	0.0180
V_{nom}=180 ft/sec	2670	63.1	2.192	318.4	—	—	2.36	0.0180
HT-4-125	3965	65.2	2.412	377.8	0.159	9.0	2.66	0.0180
V_{nom}=200 ft/sec	3470	65.7	2.253	328.6	—	—	2.48	0.0180

TABLE VI

98% H_2C_2 HEATED PRESSURE-DROP DATA

Test	P_{out}, psia	T_B in, °F	T_B out, °F	$\dot{W}$, lb/sec	$\frac{Btu}{\phi\ in.^2 sec}$	Heated Length, in.	Unheated Length, in.	ID, in.	Total ΔP, psi	$\frac{(\Delta P)\ htd}{(\Delta P)\ iso}$ *
HT-4-119	4128	70.6	87.2	1.280	3.07	5.0	4.5	0.22	20.7	0.832
	4122		99.8	1.277	6.08				19.7	0.756
	4116		113.6	1.273	9.09				19.5	0.740
HT-4-121	3975	59.8	77.2	1.190	4.41	5.0	4.0	0.159	89.0	0.834
	3956	60.1	95.8	1.190	9.66				87.1	0.800
	3899	59.9	112.4	1.190	14.47				85.8	0.784
HT-4-122	4539	63.2	81.4	1.180	4.49	5.0	4.0	0.159	83.7	0.787
	4447	63.4	99.0	1.180	9.57				85.2	0.815
	4354	63.5	115.9	1.190	14.60				86.5	0.840
HT-4-123	2819	60.5	85.6	2.260	10.89	5.0	4.0	0.159	324.3	0.940
	2733		102.1	2.240	20.33				315.6	0.920
HT-4-125	3792	63.5	84.5	2.360	10.49	5.0	4.0	0.159	347.9	0.925
	3687		100.6	2.325	19.97				337.4	0.920
	3548		118.2	2.280	29.90				324.7	0.915

*Calculated for the heated portion of the test section

TABLE VII

BURNOUT TEST RESULTS FOR 90% H_2O_2 AND DEIONIZED WATER

Test	Fluid	P, psia	V, ft/sec	T_B, °F	ϕ_{Bo}, Btu/in.^{2}sec	X, in.*	Energy Balance, %**	Type of Failure
HT-4-105	Water	2000	48.1	165***	21.5	0.1	(3)	Serverance
-106	Water	1020	38.0	282	14.6	0.1	+4.7	Severance
-129	90% H_2O_2	3970	44.6	205	10.7	0.5	-4.3	Split tube
-128	90% H_2O_2	4130	52.0	169	11.8	0.4	-4.6	Split tube
-127	90% H_2O_2	3980	105.0	155	23.4	0.15	-1.5	Severance
-126	90% H_2O_2	4060	155.0	141	36.1	0.1	-3.0	Severance

* X = distance from burnout point to downstream end of heated section

** Energy balance = $\frac{Q_{in} - Q_{out}}{Q_{in}} \times 100\%$

*** Bulk temperature calculated from power measurements because an inadvertent sudden increase in power produced burnout before the outlet bulk-temperature thermocouples achieved steady state.

FIGURES

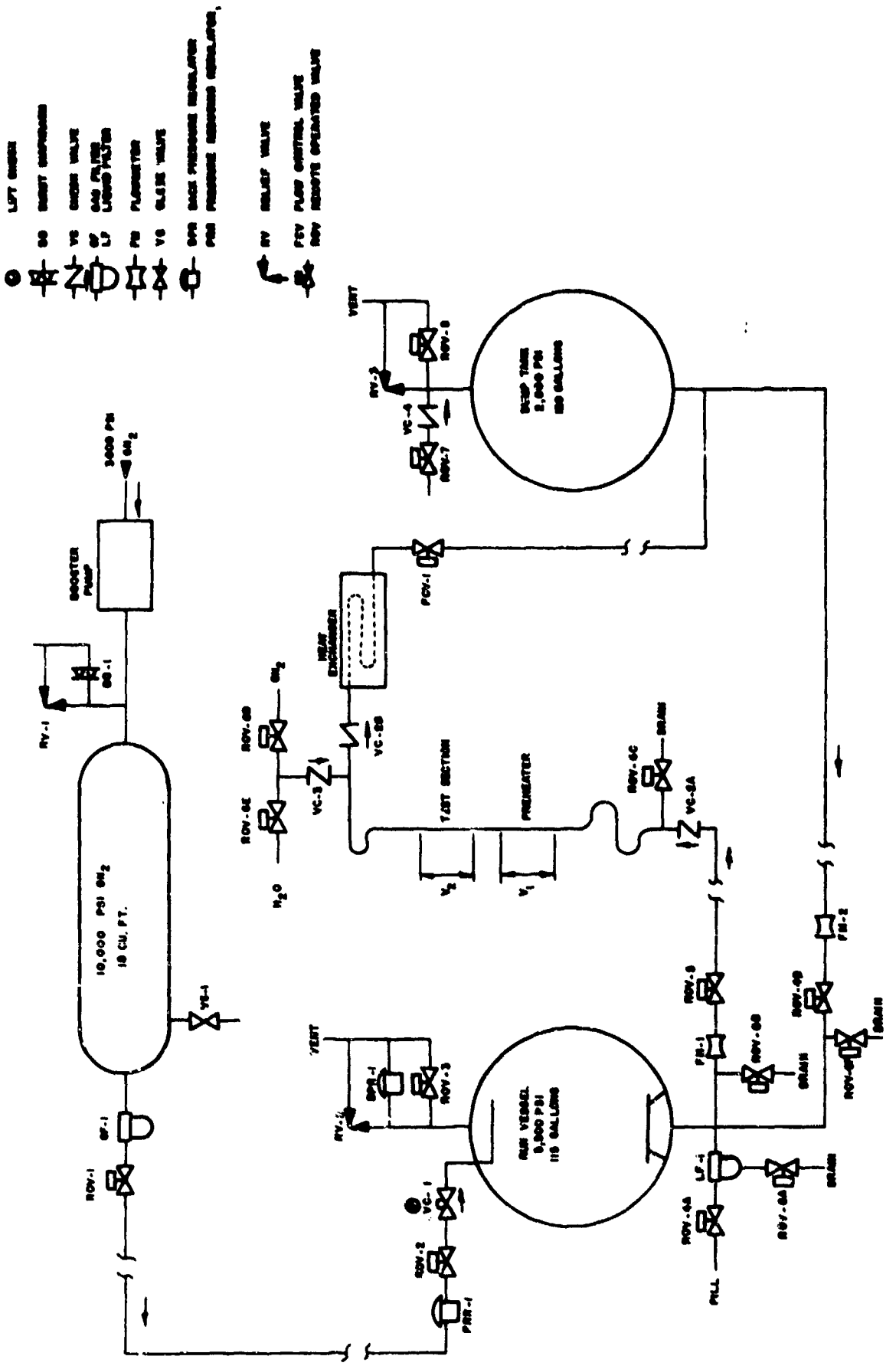


Figure 1. Schematic of High-Pressure Heat-Transfer Loop

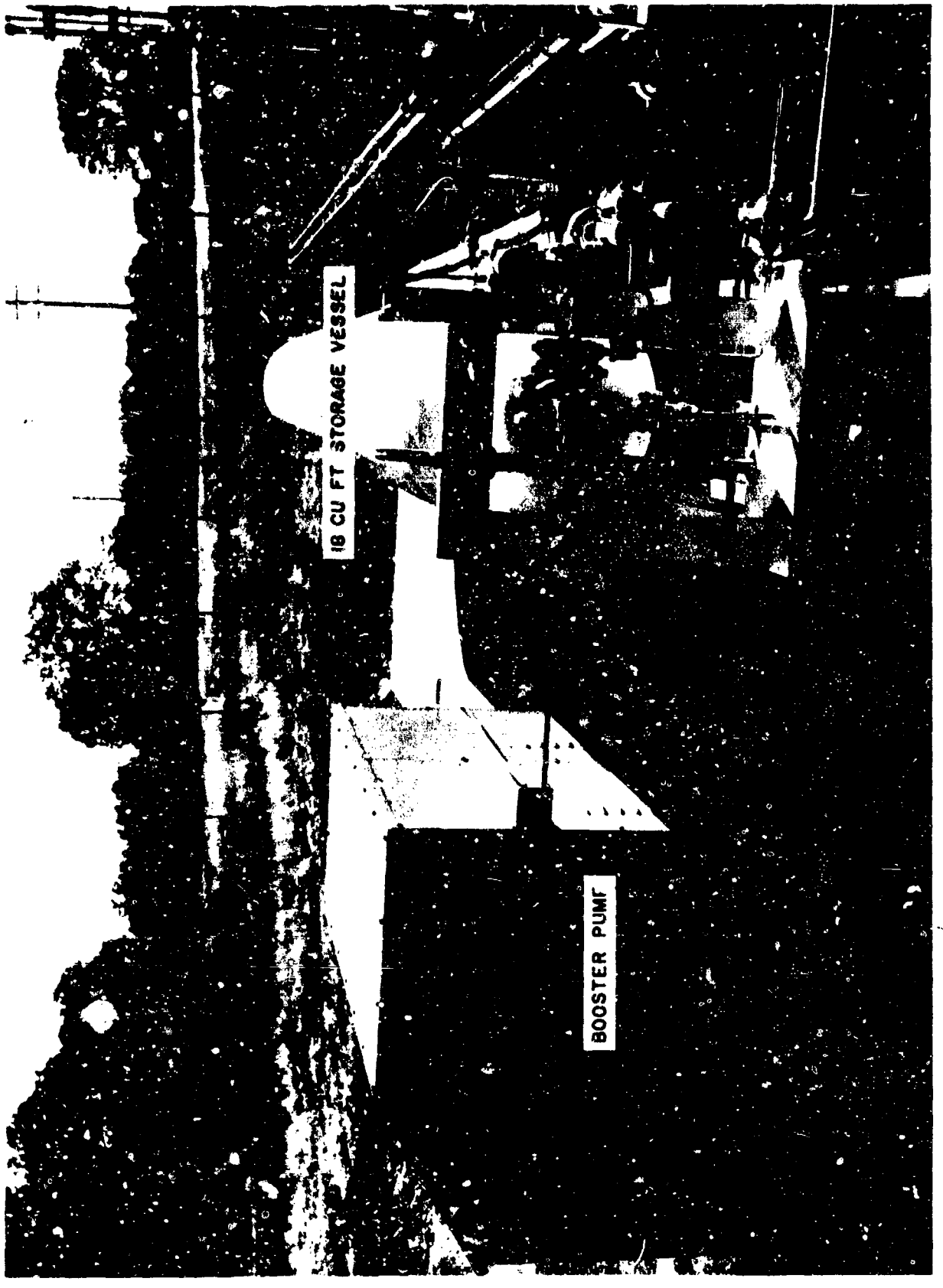


Figure 2. 10,000-psig Pressurization System

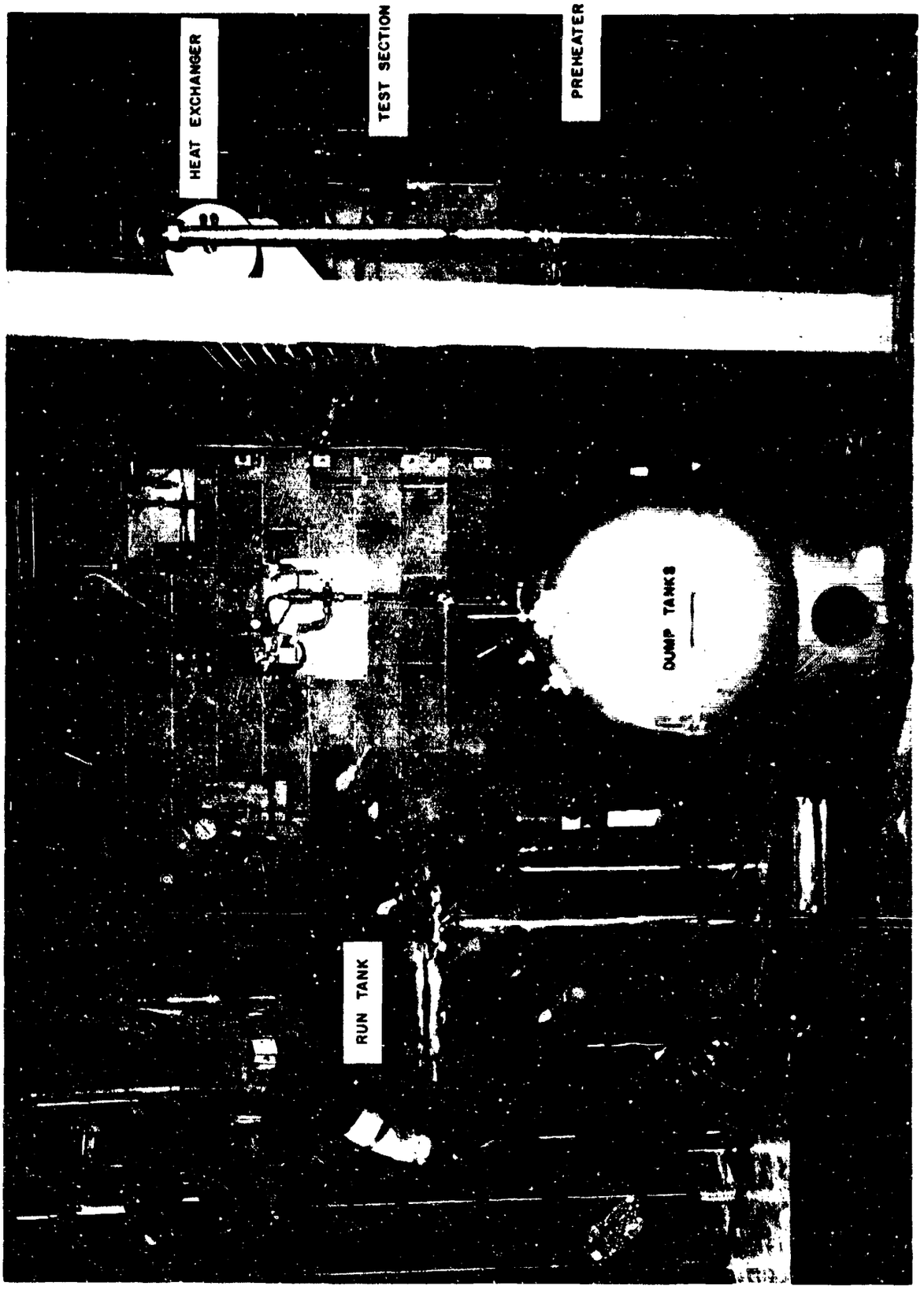


Figure 3. High-Pressure Heat-Transfer Loop

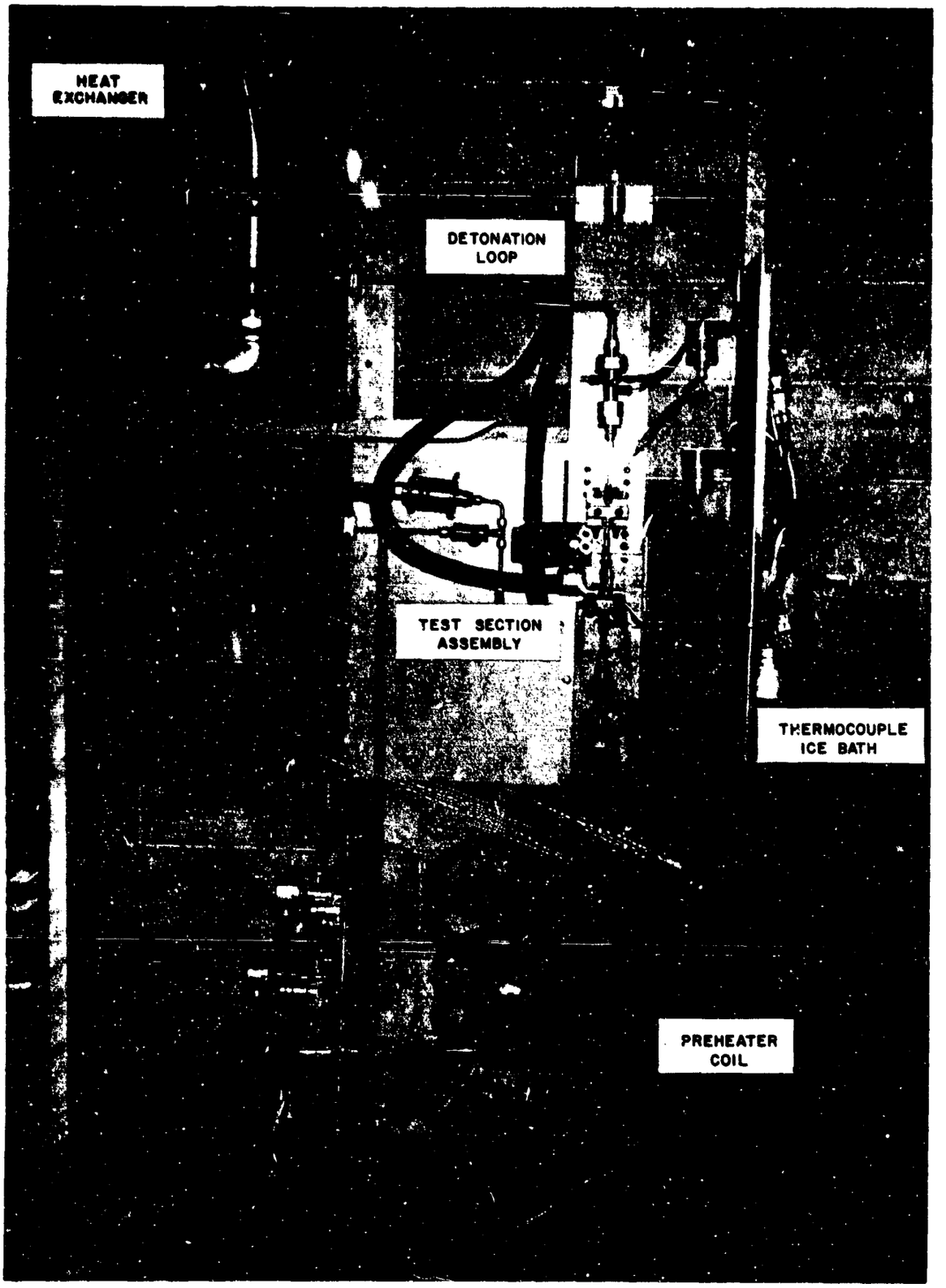


Figure 4. Preheater--Test-Section Assembly

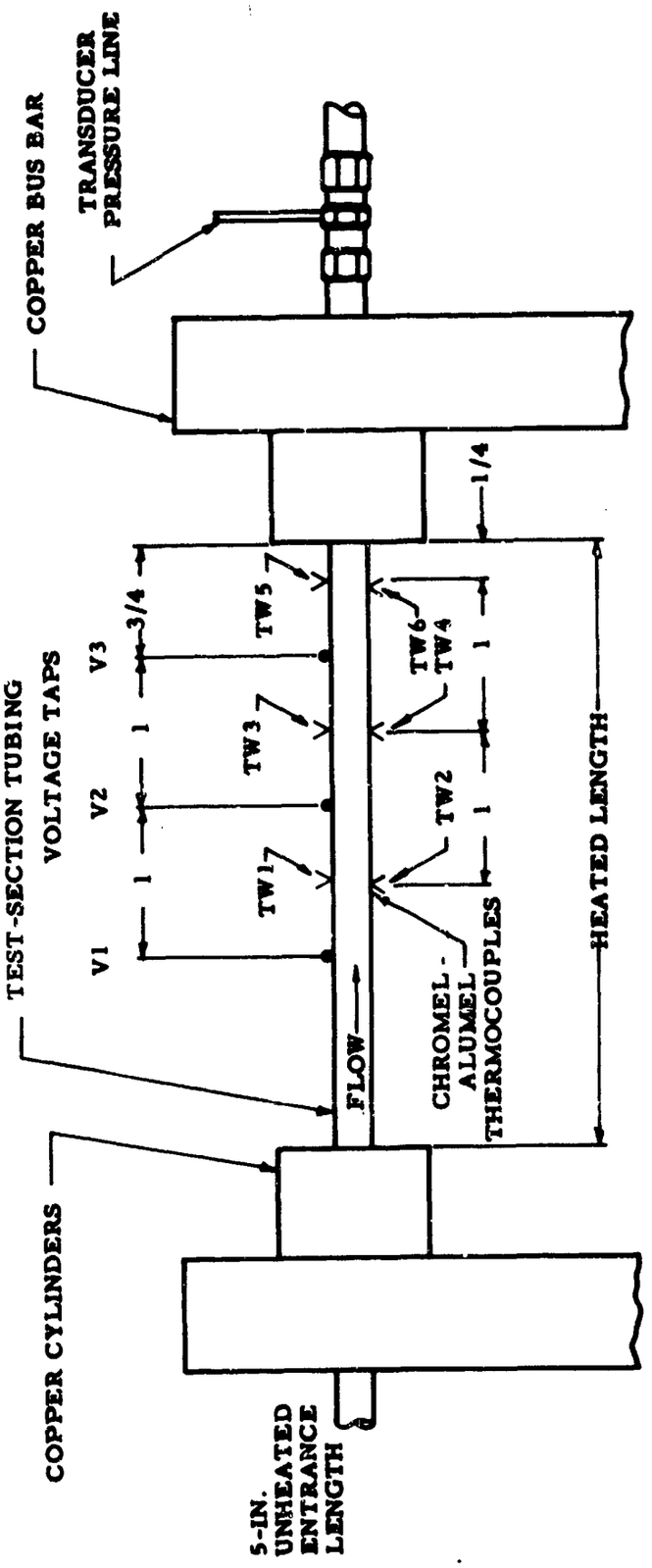


Figure 5. Test-Section Schematic

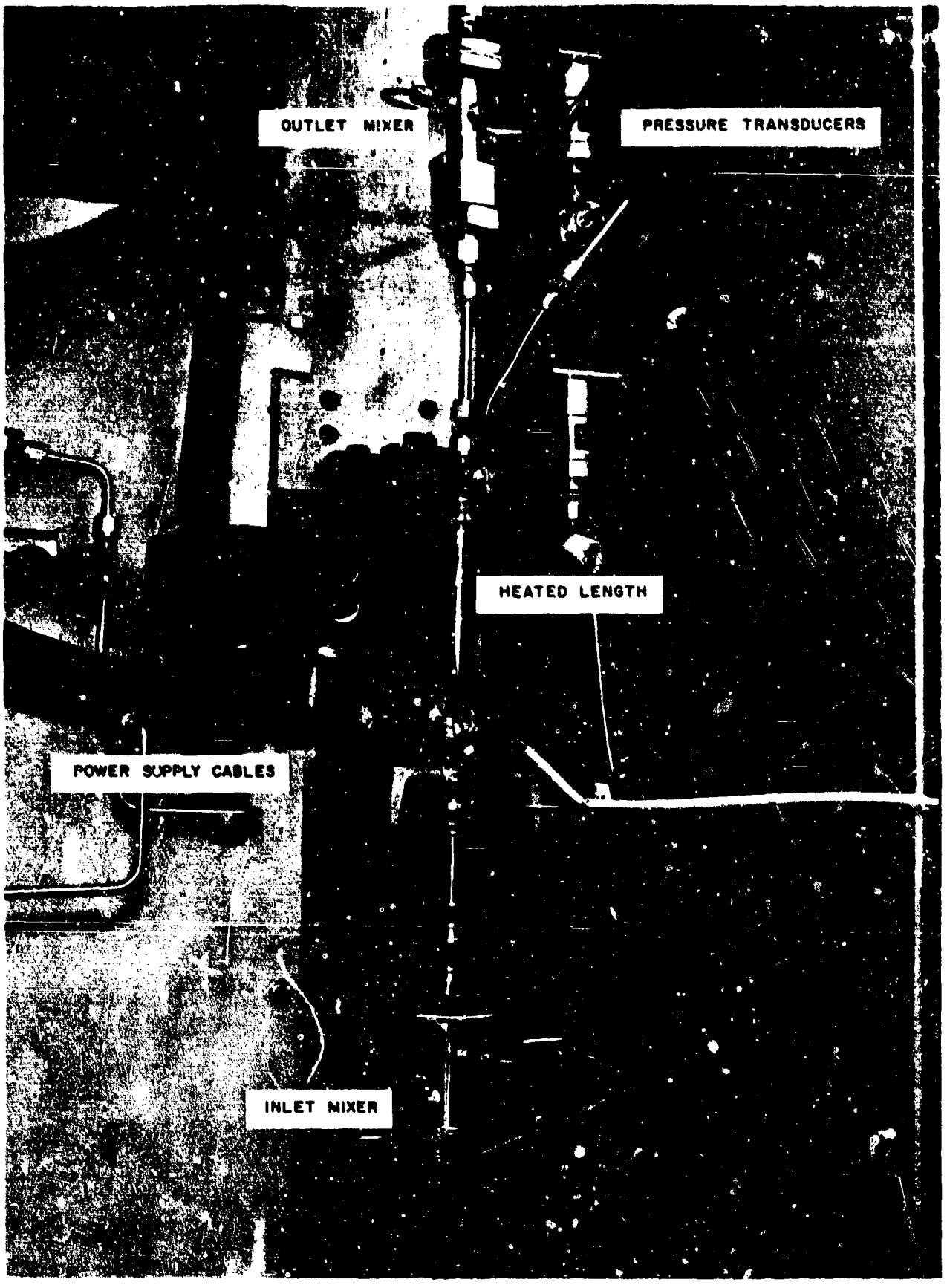


Figure 6. Mounted Test Section

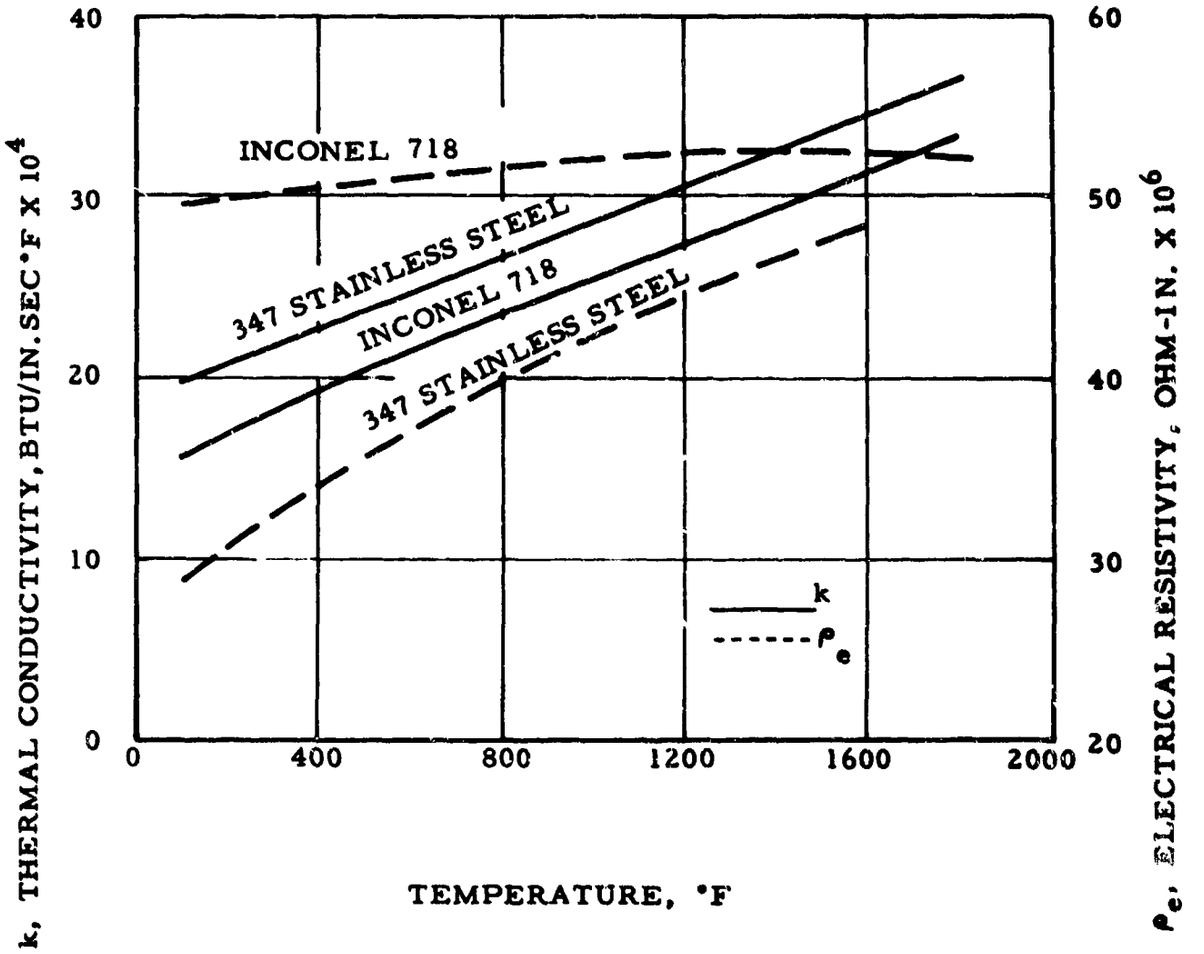


Figure 7. Thermal Conductivity and Electrical Resistivity of Inconel-718 and 347 Stainless Steel

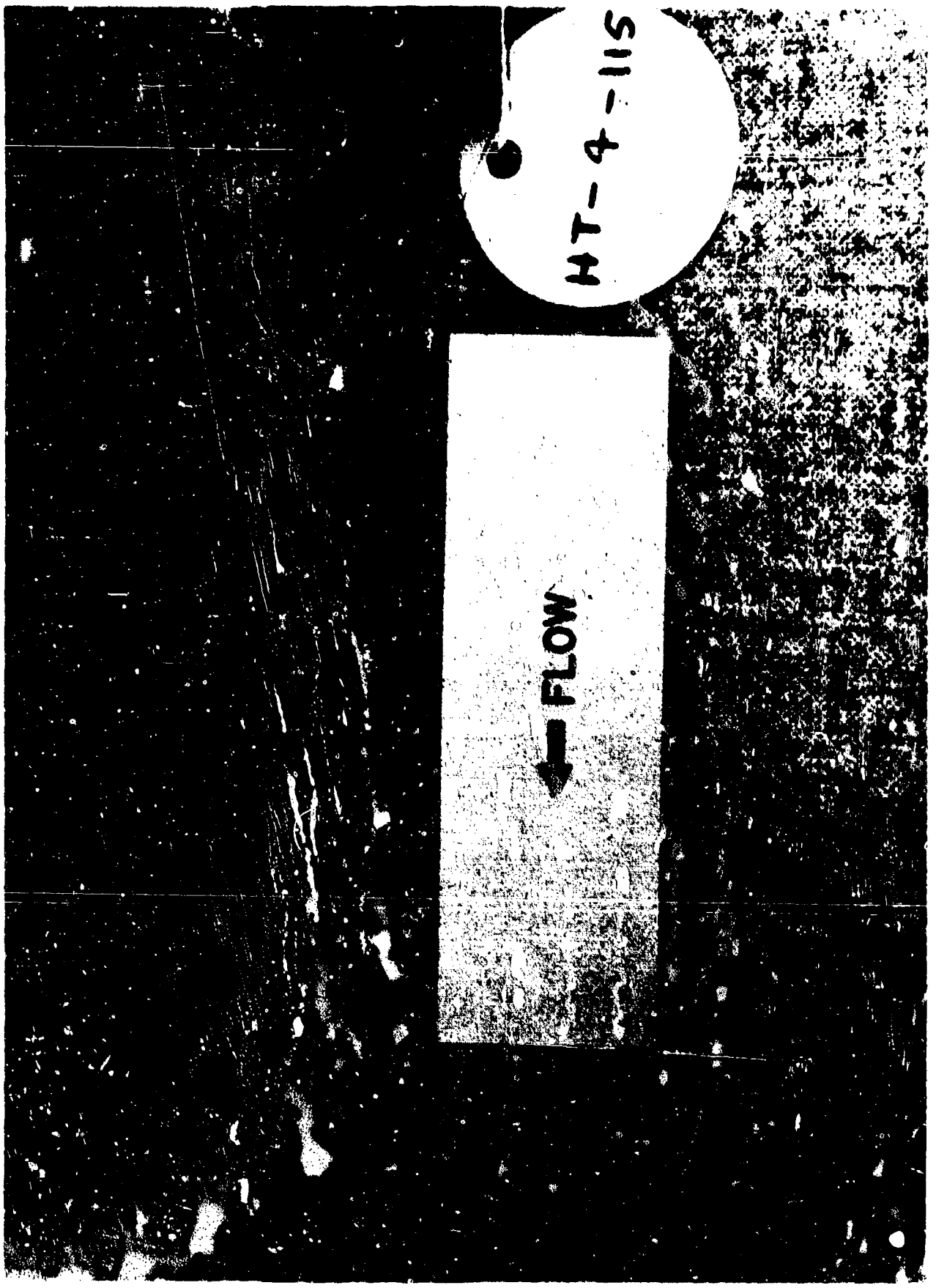


Figure 8. Complete Severance Burnout with Tube Split

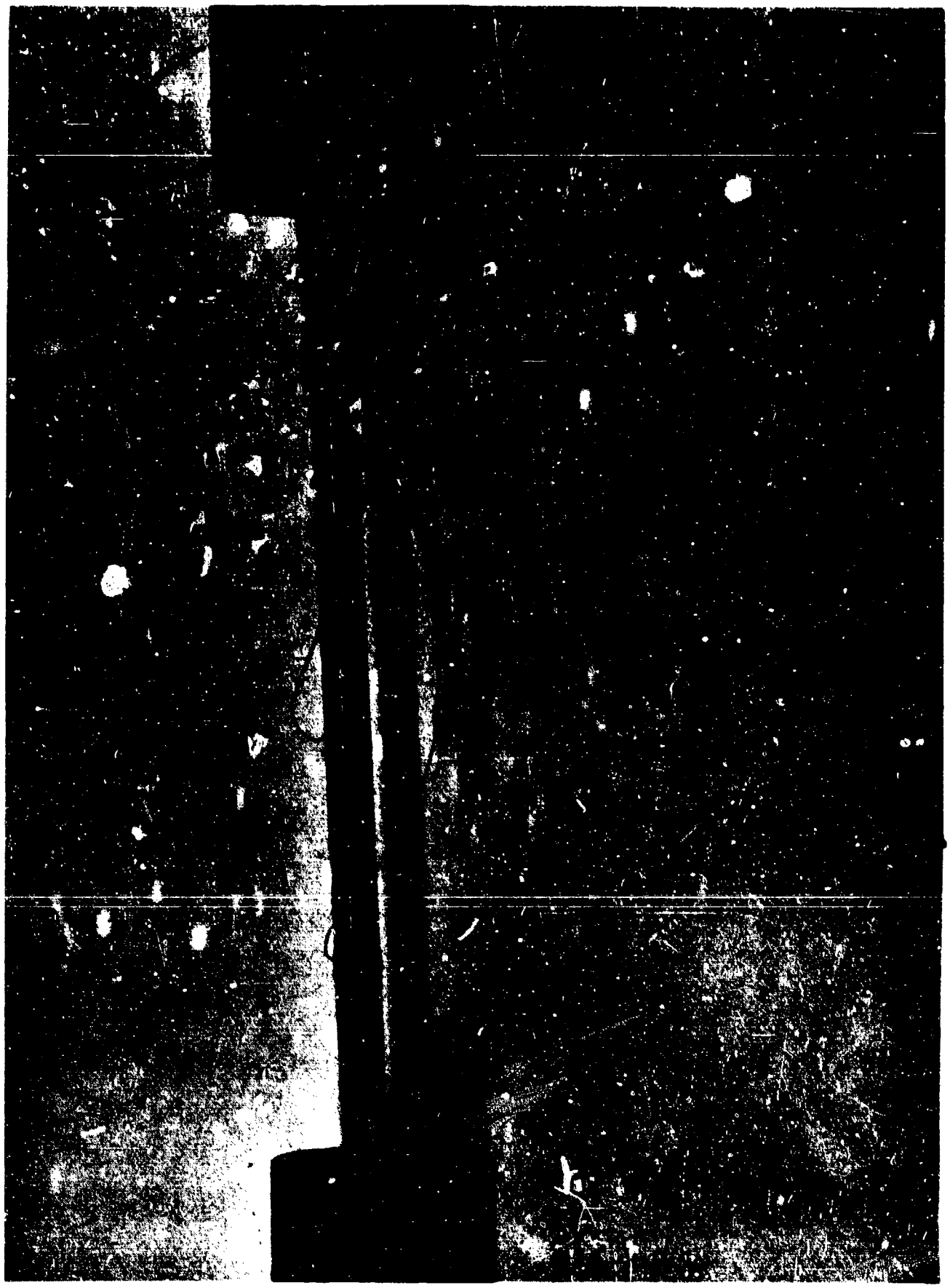


Figure 9. Complete Severance Burnout without Tube Split

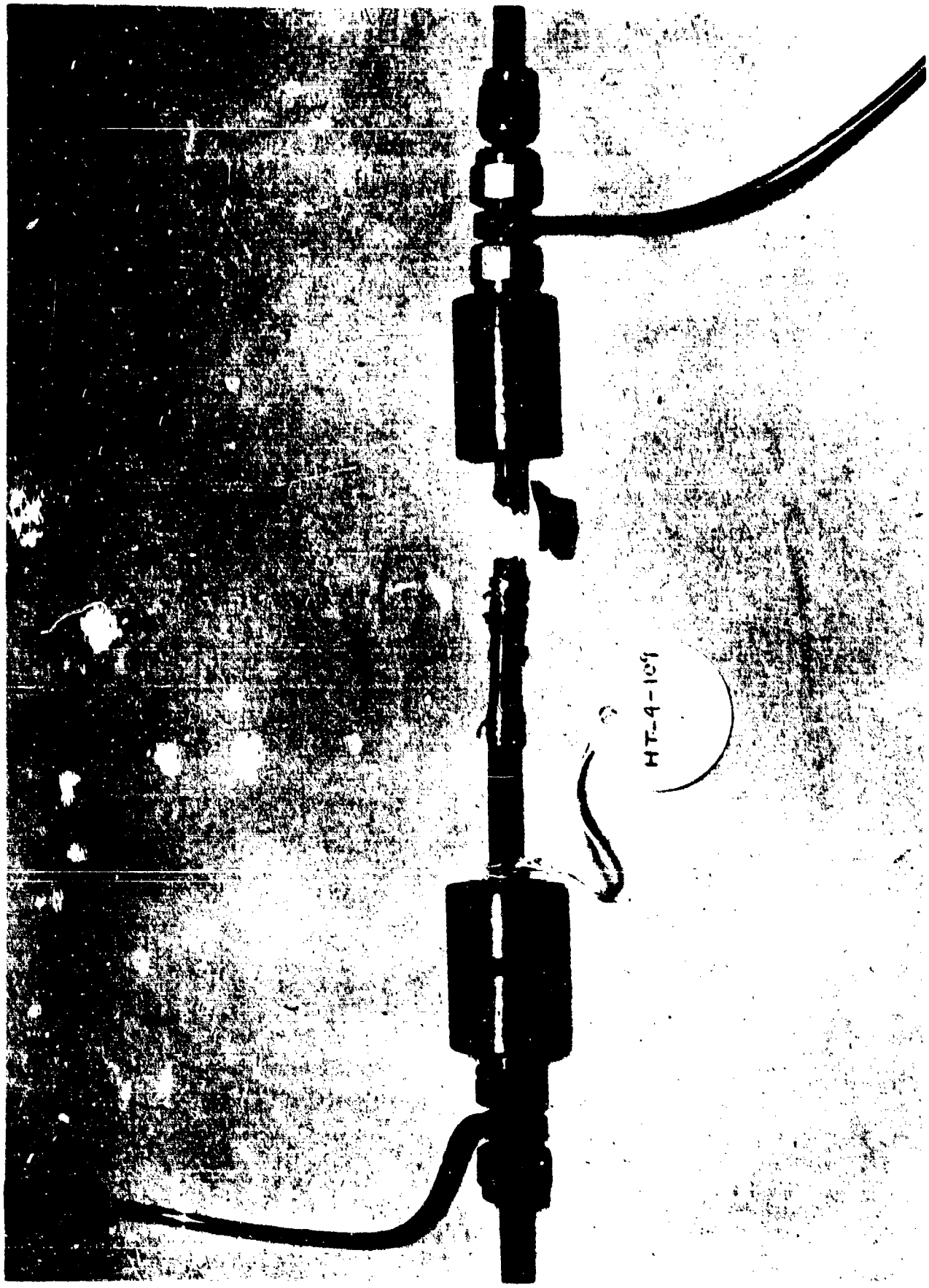


Figure 10. Burnout with Complete Severance at Two Locations

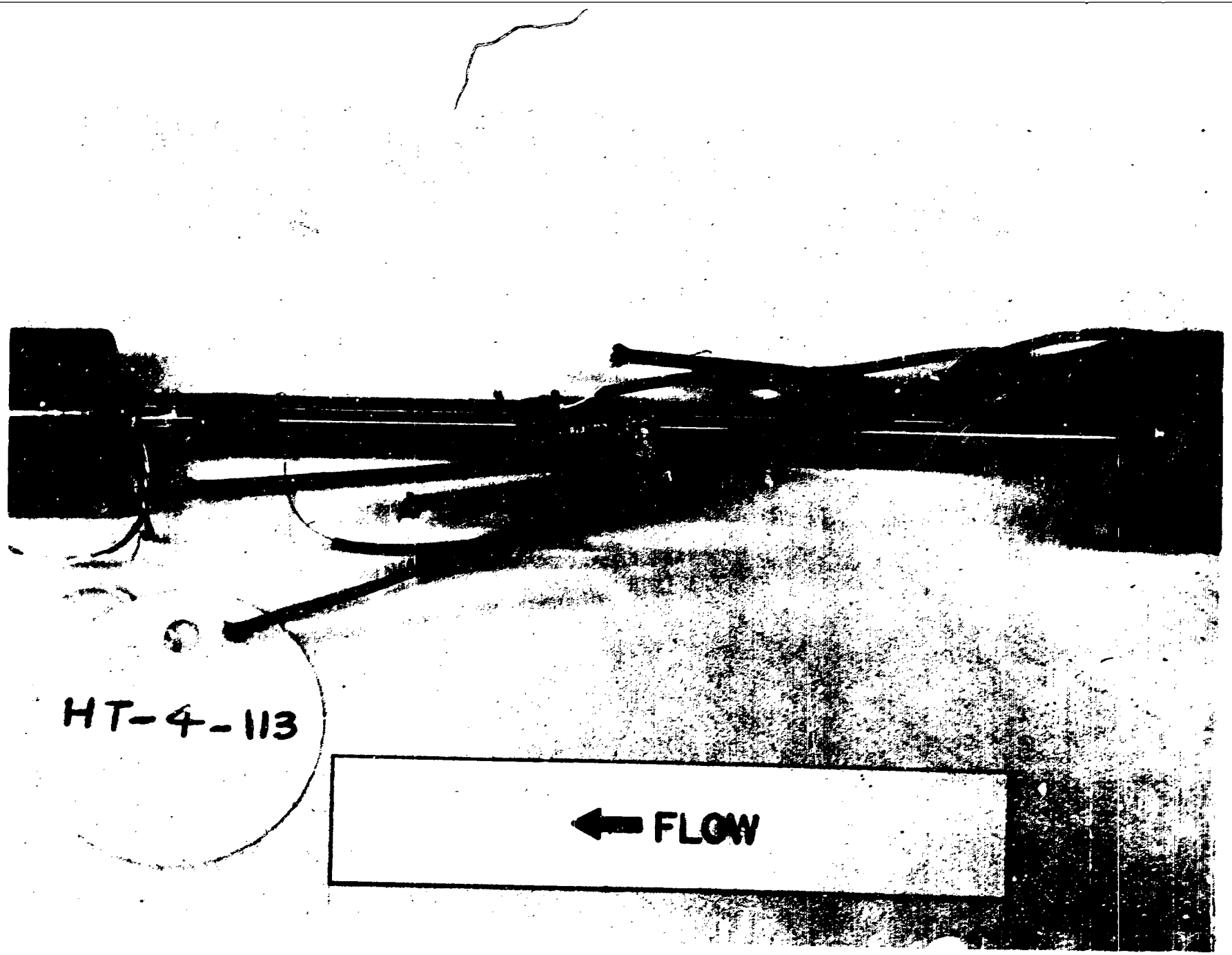


Figure 11. Tube-Split Burnout

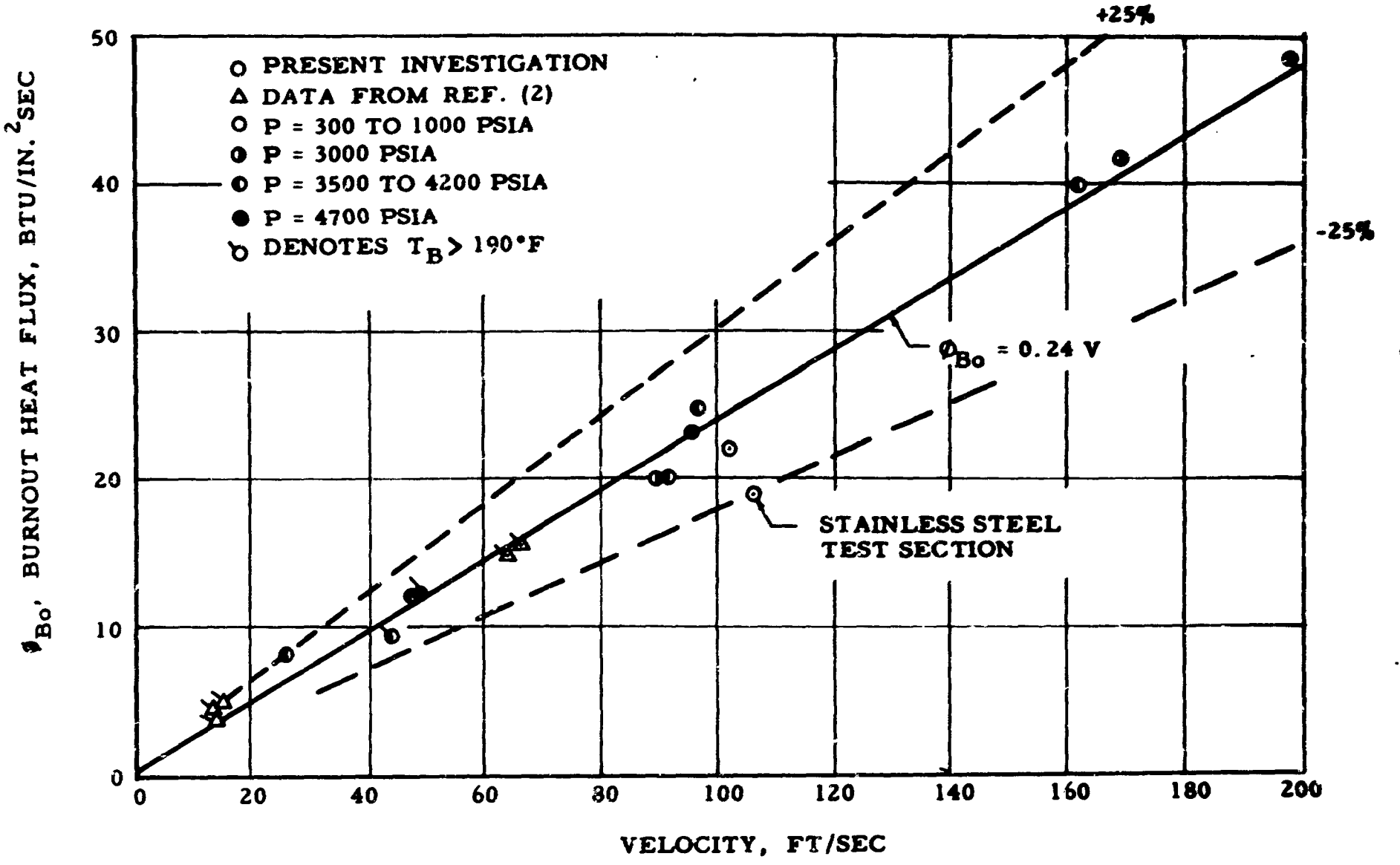


Figure 12. 98% H_2O_2 Burnout Test Results

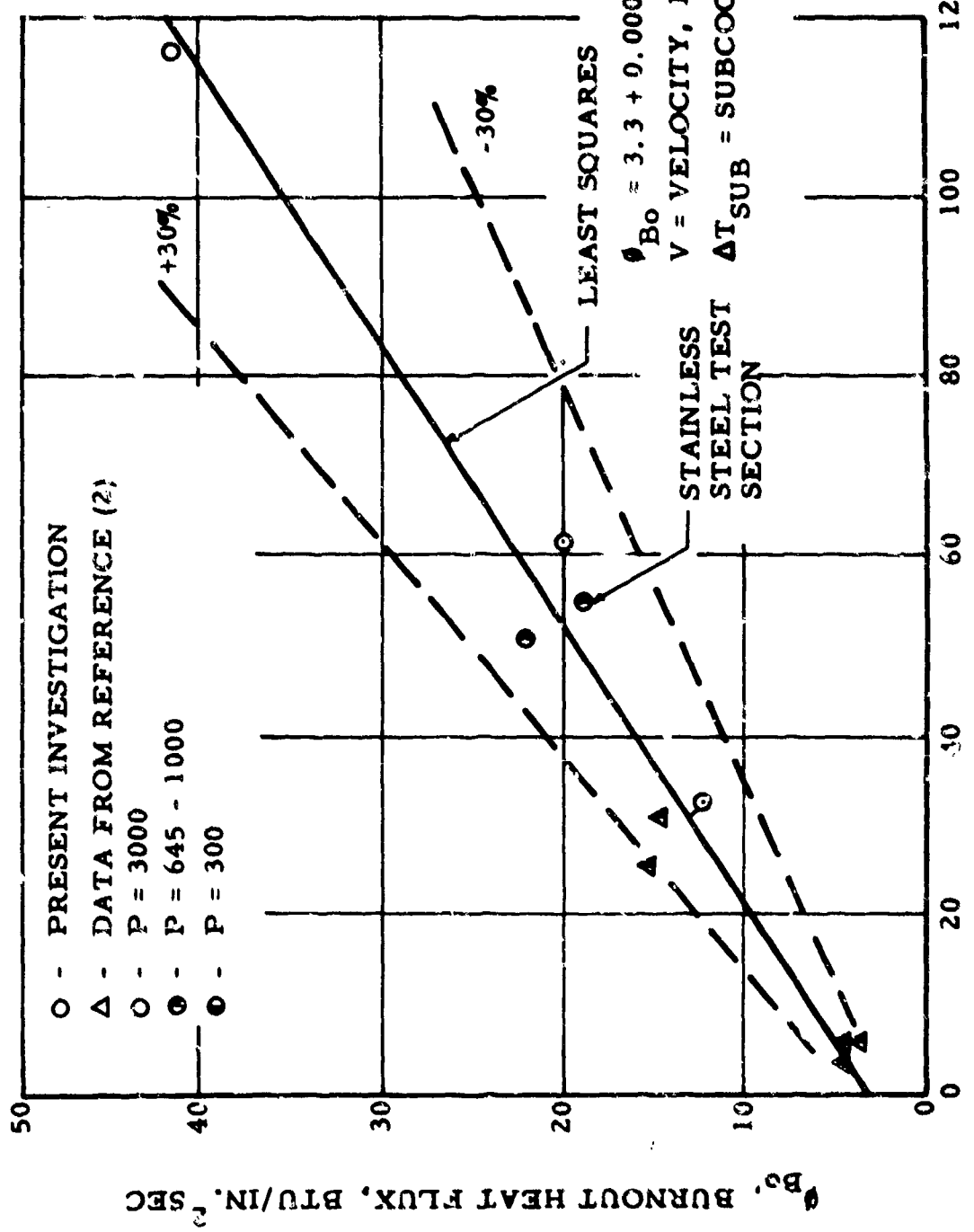
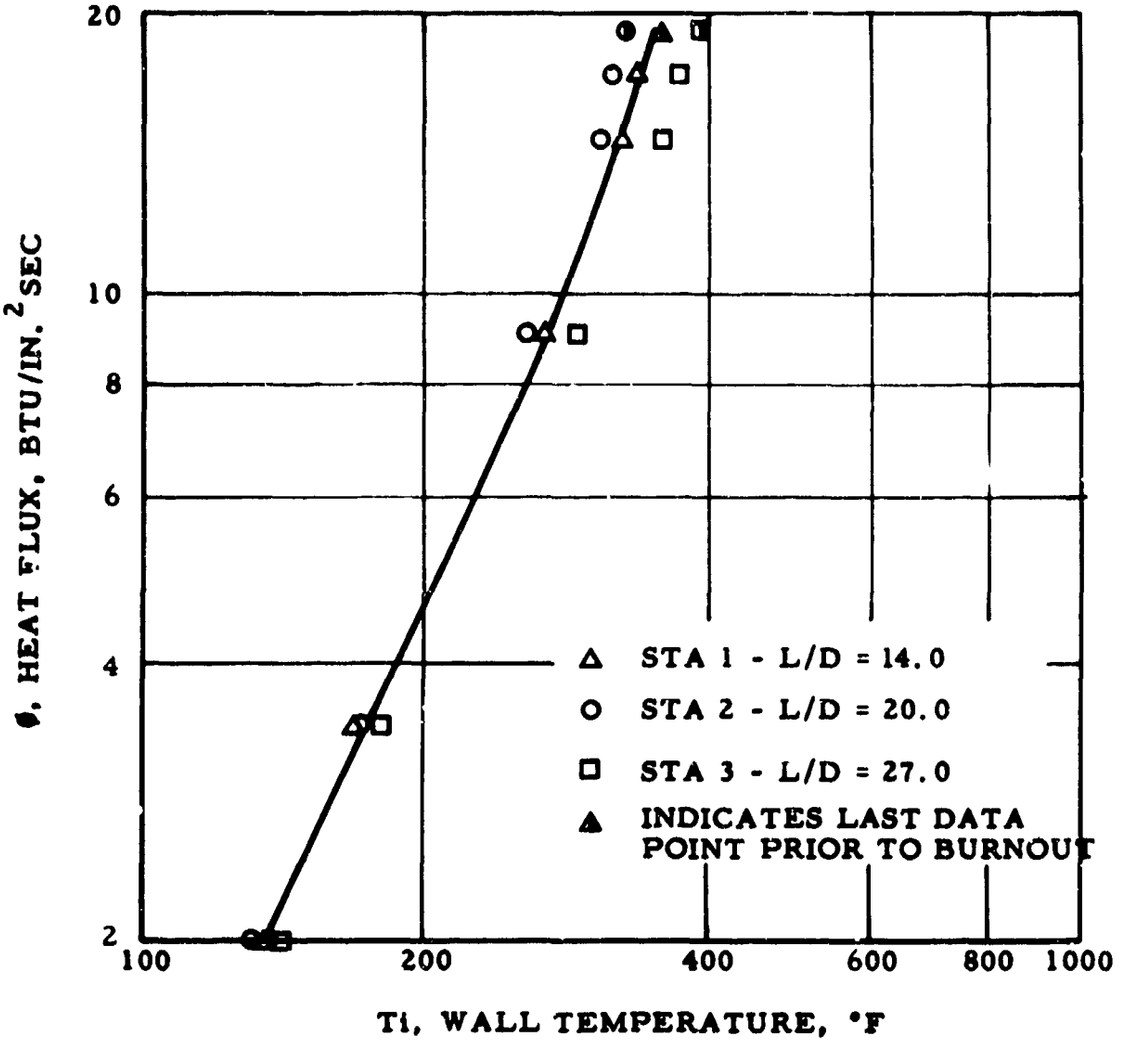


Figure 13. Subcritical 98% H_2O_2 Burnout Test Results

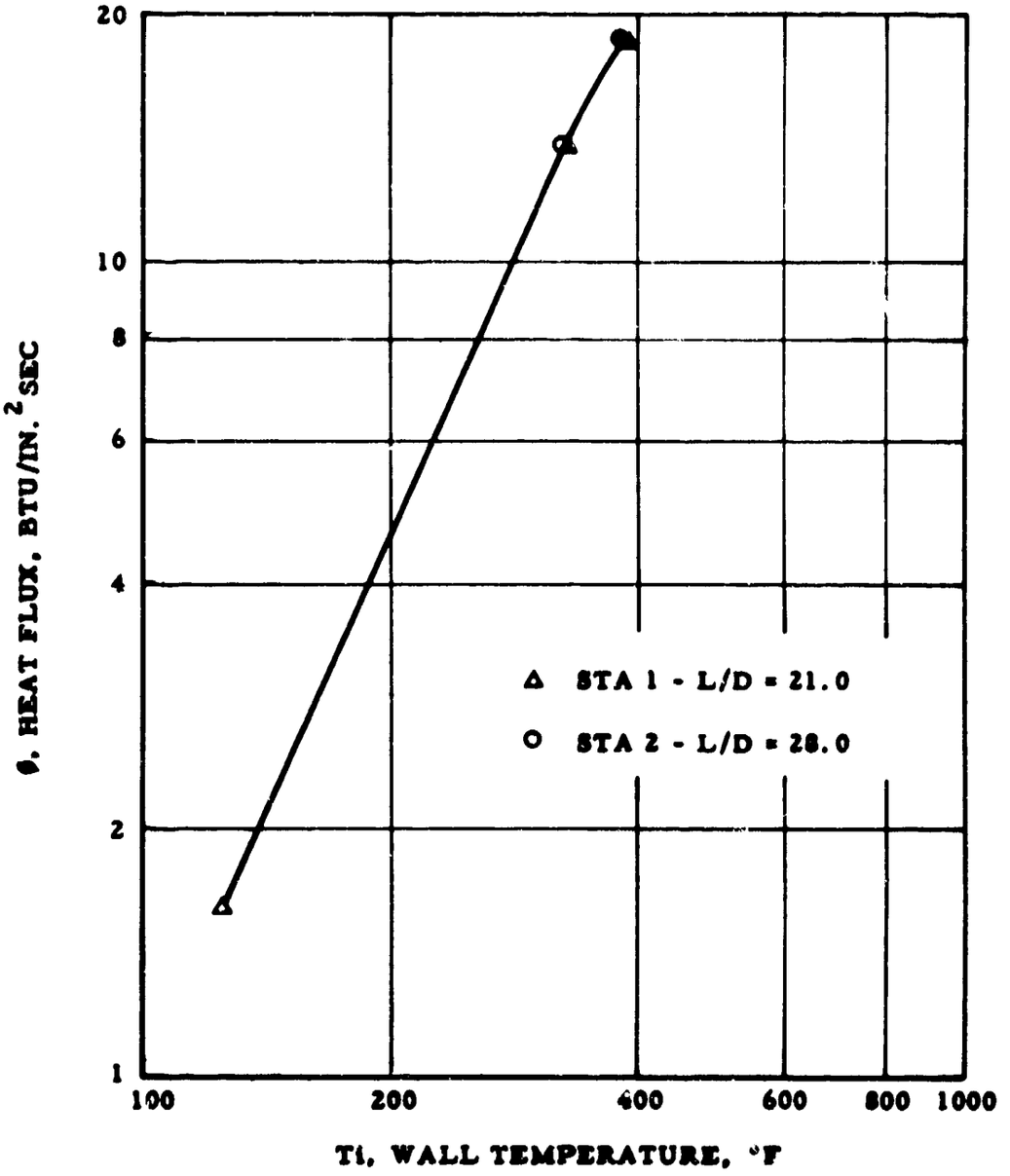


HT-4-134

CONDITIONS AT BURNOUT POINT:

P = 840 PSIA
V = 101.5 FT/SEC
T_b = 156°F
ϕ_{Bo} = 22.0 BTU/IN.² SEC

Figure 14. Subcritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 134

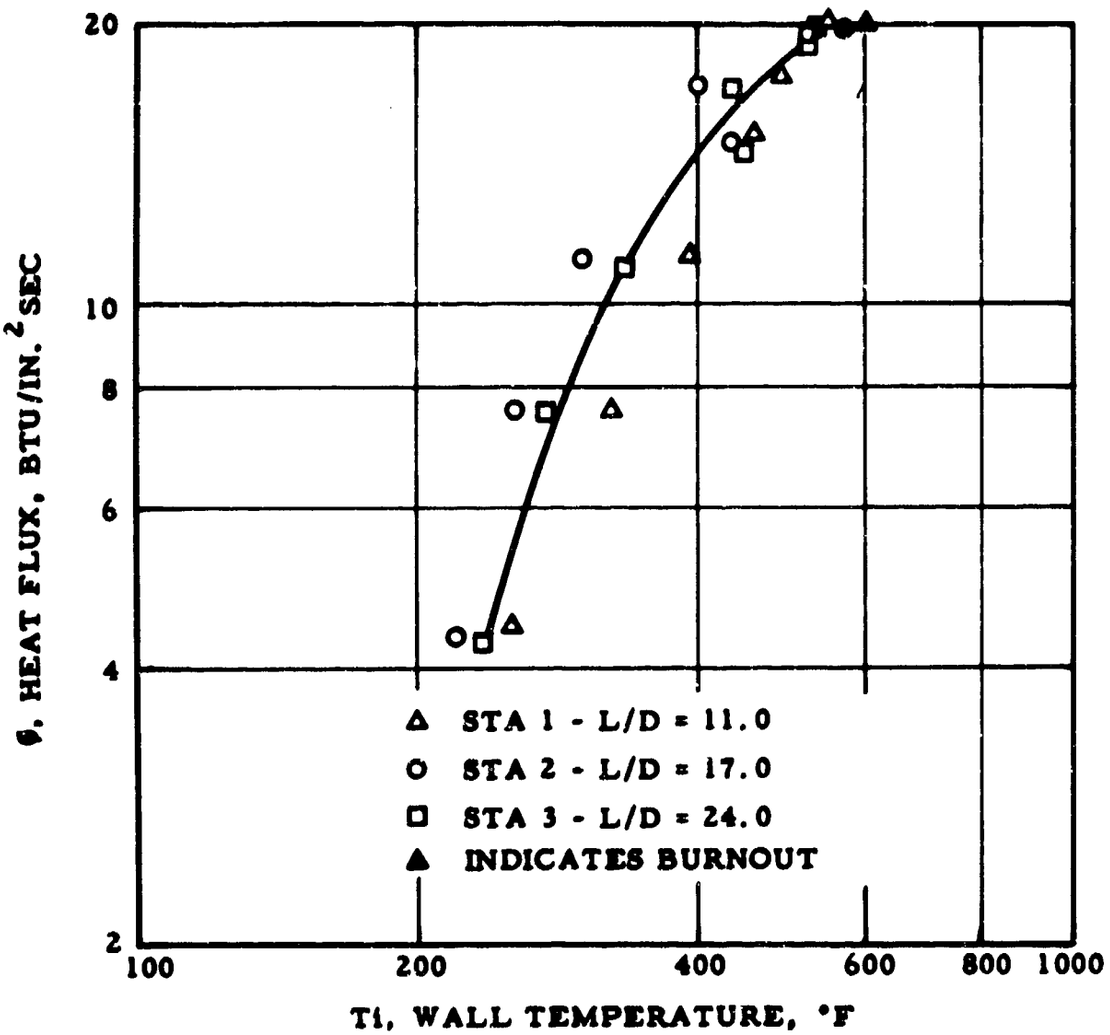


HT-4-139

CONDITIONS AT BURNOUT POINT:

P = 860 PSIA
V = 106.0 FT/SEC
T_b = 147°F
ϕ_{Bo} = 18.6 BTU/IN.²SEC

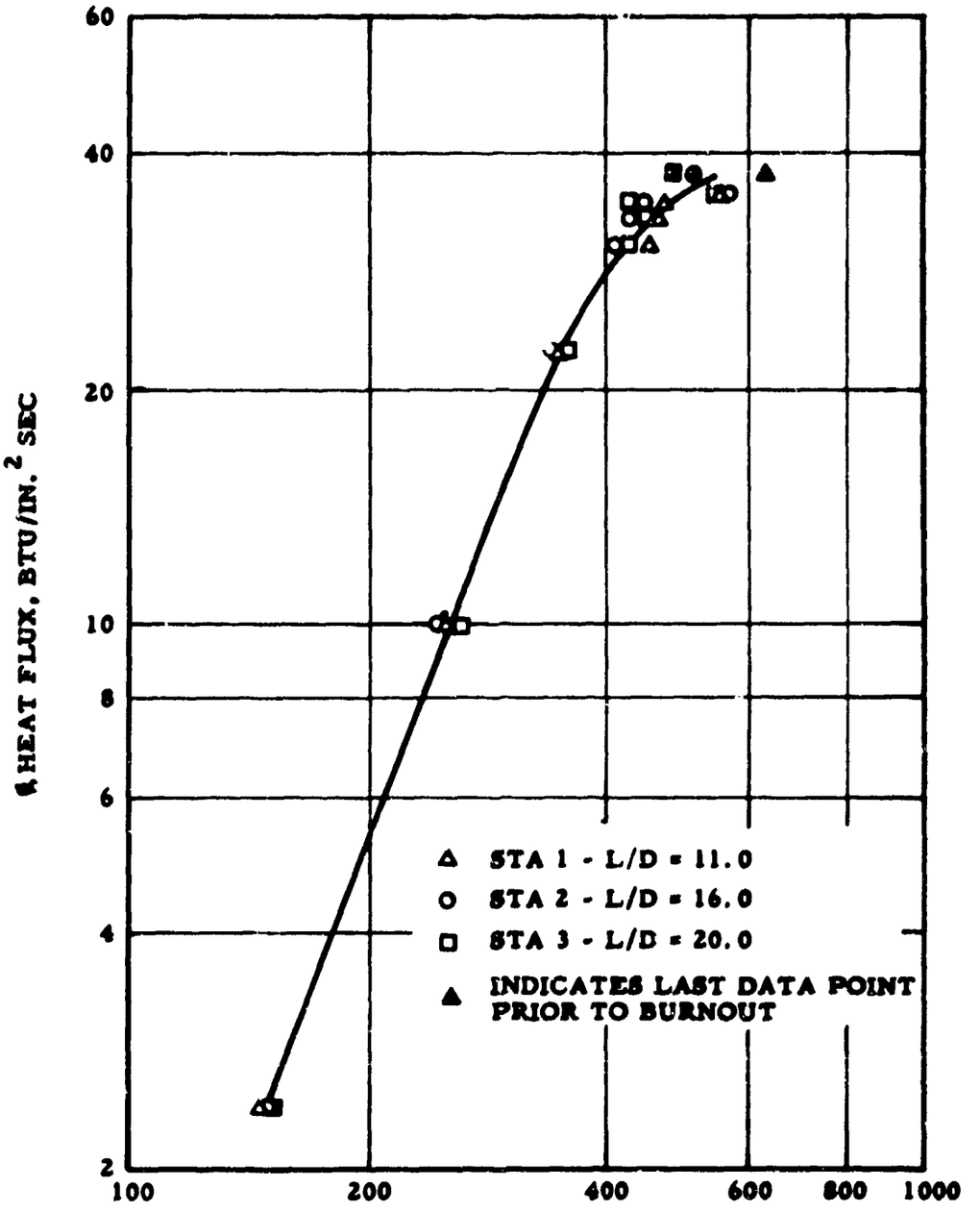
Figure 15. Subcritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 139



CONDITIONS AT BURNOUT POINT:

P = 3020 PSIA
V = 91 FT/SEC
T_b = 176°F
ϕ_{Bo} = 19.6 BTU/IN.^{2} SEC

Figure 16. Subcritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 109



HT-4-110
CONDITIONS AT BURNOUT POINT:

P = 2910 PSIA
V = 169 FT/SEC
T_b = 154°F
ϕ_{Bo} = 41.5 BTU/IN.² SEC

Figure 17. Subcritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 110

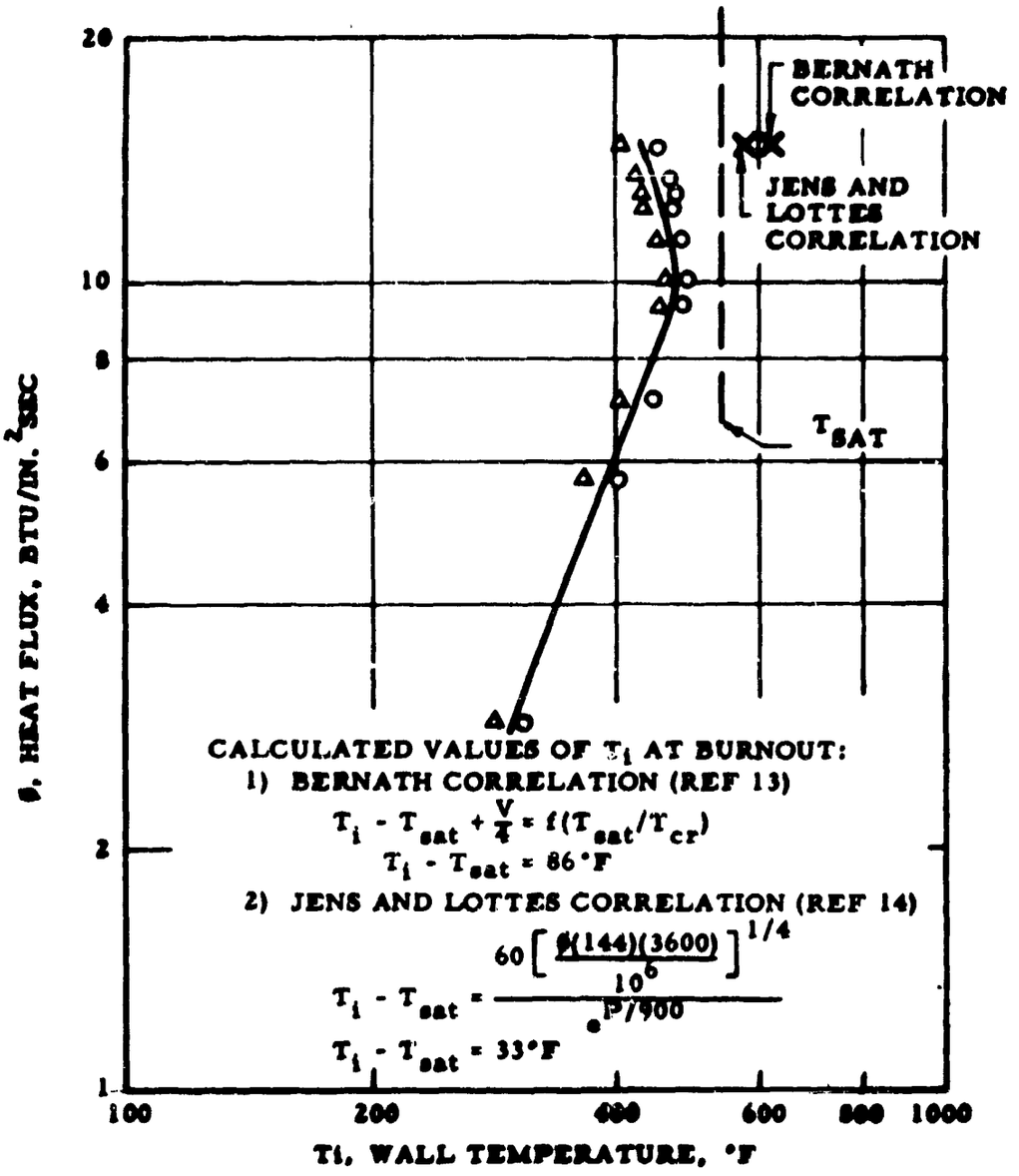
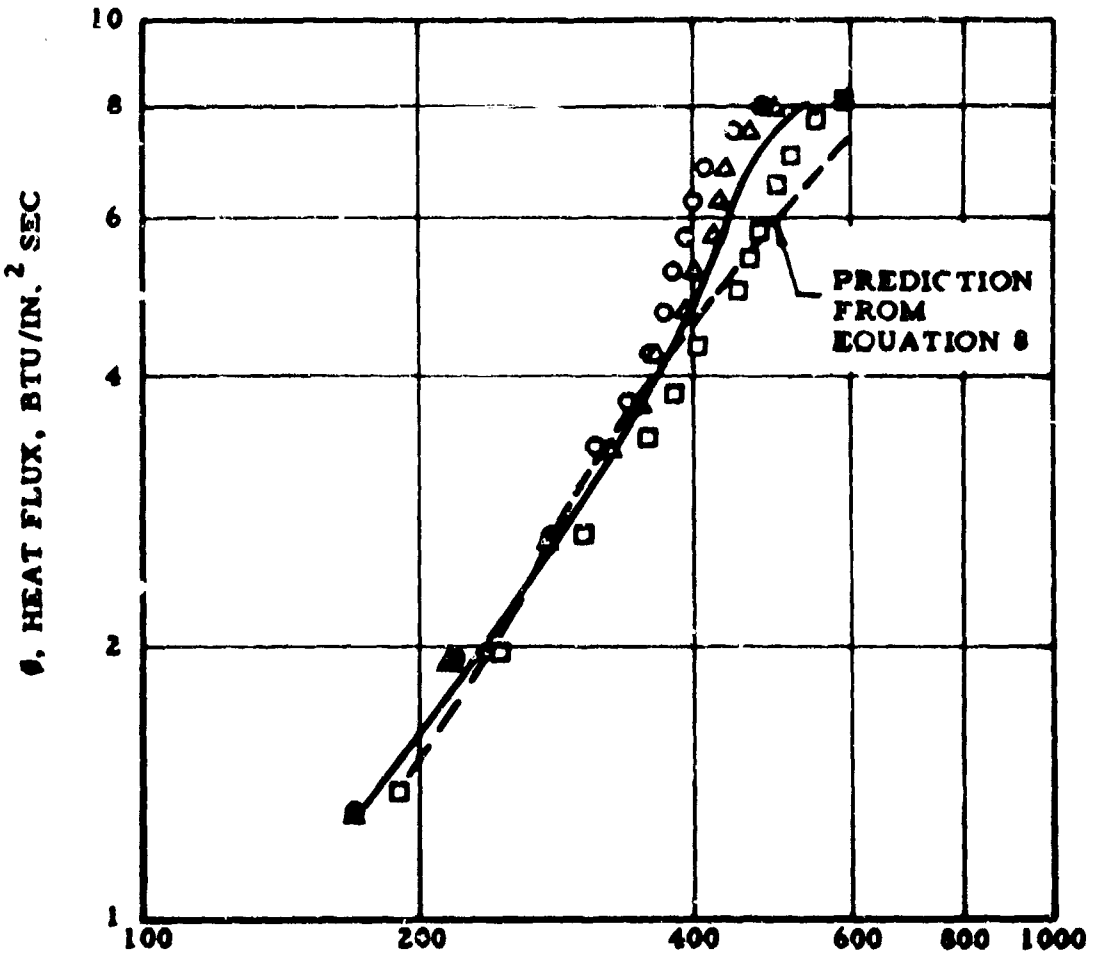


Figure 18. Deionized Water Heat Flux-Wall Temperature Data, Test 106



△ STA 1 - L/D = 13.0

○ STA 2 - L/D = 17.0

□ STA 3 - L/D = 22.0

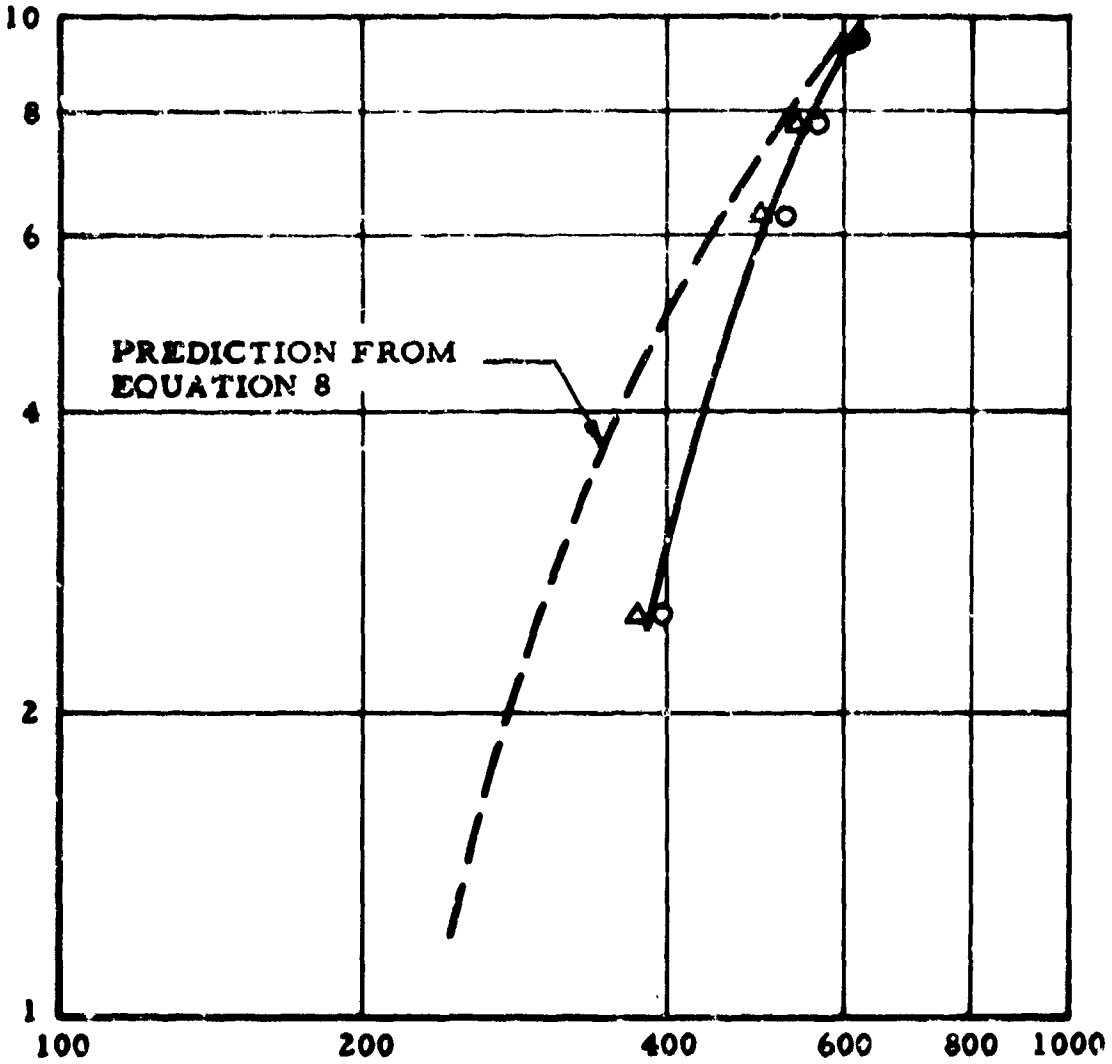
▲ INDICATES BURNOUT

HT-4-113

CONDITIONS AT BURNOUT POINT:

P = 4020 PSIA
V = 25.3 FT/SEC
T_b = 137°F
Φ_{Bo} = 8.1 BTU/IN.² SEC

Figure 19. Supercritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 113



△ STA 1 - L/D = 13.0

○ STA 2 - L/D = 17.0

▲ INDICATES BURNOUT

HT-4-124

CONDITIONS AT BURNOUT POINT:

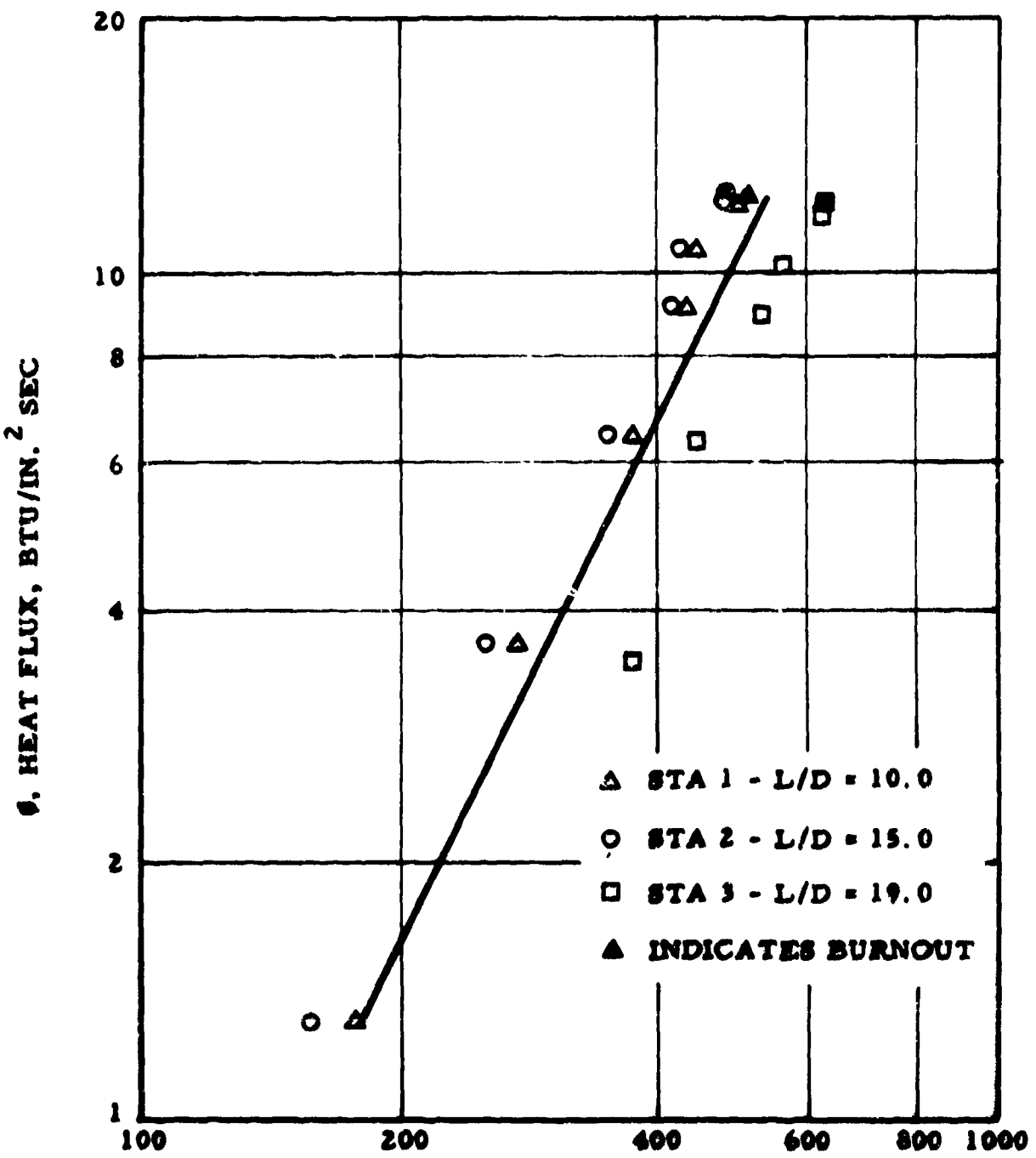
P = 4150 PSIA

V = 44.6

T_b = 235°F

$Ø_{Bo}$ = 9.4 BTU/IN.² SEC

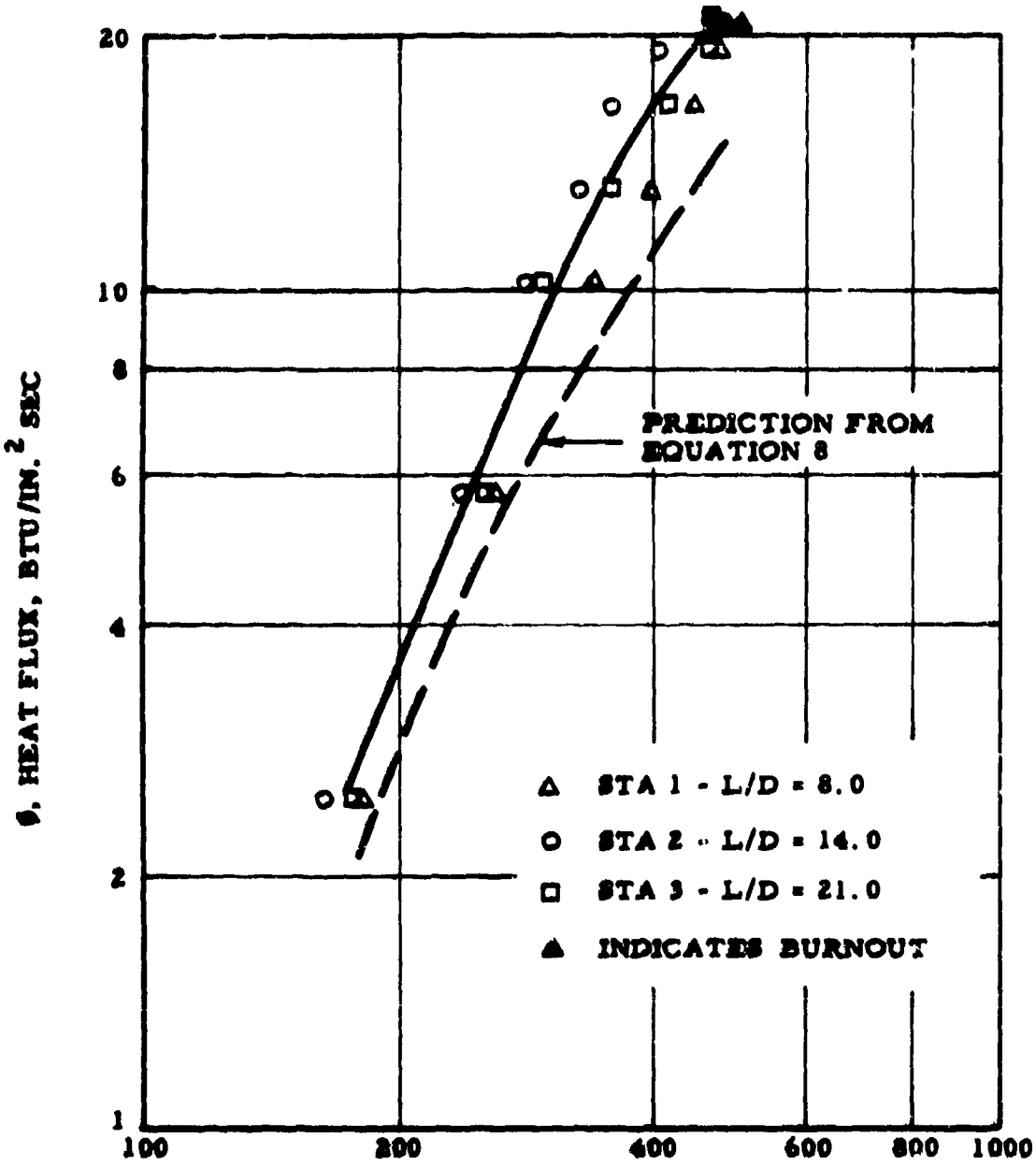
Figure 20. Supercritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 124



HT-4-112
CONDITIONS AT BURNOUT POINT:

P = 3950 PSIA
V = 47.9 FT/SEC
T_b = 170°F
$Ø_{Bo}$ = 12.0 BTU/IN.² SEC

Figure 21. Supercritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 112



MT-4-116

CONDITIONS AT BURNOUT POINT:

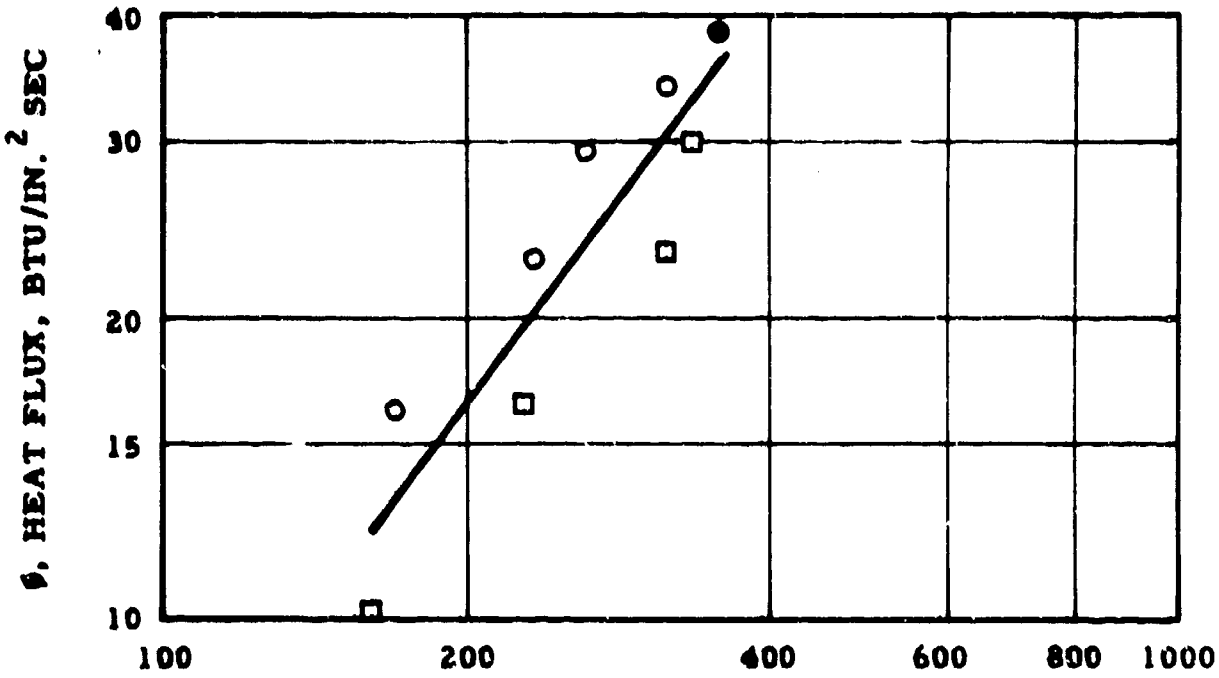
P = 3930 PSIA

V = 91.5 FT/SEC

T_b = 156°F

ϕ_{Bo} = 20.7 BTU/IN.^{2} SEC

Figure 22. Supercritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 116



○ STA 2 - L/D = 21.0

□ STA 3 - L/D = 27.0

● INDICATES BURNOUT

HT-4-114

CONDITIONS AT BURNOUT POINT:

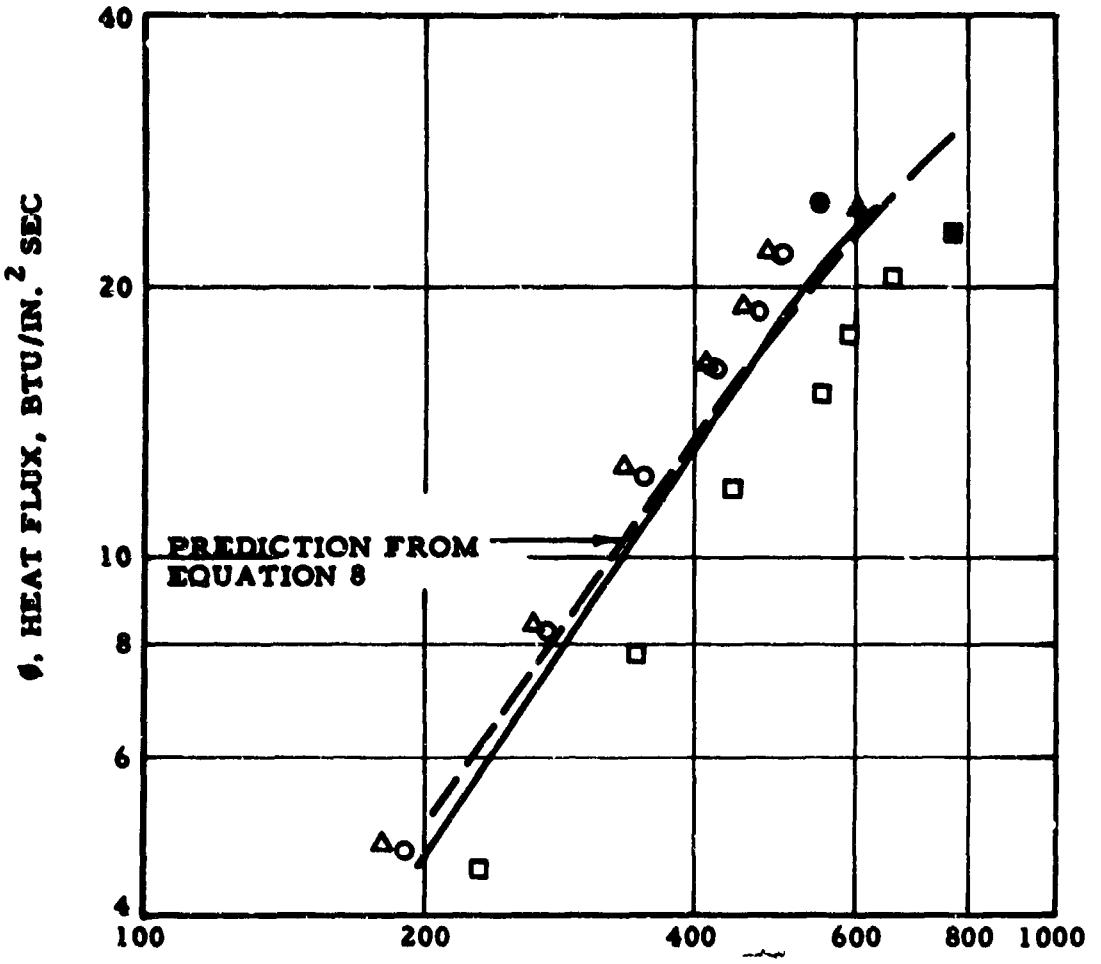
P = 3750 PSIA

V = 161.5 FT/SEC

T_b = 144°F

ϕ_{Bo} = 39.6 BTU/IN.^{2} SEC

Figure 23. Supercritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 114



△ STA 1 - L/D = 17.0

○ STA 2 - L/D = 24.0

□ STA 3 - L/D = 30.0

▲ INDICATES BURNOUT

HT-4-115

CONDITIONS AT BURNOUT POINT:

P = 4700 PSIA

V = 95.5 FT/SEC

T_b = 153°F

ϕ_{Bo} = 23.0 BTU/IN.^{2} SEC

Figure 24. Supercritical 98% H_2O_2 Heat Flux-Wall Temperature Data, Test 115

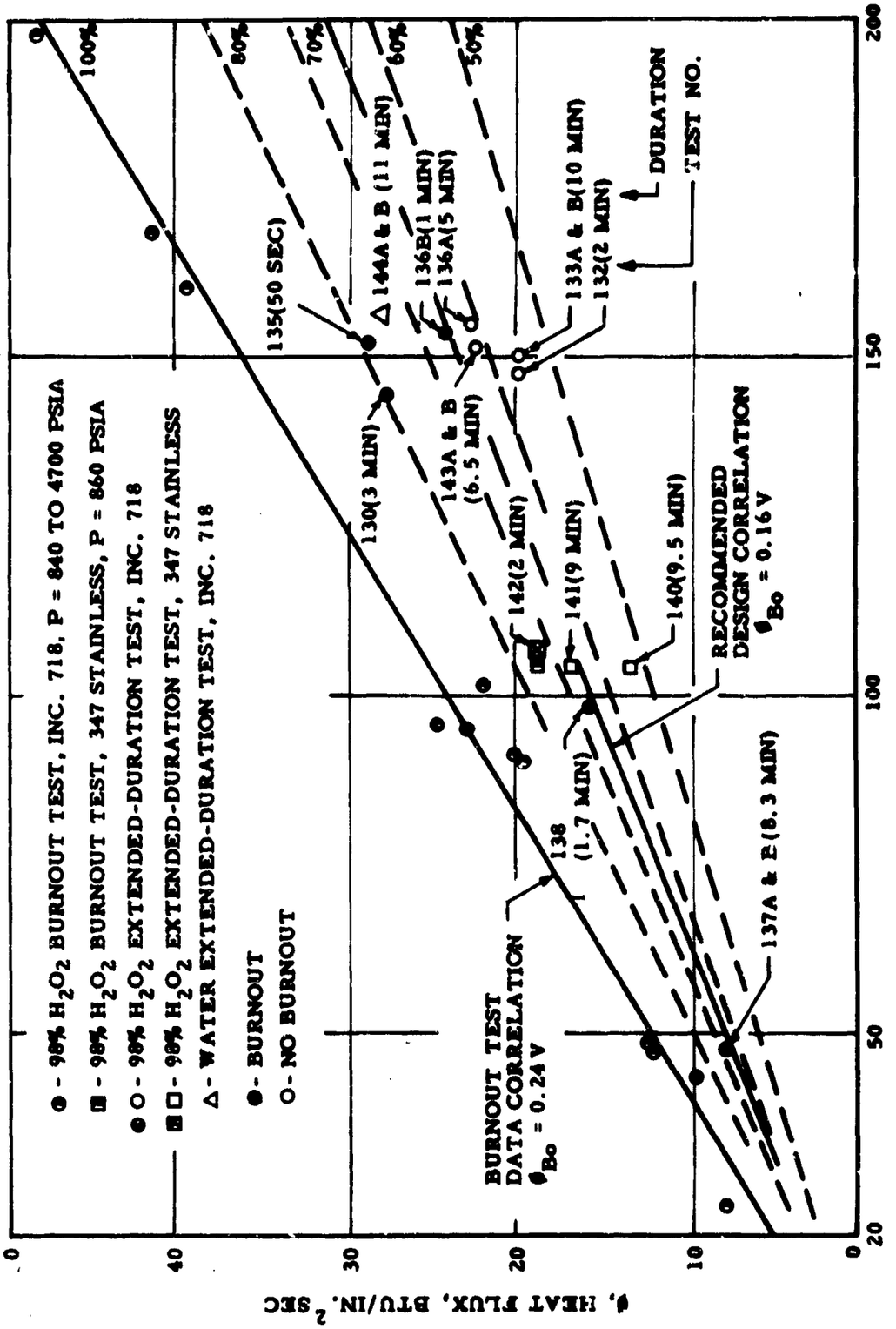


Figure 25. Extended-Duration Test Results

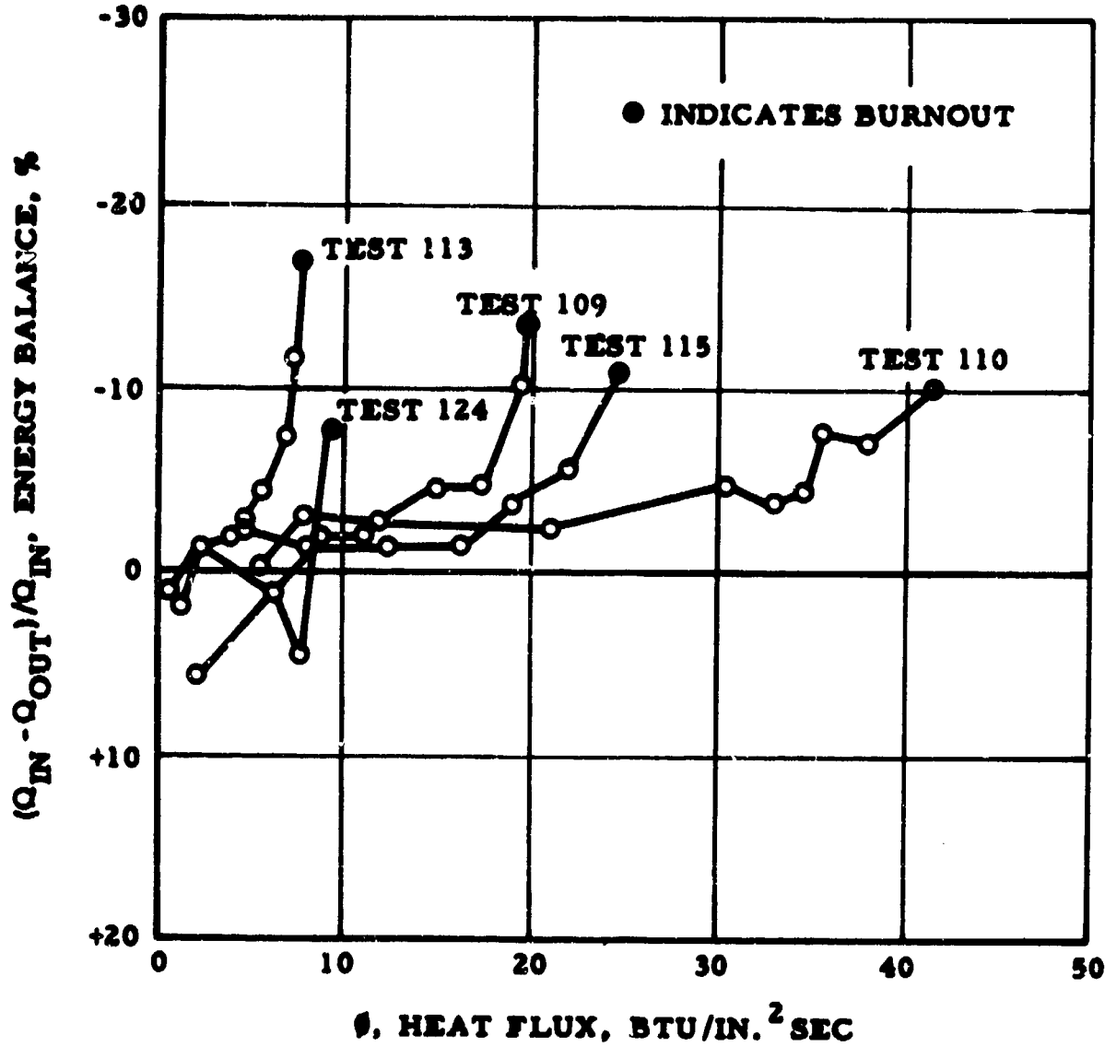


Figure 26. Burnout Test-Energy Balances

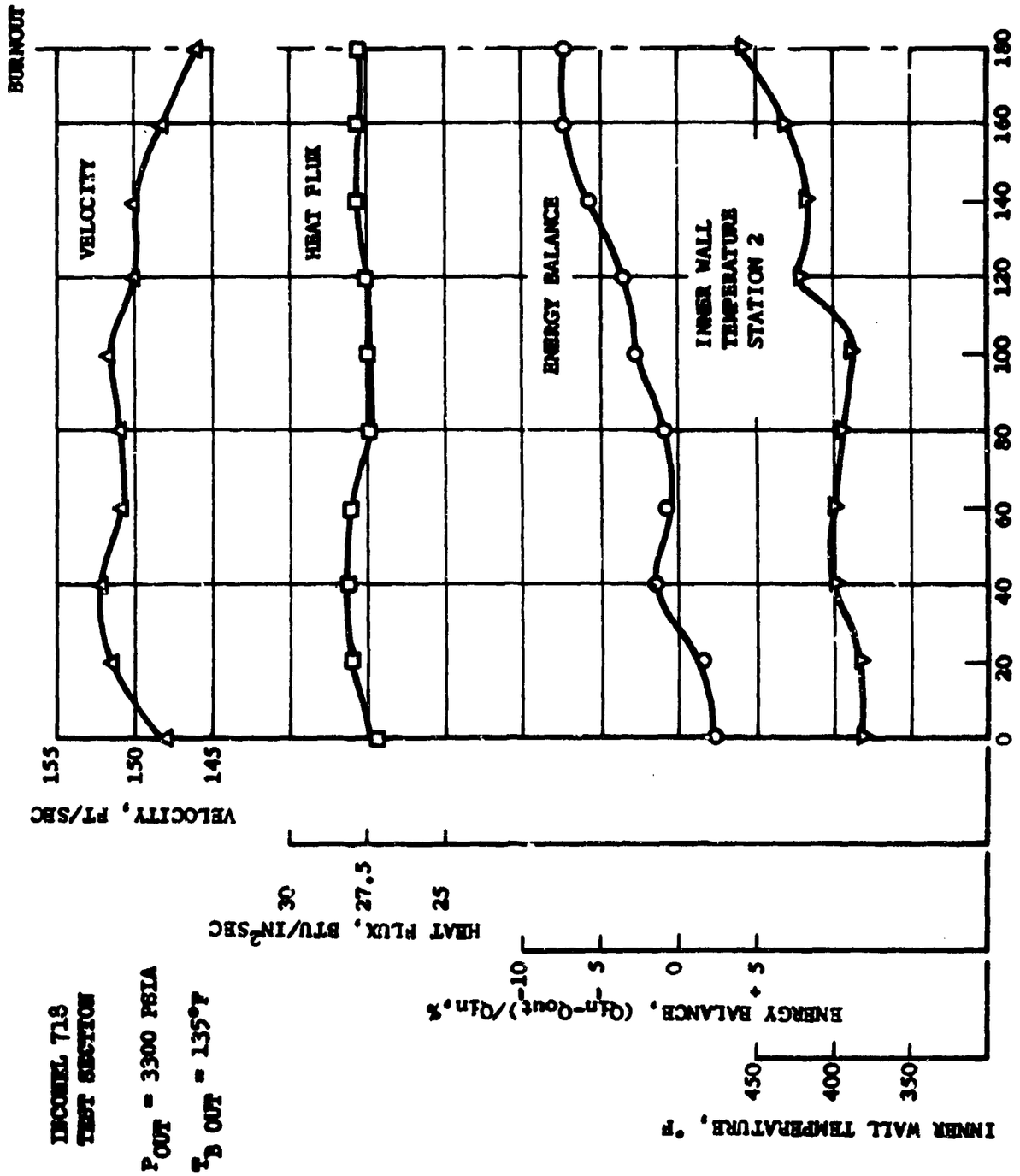


Figure 27. 98% H_2O_2 Extended-Duration Test Parameters, Test 130

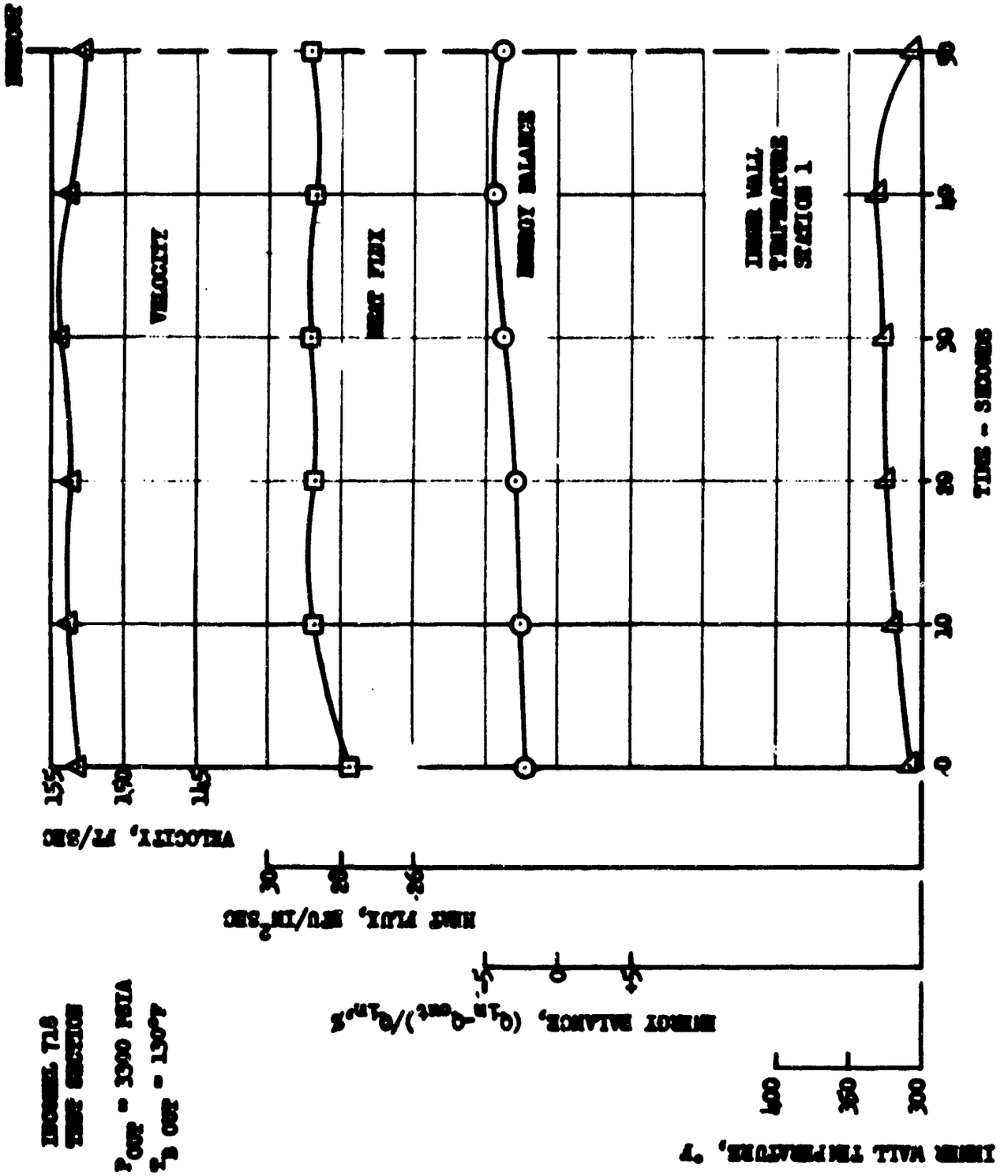


Figure 28. 98% H_2O_2 Extended-Duration Test Parameters, Test 135

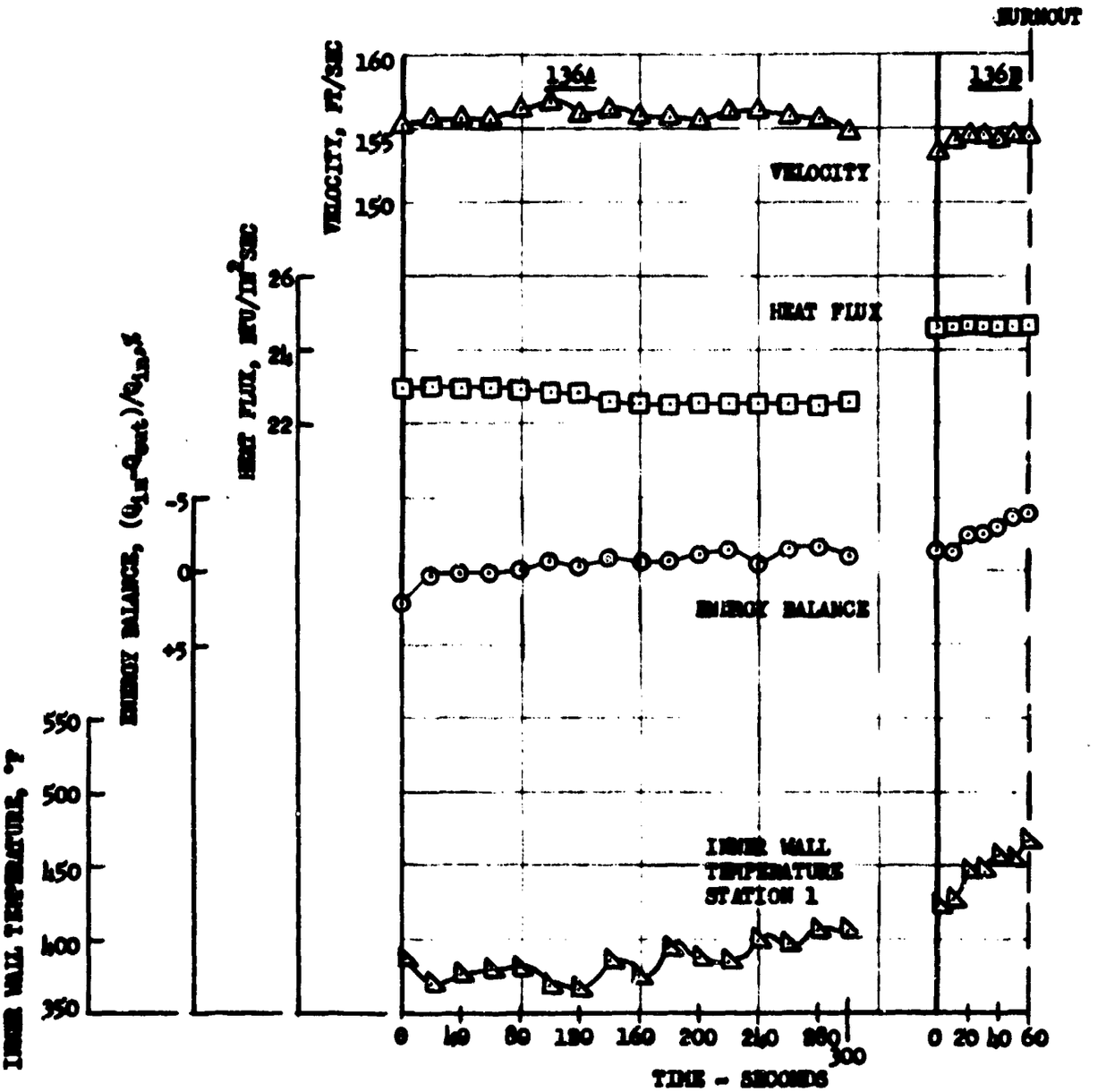


Figure 29. 98% H_2O_2 Extended-Duration Test Parameters, Test 136

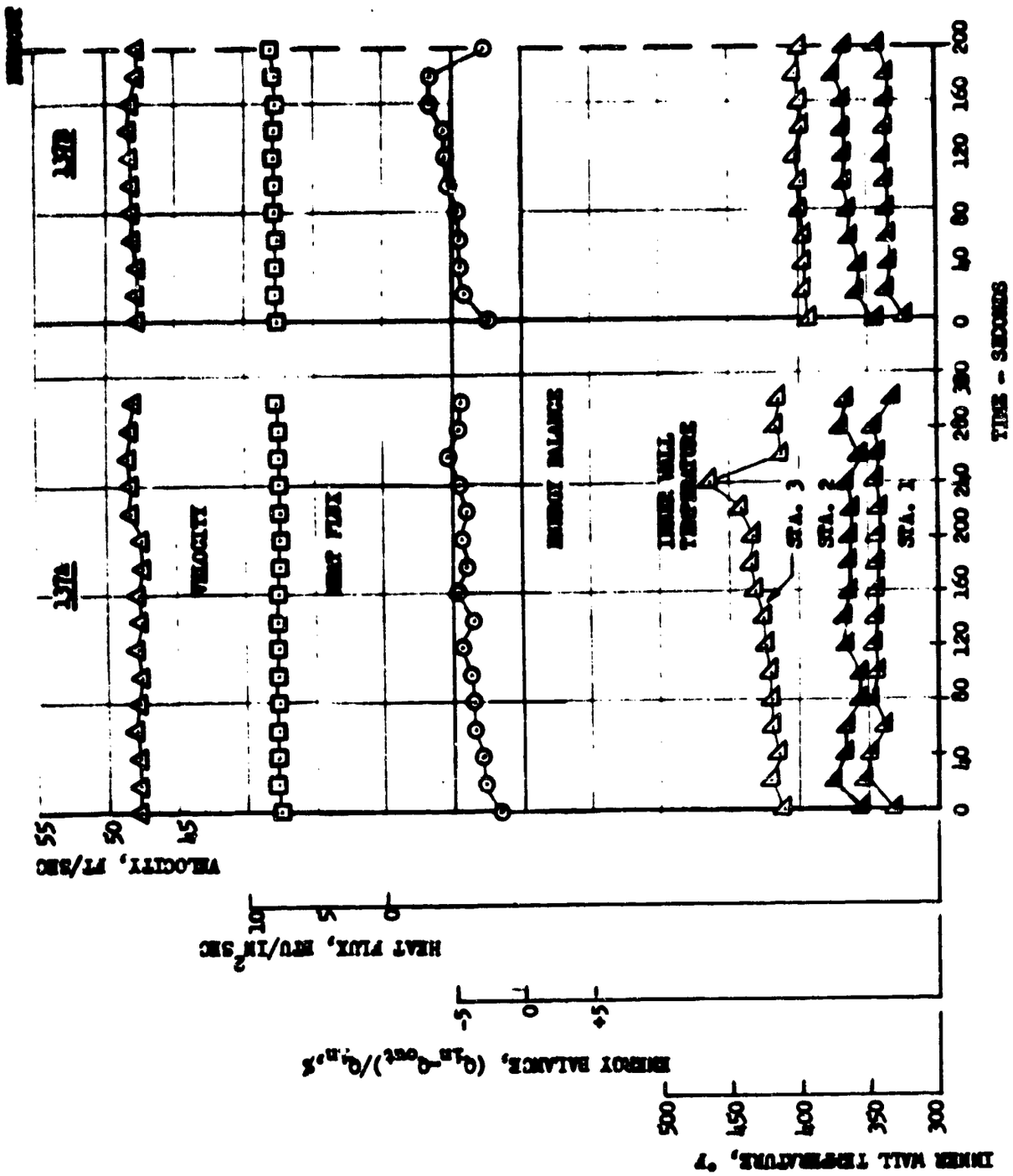


Figure 30. 90% H_2O_2 Extended-Duration Test Parameters, Test 137

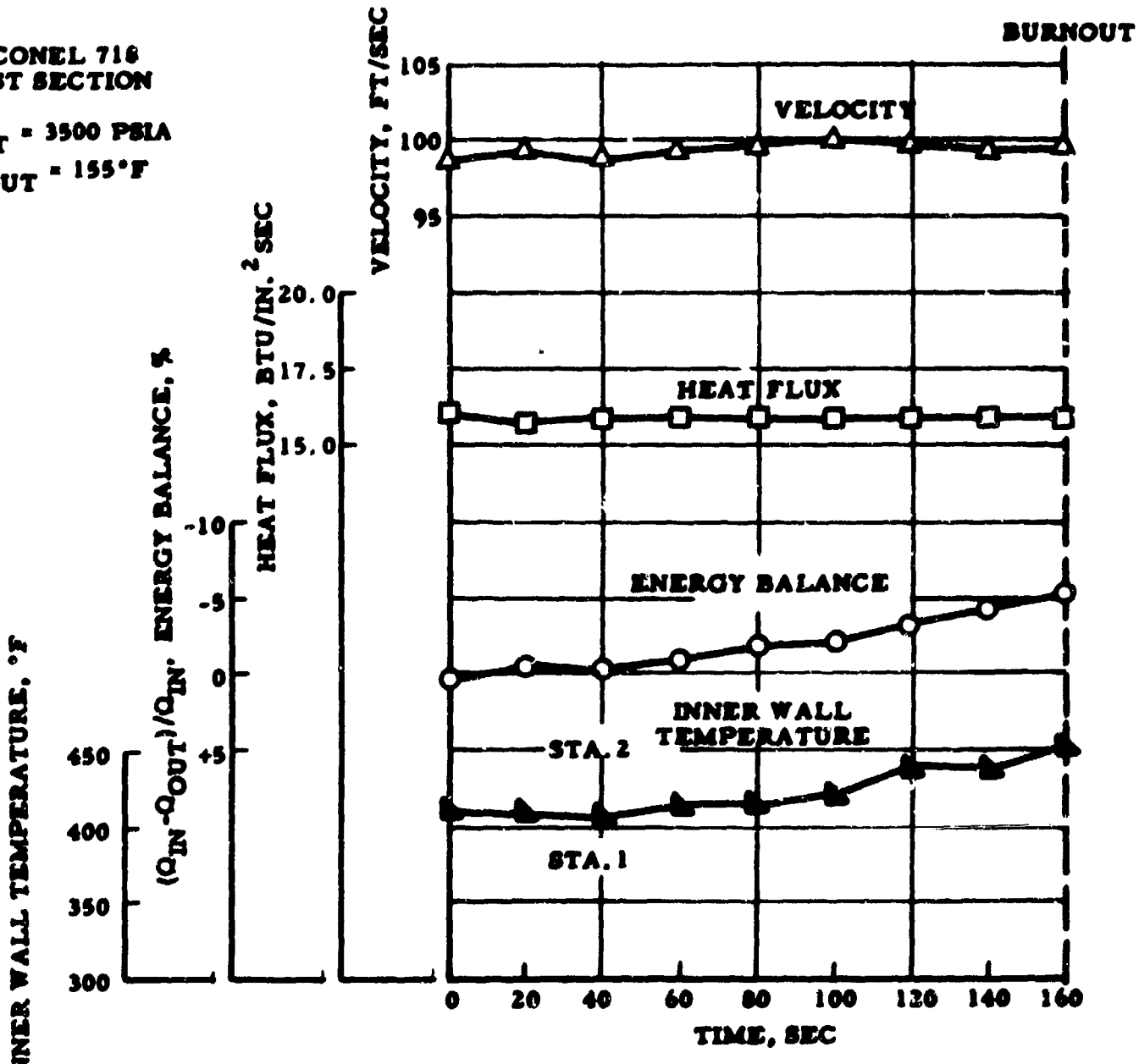


Figure 31. 98% H_2O_2 Extended-Duration Test Parameters, Test 138

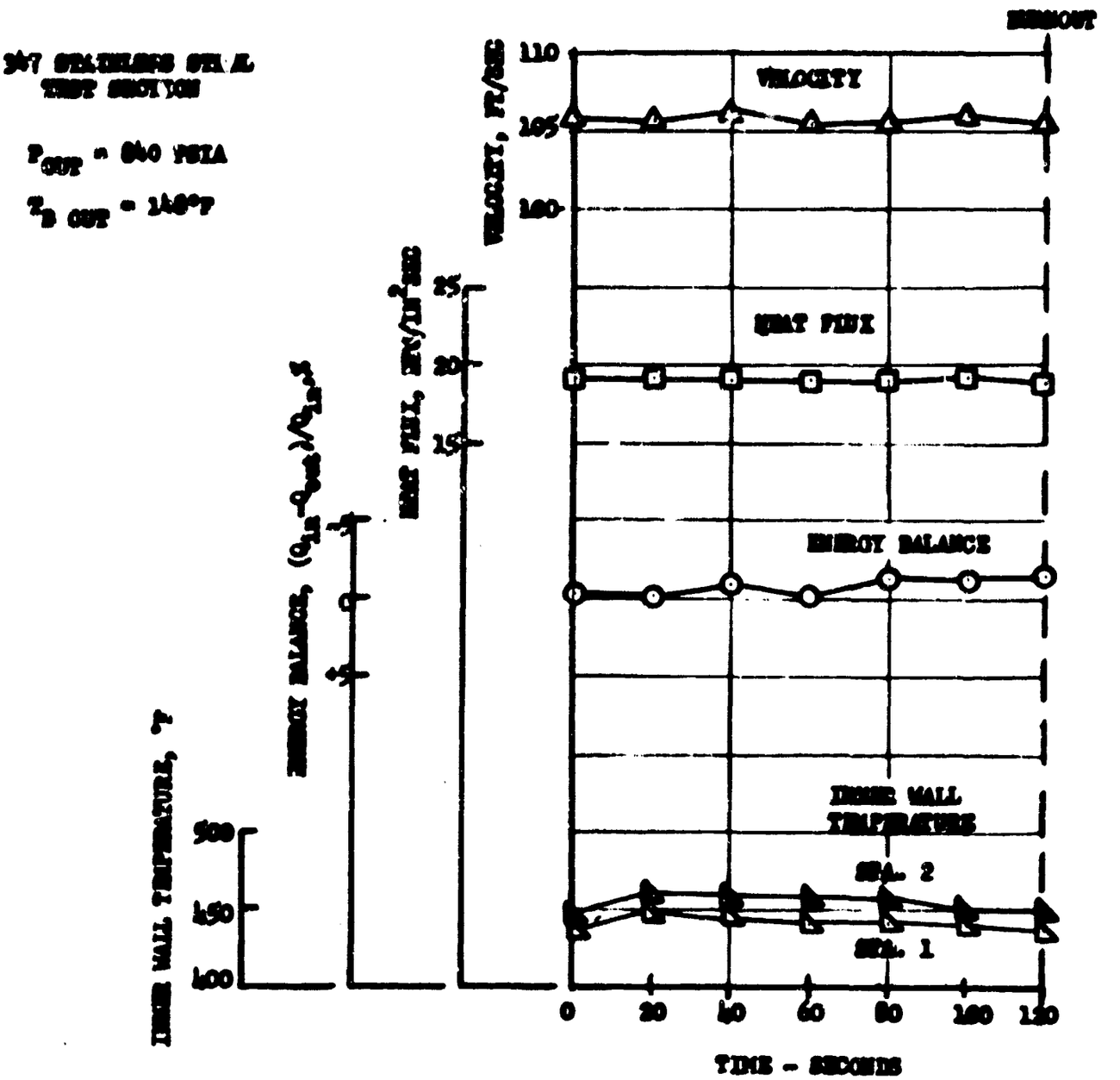


Figure 32. 98% H_2O_2 Extended-Duration Test Parameters, Test 142

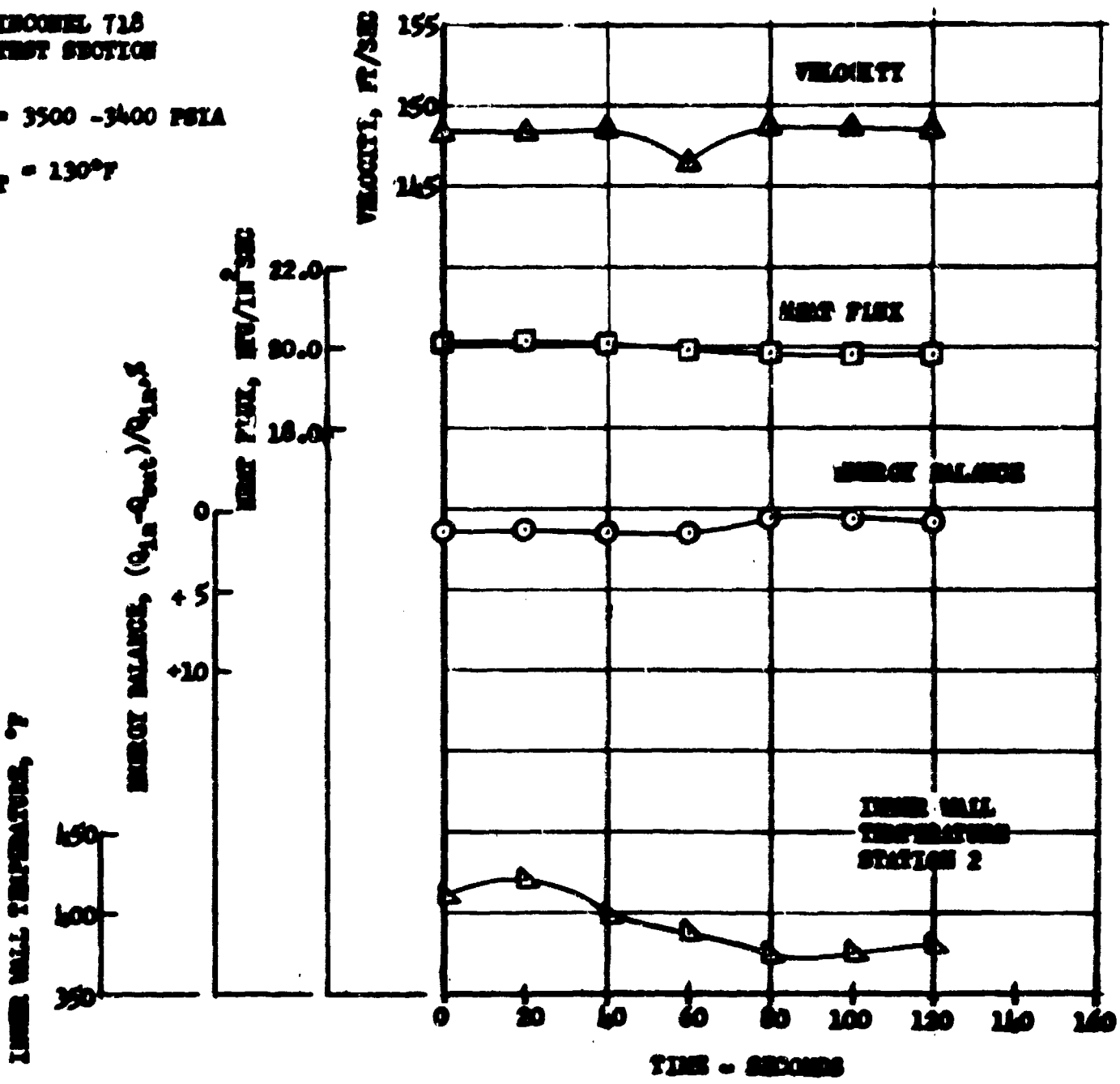


Figure 33. 98% H_2O_2 Extended-Duration Test Parameters, Test 132

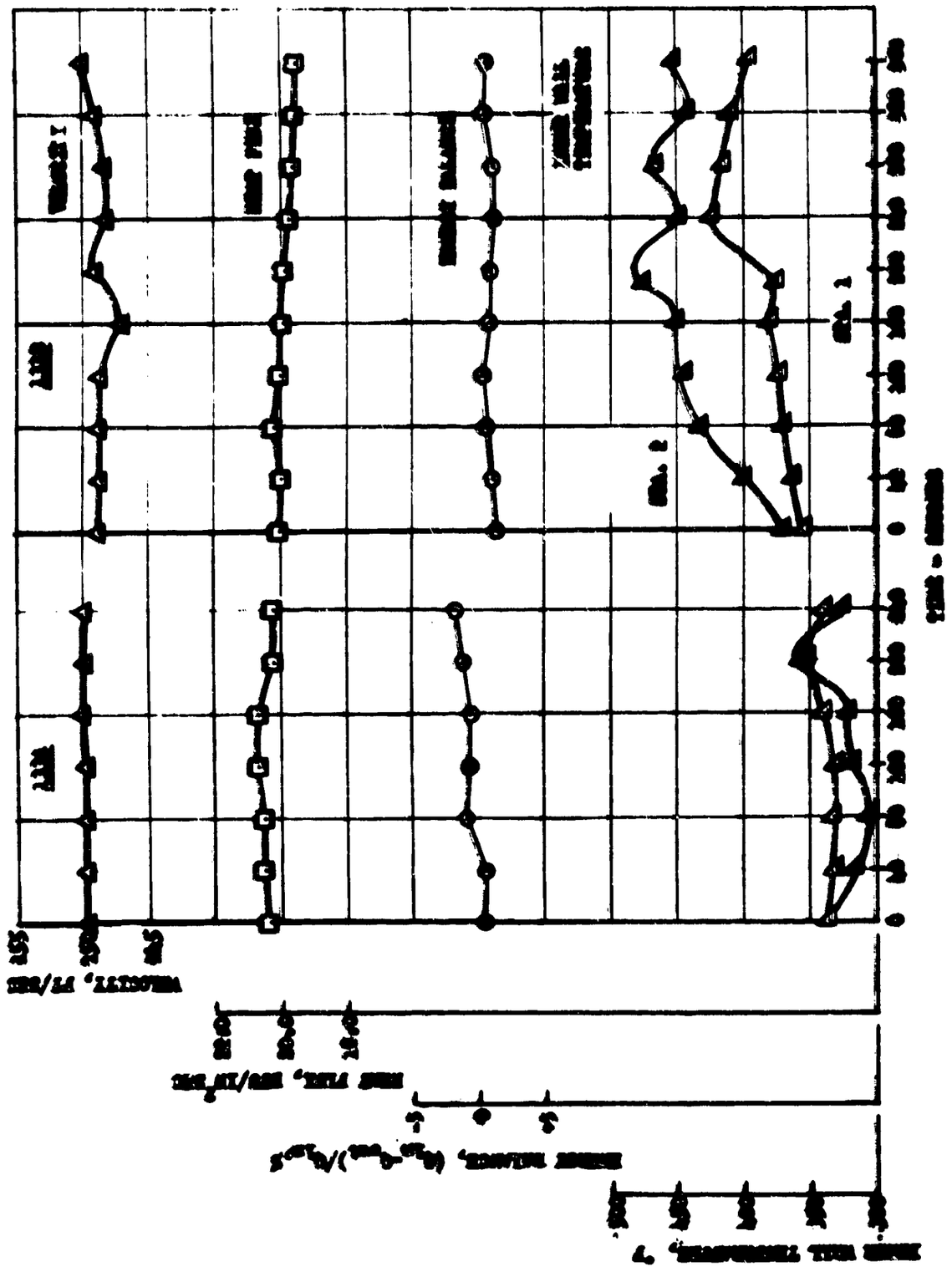


Figure 34. 98% H_2O_2 Extended-Duration Test Parameters, Test 133

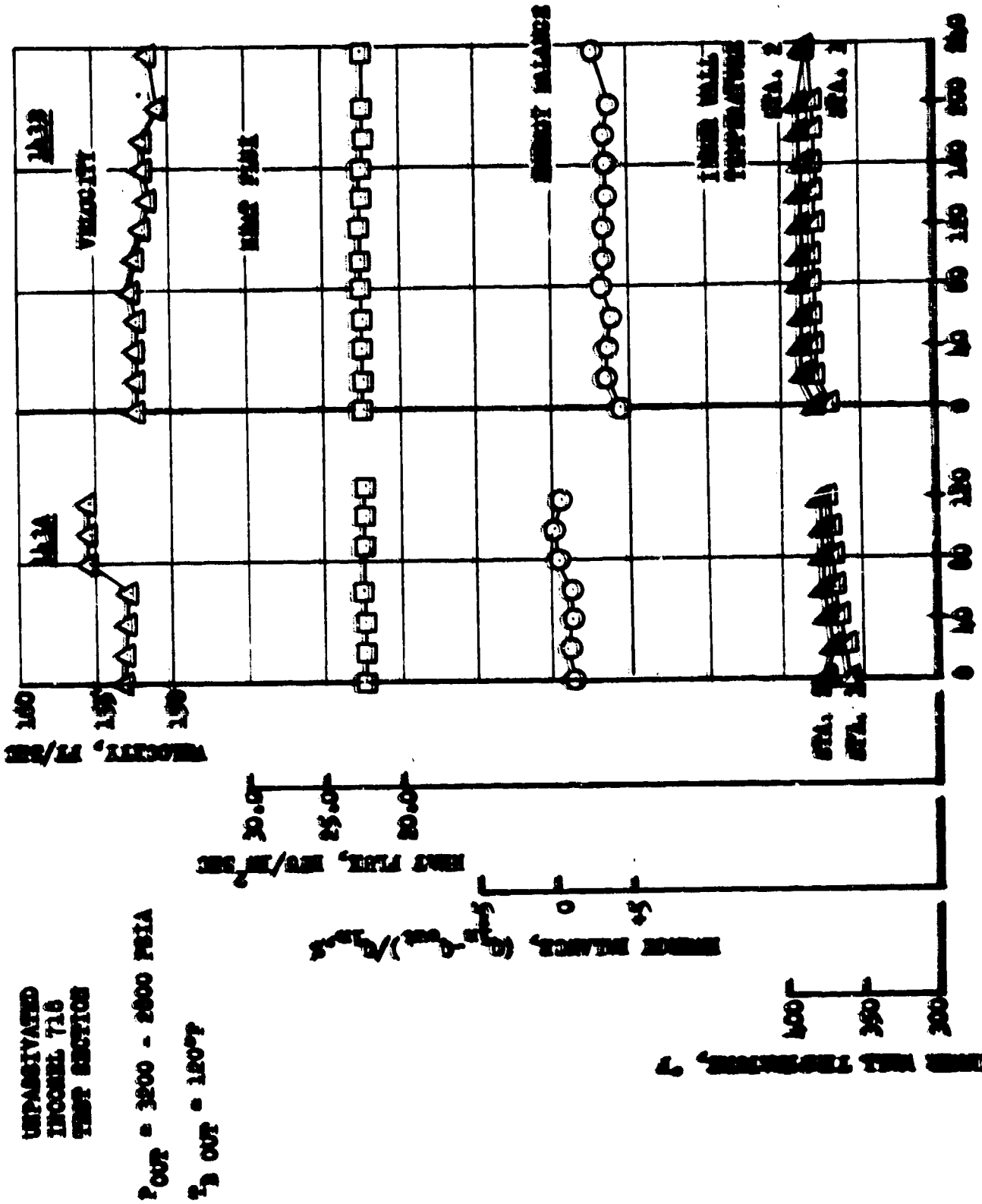


Figure 35. 90% H_2O_2 Extended-Duration Test Parameters, Test 143

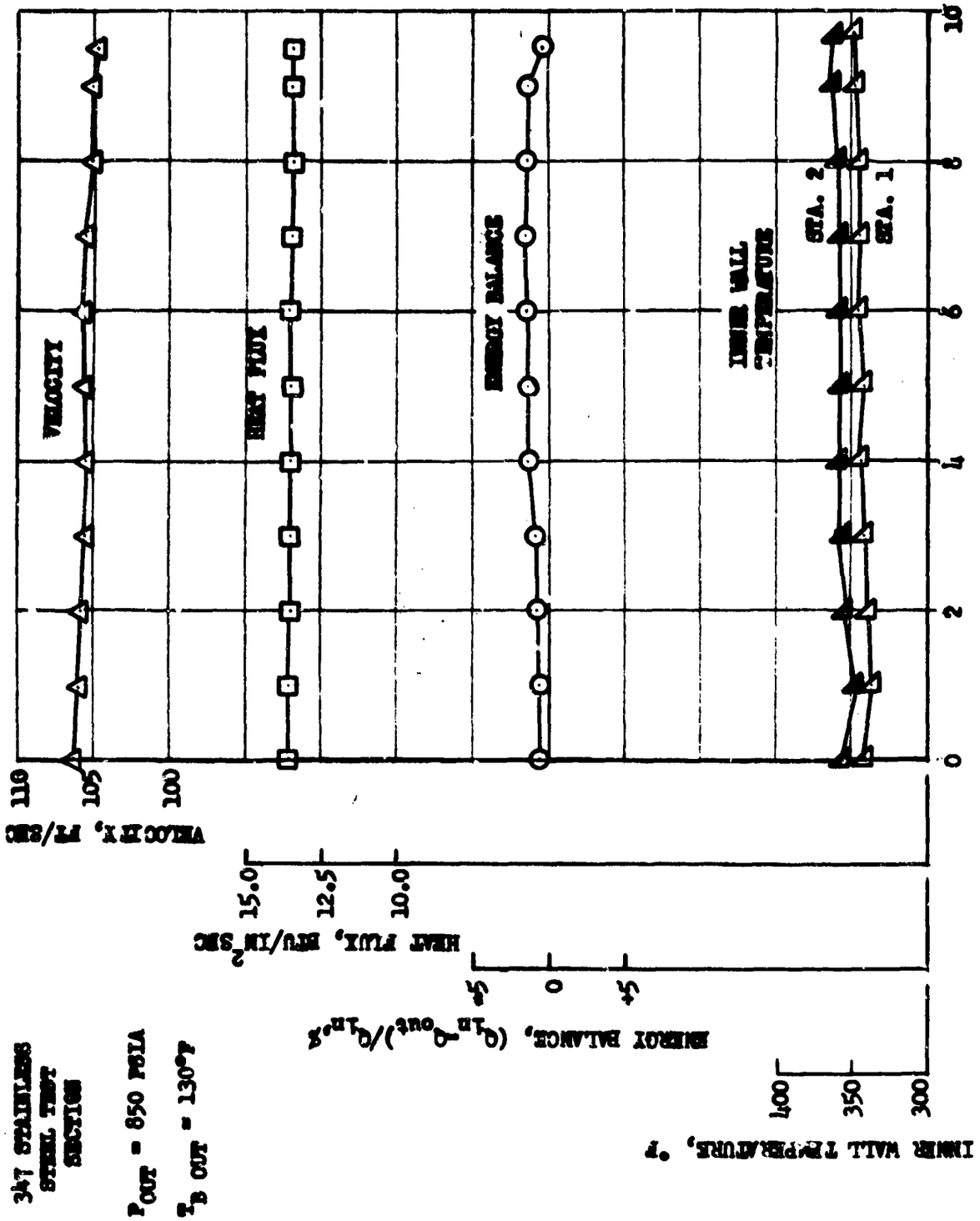


Figure 36. 90% H_2O_2 Extended-Duration Test Parameters, Test 140

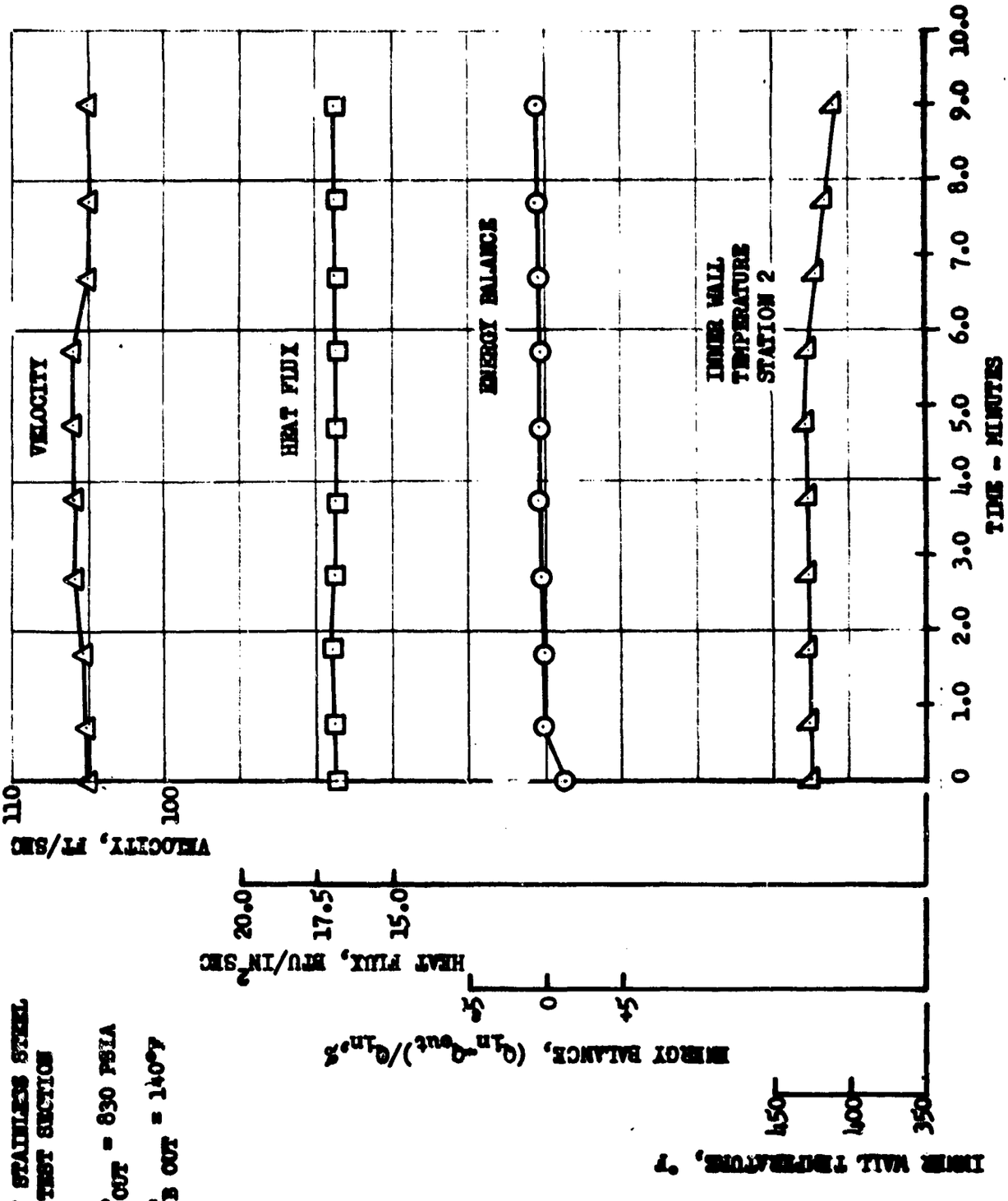


Figure 37. 98% H_2O_2 Extended-Duration Test Parameters, Test 141

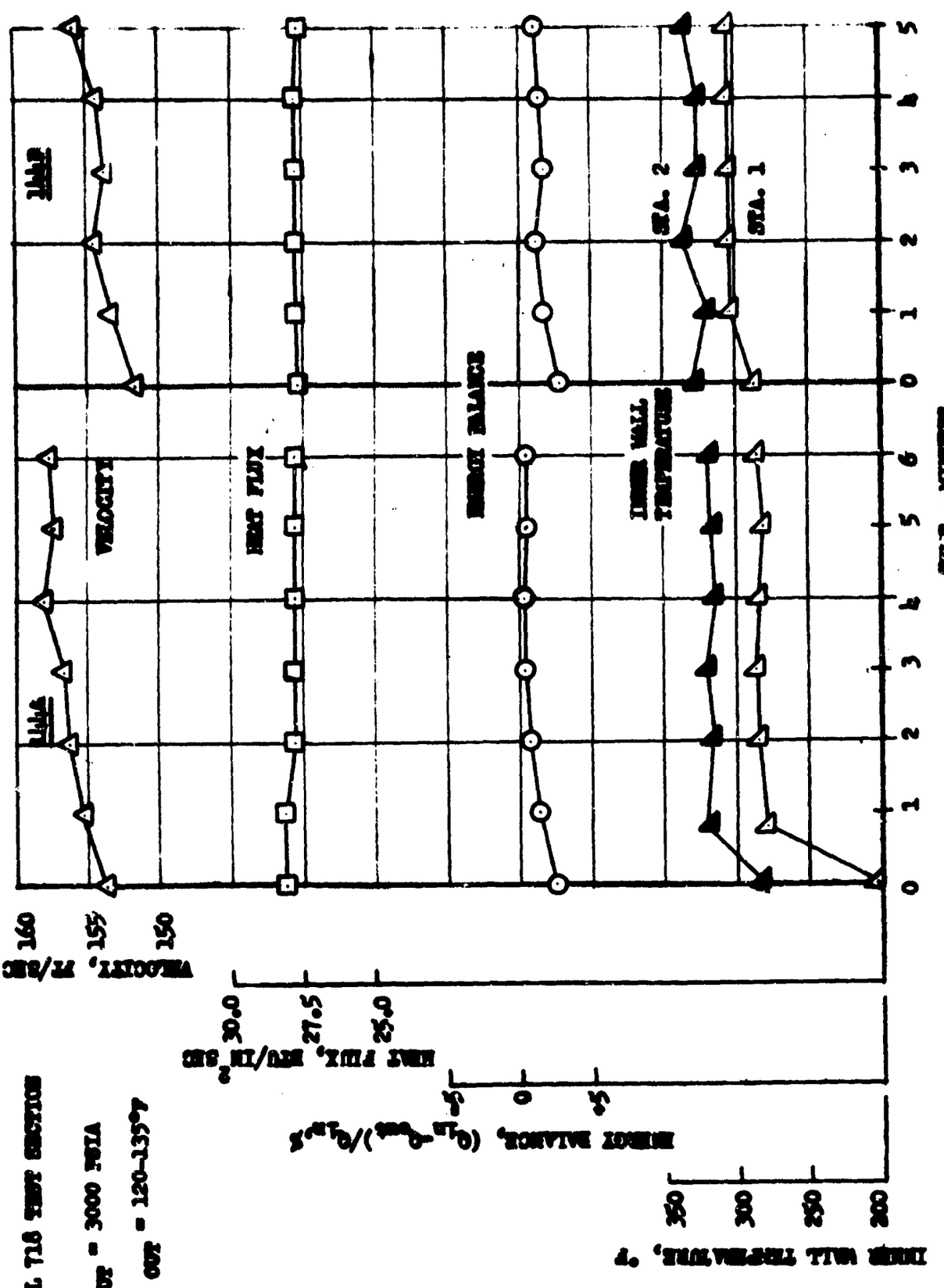


Figure 38. Water Extended-Duration Test Parameters, Test 144

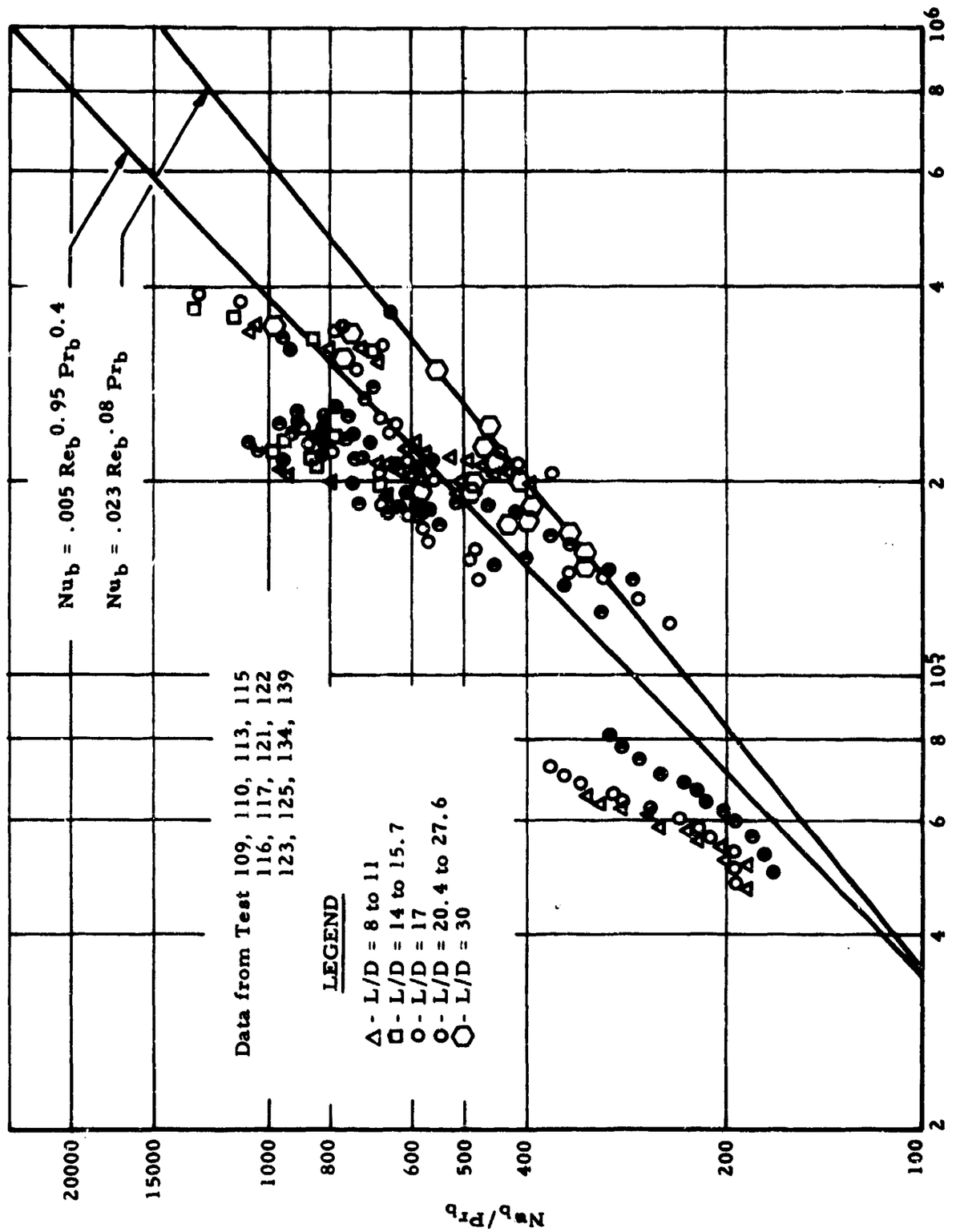


Figure 39. 90% H_2O_2 Forced-Convection Data Correlation Based on Bulk-Temperature Properties

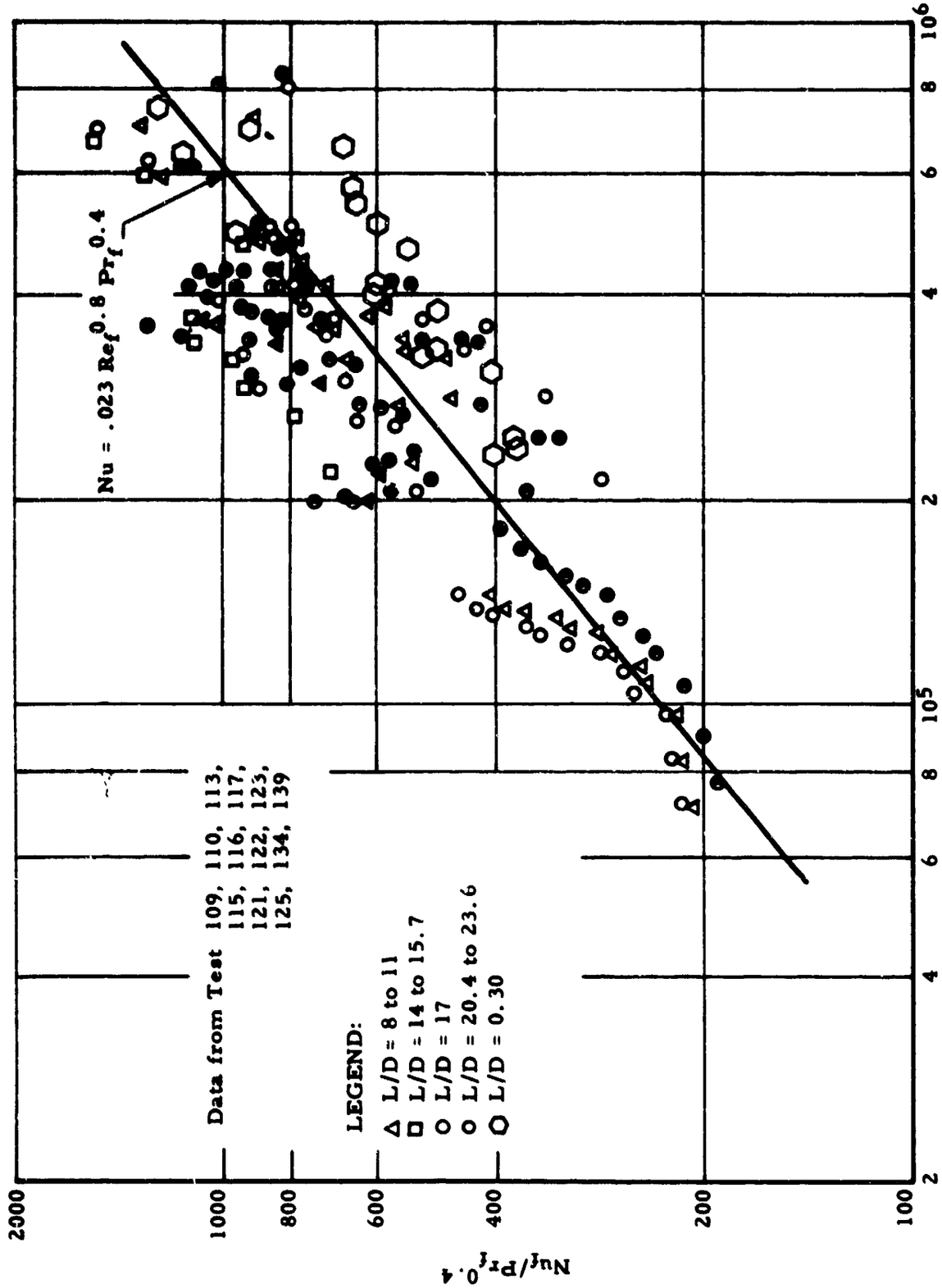


Figure 40. 98% H_2O_2 Forced-Convection Data Correlation Based on Film-Temperature Properties

LEGEND

Δ - ID = 0.220 IN.

O - ID = 0.159 IN.

------DRAWN TUBING: ε = 0.000005 FT.

SHADED: T_b = 200°F

UNSHADED: T_b = 70°F

ε/D = RELATIVE ROUGHNESS

CURVES FROM REFERENCE 19

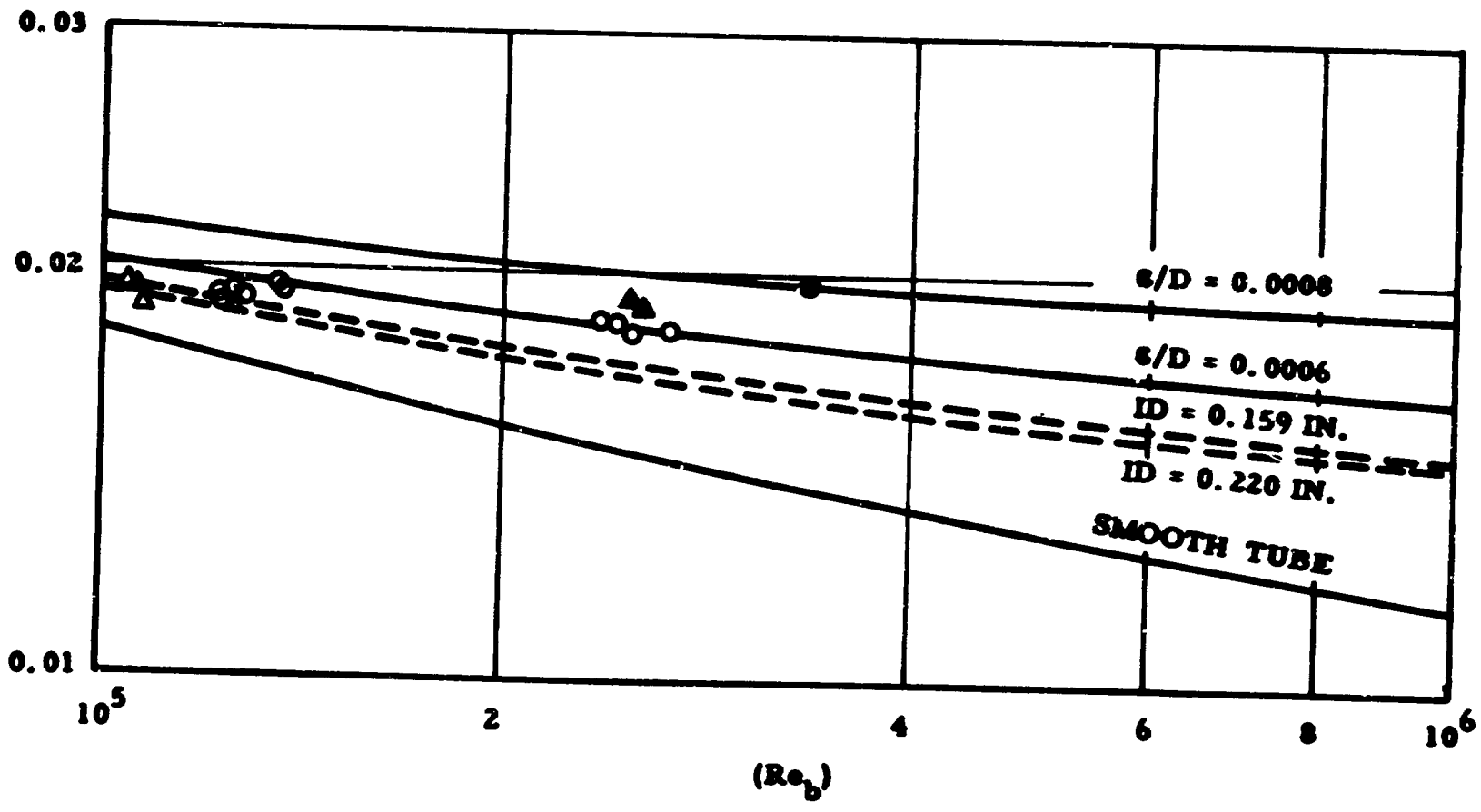
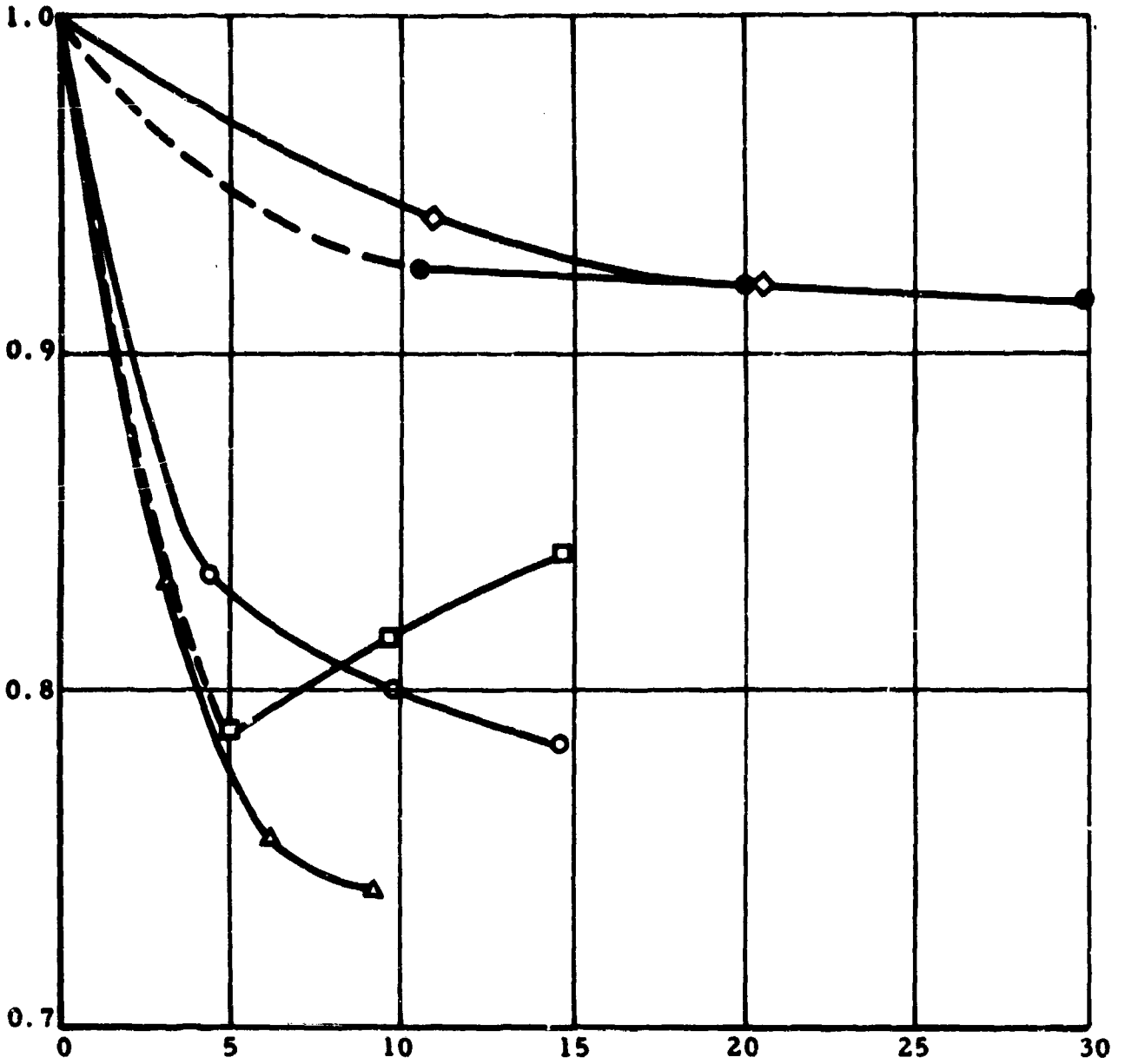


Figure 41 98% H_2O_2 Isothermal Friction Factors



Symbol	Velocity	Pressure	Test
◇	185	3000	123
●	188	3500	125
○	97	3900	121
□	98	4400	122
△	55	4100	119

Figure 42. Pressure-Drop Data for Heated 98% H_2O_2

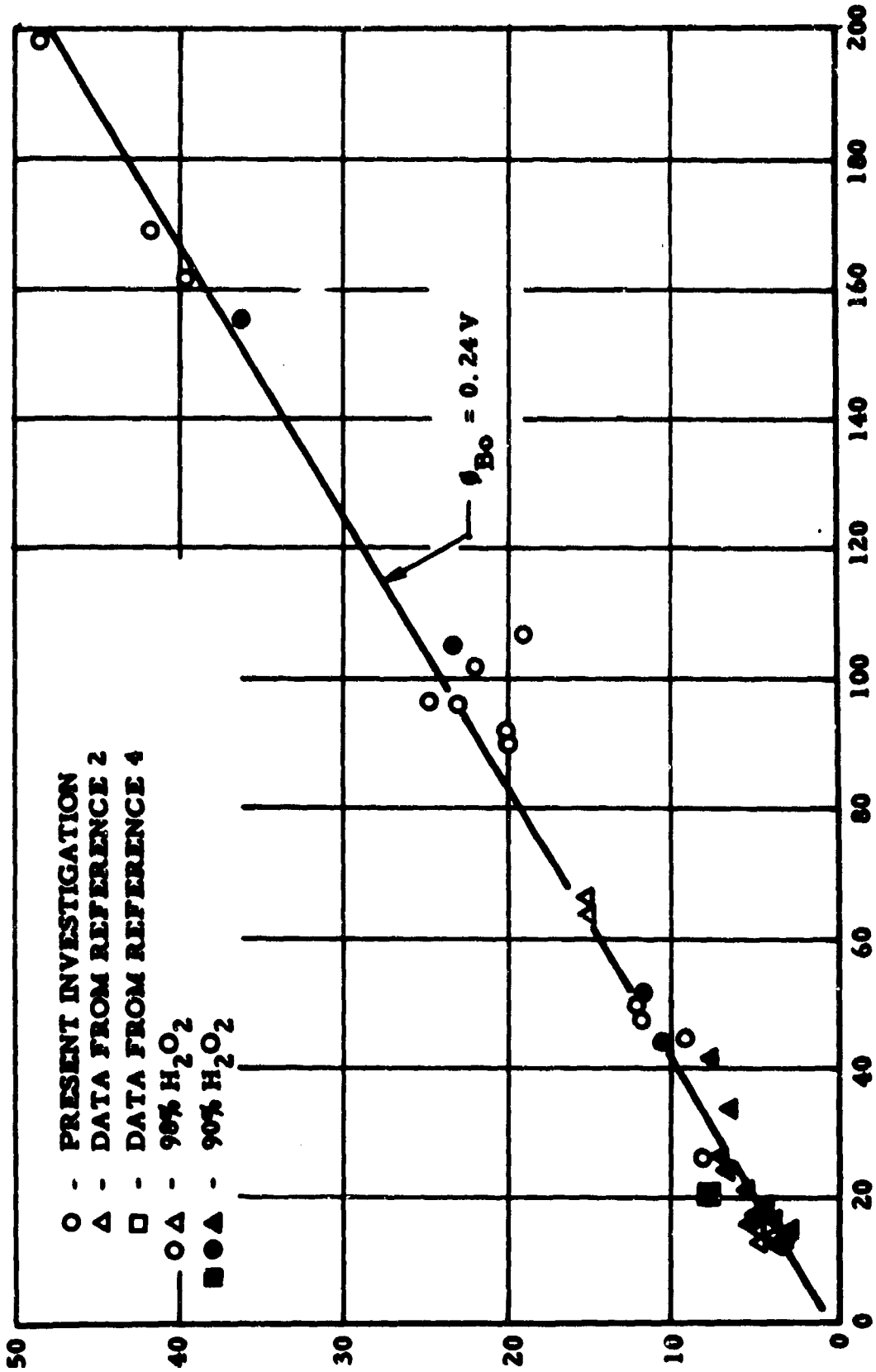


Figure 43: Comparison of 90% H_2O_2 and 98% H_2O_2 Burnout Test Results

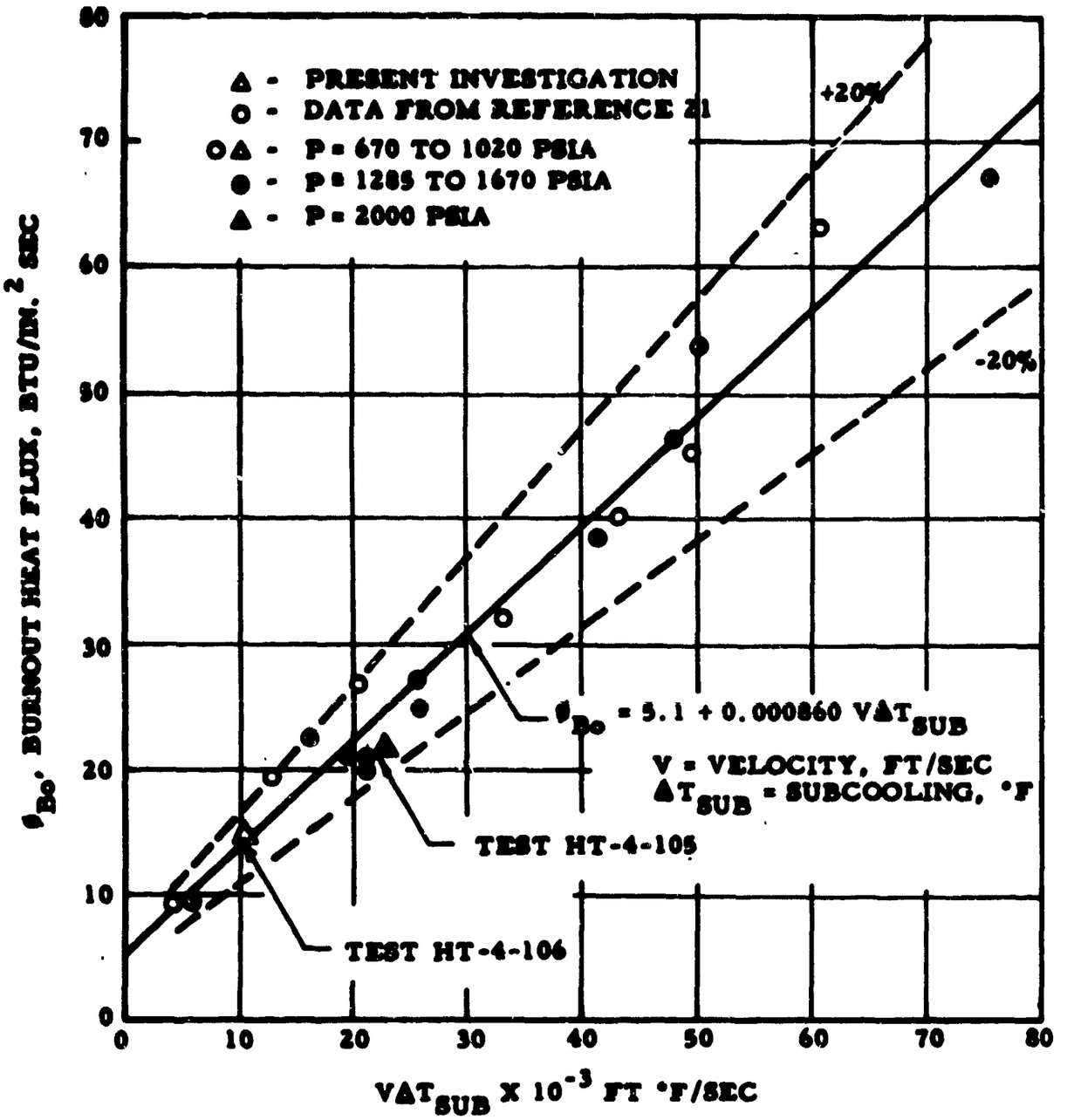


Figure 44. Water Burnout Heat-Flux Data

APPENDIX A

TEST-SECTION METALLOGRAPHIC EXAMINATIONS

APPENDIX A

TEST-SECTION METALLOGRAPHIC EXAMINATION

Two of the Inconel 718 test sections in which burnout occurred with 98% H_2O_2 were sectioned and examined for evidence of chemical attack. These test sections had been used in Tests HT-4-110 and HT-4-130.

Test 110 was a burnout test in which tube failure occurred at the following local conditions: heat flux, 41.5 Btu/in.^{2} sec; velocity, 169 ft/sec; bulk temperature, 154°; pressure, 2910 psia.

Test 130 was an extended-duration test which terminated in burnout three minutes after steady state had been achieved at a heat flux of 28 Btu/in.^{2} sec. The test-section outlet conditions for this test were velocity, 150 ft/sec; outlet pressure, 3300 psia; and outlet bulk temperature, 135°F.

The investigations and their results are discussed in the following two Materials R&D reports.

I.

MATERIALS R&D REPORT LRD 65-344

PURPOSE. To determine the material condition of an Inconel 718 heat-transfer test specimen (tubing) after exposure to hot, flowing hydrogen peroxide.

CONCLUSION. The Inconel 718 tubing material was not attacked by the hot, flowing hydrogen peroxide.

INVESTIGATION AND RESULTS. A section of annealed Inconel 718 tubing was submitted for observation after it was utilized in a heat-transfer test, in which 98% H_2O_2 was flowed through the tubing (heated electrically) until a burnout occurred. The tubing was cross-sectioned in the center (midway between the two electrical connections) and close to the point of burnout. These two sections were compared to a control specimen (i.e., a section of tubing that had not been exposed to H_2O_2) to determine the effect of H_2O_2 on the tube material (Figure 1). The total duration of testing was 3 min (from start to burnout). Power was increased gradually during this time until the burnout occurred. The average inner wall temperature at the end of the test was calculated to be 600°F.

Examination of the inner wall of the tubing showed that the hot H_2O_2 had very little, if any, effect on the Inconel 718 material. At a magnification of 500X the tube wall still appears to be relatively smooth, and no signs of intergranular attack are present (Figure 1).

DISCUSSION. The tubing utilized in heat-transfer testing is in the annealed condition. For heat-transfer test purposes, annealed Inconel 718 will give the same results as solution-annealed and aged material. However, for compatibility studies, the material should be tested in the condition in which it will be utilized in the finished hardware. If the Inconel 718 tubing will be solution-annealed and aged when put into service, it should be compatibility-tested in the same condition. The aging treatment of this material causes precipitation of a constituent by which the material is strengthened. Precipitation of a constituent sometimes changes the corrosion-resisting properties of a material, especially at the grain boundaries. In a previous compatibility study, tests indicated that hot N_2O_4 attacked solution-annealed and aged Inconel 718 at the grain boundaries.* Hydrogen peroxide may have the same effect on the material. Further, the test duration should be increased to equal the proposed life of the chamber tubes.

RECOMMENDATIONS. Solution-annealed and aged Inconel 718 tubing should be utilized in compatibility testing with the hot, flowing hydrogen peroxide.

Compatibility testing duration should be equivalent to the planned service life of the chamber tubes.

*Bechtold, R. F., Materials Development Report DVR 64-365, Aerojet-General Corporation, Liquid Rocket Components Department 4630, 15 July 1964.

II.

MATERIALS R&D REPORT FSC 66-135

PURPOSE. To determine if premature "burnthrough" of an Inconel 718 heat-transfer test specimen (tubing) was caused by corrosion attack.

CONCLUSIONS. The Inconel 718 tube material was not attacked (corroded) by the tube coolant (hydrogen peroxide).

Overheating of the tube at the test conditions of pressure and flow rate caused the tube to rupture.

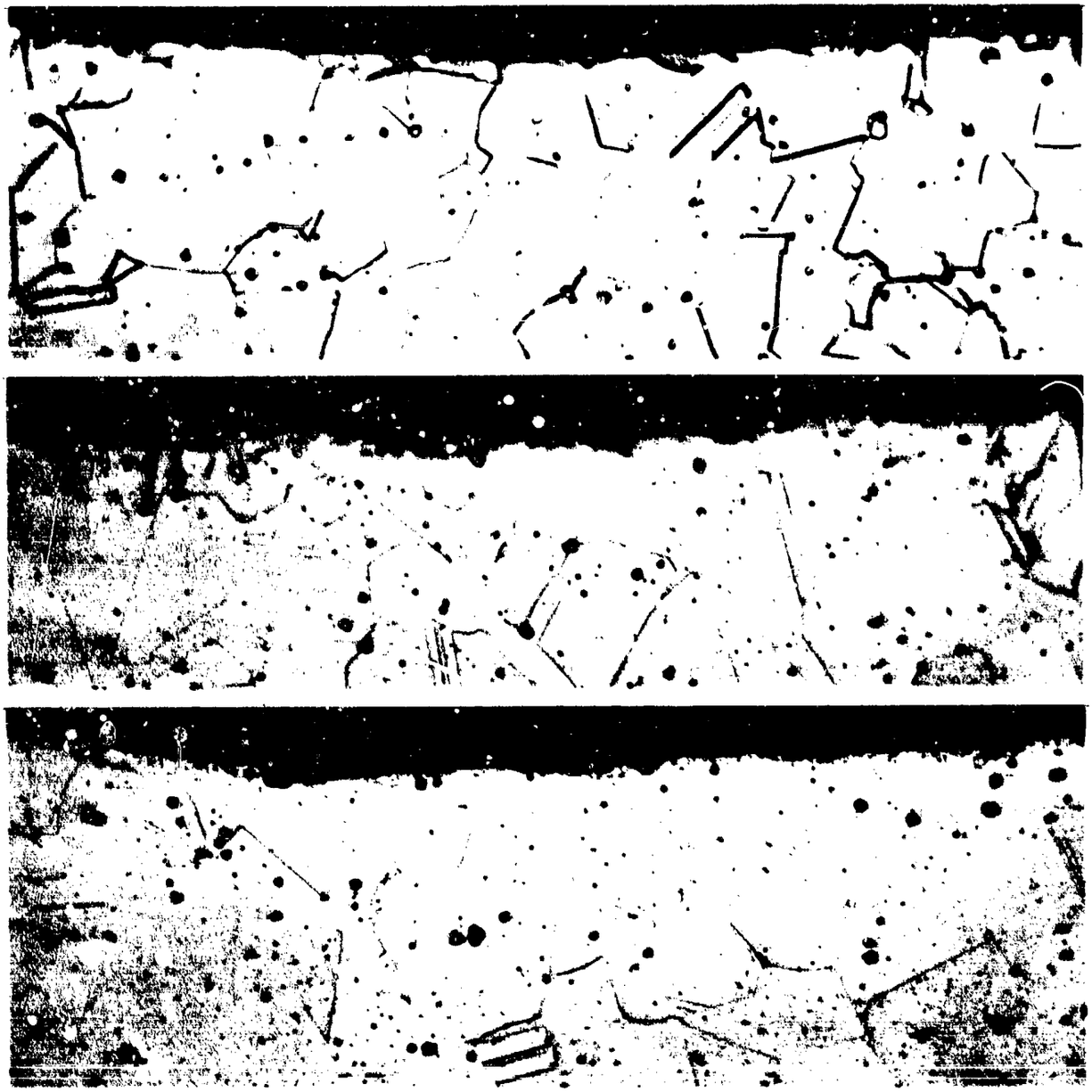
HISTORY. Heat-transfer Test Specimen HT-4-130 (annealed 3/16-in.-dia Inconel 718 tubing) had been undergoing testing at a heat flux of 28 Btu/in.^{2} sec (electrical resistance heating) for about 3 min when a rupture occurred 1 in. from the downstream electrode (Figures 2 and 3). Hydrogen peroxide with a concentration of 98% was flowing at a pressure of about 3000 psi through the tube at a rate of 150 ft/sec at the time of failure. Calculations indicate that the outer and inner wall temperatures were 1200 to 1300°F and 400 to 500°F, respectively, shortly before failure.

VISUAL OBSERVATIONS. Three cross-sections of the tube were mounted and polished for examination. Two cross-sections of the tube were taken in the immediate rupture area (Figures 4 and 5), and the third was taken about 1/4 in. away (Figure 6). Figure 5 shows that the tube melted completely through. No evidence of corrosion attack on the inner wall is present, and the inner surface of the tube appears to be relatively smooth even at a magnification of 500X (Figure 6). The tube wall thickness (0.015 in.) was unchanged by testing except in the immediate rupture area where it thinned to 0.014 in.

DISCUSSION. The tube specimen sustained a heat flux of 28 Btu/in.^{2} sec for 3 min before rupture occurred. Heat-transfer data indicated that the tube should have been able to withstand the applied heat flux, fluid pressure (about 3000 psi), and coolant (hydrogen peroxide) flow rate without failure. However, the appearance of the failure indicates that overheating and melting initiated tube rupture. No evidence of corrosive attack was found, and the tube wall thickness was unchanged (except in the immediate rupture area where the reduction-in-area effect due to yielding thinned the tube).

Although short-duration heat-transfer data indicate that the tube material should withstand the conditions applied to the failed tube, several other heat-transfer test sections have failed during extended-duration operation at similar test conditions. Apparently, an unknown factor (possibly a catalytic reaction between the surface layer of the tube material and the hydrogen peroxide) remains to be determined. Further testing is necessary to determine the combination of maximum heat flux, pressure, and flow rate the Inconel 718 tube material will withstand.

RECOMMENDATIONS. Investigate and test for a catalytic reaction between Inconel 718 and hydrogen peroxide utilizing various temperatures and pressures.



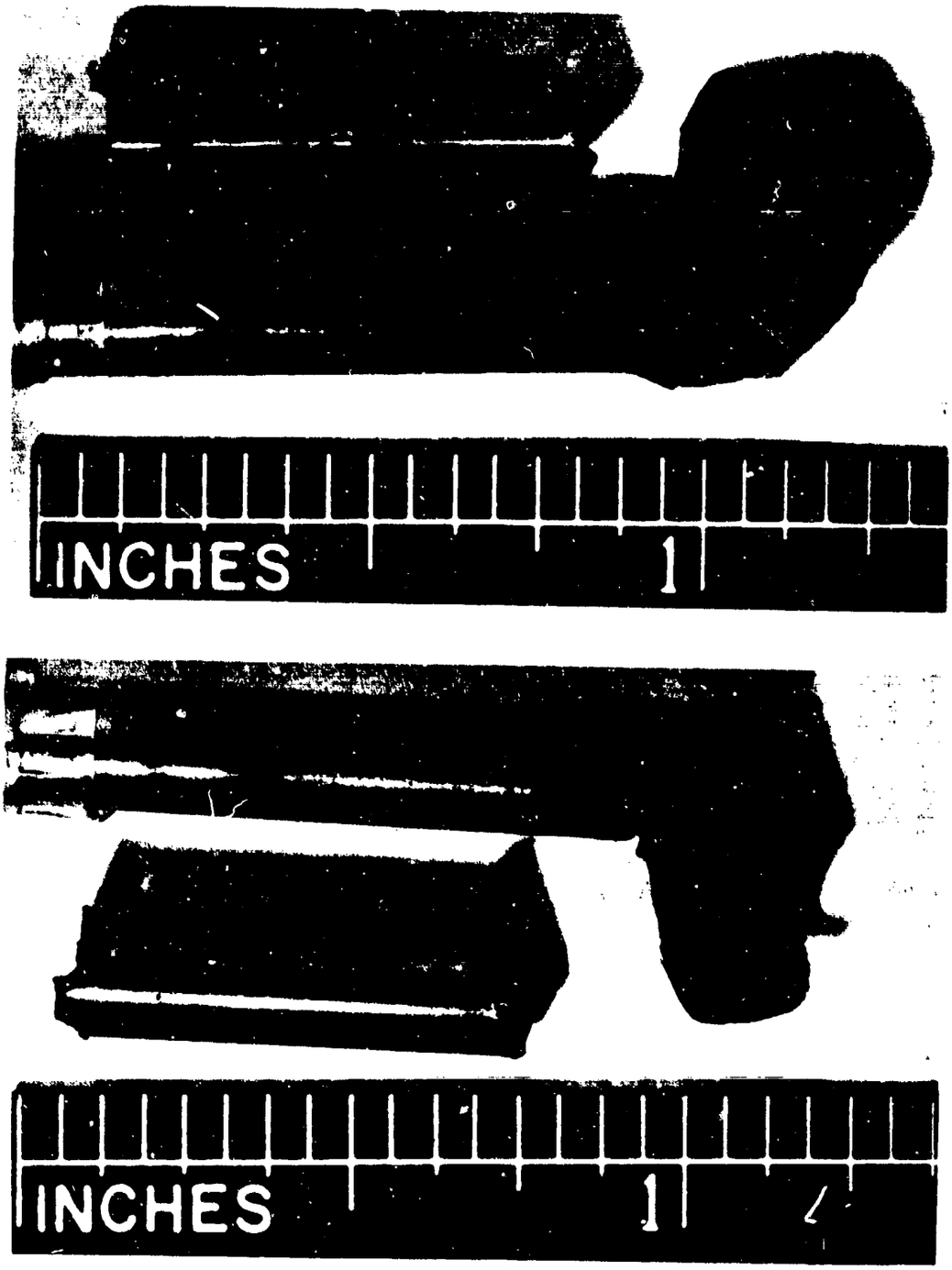
Top: Inside surface of a tube that was not exposed to hot H_2O_2 (control specimen)

Center: Inside surface of a tube section cut from the approximate midpoint of the heat-transfer test specimen.

Bottom: ID area of a tube section cut approximately 3/16 in. from the burnout area (high temperature area).

The relatively smooth inside surface of the heat transfer test tubing indicates that no corrosion occurred during testing. No intergranular attack is evidenced. (Black spots in the material were caused by the etchant)

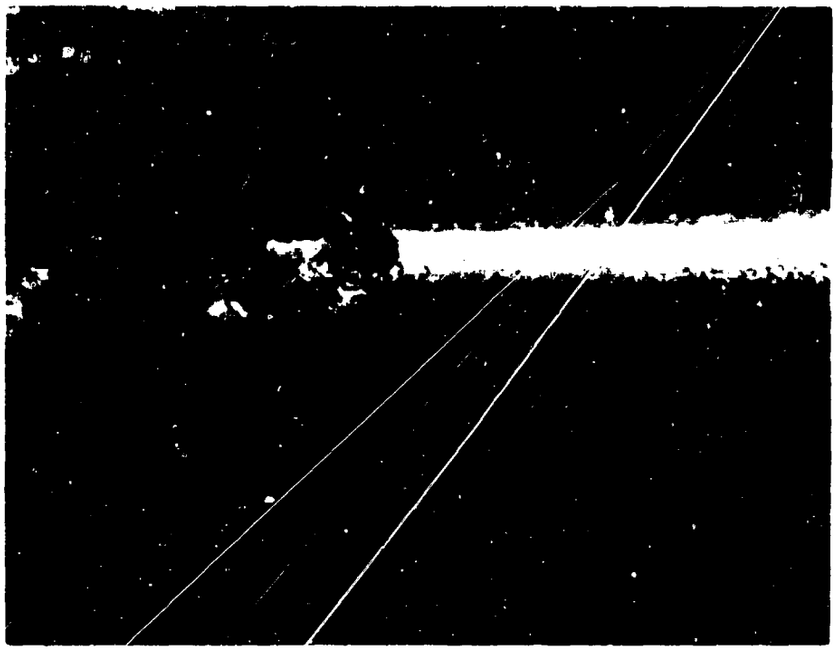
Figure 1. Photomicrographs Showing the Inside Surface (Tube ID) of the Inconel 718 Tubing Material (Magnification 500 X; Etchant--HNO_3, HCl, HF and H_2O)



Top: outer surface
Bottom: inner surface

Mag: 4X

Figure 2. Photographs of the Rupture Edges of the Tube (Right Side on Both Tubes). Arrows point to the area which appears to be the initial rupture area (see Figure 3).



Mag: 13X

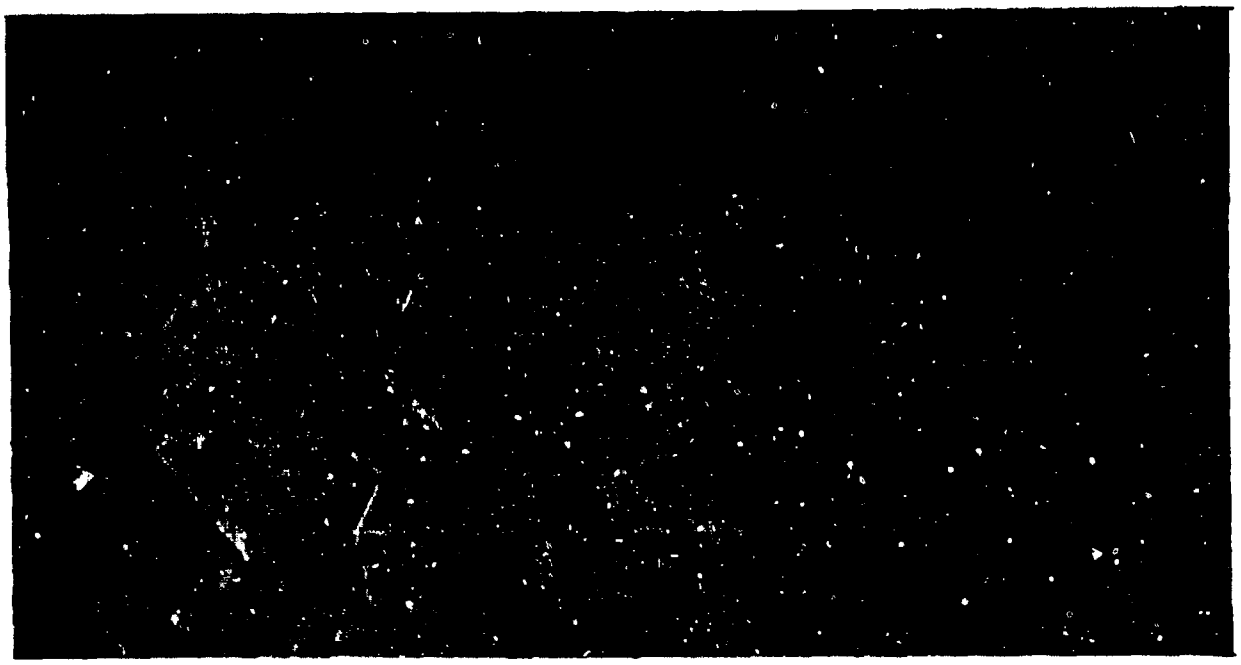
Figure 3. Probable Area of Rupture Initiation (Areas of melted metal and several cracks appear. The microstructure of this area appears in Figure 4).

Etchant -- HNO_3, HCl, HF & H_2O Mag: 150X

Figure 4. Microstructure of the Tube in the Initial Failure Area. The OD of the tube is at the top of the photograph. Melted tube metal (darkened metal) appears in the center of the thinned area. Incipient melting at the grain boundaries probably initiated intergranular cracking (indicated by arrows).

Etchant -- HNO_3, HCl, HF & H_2O Mag: 100X

Figure 5. Failure Area of Smaller Tube Section Shown in Figure 2. Darkened metal shows that melting proceeded entirely through the tube. The ID of the tube appears to be unaffected by the hot hydrogen peroxide (no corrosion occurred).



Etchant: HNO_3, HCl, HF & H_2O Mag: 500X

Figure 6. Inside Surface of the Tube Approximately 1/4 in. from Rupture Area. Staining, caused by the etchant, has darkened the edge, but no indications of corrosion attack are present.

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APPENDIX B

TABULATED HEAT-TRANSFER DATA

The outputs from the data-reduction computer program for the 98% H_2O_2 burnout tests, the extended-duration and heated pressure-drop tests, and the 90% H_2O_2 burnout tests are given on the following pages. The data are listed in numerical order, by test number. The equations for the data-reduction computer program are given in Section II,D of the main body of this report.

The output for each test consists of three sections: overall test parameters, local test parameters, and dimensionless parameters. The nomenclature for each section is described below.

Overall Test Parameters

AF	=	Test section flow area, ft^2
D	=	Test section inside diameter, ft
L	=	Heated length, in.
DELTA TO	=	Bulk temperature rise observed prior to application of test section power, °F
POINT, DATA POINT	=	Refers to a heat-flux level in the burnout tests and a certain time in the extended-duration tests
PB-IN	=	Inlet pressure, psia
PB-OUT	=	Outlet pressure, psia
TB-IN	=	Inlet bulk temperature, °F
TB-OUT	=	Outlet bulk temperature, °F
W	=	Flow rate, lb/sec
E2	=	Overall test-section voltage drop
I2	=	Test-section current, amp
QP	=	Electrical power, Btu/sec
HT BAL	=	Heat balance, %
G	=	Mass velocity, lb/sec ft

Local Test Parameters

STA	=	Refers to axial position where wall temperature was measured.
PB	=	Local pressure, psia
TB	=	Local bulk temperature, °F
TW	=	Measured outside wall temperature, °F
TI	=	Calculated inside wall temperature, °F
Q/A	=	Heat flux calculated from wall temperature gradient, $Btu/in.^2$ sec
Q/AP	=	Heat flux calculated from voltage and current measurements, $Btu/in.^2$ sec
H	=	Heat-transfer coefficient based on Q/AP, $Btu/in.^2$ sec °F
DEL TF	=	TI - TB
VB	=	Local coolant velocity, ft/sec
L/D	=	Length-to-diameter ratio based on length between data station and upstream end of heated length
DELTA E	=	Voltage drop
LE	=	Length over which ΔE was measured, in.

Dimensionless Parameters

NU	=	Nusselt number based on bulk-temperature properties
PR	=	Prandtl number based on bulk-temperature properties
RE	=	Reynolds number based on bulk-temperature properties
TI/TB	=	Ratio of inside wall temperature to bulk temperature, °R/°R
NU/PR(0.4)	=	Nusselt No./(Prandtl No.)$^{0.4}$
RHO RATIO	=	Ratio of bulk-temperature density to wall-temperature density

Dimensionless Parameters (cont.)

K RATIO = Ratio of bulk-temperature thermal conductivity to wall-temperature thermal conductivity

MU RATIO = Ratio of bulk-temperature viscosity to wall-temperature viscosity

CP RATIO = Ratio of average specific heat to bulk-temperature specific heat, where:

$$\text{average specific heat} = \bar{C}_p = \frac{\int_{T_b}^{T_w} C_p \, dT}{T_w - T_b}$$

NU(F) = Nusselt number based on average film-temperature properties

PR(F) = Prandtl number based on average film-temperature properties

RE(F) = Reynolds number based on average film-temperature properties

TI/TF = Ratio of inside wall temperature to average film temperature, °R/°R

TF = 1/2 (TB + TI)

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST HT-4-109 DATA POINT 7 IS BURNOUT

AF = 0.138E-03 D = 0.132E-01 L = 0.400E 01 DELTA TO = 0.200E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	2.928E 03	2.845E 03	1.275E 02	1.418E 02	1.090E 00	1.499E 01	6.020E 02	8.554E 00	-6.679E-01	7.904E 03
2	3.070E 03	2.986E 03	1.255E 02	1.493E 02	1.110E 00	2.000E 01	7.943E 02	1.506E 01	-3.259E 00	8.069E 03
3	3.070E 03	2.988E 03	1.256E 02	1.591E 02	1.097E 00	2.415E 01	9.521E 02	2.180E 01	-1.971E 00	7.958E 03
4	3.069E 03	2.988E 03	1.257E 02	1.714E 02	1.090E 00	2.816E 01	1.100E 03	2.939E 01	-4.506E 00	7.904E 03
5	3.070E 03	2.988E 03	1.257E 02	1.787E 02	1.083E 00	3.037E 01	1.182E 03	3.404E 01	-4.588E 00	7.854E 03
6	3.074E 03	2.990E 03	1.260E 02	1.892E 02	1.075E 00	3.230E 01	1.259E 03	3.856E 01	-1.007E 01	7.798E 03
7	3.080E 03	3.000E 03	1.264E 02	1.941E 02	1.053E 00	3.264E 01	1.265E 03	3.914E 01	-1.970E 01	7.636E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST HT-4-109 DATA POINT 7 IS BURNOUT

DATA POINT 1

STA	PB	TB	T*	TI	Q/A	Q/AP	H	DEL TF	VS
1	[illegible]	1.358E 02	4.340E 02	2.539E 02	4.540E 00	4.420E 00	3.680E-02	1.201E 02	9.065E 01
2	[illegible]	1.373E 02	3.970E 02	2.190E 02	4.365E 00	4.329E 00	5.259E-02	8.231E 01	9.082E 01
3	[illegible]	1.409E 02	4.040E 02	2.305E 02	4.289E 00	4.292E 00	4.774E-02	8.989E 01	9.096E 01

STA	L/D	DELTA E	LE
1	1.181E 01	3.000E 00	1.000E 00
2	1.731E 01	3.700E 00	1.000E 00
3	2.353E 01	2.700E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST RT-4-10? DATA POINT 7 IS BURNOUT

DATA POINT 2

STA	PO	TO	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.0034E 03	1.3596E 02	5.1730E 02	3.2360E 02	7.9746E 00	7.7718E 00	4.1406E-02	1.8776E 02	9.2436E 01
2	2.0014E 03	1.4194E 02	5.4480E 02	2.5136E 02	7.7426E 00	7.6426E 00	7.0036E-02	1.0916E 02	9.2666E 01
3	2.0033E 03	1.4706E 02	5.5220E 02	2.5749E 02	7.5706E 00	7.5606E 00	5.9476E-02	1.2716E 02	9.2906E 01

STA	L/D	DELTA S	LE
1	1.1016E 01	5.1116E 00	1.0006E 00
2	1.7016E 01	5.8206E 00	1.0006E 00
3	2.3006E 01	3.7296E 00	7.5006E-01

LOCAL TEST PARAMETERS

TEST RT-4-10? DATA POINT 7 IS BURNOUT

DATA POINT 3

STA	PO	TO	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.0024E 03	1.4036E 02	7.9306E 02	5.9326E 02	1.1576E 01	1.1286E 01	4.4606E-02	2.5296E 02	9.1516E 01
2	2.0014E 03	1.4856E 02	7.0606E 02	5.0006E 02	1.1216E 01	1.1086E 01	7.3176E-02	1.5146E 02	9.1846E 01
3	2.0036E 03	1.5706E 02	7.2106E 02	5.3256E 02	1.0876E 01	1.0916E 01	6.2176E-02	1.7556E 02	9.2176E 01

STA	L/D	DELTA S	LE
1	1.1016E 01	6.1226E 00	1.0006E 00
2	1.7016E 01	6.0726E 00	1.0006E 00
3	2.3006E 01	4.4506E 00	7.5006E-01

LOCAL TEST PARAMETERS

TEST RT-4-10? DATA POINT 7 IS BURNOUT

DATA POINT 4

STA	PO	TO	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.0134E 03	1.4476E 02	9.7406E 02	4.6016E 02	1.5746E 01	1.5226E 01	4.8546E-02	3.1446E 02	9.1146E 01
2	2.0014E 03	1.5716E 02	9.3306E 02	4.3476E 02	1.5046E 01	1.4906E 01	5.3676E-02	2.7766E 02	9.1596E 01
3	2.0056E 03	1.6656E 02	9.2506E 02	4.4206E 02	1.4576E 01	1.4676E 01	5.3636E-02	2.7356E 02	9.2046E 01

STA	L/D	DELTA S	LE
1	1.1016E 01	7.2606E 00	1.0006E 00
2	1.7016E 01	7.0776E 00	1.0006E 00
3	2.3006E 01	5.2206E 00	7.5006E-01

LOCAL TEST PARAMETERS

TEST HT-4-109 DATA POINT 7 IS BURNOUT

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.0[illegible]E 03	1.4[illegible]E 02	1.270E 03	4.93[illegible]E 02	1.414E 01	1.[illegible]6E 01	5.118E-02	3.450E 02	9.068E 01
2	3.0[illegible]E 03	1.[illegible]E 02	9.601E 02	4.000E 02	1.754E 01	1.733E 01	7.236E-02	2.378E 02	9.119E 01
3	2.9[illegible]E 03	1.7[illegible]E 02	9.910E 02	4.350E 02	1.688E 01	1.700E 01	6.449E-02	2.636E 02	9.17[illegible]E 01

STA	L/D	DELTA E	LE
1	1.101E 01	7.901E 00	1.000E 00
2	1.731E 01	7.[illegible]55E 00	1.000E 00
3	2.3[illegible]E 01	5.[illegible]36E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST HT-4-109 DATA POINT 7 IS BURNOUT

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.0[illegible]E 03	1.5[illegible]E 02	1.192E 03	5.527E 02	2.053E 01	2.005E 01	5.023E-02	3.991E 02	9.019E 01
2	3.0[illegible]E 03	1.[illegible]E 02	1.136E 03	5.255E 02	1.902E 01	1.958E 01	5.500E-02	3.560E 02	9.081E 01
3	2.9[illegible]E 03	1.[illegible]E 02	1.119E 03	5.242E 02	1.901E 01	1.927E 01	5.684E-02	3.390E 02	9.143E 01

STA	L/D	DELTA E	LE
1	1.101E 01	8.317E 00	1.000E 00
2	1.731E 01	8.124E 00	1.000E 00
3	2.3[illegible]E 01	5.[illegible]95E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST HT-4-109 DATA POINT 7 IS BURNOUT

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.0[illegible]E 03	1.500E 02	1.230E 03	6.053E 02	2.082E 01	2.011E 01	4.477E-02	4.493E 02	8.843E 01
2	3.0[illegible]E 03	1.[illegible]E 02	1.180E 03	5.744E 02	1.984E 01	1.963E 01	4.894E-02	4.011E 02	8.910E 01
3	3.0[illegible]E 03	1.508E 02	1.150E 03	5.351E 02	1.986E 01	1.963E 01	5.700E-02	3.443E 02	8.978E 01

STA	L/D	DELTA E	LE
1	1.101E 01	8.380E 00	1.000E 00
2	1.731E 01	1.431E 01	1.750E 00
3	2.3[illegible]E 01	1.431E 01	1.750E 00

DIMENSIONLESS PARAMETERS

TEST PT-4-10% DATA POINT 7 IS BURNOUT

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	5.[illegible]E 02	5.[illegible]E 00	2.0304E 05	1.2023E 00	4.3159E 02
1	2	9.6976E 02	5.0004E 00	2.1243E 05	1.0378E 00	6.1990E 02
1	3	8.7587E 02	2.9669E 00	2.1675E 05	1.1496E 00	5.6540E 02
2	1	7.0493E 02	5.6914E 00	2.1460E 05	1.3150E 00	4.8703E 02
2	2	1.2630E 03	2.9578E 00	2.2192E 05	1.1813E 00	8.3036E 02
2	3	1.0C0CE 03	2.6528E 00	2.2920E 05	1.2091E 00	7.1050E 02
3	1	8.1E92E 02	2.9949E 00	2.1733E 05	1.4213E 00	5.2772E 02
3	2	1.32B3E 03	2.6537E 00	2.2752E 05	1.2488E 00	8.7503E 02
3	3	1.1137E 03	2.0853E 00	2.3809E 05	1.2845E 00	7.5154E 02
4	1	8.3459E 02	2.8927E 00	2.2252E 05	1.5190E 00	5.7839E 02
4	2	9.6331E 02	2.6833E 00	2.3672E 05	1.4498E 00	6.4899E 02
4	3	9.4E83E 02	2.4804E 00	2.5252E 05	1.4351E 00	6.5914E 02
5	1	9.2[illegible]1E 02	2.8532E 00	2.2492E 05	1.5066E 00	6.1229E 02
5	2	1.2590E 03	2.6939E 00	2.4196E 05	1.3823E 00	8.8718E 02
5	3	1.1316E 03	2.5758E 00	2.6065E 05	1.4149E 00	8.0053E 02
6	1	9.0551E 02	2.7455E 00	2.2900E 05	1.6504E 00	6.0456E 02
6	2	9.7181E 02	2.4703E 00	2.5031E 05	1.5656E 00	6.7687E 02
6	3	9.[illegible]E 02	2.[illegible]E 00	2.7269E 05	1.5253E 00	7.1554E 02
7	1	8.0481E 02	2.7032E 00	2.2723E 05	1.7293E 00	5.4054E 02
7	2	9.[illegible]E 02	2.4070E 00	2.5063E 05	1.6332E 00	6.0570E 02
7	3	9.3392E 02	2.1803E 00	2.7497E 05	1.5292E 00	7.2302E 02

DATA POINT	STA	RHO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0545E 00	6.9292E-01	1.8009E 00	9.9507E-01
1	2	1.0356E 00	9.1440E-01	1.5319E 00	9.9555E-01
1	3	1.0401E 00	9.[illegible]E-01	1.5753E 00	9.9434E-01
2	1	1.0C79E 00	6.[illegible]E-01	2.3273E 00	9.9526E-01
2	2	1.0349E 00	9.0449E-01	1.6974E 00	9.9247E-01
2	3	1.0582E 00	9.0364E-01	1.8041E 00	9.9247E-01
3	1	1.1226E 00	8.0455E-01	2.8962E 00	1.0029E 00
3	2	1.0708E 00	8.[illegible]E-01	1.9304E 00	9.9292E-01
3	3	1.[illegible]27E 00	9.0[illegible]E-01	2.1471E 00	9.9487E-01
4	1	1.1601E 00	9.0[illegible]E-01	3.4275E 00	1.0186E 00
4	2	1.1[illegible]6E 00	9.1312E-01	3.0144E 00	1.0130E 00
4	3	1.1376E 00	9.2832E-01	2.8855E 00	1.0145E 00
5	1	1.1416E 00	9.2423E-01	3.0091E 00	1.0263E 00
5	2	1.1161E 00	9.1224E-01	2.6340E 00	1.0033E 00
5	3	1.1125E 00	9.[illegible]E-01	2.7552E 00	1.0131E 00
6	1	1.[illegible]1E 00	9.[illegible]E-01	4.1163E 00	1.0415E 00
6	2	1.1177E 00	9.0[illegible]E-01	3.5405E 00	1.0338E 00
6	3	1.1[illegible]E 00	9.[illegible]E-01	3.2387E 00	1.0334E 00
7	1	1.2737E 00	1.0[illegible]E 00	4.5415E 00	1.0581E 00
7	2	1.2417E 00	1.0[illegible]E 00	3.8804E 00	1.0478E 00
7	3	1.[illegible] 00	9.[illegible]E-01	3.2255E 00	1.0359E 00

DIMENSIONLESS PARAMETERS

TEST HT-4-109 DATA POINT 7 IS BURNOUT

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TL/TF	[illegible](F)
1	1	6.3334E 02	2.1216E 00	2.8177E 05	1.0919E 00	4.6879E 02
1	2	9.1955E 02	2.3285E 00	2.6222E 05	1.0645E 00	6.5578E 02
1	3	8.2819E 02	2.2236E 00	2.7234E 05	1.0690E 00	6.0160E 02
2	1	6.9357E 02	1.7696E 00	3.3160E 05	1.1261E 00	5.0001E 02
2	2	1.2026E 03	2.0916E 00	2.9115E 05	1.0831E 00	8.6868E 02
2	3	1.0087E 03	1.9334E 00	3.1060E 05	1.0947E 00	7.7406E 02
3	1	7.3435E 02	1.5109E 00	3.7398E 05	1.1740E 00	6.2261E 02
3	2	1.2292E 03	1.8148E 00	3.2296E 05	1.1186E 00	9.0905E 02
3	3	1.0332E 03	1.6539E 00	3.4948E 05	1.1348E 00	8.0468E 02
4	1	7.9083E 02	1.3971E 00	4.2164E 05	1.2868E 00	7.1049E 02
4	2	8.7598E 02	1.3434E 00	4.1373E 05	1.1836E 00	7.7836E 02
4	3	8.7327E 02	1.2926E 00	4.3002E 05	1.1787E 00	7.8807E 02
5	1	8.3099E 02	1.2145E 00	4.4700E 05	1.2284E 00	7.6884E 02
5	2	1.1940E 03	1.4259E 00	3.9142E 05	1.1605E 00	1.0368E 03
5	3	1.0497E 03	1.2825E 00	4.3143E 05	1.1718E 00	9.0026E 02
6	1	8.1383E 02	1.0816E 00	4.9192E 05	1.2484E 00	7.0869E 02
6	2	8.9117E 02	1.1018E 00	4.8727E 05	1.2288E 00	8.5787E 02
6	3	9.2093E 02	1.0734E 00	5.0220E 05	1.2086E 00	8.9520E 02
7	1	7.2642E 02	9.9146E-01	5.2272E 05	1.2672E 00	7.2892E 02
7	2	7.9355E 02	1.0102E 00	5.1732E 05	1.2405E 00	7.9034E 02
7	3	9.2366E 02	1.0448E 00	5.0526E 05	1.2092E 00	9.0789E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 8

AF = 0.138E-03 D = 0.132E-01 L = 0.350E 01 DELTA TO = 0.430E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	DP	HT BAL	Q
1	3.214E 03	3.014E 03	1.004E 02	1.078E 02	2.030E 00	9.950E 00	4.520E 02	4.264E 00	5.593E 00	1.472E 04
2	3.200E 03	3.005E 03	1.000E 02	1.180E 02	2.020E 00	3.026E 01	9.000E 02	1.729E 01	-2.413E 00	1.468E 04
3	3.187E 03	2.991E 03	9.990E 01	1.334E 02	2.020E 00	2.997E 01	1.300E 03	3.694E 01	-2.292E 00	1.465E 04
4	3.150E 03	2.965E 03	9.930E 01	1.460E 02	1.960E 00	3.610E 01	1.550E 03	5.309E 01	-4.584E-01	1.421E 04
5	3.125E 03	2.930E 03	1.000E 02	1.511E 02	2.000E 00	3.785E 01	1.610E 03	5.777E 01	-3.998E 00	1.458E 04
6	3.105E 03	2.920E 03	1.000E 02	1.539E 02	1.985E 00	3.875E 01	1.647E 03	6.058E 01	-4.429E 00	1.439E 04
7	3.085E 03	2.900E 03	1.000E 02	1.566E 02	1.993E 00	3.980E 01	1.647E 03	6.214E 01	-7.506E 00	1.443E 04
8	3.075E 03	2.885E 03	1.000E 02	1.600E 02	1.965E 00	4.055E 01	1.725E 03	6.631E 01	-7.060E 00	1.439E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 5

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	3.114E 03	1.041E 02	2.550E 02	[illegible]E 02	2.520E 00	2.438E 00	5.895E-02	4.136E 01	1.668E 02
2	3.074E 03	1.056E 02	2.570E 02	[illegible]E 02	2.520E 00	2.438E 00	5.951E-02	4.097E 01	1.669E 02
3	3.028E 03	1.073E 02	2.590E 02	[illegible]E 02	2.520E 00	2.438E 00	5.880E-02	4.146E 01	1.670E 02

STA	L/D	DELTA E	LE
1	1.101E 01	[illegible]E 00	3.500E 00
2	1.541E 01	[illegible]E 00	3.500E 00
3	2.044E 01	[illegible]E 00	3.500E 00

LOCAL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 8

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	3.102E 03	1.090E 02	6.310E 02	2.481E 02	1.021E 01	9.885E 00	7.108E-02	1.391E 02	1.663E 02
2	3.061E 03	1.129E 02	6.290E 02	2.455E 02	1.021E 01	9.885E 00	7.452E-02	1.326E 02	1.666E 02
3	3.019E 03	1.167E 02	6.430E 02	2.595E 02	1.020E 01	9.885E 00	6.921E-02	1.428E 02	1.668E 02

STA	L/D	DELTA E	LE
1	1.101E 01	2.026E 01	3.500E 00
2	1.572E 01	2.026E 01	3.500E 00
3	2.044E 01	2.026E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 8

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	3.099E 03	1.106E 02	1.065E 03	3.405E 02	2.180E 01	2.112E 01	9.190E-02	2.298E 02	1.668E 02
2	3.047E 03	1.228E 02	1.062E 03	3.422E 02	2.180E 01	2.112E 01	9.673E-02	2.184E 02	1.673E 02
3	3.005E 03	1.310E 02	1.072E 03	3.565E 02	2.179E 01	2.112E 01	9.367E-02	2.255E 02	1.679E 02

STA	L/D	DELTA E	LE
1	1.101E 01	2.997E 01	3.500E 00
2	1.572E 01	2.997E 01	3.500E 00
3	2.044E 01	2.997E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 4

DATA POINT 4

STA	PB	TB	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.0[illegible] 03	1.[illegible] 02	1.397E 03	4.572E 02	3.129E 01	3.033E 01	9.067E-02	3.346E 02	1.623E 02
2	2.0[illegible] 03	1.[illegible] 02	1.355E 03	4.091E 02	3.130E 01	3.033E 01	1.097E-01	2.764E 02	1.630E 02
3	2.0[illegible] 03	1.[illegible] 02	1.376E 03	4.257E 02	3.130E 01	3.033E 01	1.072E-01	2.831E 02	1.637E 02

STA	L/D	DELTA ε	LE
1	1.1[illegible] 01	3.[illegible] 01	3.500E 00
2	1.[illegible] 01	3.[illegible] 01	3.500E 00
3	2.044E 01	3.[illegible] 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 5

DATA POINT 5

STA	PB	TB	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.0[illegible] 03	1.[illegible] 02	1.470E 03	4.607E 02	3.432E 01	3.304E 01	9.856E-02	3.352E 02	1.658E 02
2	2.0[illegible] 03	1.[illegible] 02	1.455E 03	4.236E 02	3.433E 01	3.304E 01	1.131E-01	2.921E 02	1.666E 02
3	2.044E 03	1.474E 02	1.470E 03	4.516E 02	3.432E 01	3.304E 01	1.086E-01	3.042E 02	1.674E 02

STA	L/D	DELTA ε	LE
1	1.101E 01	3.785E 01	3.500E 00
2	1.572E 01	3.785E 01	3.500E 00
3	2.044E 01	3.785E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 6

DATA POINT 6

STA	PB	TB	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.012E 03	1.209E 02	1.523E 03	4.712E 02	3.594E 01	3.460E 01	1.005E-01	3.443E 02	1.687E 02
2	2.973E 03	1.385E 02	1.505E 03	4.435E 02	3.594E 01	3.460E 01	1.134E-01	3.050E 02	1.695E 02
3	2.993E 03	1.500E 02	1.491E 03	4.218E 02	3.594E 01	3.460E 01	1.273E-01	2.717E 02	1.663E 02

STA	L/D	DELTA ε	LE
1	1.101E 01	3.675E 01	3.500E 00
2	1.572E 01	3.675E 01	3.500E 00
3	2.044E 01	3.675E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 8

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	2.993E 03	1.243E 02	1.625E 03	5.542E 02	3.790E 01	3.554E 01	8.343E-02	4.259E 02	1.652E 02
2	2.953E 03	1.404E 02	1.568E 03	4.675E 02	3.788E 01	3.554E 01	1.007E-01	3.271E 02	1.668E 02
3	2.913E 03	1.526E 02	1.560E 03	4.551E 02	3.787E 01	3.554E 01	1.178E-01	2.828E 02	1.684E 02

STA	L/D	DELTA E	LE
1	1.101E 01	3.980E 01	3.500E 00
2	1.572E 01	3.980E 01	3.500E 00
3	2.044E 01	3.980E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 8

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	2.980E 03	1.300E 02	1.710E 03	6.303E 02	3.942E 01	3.792E 01	7.579E-02	5.003E 02	1.649E 02
2	2.939E 03	1.429E 02	1.630E 03	5.103E 02	3.930E 01	3.792E 01	1.032E-01	3.674E 02	1.658E 02
3	2.899E 03	1.557E 02	1.615E 03	4.872E 02	3.930E 01	3.792E 01	1.184E-01	3.315E 02	1.667E 02

STA	L/D	DELTA E	LE
1	1.101E 01	4.055E 01	3.500E 00
2	1.572E 01	4.055E 01	3.500E 00
3	2.044E 01	4.055E 01	3.500E 00

DIMENSIONLESS PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 8

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	1.1432E 03	3.9835E 00	3.1775E 05	1.0733E 00	6.5770E 02
1	2	1.1515E 03	3.9347E 00	3.2106E 05	1.0729E 00	6.6574E 02
1	3	1.1349E 03	3.8802E 00	3.2484E 05	1.0731E 00	6.5978E 02
2	1	1.3682E 03	3.8256E 00	3.2710E 05	1.2444E 00	7.9999E 02
2	2	1.4261E 03	3.7072E 00	3.3581E 05	1.2318E 00	8.4438E 02
2	3	1.3167E 03	3.5919E 00	3.4482E 05	1.2477E 00	7.8950E 02
3	1	1.7486E 03	3.5938E 00	3.4467E 05	1.3986E 00	1.0482E 03
3	2	1.6208E 03	3.3857E 00	3.6242E 05	1.3748E 00	1.0117E 03
3	3	1.7445E 03	3.2029E 00	3.7957E 05	1.3819E 00	1.0998E 03
4	1	1.7096E 03	3.4183E 00	3.4884E 05	1.5742E 00	1.0466E 03
4	2	2.0390E 03	3.1844E 00	3.7200E 05	1.4664E 00	1.2848E 03
4	3	1.9627E 03	2.9515E 00	3.9386E 05	1.4697E 00	1.2730E 03
5	1	1.3504E 03	3.3395E 00	3.6299E 05	1.5724E 00	1.1424E 03
5	2	2.0694E 03	3.0787E 00	3.8827E 05	1.4897E 00	1.3325E 03
5	3	1.9761E 03	2.8595E 00	4.1246E 05	1.5007E 00	1.2980E 03
6	1	1.8829E 03	3.3031E 00	3.6358E 05	1.5865E 00	1.1675E 03
6	2	2.0896E 03	3.0362E 00	3.8976E 05	1.5827E 00	1.3401E 03
6	3	2.3081E 03	2.8111E 00	4.1514E 05	1.4454E 00	1.5265E 03
7	1	1.5600E 03	3.2689E 00	3.6766E 05	1.7240E 00	9.7134E 02
7	2	1.9962E 03	2.9964E 00	3.9500E 05	1.5447E 00	1.2829E 03
7	3	2.1225E 03	2.7654E 00	4.2184E 05	1.4938E 00	1.4130E 03
8	1	1.4136E 03	3.2271E 00	3.7064E 05	1.8480E 00	8.8474E 02
8	2	1.8846E 03	2.9478E 00	3.9932E 05	1.8098E 00	1.2263E 03
8	3	2.0583E 03	2.7085E 00	4.2807E 05	1.5383E 00	1.3817E 03

DATA POINT	STA	HMU RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0177E 00	9.4073E-01	1.3036E 00	9.9757E-01
1	2	1.0175E 00	9.4143E-01	1.2977E 00	9.9806E-01
1	3	1.0177E 00	9.4102E-01	1.2978E 00	1.0005E 00
2	1	1.0626E 00	8.8273E-01	2.0089E 00	9.9359E-01
2	2	1.0596E 00	8.8885E-01	1.9970E 00	9.9542E-01
2	3	1.0647E 00	8.8857E-01	2.0569E 00	9.9708E-01
3	1	1.1085E 00	8.5226E-01	2.8569E 00	9.9590E-01
3	2	1.1010E 00	8.6162E-01	2.6849E 00	9.9751E-01
3	3	1.1070E 00	8.7065E-01	2.7044E 00	1.0008E 00
4	1	1.1197E 00	8.7590E-01	3.0913E 00	1.0190E 00
4	2	1.1255E 00	8.7743E-01	3.1962E 00	1.0095E 00
4	3	1.1404E 00	8.9326E-01	3.1826E 00	1.0137E 00
5	1	1.1703E 00	8.6038E-01	3.8659E 00	1.0215E 00
5	2	1.1612E 00	8.6612E-01	3.3212E 00	1.0151E 00
5	3	1.1739E 00	8.7060E-01	3.3323E 00	1.0190E 00
6	1	1.1780E 00	8.6633E-01	3.4351E 00	1.0247E 00
6	2	1.1733E 00	8.7237E-01	3.4235E 00	1.0182E 00
6	3	1.1846E 00	8.8182E-01	3.4283E 00	1.0118E 00
7	1	1.2486E 00	8.5126E-01	4.7067E 00	1.0459E 00
7	2	1.2167E 00	8.6024E-01	3.6029E 00	1.0233E 00
7	3	1.2156E 00	8.6134E-01	3.6736E 00	1.0192E 00
8	1	1.2549E 00	8.8185E 00	5.5193E 00	1.0726E 00
	2	1.1973E 00	8.6470E-01	3.9501E 00	1.0330E 00
	3	1.1735E 00	8.6956E-01	3.4841E 00	1.0263E 00

DIMENSIONLESS PARAMETERS

TEST 110 CURRENT CALC BURNOUT AFTER DATA POINT 8

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	HH/PR(-n)
1	1	1.1081E 03	3.3600E 00	3.6334E 05	1.0354E 00	6.8239E 02
1	2	1.1165E 03	3.3260E 00	3.6649E 05	1.0358E 00	6.9237E 02
1	3	1.1000E 03	3.2762E 00	3.7196E 05	1.0362E 00	6.8429E 02
2	1	1.2437E 03	2.3287E 00	4.8045E 05	1.1008E 00	8.8691E 02
2	2	1.3030E 03	2.3190E 00	4.8282E 05	1.1036E 00	9.3078E 02
2	3	1.1987E 03	2.1943E 00	5.0515E 05	1.1102E 00	8.7540E 02
3	1	1.5393E 03	1.7566E 00	6.0260E 05	1.1662E 00	1.2287E 03
3	2	1.6188E 03	1.7435E 00	6.0807E 05	1.1572E 00	1.2988E 03
3	3	1.5587E 03	1.6615E 00	6.3448E 05	1.1602E 00	1.2728E 03
4	1	1.4832E 03	1.3768E 00	7.1734E 05	1.2231E 00	1.3044E 03
4	2	1.3059E 03	1.4852E 00	6.7628E 05	1.1891E 00	1.2616E 03
4	3	1.7560E 03	1.4071E 00	7.1119E 05	1.1982E 00	1.5317E 03
5	1	1.6109E 03	1.3594E 00	7.4201E 05	1.2225E 00	1.4247E 03
5	2	1.6539E 03	1.4165E 00	7.1968E 05	1.1987E 00	1.4125E 03
5	3	1.7724E 03	1.3217E 00	7.6763E 05	1.2002E 00	1.5058E 03
6	1	1.6401E 03	1.3264E 00	7.5281E 05	1.2260E 00	1.4644E 03
6	2	1.8549E 03	1.3690E 00	7.3616E 05	1.2031E 00	1.6398E 03
6	3	2.0851E 03	1.3961E 00	7.2749E 05	1.1822E 00	1.8246E 03
7	1	1.3532E 03	1.1253E 00	8.7084E 05	1.2658E 00	1.2900E 03
7	2	1.7711E 03	1.2982E 00	7.7347E 05	1.2141E 00	1.5959E 03
7	3	1.8150E 03	1.2979E 00	7.7773E 05	1.1980E 00	1.7253E 03
8	1	1.2306E 03	9.6483E-01	9.7791E 05	1.2978E 00	1.2361E 03
8	2	1.6756E 03	1.1866E 00	8.3482E 05	1.2336E 00	1.5688E 03
8	3	1.8589E 03	1.2091E 00	8.2599E 05	1.2121E 00	1.7230E 03

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

AF = 0.2264E-03 D = 0.1d3E-01 L = 0.450E 01 DELTA TB = 0.900E 00

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	[illegible]	3.943E 03	1.089E 02	1.181E 02	1.100E 00	9.010E 00	4.638E 02	3.962E 00	-4.742E 01	4.167E 03
2	[illegible]	3.935E 03	1.092E 02	1.311E 02	1.095E 00	1.522E 01	7.730E 02	1.115E 01	-3.204E 01	4.148E 03
3	[illegible]	3.973E 03	1.085E 02	1.437E 02	1.097E 00	2.036E 01	1.020E 03	1.969E 01	-2.254E 01	4.155E 03
4	3.973E 03	3.958E 03	1.085E 02	1.571E 02	1.110E 00	2.436E 01	1.209E 03	2.792E 01	-2.174E 01	4.205E 03
5	3.970E 03	3.955E 03	1.065E 02	1.649E 02	1.090E 00	2.630E 01	1.302E 03	3.246E 01	-1.972E 01	4.129E 03
6	3.969E 03	3.950E 03	1.089E 02	1.762E 02	1.085E 00	2.808E 01	1.385E 03	3.687E 01	-2.568E 01	4.110E 03
7	3.965E 03	3.945E 03	1.090E 02	1.757E 02	1.082E 00	2.825E 01	1.400E 03	3.749E 01	-2.399E 01	4.098E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

DATA POINT 1

STA	[illegible]	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	[illegible]	1.[illegible]	2.340E 02	1.791E 02	1.269E 00	1.297E 00	2.009E-02	5.457E 01	4.739E 01
2	[illegible]	1.[illegible]	2.140E 02	1.[illegible]E 02	1.271E 00	1.247E 00	3.[illegible]E-02	4.161E 01	4.743E 01
3	[illegible]	1.[illegible]	2.[illegible] 02	2.[illegible] 02	5.[illegible]E-01	8.[illegible]E-01	9.639E-03	3.238E 01	4.748E 01

STA	L/D	DELTA L	LE
1	1.[illegible] 01	[illegible]	2.000E 00
2	1.[illegible] 01	[illegible]	2.000E 00
3	1.[illegible] 01	[illegible]	7.500E-01

LOCAL TEST PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	[illegible]	[illegible]	4.190E 02	2.759E 02	3.558E 00	3.641E 00	2.338E-02	1.557E 02	4.731E 01
2	[illegible]	[illegible]	3.970E 02	2.520E 02	3.563E 00	3.641E 00	2.854E-02	1.276E 02	4.741E 01
3	[illegible]	[illegible]	4.950E 02	3.730E 02	3.333E 00	3.533E 00	1.453E-02	2.631E 02	4.751E 01

STA	L/D	DELTA E	LE
1	[illegible]	[illegible]	2.000E 00
2	[illegible]	[illegible]	2.000E 00
3	[illegible]	[illegible]	7.500E-01

LOCAL TEST PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	[illegible]	[illegible]	6.050E 02	3.745E 02	6.280E 00	6.420E 00	2.584E-02	2.484E 02	[illegible]
2	[illegible]	[illegible]	[illegible]	3.515E 02	6.288E 00	6.420E 00	2.951E-02	2.175E 02	4.767E 01
3	[illegible]	1.417E 02	[illegible]	4.465E 02	5.966E 00	6.266E 00	2.058E-02	3.045E 02	4.783E 01

STA	L/D	DELTA E	LE
1	[illegible]	9.160E 00	2.000E 00
2	[illegible]	9.160E 00	2.000E 00
3	[illegible]	[illegible]	7.500E-01

LOCAL TEST PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	[illegible]	[illegible]	7.440E 02	4.336E 02	8.899E 00	9.094E 00	3.024E-02	3.008E 02	4.822E 01
2	[illegible]	1.436E 02	7.300E 02	4.169E 02	8.906E 00	9.094E 00	3.327E-02	2.733E 02	4.844E 01
3	[illegible]	1.544E 02	[illegible]	5.304E 02	8.423E 00	8.864E 00	2.358E-02	3.760E 02	4.866E 01

STA	L/D	DELTA E	LE
1	[illegible]	1.097E 01	2.000E 00
2	[illegible]	1.097E 01	2.000E 00
3	[illegible]	4.010E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.963E 03	1.367E 02	8.030E 02	4.461E 02	1.040E 01	1.061E 01	3.428E-02	3.094E 02	4.743E 01
2	3.959E 03	1.492E 02	7.840E 02	4.231E 02	1.041E 01	1.061E 01	3.873E-02	2.738E 02	4.768E 01
3	3.956E 03	1.614E 02	8.780E 02	5.608E 02	9.652E 00	1.024E 01	2.965E-02	3.991E 02	4.794E 01

STA	L/D	DELTA E	LE
1	1.023E 01	1.188E 01	2.000E 00
2	1.478E 01	1.188E 01	2.000E 00
3	1.933E 01	4.300E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.955E 03	1.425E 02	8.900E 02	4.990E 02	1.174E 01	1.201E 01	3.362E-02	3.573E 02	4.733E 01
2	3.950E 03	1.575E 02	8.760E 02	4.824E 02	1.175E 01	1.201E 01	3.693E-02	3.253E 02	4.763E 01
3	3.951E 03	1.725E 02	9.800E 02	6.269E 02	1.114E 01	1.173E 01	2.580E-02	4.544E 02	4.794E 01

STA	L/D	DELTA E	LE
1	1.022E 01	1.265E 01	2.000E 00
2	1.478E 01	1.265E 01	2.000E 00
3	1.933E 01	4.633E 00	7.500E-01

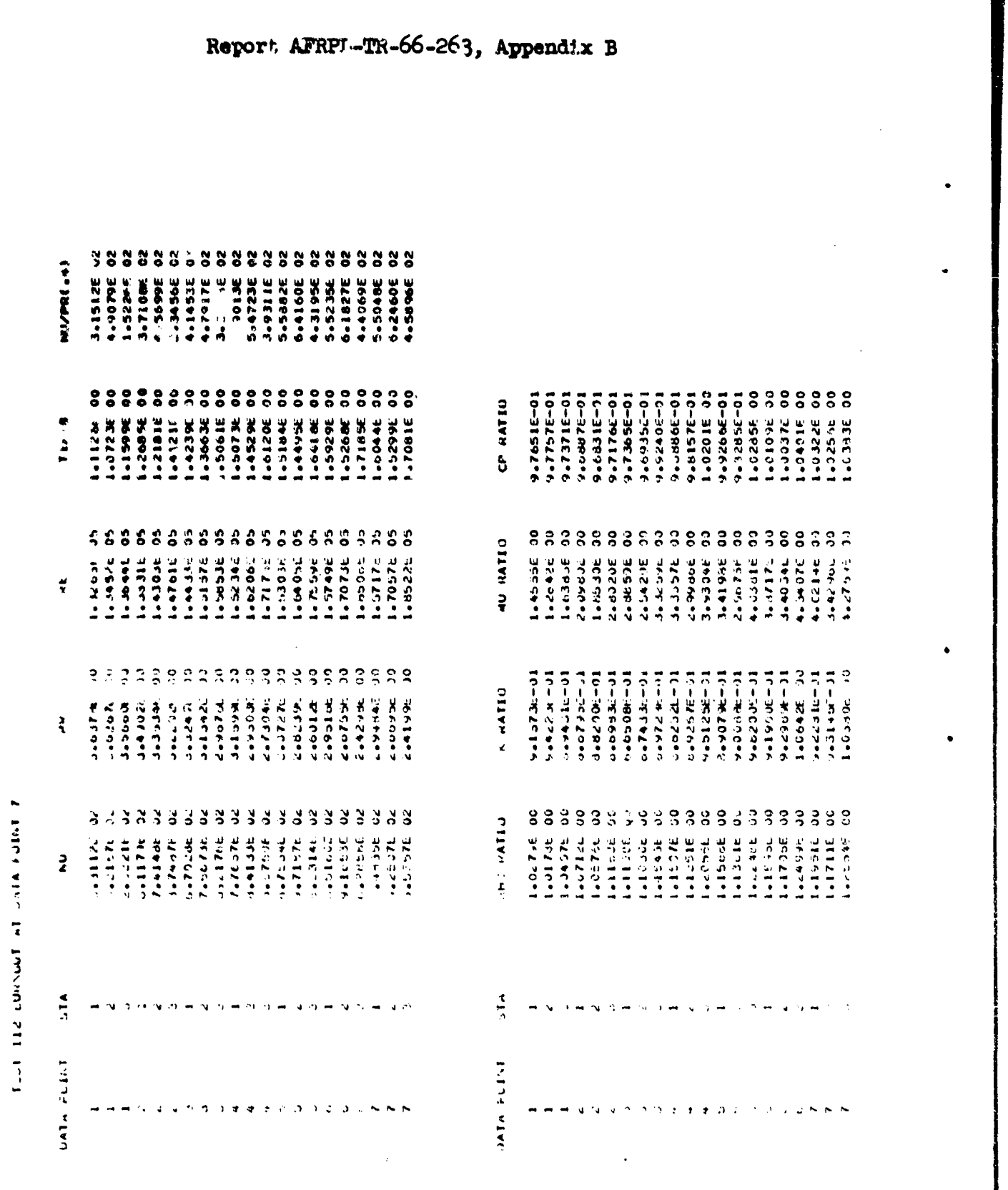
LOCAL TEST PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.972E 03	1.426E 02	9.000E 02	5.071E 02	1.188E 01	1.221E 01	3.151E-02	3.644E 02	4.720E 01
2	3.969E 03	1.579E 02	8.820E 02	4.870E 02	1.189E 01	1.221E 01	3.729E-02	3.274E 02	4.750E 01
3	3.726E 03	1.729E 02	9.850E 02	6.311E 02	1.128E 01	1.193E 01	2.589E-02	4.482E 02	4.781E 01

STA	L/D	DELTA E	LE
1	1.022E 01	1.272E 01	2.000E 00
2	1.478E 01	1.272E 01	2.000E 00
3	1.933E 01	4.700E 00	7.500E-01



DIMENSIONLESS PARAMETERS

TEST 112 BURNOUT AT DATA POINT 7

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TL/TF	NU/PR(.4)
1	1	5.0660E 02	2.8886E 00	1.6031E 05	1.0533E 00	3.3143E 02
1	2	7.9673E 02	3.0804E 00	1.5282E 05	1.0349E 00	5.1801E 02
1	3	2.3730E 02	2.5672E 00	1.7568E 05	1.0740E 00	1.6274E 02
2	1	5.5465E 02	2.1020E 00	2.0429E 05	1.1183E 00	4.1207E 02
2	2	6.8305E 02	2.2081E 00	1.9705E 05	1.0983E 00	4.9756E 02
2	3	3.3320E 02	1.6396E 00	2.5014E 05	1.1709E 00	2.7341E 02
3	1	5.9274E 02	1.6437E 00	2.4901E 05	1.1749E 00	4.8529E 02
3	2	6.7937E 02	1.7035E 00	2.4323E 05	1.1548E 00	5.4900E 02
3	3	4.6492E 02	1.3806E 00	2.9128E 05	1.2019E 00	4.0865E 02
4	1	6.8522E 02	1.4415E 00	2.8292E 05	1.2023E 00	5.9198E 02
4	2	7.5458E 02	1.4582E 00	2.8143E 05	1.1846E 00	6.4889E 02
4	3	5.2867E 02	1.1491E 00	3.4715E 05	1.2343E 00	5.0007E 02
5	1	7.7513E 02	1.3951E 00	2.8622E 05	1.2059E 00	6.7847E 02
5	2	8.7695E 02	1.4244E 00	2.8264E 05	1.1835E 00	7.6123E 02
5	3	5.7516E 02	1.0792E 00	3.6154E 05	1.2429E 00	5.5790E 02
6	1	7.5543E 02	1.2408E 00	3.1600E 05	1.2287E 00	6.9297E 02
6	2	8.2983E 02	1.2456E 00	3.1696E 05	1.2085E 00	7.6004E 02
6	3	5.8066E 02	9.6429E-01	4.0341E 05	1.2643E 00	5.8917E 02
7	1	7.5249E 02	1.1694E 00	3.2813E 05	1.2321E 00	7.0206E 02
7	2	8.3781E 02	1.2070E 00	3.2600E 05	1.2094E 00	7.7747E 02
7	3	6.0384E 02	9.7152E-01	3.9918E 05	1.2615E 00	6.1086E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

AF = 0.204E-03 D = 0.183E-01 L = 0.500E 01 DELTA TO = 0.200E-00

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	Q
1	3.984E 03	3.979E 03	6.170E 01	7.410E 01	5.790E-01	1.023E 01	4.716E 02	4.574E 00	2.056E 00	2.193E 03
2	3.980E 03	3.975E 03	6.175E 01	7.990E 01	5.790E-01	1.234E 01	5.662E 02	6.624E 00	4.395E-01	2.193E 03
3	4.008E 03	4.001E 03	6.190E 01	8.640E 01	5.840E-01	1.433E 01	6.548E 02	8.895E 00	-1.298E 00	2.212E 03
4	4.002E 03	3.998E 03	6.200E 01	9.340E 01	5.830E-01	1.626E 01	7.383E 02	1.138E 01	-1.546E 00	2.208E 03
5	4.039E 03	4.035E 03	6.200E 01	9.710E 01	5.810E-01	1.721E 01	7.795E 02	1.272E 01	-2.030E 00	2.216E 03
6	4.032E 03	4.028E 03	6.215E 01	1.020E 02	5.850E-01	1.833E 01	8.293E 02	1.441E 01	-2.348E 00	2.216E 03
7	4.030E 03	4.026E 03	6.220E 01	1.074E 02	5.850E-01	1.950E 01	8.801E 02	1.627E 01	-2.938E 00	2.216E 03
8	4.029E 03	4.024E 03	6.220E 01	1.123E 02	5.850E-01	2.049E 01	9.234E 02	1.794E 01	-3.586E 00	2.216E 03
9	4.028E 03	4.024E 03	6.220E 01	1.171E 02	5.850E-01	2.136E 01	9.625E 02	1.949E 01	-4.540E 00	2.216E 03
10	4.028E 03	4.022E 03	6.230E 01	1.243E 02	5.860E-01	2.263E 01	1.015E 03	2.178E 01	-5.976E 00	2.220E 03
11	4.027E 03	4.022E 03	6.230E 01	1.300E 02	5.850E-01	2.348E 01	1.053E 03	2.344E 01	-7.408E 00	2.216E 03
12	4.027E 03	4.022E 03	6.240E 01	1.400E 02	5.810E-01	2.463E 01	1.101E 03	2.571E 01	-1.163E 01	2.201E 03
13	4.030E 03	4.022E 03	6.230E 01	1.483E 02	5.790E-01	2.533E 01	1.130E 03	2.713E 01	-1.692E 01	2.193E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 1.3 DATA POINT 13 IS BURNOUT

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.981E 03	6.852E 01	2.280E 02	1.704E 02	1.301E 00	1.335E 00	1.311E-02	1.019E 02	2.448E 01
2	3.980E 03	7.100E 01	2.280E 02	1.704E 02	1.301E 00	1.335E 00	1.344E-02	9.939E 01	2.451E 01
3	3.979E 03	7.348E 01	2.480E 02	1.889E 02	1.352E 00	1.362E 00	1.180E-02	1.155E 02	2.453E 01

STA	L/D	DELTA E	LE
1	1.251E 01	4.130E 00	2.000E 00
2	1.701E 01	4.130E 00	2.000E 00
3	2.161E 01	1.960E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 2

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.977E 03	7.173E 01	2.990E 02	2.191E 02	1.883E 00	1.933E 00	1.312E-02	1.474E 02	2.451E 01
2	3.976E 03	7.536E 01	2.990E 02	2.191E 02	1.883E 00	1.933E 00	1.345E-02	1.438E 02	2.455E 01
3	3.975E 03	7.859E 01	3.260E 02	2.441E 02	1.967E 00	1.977E 00	1.198E-02	1.651E 02	2.459E 01

STA	L/D	DELTA E	LE
1	1.251E 01	4.580E 00	2.000E 00
2	1.706E 01	4.980E 00	2.000E 00
3	2.161E 01	1.910E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 3

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.064E 03	7.537E 01	3.800E 02	2.760E 02	2.524E 00	2.595E 00	1.281E-02	2.026E 02	2.476E 01
2	4.063E 03	8.027E 01	3.790E 02	2.769E 02	2.525E 00	2.595E 00	1.323E-02	1.966E 02	2.481E 01
3	4.061E 03	8.517E 01	4.080E 02	3.030E 02	2.644E 00	2.658E 00	1.220E-02	2.178E 02	2.486E 01

STA	L/D	DELTA E	LE
1	1.251E 01	5.780E 00	2.000E 00
2	1.706E 01	5.780E 00	2.000E 00
3	2.161E 01	2.220E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 4

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.060E 03	7.927E 01	4.490E 02	3.229E 02	3.233E 00	3.321E 00	1.363E-02	2.436E 02	2.476E 01
2	4.059E 03	8.359E 01	4.450E 02	3.189E 02	3.234E 00	3.321E 00	1.425E-02	2.339E 02	2.482E 01
3	4.057E 03	8.791E 01	4.980E 02	3.589E 02	3.389E 00	3.402E 00	1.274E-02	2.671E 02	2.489E 01

STA	L/D	DELTA E	LE
1	1.251E 01	6.560E 00	2.000E 00
2	1.706E 01	6.560E 00	2.000E 00
3	2.161E 01	2.520E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	J/AP	M	DEL TF	VS
1	4.037E 03	8.130E 01	4.840E 02	3.504E 02	3.605E 00	3.704E 00	1.376E-02	2.691E 02	2.467E 01
2	4.036E 03	8.032E 01	4.800E 02	3.416E 02	3.606E 00	3.704E 00	1.462E-02	2.533E 02	2.494E 01
3	4.035E 03	9.534E 01	5.250E 02	3.830E 02	3.796E 00	3.805E 00	1.323E-02	2.876E 02	2.501E 01

STA	L/D	DELTA E	LE
1	1.458E 01	6.933E 00	2.000E 00
2	1.470E 01	6.933E 00	2.000E 00
3	2.161E 01	2.673E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	J/AP	M	DEL TF	VS
1	4.030E 03	8.407E 01	5.230E 02	3.800E 02	4.091E 00	4.202E 00	1.491E-02	2.819E 02	2.469E 01
2	4.029E 03	9.204E 01	5.150E 02	3.815E 02	4.092E 00	4.202E 00	1.559E-02	2.695E 02	2.498E 01
3	4.028E 03	1.000E 02	5.660E 02	4.086E 02	4.245E 00	4.306E 00	1.395E-02	3.086E 02	2.506E 01

STA	L/D	DELTA E	LE
1	1.458E 01	7.390E 00	2.000E 00
2	1.470E 01	7.390E 00	2.000E 00
3	2.161E 01	2.840E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	J/AP	M	DEL TF	VS
1	4.023E 03	4.700E 01	5.580E 02	3.960E 02	4.603E 00	4.737E 00	1.521E-02	3.115E 02	2.493E 01
2	4.022E 03	9.610E 01	5.450E 02	3.730E 02	4.600E 00	4.737E 00	1.711E-02	2.769E 02	2.502E 01
3	4.020E 03	1.051E 02	6.240E 02	4.502E 02	4.861E 00	4.876E 00	1.413E-02	3.450E 02	2.512E 01

STA	L/D	DELTA E	LE
1	1.458E 01	7.390E 00	2.000E 00
2	1.470E 01	7.390E 00	2.000E 00
3	2.161E 01	2.840E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 112 DATA POINT 13 IS BURNOUT

DATA POINT 8

STA	PE	TC	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.026E 03	9.978E 01	6.630E 02	4.045E 02	5.078E 00	5.223E 00	1.660E-02	3.147E 02	2.495E 01
2	4.026E 03	9.978E 01	6.590E 02	3.810E 02	5.083E 00	5.223E 00	1.858E-02	2.812E 02	2.506E 01
3	4.026E 03	1.033E 02	6.530E 02	4.000E 02	5.346E 00	5.369E 00	1.530E-02	3.508E 02	2.517E 01

STA	L/D	DELTA L	LE
1	1.251E 01	8.250E 00	2.000E 00
2	1.751E 01	8.250E 00	2.000E 00
3	2.191E 01	5.160E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 9

STA	PE	TC	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.026E 03	9.239E 01	6.210E 02	4.224E 02	5.508E 00	5.676E 00	1.720E-02	3.300E 02	2.498E 01
2	4.026E 03	1.054E 02	5.995E 02	3.976E 02	5.515E 00	5.676E 00	1.929E-02	2.943E 02	2.510E 01
3	4.026E 03	1.144E 02	5.820E 02	4.179E 02	5.781E 00	5.825E 00	1.594E-02	3.654E 02	2.521E 01

STA	L/D	DELTA L	LE
1	1.251E 01	8.250E 00	2.000E 00
2	1.751E 01	8.250E 00	2.000E 00
3	2.191E 01	5.160E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 10

STA	PE	TC	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.026E 03	9.640E 01	6.520E 02	4.314E 02	6.183E 00	6.347E 00	1.895E-02	3.350E 02	2.507E 01
2	4.026E 03	1.088E 02	6.310E 02	4.075E 02	6.191E 00	6.347E 00	2.125E-02	2.987E 02	2.520E 01
3	4.026E 03	1.212E 02	7.230E 02	5.007E 02	6.448E 00	6.496E 00	1.712E-02	3.795E 02	2.533E 01

STA	L/D	DELTA L	LE
1	1.251E 01	9.120E 00	2.000E 00
2	1.751E 01	9.120E 00	2.000E 00
3	2.191E 01	3.600E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 11

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.024E 03	9.553E 01	6.720E 02	4.304E 02	6.643E 00	6.830E 00	2.028E-02	3.368E 02	2.506E 01
2	4.023E 03	1.131E 02	6.539E 02	4.169E 02	6.652E 00	6.830E 00	2.245E-02	3.038E 02	2.520E 01
3	4.022E 03	1.266E 02	7.553E 02	5.188E 02	6.962E 00	7.008E 00	1.787E-02	3.922E 02	2.534E 01

STA	L/D	DELTA E	LE
1	1.251E 01	9.460E 00	2.000E 00
2	1.706E 01	9.460E 00	2.000E 00
3	2.181E 01	3.640E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 12

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.024E 03	1.051E 02	7.195E 02	4.634E 02	7.287E 00	7.489E 00	2.079E-02	3.603E 02	2.494E 01
2	4.023E 03	1.206E 02	6.993E 02	4.424E 02	7.295E 00	7.489E 00	2.327E-02	3.218E 02	2.511E 01
3	4.022E 03	1.361E 02	8.120E 02	5.556E 02	7.684E 00	7.710E 00	1.838E-02	4.195E 02	2.527E 01

STA	L/D	DELTA E	LE
1	1.251E 01	9.920E 00	2.000E 00
2	1.706E 01	9.920E 00	2.000E 00
3	2.181E 01	3.830E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 113 DATA POINT 13 IS BURNOUT

DATA POINT 13

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.026E 03	1.096E 02	7.590E 02	4.959E 02	7.686E 00	7.903E 00	2.046E-02	3.863E 02	2.490E 01
2	4.024E 03	1.248E 02	7.490E 02	4.844E 02	7.691E 00	7.903E 00	2.210E-02	3.576E 02	2.509E 01
3	4.022E 03	1.440E 02	8.580E 02	5.936E 02	8.070E 00	8.120E 00	1.806E-02	4.496E 02	2.527E 01

STA	L/D	DELTA E	LE
1	1.251E 01	1.020E 01	2.000E 00
2	1.706E 01	1.020E 01	2.000E 00
3	2.181E 01	3.930E 00	7.500E-01

DIMENSIONLESS PARAMETERS

TEST 11, DATA POINT 13 IS BURNOUT

DATA POINT	STA	NU	PR	RE	TI/T8	MU/PR(.4)
1	1	3.724AE 02	5.7e72E 00	4.7587E 04	1.1927E 00	1.8481E 02
1	2	3.e012E 02	5.5967E 00	4.9546E 04	1.1872E 00	1.9087E 02
1	3	3.3234E 02	5.4526E 00	5.012oE 04	1.2164E 00	1.6888E 02
2	1	3.70e0E 02	5.5475E 00	4.9222E 04	1.2772E 00	1.8675E 02
2	2	3.7759E 02	5.3124E 00	5.1110E 04	1.2685E 00	1.9359E 02
2	3	3.3421E 02	5.0925E 00	5.0033E 04	1.3063E 00	1.7a2aE 02
3	1	3.e3e1E 02	5.3121E 00	5.1554E 04	1.3784E 00	1.8439E 02
3	2	3.e74xE 02	5.3177E 00	5.4183E 04	1.3639E 00	1.9278E 02
3	3	3.3696E 02	4.7537E 00	5.6793E 04	1.3996E 00	1.8062E 02
4	1	3.4017E 02	5.0760E 00	5.3549E 04	1.4518E 00	1.9851E 02
4	2	3.9343E 02	4.7348E 00	5.6881E 04	1.4270E 00	2.1123E 02
4	3	3.4759E 02	4.4442E 00	6.0094E 04	1.4041E 00	1.9162E 02
5	1	3.3259E 02	4.9593E 00	5.4331E 04	1.4971E 00	2.0164E 02
5	2	4.0178E 02	4.e90aE 00	5.8530E 04	1.4620E 00	2.1820E 02
5	3	3.6554E 02	4.2998E 00	6.1492E 04	1.5179E 00	2.0062E 02
6	1	4.1240E 02	4.e104E 00	5.6530E 04	1.5181E 00	2.2004E 02
6	2	4.2539E 02	4.4358E 00	6.0378E 04	1.4882E 00	2.3471E 02
6	3	3.7e46E 02	4.1249E 00	6.4213E 04	1.5511E 00	2.1359E 02
7	1	4.1e72E 02	4.ma07E 00	5.7e53E 04	1.5694E 00	2.2623E 02
7	2	4.e432E 02	4.2702E 00	6.2357E 04	1.4980E 00	2.5980E 02
7	3	3.7830E 02	3.9491E 00	6.6617E 04	1.6105E 00	2.1839E 02
8	1	4.5459E 02	4.5353E 00	5.9231E 04	1.5725E 00	2.4851E 02
8	2	5.0134E 02	4.1331E 00	6.4106E 04	1.5024E 00	2.8420E 02
8	3	4.e632E 02	3.e305E 00	6.8747E 04	1.e157E 00	2.3646E 02
9	1	4.e643E 02	4.e42aE 00	6.e550E 04	1.5975E 00	2.5909E 02
9	2	3.1771E 02	4.e073E 00	6.5795E 04	1.5223E 00	2.9711E 02
9	3	4.e65E 02	3.e022E 00	7.0960E 04	1.6362E 00	2.5039E 02
10	1	3.1405E 02	4.2559E 00	6.e603E 04	1.6020E 00	2.8795E 02
10	2	3.e571E 02	3.e8313E 00	6.9433E 04	1.5251E 00	3.3055E 02
10	3	4.4717E 02	3.4539E 00	7.4509E 04	1.6530E 00	2.7219E 02
11	1	3.475aE 02	4.1417E 00	6.9595E 04	1.6020E 00	3.1011E 02
11	2	3.9459E 02	3.e7006E 00	7.3542E 04	1.5302E 0	3.5230E 02
11	3	4.e309E 02	3.e311.E 00	7.7227E 04	1.6e86E 00	2.8686E 02
12	1	3.e591E 02	3.e511E 00	6.6134E 04	1.6376E 00	3.2121E 02
12	2	3.e69aE 02	3.4775E 00	7.3e19E 04	1.5572E 00	3.6972E 02
12	3	4.1578E 02	3.e3e52E 00	7.8327E 04	1.7037E 00	2.9935E 02
13	1	3.4401E 02	3.e69aE 00	6.7e91E 04	1.6781E 00	3.1870E 02
13	2	3.7284E 02	3.e366aE 00	7.e926E 04	1.e094E 00	3.5492E 02
13	3	4.e651E 02	2.e922aE 00	8.4722E 04	1.7443E 00	2.9726E 02

DATA POINT	STA	RHO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0440E 00	6.595[illegible]E-01	2.9527E 00	9.9255E-01
1	2	1.0427E 00	6.632[illegible]E-01	1.99[illegible]E 00	9.9161E-01
1	3	1.0503E 00	6.495[illegible]E-01	2.1364E 00	9.8593E-01
2	1	1.0752E 00	6.2611E-01	2.4435E 00	9.8717E-01
2	2	1.0636E 00	6.3131E-01	2.3913E 00	9.8593E-01
2	3	1.0741E 00	[illegible].2443E-01	2.5532E 00	9.8251E-01
3	1	1.0426E 00	6.0643E-01	3.0235E 00	9.8240E-01
3	2	1.0556E 00	6.1549E-01	2.8653E 00	9.8088E-01
3	3	1.1009E 00	6.1620E-01	3.0297E 00	9.7992E-01
4	1	1.1136E 00	6.6536E-01	3.4573E 00	9.8194E-01
4	2	1.1087E 00	6.1427E-01	3.2024E 00	9.8013E-01
4	3	1.1263E 00	6.2031E-01	3.4982E 00	9.7983E-01
5	1	1.1272E 00	6.0057E-01	3.7352E 00	9.8290E-01
5	2	1.1193E 00	[illegible].163[illegible]E-01	3.3961E 00	9.8067E-01
5	3	1.1283E 00	6.2634E-01	3.6454E 00	9.8294E-01
6	1	1.1343E 00	6.1651E-01	3.6343E 00	9.8316E-01
6	2	1.1281E 00	6.2063E-01	3.5231E 00	9.8073E-01
6	3	1.1511E 00	6.3536E-01	3.8801E 00	9.8795E-01
7	1	1.1513E 00	6.1714E-01	4.1617E 00	9.8796E-01
7	2	1.1324E 00	6.2057E-01	3.5443E 00	9.8099E-01
7	3	1.1751E 00	6.5095E-01	4.2722E 00	1.0000E 00
8	1	1.1536E 00	6.2151E-01	4.1480E 00	9.8688E-01
8	2	1.1251E 00	6.3182E-01	3.5402E 00	9.8133E-01
8	3	1.1727E 00	6.6014E-01	4.2694E 00	1.0027E 00
9	1	1.1634E 00	6.6792E-01	4.3072E 00	9.9345E-01
9	2	1.1429E 00	6.3612E-01	3.6433E 00	9.8415E-01
9	3	1.1503E 00	6.7298E-01	4.3771E 00	1.0086E 00
10	1	1.1672E 00	6.6490E-01	4.2944E 00	9.9539E-01
10	2	1.1462E 00	6.4642E-01	3.6331E 00	9.8580E-01
10	3	1.2009E 00	8.9126E-01	4.4279E 00	1.0147E 00
11	1	1.1698E 00	6.4613E-01	4.2610E 00	9.9639E-01
11	2	1.1499E 00	6.5530E-01	3.6412E 00	9.8787E-01
11	3	1.2110E 00	9.0794E-01	4.4735E 00	1.0200E 00
12	1	1.1855E 00	6.5555E-01	4.4728E 00	1.0050E 00
12	2	1.1624E 00	6.6672E-01	3.7483E 00	9.9502E-01
12	3	1.2234E 00	9.4448E-01	4.5968E 00	1.0300E 00
13	1	1.2036E 00	8.7352E-01	4.7333E 00	1.0145E 00
13	2	1.1872E 00	6.9134E-01	4.3707E 00	1.0087E 00
13	3	1.2539E 00	9.8702E-01	4.7499E 00	1.0386E 00

DIMENSIONLESS PARAMETERS

TEST IIC DATA POINT 13 IS JUNKOUT

DATA POINT	STA	RU(F)	PR(F)	RE(F)	TI/TF	MU/PR(.4)
1	1	3.0[illegible]E 02	3.0510E 00	7.1233E 04	1.0879E 00	2.0782E 02
1	2	3.0[illegible]E 02	3.0474E 00	7.1901E 04	1.0854E 00	2.1350E 02
1	3	3.0[illegible]E 02	3.0197E 00	7.5812E 04	1.0977E 00	1.9081E 02
2	1	3.3[illegible]E 02	2.0954E 00	8.2771E 04	1.1217E 00	2.1627E 02
2	2	3.3[illegible]E 02	2.0610E 00	8.3646E 04	1.1184E 00	2.2224E 02
2	3	3.3[illegible]E 02	2.0054E 00	8.9558E 04	1.1328E 00	2.0162E 02
3	1	3.1[illegible]E 02	2.0369E 00	9.7896E 04	1.1991E 00	2.1992E 02
3	2	3.1[illegible]E 02	2.0342E 00	9.8519E 04	1.1539E 00	2.2715E 02
3	3	2.9[illegible]E 02	2.1480E 00	1.0554E 05	1.1605E 00	2.1395E 02
4	1	3.2[illegible]E 02	2.0719E 00	1.0809E 05	1.1843E 00	2.4161E 02
4	2	3.3[illegible]E 02	2.0618E 00	1.0875E 05	1.1788E 00	2.5231E 02
4	3	2.9[illegible]E 02	1.9841E 00	1.1022E 05	1.1949E 00	2.3186E 02
5	1	3.2[illegible]E 02	1.9261E 00	1.1442E 05	1.1991E 00	2.4762E 02
5	2	3.4[illegible]E 02	1.9361E 00	1.1476E 05	1.1876E 00	2.6277E 02
5	3	3.0[illegible]E 02	1.7322E 00	1.2565E 05	1.2057E 00	2.4493E 02
6	1	3.4[illegible]E 02	1.8463E 00	1.1899E 05	1.2058E 00	2.7119E 02
6	2	3.6[illegible]E 02	1.8312E 00	1.2017E 05	1.1962E 00	2.8427E 02
6	3	3.1[illegible]E 02	1.6222E 00	1.3397E 05	1.2168E 00	2.6326E 02
7	1	3.3[illegible]E 02	1.7044E 00	1.2709E 05	1.2216E 00	2.8282E 02
7	2	3.2[illegible]E 02	1.7670E 00	1.2433E 05	1.1993E 00	3.1490E 02
7	3	3.2[illegible]E 02	1.6745E 00	1.4454E 05	1.2339E 00	2.7464E 02
8	1	3.4[illegible]E 02	1.6729E 00	1.2919E 05	1.2225E 00	3.1031E 02
8	2	3.2[illegible]E 02	1.7225E 00	1.2667E 05	1.2008E 00	3.4441E 02
8	3	3.4[illegible]E 02	1.6305E 00	1.4862E 05	1.2354E 00	3.0037E 02
9	1	3.3[illegible]E 02	1.6016E 00	1.3403E 05	1.2300E 00	3.2572E 02
9	2	4.0[illegible]E 02	1.6446E 00	1.3150E 05	1.2071E 00	3.8216E 02
9	3	3.6[illegible]E 02	1.5641E 00	1.5514E 05	1.2413E 00	3.1705E 02
10	1	3.5[illegible]E 02	1.5595E 00	1.5757E 05	1.2314E 00	3.0184E 02
10	2	4.0[illegible]E 02	1.5906E 00	1.3559E 05	1.2080E 00	4.0288E 02
10	3	3.6[illegible]E 02	1.4900E 00	1.6353E 05	1.2461E 00	3.4788E 02
11	1	4.0[illegible]E 02	1.5334E 00	1.3943E 05	1.2314E 00	3.8922E 02
11	2	3.8[illegible]E 02	1.5521E 00	1.3686E 05	1.2095E 00	4.2380E 02
11	3	4.3[illegible]E 02	1.4235E 00	1.7006E 05	1.2508E 00	3.6900E 02
12	1	4.7077E 02	1.4304E 00	1.4732E 05	1.2417E 00	4.0797E 02
12	2	5.2777E 02	1.4523E 00	1.4640E 05	1.2170E 00	4.5457E 02
12	3	4.1[illegible]E 02	1.3597E 00	1.6223E 05	1.2603E 00	3.9164E 02
13	1	4.6[illegible]E 02	1.5339E 00	1.5631E 05	1.2532E 00	4.1110E 02
13	2	4.4790E 02	1.3[illegible]E 00	1.5901E 05	1.2335E 00	4.4582E 02
13	3	4.3[illegible]E 02	1.0542E 00	1.9475E 05	1.2712E 00	3.9664E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 114 3/16X4.5 TUBE WALL TEMP AGREEMENT=100F BURNOUT AT DATA POINT 6

AF = 0.138E-03 D = 0.132E-01 L = 0.450E 01 DELTA TO = 0.200E 01

DATA POINTS

POINT	PB-IN	P3-OUT	T8-IN	T8-OUT	W	E2	I2	QP	HT BAL	G
1	3.913E 03	3.705E 03	6.730E 01	8.880E 01	1.920E 00	2.603E 01	9.083E 02	2.241E 01	-1.852E 00	1.302E 04
2	3.976E 03	3.730E 03	6.680E 01	1.003E 02	1.915E 00	3.344E 01	1.149E 03	3.642E 01	-2.728E 00	1.309E 04
3	3.930E 03	3.724E 03	6.680E 01	1.129E 02	1.910E 00	4.006E 01	1.362E 03	5.172E 01	-1.885E 00	1.305E 04
4	3.896E 03	3.720E 03	6.680E 01	1.258E 02	1.902E 00	4.566E 01	1.550E 03	6.709E 01	-1.643E 00	1.379E 04
5	3.890E 03	3.710E 03	6.660E 01	1.353E 02	1.902E 00	4.910E 01	1.670E 03	7.773E 01	-2.652E 00	1.378E 04
6	3.830E 03	3.705E 03	6.680E 01	1.455E 02	1.900E 00	5.290E 01	1.775E 03	8.750E 01	-5.381E 00	1.378E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 114 3/16X4=5 TUBE WALL TEMP AGREEMENT=10DF BURNOUT AT DATA POINT 6

DATA POINT 1

STA	P	T	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.5[illegible]E 03	7.3[illegible]E 01	5.1[illegible]E 02	9.144E 01	1.040E 01	1.093E 01	7.483E-01	1.339E 01	1.560E 02
2	3.7[illegible]E 03	6.2[illegible]E 01	4.8[illegible]E 02	8.000E 01	1.010E 01	9.675E 00	-4.442E-01	-2.223E 01	1.563E 02
3	3.7[illegible]E 03	6.7[illegible]E 01	5.750E 02	1.629E 02	1.052E 01	1.011E 01	1.342E-01	7.534E 01	1.566E 02

STA	L/D	DELTA L	LE
1	1.41[illegible]E 01	5.0[illegible]E 00	1.000E 00
2	1.40[illegible]E 01	5.7[illegible]E 00	1.000E 00
3	1.40[illegible]E 01	4.4[illegible]E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 114 3/16X4=5 TUBE WALL TEMP AGREEMENT=10DF BURNOUT AT DATA POINT 6

DATA POINT 2

STA	P	T	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.6[illegible]E 03	6.3[illegible]E 01	7.450E 02	9.890E 01	1.093E 01	1.033E 01	1.060E 00	1.541E 01	1.560E 02
2	3.7[illegible]E 03	5.[illegible]E 01	7.730E 02	1.707E 02	1.042E 01	1.009E 01	2.017E-01	7.975E 01	1.565E 02
3	3.7[illegible]E 03	5.6[illegible]E 01	7.360E 02	2.[illegible]E 02	1.094E 01	1.037E 01	1.253E-01	1.306E 02	1.570E 02

STA	L/D	DELTA L	LE
1	1.4[illegible]E 01	7.4[illegible]E 00	1.000E 00
2	1.40[illegible]E 01	7.8[illegible]E 00	1.000E 00
3	1.40[illegible]E 01	5.[illegible]E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 114 3/16X4=5 TUBE WALL TEMP AGREEMENT=10DF BURNOUT AT DATA POINT 6

DATA POINT 3

STA	P	T	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.[illegible]E 03	4.5[illegible]E 01	5.940E 02	1.481E 02	2.392E 01	2.318E 01	9.977E-01	5.829E 01	1.560E 02
2	3.7[illegible]E 03	1.[illegible]E 01	1.010E 03	2.303E 02	2.333E 01	2.290E 01	1.751E-01	1.307E 02	1.567E 02
3	3.7[illegible]E 03	1.[illegible]E 01	1.102E 03	3.[illegible]E 02	2.368E 01	2.319E 01	1.136E-01	2.042E 02	1.573E 02

STA	L/D	DELTA L	LE
1	1.4[illegible]E 01	8.5[illegible]E 00	1.000E 00
2	1.40[illegible]E 01	8.[illegible]E 00	1.000E 00
3	1.40[illegible]E 01	6.7[illegible]E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 114 3/16X4.5 TUBE WALL TEMP AGREEMENT=100F BURNOUT AT DATA POINT 6

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.808E 03	9.630E 01	1.205E 03	1.660E 02	3.088E 01	3.015E 01	4.200E-01	7.160E 01	1.257E 02
2	3.769E 03	1.094E 02	1.230E 03	2.421E 02	3.082E 01	2.979E 01	1.998E-01	[illegible]	[illegible]
3	3.730E 03	1.225E 02	1.300E 03	3.328E 02	3.067E 01	3.004E 01	1.429E-01	2.102E 02	1.579E 02

STA	L/D	DELTA E	L
1	1.416E 01	1.025E 01	1.000E 00
2	2.046E 01	1.010E 01	1.000E 00
3	2.675E 01	7.660E 00	7.800E-01

LOCAL TEST PARAMETERS

TEST 114 3/16X4.5 TUBE WALL TEMP AGREEMENT=100F BURNOUT AT DATA POINT 6

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.800E 03	1.010E 02	1.354E 03	2.164E 02	3.538E 01	3.406E 01	3.023E-01	1.153E 02	1.568E 02
2	3.760E 03	1.163E 02	1.390E 03	3.171E 02	3.448E 01	3.438E 01	1.712E-01	2.008E 02	1.571E 02

STA	L/D	DELTA E	L
1	1.416E 01	1.100E 01	1.000E 00
2	2.046E 01	1.065E 01	1.000E 00

LOCAL TEST PARAMETERS

TEST 114 3/16X4.5 TUBE WALL TEMP AGREEMENT=100F BURNOUT AT DATA POINT 6

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.792E 03	1.061E 02	1.475E 03	2.346E 02	3.965E 01	3.930E 01	3.059E-01	1.285E 02	1.562E 02
2	3.754E 03	1.236E 02	1.522E 03	3.589E 02	3.868E 01	3.87[illegible]E 01	1.648E-01	2.353E 02	1.574E 02

STA	L/D	DELTA E	L
1	1.416E 01	1.167E 01	1.000E 00
2	2.046E 01	1.151E 01	1.000E 00

DIMENSIONLESS PARAMETERS

TEST 114 3/16X4.5 TUBE WALL TEMP AGREEMENT=100F BURNOUT AT DATA POINT 6

DATA POINT	STA	NU	PR	RE	TL/TB	NU/PR(.4)
1	1	1.5126E 04	5.1482E 00	2.4101E 05	1.0249E 00	7.8536E 03
1	2	-8.9013E 03	4.8759E 00	2.5268E 05	9.5905E-01	-4.7231E 03
1	3	2.6682E 03	4.6346E 00	2.6400E 05	1.1376E 00	1.4446E 03
2	1	2.1209E 04	4.8375E 00	2.5375E 05	1.0283E 00	1.1209E 04
2	2	3.9893E 03	4.4603E 00	2.7108E 05	1.1447E 00	2.1898E 03
2	3	2.4488E 03	4.1817E 00	2.8749E 05	1.2339E 00	1.3817E 03
3	1	7.8785E 03	4.5310E 00	2.6778E 05	1.1060E 00	4.3049E 03
3	2	3.4147E 03	4.1216E 00	2.9028E 05	1.2334E 00	1.9378E 03
3	3	2.1801E 03	3.7840E 00	3.1189E 05	1.3508E 00	1.2063E 03
4	1	8.2463E 03	4.2625E 00	2.8094E 05	1.1889E 00	4.6174E 03
4	2	3.7390E 03	3.8128E 00	3.0862E 05	1.2682E 00	2.1891E 03
4	3	2.0925E 03	3.4219E 00	3.3797E 05	1.3609E 00	1.1461E 03
5	1	5.2843E 03	4.0878E 00	2.9108E 05	1.2055E 00	3.3504E 03
5	2	3.2568E 03	3.6050E 00	3.2344E 05	1.3405E 00	1.9500E 03
6	1	5.9091E 03	3.9162E 00	3.0146E 05	1.2278E 00	3.4228E 03
6	2	3.0597E 03	3.3908E 00	3.4021E 05	1.4031E 00	1.9928E 03

DATA PLINT	STA	HMG RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0056E 00	9.7831E-01	1.1319E 00	1.0007E 00
1	2	9.9092E-01	1.0395E 00	7.9383E-01	1.0049E 00
1	3	1.0224E 00	8.9586E-01	1.6317E 00	9.8659E-01
2	1	1.0065E 00	9.7585E-01	1.1374E 00	9.9607E-01
2	2	1.0244E 00	8.9217E-01	1.6534E 00	9.8434E-01
2	3	1.0582E 00	8.5753E-01	2.0367E 00	9.7763E-01
3	1	1.0250E 00	9.1682E-01	1.4763E 00	9.8693E-01
3	2	1.0563E 00	8.5881E-01	2.0269E 00	9.7657E-01
3	3	1.0951E 00	8.4677E-01	2.6107E 00	9.7163E-01
4	1	1.0339E 00	9.0261E-01	1.5612E 00	9.8275E-01
4	2	1.0693E 00	8.5814E-01	2.1475E 00	9.7133E-01
4	3	1.0988E 00	8.6047E-01	2.5842E 00	9.6903E-01
5	1	1.0510E 00	8.8407E-01	1.8943E 00	9.7768E-01
5	2	1.0937E 00	8.5405E-01	2.5307E 00	9.7011E-01
6	1	1.0574E 00	8.6488E-01	1.9710E 00	9.7439E-01
6	2	1.1116E 00	8.0123E-01	2.7844E 00	9.7002E-01

DIMENSIONLESS PARAMETERS

TEST 116 3/16X4.5 TCC WALL TEMP AGREEMENT=100F OUTPUT AT DATA POINT 6

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	1.4753E 04	4.7754E 00	2.5656E 05	1.0123E 00	8.0038E 03
1	2	-9.3703E 03	5.5469E 00	2.2643E 05	9.7910E-01	-4.5705E 03
1	3	2.3184E 03	3.3466E 00	3.4211E 05	1.0644E 00	1.5536E 03
2	1	2.9946E 04	4.4699E 00	2.7080E 05	1.0140E 00	1.1509E 04
2	2	3.7552E 03	3.2955E 00	3.5334E 05	1.0475E 00	2.3568E 03
2	3	2.2292E 03	2.5671E 00	4.1973E 05	1.1047E 00	1.5289E 03
3	1	7.3346E 03	3.5244E 00	3.2700E 05	1.0503E 00	4.5522E 03
3	2	3.1099E 03	2.5397E 00	4.2259E 05	1.1045E 00	2.1423E 03
3	3	1.9249E 03	1.9470E 00	5.2179E 05	1.1518E 00	1.4745E 03
4	1	7.6127E 03	3.1754E 00	3.5429E 05	1.0605E 00	4.9213E 03
4	2	3.3747E 03	2.2416E 00	4.6635E 05	1.1102E 00	2.3438E 03
4	3	2.0906E 03	1.5113E 00	5.5330E 05	1.1529E 00	1.9897E 03
5	1	7.4126E 03	2.8545E 00	4.0674E 05	1.0932E 00	3.6628E 03
5	2	2.8927E 03	1.9085E 00	5.2914E 05	1.1484E 00	2.2337E 03
6	1	9.3987E 03	2.4597E 00	4.3189E 05	1.1019E 00	3.7665E 03
6	2	2.7430E 03	1.7061E 00	5.8009E 05	1.1670E 00	2.2152E 03

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 116 DATA POINT 7 IS BURNOUT

AF = 0.130E-03 D = 0.132E-01 L = 0.500E 01 DELTA TO = 0.220E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	G2	I2	QP	HT BAL	G
1	4.801E 03	4.730E 03	6.740E 01	8.560E 01	1.141E 00	1.950E 01	8.200E 02	1.140E 01	-2.334E 00	8.274E 03
2	4.790E 03	4.719E 03	6.750E 01	9.810E 01	1.131E 00	2.599E 01	8.177E 02	2.015E 01	-1.412E 00	8.202E 03
3	4.789E 03	4.710E 03	6.760E 01	1.123E 02	1.130E 00	3.[illegible]E 01	9.930E 02	3.012E 01	-1.545E 00	8.194E 03
4	4.775E 03	4.705E 03	6.760E 01	1.259E 02	1.124E 00	3.692E 01	1.132E 03	3.902E 01	-1.500E 00	8.151E 03
5	4.770E 03	4.700E 03	6.760E 01	1.355E 02	1.130E 00	3.977E 01	1.219E 03	4.501E 01	-3.455E 00	8.194E 03
6	4.770E 03	4.695E 03	6.760E 01	1.480E 02	1.122E 00	4.283E 01	1.307E 03	5.307E 01	-5.664E 00	8.136E 03
7	4.772E 03	4.690E 03	6.760E 01	1.631E 02	1.112E 00	4.563E 01	1.388E 03	5.991E 01	-1.083E 01	8.064E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 116 DATA POINT 7 IS BURNOUT

DATA POINT 1

STA	PB	TH	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.7[illegible]2E 03	7.752E 01	3.680E 02	1.836E 02	4.953E 00	4.754E 00	4.482E-02	1.061E 02	9.270E 01
2	4.748E 03	8.[illegible]3E 01	3.910E 02	1.925E 02	4.329E 00	4.694E 00	4.217E-02	1.113E 02	9.204E 01
3	4.736E 03	8.488E 01	4.060E 02	2.300E 02	4.341E 00	4.453E 00	3.051E-02	1.459E 02	9.299E 01

STA	L/D	DELTA E	LE
1	1.731E 01	4.000E 00	1.000E 00
2	2.3[illegible]0E 01	3.550E 00	1.000E 00
3	2.[illegible]99E 01	2.810E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 115 DATA POINT 7 IS BURNOUT

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.731E 03	8.423E 01	5.960E 02	4.080E 02	6.714E 00	6.359E 00	4.350E-02	1.937E 02	9.215E 01
2	4.727E 03	9.043E 01	5.980E 02	2.780E 02	8.518E 00	9.255E 00	4.392E-02	1.882E 02	9.239E 01
3	4.722E 03	9.657E 01	6.210E 02	3.453E 02	7.340E 00	7.795E 00	3.129E-02	2.488E 02	9.262E 01

STA	L/D	DELTA E	LE
1	1.731E 01	5.340E 00	1.000E 00
2	2.360E 01	5.220E 00	1.000E 00
3	2.990E 01	3.730E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 115 DATA POINT 7 IS BURNOUT

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.741E 03	9.218E 01	7.950E 02	3.348E 02	1.311E 01	1.253E 01	5.163E-02	2.426E 02	9.237E 01
2	4.727E 03	1.011E 02	7.960E 02	3.518E 02	1.272E 01	1.234E 01	4.921E-02	2.507E 02	9.272E 01
3	4.713E 03	1.101E 02	8.210E 02	4.476E 02	1.135E 01	1.166E 01	3.454E-02	3.375E 02	9.307E 01

STA	L/D	DELTA E	LE
1	1.731E 01	6.590E 00	1.000E 00
2	2.360E 01	6.490E 00	1.000E 00
3	2.990E 01	4.680E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 115 DATA POINT 7 IS BURNOUT

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.736E 03	9.966E 01	9.850E 02	4.101E 02	1.728E 01	1.647E 01	5.205E-02	3.164E 02	9.217E 01
2	4.722E 03	1.113E 02	9.830E 02	4.254E 02	1.697E 01	1.632E 01	5.195E-02	3.141E 02	9.263E 01
3	4.708E 03	1.230E 02	1.022E 03	5.532E 02	1.481E 01	1.526E 01	3.546E-02	4.302E 02	9.309E 01

STA	L/D	DELTA E	LE
1	1.731E 01	7.600E 00	1.000E 00
2	2.360E 01	7.530E 00	1.000E 00
3	2.990E 01	5.260E 00	7.500E-01

LOCAL TEST PARAMETERS

[illegible] 1/16X4.5 TUBE WALL TEMP AGREEMENT=100F BURNOUT AT DATA POINT 6

LOCAL TEST PARAMETERS

TEST 115 DATA POINT 7 IS BURNOUT

DATA POINT 5

STA	Pb	Tb	Tw	Ti	Q/A	Q/AP	H	DEL TF	VS
1	4.789E 03	1.049E 02	1.090E 03	4.541E 02	1.993E 01	1.903E 01	5.444E-02	3.492E 02	9.287E 01
2	4.705E 03	1.185E 02	1.090E 03	4.738E 02	1.990E 01	1.877E 01	5.283E-02	3.553E 02	9.340E 01
3	4.701E 03	1.321E 02	1.130E 03	5.994E 02	1.732E 01	1.774E 01	3.796E-02	4.673E 02	9.294E 01

STA	L/D	DELTA E	L
1	1.731E 01	8.180E 00	1.000E 00
2	2.360E 01	8.070E 00	1.000E 00
3	2.990E 01	5.720E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 115 DATA POINT 7 IS BURNOUT

DATA POINT 6

STA	Pb	Tb	Tw	Ti	Q/A	Q/AP	H	DEL TF	VS
1	4.706E 03	1.116E 02	1.190E 03	4.850E 02	2.291E 01	2.199E 01	5.086E-02	3.730E 02	9.290E 01
2	4.701E 03	1.279E 02	1.209E 03	5.050E 02	2.270E 01	2.189E 01	5.080E-02	3.775E 02	9.381E 01
3	4.656E 03	1.440E 02	1.251E 03	6.694E 02	1.980E 01	2.030E 01	3.679E-02	5.254E 02	9.375E 01

STA	L/D	DELTA E	L
1	1.731E 01	8.790E 00	1.000E 00
2	2.360E 01	8.750E 00	1.000E 00
3	2.990E 01	6.110E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 115 DATA POINT 7 IS BURNOUT

DATA POINT 7

STA	PE	Tb	Tw	Ti	Q/A	Q/AP	H	DEL TF	VS
1	4.727E 03	1.201E 02	1.256E 03	6.184E 02	2.556E 01	2.471E 01	5.040E-02	4.903E 02	9.190E 01
2	4.711E 03	1.352E 02	1.325E 03	5.957E 02	2.582E 01	2.484E 01	5.906E-02	4.164E 02	9.272E 01
3	4.654E 03	1.583E 02	1.395E 03	7.706E 02	2.206E 01	2.296E 01	3.729E-02	6.163E 02	9.348E 01

STA	L/D	DELTA E	L
1	1.731E 01	9.300E 00	1.000E 00
2	2.360E 01	9.350E 00	1.000E 00
3	2.990E 01	6.480E 00	7.500E-01

DIMENSIONLESS PARAMETERS

TEST 115 DATA POINT 7 IS SUSPECT

DATA POINT	STA	MU	PR	RE	T2/T0	MU/PR(.4)
1	1	9.0610E 02	5.1001E 00	1.4244E 05	1.1973E 00	4.6962E 02
1	2	8.4721E 02	4.9652E 00	1.4781E 05	1.2057E 00	4.4629E 02
1	3	6.6923E 02	4.7600E 00	1.5300E 05	1.2078E 00	3.8818E 02
2	1	9.0940E 02	4.7946E 00	1.5097E 05	1.3378E 00	4.8571E 02
2	2	8.6926E 02	4.5042E 00	1.5937E 05	1.3419E 00	4.7468E 02
2	3	6.1342E 02	4.2521E 00	1.6740E 05	1.4478E 00	3.4308E 02
3	1	1.0186E 03	4.4291E 00	1.4154E 05	1.4394E 00	5.6188E 02
3	2	9.5792E 02	4.0852E 00	1.7303E 05	1.4468E 00	5.4558E 02
3	3	6.6331E 02	3.7925E 00	1.8418E 05	1.5921E 00	3.8918E 02
4	1	1.0154E 03	4.1370E 00	1.7020E 05	1.5864E 00	5.7539E 02
4	2	9.5560E 02	3.7534E 00	1.8478E 05	1.5498E 00	5.0500E 02
4	3	6.6777E 02	3.4088E 00	2.0837E 05	1.7380E 00	4.0087E 02
5	1	1.0545E 03	3.9555E 00	1.7779E 05	1.6181E 00	6.0835E 02
5	2	1.0016E 03	3.5383E 00	1.9521E 05	1.6141E 00	6.0418E 02
5	3	7.0529E 02	3.1758E 00	2.1374E 05	1.7892E 00	4.4430E 02
6	1	1.1273E 03	3.7387E 00	1.8507E 05	1.6534E 00	6.6521E 02
6	2	1.0643E 03	3.2778E 00	2.0668E 05	1.6421E 00	6.7538E 02
6	3	7.0862E 02	2.9209E 00	2.2730E 05	1.8699E 00	4.6154E 02
7	1	9.5323E 02	3.4909E 00	1.9429E 05	1.6451E 00	5.7812E 02
7	2	1.0571E 03	3.0170E 00	2.1938E 05	1.6950E 00	7.0534E 02
7	3	6.6737E 02	2.6605E 00	2.4324E 05	1.9987E 00	4.5121E 02

DATA POINT	STA	RMU RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0481E 00	8.6031E-01	1.9781E 00	1.0099E 00
1	2	1.0485E 00	8.5773E-01	1.9803E 00	1.0082E 00
1	3	1.0650E 00	8.3643E-01	2.0452E 00	1.0100E 00
2	1	1.0834E 00	8.2345E-01	2.0636E 00	1.0157E 00
2	2	1.0861E 00	8.2869E-01	2.0663E 00	1.0146E 00
2	3	1.1174E 00	8.2065E-01	2.0834E 00	1.0208E 00
3	1	1.1140E 00	8.2146E-01	2.1970E 00	1.0214E 00
3	2	1.1186E 00	8.3233E-01	2.1654E 00	1.0205E 00
3	3	1.1721E 00	8.5680E-01	2.0303E 00	1.0404E 00
4	1	1.1561E 00	8.3613E-01	2.1536E 00	1.0349E 00
4	2	1.1565E 00	8.5209E-01	2.1543E 00	1.0348E 00
4	3	1.2280E 00	9.0257E-01	2.1626E 00	1.0680E 00
5	1	1.1791E 00	8.5182E-01	2.2763E 00	1.0423E 00
5	2	1.1855E 00	8.7620E-01	2.1193E 00	1.0466E 00
5	3	1.2455E 00	9.2574E-01	2.0632E 00	1.0771E 00
6	1	1.1904E 00	8.7193E-01	2.2552E 00	1.0505E 00
6	2	1.2001E 00	9.0252E-01	2.2135E 00	1.0548E 00
6	3	1.2506E 00	1.0712E 00	2.3143E 00	1.0877E 00
7	1	1.2547E 00	9.0903E-01	2.3925E 00	1.0913E 00
7	2	1.2214E 00	9.4990E-01	2.2335E 00	1.0684E 00
7	3	1.3E73E 00	1.2532E 00	2.0153E 00	1.1507E 00

DIMENSIONLESS PARAMETERS

TEST SIE DATA POINT 7 IS OUTPUT

DATA POINT	STA	RE(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	4.3466E 02	3.2121E 00	2.6904E 05	1.0898E 00	5.2336E 02
1	2	7.7410E 02	3.0673E 00	2.1691E 05	1.0933E 00	4.9697E 02
1	3	3.4693E 02	2.6686E 00	2.4139E 05	1.1181E 00	3.6934E 02
2	1	7.0760E 02	2.3898E 00	2.6605E 05	1.1444E 00	5.0291E 02
2	2	7.0296E 02	2.2857E 00	2.6957E 05	1.1460E 00	5.4815E 02
2	3	3.2729E 02	1.9134E 00	3.0490E 05	1.1827E 00	4.0667E 02
3	1	6.7426E 02	1.9632E 00	3.0042E 05	1.1801E 00	6.6481E 02
3	2	6.6211E 02	1.8650E 00	3.1695E 05	1.1826E 00	6.4382E 02
3	3	3.0646E 02	1.4739E 00	3.8507E 05	1.2284E 00	4.8440E 02
4	1	6.5998E 02	1.6148E 00	3.5361E 05	1.2204E 00	7.0927E 02
4	2	6.5460E 02	1.5463E 00	3.6944E 05	1.2156E 00	7.1808E 02
4	3	3.0747E 02	1.1735E 00	4.7209E 05	1.2695E 00	5.3908E 02
5	1	6.4336E 02	1.4744E 00	3.8585E 05	1.2361E 00	7.6485E 02
5	2	6.2214E 02	1.3756E 00	4.1207E 05	1.2349E 00	7.5684E 02
5	3	2.9152E 02	1.0734E 00	5.1635E 05	1.2830E 00	5.9803E 02
6	1	6.5966E 02	1.3618E 00	4.1161E 05	1.2462E 00	8.4944E 02
6	2	6.4235E 02	1.2650E 00	4.4102E 05	1.2430E 00	8.5696E 02
6	3	3.0184E 02	9.5072E-01	5.7796E 05	1.3031E 00	6.4454E 02
7	1	6.1682E 02	1.0756E 00	5.0479E 05	1.2978E 00	7.9336E 02
7	2	6.0659E 02	1.1377E 00	4.8352E 05	1.2579E 00	9.1799E 02
7	3	2.1689E 02	8.1682E-01	6.6815E 05	1.3326E 00	6.6924E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

AF = 0.138E-03 D = 0.132E-01 L = 0.350E 01 DELTA TO = 0.140E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	3.904E 03	3.854E 03	1.222E 02	1.288E 02	1.087E 00	9.930E 00	4.522E 02	4.257E 00	1.567E 01	7.883E 03
2	3.903E 03	3.854E 03	1.226E 02	1.384E 02	1.080E 00	1.521E 01	6.840E 02	9.863E 00	-1.204E 00	7.832E 03
3	3.956E 03	3.946E 03	1.218E 02	1.480E 02	1.088E 00	2.052E 01	9.100E 02	1.770E 01	2.093E 00	7.890E 03
4	3.965E 03	3.917E 03	1.216E 02	1.565E 02	1.080E 00	2.337E 01	1.028E 03	2.278E 01	-2.118E 00	7.832E 03
5	3.959E 03	3.911E 03	1.218E 02	1.660E 02	1.075E 00	2.629E 01	1.148E 03	2.861E 01	-3.466E 00	7.796E 03
6	3.956E 03	3.907E 03	1.218E 02	1.747E 02	1.072E 00	2.844E 01	1.238E 03	3.338E 01	-6.508E 00	7.774E 03
7	3.956E 03	3.906E 03	1.218E 02	1.813E 02	1.069E 00	2.950E 01	1.284E 03	3.591E 01	-1.145E 01	7.752E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.956E 03	1.246E 02	2.880E 02	1.807E 02	2.507E 00	2.456E 00	4.376E-02	5.613E 01	9.008E 01
2	3.872E 03	1.265E 02	2.770E 02	1.688E 02	2.509E 00	2.456E 00	5.807E-02	4.229E 01	9.015E 01
3	3.858E 03	1.283E 02	2.870E 02	1.796E 02	2.507E 00	2.456E 00	4.788E-02	5.130E 01	9.022E 01

STA	L/D	DELTA E	LE
1	7.666E 00	9.930E 00	3.500E 00
2	1.416E 01	9.930E 00	3.500E 00
3	2.046E 01	9.930E 00	3.500E 00

LOCAL TEST PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.[illegible]E 03	1.262E 02	4.860E 02	2.596E 02	5.811E 00	5.690E 00	4.333E-02	1.313E 02	8.964E 01
2	3.e71E 03	1.329E 02	4.670E 02	2.373E 02	5.818E 00	5.690E 00	5.443E-02	1.045E 02	8.981E 01
3	3.657E 03	1.373E 02	4.790E 02	2.514E 02	5.813E 00	5.690E 00	4.987E-02	1.141E 02	8.998E 01

STA	L/D	DELTA E	LE
1	7.668E 00	1.521E 01	3.500E 00
2	1.416E 01	1.521E 01	3.500E 00
3	2.046E 01	1.521E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.979E 03	1.312E 02	7.080E 02	3.341E 02	1.043E 01	1.021E 01	5.032E-02	2.029E 02	9.041E 01
2	3.9c5E 03	1.366E 02	6.660E 02	2.814E 02	1.046E 01	1.021E 01	7.157E-02	1.427E 02	9.070E 01
3	3.951E 03	1.461E 02	6.760E 02	2.940E 02	1.045E 01	1.021E 01	6.906E-02	1.479E 02	9.099E 01

STA	L/D	DELTA E	LE
1	7.668E 00	2.052E 01	3.500E 00
2	1.416E 01	2.052E 01	3.500E 00
3	2.046E 01	2.052E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.948E 03	1.341E 02	8.500E 02	3.917E 02	1.343E 01	1.314E 01	5.109E-02	2.577E 02	8.986E 01
2	3.934E 03	1.440E 02	7.990E 02	3.260E 02	1.346E 01	1.314E 01	7.221E-02	1.829E 02	9.024E 01
3	3.920E 03	1.543E 02	8.180E 02	3.507E 02	1.345E 01	1.314E 01	6.602E-02	1.967E 02	9.062E 01

STA	L/D	DELTA E	LE
1	7.668E 00	2.337E 01	3.500E 00
2	1.416E 01	2.337E 01	3.500E 00
3	2.046E 01	2.337E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT 5

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.942E 03	1.376E 02	9.980E 02	4.483E 02	1.687E 01	1.651E 01	5.313E-02	3.107E 02	8.984E 01
2	3.629E 03	1.502E 02	9.280E 02	3.563E 02	1.691E 01	1.651E 01	8.049E-02	2.061E 02	9.006E 01
3	3.419E 03	1.628E 02	9.700E 02	4.114E 02	1.690E 01	1.651E 01	8.640E-02	2.486E 02	9.056E 01

STA	L/D	DELTA E	LE
1	7.108E 00	2.629E 01	3.500E 00
2	1.418E 01	2.629E 01	3.500E 00
3	2.040E 01	2.629E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT 6

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.938E 03	1.407E 02	1.100E 03	4.775E 02	1.966E 01	1.926E 01	5.721E-02	3.364E 02	8.944E 01
2	3.624E 03	1.556E 02	1.045E 03	4.028E 02	1.970E 01	1.926E 01	7.796E-02	2.470E 02	9.002E 01
3	3.410E 03	1.709E 02	1.059E 03	4.626E 02	1.966E 01	1.926E 01	6.603E-02	2.916E 02	9.061E 01

STA	L/D	DELTA E	LE
1	7.104E 00	2.644E 01	3.500E 00
2	1.418E 01	2.644E 01	3.500E 00
3	2.045E 01	2.644E 01	3.500E 00

LOCAL TEST PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT 7

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.938E 03	1.493E 02	1.164E 03	5.090E 02	2.110E 01	2.072E 01	5.662E-02	3.[illegible]E 02	8.928E 01
2	3.624E 03	1.660E 02	1.140E 03	4.705E 02	2.111E 01	2.072E 01	6.547E-02	3.105E 02	8.993E 01
3	3.410E 03	1.770E 02	1.130E 03	4.629E 02	2.112E 01	2.072E 01	7.248E-02	2.858E 02	9.060E 01

STA	L/D	DELTA E	LE
1	7.[illegible]E 00	2.650E 01	3.500E 00
2	1.418E 01	2.650E 01	3.500E 00
3	2.045E 01	2.650E 01	3.500E 00

DIMENSIONLESS PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	8.2206E 02	3.3049E 00	1.9589E 05	1.0960E 00	5.0596E 02
1	2	1.0880E 03	3.3154E 00	1.9833E 05	1.0721E 00	6.7361E 02
1	3	8.9450E 02	3.2676E 00	2.0075E 05	1.0872E 00	5.5704E 02
2	1	8.0970E 02	3.2698E 00	1.9934E 05	1.2232E 00	5.0418E 02
2	2	1.0104E 03	3.1611E 00	2.0501E 05	1.1764E 00	6.3762E 02
2	3	9.1966E 02	3.0607E 00	2.1054E 05	1.1910E 00	5.8790E 02
3	1	9.3630E 02	3.1985E 00	2.0453E 05	1.3433E 00	5.8409E 02
3	2	1.3172E 03	3.0313E 00	2.1379E 05	1.2384E 00	8.4528E 02
3	3	1.2578E 03	2.8821E 00	2.2281E 05	1.2440E 00	8.2364E 02
4	1	9.4485E 02	3.1311E 00	2.0663E 05	1.4337E 00	5.9853E 02
4	2	1.3189E 03	2.9224E 00	2.1867E 05	1.3013E 00	8.5882E 02
4	3	1.2039E 03	2.7375E 00	2.3071E 05	1.3203E 00	8.0473E 02
5	1	9.7930E 02	3.0537E 00	2.0995E 05	1.5199E 00	6.2659E 02
5	2	1.4577E 03	2.8060E 00	2.2503E 05	1.3361E 00	9.6478E 02
5	3	1.1828E 03	2.5829E 00	2.4105E 05	1.3991E 00	8.0923E 02
6	1	1.0498E 03	2.9899E 00	2.1308E 05	1.5604E 00	6.7749E 02
6	2	1.4013E 03	2.7055E 00	2.3124E 05	1.4011E 00	9.4111E 02
6	3	1.1646E 03	2.4527E 00	2.5100E 05	1.4622E 00	8.1345E 02
7	1	1.0350E 03	2.9417E 00	2.1523E 05	1.6068E 00	6.7259E 02
7	2	1.1703E 03	2.6309E 00	2.3601E 05	1.5104E 00	7.9480E 02
7	3	1.2693E 03	2.3622E 00	2.5835E 05	1.4487E 00	9.0001E 02

DATA POINT	STA	RHO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0243E 00	9.2842E-01	1.3663E 00	9.7316E-01
1	2	1.0182E 00	9.4390E-01	1.2683E 00	9.7347E-01
1	3	1.0222E 00	9.3469E-01	1.3263E 00	9.7224E-01
2	1	1.0595E 00	8.8365E-01	1.4761E 00	9.5662E-01
2	2	1.0468E 00	8.9876E-01	1.6623E 00	9.6697E-01
2	3	1.0515E 00	8.9845E-01	1.7122E 00	9.6461E-01
3	1	1.0554E 00	8.7144E-01	2.4342E 00	9.6986E-01
3	2	1.0655E 00	8.6903E-01	1.9052E 00	9.6473E-01
3	3	1.0684E 00	8.9655E-01	1.9205E 00	9.6336E-01
4	1	1.1248E 00	8.7685E-01	2.9075E 00	9.7500E-01
4	2	1.0854E 00	8.5837E-01	2.1953E 00	9.6522E-01
4	3	1.0932E 00	8.9919E-01	2.2693E 00	9.6416E-01
5	1	1.1578E 00	8.9257E-01	3.4257E 00	9.9292E-01
5	2	1.0574E 00	8.9462E-01	2.3527E 00	9.6544E-01
5	3	1.1225E 00	9.1487E-01	2.6522E 00	9.7600E-01
6	1	1.1753E 00	9.0656E-01	3.6693E 00	1.0028E 00
6	2	1.1208E 00	9.0522E-01	2.6760E 00	9.7425E-01
6	3	1.1505E 00	9.3757E-01	2.9828E 00	9.9423E-01
7	1	1.1956E 00	9.2432E-01	3.5588E 00	1.0135E 00
7	2	1.1651E 00	9.3038E-01	3.2950E 00	1.0006E 00
7	3	1.1477E 00	9.4452E-01	2.8927E 00	9.9387E-01

DIMENSIONLESS PARAMETERS

TEST 116 BURNOUT AT DATA POINT 7

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	[illegible]
1	1	7.0980E 02	2.7618E 00	2.2779E 05	1.0468E 00	5.2510E 02
1	2	1.0656E 03	2.8549E 00	2.2236E 05	1.0368E 00	6.9381E 02
1	3	8.6271E 02	2.7381E 00	2.2964E 05	1.0418E 00	5.7061E 02
2	1	7.4578E 02	2.1458E 00	2.7535E 05	1.1004E 00	5.4951E 02
2	2	9.4509E 02	2.2534E 00	2.6863E 05	1.0816E 00	6.8884E 02
2	3	8.5793E 02	2.1399E 00	2.7703E 05	1.0873E 00	6.3284E 02
3	1	8.4172E 02	1.7811E 00	3.2153E 05	1.1465E 00	6.6818E 02
3	2	1.2151E 03	1.9803E 00	2.9650E 05	1.1065E 00	9.2451E 02
3	3	1.1642E 03	1.8861E 00	3.0913E 05	1.1087E 00	9.0323E 02
4	1	8.4097E 02	1.5638E 06	3.5566E 05	1.1782E 00	7.0334E 02
4	2	1.2061E 03	1.7603E 00	3.2403E 05	1.1389E 00	9.6152E 02
4	3	1.1066E 03	1.6329E 00	3.4603E 05	1.1386E 00	9.0947E 02
5	1	8.6772E 02	1.3862E 00	3.9286E 05	1.2063E 00	7.6146E 02
5	2	1.3328E 03	1.6303E 00	3.4433E 05	1.1439E 00	1.0861E 03
5	3	1.0862E 03	1.4183E 00	3.8938E 05	1.1664E 00	9.4483E 02
6	1	9.3074E 02	1.3008E 00	4.1463E 05	1.2189E 00	8.3798E 02
6	2	1.2783E 03	1.4633E 00	3.7692E 05	1.1671E 00	1.0977E 03
6	3	1.0729E 03	1.2617E 00	4.3102E 05	1.1877E 00	9.7756E 02
7	1	9.1873E 02	1.2186E 00	4.3753E 05	1.2328E 00	8.4808E 02
7	2	1.0634E 03	1.2544E 00	4.2995E 05	1.2033E 00	9.7123E 02
7	3	1.1770E 03	1.2463E 00	4.3551E 05	1.1832E 00	1.0770E 03

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 117 3/16 X 4 TUBE FIRST DATA POINT ONLY

AF = 0.136E-03 D = 0.132E-01 L = 0.400E 01 DELTA TO = 0.520E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	3.744E 03	3.502E 03	7.180E 01	1.066E 02	2.350E 00	3.386E 01	1.316E 03	4.224E 01	-4.984E 00	1.784E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 117 3/16 X 4 TUBE FIRST DATA POINT ONLY

DATA POINT 1

STA	PO	T0	T0	TI	Q/A	Q/AP	M	SEL TP	VS
1	2.638E 03	8.762E 01	1.110E 03	4.140E 02	2.189E 01	2.161E 01	6.504E-02	3.278E 02	1.917E 02
2	2.657E 03	9.572E 01	1.134E 03	4.677E 02	2.186E 01	2.128E 01	5.708E-02	3.729E 02	1.980E 02
3	3.517E 03	1.044E 02	1.137E 03	4.745E 02	2.186E 01	2.128E 01	5.729E-02	3.701E 02	1.938E 02

STA	L/D	DELTA E	LE
1	1.161E 01	0.560E 00	1.000E 00
2	1.731E 01	1.473E 01	1.750E 00
3	2.366E 01	1.472E 01	1.750E 00

DIMENSIONLESS PARAMETERS

TEST 117 3/16 X 4 TUBE FIRST DATA POINT ONLY

DATA POINT	STA	NU	PR	RE	TI/TO	MW/PR(.4)
1	1	1.312E 03	4.662E 00	3.214E 05	1.599E 00	7.888E 02
1	2	1.118E 03	4.784E 00	3.455E 05	1.669E 00	6.251E 02
1	3	1.169E 03	3.472E 00	3.684E 05	1.665E 00	6.390E 02

DATA POINT	STA	MMO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.161E 00	8.194E-01	4.394E 00	9.698E-01
1	2	1.156E 00	8.442E-01	4.814E 00	1.004E 00
1	3	1.156E 00	8.579E-01	4.605E 00	1.006E 00

TEST 117 3/16 X 4 TUBE FIRST DATA POINT ONLY

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	MW/PR(.4)
1	1	1.052E 03	1.634E 00	7.321E 05	1.231E 00	8.978E 02
1	2	9.329E 02	1.443E 00	8.152E 05	1.250E 00	8.063E 02
1	3	9.366E 02	1.399E 00	8.403E 05	1.246E 00	8.197E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 119 NO BURNOUT HEATED DELTA P TEST

AF = 0.250E-03 D = 0.183E-01 L = 0.500E 01 DELTA TD = 0.130E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	4.153E 03	4.120E 03	7.060E 01	6.723E 01	1.280E 00	1.625E 01	7.400E 02	1.140E 01	-9.179E 00	4.060E 03
2	4.146E 03	4.122E 03	7.060E 01	9.986E 01	1.277E 00	2.223E 01	9.900E 02	2.103E 01	-7.706E 00	4.037E 03
3	4.141E 03	4.118E 03	7.070E 01	1.130E 02	1.273E 00	2.735E 01	1.213E 03	3.145E 01	-7.278E 00	4.022E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 119 NO BURNOUT HEATED DELTA P TEST

DATA POINT 1

STA	PB	TB	Tu	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.134E 03	8.268E 01	3.928E 02	2.758E 02	2.903E 00	3.140E 00	1.638E-02	1.928E 02	5.440E 01
2	4.129E 03	8.637E 01	3.908E 02	2.509E 02	3.628E 00	3.518E 00	2.138E-02	1.848E 02	5.452E 01

STA	L/D	DELTA E	LE
1	1.706E 01	3.100E 00	1.000E 00
2	2.161E 01	2.660E 00	7.860E-01

LOCAL TEST PARAMETERS

TEST 119 NO BURNOUT HEATED DELTA P TEST

DATA POINT 2

STA	PB	TB	Tu	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.128E 03	9.258E 01	6.182E 02	4.149E 02	5.304E 00	5.817E 00	1.484E-02	3.229E 02	5.453E 01
2	4.123E 03	9.834E 01	6.208E 02	3.792E 02	6.598E 00	6.442E 00	2.294E-02	2.808E 02	5.467E 01

STA	L/D	DELTA E	LE
1	1.706E 01	4.280E 00	1.000E 00
2	2.161E 01	3.830E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 119 NO BURNOUT HEATED DELTA P TEST

DATA POINT 3

STA	PB	TB	Tu	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.122E 03	1.029E 02	8.088E 02	5.346E 02	8.092E 00	8.716E 00	2.018E-02	4.337E 02	5.468E 01
2	4.117E 03	1.115E 02	8.218E 02	4.890E 02	9.817E 00	9.694E 00	2.544E-02	3.775E 02	5.488E 01

STA	L/D	DELTA E	LE
1	1.706E 01	5.240E 00	1.000E 00
2	2.161E 01	4.230E 00	7.960E-01

DIMENSIONLESS PARAMETERS

TEST 119 NU DUMMY HEATED DELTA P TEST

DATA POINT	STA	NU	PR	RE	TI/TB	MW/PR(.4)
1	1	4.5411E 02	4.8646E 00	1.2201E 05	1.3536E 00	2.4119E 02
1	2	5.0541E 02	4.8642E 00	1.2502E 05	1.3011E 00	3.1753E 02
2	1	4.9240E 02	4.8157E 00	1.3229E 05	1.5036E 00	2.7184E 02
2	2	5.2644E 02	4.8154E 00	1.3866E 05	1.5030E 00	3.4995E 02
3	1	5.3587E 02	4.8248E 00	1.4267E 05	1.7705E 00	3.0931E 02
3	2	6.7453E 02	3.7495E 00	1.5139E 05	1.6600E 00	3.9756E 02

DATA POINT	STA	RHO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0677E 00	5.1975E-01	2.7681F 00	9.8310E-01
1	2	1.0741E 00	6.3169E-01	2.4375E 00	9.8258E-01
2	1	1.1587E 00	5.2671E-01	4.1999E 00	9.9041F-01
2	2	1.1347E 00	5.2965E-01	3.5571E 00	9.8437E-01
3	1	1.2457E 00	5.3027E-01	5.5832E 00	1.0305E 00
3	2	1.1581E 00	6.7293E-01	4.5821E 00	1.0143E 00

DIMENSIONLESS PARAMETERS

TEST 119 NU DUMMY HEATED DELTA P TEST

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	MW/PR(.4)
1	1	3.9617E 02	2.3391E 00	2.1637E 05	1.1502E 00	2.8201E 02
1	2	5.2329E 02	2.4900E 00	2.8654E 05	1.1309E 00	3.6338E 02
2	1	4.1214E 02	1.6295E 00	2.8844E 05	1.2259E 00	3.3984E 02
2	2	5.2909E 02	1.7388E 00	2.7416E 05	1.2099E 00	4.2404E 02
3	1	4.5161E 02	1.2481E 00	3.8277E 05	1.2781E 00	4.1338E 02
3	2	5.7386E 02	1.3475E 00	3.4877E 05	1.2483E 00	5.0933E 02

L13618 SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 121 NU EURAGUT HEATED DELTA P TEST

AF = 0.138E-03 D = 0.132E-01 L = 0.500E 01 DELTA TO = 0.230E 01

DATA POINTS

PCINT	PB-IN	PB-OUT	TE-IN	TB-OUT	R	F2	I2	DP	PT DNL	G
1	4.067E 03	3.575E 03	5.520E 01	7.720E 01	1.190F 00	1.951E 01	6.090E 02	1.183E 01	-3.32[illegible] 00	[illegible] 03
2	4.308E 03	3.558E 03	5.918E 01	9.580E 01	1.190E 00	2.852E 01	8.940E 02	2.417E 01	-4.50[illegible] 00	[illegible] 03
3	3.588E 03	3.089E 03	5.150E 01	1.120E 02	1.190E 00	3.515E 01	1.080E 03	3.619E 01	-4.10[illegible] 00	[illegible] 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 121 NO EXHAUST HEATED DELTA P TEST

DATA POINT 1

STA	PO	TO	TB	TT	Q/A	Q/AP	M	DEL TF	VS
1	2.995E 03	7.185E 01	4.040E 02	2.332E 02	4.231E 00	4.218E 00	2.044E-02	1.604E 02	9.650E 01
2	3.908E 03	7.823E 01	4.060E 02	2.144E 02	4.716E 00	4.514E 00	3.260E-02	1.382E 02	9.664E 01

STA	L/D	DELTA E	LE
1	2.200E 01	3.700E 00	1.000E 00
2	2.550E 01	2.920E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 121 NO EXHAUST HEATED DELTA P TEST

DATA POINT 2

STA	PO	TO	TB	TT	Q/A	Q/AP	M	DEL TF	VS
1	3.579E 03	6.687E 01	7.080E 02	3.790E 02	9.270E 00	9.381E 00	3.204E-02	2.920E 02	9.708E 01
2	3.561E 03	9.461E 01	7.100E 02	3.494E 02	1.011E 01	9.793E 00	3.835E-02	2.553E 02	9.735E 01

STA	L/D	DELTA E	LE
1	2.200E 01	5.520E 00	1.000E 00
2	2.990E 01	4.330E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 121 NO EXHAUST HEATED DELTA P TEST

DATA POINT 3

STA	PO	TO	TB	TT	Q/A	Q/AP	M	DEL TF	VS
1	3.921E 03	9.981E 01	5.420E 02	4.780E 02	1.415E 01	1.416E 01	3.730E-02	3.790E 02	9.675E 01
2	3.903E 03	1.654E 02	5.390E 02	4.488E 02	1.488E 01	1.451E 01	4.279E-02	3.391E 02	9.718E 01

STA	L/D	DELTA E	LE
1	2.200E 01	8.280E 00	1.000E 00
2	2.550E 01	5.200E 00	7.500E-01

DIMENSIONLESS PARAMETERS

TEST 121 NO BURNOUT HEATED DELTA P TEST

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	5.4319E 02	5.4738E 00	1.4161E 05	1.3810E 00	2.7519E 02
1	2	6.6148E 02	5.2527E 00	1.4679E 05	1.2578E 00	3.4069E 02
2	1	6.3781E 02	4.6696E 00	1.6257E 05	1.5353E 00	3.4433E 02
2	2	7.5679E 02	4.3531E 00	1.7265E 05	1.4609E 00	4.1908E 02
3	1	7.2805E 02	4.1511E 00	1.7825E 05	1.6787E 00	4.1208E 02
3	2	8.2195E 02	3.8015E 00	1.9194E 05	1.5981E 00	4.8180E 02

DATA POINT	STA	RHO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0715E 00	8.2049E-01	2.6014E 00	9.8572E-01
1	2	1.0610E 00	8.3533E-01	2.3236E 00	9.8605E-01
2	1	1.1405E 00	8.1503E-01	3.9110E 00	9.8303E-01
2	2	1.1207E 00	8.2330E-01	3.3265E 00	9.7791E-01
3	1	1.1571E 00	8.5285E-01	4.8491E 00	1.0080E 00
3	2	1.1718E 00	8.5657E-01	4.1193E 00	9.9627E-01

DIMENSIONLESS PARAMETERS

TEST 121 NO BURNOUT HEATED DELTA P TEST

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	4.8695E 02	2.7544E 00	2.4452E 05	1.1308E 00	3.2066E 02
1	2	5.9528E 02	2.4949E 00	2.3585E 05	1.1142E 00	3.8911E 02
2	1	5.3576E 02	1.7761E 00	3.4595E 05	1.2111E 00	4.2578E 02
2	2	6.4581E 02	1.8722E 00	3.3268E 05	1.1873E 00	5.0254E 02
3	1	6.0581E 02	1.4077E 00	4.1874E 05	1.2534E 00	5.3185E 02
3	2	7.0155E 02	1.4631E 00	4.0694E 05	1.2293E 00	6.0249E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 122 NU BURNOUT HEATED DELTA P TEST

AF = 0.138E-03 D = 0.132E-01 L = 0.500E 01 DELTA TC = 0.160E 01

DATA POINTS

PCINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	4.627E 03	4.539E 03	6.320E 01	8.140E 01	1.180E 00	1.930E 01	6.110E 02	1.123E 01	-1.078E 01	8.557E 03
2	4.536E 03	4.447E 03	6.340E 01	9.900E 01	1.180E 00	2.848E 01	8.870E 02	2.395E 01	-6.532E 00	8.557E 03
3	4.445E 03	4.354E 03	6.350E 01	1.159E 02	1.190E 00	3.534E 01	1.090E 03	3.652E 01	-5.438E 00	8.629E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 122 NO BURNOUT HEATED DELTA P TEST

DATA POINT 1

STA	PB	TB	Tb	TI	Q/A	Q/AP	H	DEL TF	VS
1	4.561E 03	7.685E 01	4.180E 02	2.352E 02	4.553E 00	4.452E 00	2.811E-02	1.584E 02	9.539E 01
2	4.543E 03	8.049E 01	4.200E 02	2.279E 02	4.776E 00	4.560E 00	3.094E-02	1.474E 02	9.598E 01

STA	L/D	DELTA E	LE
1	2.360E 01	3.840E 00	1.000E 00
2	2.990E 01	2.990E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 122 NO BURNOUT HEATED DELTA P TEST

DATA POINT 2

STA	PB	TB	Tb	TI	Q/A	Q/AP	H	DEL TF	VS
1	4.469E 03	9.010E 01	7.130E 02	3.712E 02	9.647E 00	9.492E 00	3.377E-02	2.811E 02	9.637E 01
2	4.451E 03	9.722E 01	7.150E 02	3.610E 02	9.960E 00	9.649E 00	3.656E-02	2.638E 02	9.666E 01

STA	L/D	DELTA E	LE
1	2.360E 01	5.640E 00	1.000E 00
2	2.990E 01	4.380E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 122 NO BURNOUT HEATED DELTA P TEST

DATA POINT 3

STA	Pb	Tb	Tb	TI	Q/A	Q/AP	H	DEL TF	VS
1	4.377E 03	1.028E 02	9.490E 02	4.663E 02	1.472E 01	1.450E 01	3.989E-02	3.638E 02	9.771E 01
2	4.385E 03	1.133E 02	9.510E 02	4.600E 02	1.496E 01	1.462E 01	4.214E-02	3.467E 02	9.819E 01

STA	L/D	DELTA E	LE
1	2.360E 01	7.810E 00	1.000E 00
2	2.990E 01	5.380E 00	7.500E-01

DIMENSIONLESS PARAMETERS

TEST 122 NU BURNOUT HEATED DELTA P TEST

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	5.6694E 02	5.2208E 00	1.4633E 05	1.2950E 00	2.9374E 02
1	2	6.2227E 02	5.0053E 00	1.5180E 05	1.2727E 00	3.2674E 02
2	1	6.6676E 02	4.5199E 00	1.6579E 05	1.5109E 00	3.6878E 02
2	2	7.1634E 02	4.2273E 00	1.7553E 05	1.4774E 00	4.0243E 02
3	1	7.7448E 02	4.0273E 00	1.8442E 05	1.6456E 00	4.4361E 02
3	2	8.0557E 02	3.6945E 00	1.9825E 05	1.6049E 00	4.7742E 02

DATA POINT	STA	NNU RATIO	K RATIO	NU RATIO	CP RATIO
1	1	1.0707E 00	8.2524E-01	2.4804E 00	1.0026E 00
1	2	1.0650E 00	8.3304E-01	2.3241E 00	1.0003E 00
2	1	1.1242E 00	8.1971E-01	3.6904E 00	1.0034E 00
2	2	1.1254E 00	8.2744E-01	3.3702E 00	9.9939E-01
3	1	1.1677E 00	8.5289E-01	4.5437E 00	1.0204E 00
3	2	1.1782E 00	8.6450E-01	4.1512E 00	1.0165E 00

DIMENSIONLESS PARAMETERS

TEST 122 NU BURNOUT HEATED DELTA P TEST

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	5.0516E 02	2.7004E 00	2.4467E 05	1.1285E 00	3.3983E 02
1	2	5.5727E 02	2.6737E 00	2.6473E 05	1.1200E 00	3.7276E 02
2	1	5.6653E 02	1.8178E 00	3.3641E 05	1.2036E 00	4.4629E 02
2	2	6.1312E 02	1.8298E 00	3.3866E 05	1.1914E 00	4.8149E 02
3	1	6.5303E 02	1.4384E 00	4.1483E 05	1.2441E 00	5.6489E 02
3	2	6.8673E 02	1.4262E 00	4.1986E 05	1.2322E 00	5.9843E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 123 NO BLANKET HEATED DELTA P TEST

AF = 0.138E-03 D = 0.132E-01 L = 0.500E 01 DELTA TB = 0.540E 01

DATA POINTS

POINT	PH-IN	PB-OUT	TH-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	3.140E 03	2.819E 03	6.050E 01	8.560E 01	2.230E 00	3.033E 01	9.470E 02	2.723E 01	-2.823E 00	1.617E 04
2	3.046E 03	2.733E 03	6.050E 01	1.021E 02	2.260E 00	4.175E 01	1.288E 03	5.086E 01	-2.372E 00	1.639E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 123 NO BLANKET HEATED DELTA P TEST

DATA POINT 1

STA	PB	TW	TB	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.899E 03	7.932E 01	8.790E 02	2.512E 02	1.156E 01	1.109E 01	6.451E-02	1.719E 02	1.813E 02
2	2.825E 03	8.424E 01	8.780E 02	2.942E 02	1.050E 01	1.057E 01	5.034E-02	2.099E 02	1.817E 02

STA	L/D	DELTA E	LE
1	2.360E 01	6.170E 00	1.000E 00
2	2.990E 01	4.410E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 123 NO BLANKET HEATED DELTA P TEST

DATA POINT 2

STA	PB	TW	TB	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.811E 03	9.170E 01	1.03ME 03	3.346E 02	2.115E 01	2.055E 01	8.461E-02	2.429E 02	1.847E 02
2	2.749E 03	1.000E 02	1.042E 03	3.952E 02	1.970E 01	1.986E 01	6.730E-02	2.951E 02	1.854E 02

STA	L/D	DELTA E	LE
1	2.360E 01	8.430E 00	1.000E 00
2	2.990E 01	6.110E 00	7.500E-01

DIMENSIONLESS PARAMETERS

TEST 123 NO BURNOUT HEATED DELTA P TEST

DATA POINT	STA	NU	PR	RE	TI/TB	RE/PR(.4)
1	1	1.3001E 03	5.0720E 00	2.0300E 06	1.3107E 00	6.7903E 02
1	2	1.0062E 03	4.7961E 00	2.9770E 06	1.2056E 00	9.3743E 02
2	1	1.6712E 03	4.4498E 00	3.2160E 06	1.4403E 00	9.1908E 02
2	2	1.3122E 03	4.1243E 00	3.4380E 06	1.5270E 00	7.0468E 02

DATA POINT	STA	RHO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0774E 00	8.2215E-01	2.6751E 00	1.0059E 00
1	2	1.0568E 00	8.1609E-01	3.0171E 00	1.0057E 00
2	1	1.1141E 00	8.2006E-01	3.3143E 00	1.0066E 00
2	2	1.1431E 00	8.3366E-01	3.8480E 00	1.0125E 00

DIMENSIONLESS PARAMETERS

TEST 123 NO BURNOUT HEATED DELTA P TEST

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	RE/PR(.4)
1	1	1.1046E 03	2.5399E 00	4.0984E 06	1.1374E 00	7.8908E 02
1	2	8.7026E 02	2.1779E 00	5.5382E 06	1.1616E 00	6.3743E 02
2	1	1.4332E 03	1.9139E 00	6.2860E 06	1.1804E 00	1.1054E 03
2	2	1.1178E 03	1.6297E 00	7.1163E 06	1.2004E 00	9.1877E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 124 RUNOUT AT DATA POINT 5

Af = 0.204E-03 D = 0.103E-01 L = 0.460E 01 DELTA TO = 0.600E 00

DATA POINTS

POINT	PL-IN	PB-OUT	TB-IN	TB-OUT	B	E2	I2	QP	MT BAL	G
1	4.184E 03	4.158E 03	1.932E 02	1.943E 02	9.900E-01	6.620E 00	3.800E 02	2.367E 00	1.054E 02	3.750E 03
2	4.179E 03	4.151E 03	1.934E 02	2.000E 02	9.930E-01	1.371E 01	5.238E 02	6.600E 00	-1.343E 01	3.750E 03
3	4.170E 03	4.140E 03	1.933E 02	2.017E 02	9.900E-01	1.904E 01	1.011E 03	1.731E 01	1.104E 01	3.750E 03
4	4.173E 03	4.144E 03	1.934E 02	2.026E 02	9.990E-01	2.022E 01	1.127E 03	2.160E 01	4.519E 00	3.750E 03
5	4.175E 03	4.141E 03	1.947E 02	2.038E 02	9.900E-01	2.222E 01	1.230E 03	2.591E 01	-7.500E 00	3.750E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 124 BURNOUT AT DATA POINT 5

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.1[illegible]E 03	1.935E 02	2.74[illegible]E 02	2.3[illegible]E 02	8.[illegible]E-01	8.659E-01	1.930E-02	9.488E 01	4.414E 01
2	4.1[illegible]E 03	1.935E 02	2.808E 02	2.464E 02	9.184E-01	9.555E-01	1.661E-02	5.180E 01	4.414E 01

STA	L/D	DELTA E	LE
1	1.251E 01	1.660E 00	1.000E 00
2	1.7[illegible]E 01	1.2[illegible]E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 124 BURNOUT AT DATA POINT 5

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.160E 03	2.042E 02	5.100E 02	3.773E 02	3.527E 00	2.464E 00	1.408E-02	1.752E 02	4.431E 01
2	4.153E 03	2.052E 02	5.250E 02	3.949E 02	3.490E 00	2.462E 00	1.293E-02	1.097E 02	4.437E 01

STA	L/D	DELTA E	LE
1	1.251E 01	5.430E 00	1.000E 00
2	1.704E 01	2.360E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 124 BURNOUT AT DATA POINT 5

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.157E 03	2.101E 02	7.020E 02	4.917E 02	6.057E 00	5.267E 00	2.229E-02	2.816E 02	4.447E 01
2	4.153E 03	2.103E 02	7.280E 02	5.221E 02	6.012E 00	6.240E 00	2.003E-02	3.058E 02	4.459E 01

STA	L/D	DELTA E	LE
1	1.251E 01	4.120E 00	1.000E 00
2	1.706E 01	3.360E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 124 BURNOUT AT DATA POINT 5

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.153E 03	2.152E 02	7.650E 02	5.42[illegible]E 02	7.[illegible]E 00	7.634E 00	2.479E-02	3.161E 02	4.469E 01
2	4.140E 03	2.240E 02	8.150E 02	5.e74E 02	7.[illegible]E 00	7.7b9E 00	2.284E-02	3.431E 02	4.479E 01

STA	L/D	DELTA E	LE
1	1.251E 01	5.670E 00	1.000E 00
2	1.706E 01	3.770E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 124 BURNOUT AT DATA POINT 5

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	REL TF	V3
1	4.152E 03	2.248E 02	8.928E 02	9.983E 02	9.983E 02	9.361E 00	2.507E-02	3.738E 02	6.678E 01
2	4.143E 03	2.355E 02	9.128E 02	8.201E 02	9.985E 00	9.378E 00	2.448E-02	3.893E 02	6.498E 01

STA	L/D	DELTA E	LE
1	1.291E 01	9.558E 00	1.000E 00
2	1.708E 01	4.170E 00	7.500E-01

DIMENSIONLESS PARAMETERS

TEST 124 BURNOUT AT DATA POINT 5

DATA POINT	STA	NU	PR	RE	TI/TW	NU/PR(.4)
1	1	4.5969E 02	2.1016E 00	1.0835E 05	1.0687E 00	3.3772E 02
1	2	3.9340E 02	2.1602E 00	1.0843E 05	1.0793E 00	2.9909E 02
2	1	3.3248E 02	2.0896E 00	1.9352E 05	1.2846E 00	2.4860E 02
2	2	3.0485E 02	2.0361E 00	1.9820E 05	1.2851E 00	2.2930E 02
3	1	5.2274E 02	1.9875E 00	2.0035E 05	1.4202E 00	3.9716E 02
3	2	4.7778E 02	1.9294E 00	2.0504E 05	1.4522E 00	3.6734E 02
4	1	5.7978E 02	1.9308E 00	2.0563E 05	1.4674E 00	4.4579E 02
4	2	5.2866E 02	1.8589E 00	2.1261E 05	1.5013E 00	4.1116E 02
5	1	5.8285E 02	1.8533E 00	2.1316E 05	1.5054E 00	4.5538E 02
5	2	5.6374E 02	1.7627E 00	2.2307E 05	1.5524E 00	4.4938E 02

DATA POINT	STA	MMU RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0203E 00	9.6846E-01	1.2092E 00	9.5917E-01
1	2	1.0235E 00	9.6505E-01	1.2033E 00	9.5848E-01
2	1	1.0644E 00	9.4947E-01	1.9805E 00	9.6884E-01
2	2	1.0924E 00	9.5365E-01	2.0813E 00	9.7303E-01
3	1	1.1500E 00	9.8649E-01	2.7125E 00	1.0125E 00
3	2	1.1665E 00	1.0068E 00	2.9869E 00	1.0235E 00
4	1	1.1735E 00	1.0150E 00	2.9399E 00	1.0270E 00
4	2	1.1928E 00	1.0402E 00	3.0862E 00	1.0376E 00
5	1	1.2097E 00	1.0787E 00	3.2567E 00	1.0446E 00
5	2	1.2099E 00	1.1117E 00	3.2453E 00	1.0473E 00

DIMENSIONLESS PARAMETERS

TEST 124 RUN#1#1 AT DATA POINT 5

DATA PLINT	STA	NU(F)	PR(F)	RE(F)	TB/TF	HW/PR(.4)
1	1	4.5134E 02	1.933[illegible] 00	2.03[illegible] 05	1.0[illegible] 00	3.4672E 02
1	2	3.8534E 02	1.9805[illegible] 00	2.0807E 05	1.0281E 00	2.9888E 02
2	1	3.1811E 02	1.4491[illegible] 00	2.0850E 05	1.1108E 00	2.7754E 02
2	2	2.9163E 02	1.4406[illegible] 00	2.7572E 05	1.1208E 00	2.5072E 02
3	1	4.9890E 02	1.1104E 00	3.2547E 05	1.1720E 00	4.7723E 02
3	2	4.5626E 02	1.0533E 00	3.0413E 05	1.1804E 00	4.4083E 02
4	1	5.5028E 02	1.0372E 00	3.6918E 05	1.1894E 00	5.4819E 02
4	2	5.0920E 02	9.7399E-01	3.7272E 05	1.2004E 00	5.1468E 02
5	1	5.6526E 02	9.3408E-01	4.0999E 05	1.2142E 00	5.6088E 02
5	2	5.5225E 02	8.9091E-01	4.0972E 05	1.2184E 00	5.7030E 02

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 125 NO BURNOUT HEATED DELTA P TEST

AP = 0.130E-02 D = 0.132E-01 L = 0.500E 01 DELTA TB = 0.370E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	GP	NU DAL	Q
1	4.137E 03	3.792E 03	6.360E 01	8.480E 01	2.260E 00	2.979E 01	9.318E 02	2.062E 01	1.794E 00	1.711E 06
2	4.024E 03	3.687E 03	6.358E 01	1.008E 02	2.282E 00	4.128E 01	1.279E 03	4.990E 01	1.081E 00	1.688E 06
3	3.871E 03	2.840E 03	6.350E 01	1.182E 02	2.290E 00	5.089E 01	1.308E 03	8.084E 01	-1.138E 01	1.682E 06

TEST SECTION

LOCAL TEST PARAMETERS

TEST 125 NU BURNOUT HEATED DELTA P TEST

DATA POINT 1

STA	PB	TB	TO	TI	Q/A	Q/AP	M	DEL TP	VB
1	2.687[illegible]E 03	7.927E 01	6.390E 02	2.331E 02	1.876E 01	1.056E 01	6.829E-02	1.538E 02	1.919E 02
2	2.6[illegible]E 03	8.369E 01	6.340E 02	2.309E 02	1.881E 01	1.053E 01	7.142E-02	1.479E 02	1.922E 02

STA	L/D	DELTA E	LE
1	2.360E 01	2.557E 01	4.250E 00
2	2.950E 01	4.470E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 125 NO BURNOUT HEATED DELTA P TEST

DATA POINT 2

STA	PB	TB	TO	TI	Q/A	Q/AP	M	DEL TP	VB
1	2.771E 03	9.122E 01	1.006E 03	3.159E 02	2.041E 01	2.000E 01	8.752E-02	2.200E 02	1.900E 02
2	2.704E 03	9.874E 01	1.007E 03	2.957E 02	2.031E 01	1.990E 01	8.792E-02	2.209E 02	1.900E 02

STA	L/D	DELTA E	LE
1	2.360E 01	3.517E 01	4.250E 00
2	2.940E 01	6.150E 00	7.500E-01

LOCAL TEST PARAMETERS

TEST 125 NO BURNOUT HEATED DELTA P TEST

DATA POINT 3

STA	PB	TB	TO	TI	Q/A	Q/AP	M	DEL TP	VB
1	2.[illegible]E 03	1.045E 02	1.386E 03	4.133E 02	3.020E 01	2.000E 01	7.837E-02	3.798E 02	1.873E 02
2	2.[illegible]E 03	1.155E 02	1.381E 03	4.140E 02	3.105E 01	2.720E 01	6.982E-02	3.042E 02	1.888E 02

STA	L/D	DELTA E	LE
1	2.[illegible]E 01	4.311E 01	4.250E 00
2	2.[illegible]E 01	7.780E 00	7.500E-01

TEST 125 NO BURNOUT HEATED DELTA P TEST

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	1.3765E 03	5.0757E 00	2.9993E 05	1.2852E 00	7.1877E 02
1	2	1.4295E 03	4.8425E 00	3.1244E 05	1.2713E 00	7.6067E 02
2	1	1.7297E 03	4.4659E 00	3.3803E 05	1.4148E 00	9.0863E 02
2	2	1.7176E 03	4.1708E 00	3.4984E 05	1.4861E 00	9.7015E 02
3	1	1.3627E 03	3.9494E 00	3.6268E 05	1.6711E 00	7.0868E 02
3	2	1.7069E 03	3.6291E 00	3.8557E 05	1.9284E 00	1.0193E 03

DATA POINT	STA	RHO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0486E 00	6.2962E-01	2.4405E 00	9.8264E-01
1	2	1.0667E 00	8.3647E-01	2.3254E 00	9.8146E-01
2	1	1.1067E 00	8.2170E-01	3.0632E 00	9.7644E-01
2	2	1.1062E 00	8.3062E-01	2.9527E 00	9.7487E-01
3	1	1.1571E 00	8.6146E-01	4.7220E 00	1.0074E 00
3	2	1.1502E 00	9.5710E-01	3.6131E 00	9.8707E-01

DIMENSIONLESS PARAMETERS

TEST 125 NO BURNOUT HEATED DELTA P TEST

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	1.2270E 03	2.6991E 00	4.9376E 05	1.1248E 00	8.2483E 02
1	2	1.2815E 03	2.6817E 00	4.9706E 05	1.1194E 00	8.6368E 02
2	1	1.4911E 03	2.0155E 00	6.1311E 05	1.1717E 00	1.1266E 03
2	2	1.4902E 03	1.9478E 00	6.3194E 05	1.1688E 00	1.1414E 03
3	1	1.1490E 03	1.3774E 00	8.2647E 05	1.2512E 00	1.0109E 03
3	2	1.4753E 03	1.5258E 00	7.6120E 05	1.2090E 00	1.2459E 03

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

901 H202 TEST 126 BURNOUT AT DATA POINT 8

AF = 0.138E-03 D = 0.132E-01 L = 0.500E 01 DELTA TO = 0.160[illegible] 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	4.209E 03	3.969E 03	6.210E 01	8.680E 01	1.828E 00	3.037E 01	9.563E 02	2.748E 01	-5.531E 00	1.327E 04
2	4.203E 03	3.966E 03	6.220E 01	1.037E 02	1.822E 00	4.031E 01	1.849E 03	4.773E 01	-0.98[illegible]E 00	1.322E 04
3	4.270E 03	4.034E 03	6.240E 01	1.127E 02	1.827E 00	4.476E 01	1.375E 03	5.834E 01	-1.302E 00	1.326E 04
4	4.248E 03	4.014E 03	6.240E 01	1.203E 02	1.814E 00	4.794E 01	1.466E 03	6.679E 01	-1.646E 00	1.316E 04
5	4.243E 03	4.008E 03	6.250E 01	1.250E 02	1.807E 00	4.973E 01	1.518E 03	7.156E 01	-2.263E 00	1.311E 04
6	4.239E 03	4.005E 03	6.250E 01	1.311E 02	1.804E 00	5.213E 01	1.591E 03	7.863E 01	-2.403E 00	1.311E 04
7	4.235E 03	4.004E 03	6.250E 01	1.361E 02	1.797E 00	5.377E 01	1.638E 03	8.356E 01	-3.161E 00	1.304E 04
8	4.235E 03	4.003E 03	6.250E 01	1.419E 02	1.790E 00	5.577E 01	1.704E 03	9.009E 01	-2.963E 00	1.299E 04

TEST SECTION

LOCAL TEST PARAMETERS

90(H2O2 TEST 126 BURNOUT AT DATA POINT 8

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	4.029E 03	8.042E 01	6.920E 02	2.669E 02	1.140E 01	1.108E 01	5.906E-02	1.865E 02	1.53[illegible] 02
2	3.981E 03	8.556E 01	6.970E 02	2.733E 02	1.140E 01	1.108E 01	5.857E-02	1.870E 02	1.54[illegible] 02

STA	L/D	DELTA E	LE
1	2.358E 01	3.037E 01	5.000E 00
2	2.987E 01	3.037E 01	5.000E 00

LOCAL TEST PARAMETERS

90(H2O2 TEST 126 BURNOUT AT DATA POINT 8

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	4.025E 03	9.332E 01	1.016E 03	3.489E 02	1.972E 01	1.911E 01	7.476E-02	2.556E 02	1.53[illegible] 02
2	3.978E 03	1.016E 02	1.019E 03	3.531E 02	1.972E 01	1.911E 01	7.990E-02	2.515E 02	1.54[illegible] 02

STA	L/D	DELTA E	LE
1	2.358E 01	4.031E 01	5.000E 00
2	2.987E 01	4.031E 01	5.000E 00

LOCAL TEST PARAMETERS

90(H2O2 TEST 126 BURNOUT AT DATA POINT 8

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	4.093E 03	1.001E 02	1.063E 03	2.564E 02	2.419E 01	2.336E 01	1.494E-01	1.563E 02	1.54[illegible] 02
2	4.046E 03	1.102E 02	1.081E 03	2.533E 02	2.420E 01	2.336E 01	1.631E-01	1.432E 02	1.55[illegible] 02

STA	L/D	DELTA E	LE
1	2.358E 01	4.476E 01	5.000E 00
2	2.987E 01	4.476E 01	5.000E 00

LOCAL TEST PARAMETERS

90(H2O2 TEST 126 BURNOUT AT DATA POINT 8

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	4.072E 03	1.058E 02	1.324E 03	4.709E 02	2.766E 01	2.673E 01	7.323E-02	3.651E 02	1.54[illegible] 02
2	4.026E 03	1.174E 02	1.312E 03	4.535E 02	2.766E 01	2.673E 01	7.956E-02	3.360E 02	1.56[illegible] 02

STA	L/D	DELTA E	LE
1	2.358E 01	4.799E 01	5.000E 00
2	2.987E 01	4.799E 01	5.000E 00

LOCAL TEST PARAMETERS

90(M202 TEST 126 BURNOUT AT DATA POINT 5

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.067E 03	1.094E 02	1.408E 03	5.169E 02	2.964E 01	2.868E 01	7.029E-02	4.076E 02	1.537E 02
2	4.020E 03	1.219E 02	1.391E 03	4.922E 02	2.964E 01	2.868E 01	7.738E-02	3.704E 02	1.545E 02

STA	L/D	DELTA E	LE
1	2.368E 01	4.973E 01	5.000E 00
2	2.987E 01	4.973E 01	5.000E 00

LOCAL TEST PARAMETERS

90(M202 TEST 126 BURNOUT AT DATA POINT 6

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.063E 03	1.139E 02	1.541E 03	6.037E 02	3.258E 01	3.147E 01	6.427E-02	4.697E 02	1.540E 02
2	4.017E 03	1.277E 02	1.513E 03	5.633E 02	3.258E 01	3.147E 01	7.228E-02	4.357E 02	1.550E 02

STA	L/D	DELTA E	LE
1	2.358E 01	5.213E 01	5.000E 00
2	2.987E 01	5.213E 01	5.000E 00

LOCAL TEST PARAMETERS

90(M202 TEST 126 BURNOUT AT DATA POINT 8

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.062E 03	1.177E 02	1.634E 03	6.391E 02	3.461E 01	3.342E 01	6.173E-02	5.414E 02	1.534E 02
2	4.016E 03	1.324E 02	1.629E 03	6.520E 02	3.461E 01	3.342E 01	6.433E-02	5.196E 02	1.543E 02

STA	L/D	DELTA E	LE
1	2.358E 01	5.377E 01	5.000E 00
2	2.987E 01	5.377E 01	5.000E 00

LOCAL TEST PARAMETERS

90(M202 TEST 126 BURNOUT AT DATA POINT 8

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.061E 03	1.280E 02	1.768E 03	7.638E 02	3.725E 01	3.606E 01	5.686E-02	6.410E 02	1.530E 02
2	4.015E 03	1.379E 02	1.822E 03	8.466E 02	3.727E 01	3.606E 01	5.889E-02	7.087E 02	1.541E 02

STA	L/D	DELTA E	LE
1	2.358E 01	5.577E 01	5.000E 00
2	2.987E 01	5.577E 01	5.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

90% H2O2 TEST 127 BURNOUT AT DATA POINT 8

AF = 0.138E-03 D = 0.132E-01 L = 0.600E 01 DELTA TO = 0.170E 01

DATA POINTS

POINT	PB-IN	PE-OUT	TB-IN	TB-OUT	W	E2	I2	GP	HT BAL	G
1	4.117E 03	3.980E 03	6.150E 01	9.240E 01	1.198E 00	2.997E 01	7.670E 02	2.236E 01	-3.[illegible] 00	8.694E 03
2	4.111E 03	3.975E 03	6.160E 01	1.057E 02	1.199E 00	3.630E 01	9.450E 02	3.259E 01	-3.[illegible] 00	8.701E 03
3	4.104E 03	3.970E 03	6.160E 01	1.211E 02	1.197E 00	4.285E 01	1.099E 03	4.464E 01	-2.5[illegible] 00	8.687E 03
4	4.097E 03	3.963E 03	6.160E 01	1.313E 02	1.196E 00	4.650E 01	1.180E 03	5.224E 01	-3.5[illegible] 00	8.679E 03
5	4.095E 03	3.960E 03	6.160E 01	1.404E 02	1.195E 00	4.947E 01	1.257E 03	5.895E 01	-3.9[illegible] 00	8.678E 03
6	4.090E 03	3.958E 03	6.160E 01	1.473E 02	1.196E 00	5.146E 01	1.307E 03	6.376E 01	-4.[illegible] 00	8.679E 03
7	4.090E 03	3.954E 03	6.160E 01	1.547E 02	1.195E 00	5.345E 01	1.366E 03	6.866E 01	-5.[illegible] 00	8.672E 03
8	4.090E 02	3.953E 03	6.160E 01	1.568E 02	1.193E 00	5.410E 01	1.370E 03	7.026E 01	-5.73[illegible] 00	8.667E 03

TEST SECTION

LOCAL TEST PARAMETERS

SCC M2C2 TEST 127 BURNOUT AT DATA POINT 0

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.005E 03	8.556E 01	5.510E 02	2.599E 02	7.773E 00	7.459E 00	4.286E-02	1.739E 02	1.009E 02
2	3.980E 03	9.111E 01	5.790E 02	2.818E 02	7.765E 00	7.459E 00	3.912E-02	1.907E 02	1.011E 02

STA	L/D	DELTA E	LE
1	2.587E 01	2.957E 01	6.000E 00
2	3.616E 01	2.957E 01	6.000E 00

LOCAL TEST PARAMETERS

SCC M2C2 TEST 127 BURNOUT AT DATA POINT 0

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.003E 03	9.021E 01	7.370E 02	3.262E 02	1.143E 01	1.087E 01	4.733E-02	2.297E 02	1.014E 02
2	3.981E 03	1.039E 02	7.580E 02	3.427E 02	1.132E 01	1.087E 01	4.369E-02	2.489E 02	1.017E 02

STA	L/D	DELTA E	LE
1	2.587E 01	3.638E 01	6.000E 00
2	3.616E 01	3.638E 01	6.000E 00

LOCAL TEST PARAMETERS

SCC M2C2 TEST 127 BURNOUT AT DATA POINT 0

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.994E 03	1.087E 02	9.246E 02	3.930E 02	1.057E 01	1.089E 01	5.238E-02	2.843E 02	1.018E 02
2	3.978E 03	1.160E 02	9.470E 02	4.231E 02	1.056E 01	1.089E 01	4.891E-02	3.048E 02	1.022E 02

STA	L/D	DELTA E	LE
1	2.587E 01	4.285E 01	6.000E 00
2	3.616E 01	4.285E 01	6.000E 00

LOCAL TEST PARAMETERS

SCC M2C2 TEST 127 BURNOUT AT DATA POINT 0

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.991E 03	1.184E 02	1.029E 03	4.340E 02	1.024E 01	1.074E 01	5.487E-02	3.223E 02	1.020E 02
2	3.969E 03	1.284E 02	1.069E 03	4.709E 02	1.022E 01	1.074E 01	4.971E-02	3.509E 02	1.025E 02

STA	L/D	DELTA E	LE
1	2.587E 01	4.628E 01	6.000E 00
2	3.616E 01	4.628E 01	6.000E 00

LOCAL TEST PARAMETERS

90(M2G2 TEST 127 BURNOUT AT DATA POINT 6

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.968E 03	1.240E 02	1.136E 03	4.792E 02	2.066E 01	1.967E 01	5.630E-02	3.808E 02	1.[illegible] 02
2	3.966E 03	1.371E 02	1.186E 03	5.463E 02	2.068E 01	1.967E 01	4.006E-02	4.808E 02	1.[illegible] 02

STA	L/D	DELTA E	LE
1	2.987E 01	4.947E 01	6.000E 00
2	3.616E 01	4.947E 01	6.000E 00

LOCAL TEST PARAMETERS

90(M2G2 TEST 127 BURNOUT AT DATA POINT 6

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.983E 03	1.294E 02	1.222E 03	5.330E 02	2.218E 01	2.127E 01	5.266E-02	4.043E 02	1.027E 02
2	3.961E 03	1.437E 02	1.344E 03	6.954E 02	2.213E 01	2.127E 01	3.066E-02	5.517E 02	1.031E 02

STA	L/D	DELTA E	LE
1	2.987E 01	5.146E 01	6.000E 00
2	3.616E 01	5.146E 01	6.000E 00

LOCAL TEST PARAMETERS

90(M2G2 TEST 127 BURNOUT AT DATA POINT 6

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.982E 03	1.283E 02	1.329E 03	6.161E 02	2.388E 01	2.290E 01	4.764E-02	4.888E 02	1.027E 02
2	3.96CE 03	1.508E 02	1.548E 03	9.010E 02	2.381E 01	2.290E 01	3.053E-02	7.548E 02	1.035E 02

STA	L/D	DELTA E	LE
1	2.987E 01	5.345E 01	6.000E 00
2	3.616E 01	5.345E 01	6.0C0E 00

LOCAL TEST PARAMETERS

90(M2G2 TEST 127 BURNOUT AT DATA POINT 6

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.982E 03	1.370E 02	1.333E 03	6.011E 02	2.446E 01	2.344E 01	5.050E-02	4.641E 02	1.028E 02
2	3.959E 03	1.528E 02	1.540E 03	9.236E 02	2.439E 01	2.344E 01	3.041E-02	7.787E 02	1.033E 02

STA	L/D	DELTA E	LE
1	2.987E 01	5.410E 01	6.0C0E 00
2	3.616E 01	5.410E 01	6.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

SCE H2O2 TEST 128 BURNOUT AT DATA POINT 7

AF = C.273E-03 D = 0.212E-01 L = 0.500E 01 DELTA TO = 0.900E 00

DATA POINTS

PCINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	MT BAL	G
1	4.158E C3	4.145E 03	1.146E 02	1.210E 02	1.144E 00	9.570E 00	4.400E 02	3.992E 00	-5.210E 00	4.183E 03
2	4.153E C3	4.138E 03	1.145E 02	1.400E 02	1.144E 00	2.028E 01	9.140E 02	1.757E 01	-7.000E 00	4.183E 03
3	4.150E 03	4.133E 03	1.143E 02	1.499E 02	1.144E 00	2.427E 01	1.088E 03	2.496E 01	-6.378E 00	4.193E 03
4	4.147E 03	4.130E 03	1.140E 02	1.618E 02	1.143E 00	2.824E 01	1.252E 03	3.352E 01	-7.100E 00	4.179E 03
5	4.145E C3	4.126E 03	1.140E 02	1.691E 02	1.141E 00	3.029E 01	1.337E 03	3.839E 01	-7.918E 00	4.172E 03
6	4.143E 03	4.126E 03	1.140E 02	1.732E 02	1.140E 00	3.138E 01	1.381F 03	4.100E 01	-8.417E 00	4.168E 03
7	4.142E 03	4.125E 03	1.140E 02	1.740E 02	1.138E 00	3.150E 01	1.386E 03	4.136E 01	-9.088E 00	4.161F 03

TEST SELECTION

LOCAL TEST PARAMETERS

90(M2C2 TEST 128 BURNOUT AT DATA POINT 7

DATA POINT 1

STA	PB	TB	TO	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.151E 03	1.194E 02	2.546E 02	2.109E 02	1.115E 00	1.134E 00	1.240E-02	9.149E 01	4.922E 01
2	4.146E 03	1.207E 02	2.470E 02	1.964E 02	1.115E 00	1.134E 00	1.459E-02	7.779E 01	4.885E 01

STA	L/D	DELTA E	LB
1	1.476E 01	9.570E 00	5.000E 00
2	1.870E 01	9.570E 00	5.000E 00

LOCAL TEST PARAMETERS

90(M2C2 TEST 128 BURNOUT AT DATA POINT 7

DATA POINT 2

STA	PB	TB	TO	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.140E 03	1.326E 02	6.368E 02	4.621E 02	4.898E 00	4.993E 00	1.520E-02	3.288E 02	9.[illegible] 01
2	4.137E 03	1.367E 02	6.180E 02	4.389E 02	4.897E 00	4.993E 00	1.663E-02	3.002E 02	[illegible] 01

STA	L/D	DELTA E	LB
1	1.476E 01	2.028E 01	5.000E 00
2	1.870E 01	2.028E 01	5.000E 00

LOCAL TEST PARAMETERS

90(M2C2 TEST 128 BURNOUT AT DATA POINT 7

DATA POINT 3

STA	PB	TB	TO	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.137E 03	1.410E 02	6.090E 02	5.733E 02	6.935E 00	7.093E 00	1.621E-02	4.375E 02	9.972E 01
2	4.134E 03	1.481E 02	7.920E 02	5.595E 02	6.941E 00	7.093E 00	1.724E-02	4.114E 02	9.907E 01

STA	L/D	DELTA E	LB
1	1.476E 01	2.027E 01	5.000E 00
2	1.870E 01	2.027E 01	5.000E 00

LOCAL TEST PARAMETERS

90(M2C2 TEST 128 BURNOUT AT DATA POINT 7

DATA POINT 4

STA	PB	TB	TO	TI	Q/A	Q/AP	M	DEL TF	VS
1	4.134E 03	1.458E 02	9.840E 02	6.930E 02	9.311E 00	9.524E 00	1.754E-02	5.431E 02	9.906E 01
2	4.131E 03	1.554E 02	9.830E 02	6.690E 02	9.320E 00	9.524E 00	1.869E-02	5.098E 02	9.807E 01

STA	L/D	DELTA E	LB
1	1.476E 01	2.824E 01	5.000E 00
2	1.870E 01	2.824E 01	5.000E 00

LOCAL TEST PARAMETERS

901 M2C2 TEST 125 BURNOUT AT DATA POINT 7

DATA POINT 5

STA	PB	TB	Tb	TI	Q/A	Q/AP	M	DEL TF	VB
1	4.132E 03	1.553E 02	1.081E 03	7.584E 02	1.067E 01	1.091E 01	1.509E-02	6.031E 02	4.991E 01
2	4.129E 03	1.663E 02	1.083E 03	7.319E 02	1.068E 01	1.091E 01	1.929E-02	5.655E 02	5.013E 01

STA	L/D	DELTA E	LE
1	1.476E 01	3.029E 01	5.000E 00
2	1.670E 01	3.029E 01	5.000E 00

LOCAL TEST PARAMETERS

901 M202 TEST 126 BURNOUT AT DATA POINT 7

DATA POINT 6

STA	PB	TB	Tb	TI	Q/A	Q/AP	M	DEL TF	VB
1	4.130E 03	1.565E 02	1.128E 03	7.676E 02	1.143E 01	1.167E 01	1.855E-02	6.291E 02	4.991E 01
2	4.127E 03	1.703E 02	1.113E 03	7.702E 02	1.144E 01	1.167E 01	1.946E-02	5.999E 02	5.017E 01

STA	L/D	DELTA E	LE
1	1.476E 01	3.138E 01	5.000E 00
2	1.670E 01	3.138E 01	5.000E 00

LOCAL TEST PARAMETERS

901 M2C2 TEST 126 BURNOUT AT DATA POINT 7

DATA POINT 7

STA	Pb	TB	Tb	TI	Q/A	Q/AP	M	DEL TF	VB
1	4.129E 03	1.590E 02	1.148E 03	7.529E 02	1.151E 01	1.175E 01	1.854E-02	6.339E 02	4.988E 01
2	4.126E 03	1.710E 02	1.129E 03	7.581E 02	1.152E 01	1.175E 01	1.928E-02	6.103E 02	5.010E 01

STA	L/D	DELTA E	LE
1	1.476E 01	3.150E 01	5.000E 00
2	1.670E 01	3.150E 01	5.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

90(H2O2 TEST 129 BURNOUT AT DATA POINT 8

AF = 9.273E-03 Q = 0.211E-01 L = 0.466E 01 DELTA TO = 0.00E-00

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	Q	G2	I2	QP	MT DAL
1	4.01E 03	3.997E 03	1.947E 02	1.954E 02	9.691E-01	0.00E 00	3.74E 02	2.00E 00	0
2	4.00E 03	3.994E 03	1.938E 02	2.071E 02	9.701E-01	1.41E 01	7.53E 02	1.01E 01	0
3	4.00E 03	3.992E 03	1.944E 02	2.17E 02	9.702E-01	1.84E 01	9.86E 02	1.00E 01	0
4	4.00E 03	3.992E 03	1.931E 02	2.23E 02	9.697E-01	2.01E 01	1.08E 03	2.00E 01	0
5	3.99E 03	3.988E 03	1.94E 02	1.92E 02	9.724E-01	2.22E 01	1.19E 03	2.04E 01	0
6	3.97E 03	2.96E 03	1.94E 02	1.97E 02	9.72E-01	2.35E 01	1.21E 03	2.09E 01	0
7	3.99E 03	3.977E 03	1.94E 02	2.02E 02	9.66E-01	2.43E 01	1.26E 03	2.01E 01	0
8	3.97E 03	3.96E 03	1.94E 02	2.05E 02	9.64E-01	2.47E 01	1.28E 03	1.96E 01	0

TEST SECTION

LOCAL TEST PARAMETERS

901 M202 TEST 129 BURNOUT AT DATA POINT 8

DATA POINT 1

STA	PS	TS	TW	TI	Q/A	Q/AP	M	REL TP	VS
1	4.082E 03	1.909E 02	2.770E 02	2.379E 02	9.292E-01	8.708E-01	2.826E-02	4.304E 01	4.311E 03
2	3.998E 03	1.983E 02	2.810E 02	2.214E 02	9.212E-01	8.708E-01	3.209E-02	2.612E 01	4.312E 03

STA	L/D	DELTA E	LE
1	1.083E 01	6.958E 00	4.000E 00
2	1.470E 01	6.958E 00	4.000E 00

LOCAL TEST PARAMETERS

901 M202 TEST 129 BURNOUT AT DATA POINT 5

DATA POINT 2

STA	PS	TS	TW	TI	Q/A	Q/AP	M	REL TP	VS
1	3.999E 03	2.028E 02	4.968E 02	3.868E 02	3.703E 00	3.992E 00	2.432E-02	1.477E 02	4.356E 03
2	3.998E 03	2.066E 02	4.708E 02	3.208E 02	3.708E 00	3.992E 00	2.808E-02	1.548E 02	4.362E 03

STA	L/D	DELTA E	LE
1	1.083E 01	1.417E 01	4.000E 00
2	1.470E 01	1.417E 01	4.000E 00

LOCAL TEST PARAMETERS

901 M202 TEST 129 BURNOUT AT DATA POINT 3

DATA POINT 3

STA	PS	TS	TW	TI	Q/A	Q/AP	M	REL TP	VS
1	3.997E 03	2.100E 02	3.618E 02	4.422E 02	6.189E 00	5.877E 00	2.930E-02	2.322E 02	4.369E 03
2	3.992E 03	2.160E 02	4.370E 02	4.150E 02	6.168E 00	5.877E 00	2.953E-02	1.990E 02	4.361E 03

STA	L/D	DELTA E	LE
1	1.083E 01	1.822E 01	4.000E 00
2	1.470E 01	1.822E 01	4.000E 00

LOCAL TEST PARAMETERS

901 M202 TEST 129 BURNOUT AT DATA POINT 8

DATA POINT 4

STA	PS	TS	TW	TI	Q/A	Q/AP	M	REL TP	VS
1	3.998E 03	2.139E 02	7.440E 02	4.854E 02	7.473E 00	7.127E 00	2.481E-02	2.727E 02	4.358E 03
2	3.998E 03	2.214E 02	7.170E 02	4.504E 02	7.487E 00	7.127E 00	3.004E-02	2.241E 02	4.370E 03

STA	L/D	DELTA E	LE
1	1.083E 01	2.612E 01	4.000E 00
2	1.470E 01	2.612E 01	4.000E 00

LOCAL TEST PARAMETERS

90(H2O2 TEST 129 BURNOUT AT DATA POINT 8

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.970E 03	1.805E 02	7.960E 02	4.853E 02	9.124E 00	8.687E 00	2.850E-02	3.048E 02	4.296E 01
2	3.966E 03	1.900E 02	7.730E 02	4.582E 02	9.135E 00	8.687E 00	3.239E-02	2.482E 02	4.317E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.226E 01	4.000E 00
2	1.476E 01	2.226E 01	4.000E 00

LOCAL TEST PARAMETERS

90(H2O2 TEST 129 BURNOUT AT DATA POINT 8

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.968E 03	1.837E 02	8.425E 02	5.054E 02	1.005E 01	9.569E 00	2.974E-02	3.217E 02	4.303E 01
2	3.964E 03	1.944E 02	8.130E 02	4.703E 02	1.006E 01	9.569E 00	3.468E-02	2.759E 02	4.318E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.339E 01	4.000E 00
2	1.476E 01	2.339E 01	4.000E 00

LOCAL TEST PARAMETERS

90(H2O2 TEST 129 BURNOUT AT DATA POINT 8

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.982E 03	1.876E 02	8.930E 02	5.347E 02	1.087E 01	1.035E 01	2.982E-02	3.471E 02	4.288E 01
2	3.978E 03	1.994E 02	8.695E 02	5.066E 02	1.088E 01	1.035E 01	3.373E-02	3.069E 02	4.311E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.436E 01	4.000E 00
2	1.476E 01	2.436E 01	4.000E 00

LOCAL TEST PARAMETERS

90(H2O2 TEST 129 BURNOUT AT DATA POINT 8

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.969E 03	1.892E 02	9.115E 02	5.436E 02	1.123E 01	1.068E 01	3.012E-02	3.544E 02	4.280E 01
2	3.965E 03	2.018E 02	9.000E 02	5.298E 02	1.124E 01	1.068E 01	3.255E-02	3.280E 02	4.303E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.477E 01	4.000E 00
2	1.476E 01	2.477E 01	4.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 130. DURATION TEST.DATA POINTS AT 20 SEC INT.DP1-145SEC.DP10 IS ...

AF = 0.138E-03 D = 0.132E-01 L = 0.400E 01 DELTA TO = 0.230E 01

DATA POINTS

PCINT	PB-IN	PE-CUT	TL-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	3.515E 03	3.285E 03	8.100E 01	1.298E 02	1.785E 00	3.832E 01	1.497E 03	5.438E 01	2.466E 00	1.295E 04
2	3.675E 03	3.440E 03	8.080E 01	1.304E 02	1.823E 00	3.893E 01	1.516E 03	5.595E 01	1.507E 00	1.323E 04
3	3.690E 03	3.450E 03	8.040E 01	1.313E 02	1.833E 00	3.901E 01	1.519E 03	5.617E 01	-1.351E 00	1.330E 04
4	3.630E 03	3.400E 03	8.050E 01	1.315E 02	1.817E 00	3.910E 01	1.514E 03	5.612E 01	-7.746E-01	1.319E 04
5	3.625E 03	3.395E 03	8.090E 01	1.308E 02	1.820E 00	3.868E 01	1.495E 03	5.482E 01	-9.972E-01	1.321E 04
6	3.665E 03	3.430E 03	8.040E 01	1.310E 02	1.827E 00	3.869E 01	1.497E 03	5.491E 01	-2.710E 00	1.326E 04
7	3.645E 03	3.410E 03	8.060E 01	1.322E 02	1.805E 00	3.872E 01	1.497E 03	5.495E 01	-3.506E 00	1.310E 04
8	3.635E 03	3.405E 03	8.070E 01	1.341E 02	1.805E 00	3.901E 01	1.506E 03	5.569E 01	-5.871E 00	1.310E 04
9	3.575E 03	3.340E 03	8.060E 01	1.351E 02	1.782E 00	3.890E 01	1.504E 03	5.546E 01	-7.224E 00	1.293E 04
10	3.500E 03	3.275E 03	8.130E 01	1.365E 02	1.756E 00	3.888E 01	1.503E 03	5.540E 01	-7.222E 00	1.274E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 130. DURATION TEST.DATA POINTS AT 20 SEC INT.DPI-145SEC.DPI0 IS 80

DATA POINT 1

STA	Pd	TB	Tb	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.357E 03	1.145E 02	1.285E 03	4.530E 02	2.709E 01	2.721E 01	8.040E-02	3.385E 02	1.479E 02
2	3.249E 03	1.207E 02	1.236E 03	3.812E 02	2.709E 01	2.721E 01	1.063E-01	2.545E 02	1.482E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.832E 01	4.000E 00
2	2.358E 01	3.832E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130. DURATION TEST.DATA POINTS AT 20 SEC INT.DPI-145SEC.DPI0 IS 80

DATA POINT 2

STA	Pd	TB	Tb	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.513E 03	1.149E 02	1.336E 03	4.945E 02	2.793E 01	2.800E 01	7.376E-02	3.796E 02	1.506E 02
2	3.455E 03	1.273E 02	1.260E 03	3.832E 02	2.793E 01	2.800E 01	1.094E-01	2.559E 02	1.514E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.893E 01	4.000E 00
2	2.358E 01	3.893E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130. DURATION TEST.DATA POINTS AT 20 SEC INT.DPI-145SEC.DPI0 IS 80

DATA POINT 3

STA	Pd	TB	Tb	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.525E 03	1.154E 02	1.312E 03	4.555E 02	2.805E 01	2.811E 01	8.264E-02	3.401E 02	1.514E 02
2	3.465E 03	1.281E 02	1.275E 03	4.011E 02	2.807E 01	2.811E 01	1.030E-01	2.730E 02	1.522E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.901E 01	4.000E 00
2	2.359E 01	3.901E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130. DURATION TEST.DATA POINTS AT 20 SEC INT.DPI-145SEC.DPI0 IS 80

DATA POINT 4

STA	Pd	TB	Tb	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.472E 03	1.158E 02	1.306E 03	4.419E 02	2.819E 01	2.808E 01	8.604E-02	3.264E 02	1.501E 02
2	3.414E 03	1.283E 02	1.278E 03	4.006E 02	2.820E 01	2.808E 01	1.031E-01	2.723E 02	1.509E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.910E 01	4.000E 00
2	2.358E 01	3.910E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130, DURATION TEST,DATA POINTS AT 20 SEC INT,DP1-145SEC,DP10 IS 80

DATA POINT 5

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.467E 03	1.152E 02	1.34CE 03	5.131E 02	2.757E 01	2.743E 01	6.894E-02	3.979E 02	1.503E 02
2	3.409E 03	1.277E 02	1.259E 03	3.956E 02	2.761E 01	2.743E 01	1.024E-01	2.679E 02	1.511E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.668E 01	4.000E 00
2	2.358E 01	3.668E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130, DURATION TEST,DATA POINTS AT 20 SEC INT,DP1-145SEC,DP10 IS 80

DATA POINT 6

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.503E 03	1.152E 02	1.360E 03	5.669E 02	2.757E 01	2.747E 01	6.055E-02	4.538E 02	1.509E 02
2	3.445E 03	1.276E 02	1.255E 03	3.691E 02	2.761E 01	2.747E 01	1.052E-01	2.613E 02	1.517E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.669E 01	4.000E 00
2	2.358E 01	3.669E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130, DURATION TEST,DATA POINTS AT 20 SEC INT,DP1-145SEC,DP10 IS 80

DATA POINT 7

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.483E 03	1.161E 02	1.412E 03	6.118E 02	2.764E 01	2.750E 01	5.546E-02	4.957E 02	1.492E 02
2	3.425E 03	1.290E 02	1.278E 03	4.214E 02	2.766E 01	2.750E 01	9.401E-02	2.925E 02	1.500E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.672E 01	4.000E 00
2	2.358E 01	3.672E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130, DURATION TEST,DATA POINTS AT 20 SEC INT,DP1-145SEC,DP10 IS 80

DATA POINT 8

STA	Pb	Tb	Tw	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.477E 03	1.174E 02	1.452E 03	6.527E 02	2.803E 01	2.787E 01	5.207E-02	5.352E 02	1.492E 02
2	3.419E 03	1.306E 02	1.286E 03	4.174E 02	2.807E 01	2.787E 01	9.722E-02	2.867E 02	1.501E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.901E 01	4.000E 00
2	2.358E 01	3.901E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130. DURATION TEST.DATA POINTS AT 20 SEC INT.DP1-145SEC.DP10 IS 80

DATA POINT 9

STA	PB	TB	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.413E 03	1.181E 02	1.456E 03	6.634E 02	2.787E 01	2.775E 01	5.089E-02	5.454E 02	1.474E 02
2	3.355E 03	1.317E 02	1.290E 03	4.293E 02	2.791E 01	2.775E 01	9.325E-02	2.976E 02	1.488E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.890E 01	4.000E 00
2	2.358E 01	3.890E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 130. DURATION TEST.DATA POINTS AT 20 SEC INT.DP1-145SEC.DP10 IS 80

DATA POINT 10

STA	PB	TB	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.345E 03	1.192E 02	1.462E 03	6.726E 02	2.784E 01	2.772E 01	5.010E-02	5.533E 02	1.463E 02
2	3.289E 03	1.330E 02	1.310E 03	4.596E 02	2.787E 01	2.772E 01	8.489E-02	3.268E 02	1.461E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.888E 01	4.000E 00
2	2.358E 01	3.888E 01	4.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 132.7 MIN STEADY POWER.OF1-146 SEC.20 SEC INTERVAL.5.PIN ESTIMATED

AF = 0.140E-03 D = 0.133E-01 L = 0.564E 01 DELTA TB = 0.366E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT
1	3.640E 03	3.489E 03	8.258E 01	1.291E 02
2	3.638E 03	3.475E 03	8.275E 01	1.294E 02
3	3.628E 03	3.478E 03	8.278E 01	1.298E 02
4	3.540E 03	3.368E 03	8.256E 01	1.291E 02
5	3.389E 03	3.238E 03	8.246E 01	1.282E 02
6	3.255E 03	3.100E 03	8.375E 01	1.294E 02
7	3.160E 03	3.008E 03	9.206E 01	1.378E 02

POINT	E2	I2	QP	WT BAL	G
1	4.015E 00	4.195E 01	1.298E 03	5.114E 01	1.308E 00	1.297E 04
2	4.008E 00	4.165E 01	1.298E 03	5.121E 01	1.004E 00	1.298E 04
3	4.018E 00	4.158E 01	1.291E 03	5.079E 01	1.300E 00	1.297F 04
4	1.796E 00	4.121E 01	1.284E 03	5.018E 01	1.07E 00	1.279E 04
5	4.015E 00	4.116E 01	1.279E 03	4.991E 01	5.315E-01	1.308E 04
6	1.815E 00	4.116E 01	1.279E 03	4.988E 01	8.881E-01	1.308E 04
7	7.80CE 00	4.121E 01	1.279E 03	4.993E 01	8.891E-01	1.298E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 132.2 MIN STEADY POWER.DP1-146 SEC.20 SEC INTERVALS.PIN ESTIMATED

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VB
1	3.542E 03	1.174E 02	9.940E 02	3.240E 02	2.023E 01	2.034E 01	9.858E-02	2.668E 02	1.477E 02
2	3.496E 03	1.268E 02	1.062E 03	4.199E 02	2.028E 01	2.034E 01	6.946E-02	2.931E 02	1.483E 02

STA	L/D	DELTA E	LE
1	2.344E 01	4.156E 01	5.000E 00
2	2.969E 01	4.156E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 132.2 MIN STEADY POWER.DP1-146 SEC.20 SEC INTERVALS.PIN ESTIMATED

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VB
1	3.532E 03	1.179E 02	9.84JE 02	2.641E 02	2.031E 01	2.037E 01	1.393E-01	1.465E 02	1.479E 02
2	3.486E 03	1.273E 02	1.072E 03	4.300E 02	2.028E 01	2.037E 01	6.729E-02	3.027E 02	1.488E 02

STA	L/D	DELTA E	LE
1	2.344E 01	4.162E 01	5.000E 00
2	2.969E 01	4.162E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 132.2 MIN STEADY POWER.DP1-146 SEC.20 SEC INTERVALS.PIN ESTIMATED

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VB
1	3.520E 03	1.174E 02	9.458E 02	2.569E 02	2.021E 01	2.020E 01	1.460E-01	1.384E 02	1.477E 02
2	3.481E 03	1.267E 02	1.044E 03	3.988E 02	2.015E 01	2.020E 01	7.425E-02	2.721E 02	1.483E 02

STA	L/D	DELTA E	LE
1	2.344E 01	4.150E 01	5.000E 00
2	2.969E 01	4.150E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 132.2 MIN STEADY POWER.DP1-146 SEC.20 SEC INTERVALS.PIN ESTIMATED

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VB
1	3.442E 03	1.175E 02	9.340E 02	2.548E 02	1.993E 01	1.998E 01	1.457E-01	1.369E 02	1.468E 02
2	3.396E 03	1.268E 02	1.030E 03	3.874E 02	1.987E 01	1.998E 01	7.484E-02	2.687E 02	1.483E 02

STA	L/D	DELTA E	LE
1	2.344E 01	4.121E 01	5.000E 00
2	2.969E 01	4.121E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 132.2 MIN STEADY POWER.DP1-146 SEC.20 SEC INTERVALS.PIN ESTIMATED

DATA POINT 5

STA	PB	TB	Tw	TI	G/A	G/AP	M	DEL TF	VS
1	3.287E 03	1.167E 02	9.310E 02	2.492E 02	1.989E 01	1.988E 01	1.499E-01	1.384E 02	1.481E 02
2	3.241E 03	1.259E 02	1.019E 03	3.741E 02	1.983E 01	1.988E 01	7.998E-02	2.483E 02	1.487E 02

STA	L/D	DELTA E	LE
1	2.344E 01	4.116E 01	5.000E 00
2	2.969E 01	4.116E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 132.2 MIN STEADY POWER.DP1-146 SEC.20 SEC INTERVALS.PIN ESTIMATED

DATA POINT 6

STA	PB	TB	Tw	TI	G/A	G/AP	M	DEL TF	VS
1	3.157E 03	1.180E 02	9.270E 02	2.442E 02	1.987E 01	1.984E 01	1.573E-01	1.263E 02	1.488E 02
2	3.111E 03	1.271E 02	1.018E 03	3.738E 02	1.981E 01	1.984E 01	8.058E-02	2.464E 02	1.487E 02

STA	L/D	DELTA E	LE
1	2.344E 01	4.114E 01	5.000E 00
2	2.969E 01	4.114E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 132.2 MIN STEADY POWER.DP1-146 SEC.20 SEC INTERVALS.PIN ESTIMATED

DATA POINT 7

STA	PB	TB	Tw	TI	G/A	G/AP	M	DEL TF	VS
1	3.062E 03	1.263E 02	9.360E 02	2.457E 02	1.994E 01	1.988E 01	1.664E-01	1.194E 02	1.488E 02
2	3.016E 03	1.356E 02	1.024E 03	3.792E 02	1.987E 01	1.988E 01	8.151E-02	2.437E 02	1.488E 02

STA	L/D	DELTA E	LE
1	2.344E 01	4.121E 01	5.000E 00
2	2.969E 01	4.121E 01	5.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 133A 4 MIN STEADY POWER DP1 AT 192 SEC OTHER DP AT 40 SEC INTERVALS

AF = 0.1306E-03 D = 0.1325-01 L = 0.403E 01 DELTA TB = 0.300E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	U	Z2	I2	DP	NT DEL	G
1	3.622E 03	3.468E 03	8.216E 01	1.201E 02	1.612E 00	3.314E 01	1.295E 03	4.068E 01	4.630E-01	1.31E 04
2	3.612E 03	3.457E 03	8.156E 01	1.198E 02	1.810E 00	3.318E 01	1.294E 03	4.077E 01	4.989E-02	1.31E 04
3	3.609E 03	3.456E 03	8.156E 01	1.201E 02	1.822E 00	3.316E 01	1.295E 03	4.072E 01	-9.471E-01	1.31E 04
4	3.606E 03	3.448E 03	8.115E 01	1.199E 02	1.808E 00	3.322E 01	1.291E 03	4.057E 01	-8.288E-01	1.31E 04
5	3.618E 03	3.466E 03	8.096E 01	1.194E 02	1.815E 00	3.322E 01	1.298E 03	4.091E 01	-6.532E-01	1.31E 04
6	3.608E 03	3.330E 03	8.096E 01	1.193E 02	1.806E 00	3.309E 01	1.288E 03	4.039E 01	-1.068E 00	1.31E 04
7	3.340E 03	3.188E 03	8.046E 01	1.188E 02	1.808E 00	3.304E 01	1.291E 03	4.044E 01	-1.797E-01	1.31E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 133A 4 MIN STEADY POWER DP1 AT 192 SEC OTHER DP AT 40 SEC INTERVALS

DATA POINT 1

STA	PB	TB	TN	TI	O/A	O/AP	M	DEL TP	VS
1	3.516E 03	1.083E 02	1.030E 03	3.364E 02	2.098E 01	2.021E 01	8.809E-02	2.281E 02	1.498E 02
2	3.478E 03	1.177E 02	1.030E 03	3.364E 02	2.098E 01	2.021E 01	9.241E-02	2.187E 02	1.498E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.314E 01	4.030E 00
2	2.377E 01	3.314E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 133A 4 MIN STEADY POWER DP1 AT 192 SEC OTHER DP AT 40 SEC INTERVALS

DATA POINT 2

STA	PB	TB	TN	TI	O/A	O/AP	M	DEL TP	VS
1	3.508E 03	1.070E 02	1.027E 03	3.301E 02	2.098E 01	2.028E 01	9.113E-02	2.228E 02	1.491E 02
2	3.467E 03	1.174E 02	1.017E 03	3.198E 02	2.098E 01	2.028E 01	1.021E-01	1.983E 02	1.497E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.318E 01	4.030E 00
2	2.377E 01	3.318E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 133A 4 MIN STEADY POWER DP1 AT 192 SEC OTHER DP AT 40 SEC INTERVALS

DATA POINT 3

STA	PB	TB	TN	TI	O/A	O/AP	M	DEL TP	VS
1	3.498E 03	1.061E 02	1.029E 03	3.329E 02	2.098E 01	2.023E 01	8.999E-02	2.240E 02	1.498E 02
2	3.466E 03	1.177E 02	1.018E 03	3.087E 02	2.098E 01	2.023E 01	1.070E-01	1.888E 02	1.498E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.318E 01	4.030E 00
2	2.377E 01	3.318E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 133A 4 MIN STEADY POWER DP1 AT 192 SEC OTHER DP AT 40 SEC INTERVALS

DATA POINT 4

STA	PB	TB	TN	TI	O/A	O/AP	M	DEL TP	VS
1	3.493E 03	1.079E 02	1.028E 03	3.298E 02	2.098E 01	2.028E 01	9.168E-02	2.218E 02	1.420E 02
2	3.458E 03	1.175E 02	1.028E 03	3.188E 02	2.061E 01	2.028E 01	1.015E-01	2.068E 02	1.498E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.322E 01	4.030E 00
2	2.377E 01	3.322E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 133A 4 MIN STEADY POWER DP1 AT 192 SEC OTHER DP AT 40 SEC INTERVALS

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	REL TF	VB
1	3.508E 03	1.075E 02	1.028E 03	3.398E 02	2.044E 01	2.028E 01	6.758E-02	2.328E 02	1.440E 02
2	3.476E 03	1.170E 02	1.028E 03	3.289E 02	2.044E 01	2.028E 01	9.948E-02	2.028E 02	1.440E 02

STA	L/D	DELTA E	LE
1	1.740E 01	3.322E 01	4.028E 00
2	2.377E 01	3.322E 01	4.028E 00

LOCAL TEST PARAMETERS

TEST 133A 4 MIN STEADY POWER DP1 AT 192 SEC OTHER DP AT 40 SEC INTERVALS

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	REL TF	VB
1	3.378E 03	1.074E 02	1.031E 03	3.268E 02	2.028E 01	2.008E 01	8.328E-02	2.428E 02	1.437E 02
2	3.346E 03	1.169E 02	1.044E 03	3.158E 02	2.028E 01	2.008E 01	8.428E-02	2.248E 02	1.440E 02

STA	L/D	DELTA E	LE
1	1.740E 01	3.305E 01	4.028E 00
2	2.377E 01	3.305E 01	4.028E 00

LOCAL TEST PARAMETERS

TEST 133A 4 MIN STEADY POWER DP1 AT 192 SEC OTHER DP AT 40 SEC INTERVALS

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	REL TF	VB
1	3.232E 03	1.067E 02	1.029E 03	3.408E 02	2.028E 01	2.008E 01	8.408E-02	2.338E 02	1.439E 02
2	3.199E 03	1.161E 02	1.028E 03	3.272E 02	2.028E 01	2.008E 01	9.518E-02	2.118E 02	1.439E 02

STA	L/D	DELTA E	LE
1	1.740E 01	3.304E 01	4.028E 00
2	2.377E 01	3.304E 01	4.028E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 1328 6 MIN STEADY POWER OPS AT 120 SEC OTHER DATA 20 SEC INTERVALS

AF = 0.1306-03 D = 0.1326-01 L = 0.4032 01 DELTA TB = 0.2000 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	V	G2	I2	QP	HT BAL	A
1	3.7826E 03	3.9826E 03	6.9166E 01	1.2276E 02	1.7776E 00	3.2046E 01	1.2006E 03	4.0346E 01	1.0326E 00	1.3046E 04
2	3.6676E 03	3.8276E 03	6.8006E 01	1.2426E 02	1.7946E 00	3.2006E 01	1.2006E 03	4.0326E 01	1.1226E 00	1.3026E 04
3	3.6716E 03	3.8316E 03	6.8006E 01	1.2296E 02	1.7976E 00	3.2026E 01	1.2006E 03	4.0346E 01	7.3066E-01	1.3046E 04
4	3.6806E 03	3.8206E 03	6.4606E 01	1.2566E 02	1.7946E 00	3.2046E 01	1.2026E 03	4.0346E 01	4.0466E-01	1.3026E 04
5	3.6146E 03	3.4646E 03	6.4606E 01	1.2006E 02	1.7766E 00	3.2926E 01	1.2026E 03	4.0606E 01	9.9706E-01	1.2806E 04
6	3.4806E 03	3.2606E 03	6.4606E 01	1.2126E 02	1.8096E 00	3.2806E 01	1.2706E 03	3.9776E 01	9.8716E-01	1.3046E 04
7	3.2826E 03	3.1926E 03	6.4606E 01	1.2126E 02	1.7906E 00	3.2726E 01	1.2706E 03	3.9606E 01	1.2806E 00	1.2906E 04
8	3.1636E 03	3.0126E 03	6.2606E 01	1.2106E 02	1.7926E 00	3.2706E 01	1.2706E 03	3.9626E 01	1.1706E 00	1.3026E 04
9	3.0366E 03	2.8866E 03	6.2606E 01	1.2076E 02	1.8026E 00	3.2746E 01	1.2706E 03	3.9846E 01	9.8466E-01	1.3186E 04
10	2.9886E 03	2.8086E 03	6.2606E 01	1.2006E 02	1.8166E 00	3.2746E 01	1.2706E 03	3.9846E 01	7.9166E-01	1.3186E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 1338 6 MIN STEADY POWER DP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.599E 03	1.110E 02	1.040E 03	3.856E 02	2.037E 01	2.004E 01	8.193E-02	2.448E 02	1.488E 02
2	3.561E 03	1.204E 02	1.050E 03	3.697E 02	2.037E 01	2.004E 01	8.037E-02	2.493E 02	1.488E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.304E 01	4.030E 00
2	2.377E 01	3.304E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 1338 6 MIN STEADY POWER DP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.584E 03	1.111E 02	1.044E 03	3.632E 02	2.032E 01	2.003E 01	7.944E-02	2.511E 02	1.481E 02
2	3.546E 03	1.208E 02	1.070E 03	3.998E 02	2.032E 01	2.003E 01	7.178E-02	2.796E 02	1.487E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.300E 01	4.030E 00
2	2.377E 01	3.300E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 1338 6 MIN STEADY POWER DP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.568E 03	1.111E 02	1.050E 03	3.702E 02	2.035E 01	2.005E 01	7.740E-02	2.590E 02	1.482E 02
2	3.530E 03	1.205E 02	1.095E 03	4.325E 02	2.034E 01	2.005E 01	6.425E-02	3.120E 02	1.486E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.303E 01	4.030E 00
2	2.377E 01	3.303E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 1338 6 MIN STEADY POWER DP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.585E 03	1.108E 02	1.052E 03	3.725E 02	2.036E 01	2.004E 01	7.657E-02	2.617E 02	1.481E 02
2	3.547E 03	1.202E 02	1.105E 03	4.458E 02	2.035E 01	2.004E 01	6.155E-02	3.258E 02	1.487E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.304E 01	4.030E 00
2	2.377E 01	3.304E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 1330 6 MIN STEADY POWER OP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.511E 03	1.108E 02	1.053E 03	3.792E 02	2.023E 01	1.989E 01	7.411E-02	2.684E 02	1.464E 02
2	3.473E 03	1.202E 02	1.104E 03	4.495E 02	2.021E 01	1.989E 01	6.041E-02	3.293E 02	1.470E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.293E 01	4.030E 00
2	2.377E 01	3.293E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 1330 6 MIN STEADY POWER OP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.347E 03	1.097E 02	1.046E 03	3.758E 02	2.008E 01	1.975E 01	7.425E-02	2.660E 02	1.483E 02
2	3.309E 03	1.190E 02	1.118E 03	4.748E 02	2.008E 01	1.975E 01	5.556E-02	3.559E 02	1.489E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.280E 01	4.030E 00
2	2.377E 01	3.280E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 1330 6 MIN STEADY POWER OP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.208E 03	1.087E 02	1.077E 03	4.228E 02	1.998E 01	1.969E 01	6.308E-02	3.122E 02	1.475E 02
2	3.162E 03	1.190E 02	1.097E 03	4.493E 02	1.998E 01	1.969E 01	5.963E-02	3.303E 02	1.481E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.273E 01	4.030E 00
2	2.377E 01	3.273E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 1330 6 MIN STEADY POWER OP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.060E 03	1.098E 02	1.072E 03	4.181E 02	2.003E 01	1.974E 01	6.440E-02	3.086E 02	1.477E 02
2	3.022E 03	1.187E 02	1.113E 03	4.668E 02	2.003E 01	1.974E 01	5.631E-02	3.498E 02	1.483E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.276E 01	4.030E 00
2	2.377E 01	3.276E 01	4.030E 00

LOCAL TEST PARAMETERS

TEST 1338 6 MIN STEADY POWER OP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 9

STA	PB	TB	TU	TI	Q/A	Q/AP	M	REL TF	VB
1	2.933E 03	1.092E 02	1.069E 03	4.185E 02	2.001E 01	1.994E 01	6.817E-02	3.013E 02	1.487E 02
2	2.099E 03	1.184E 02	1.091E 03	4.408E 02	1.999E 01	1.994E 01	6.994E-02	3.223E 02	1.453E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.274E 01	4.038E 00
2	2.377E 01	3.274E 01	4.038E 00

LOCAL TEST PARAMETERS

TEST 1338 6 MIN STEADY POWER OP1 AT 130 SEC OTHER DATA 20 SEC INTERVALS

DATA POINT 10

STA	PB	TB	TU	TI	Q/A	Q/AP	M	REL TF	VB
1	2.952E 03	1.098E 02	1.058E 03	3.953E 02	2.001E 01	1.994E 01	6.860E-02	2.863E 02	1.491E 02
2	2.114E 03	1.182E 02	1.108E 03	4.529E 02	1.999E 01	1.994E 01	5.860E-02	3.307E 02	1.497E 02

STA	L/D	DELTA E	LE
1	1.748E 01	3.274E 01	4.038E 00
2	2.377E 01	3.274E 01	4.038E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

x TEST 134 BURNOUT AFTER DATA POINT 6

AF = 0.138E-03 D = 0.132E-01 L = 0.456E 01 DELTA TO = 0.190E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	9.150E 02	8.550E 02	9.490E 01	1.024E 02	1.180E 00	1.149E 01	4.118E 02	4.477E 00	2.821E 00	8.563E 03
2	9.150E 02	8.500E 02	9.480E 01	1.058E 02	1.178E 00	1.512E 01	5.360E 02	7.483E 00	1.158E 00	8.549E 03
3	9.100E 02	8.500E 02	9.420E 01	1.234E 02	1.177E 00	2.493E 01	8.678E 02	2.049E 01	-2.486E-01	8.541E 03
4	9.050E 02	8.450E 02	9.380E 01	1.397E 02	1.177E 00	3.197E 01	1.088E 03	3.319E 01	1.004E-01	8.541E 03
5	9.000E 02	8.470E 02	9.350E 01	1.474E 02	1.174E 00	3.474E 01	1.182E 03	3.893E 01	-4.683E-01	8.520E 03
6	9.000E 02	8.430E 02	9.380E 01	1.548E 02	1.164E 00	3.667E 01	1.248E 03	4.338E 01	-2.412E 00	8.447E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 134 BURNOUT AFTER DATA POINT 6

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	8.850E 02	9.865E 01	2.260E 02	1.363E 02	2.037E 00	1.991E 00	5.420E-02	3.668E 01	9.679E 01
2	8.717E 02	1.003E 02	2.258E 02	1.343E 02	2.037E 00	1.991E 00	5.867E-02	3.394E 01	9.688E 01
3	8.583E 02	1.020E 02	2.320E 02	1.418E 02	2.036E 00	1.991E 00	5.063E-02	3.988E 01	9.693E 01

STA	L/D	DELTA E	LE
1	1.415E 01	1.149E 01	4.500E 00
2	2.044E 01	1.149E 01	4.500E 00
3	2.673E 01	1.149E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST 134 BURNOUT AFTER DATA POINT 6

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	8.825E 02	1.008E 02	3.180E 02	1.688E 02	3.507E 00	3.417E 00	5.023E-02	6.004E 01	9.671E 01
2	8.681E 02	1.035E 02	3.190E 02	1.700E 02	3.507E 00	3.417E 00	5.139E-02	6.049E 01	9.682E 01
3	8.536E 02	1.061E 02	3.200E 02	1.823E 02	3.505E 00	3.417E 00	4.487E-02	7.616E 01	9.693E 01

STA	L/D	DELTA E	LE
1	1.415E 01	1.512E 01	4.500E 00
2	2.044E 01	1.512E 01	4.500E 00
3	2.673E 01	1.512E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST 134 BURNOUT AFTER DATA POINT 6

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	8.800E 02	1.088E 02	6.180E 02	2.678E 02	9.358E 00	9.114E 00	5.732E-02	1.590E 02	9.698E 01
2	8.667E 02	1.153E 02	6.160E 02	2.578E 02	9.363E 00	9.114E 00	6.396E-02	1.425E 02	9.723E 01
3	8.533E 02	1.218E 02	6.360E 02	2.963E 02	9.349E 00	9.114E 00	5.410E-02	1.685E 02	9.749E 01

STA	L/D	DELTA E	LE
1	1.415E 01	2.493E 01	4.500E 00
2	2.044E 01	2.493E 01	4.500E 00
3	2.673E 01	2.493E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST 134 BURNOUT AFTER DATA POINT 6

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.750E 02	1.167E 02	8.530E 02	3.261E 02	1.518E 01	1.476E 01	7.051E-02	2.094E 02	9.729E 01
2	8.617E 02	1.268E 02	8.400E 02	3.087E 02	1.519E 01	1.476E 01	8.123E-02	1.817E 02	9.771E 01
3	8.483E 02	1.371E 02	8.730E 02	3.527E 02	1.516E 01	1.476E 01	6.040E-02	2.158E 02	9.813E 01

STA	L/D	DELTA E	LE
1	1.415E 01	3.197E 01	4.500E 00
2	2.044E 01	3.197E 01	4.500E 00
3	2.673E 01	3.197E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST 134 BURNOUT AFTER DATA POINT 6

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.745E 02	1.204E 02	9.430E 02	3.383E 02	1.783E 01	1.731E 01	7.940E-02	2.178E 02	9.719E 01
2	8.605E 02	1.324E 02	9.260E 02	3.148E 02	1.784E 01	1.731E 01	9.494E-02	1.824E 02	9.760E 01
3	8.465E 02	1.444E 02	9.670E 02	3.711E 02	1.781E 01	1.731E 01	7.639E-02	2.267E 02	9.818E 01

STA	L/D	DELTA E	LE
1	1.415E 01	3.474E 01	4.500E 00
2	2.044E 01	3.474E 01	4.500E 00
3	2.673E 01	3.474E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST 134 BURNOUT AFTER DATA POINT 6

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.755E 02	1.241E 02	1.014E 03	3.559E 02	1.988E 01	1.928E 01	8.305E-02	2.318E 02	9.651E 01
2	8.611E 02	1.378E 02	9.950E 02	3.292E 02	1.981E 01	1.928E 01	1.008E-01	1.915E 02	9.707E 01
3	8.466E 02	1.514E 02	1.040E 03	3.920E 02	1.973E 01	1.928E 01	8.001E-02	2.406E 02	9.764E 01

STA	L/D	DELTA E	LE
1	1.415E 01	3.667E 01	4.500E 00
2	2.044E 01	3.667E 01	4.500E 00
3	2.673E 01	3.667E 01	4.500E 00

DIMENSIONLESS PARAMETERS

TEST 134 BURNOUT AFTER DATA POINT 6

DATA PCINT	STA	NU	PR	RE	YI/YB	NU/PR(.4)
1	1	1.0614E 03	4.1740E 00	1.7769E 05	1.0667E 00	5.9934E 02
1	2	1.1443E 03	4.1137E 00	1.7900E 05	1.0500E 00	6.4098E 02
1	3	9.7335E 02	4.0963E 00	1.8200E 05	1.0700E 00	5.4950E 02
2	1	9.7830E 02	4.0966E 00	1.8022E 05	1.1213E 00	5.5209E 02
2	2	9.9756E 02	4.0642E 00	1.8370E 05	1.1100E 00	5.7287E 02
2	3	8.6746E 02	3.9167E 00	1.8716E 05	1.1345E 00	5.0204E 02
3	1	1.1036E 03	3.8318E 00	1.9047E 05	1.2709E 00	6.4484E 02
3	2	1.2156E 03	3.6343E 00	1.9910E 05	1.2477E 00	7.2780E 02
3	-	1.0214E 03	3.4430E 00	2.0837E 05	1.2096E 00	6.2200E 02
4	1	1.3413E 03	3.5900E 00	2.0111E 05	1.3630E 00	8.0438E 02
4	2	1.5218E 03	3.3032E 00	2.1573E 05	1.3096E 00	9.4384E 02
4	3	1.2642E 03	3.0652E 00	2.2948E 05	1.3609E 00	8.0767E 02
5	1	1.5936E 03	3.4814E 00	2.0590E 05	1.3763E 00	9.1298E 02
5	2	1.7645E 03	3.1700E 00	2.2265E 05	1.3078E 00	1.1123E 03
5	3	1.3956E 03	2.9181E 00	2.3630E 05	1.3758E 00	9.0932E 02
6	1	1.5625E 03	3.3770E 00	2.0944E 05	1.3968E 00	9.6020E 02
6	2	1.8541E 03	3.0520E 00	2.2775E 05	1.3203E 00	1.1866E 03
6	3	1.4477E 03	2.7871E 00	2.4533E 05	1.3939E 00	9.6079E 02

DATA PCINT	STA	RHO RATIO	R RATIO	MU RATIO	CP RATIO
1	1	1.0156E 00	9.4646E-01	1.2813E 00	1.0034E 00
1	2	1.0148E 00	9.5034E-01	1.2576E 00	1.0031E 00
1	3	1.0176E 00	9.4254E-01	1.2968E 00	1.0028E 00
2	1	1.0253E 00	9.0792E-01	1.5200E 00	1.0030E 00
2	2	1.0287E 00	9.1036E-01	1.5006E 00	1.0025E 00
2	3	1.0330E 00	9.0137E-01	1.5786E 00	1.0020E 00
3	1	1.0723E 00	8.5553E-01	2.2515E 00	1.0000E 00
3	2	1.0645E 00	8.6732E-01	2.0727E 00	9.9871E-01
3	3	1.0776E 00	8.6636E-01	2.2428E 00	9.9831E-01
4	1	1.0981E 00	8.5360E-01	2.6738E 00	1.0016E 00
4	2	1.0846E 00	8.6913E-01	2.3308E 00	9.9875E-01
4	3	1.1022E 00	8.7841E-01	2.5823E 00	9.9985E-01
5	1	1.1025E 00	8.5745E-01	2.7255E 00	1.0016E 00
5	2	1.0851E 00	8.7516E-01	2.3071E 00	9.9815E-01
5	3	1.1085E 00	8.8803E-01	2.6456E 00	1.0009E 00
6	1	1.1100E 00	8.6185E-01	2.8306E 00	1.0024E 00
6	2	1.0859E 00	8.8022E-01	2.3627E 00	9.9802E-01
6	3	1.1167E 00	8.9248E-01	2.7390E 00	1.0039E 00

DIMENSIONLESS PARAMETERS

TEST 134 BURNOUT AFTER DATA POINT 6

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	1.0323E 03	3.5837E 00	2.0041E 05	1.0318E 00	6.1953E 02
1	2	1.1152E 03	3.5750E 00	2.0094E 05	1.0294E 00	6.6995E 02
1	3	9.4435E 02	3.4399E 00	2.0731E 05	1.0342E 00	5.7612E 02
2	1	9.3021E 02	3.1159E 00	2.2337E 05	1.0572E 00	5.9041E 02
2	2	9.4920E 02	3.0746E 00	2.2590E 05	1.0557E 00	6.0568E 02
2	3	8.2000E 02	2.9219E 00	2.3504E 05	1.0630E 00	5.3401E 02
3	1	9.9259E 02	2.1851E 00	2.9473E 05	1.1226E 00	7.2607E 02
3	2	1.1057E 03	2.2090E 00	2.9306E 05	1.1102E 00	8.0818E 02
3	3	9.2199E 02	1.9781E 00	3.2066E 05	1.1265E 00	7.0182E 02
4	1	1.1883E 03	1.8307E 00	3.4034E 05	1.1536E 00	9.3303E 02
4	2	1.3723E 03	1.8632E 00	3.3704E 05	1.1341E 00	1.0699E 03
4	3	1.1390E 03	1.6451E 00	3.7428E 05	1.1529E 00	9.3338E 02
5	1	1.3330E 03	1.7632E 00	3.5041E 05	1.1580E 00	1.0624E 03
5	2	1.5679E 03	1.8116E 00	3.4461E 05	1.1334E 00	1.2599E 03
5	3	1.2632E 03	1.5891E 00	3.9143E 05	1.1579E 00	1.0576E 03
6	1	1.3846E 03	1.6803E 00	3.6181E 05	1.1666E 00	1.1258E 03
6	2	1.6828E 03	1.7301E 00	3.5539E 05	1.1380E 00	1.3609E 03
6	3	1.3161E 03	1.4741E 00	4.0797E 05	1.1644E 00	1.1269E 03

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 135.00 AT DP6,DP1-100 SEC.DP6-146 SEC.OTHER DATA AT 10 SEC INTERVAL

AF = 0.138E-03 C = 0.132E-01 L = 0.400E 01 DELTA TO = 0.160E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	DP	HT BAL	G
1	3.337E 03	3.210E 03	7.970E 01	1.293E 02	1.849E 00	3.856E 01	1.519E 03	5.553E 01	-2.128E 00	1.342E 04
2	3.336E 03	3.209E 03	7.970E 01	1.304E 02	1.852E 00	3.898E 01	1.533E 03	5.668E 01	-2.570E 00	1.344E 04
3	3.330E 03	3.203E 03	7.955E 01	1.307E 02	1.849E 00	3.909E 01	1.534E 03	5.685E 01	-2.998E 00	1.342E 04
4	3.327E 03	3.202E 03	7.970E 01	1.311E 02	1.858E 00	3.911E 01	1.536E 03	5.695E 01	-3.831E 00	1.348E 04
5	3.325E 03	3.200E 03	7.960E 01	1.314E 02	1.851E 00	3.914E 01	1.532E 03	5.684E 01	-4.464E 00	1.343E 04
6	3.321E 03	3.197E 03	7.945E 01	1.314E 02	1.840E 00	3.916E 01	1.534E 03	5.695E 01	-3.962E 00	1.335E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 135.00 AT DP6,DP1-100 SEC.DP6-146 SEC.OTHER DATA AT 10 SEC INTERVAL

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.218E 03	1.262E 02	1.221E 03	3.071E 02	2.790E 01	2.778E 01	1.536E-01	1.809E 02	1.534E 02

STA	L/D	DELTA E	LE
1	2.358E 01	3.856E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 135.80 AT DP6,DP1-100 SEC,DP6-146 SEC,OTHER DATA AT 10 SEC INTERVAL

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.217E 03	1.272E 02	1.245E 03	3.191E 02	2.848E 01	2.835E 01	1.477E-01	1.919E 02	1.538E 02

STA	L/D	DELTA E	LE
1	2.358E 01	3.898E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 135.80 AT DP6,DP1-100 SEC,DP6-146 SEC,OTHER DATA AT 10 SEC INTERVAL

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.211E 03	1.275E 02	1.251E 03	3.218E 02	2.864E 01	2.844E 01	1.464E-01	1.943E 02	1.535E 02

STA	L/D	DELTA E	LE
1	2.358E 01	3.909E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 135.80 AT DP6,DP1-100 SEC,DP6-146 SEC,OTHER DATA AT 10 SEC INTERVAL

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.210E 03	1.279E 02	1.254E 03	3.253E 02	2.867E 01	2.850E 01	1.444E-01	1.974E 02	1.543E 02

STA	L/D	DELTA E	LE
1	2.358E 01	3.911E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 135.80 AT DP6,DP1-100 SEC,DP6-146 SEC,OTHER DATA AT 10 SEC INTERVAL

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.208E 03	1.282E 02	1.258E 03	3.297E 02	2.871E 01	2.844E 01	1.411E-01	2.01ÆE 02	1.537E 02

STA	L/D	DELTA E	LE
1	2.358E 01	3.914E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 135.80 AT DP6,DP1-100 SEC,DP6-146 SEC,OTHER DATA AT 10 SEC INTERVAL

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.205E 03	1.282E 02	1.263E 03	3.961E 02	2.874E 01	2.858E 01	1.411E-01	1.764E 02	1.529E 02

STA	L/D	DELTA E	LE
1	2.358E 01	3.916E 01	4.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 133A.5 MIN STEADY PLOEB.UP1-UC SEC.OTHER DATA AT 20 SEC INTERVALS

AF = 3.138E-03 D = 6.132E-01 L = 3.400E 01 DELTA Tu = 0.2e0E 01

DATA POINTS

PLENT	Pa-IN	Pa-OUT	Ta-IN	Ta-OUT	e	E2	I2	UP	WT BAL	G
1	2.e73E 03	2.72dE 03	7.e2uE 01	1.169E 02	1.8e0E 00	3.521E 01	1.372E 03	4.560E 01	2.110E-01	1.364E 04
2	2.e89E 03	2.75dE 03	7.eC0E 01	1.167E 02	1.8e7E 00	3.522E 01	1.370E 03	4.574E 01	-2.750E-01	1.364E 04
3	2.e91E 03	2.7CdE 03	7.e50E 01	1.165E 02	1.8e7E 00	3.520E 01	1.372E 03	4.570E 01	8.004E-02	1.369E 04
4	2.905E 03	2.7C3E 03	7.e8dE 01	1.165E 02	1.8e7E 00	3.525E 01	1.371E 03	4.581E 01	1.810E-02	1.364E 04
5	2.e30E 03	2.750E 03	7.540E 01	1.158E 02	1.894E C0	3.521E 01	1.367E 03	4.563E 01	-8.839E-02	1.374E 04
6	2.925E 03	2.78dE 03	7.520E 01	1.155E 02	1.890E 00	3.509E 01	1.362E 03	4.531E 01	-6.469E-01	1.379E 04
7	2.920E 03	2.78dE 03	7.55dE 01	1.154E 02	1.890E 00	3.512E 01	1.362E 03	4.535E 01	-3.602E-01	1.372E 04
8	2.915E 03	2.77dE 03	7.495E 01	1.153E 02	1.894E 00	3.505E 01	1.360E 03	4.519E 01	-9.201E-01	1.374E 04
9	2.920E 03	2.78CE 03	7.e65E 01	1.153E 02	1.889E 00	3.509E 01	1.361E 03	4.527E 01	-7.249E-01	1.371E 04
10	2.915E 03	2.77dE 03	7.470E 01	1.152E 02	1.889E 00	3.507E 01	1.362E 03	4.52dE 01	-8.439E-01	1.371E 04
11	2.918E 03	2.77CE 03	7.4C5E 01	1.152E 02	1.888E 00	3.5J0E 01	1.35dE 03	4.514E 01	-1.142E 00	1.369E 04
12	2.918E 03	2.7C3E 03	7.46dE 01	1.153E 02	1.894E C0	3.511E 01	1.363E 03	4.537E 01	-1.454E 00	1.374E 04
13	2.919E 03	2.7C3E 03	7.52dE 02	1.153E 02	1.894E 00	3.509E 01	1.356E 03	4.511E 01	-4.352E-01	1.374E 04
14	2.91dE 03	2.7C3E 03	7.e60E 01	1.154E 02	1.889E 00	3.516E 01	1.361E 03	4.536E 01	-1.457E 00	1.371E 04
15	2.93dE 03	2.7C3E 03	7.45CE 01	1.153E 02	1.8e7E 00	3.51JE 01	1.358E 03	4.523E 01	-1.659E 00	1.369E 04
16	2.93dE 03	2.7C3E 03	7.445E 01	1.153E 02	1.877E 00	3.517E 01	1.359E 03	4.531E 01	-1.061E 00	1.362E 04

TEST SECTION - LOCAL TEST PARAMETERS

TEST 1364.5 MIN STEADY POWER,DP1-90 SEC,OTHER DATA AT 20 SEC INTERVALS

DATA POINT 1

STA	Ps	Ts	Tt	TI	q/A	q/AP	M	DEL TF	VS
1	2.772E 03	1.042E 02	1.184E 03	3.874E 02	2.338E 01	2.242E 01	0.098E-02	2.833E 02	1.544E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.521E 01	4.000E 00

DATA POINT 2

STA	Ps	Ts	Tt	TI	q/A	q/AP	M	DEL TF	VS
1	2.794E 03	1.040E 02	1.137E 03	3.896E 02	2.339E 01	2.284E 01	0.817E-02	2.856E 02	1.551E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.522E 01	4.000E 00

DATA POINT 3

STA	Ps	Ts	Tt	TI	q/A	q/AP	M	DEL TF	VS
1	2.810E 03	1.038E 02	1.142E 03	3.779E 02	2.336E 01	2.291E 01	0.354E-02	2.741E 02	1.558E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.520E 01	4.000E 00

DATA POINT 4

STA	Ps	Ts	Tt	TI	q/A	q/AP	M	DEL TF	VS
1	2.809E 03	1.039E 02	1.143E 03	3.798E 02	2.342E 01	2.292E 01	0.313E-02	2.758E 02	1.561E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.525E 01	4.000E 00

DATA POINT 5

STA	Ps	Ts	Tt	TI	q/A	q/AP	M	DEL TF	VS
1	2.834E 03	1.032E 02	1.145E 03	3.817E 02	2.337E 01	2.283E 01	0.198E-02	2.765E 02	1.557E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.521E 01	4.000E 00

DATA POINT 6

STA	Ps	Ts	Tt	TI	q/A	q/AP	M	DEL TF	VS
1	2.825E 03	1.029E 02	1.132E 03	3.692E 02	2.322E 01	2.287E 01	0.513E-02	2.663E 02	1.561E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.519E 01	4.000E 00

TEST SECTION - LOCAL TEST PARAMETERS

TEST 136A,5 MIN STEADY PUBEN,DPI-90 SEC,UTMEN DATA AT 20 SEC INTERVALS

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.824E 03	1.028E 02	1.131E 03	3.662E 02	2.326E 01	2.269E 01	8.614E-02	2.634E 02	1.553E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.512E 01	4.000E 00

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.815E 03	1.027E 02	1.142E 03	3.657E 02	2.317E 01	2.261E 01	7.989E-02	2.630E 02	1.556E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.505E 01	4.000E 00

DATA POINT 9

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.824E 03	1.027E 02	1.137E 03	3.664E 02	2.322E 01	2.265E 01	8.274E-02	2.738E 02	1.552E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.509E 01	4.000E 00

DATA POINT 10

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.819E 03	1.026E 02	1.149E 03	3.667E 02	2.321E 01	2.266E 01	7.755E-02	2.922E 02	1.552E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.507E 01	4.000E 00

DATA POINT 11

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.814E 03	1.025E 02	1.144E 03	3.681E 02	2.319E 01	2.259E 01	7.909E-02	2.855E 02	1.550E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.506E 01	4.000E 00

DATA POINT 12

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.810E 03	1.026E 02	1.144E 03	3.655E 02	2.325E 01	2.270E 01	8.024E-02	2.629E 02	1.556E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.511E 01	4.000E 00

TEST SECTION - LOCAL TEST PARAMETERS

TEST 1366.5 MIN STEADY POWER,DP1-90 SEC,OTHER DATA AT 20 SEC INTERVALS

DATA POINT 13

STA	PB	TB	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.810E 03	1.028E 02	1.154E 03	4.006E 02	2.324E 01	2.257E 01	7.573E-02	2.981E 02	1.556E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.509E 01	4.000E 00

DATA POINT 14

STA	PB	TB	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.810E 03	1.026E 02	1.154E 03	3.972E 02	2.333E 01	2.270E 01	7.706E-02	2.946E 02	1.552E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.516E 01	4.000E 00

DATA POINT 15

STA	PB	TB	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.805E 03	1.025E 02	1.160E 03	4.073E 02	2.329E 01	2.263E 01	7.425E-02	3.048E 02	1.550E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.513E 01	4.000E 00

DATA POINT 16

STA	PB	TB	Tw	TI	Q/A	Q/AP	H	DEL TF	VS
1	2.800E 03	1.025E 02	1.160E 03	4.053E 02	2.334E 01	2.267E 01	7.489E-02	3.027E 02	1.542E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.517E 01	4.000E 00

DIMENSIONLESS PARAMETERS

TEST 130A.5 MIN STEADY POWER.DP1-90 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	1.5686E 03	3.9608E 00	2.9469E 05	1.5021E 00	9.0266E 02
2	1	1.6714E 03	3.9675E 00	2.9533E 05	1.4710E 00	9.6117E 02
3	1	1.6216E 03	3.9931E 00	2.9498E 05	1.4861E 00	9.3202E 02
4	1	1.6127E 03	3.9937E 00	2.9495E 05	1.4892E 00	9.2686E 02
5	1	1.5920E 03	4.0146E 00	2.9475E 05	1.4945E 00	9.1302E 02
6	1	1.6538E 03	4.0237E 00	2.9511E 05	1.4731E 00	9.4761E 02
7	1	1.6738E 03	4.0277E 00	2.9532E 05	1.4660E 00	9.5869E 02
8	1	1.6525E 03	4.0311E 00	2.9373E 05	1.5030E 00	9.4895E 02
9	1	1.6081E 03	4.0321E 00	2.9289E 05	1.4800E 00	9.2066E 02
10	1	1.5074E 03	4.0361E 00	2.9265E 05	1.5194E 00	8.6267E 02
11	1	1.5375E 03	4.0360E 00	2.9215E 05	1.5076E 00	8.7983E 02
12	1	1.5597E 03	4.0348E 00	2.9350E 05	1.5029E 00	8.9272E 02
13	1	1.4715E 03	4.0264E 00	2.9390E 05	1.5290E 00	8.4275E 02
14	1	1.4977E 03	4.0324E 00	2.9287E 05	1.5235E 00	8.5744E 02
15	1	1.4433E 03	4.0359E 00	2.9235E 05	1.5416E 00	8.2601E 02
16	1	1.4558E 03	4.0364E 00	2.9077E 05	1.5362E 00	8.3311E 02

DIMENSIONLESS PARAMETERS

TEST 130A.5 MIN STEADY POWER.DP1-90 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	1.3443E 03	1.6426E 00	5.9003E 05	1.2007E 00	1.1027E 03
2	1	1.4391E 03	1.7399E 00	5.7303E 05	1.1906E 00	1.1612E 03
3	1	1.3929E 03	1.6793E 00	5.8149E 05	1.1955E 00	1.1321E 03
4	1	1.3847E 03	1.6731E 00	5.8325E 05	1.1965E 00	1.1270E 03
5	1	1.3650E 03	1.6680E 00	5.8670E 05	1.1983E 00	1.1124E 03
6	1	1.4222E 03	1.7159E 00	5.7507E 05	1.1913E 00	1.1459E 03
7	1	1.4404E 03	1.7281E 00	5.6872E 05	1.1896E 00	1.1573E 03
8	1	1.3291E 03	1.6547E 00	5.9044E 05	1.2013E 00	1.0966E 03
9	1	1.3798E 03	1.6892E 00	5.7902E 05	1.1957E 00	1.1188E 03
10	1	1.2674E 03	1.6234E 00	5.9818E 05	1.2062E 00	1.0606E 03
11	1	1.3151E 03	1.6469E 00	5.9022E 05	1.2024E 00	1.0772E 03
12	1	1.3351E 03	1.6500E 00	5.9005E 05	1.2009E 00	1.0912E 03
13	1	1.2554E 03	1.6015E 00	6.0660E 05	1.2094E 00	1.0398E 03
14	1	1.2786E 03	1.6143E 00	6.0100E 05	1.2075E 00	1.0557E 03
15	1	1.2293E 03	1.5804E 00	6.1100E 05	1.2131E 00	1.0236E 03
16	1	1.2464E 03	1.5872E 00	6.0560E 05	1.2120E 00	1.0311E 03

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 1368.00 AT CP 7.DP1-125 SEC.DP7-187SEC.OTHER DATA AT 10 SEC INTERVA

AF = 0.136E-03 D = 0.132E-01 L = 0.400E 01 DELTA TG = 0.260E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	B	E2	I2	QP	HT BAL	G
1	2.895E 03	2.765E 03	8.400E 01	1.266E 02	1.850E 00	3.653E 01	1.414E 03	4.897E 01	-1.422E 00	1.343E 04
2	2.915E 03	2.785E 03	8.400E 01	1.285E 02	1.857E 00	3.659E 01	1.414E 03	4.905E 01	-1.396E 00	1.348E 04
3	2.905E 03	2.780E 03	8.400E 01	1.289E 02	1.861E 00	3.655E 01	1.415E 03	4.903E 01	-2.628E 00	1.351E 04
4	2.915E 03	2.790E 03	8.400E 01	1.289E 02	1.861E 00	3.657E 01	1.414E 03	4.902E 01	-2.645E 00	1.351E 04
5	2.920E 03	2.790E 03	8.400E 01	1.291E 02	1.857E 00	3.654E 01	1.414E 03	4.898E 01	-2.994E 00	1.340E 04
6	2.915E 03	2.788E 03	8.400E 01	1.292E 02	1.863E 00	3.655E 01	1.411E 03	4.889E 01	-3.764E 00	1.352E 04
7	2.915E 03	2.788E 03	8.400E 01	1.295E 02	1.861E 00	3.663E 01	1.414E 03	4.910E 01	-3.936E 00	1.351E 04

TEST SECTION - LOCAL TEST PARAMETERS

TEST 1300.00 AT DP 7.0DP1-125 SEC.DP7-187SEC.GIVEN DATA AT 10 SEC INTERVA

DATA POINT 1

STA	PB	Tb	Ta	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.866E 03	1.147E 02	1.242E 03	4.231E 02	2.512E 01	2.450E 01	7.944E-02	3.084E 02	1.528E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.655E 01	4.000E 00

DATA POINT 2

STA	PB	Tb	Ta	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.826E 03	1.146E 02	1.228E 03	4.206E 02	2.520E 01	2.454E 01	7.817E-02	3.140E 02	1.534E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.655E 01	4.000E 00

DATA POINT 3

STA	PB	Tb	Ta	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.819E 03	1.149E 02	1.236E 03	4.405E 02	2.514E 01	2.453E 01	7.399E-02	3.316E 02	1.537E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.655E 01	4.000E 00

DATA POINT 4

STA	PB	Tb	Ta	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.824E 03	1.149E 02	1.240E 03	4.466E 02	2.518E 01	2.453E 01	7.384E-02	3.320E 02	1.537E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.657E 01	4.000E 00

DATA POINT 5

STA	PB	Tb	Ta	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.831E 03	1.150E 02	1.247E 03	4.584E 02	2.512E 01	2.451E 01	7.138E-02	3.434E 02	1.534E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.654E 01	4.000E 00

DATA POINT 6

STA	PB	Tb	Ta	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.828E 03	1.151E 02	1.245E 03	4.550E 02	2.513E 01	2.446E 01	7.190E-02	3.399E 02	1.539E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.655E 01	4.000E 00

TEST SECTION - LOCAL TEST PARAMETERS

TEST 136a.dG AT DP 7.0P1-125 SEC.DP7-187SEC.OTHER DATA AT 10 SEC INTERVA

DATA POINT 7

STA	PB	TB	Ta	TI	U/A	Q/AP	M	DEL TF	VS
1	2.828E 03	1.153E 02	1.257E 03	4.674E 02	2.523E 01	2.457E 01	6.967E-02	3.527E 02	1.537E 02

STA	L/D	DELTA L	LE
1	1.730E 01	3.6c3E 01	0.000E 00

DIMENSIONLESS PARAMETERS

TEST 136a.dU AT DP 7.0P1-125 SEC.DP7-187SEC.OTHER DATA AT 10 SEC INTERVA

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	1.51o1E 03	3.o53oE 00	3.1159E 05	1.33o7E 00	9.0294E 02
2	1	1.4415E 03	3.o551E 00	3.1263E 05	1.3404E 00	8.8837E 02
3	1	1.4115E 03	3.o4o8E 00	3.1389E 05	1.3760E 00	8.4125E 02
4	1	1.4C97E 03	3.o46oE 00	3.1389E 05	1.3775E 00	8.4014E 02
5	1	1.3614E 03	3.6427E 00	3.1351E 05	1.5972E 00	8.1173E 02
6	1	1.3725E 03	3.6407E 00	3.1467E 05	1.5911E 00	8.1854E 02
7	1	1.3283E 03	3.6345E 00	3.1478E 05	1.6130E 00	7.9270E 02

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	1.3o81E 03	1.4922E 00	o.3175E 05	1.211oF 00	1.1146E 03
2	1	1.2c60E 03	1.4764E 00	6.3965E 05	1.2146E 00	1.1004E 03
3	1	1.213oE 03	1.4233E 00	o.6159E 05	1.223oE 00	1.0538E 03
4	1	1.2119E C3	1.4224E 00	o.6194E 05	1.2240E 00	1.0526E 03
5	1	1.1686E 03	1.3894E 00	o.7396E 05	1.2294E 00	1.0246E 03
6	1	1.1789E 03	1.398oE 00	6.7234E 05	1.2281E 00	1.0308E 03
7	1	1.1361E 03	1.3o21E 00	o.o716E 05	1.2340E 00	1.0067E 03

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 137A.5 MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

AF = 0.273E-03 C = 0.212E-01 L = 0.500E 01 DELTA TO = 0.700E 00

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	B	E2	I2	QP	MT BAL	Q
1	3.752E 03	3.750E 03	9.900E 01	1.377E 02	1.143E 00	2.699E 01	1.100E 03	2.733E 01	-1.704E 00	4.179E 03
2	3.747E 03	3.745E 03	9.880E 01	1.386E 02	1.141E 00	2.629E 01	1.119E 03	2.779E 01	-2.748E 00	4.172E 03
3	3.744E 03	3.742E 03	9.850E 01	1.379E 02	1.141E 00	2.618E 01	1.106E 03	2.748E 01	-2.990E 00	4.172E 03
4	3.738E 03	3.736E 03	9.840E 01	1.380E 02	1.144E 00	2.624E 01	1.108E 03	2.756E 01	-3.370E 00	4.183E 03
5	3.735E 03	3.733E 03	9.810E 01	1.377E 02	1.139E 00	2.613E 01	1.106E 03	2.748E 01	-3.533E 00	4.165E 03
6	3.731E 03	3.729E 03	9.810E 01	1.379E 02	1.138E 00	2.618E 01	1.106E 03	2.749E 01	-3.777E 00	4.161E 03
7	3.727E 03	3.725E 03	9.800E 01	1.379E 02	1.141E 00	2.618E 01	1.106E 03	2.745E 01	-4.318E 00	4.172E 03
8	3.724E 03	3.722E 03	9.780E 01	1.376E 02	1.134E 00	2.618E 01	1.105E 03	2.742E 01	-3.508E 00	4.140E 03
9	3.721E 03	3.719E 03	9.760E 01	1.377E 02	1.139E 00	2.618E 01	1.106E 03	2.749E 01	-4.658E 00	4.165E 03
10	3.716E 03	3.714E 03	9.750E 01	1.375E 02	1.130E 00	2.611E 01	1.104E 03	2.733E 01	-4.038E 00	4.132E 03
11	3.712E 03	3.710E 03	9.740E 01	1.375E 02	1.131E 00	2.614E 01	1.104E 03	2.736E 01	-4.287E 00	4.135E 03
12	3.710E 03	3.708E 03	9.730E 01	1.374E 02	1.130E 00	2.609E 01	1.103E 03	2.740E 01	-3.995E 00	4.132E 03
13	3.702E 03	3.700E 03	9.630E 01	1.358E 02	1.149E 00	2.604E 01	1.106E 03	2.738E 01	-4.497E 00	4.201E 03
14	3.697E 03	3.695E 03	9.620E 01	1.357E 02	1.156E 00	2.607E 01	1.104E 03	2.728E 01	-5.201E 00	4.227E 03
15	3.692E 03	3.690E 03	9.600E 01	1.356E 02	1.149E 00	2.607E 01	1.106E 03	2.733E 01	-4.641E 00	4.208E 03
16	3.690E 03	3.687E 03	9.590E 01	1.356E 02	1.145E 00	2.618E 01	1.108E 03	2.742E 01	-4.238E 00	4.186E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 137A.5 MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.751E 03	1.2C3E 02	6.298E 02	3.259E 02	8.095E 00	7.766E 00	3.705E-02	2.896E 02	4.787E 01
2	3.750E 03	1.280E 02	6.5C0E 02	3.550E 02	8.085E 00	7.766E 00	3.421E-02	2.278E 02	4.783E 01
3	3.750E 03	1.358E C2	6.590E 02	4.130E 02	8.066E 00	7.766E 00	2.801E-02	2.772E 02	4.799E 01

STA	L/D	DELTA E	LE
1	1.085E 01	2.6C9E 01	5.CC0E 00
2	1.476E C1	2.6C9E 01	5.0C0E C0
3	1.e7CE 01	2.6C9E 01	5.CC0E 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 2

STA	PB	TP	TB	TI	C/A	G/AP	M	DEL TF	VS
1	3.746E 03	1.287E 02	6.520E 02	3.525E 02	8.209E 00	7.096E 00	3.407E-02	2.318E 02	4.768E 01
2	3.745E 03	1.288E 02	6.7C0E 02	3.739E 02	8.20CE 00	7.096E 00	3.219E-02	2.453E 02	4.778E 01
3	3.745E 02	1.366E 02	7.1C0E 02	4.212E 02	8.184E 00	7.096E 00	2.779E-02	2.865E 02	4.798E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.629E 01	5.C00E 00
2	1.476E 01	2.629E C1	5.CC0E 00
3	1.870E 01	2.629E 01	5.C00E 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 3

STA	PB	TP	TB	TI	C/A	G/AP	M	DEL TF	VS
1	3.743E 03	1.282E 02	6.460E 02	3.488E 02	8.143E 00	7.098E 00	3.423E-02	2.279E 02	4.754E 01
2	3.743E 03	1.288E 02	6.620E 02	3.671E 02	8.136E 00	7.098E 00	3.262E-02	2.391E 02	4.774E 01
3	3.742E 03	1.289E 02	7.030E 02	4.155E 02	8.12CE 00	7.098E 00	2.789E-02	2.796E 02	4.798E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.618E 01	5.C00E 00
2	1.476E 01	2.618E 01	5.0C0E 00
3	1.870E 01	2.618E 01	5.C00E 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 4

STA	PB	TP	TB	TI	C/A	G/AP	M	DEL TF	VS
1	3.737E 03	1.262E 02	6.398E 02	3.382E 02	8.184E 00	7.832E 00	3.993E-02	2.188E 02	4.771E 01
2	3.736E 03	1.281E 02	6.618E 02	3.644E 02	8.173E 00	7.832E 00	3.314E-02	2.363E 02	4.787E 01
3	3.736E 03	1.36CE 02	7.080E 02	4.20CE 02	8.155E 00	7.832E 00	2.758E-02	2.948E 02	4.883E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.624E 01	5.0C0E 00
2	1.476E 01	2.624E 01	5.0C0E 00
3	1.870E 01	2.624E 01	5.0C0E 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIN STEADY POWER.OPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 5

STA	PB	TE	TW	TI	C/A	D/AP	M	DEL TF	VS
1	3.724E 03	1.199E 02	6.45CE 02	3.481E 02	8.113E 00	7.788E 00	3.411E-02	2.282E 02	4.754E 01
2	3.734E 03	1.278E 02	6.E38E 02	3.576E 02	8.105E 00	7.788E 00	3.387E-02	2.298E 02	4.766E 01
3	2.733E 03	1.357E 02	7.C0CE 02	4.202E 02	8.087E 00	7.785E 00	2.736E-02	2.048E 02	4.782E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.613E 01	5.CCCE 00
2	1.476E 01	2.613E 01	5.CCCE 00
3	1.C79E 01	2.613E 01	5.CCCE 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIN STEADY POWER.OPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 6

STA	PB	TE	TW	TI	C/A	D/AP	M	DEL TF	VS
1	3.730E 03	1.200E 02	6.43CE 02	3.444E 02	8.145E 00	7.800E 00	3.475E-02	2.295E 02	4.764E 01
2	3.729E 03	1.359E 02	6.51CE 02	3.540E 02	8.141E 00	7.800E 00	3.576E-02	2.181E 02	4.778E 01
3	3.729E 03	1.279E 02	7.C90E 02	4.226E 02	8.117E 00	7.800E 00	2.647E-02	2.940E 02	4.762E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.618E 01	5.CCCE 00
2	1.C79E 01	2.618E 01	5.CCCE 00
3	1.476E 01	2.618E 01	5.CCCE 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIN STEADY POWER.OPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 7

STA	PB	TE	TW	TI	C/A	D/AP	M	DEL TF	VS
1	3.726E 03	1.199E 02	6.45CE 02	3.468E 02	8.144E 00	7.800E 00	3.437E-02	2.259E 02	4.758E 01
2	3.725E 03	1.279E 02	6.61CE 02	3.659E 02	8.136E 00	7.800E 00	3.277E-02	2.388E 02	4.774E 01
3	3.725E 03	1.359E 02	7.12CE 02	4.2E1E 02	8.115E 00	7.800E 00	2.688E-02	2.902E 02	4.790E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.618E 01	5.CCCE 00
2	1.476E 01	2.618E 01	5.CCCE 00
3	1.C79E 01	2.618E 01	5.CCCE 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIA STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT e

STA	PB	TB	TW	TI	C/A	Q/AP	M	DEL TF	VS
1	3.723E 03	1.157E 02	6.440E 02	3.456E 02	8.144E 00	7.793E 00	3.449E-02	2.260E 02	4.720E 01
2	3.722E 03	1.276E 02	6.630E 02	3.603E 02	8.135E 00	7.793E 00	3.238E-02	2.407E 02	4.704E 01
3	3.722E 03	1.355E 02	7.110E 02	4.249E 02	8.116E 00	7.793E 00	2.693E-02	2.893E 02	4.704E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.618E 01	5.980E 00
2	1.476E 01	2.618E 01	5.CC0E 00
3	1.870E 01	2.618E 01	5.CC0E 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIA STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 9

STA	PB	TB	TW	TI	C/A	Q/AP	M	DEL TF	VS
1	3.720E 03	1.157E 02	6.420E 02	3.433E 02	8.145E 00	7.800E 00	3.480E-02	2.238E 02	4.749E 01
2	3.720E 03	1.277E 02	6.580E 02	3.624E 02	8.137E 00	7.800E 00	3.323E-02	2.387E 02	4.765E 01
3	3.719E 03	1.357E 02	7.160E 02	4.308E 02	8.113E 00	7.800E 00	2.843E-02	2.951E 02	4.782E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.618E 01	5.8C0E 00
2	1.476E 01	2.618E 01	5.8C0E 00
3	1.870E 01	2.618E 01	5.CC0E 00

LOCAL TEST PARAMETERS

TEST 137A.5 MIA STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 10

STA	PB	TB	TW	TI	C/A	Q/AP	M	DEL TF	VS
1	3.715E 03	1.155E 02	6.410E 02	3.438E 02	8.182E 00	7.765E 00	3.462E-02	2.243E 02	4.711E 01
2	3.715E 03	1.275E 02	6.580E 02	3.641E 02	8.094E 00	7.765E 00	3.282E-02	2.384E 02	4.727E 01
3	3.714E 03	1.355E 02	7.170E 02	4.336E 02	8.07CE 00	7.765E 00	2.685E-02	2.981E 02	4.743E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.611E 01	5.CC0E 00
2	1.476E 01	2.611E 01	5.CC0E 00
3	1.870E 01	2.611E 01	5.CC0E 00

LOCAL TEST PARAMETERS

TEST 137A.S MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 11

STA	PB	TB	Tw	TI	C/A	Q/AP	M	DEL TF	VS
1	3.711E 03	1.195E 02	6.400E 02	3.419E 02	8.121E 00	7.774E 00	3.495E-02	2.224E 02	4.715E 01
2	3.711E 03	1.275E 02	6.570E 02	3.622E 02	8.113E 00	7.774E 00	3.312E-02	2.347E 02	4.731E 01
3	3.710E 03	1.365E 02	7.180E 02	4.341E 02	8.088E 00	7.774E 00	2.604E-02	2.986E 02	4.748E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.614E 01	5.CC0E 00
2	1.476E 01	2.614E 01	5.0C0E 00
3	1.870E 01	2.614E 01	5.0C0E 00

LOCAL TEST PARAMETERS

TEST 137A.S MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 12

STA	PB	TB	Tw	TI	C/A	Q/AP	M	DEL TF	VS
1	3.709E 03	1.194E 02	6.380E 02	3.407E 02	8.091E 00	7.787E 00	3.516E-02	2.213E 02	4.711E 01
2	3.708E 03	1.274E 02	6.560E 02	3.622E 02	8.083E 00	7.787E 00	3.318E-02	2.348E 02	4.727E 01
3	3.708E 03	1.354E 02	7.230E 02	4.411E 02	8.055E 00	7.787E 00	2.548E-02	3.057E 02	4.743E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.6C9E 01	5.0C0E 00
2	1.476E 01	2.6C9E 01	5.0C0E 00
3	1.870E 01	2.6C9E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 137A.S MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 13

STA	PB	TB	Tw	TI	C/A	Q/AP	M	DEL TF	VS
1	3.701E 03	1.180E 02	6.410E 02	3.455E 02	8.059E 00	7.758E 00	3.410E-02	2.275E 02	4.788E 01
2	3.701E 03	1.259E 02	6.570E 02	3.646E 02	8.051E 00	7.758E 00	3.250E-02	2.387E 02	4.804E 01
3	3.700E 03	1.338E 02	7.440E 02	4.666E 02	8.014E 00	7.758E 00	2.331E-02	3.328E 02	4.820E 01

STA	L/D	DELTA E	L
1	1.083E 01	2.6C4E 01	5.CC0E 00
2	1.476E 01	2.6C4E 01	5.0C0E 00
3	1.870E 01	2.6C4E 01	5.CC0E 00

LOCAL TEST PARAMETERS

TEST 137A.S MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 14

STA	PB	TF	TB	TI	Q/A	Q/AP	M	DEL T	VS
1	3.696E 03	1.179E 02	6.388E 02	3.412E 02	8.079E 00	7.753E 00	3.472E-02	2.233E 02	4.617E 01
2	3.698E 03	1.258E 02	6.510E 02	3.567E 02	8.072E 00	7.753E 00	3.387E-02	2.309E 02	4.633E 01
3	3.695E 03	1.337E 02	6.988E 02	4.123E 02	8.054E 00	7.753E 00	2.783E-02	2.788E 02	4.849E 01

STA	L/D	DELTA E	L
1	1.883E 01	2.667E 01	5.000E 00
2	1.476E 01	2.167E 01	5.000E 00
3	1.079E 01	2.667E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 137A.S MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 15

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL T	VS
1	3.691E 03	1.178E 02	6.418E 02	3.448E 02	8.077E 00	7.767E 00	3.421E-02	2.272E 02	4.787E 01
2	3.690E 03	1.257E 02	6.810E 02	3.606E 02	8.068E 00	7.767E 00	3.197E-02	2.429E 02	4.903E 01
3	3.698E 03	1.336E 02	7.020E 02	4.170E 02	8.052E 00	7.767E 00	2.741E-02	2.834E 02	4.819E 01

STA	L/D	DELTA E	L
1	1.883E 01	2.667E 01	5.000E 00
2	1.476E 01	2.667E 01	5.000E 00
3	1.079E 01	2.667E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 137A.S MIN STEADY POWER.DPI-140 SEC.OTHER DATA AT 20 SEC INTERVALS

DATA POINT 16

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.688E 03	1.177E 02	6.304E 02	3.389E 02	8.101E 00	7.790E 00	3.453E-02	2.131E 02	4.778E 01
2	3.690E 03	1.257E 02	6.580E 02	3.643E 02	8.088E 00	7.790E 00	3.284E-02	2.387E 02	4.788E 01
3	3.687E 03	1.336E 02	7.088E 02	4.139E 02	8.071E 00	7.790E 00	2.779E-02	2.803E 02	4.883E 01

STA	L/D	DELTA E	L
1	1.883E 01	2.610E 01	5.000E 00
2	1.476E 01	2.610E 01	5.000E 00
3	1.079E 01	2.610E 01	5.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 1378.80 AT DF 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

AF = 0.273E-03 D = 0.212E-01 L = 0.500E 01 DELTA TO = 0.700E 00

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	3.709E 03	3.707E 03	1.011E 02	1.409E 02	1.135E 00	2.625E 01	1.116E 03	2.777E 01	-2.360E 00	4.150E 03
2	3.703E 03	3.701E 03	1.009E 02	1.413E 02	1.139E 00	2.626E 01	1.118E 03	2.783E 01	-4.073E 00	4.165E 03
3	3.697E 03	3.695E 03	1.009E 02	1.412E 02	1.139E 00	2.621E 01	1.114E 03	2.768E 01	-4.381E 00	4.165E 03
4	3.689E 03	3.687E 03	1.000E 02	1.406E 02	1.144E 00	2.619E 01	1.116E 03	2.771E 01	-4.456E 00	4.183E 03
5	3.685E 03	3.683E 03	1.002E 02	1.404E 02	1.144E 00	2.622E 01	1.112E 03	2.764E 01	-4.708E 00	4.183E 03
6	3.678E 03	3.676E 03	1.001E 02	1.407E 02	1.144E 00	2.627E 01	1.117E 03	2.782E 01	-5.096E 00	4.183E 03
7	3.675E 03	3.673E 03	1.002E 02	1.410E 02	1.143E 00	2.631E 01	1.116E 03	2.784E 01	-5.469E 00	4.179E 03
8	3.618E 03	3.716E 03	9.970E 01	1.403E 02	1.148E 00	2.630E 01	1.119E 03	2.780E 01	-5.525E 00	4.197E 03
9	3.696E 03	3.694E 03	9.960E 01	1.404E 02	1.146E 00	2.622E 01	1.112E 03	2.764E 01	-6.478E 00	4.190E 03
10	3.692E 03	3.690E 03	9.990E 01	1.411E 02	1.141E 00	2.628E 01	1.115E 03	2.778E 01	-6.549E 00	4.172E 03
11	3.712E 03	3.710E 03	9.880E 01	1.393E 02	1.141E 00	2.654E 01	1.125E 03	2.8[illegible]E 01	-2.732E 00	4.172E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 1378.80 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 1

STA	PB	TB	TN	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.708E 03	1.230E 02	6.250E 02	3.210E 02	8.197E 00	7.891E 00	3.984E-02	1.980E 02	4.739E 01
2	3.708E 03	1.309E 02	6.420E 02	3.415E 02	8.189E 00	7.891E 00	3.748E-02	2.106E 02	4.758E 01
3	3.707E 03	1.389E 02	6.830E 02	3.903E 02	8.169E 00	7.891E 00	3.139E-02	2.514E 02	4.771E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.625E 01	5.000E 00
2	1.476E 01	2.625E 01	5.000E 00
3	1.870E 01	2.625E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.30 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 2

STA	PB	TB	TN	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.702E 03	1.221E 02	6.380E 02	3.365E 02	8.197E 00	7.900E 00	3.707E-02	2.133E 02	4.756E 01
2	3.701E 03	1.312E 02	6.560E 02	3.580E 02	8.188E 00	7.900E 00	3.487E-02	2.268E 02	4.772E 01
3	3.701E 03	1.393E 02	6.884E 02	3.96CE 02	8.174E 00	7.900E 00	3.081E-02	2.567E 02	4.789E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.626E 01	5.000E 00
2	1.476E 01	2.626E 01	5.000E 00
3	1.870E 01	2.626E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.80 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 3

STA	PB	TB	TN	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.696E 03	1.331E 02	6.340E 02	3.328E 02	8.168E 00	7.865E 00	3.746E-02	2.098E 02	4.756E 01
2	3.695E 03	1.311E 02	6.530E 02	3.557E 02	8.159E 00	7.865E 00	3.563E-02	2.245E 02	4.772E 01
3	3.695E 03	1.392E 02	6.870E 02	3.960E 02	8.144E 00	7.865E 00	3.063E-02	2.560E 02	4.789E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.621E 01	5.000E 00
2	1.476E 01	2.621E 01	5.000E 00
3	1.870E 01	2.621E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.00 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.668E 03	1.228E 02	6.380E 02	3.373E 02	8.132E 00	7.873E 00	2.926E-02	2.693E 02	4.776E 01
2	3.687E 03	1.365E 02	6.570E 02	3.569E 02	8.144E 00	7.873E 00	3.418E-02	2.384E 02	4.792E 01
3	3.687E 03	1.386E 02	6.890E 02	3.988E 02	8.132E 00	7.873E 00	3.029E-02	2.603E 02	4.808E 01

STA	L/D	DELTA E	LE
1	1.883E 01	2.619E 01	5.000E 00
2	1.476E 01	2.619E 01	5.000E 00
3	1.870E 01	2.619E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.00 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.684E 03	1.223E 02	6.378E 02	3.363E 02	8.172E 00	7.854E 00	3.671E-02	2.139E 02	4.775E 01
2	3.683E 03	1.363E 02	6.568E 02	3.638E 02	8.161E 00	7.854E 00	3.365E-02	2.334E 02	4.792E 01
3	3.683E 03	1.384E 02	6.588E 02	3.993E 02	8.15CE 00	7.854E 00	3.810E-02	2.609E 02	4.808E 01

STA	L/D	DELTA E	LE
1	1.883E 01	2.622E 01	5.CC0E 00
2	1.476E 01	2.622E 01	5.0C0E 00
3	1.870E 01	2.622E 01	5.CC0E 00

LOCAL TEST PARAMETERS

TEST 1378.00 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.677E 03	1.224E 02	6.400E 02	3.386E 02	8.202E 00	7.904E 00	3.657E-02	2.162E 02	4.776E 01
2	3.676E 03	1.365E 02	6.630E 02	3.661E 02	8.191E 00	7.904E 00	3.356E-02	2.356E 02	4.792E 01
3	3.676E 03	1.387E 02	6.980E 02	3.981E 02	8.181E 00	7.904E 00	3.047E-02	2.594E 02	4.809E 01

STA	L/D	DELTA E	LE
1	1.883E 01	2.627E 01	5.C00E 00
2	1.476E 01	2.627E 01	5.0C0E 00
3	1.870E 01	2.627E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.00 AT DP 11.DP1-120 SEC.DP11-318 SEC.CTHER DATA 20 SEC INTERVA

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.674E 03	1.226E 02	6.418E 02	3.388E 02	8.227E 00	7.909E 00	3.659E-02	2.162E 02	4.772E 01
2	3.674E 03	1.368E 02	6.658E 02	3.675E 02	8.215E 00	7.909E 00	3.341E-02	2.367E 02	4.788E 01
3	3.673E 03	1.390E 02	6.938E 02	4.007E 02	8.205E 00	7.909E 00	3.022E-02	2.617E 02	4.805E 01

STA	L/D	DELTA E	LE
1	1.883E 01	2.631E 01	5.000E 00
2	1.476E 01	2.631E 01	5.CC0E 00
3	1.870E 01	2.631E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.80 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.672E 03	1.220E 02	6.500E 02	3.498E 02	8.216E 00	7.894E 00	3.468E-02	2.278E 02	4.792E 01
2	3.692E 03	1.301E 02	6.640E 02	3.666E 02	8.209E 00	7.899E 00	3.341E-02	2.364E 02	4.808E 01
3	3.711E 03	1.383E 02	6.890E 02	3.962E 02	8.199E 00	7.899E 00	3.063E-02	2.579E 02	4.829E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.630E 01	5.000E 00
2	1.476E 01	2.630E 01	5.000E 00
3	1.870E 01	2.630E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.80 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 9

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.695E 03	1.220E 02	6.480E 02	3.494E 02	8.167E 00	7.854E 00	3.454E-02	2.274E 02	4.783E 01
2	3.694E 03	1.302E 02	6.640E 02	3.685E 02	8.159E 00	7.854E 00	3.295E-02	2.383E 02	4.800E 01
3	3.694E 03	1.384E 02	6.900E 02	3.993E 02	8.150E 00	7.854E 00	3.016E-02	2.609E 02	4.816E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.622E 01	5.000E 00
2	1.476E 01	2.622E 01	5.000E 00
3	1.870E 01	2.622E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.80 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 10

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.691E 03	1.220E 02	6.500E 02	3.503E 02	8.204E 00	7.893E 00	3.465E-02	2.278E 02	4.763E 01
2	3.690E 03	1.300E 02	6.680E 02	3.719E 02	8.195E 00	7.893E 00	3.275E-02	2.418E 02	4.780E 01
3	3.690E 02	1.390E 02	6.920E 02	4.002E 02	8.187E 00	7.893E 00	3.022E-02	2.612E 02	4.797E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.628E 01	5.000E 00
2	1.476E 01	2.628E 01	5.000E 00
3	1.870E 01	2.628E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 1378.80 AT DP 11.DP1-120 SEC.DP11-318 SEC.OTHER DATA 20 SEC INTERVA

DATA POINT 11

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.711E 03	1.211E 02	6.480E 02	3.414E 02	8.367E 00	8.043E 00	3.658E-02	2.203E 02	4.760E 01
2	3.711E 03	1.292E 02	6.680E 02	3.654E 02	8.358E 00	8.043E 00	3.468E-02	2.362E 02	4.777E 01
3	3.710E 03	1.373E 02	6.940E 02	3.963E 02	8.347E 00	8.043E 00	3.185E-02	2.590E 02	4.793E 01

STA	L/D	DELTA E	LE
1	1.083E 01	2.624E 01	5.000E 00
2	1.476E 01	2.624E 01	5.000E 00
3	1.870E 01	2.624E 01	5.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 138.00 AT DP9(295 SEC),DP1-135 SEC. OTHER DATA AT 20 SEC INTERVALS

AF = 0.138E-02 D = 0.132E-01 L = 0.500E 01 DELTA TB = 0.150E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	U	E2	I2	DP	HT BAL	G
1	3.644E 03	3.557E 03	9.910E 01	1.53CE 02	1.179E 00	3.715E 01	1.137E 03	4.004E 01	5.347E-01	8.528E 03
2	3.639E 03	3.549E 03	9.870E 01	1.525E 02	1.182E 00	3.683E 01	1.129E 03	3.941E 01	-6.623E-01	8.570E 03
3	3.636E 03	3.546E 03	9.860E 01	1.527E 02	1.178E 00	3.698E 01	1.132E 03	3.966E 01	-1.759E-01	8.549E 03
4	3.634E 03	3.542E 03	9.860E 01	1.531E 02	1.182E 00	3.696E 01	1.130E 03	3.960E 01	-9.288E-01	8.570E 03
5	3.626E 03	3.534E 03	9.826E 01	1.527E 02	1.186E 00	3.697E 01	1.131E 03	3.964E 01	-1.683E 00	8.607E 03
6	3.623E 03	3.533E 03	9.790E 01	1.525E 02	1.193E 00	3.704E 01	1.134E 03	3.978E 01	-2.188E 00	8.607E 03
7	3.624E 03	3.532E 03	9.780E 01	1.531E 02	1.189E 00	3.705E 01	1.133E 03	3.979E 01	-3.073E 00	8.656E 03
8	3.623E 03	3.531E 03	9.790E 01	1.540E 02	1.182E 00	3.706E 01	1.132E 03	3.977E 01	-4.064E 00	8.570E 03
9	3.622E 03	3.527E 03	9.770E 01	1.544E 02	1.184E 00	3.709E 01	1.132E 03	3.988E 01	-5.308E 00	8.588E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 138.00 AT DP9(295 SEC),DP1-136 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.579E 03	1.399E 02	9.740E 02	4.092E 02	1.681E 01	1.603E 01	5.553E-02	2.693E 02	9.799E 01
2	3.561E 03	1.508E 02	9.610E 02	4.317E 02	1.680E 01	1.603E 01	5.707E-02	2.809E 02	9.840E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.715E 01	5.000E 00
2	2.587E 01	3.715E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 138.80 AT DP9(295 SEC).DP1-135 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.572E 03	1.390E 02	9.660E 02	4.090E 02	1.653E 01	1.578E 01	5.829E-02	2.707E 02	9.863E 01
2	3.553E 03	1.498E 02	9.820E 02	4.309E 02	1.652E 01	1.578E 01	5.515E-02	2.816E 02	9.908E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.683E 01	5.000E 00
2	2.987E 01	3.683E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 138.80 AT DP9(295 SEC).DP1-135 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.569E 03	1.392E 02	9.680E 02	4.079E 02	1.665E 01	1.588E 01	5.909E-02	2.687E 02	9.838E 01
2	3.551E 02	1.500E 02	9.840E 02	4.316E 02	1.663E 01	1.588E 01	5.637E-02	2.817E 02	9.879E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.656E 01	5.000E 00
2	2.987E 01	3.656E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 138.80 AT DP9(295 SEC).DP1-135 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.565E 03	1.395E 02	9.710E 02	4.110E 02	1.665E 01	1.593E 01	5.850E-02	2.724E 02	9.864E 01
2	3.547E 03	1.504E 02	9.870E 02	4.330E 02	1.663E 01	1.593E 01	5.638E-02	2.828E 02	9.918E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.656E 01	5.000E 00
2	2.987E 01	3.656E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 138.80 AT DP9(295 SEC).DP1-135 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.567E 03	1.391E 02	9.720E 02	4.100E 02	1.668E 01	1.587E 01	5.797E-02	2.737E 02	9.858E 01
2	3.549E 03	1.500E 02	9.910E 02	4.320E 02	1.666E 01	1.587E 01	5.511E-02	2.839E 02	9.942E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.656E 01	5.000E 00
2	2.987E 01	3.656E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 136.00 AT DPS(295 SEC).DPI-135 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 6

STA	PS	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.554E 03	1.388E 02	9.008E 02	4.718E 02	1.671E 01	1.991E 01	5.640E-02	2.821E 02	9.988E 01
2	3.537E 03	1.498E 02	9.008E 02	3.113E 02	1.678E 01	1.991E 01	9.732E-02	1.638E 02	10.000E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.704E 01	5.000E 00
2	2.987E 01	3.704E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 136.00 AT DPS(295 SEC).DPI-135 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 7

STA	PS	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.555E 03	1.383E 02	9.538E 02	4.378E 02	1.671E 01	1.993E 01	5.337E-02	2.988E 02	9.988E 01
2	3.537E 03	1.503E 02	9.878E 02	3.961E 02	1.673E 01	1.993E 01	6.644E-02	2.397E 02	9.988E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.705E 01	5.000E 00
2	2.987E 01	3.705E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 136.00 AT DPS(295 SEC).DPI-135 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 8

STA	PS	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.554E 03	1.400E 02	9.638E 02	4.374E 02	1.672E 01	1.992E 01	5.352E-02	2.974E 02	9.966E 01
2	3.536E 03	1.512E 02	9.468E 02	3.758E 02	1.674E 01	1.992E 01	7.113E-02	2.238E 02	9.914E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.706E 01	5.000E 00
2	2.987E 01	3.706E 01	5.000E 00

LOCAL TEST PARAMETERS

TEST 136.00 AT DPS(295 SEC).DPI-135 SEC. OTHER DATA AT 20 SEC INTERVALS

DATA POINT 9

STA	PS	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.551E 03	1.402E 02	1.004E 03	4.568E 02	1.674E 01	1.993E 01	5.130E-02	3.108E 02	9.884C 01
2	3.532E 03	1.516E 02	9.678E 02	4.028E 02	1.677E 01	1.993E 01	6.362E-02	2.504E 02	9.932E 01

STA	L/D	DELTA E	LE
1	2.358E 01	3.709E 01	5.000E 00
2	2.987E 01	3.709E 01	5.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 139 STAINLESS STEEL BURNOUT DATA POINT 3 IS BURNOUT

AF = 0.129E-03 D = 0.128E-01 L = 0.450E 01 DELTA TO = 0.110E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	HT BAL	G
1	9.120E 02	8.690E 02	9.410E 01	9.980E 01	1.180E 00	7.680E 00	4.693E 02	3.417E 00	-1.331E 00	9.126E 03
2	9.050E 02	8.500E 02	9.335E 01	1.342E 02	1.184E 00	2.528E 01	1.244E 03	2.981E 01	-1.179E 00	9.172E 03
3	9.000E 02	8.600E 02	9.270E 01	1.479E 02	1.184E 00	3.814E 01	1.415E 03	4.043E 01	-1.495E 00	9.157E 03

TEST SECTION - LOCAL TEST PARAMETERS

TEST 139 STAINLESS STEEL BURNOUT DATA POINT 3 IS BURNOUT

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	8.809E 02	9.822E 01	1.090E 02	1.249E 02	1.656E 00	1.569E 00	5.888E-02	2.668E 01	1.031E 02
2	8.714E 02	9.948E 01	1.870F 02	1.228E 02	1.658E 00	1.569E 00	6.739E-02	2.328E 01	1.032E 02

STA	L/D	DELTA E	LE
1	2.111E 01	7.680E 00	4.500E 00
2	2.760E 01	7.680E 00	4.500E 00

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	8.653E 02	1.229E 02	7.890E 02	3.369E 02	1.421E 01	1.369E 01	6.364E-02	2.151E 02	1.047E 02
2	8.931E 02	1.319E 02	7.870E 02	3.352E 02	1.422E 01	1.369E 01	6.735E-02	2.033E 02	1.051F 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.528E 01	4.500E 00
2	2.760E 01	2.528E 01	4.500E 00

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	8.711E 02	1.326E 02	9.660E 02	3.875E 02	1.919E 01	1.857E 01	7.282E-02	2.550E 02	1.050E 02
2	8.622E 02	1.440E 02	9.670E 02	3.861E 02	1.919E 01	1.857E 01	7.696E-02	2.412E 02	1.055E 02

STA	L/D	DELTA E	LE
1	2.111E 01	3.014E 01	4.500E 00
2	2.760E 01	3.014E 01	4.500E 00

DIMENSIONLESS PARAMETERS

TEST 139 STAINLESS STEEL BURNOUT DATA POINT 3 IS BURNOUT

DATA POINT	STA	NU	PR	RE	TI/TB	NU/PR(.4)
1	1	1.1141E 03	4.1908E 00	1.8277E 05	1.0478E 00	6.2812E 02
1	2	1.2704E 03	4.1438E 00	1.8651E 05	1.0416E 00	7.2167E 02
2	1	1.1615E 03	3.4127E 00	2.1829E 05	1.3491E 00	7.1088F 02
2	2	1.2128E 03	3.1815E 00	2.3142E 05	1.3434E 00	7.6340E 02
3	1	1.3168E 03	3.1668E 00	2.3192E 05	1.4303E 00	8.2818E 02
3	2	1.3867E 03	2.9099E 00	2.4859E 05	1.3989E 00	8.8761E 02

DATA POINT	STA	RHO RATIO	K RATIO	MU RATIO	CP RATIO
1	1	1.0113E 00	9.6042E-01	1.2048E 00	1.0035E 00
1	2	1.0099E 00	9.6535E-01	1.1784E 00	1.0032F 00
2	1	1.1813E 00	8.6056E-01	2.6773E 00	1.0012E 00
2	2	1.0956E 00	8.7239E-01	2.4998E 00	9.9941E-01
3	1	1.1231E 00	8.7446E-01	2.9949E 00	1.0057E 00
3	2	1.1165E 00	8.6977E-01	2.7800E 00	1.0036E 00

DATA POINT	STA	NU(F)	PR(F)	RE(F)	TI/TF	NU/PR(.4)
1	1	1.0917E 03	3.7466E 00	1.9967E 05	1.0233E 00	6.4366E 02
1	2	1.2520E 03	3.7599E 00	1.9922E 05	1.0204E 00	7.3711E 02
2	1	1.0327E 03	1.7546E 00	3.6712E 05	1.1558E 00	8.2673E 02
2	2	1.0910E 03	1.7295E 00	3.7265E 05	1.1466E 00	8.7628E 02
3	1	1.1649E 03	1.5444E 00	4.0854E 05	1.1771E 00	9.7096E 02
3	2	1.2286E 03	1.5112E 00	4.1821E 05	1.1663E 00	1.0416E 03

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST140.0.5MIN STEADY POWER,DP1-14.3SEC,DP11-713SEC.1 MIN DATA INTERVAL

AF = 0.1E+E-03 B = 0.120E-01 L = 0.48E 01 DELTA TO = 0.19E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	P	E2	MF CAL	Q	I2
1	9.29E 02	9.40E 02	0.78E 01	1.38E 02	1.20E 00	2.50E 01	-4.00E-01	2.08E 01	1.00E 03
2	9.25E 02	9.59E 02	0.98E 01	1.38E 02	1.19E 00	2.50E 01	-7.07E-01	2.08E 01	1.00E 03
3	9.23E 02	9.38E 02	0.71E 01	1.20E 02	1.19E 00	2.50E 01	-9.93E-01	2.08E 01	1.00E 03
4	9.17E 02	9.51E 02	0.88E 01	1.25E 02	1.19E 00	2.50E 01	-1.00E 00	2.08E 01	1.00E 03
5	9.12E 02	9.00E 02	0.53E 01	1.20E 02	1.19E 00	2.50E 01	-1.13E 00	2.08E 01	1.00E 03
6	9.22E 02	9.00E 02	0.77E 01	1.20E 02	1.19E 00	2.50E 01	-1.13E 00	2.08E 01	1.00E 03
7	9.10E 02	9.02E 02	0.70E 01	1.25E 02	1.19E 00	2.50E 01	-1.13E 00	2.08E 01	1.00E 03
8	9.14E 02	9.40E 02	0.68E 01	1.27E 02	1.19E 00	2.50E 01	-1.13E 00	2.08E 01	1.00E 03
9	9.10E 02	9.45E 02	0.67E 01	1.27E 02	1.18E 00	2.49E 01	-1.13E 00	2.08E 01	1.00E 03
10	9.06E 02	9.29E 02	0.81E 01	1.49E 02	1.18E 00	2.50E 01	-1.13E 00	2.08E 01	1.00E 03
11	9.08E 02	9.38E 02	0.90E 01	1.30E 02	1.18E 00	2.50E 01	-1.34E-01	2.08E 01	1.00E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST140.9.5MIN STEADY POWER.DP1-1438EC.DP11-7135EC.1 MIN DATA INTERVAL

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.792E 02	1.192E 02	7.880E 02	3.409E 02	1.399E 01	1.346E 01	6.138E-02	2.217E 02	1.068E 02
2	8.638E 02	1.282E 02	7.964E 02	3.561E 02	1.392E 01	1.360E 01	5.909E-02	2.278E 02	1.063E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.507E 01	4.500E 00
2	2.760E 01	2.507E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.5MIN STEADY POWER.DP1-1438EC.DP11-7135EC.1 MIN DATA INTERVAL

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.773E 02	1.193E 02	7.882E 02	3.371E 02	1.399E 01	1.358E 01	6.238E-02	2.178E 02	1.058E 02
2	8.627E 02	1.283E 02	7.900E 02	3.482E 02	1.394E 01	1.358E 01	6.178E-02	2.199E 02	1.060E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.506E 01	4.500E 00
2	2.760E 01	2.506E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.5MIN STEADY POWER.DP1-1438EC.DP11-7135EC.1 MIN DATA INTERVAL

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.739E 02	1.185E 02	7.828E 02	3.328E 02	1.392E 01	1.351E 01	6.111E-02	2.210E 02	1.055E 02
2	8.588E 02	1.275E 02	7.940E 02	3.541E 02	1.386E 01	1.351E 01	5.910E-02	2.269E 02	1.059E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.500E 01	4.500E 00
2	2.760E 01	2.500E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.5MIN STEADY POWER.DP1-1438EC.DP11-7135EC.1 MIN DATA INTERVAL

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.693E 02	1.182E 02	7.840E 02	3.423E 02	1.391E 01	1.351E 01	6.026E-02	2.241E 02	1.052E 02
2	8.547E 02	1.272E 02	7.950E 02	3.574E 02	1.384E 01	1.351E 01	5.867E-02	2.302E 02	1.056E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.500E 01	4.500E 00
2	2.760E 01	2.500E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.5MIN STEADY POWER.DP1-1438EC.DP11-7138EC.1 MIN DATA INTERVAL

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.658E 02	1.179E 02	7.683E 02	3.437E 02	1.390E 01	1.381E 01	5.903E-02	2.257E 02	1.051E 02
2	8.516E 02	1.270E 02	7.960E 02	3.580E 02	1.384E 01	1.361E 01	5.827E-02	2.318E 02	1.058E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.500E 01	4.500E 00
2	2.760E 01	2.500E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.5MIN STEADY POWER.DP1-1438EC.DP11-7138EC.1 MIN DATA INTERVAL

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.743E 02	1.172E 02	7.840E 02	3.419E 02	1.392E 01	1.352E 01	6.030E-02	2.246E 02	1.058E 02
2	8.597E 02	1.263E 02	7.980E 02	3.571E 02	1.388E 01	1.352E 01	5.861E-02	2.307E 02	1.059E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.501E 01	4.500E 00
2	2.760E 01	2.501E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.5MIN STEADY POWER.DP1-1438EC.DP11-7138EC.1 MIN DATA INTERVAL

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.698E 02	1.171E 02	7.888E 02	3.458E 02	1.394E 01	1.367E 01	5.931E-02	2.287E 02	1.054E 02
2	8.556E 02	1.262E 02	7.980E 02	3.596E 02	1.388E 01	1.357E 01	5.813E-02	2.334E 02	1.058E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.503E 01	4.500E 00
2	2.760E 01	2.503E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.5MIN STEADY POWER.DP1-1438EC.DP11-7138EC.1 MIN DATA INTERVAL

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.671E 02	1.168E 02	7.868E 02	3.458E 02	1.390E 01	1.388E 01	5.908E-02	2.280E 02	1.056E 02
2	8.526E 02	1.258E 02	7.960E 02	3.598E 02	1.384E 01	1.388E 01	5.787E-02	2.332E 02	1.060E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.500E 01	4.500E 00
2	2.760E 01	2.500E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.SHIN STEADY POWER.DP1-1438EC.DP11-7135EC.1 MIN DATA INTERVAL

DATA POINT 9

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.631E 02	1.164E 02	7.898E 02	3.446E 02	1.398E 01	1.347E 01	5.998E-02	2.281E 02	1.044E 02
2	8.486E 02	1.258E 02	7.964E 02	3.596E 02	1.381E 01	1.347E 01	5.778E-02	2.341E 02	1.098E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.498E 01	4.500E 00
2	2.760E 01	2.498E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.SHIN STEADY POWER.DP1-1439EC.DP11-7136EC.1 MIN DATA INTERVAL

DATA POINT 10

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.576E 02	1.179E 02	7.889E 02	3.474E 02	1.398E 01	1.381E 01	5.988E-02	2.298E 02	1.044E 02
2	8.427E 02	1.270E 02	7.998E 02	3.628E 02	1.383E 01	1.381E 01	5.737E-02	2.358E 02	1.058E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.501E 01	4.500E 00
2	2.760E 01	2.501E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST140.9.SHIN STEADY POWER.DP1-1439EC.DP11-7138EC.1 MIN DATA INTERVAL

DATA POINT 11

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.574E 02	1.186E 02	7.898E 02	3.488E 02	1.391E 01	1.384E 01	5.988E-02	2.294E 02	1.044E 02
2	8.419E 02	1.277E 02	7.988E 02	3.604E 02	1.386E 01	1.384E 01	5.821E-02	2.327E 02	1.048E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.503E 01	4.500E 00
2	2.760E 01	2.503E 01	4.500E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST141.9MIN STEADY POWER.DP1-2=45SEC.DP9-10=75SEC.OTHER INTERVALS 1 MIN

AF = 0.129E-03 D = 0.120E-01 L = 0.450E 01 DELTA TO = 0.220E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	U	E2	I2	QP	HT BAL	G
1	9.100E 02	8.460E 02	9.390E 01	1.439E 02	1.187E 00	2.050E 01	1.364E 03	3.689E 01	1.394E 00	9.180E 03
2	9.090E 02	8.440E 02	9.400E 01	1.447E 02	1.189E 00	2.050E 01	1.365E 03	3.688E 01	-1.539E-01	9.196E 03
3	9.050E 02	8.400E 02	9.400E 01	1.450E 02	1.186E 00	2.050E 01	1.364E 03	3.704E 01	-9.701E-02	9.172E 03
4	9.110E 02	8.510E 02	9.340E 01	1.440E 02	1.192E 00	2.050E 01	1.364E 03	3.689E 01	-2.610E-01	9.219E 03
5	9.070E 02	8.470E 02	9.300E 01	1.436E 02	1.192E 00	2.040E 01	1.363E 03	3.678E 01	-6.802E-01	9.219E 03
6	9.030E 02	8.430E 02	9.260E 01	1.432E 02	1.188E 00	2.040E 01	1.362E 03	3.667E 01	-4.003E-01	9.188E 03
7	9.000E 02	8.400E 02	9.220E 01	1.428E 02	1.186E 00	2.040E 01	1.360E 03	3.662E 01	-3.791E-01	9.172E 03
8	8.960E 02	8.360E 02	9.180E 01	1.428E 02	1.184E 00	2.050E 01	1.363E 03	3.683E 01	-4.580E-01	9.157E 03
9	8.930E 02	8.330E 02	9.168E 01	1.428E 02	1.181E 00	2.050E 01	1.361E 03	3.677E 01	-7.599E-01	9.134E 03
10	8.950E 02	8.360E 02	9.170E 01	1.427E 02	1.186E 00	2.045E 01	1.361E 03	3.671E 01	-4.398E-01	9.126E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST141,9MIN STEADY POWER,DP1-2=45SEC,DP9-10=75SEC,OTHER INTERVALS 1 MIN

DATA POINT 1

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.638E 02	1.388E 02	9.388E 02	4.038E 02	1.729E 01	1.698E 01	6.185E-02	2.737E 02	1.066E 02
2	8.496E 02	1.411E 02	9.456E 02	4.251E 02	1.719E 01	1.698E 01	5.980E-02	2.644E 02	1.066E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.650E 01	4.56GE 00
2	2.760E 01	2.858E 01	4.590E 00

LOCAL TEST PARAMETERS

TEST141,9MIN STEADY POWER,DP1-2=45SEC,DP9-10=75SEC,OTHER INTERVALS 1 MIN

DATA POINT 2

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.621E 02	1.366E 02	9.338E 02	4.088E 02	1.727E 01	1.694E 01	6.188E-02	2.774E 02	1.066E 02
2	8.476E 02	1.419E 02	9.468E 02	4.265E 02	1.716E 01	1.694E 01	5.968E-02	2.644E 02	1.066E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.650E 01	4.56GE 00
2	2.760E 01	2.858E 01	4.560E 00

LOCAL TEST PARAMETERS

TEST141,9MIN STEADY POWER,DP1-2=45SEC,DP9-10=75SEC,OTHER INTERVALS 1 MIN

DATA POINT 3

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.581E 02	1.368E 02	9.378E 02	4.098E 02	1.737E 01	1.701E 01	6.183E-02	2.787E 02	1.061E 02
2	8.436E 02	1.422E 02	9.568E 02	4.288E 02	1.729E 01	1.701E 01	5.958E-02	2.658E 02	1.066E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.860E 01	4.560E 00
2	2.760E 01	2.860E 01	4.580E 00

LOCAL TEST PARAMETERS

TEST141,9MIN STEADY POWER,DP1-2=45SEC,DP9-10=75SEC,OTHER INTERVALS 1 MIN

DATA POINT 4

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.677E 02	1.299E 02	9.348E 02	4.098E 02	1.726E 01	1.693E 01	6.058E-02	2.795E 02	1.066E 02
2	8.543E 02	1.412E 02	9.478E 02	4.279E 02	1.718E 01	1.693E 01	5.903E-02	2.667E 02	1.061E 02

STA	L/D	DELTA E	L
1	2.111E 01	2.850E 01	4.560E 00
2	2.760E 01	2.850E 01	4.560E 00

LOCAL TEST PARAMETERS

TEST141.9MIN STEADY POWER.DP1-2=45SEC.DP9-10=75SEC.OTHER INTERVALS 1 MIN

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.637E 02	1.295E 02	9.310E 02	4.094E 02	1.716E 01	1.688E 01	6.022E-02	2.798E 02	1.054E 02
2	8.503E 02	1.408E 02	9.440E 02	4.278E 02	1.707E 01	1.685E 01	5.871E-02	2.878E 02	1.041E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.840E 01	4.500E 00
2	2.760E 01	2.840E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST141.9MIN STEADY POWER.DP1-2=45SEC.DP9-10=75SEC.OTHER INTERVALS 1 MIN

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.597E 02	1.291E 02	9.270E 02	4.037E 02	1.710E 01	1.684E 01	6.133E-02	2.746E 02	1.052E 02
2	8.463E 02	1.404E 02	9.408E 02	4.222E 02	1.710E 01	1.684E 01	5.976E-02	2.818E 02	1.037E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.840E 01	4.500E 00
2	2.760E 01	2.840E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST141.9MIN STEADY POWER.DP1-2=45SEC.DP9-10=75SEC.OTHER INTERVALS 1 MIN

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.547E 02	1.287E 02	9.300E 02	4.080E 02	1.715E 01	1.681E 01	6.022E-02	2.792E 02	1.050E 02
2	8.433E 02	1.400E 02	9.438E 02	4.264E 02	1.708E 01	1.681E 01	5.871E-02	2.864E 02	1.035E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.840E 01	4.500E 00
2	2.760E 01	2.840E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST141.9MIN STEADY POWER.DP1-2=45SEC.DP9-10=75SEC.OTHER INTERVALS 1 MIN

DATA POINT 8

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	8.527E 02	1.284E 02	9.260E 02	3.980E 02	1.732E 01	1.691E 01	6.277E-02	2.694E 02	1.048E 02
2	8.393E 02	1.400E 02	9.420E 02	4.200E 02	1.721E 01	1.691E 01	6.021E-02	2.809E 02	1.033E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.840E 01	4.500E 00
2	2.760E 01	2.840E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST141.9MIN STEADY POWER.BP1-2=460SEC.BP9-10=750SEC.OTHER INTERVALS 1 MIN

DATA POINT 9

STA	PB	TB	TU	TI	G/A	G/AP	M	DEL TP	VS
1	8.497E 02	1.206E 02	9.290E 02	4.022E 02	1.736E 01	1.609E 01	6.146E-02	2.738E 02	1.044E 02
2	8.363E 02	1.422E 02	9.309E 02	4.151E 02	1.734E 01	1.609E 01	6.130E-02	2.758E 02	1.058E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.850E 01	4.580E 00
2	2.760E 01	2.850E 01	4.580E 00

LOCAL TEST PARAMETERS

TEST141.9MIN STEADY POWER.BP1-2=460SEC.BP9-10=750SEC.OTHER INTERVALS 1 MIN

DATA POINT 10

STA	PB	TB	TU	TI	G/A	G/AP	M	DEL TP	VS
1	8.481E 02	1.208E 02	9.270E 02	3.998E 02	1.731E 01	1.609E 01	6.230E-02	2.709E 02	1.044E 02
2	8.336E 02	1.398E 02	9.340E 02	4.098E 02	1.728E 01	1.609E 01	6.264E-02	2.698E 02	1.056E 02

STA	L/D	DELTA E	LE
1	2.111E 01	2.850E 01	4.580E 00
2	2.760E 01	2.850E 01	4.580E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST142.80 AT 307 AFTER 2MIN STEADY POWER. 30 SEC DATA INTERVALS.PIN EST

AF = 0.129E-03 D = 0.120E-01 L = 0.450E 01 DELTA TO = 0.190E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	U	E2	I2	QP	HT BAL	G
1	9.110E 02	8.440E 02	9.100E 01	1.477E 02	1.109E 00	3.057E 01	1.437E 03	4.104E 01	-2.140E-01	9.190E 03
2	9.120E 02	8.470E 02	9.110E 01	1.477E 02	1.186E 00	3.048E 01	1.437E 03	4.152E 01	-7.466E-02	9.172E 03
3	9.120E 02	8.470E 02	9.100E 01	1.477E 02	1.191E 00	3.047E 01	1.436E 03	4.142E 01	-9.233E-01	9.211E 03
4	9.110E 02	8.460E 02	9.100E 01	1.478E 02	1.188E 00	3.058E 01	1.436E 03	4.146E 01	-2.465E-01	9.145E 03
5	9.090E 02	8.440E 02	9.090E 01	1.479E 02	1.188E 00	3.059E 01	1.432E 03	4.140E 01	-1.109E 00	9.168E 03
6	9.030E 02	8.380E 02	9.050E 01	1.477E 02	1.189E 00	3.051E 01	1.437E 03	4.154E 01	-1.141E 00	9.190E 03
7	9.070E 02	8.420E 02	9.050E 01	1.477E 02	1.182E 00	3.048E 01	1.429E 03	4.129E 01	-1.390E 00	9.143E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST142.80 AT DP7 AFTER 2MIN STEADY POWER. 30 SEC DATA INTERVALS.PIN EST

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	8.641E 02	1.319E 02	1.015E 03	4.372E 02	1.943E 01	1.912E 01	6.288E-02	3.088E 02	1.084E 02
2	8.496E 02	1.446E 02	1.022E 03	4.474E 02	1.938E 01	1.912E 01	6.316E-02	3.028E 02	1.066E 02

STA	L/D	DELTA E	LE
1	2.111E 01	3.057E 01	4.500E 00
2	2.760E 01	3.057E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST142.80 AT DP7 AFTER 2MIN STEADY POWER. 30 SEC DATA INTERVALS.PIN EST

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	8.651E 02	1.320E 02	1.019E 03	4.464E 02	1.908E 01	1.907E 01	6.054E-02	3.140E 02	1.051E 02
2	8.506E 02	1.446E 02	1.025E 03	4.568E 02	1.922E 01	1.907E 01	6.047E-02	3.150E 02	1.057E 02

STA	L/D	DELTA E	LE
1	2.111E 01	3.048E 01	4.500E 00
2	2.760E 01	3.048E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST142.80 AT DP7 AFTER 2MIN STEADY POWER. 30 SEC DATA INTERVALS.PIN EST

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	8.651E 02	1.319E 02	1.017E 03	4.446E 02	1.920E 01	1.902E 01	6.087E-02	3.128E 02	1.056E 02
2	8.506E 02	1.446E 02	1.027E 03	4.549E 02	1.921E 01	1.902E 01	6.051E-02	3.143E 02	1.063E 02

STA	L/D	DELTA E	LE
1	2.111E 01	3.047E 01	4.500E 00
2	2.760E 01	3.047E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST142.80 AT DP7 AFTER 2MIN STEADY POWER. 30 SEC DATA INTERVALS.PIN EST

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TP	VS
1	8.641E 02	1.320E 02	1.015E 03	4.463E 02	1.934E 01	1.904E 01	6.177E-02	3.088E 02	1.040E 02
2	8.496E 02	1.446E 02	1.027E 03	4.576E 02	1.925E 01	1.904E 01	6.084E-02	3.138E 02	1.054E 02

STA	L/D	DELTA E	LE
1	2.111E 01	3.050E 01	4.500E 00
2	2.760E 01	3.050E 01	4.500E 00

LOCAL TEST PARAMETERS

TEST142.00 AT 0P7 AFTER 2HIN STEADY POWER. 30 SEC DATA INTERVALS.PIN EST

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	REL TP	VS
1	8.621E 02	1.320E 02	1.018E 03	4.443E 02	1.934E 01	1.901E 01	6.160E-02	3.008E 02	1.081E 02
2	8.476E 02	1.447E 02	1.028E 03	4.567E 02	1.927E 01	1.891E 01	6.134E-02	3.108E 02	1.088E 02

STA	L/D	DELTA E	LE
1	2.111E 01	3.088E 01	4.808E 00
2	2.768E 01	3.858E 01	4.908E 00

LOCAL TEST PARAMETERS

TEST142.00 AT 0P7 AFTER 2HIN STEADY POWER. 30 SEC DATA INTERVALS.PIN EST

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	REL TP	VS
1	8.861E 02	1.318E 02	1.015E 03	4.398E 02	1.938E 01	1.909E 01	6.197E-02	3.088E 02	1.084E 02
2	8.416E 02	1.448E 02	1.021E 03	4.488E 02	1.931E 01	1.909E 01	6.278E-02	3.048E 02	1.088E 02

STA	L/D	DELTA E	LE
1	2.111E 01	3.051E 01	4.808E 00
2	2.768E 01	3.851E 01	4.908E 00

LOCAL TEST PARAMETERS

TEST142.00 AT 0P7 AFTER 2HIN STEADY POWER. 30 SEC DATA INTERVALS.PIN EST

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	REL TP	VS
1	8.681E 02	1.316E 02	1.012E 03	4.368E 02	1.933E 01	1.898E 01	6.218E-02	3.088E 02	1.088E 02
2	8.485E 02	1.448E 02	1.024E 03	4.541E 02	1.928E 01	1.888E 01	6.138E-02	3.098E 02	1.084E 02

STA	L/D	DELTA E	LE
1	2.111E 01	3.048E 01	4.808E 00
2	2.768E 01	3.848E 01	4.908E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 1434.2MIN STEADY POWER.DP1=100 SEC.20 SEC DATA INTERVALS

AF = 0.130E-03 D = 0.132E-01 L = 0.400E 01 DELTA TB = 0.300E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	V	E2	I2	DP	MT BAL	G
1	3.397E 03	3.211E 03	8.000E 01	1.204E 02	1.050E 00	3.490E 01	1.340E 03	4.480E 01	1.123E 00	1.303E 04
2	3.324E 03	3.142E 03	7.990E 01	1.203E 02	1.050E 00	3.491E 01	1.340E 03	4.481E 01	9.832E-01	1.303E 04
3	3.250E 03	3.066E 03	7.980E 01	1.201E 02	1.050E 00	3.492E 01	1.340E 03	4.483E 01	1.000E 00	1.303E 04
4	3.186E 03	2.998E 03	7.960E 01	1.198E 02	1.050E 00	3.497E 01	1.340E 03	4.483E 01	1.010E 00	1.303E 04
5	3.097E 03	2.908E 03	7.900E 01	1.191E 02	1.050E 00	3.498E 01	1.347E 03	4.487E 01	3.281E-01	1.304E 04
6	3.031E 03	2.846E 03	7.880E 01	1.190E 02	1.050E 00	3.501E 01	1.340E 03	4.487E 01	7.368E-02	1.304E 04
7	2.962E 03	2.778E 03	7.860E 01	1.186E 02	1.050E 00	3.498E 01	1.340E 03	4.486E 01	5.930E-01	1.304E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 143A.2NIN STEADY POWER.DPI-180 SEC.20 SEC DATA INTERVALS

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.269E 03	1.078E 02	1.120E 03	3.587E 02	2.306E 01	2.238E 01	8.909E-02	2.699E 02	1.523E 02
2	3.223E 03	1.17[illegible] 62	1.130E 03	3.732E 02	2.305E 01	2.239E 01	8.756E-02	2.683E 02	1.530E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.496E 01	4.000E 00
2	2.350E 01	3.496E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 143A.2NIN STEADY POWER.DPI-180 SEC.20 SEC DATA INTERVALS

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.199E 03	1.077E 02	1.128E 03	3.729E 02	2.299E 01	2.232E 01	8.416E-02	2.662E 02	1.523E 02
2	3.153E 03	1.170E 02	1.131E 03	3.772E 02	2.299E 01	2.232E 01	8.604E-02	2.698E 02	1.530E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.491E 01	4.000E 00
2	2.350E 01	3.491E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 143A.2NIN STEADY POWER.DPI-180 SEC.20 SEC DATA INTERVALS

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.123E 03	1.075E 02	1.133E 03	3.796E 02	2.300E 01	2.228E 01	8.188E-02	2.721E 02	1.523E 02
2	3.077E 03	1.176E 02	1.134E 03	3.810E 02	2.300E 01	2.228E 01	8.458E-02	2.634E 02	1.530E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.492E 01	4.000E 00
2	2.350E 01	3.492E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 143A.2NIN STEADY POWER.DPI-180 SEC.20 SEC DATA INTERVALS

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.083E 03	1.072E 02	1.135E 03	3.798E 02	2.307E 01	2.233E 01	8.189E-02	2.727E 02	1.523E 02
2	3.037E 03	1.173E 02	1.137E 03	3.827E 02	2.307E 01	2.233E 01	8.411E-02	2.688E 02	1.529E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.497E 01	4.000E 00
2	2.350E 01	3.497E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 143A.2MIN STEADY POWER.DP1-180 SEC.20 SEC DATA INTERVALS

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.967E 03	1.066E 02	1.135E 03	3.793E 02	2.308E 01	2.239E 01	8.194E-02	2.728E 02	1.547E 02
2	2.920E 03	1.166E 02	1.136E 03	3.808E 02	2.308E 01	2.239E 01	8.461E-02	2.642E 02	1.554E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.498E 01	4.000E 00
2	2.358E 01	3.458E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 143A.2MIN STEADY POWER.DP1-180 SEC.20 SEC DATA INTERVALS

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.904E 03	1.064E 02	1.136E 03	3.792E 02	2.312E 01	2.238E 01	8.198E-02	2.728E 02	1.547E 02
2	2.858E 03	1.165E 02	1.137E 03	3.806E 02	2.312E 01	2.238E 01	8.462E-02	2.642E 02	1.554E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.501E 01	4.000E 00
2	2.358E 01	3.501E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 143A.2MIN STEADY POWER.DP1-180 SEC.20 SEC DATA INTERVALS

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.836E 03	1.061E 02	1.135E 03	3.809E 02	2.304E 01	2.239E 01	8.133E-02	2.748E 02	1.547E 02
2	2.789E 03	1.161E 02	1.136E 03	3.823E 02	2.304E 01	2.239E 01	8.394E-02	2.662E 02	1.554E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.495E 01	4.000E 00
2	2.358E 01	3.495E 01	4.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

AF = 0.138E-03 D = 0.132E-01 L = 0.400E 01 DELTA TO = 0.300E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	E2	I2	QP	MT BAL	G
1	3.422E 03	3.226E 03	8.250E 01	1.219E 02	1.838E 00	3.505E 01	1.348E 03	4.479E 01	4.601E 00	1.334E 04
2	3.415E 03	3.229E 03	8.230E 01	1.219E 02	1.838E 00	3.504E 01	1.344E 03	4.464E 01	3.766E 00	1.334E 04
3	3.412E 03	3.225E 03	8.230E 01	1.220E 02	1.838E 00	3.502E 01	1.346E 03	4.469E 01	3.590E 00	1.334E 04
4	3.404E 03	3.215E 03	8.200E 01	1.216E 02	1.838E 00	3.504E 01	1.345E 03	4.468E 01	3.843E 00	1.334E 04
5	3.395E 03	3.211E 03	8.210E 01	1.219E 02	1.843E 00	3.503E 01	1.346E 03	4.470E 01	3.095E 00	1.337E 04
6	3.398E 03	3.208E 03	8.210E 01	1.219E 02	1.838E 00	3.507E 01	1.347E 03	4.478E 01	3.540E 00	1.334E 04
7	3.387E 03	3.199E 03	8.190E 01	1.217E 02	1.835E 00	3.499E 01	1.344E 03	4.458E 01	3.266E 00	1.332E 04
8	3.389E 03	3.201E 03	8.190E 01	1.216E 02	1.829E 00	3.496E 01	1.341E 03	4.444E 01	3.547E 00	1.327E 04
9	3.379E 03	3.194E 03	8.190E 01	1.217E 02	1.834E 00	3.501E 01	1.346E 03	4.467E 01	3.517E 00	1.331E 04
10	3.375E 03	3.190E 03	8.180E 01	1.216E 02	1.834E 00	3.501E 01	1.344E 03	4.461E 01	3.375E 00	1.331E 04
11	3.376E 03	3.192E 03	8.170E 01	1.215E 02	1.824E 00	3.499E 01	1.345E 03	4.461E 01	3.921E 00	1.324E 04
12	3.363E 03	3.177E 03	8.170E 01	1.216E 02	1.829E 00	3.498E 01	1.339E 03	4.440E 01	2.934E 00	1.327E 04

TEST SECTION

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

DATA POINT 1

STA	PB	TB	Tu	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.287E 03	1.096E 02	1.131E 03	3.699E 02	2.317E 01	2.241E 01	8.610E-02	2.663E 02	1.515E 02
2	3.238E 03	1.194E 02	1.136E 03	3.771E 02	2.317E 01	2.241E 01	8.608E-02	2.577E 02	1.521E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.505E 01	4.000E 00
2	2.358E 01	3.505E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

DATA POINT 2

STA	PB	TB	Tu	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.287E 03	1.095E 02	1.135E 03	3.762E 02	2.316E 01	2.234E 01	8.377E-02	2.667E 02	1.515E 02
2	3.241E 03	1.194E 02	1.139E 03	3.820E 02	2.315E 01	2.234E 01	8.509E-02	2.625E 02	1.521E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.504E 01	4.000E 00
2	2.358E 01	3.504E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

DATA POINT 3

STA	PB	TB	Tu	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.283E 03	1.096E 02	1.136E 03	3.787E 02	2.313E 01	2.236E 01	8.318E-02	2.691E 02	1.515E 02
2	3.237E 03	1.195E 02	1.140E 03	3.844E 02	2.313E 01	2.236E 01	8.441E-02	2.649E 02	1.521E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.502E 01	4.000E 00
2	2.358E 01	3.502E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

DATA POINT 4

STA	PB	TB	Tu	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.274E 03	1.092E 02	1.136E 03	3.776E 02	2.316E 01	2.236E 01	8.329E-02	2.684E 02	1.514E 02
2	3.227E 03	1.191E 02	1.139E 03	3.820E 02	2.315E 01	2.236E 01	8.506E-02	2.628E 02	1.521E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.504E 01	4.000E 00
2	2.358E 01	3.504E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER.DP11-12=375EC.OTHER INTERVALS 2085C

DATA POINT 5

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.269E 03	1.095E 02	1.137E 03	3.796E 02	2.314E 01	2.237E 01	8.208E-02	2.701E 02	1.519E 02
2	3.222E 03	1.194E 02	1.140E 03	3.839E 02	2.314E 01	2.237E 01	8.467E-02	2.648E 02	1.528E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.503E 01	4.000E 00
2	2.358E 01	3.503E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER.DP11-12=375EC.OTHER INTERVALS 2085C

DATA POINT 6

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.267E 03	1.095E 02	1.138E 03	3.799E 02	2.319E 01	2.241E 01	8.334E-02	2.695E 02	1.515E 02
2	3.220E 03	1.194E 02	1.140E 03	3.818E 02	2.319E 01	2.241E 01	8.539E-02	2.624E 02	1.521E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.567E 01	4.000E 00
2	2.358E 01	3.567E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER.DP11-12=375EC.OTHER INTERVALS 2085C

DATA POINT 7

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.258E 03	1.093E 02	1.133E 03	3.789E 02	2.309E 01	2.231E 01	8.366E-02	2.667E 02	1.512E 02
2	3.211E 03	1.192E 02	1.137E 03	3.817E 02	2.309E 01	2.231E 01	8.499E-02	2.625E 02	1.518E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.499E 01	4.000E 00
2	2.358E 01	3.499E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER.DP11-12=375EC.OTHER INTERVALS 2085C

DATA POINT 8

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.266E 03	1.092E 02	1.138E 03	3.804E 02	2.308E 01	2.234E 01	8.201E-02	2.713E 02	1.507E 02
2	3.213E 03	1.191E 02	1.137E 03	3.832E 02	2.308E 01	2.234E 01	8.420E-02	2.641E 02	1.513E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.496E 01	4.000E 00
2	2.358E 01	3.496E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

DATA POINT 9

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.252E 03	1.091E 02	1.136E 03	3.778E 02	2.312E 01	2.232E 01	8.348E-02	2.668E 02	1.511E 02
2	3.204E 03	1.190E 02	1.137E 03	3.866E 02	2.312E 01	2.232E 01	8.988E-02	2.614E 02	1.517E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.501E 01	4.000E 00
2	2.358E 01	3.501E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

DATA POINT 10

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.240E 03	1.092E 02	1.136E 03	3.792E 02	2.312E 01	2.232E 01	8.268E-02	2.700E 02	1.511E 02
2	3.202E 03	1.191E 02	1.138E 03	3.838E 02	2.312E 01	2.232E 01	8.642E-02	2.644E 02	1.517E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.501E 01	4.000E 00
2	2.358E 01	3.501E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

DATA POINT 11

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.258E 03	1.091E 02	1.136E 03	3.802E 02	2.309E 01	2.232E 01	8.232E-02	2.713E 02	1.503E 02
2	3.204E 03	1.190E 02	1.137E 03	3.817E 02	2.309E 01	2.232E 01	8.499E-02	2.627E 02	1.509E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.499E 01	4.000E 00
2	2.358E 01	3.499E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1438.5 MIN STEADY POWER,DP11-12=37SEC,OTHER INTERVALS 20SEC

DATA POINT 12

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.238E 03	1.091E 02	1.137E 03	3.822E 02	2.308E 01	2.222E 01	8.137E-02	2.731E 02	1.507E 02
2	3.199E 03	1.191E 02	1.137E 03	3.822E 02	2.308E 01	2.222E 01	8.448E-02	2.631E 02	1.513E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.498E 01	4.000E 00
2	2.358E 01	3.498E 01	4.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 144A.WATER TEST.6MIN STEADY POWER.1MIN DATA INTERVALS.DP1-111 SEC

AF = 0.138E-03 D = 0.132E-01 L = 0.400E 01 DELTA TO = 0.260E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	W	F2	I2	QP	HT RAL	G
1	3.082E 03	2.987E 03	7.550E 01	1.201E 02	1.320E 00	3.098E 01	1.520E 03	5.617E 01	2.427E 00	9.570E 03
2	3.094E 03	2.971E 03	7.500E 01	1.197E 02	1.332E 00	3.906E 01	1.515E 03	5.610E 01	1.383E 00	9.666E 03
3	3.078E 03	2.962E 03	7.450E 01	1.188E 02	1.341E 00	3.897E 01	1.504E 03	5.564E 01	8.408E-01	9.731E 03
4	3.089E 03	2.971E 03	7.430E 01	1.188E 02	1.346E 00	3.899E 01	1.502E 03	5.552E 01	4.940E-01	9.768E 03
5	3.116E 03	2.967E 03	7.400E 01	1.180E 02	1.357E 00	3.905E 01	1.507E 03	5.560E 01	3.148E-01	9.848E 03
6	3.110E 03	2.992E 03	7.380E 01	1.177E 02	1.358E 00	3.903E 01	1.503E 03	5.561E 01	1.083E 00	9.797E 03
7	3.101E 03	2.985E 03	7.360E 01	1.174E 02	1.353E 00	3.898E 01	1.497E 03	5.532E 01	5.777E-01	9.819E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 144A.WATER TEST.6MIA STEADY POWER.1MIN TA INTERVALS.DPI-111 SEC

DATA POI 1

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.003E 03	1.062E 02	1.172E 03	2.022E 0	2.858E 01	2.811E 01	2.025E-01	9.688E 01	1.538E 02
2	2.974E 03	1.173E 02	1.221E 03	2.015E 02	.849E 01	2.811E 01	1.712E-01	1.642E 02	1.537E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.858E 01	4.000E 00
2	2.358E 01	3.898E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 144A.WATER TEST.6MIN STEADY POWER.1MIN DATA INTERVALS.DPI-111 SEC

DATA POINT 2

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.009E 03	1.057E 02	1.222E 03	2.781E 02	2.868E 01	2.807E 01	1.620E-01	1.720E 02	1.567E 02
2	2.979E 03	1.169E 02	1.240E 03	3.190E 02	2.868E 01	2.807E 01	1.309E-01	2.020E 02	1.551E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.906E 01	4.000E 00
2	2.358E 01	3.906E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 144A.WATER TEST.6MIN STEADY POWER.1MIN DATA INTERVALS.DPI-111 SEC

DATA POINT 3

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	2.998E 03	1.050E 02	1.222E 03	2.837E 02	2.848E 01	2.784E 01	1.558E-01	1.787E 02	1.558E 02
2	2.969E 03	1.160E 02	1.242E 03	3.151E 02	2.847E 01	2.784E 01	1.399E-01	1.990E 02	1.561E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.897E 01	4.000E 00
2	2.358E 01	3.897E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 144A.WATER TEST.6MIN STEADY POWER.1MIN DATA INTERVALS.DPI-111 SEC

DATA POINT 4

STA	PB	TB	TU	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.008E 03	1.047E 02	1.224E 03	2.806E 02	2.858E 01	2.778E 01	1.535E-01	1.809E 02	1.563E 02
2	2.978E 03	1.157E 02	1.246E 03	3.201E 02	2.858E 01	2.778E 01	1.360E-01	2.043E 02	1.567E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.899E 01	4.000E 00
2	2.358E 01	3.899E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 144A.WATER TEST.6MIN STEADY POWER.1MIN DATA INTERVALS.DPI-111 SEC

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.034E 03	1.042E 02	1.225E 03	2.835E 02	2.859E 01	2.782F 01	1.552E-01	1.792F 02	1.576F 02
2	3.004E 03	1.152E 02	1.245E 03	3.149E 02	2.858E 01	2.782E 01	1.394E-01	1.996F 02	1.580F 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.905E 01	4.000E 00
2	2.358E 01	3.905E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 144A.WATER TEST.6MIN STEADY POWER.1MIN DATA INTERVALS.DPI-111 SEC

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.029E 03	1.040E 02	1.222E 03	2.800E 02	2.856E 01	2.783E 01	1.581E-01	1.760E 02	1.56RE 02
2	2.999E 03	1.150E 02	1.245E 03	3.161E 02	2.855E 01	2.783F 01	1.383F-01	2.011E 02	1.571F 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.903E 01	4.000E 00
2	2.358E 01	3.903E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 144A.WATER TEST.6MIN STEADY POWER.1MIN DATA INTERVALS.DPI-111 SEC

DATA POINT 7

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.021E 03	1.037E 02	1.224E 03	2.862E 02	2.849E 01	2.768E 01	1.517E-01	1.825E 02	1.571F 02
2	2.992E 03	1.147E 02	1.245E 03	3.191E 02	2.848E 01	2.769E 01	1.354F-01	2.045E 02	1.575F 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.898E 01	4.000E 00
2	2.358E 01	3.898E 01	4.000E 00

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

TEST 1448.WATER TEST.5 MIN STEADY POWER.1 MIN DATA INTERVALS.RPI-1228BC

AF = 0.138E-03 D = 0.132E-01 L = 0.400E 01 DELTA TB = 0.290E 01

DATA POINTS

POINT	PB-IN	PB-OUT	TB-IN	TB-OUT	U	E2	I2	DP	HT BAL	Q
1	3.101E 03	2.988E 03	9.106E 01	1.368E 02	1.296E 00	3.007E 01	1.493E 03	5.516E 01	[illegible]	[illegible]
2	3.099E 03	2.987E 03	9.178E 01	1.368E 02	1.318E 00	3.009E 01	1.501E 03	5.562E 01	[illegible]	[illegible]
3	3.114E 03	3.002E 03	9.190E 01	1.368E 02	1.322E 00	3.003E 01	1.498E 03	5.532E 01	1.018E 00	9.590E 03
4	3.105E 03	2.993E 03	9.218E 01	1.369E 02	1.315E 00	3.004E 01	1.499E 03	5.542E 01	1.014E 00	9.543E 03
5	3.094E 03	2.984E 03	9.228E 01	1.369E 02	1.319E 00	3.000E 01	1.497E 03	5.532E 01	1.018E 00	9.572E 03
6	3.100E 03	2.986E 03	9.206E 01	1.364E 02	1.333E 00	3.009E 01	1.491E 03	5.511E 01	1.014E 00	9.673E 03

TEST SECTION

LOCAL TEST PARAMETERS

TEST 1448.WATER TEST.5 MIN STEADY POWER.1 MIN DATA INTERVALS.DPI-1235EC

DATA POINT 1

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.023E 03	1.218E 02	1.224E 03	2.868E 02	2.847E 01	2.768E 01	1.672E-01	1.668E 02	1.511E 02
2	2.995E 03	1.330E 02	1.250E 03	3.275E 02	2.847E 01	2.768E 01	1.419E-01	1.908E 02	1.519E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.867E 01	4.000E 00
2	2.358E 01	3.897E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1448.WATER TEST.5 MIN STEADY POWER.1 MIN DATA INTERVALS.DPI-1235EC

DATA POINT 2

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.022E 03	1.227E 02	1.239E 03	3.031E 02	2.864E 01	2.783E 01	1.543E-01	1.884E 02	1.527E 02
2	2.994E 03	1.340E 02	1.250E 03	3.283E 02	2.864E 01	2.783E 01	1.494E-01	1.863E 02	1.538E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.9C5E 01	4.CCCE 00
2	2.358E 01	3.9C9E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1448.WATER TEST.5 MIN STEADY POWER.1 MIN DATA INTERVALS.DPI-1235EC

DATA POINT 3

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.037E 03	1.228E 02	1.237E 03	3.036E 02	2.856E 01	2.768E 01	1.530E-01	1.888E 02	1.54[illegible] 02
2	3.009E 03	1.34CE 02	1.257E 03	3.347E 02	2.859E 01	2.768E 01	1.379E-01	2.087E 02	1.546E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.9C3E 01	4.CC0E 00
2	2.358E 01	3.903E 01	4.C00E 00

LOCAL TEST PARAMETERS

TEST 1448.WATER TEST.5 MIN STEADY POWER.1 MIN DATA INTERVALS.DPI-1235EC

DATA POINT 4

STA	PB	TB	TW	TI	Q/A	Q/AP	M	DEL TF	VS
1	3.028E 03	1.229E 02	1.239E 03	3.013E 02	2.851E 01	2.773E 01	1.546E-01	1.794E 02	1.533E 02
2	3.000E 03	1.341E 02	1.249E 03	3.241E 02	2.851E 01	2.773E 01	1.488E-01	1.900E 02	1.538E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.900E 01	4.CC0E 00
2	2.358E 01	3.900E 01	4.C00E 00

LOCAL TEST PARAMETERS

TEST 1440.WATER TEST.5 MIN STEADY POWER.1 MIN DATA INTERVALS.DP1-1230EC

DATA POINT 5

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.018E 03	1.229E 02	1.236E 03	3.051E 02	2.849E 01	2.768E 01	1.530E-01	1.822E 02	1.530E 02
2	2.991E 03	1.341E 02	1.249E 03	3.263E 02	2.848E 01	2.734E 01	1.447E-01	1.912E 02	1.843E 02

STA	L/D	DELTA E	LE
1	1.730E 01	3.050E 01	4.C00E 00
2	2.350E 01	3.050E 01	4.000E 00

LOCAL TEST PARAMETERS

TEST 1440.WATER TEST.5 MIN STEADY POWER.1 MIN DATA INTERVALS.DP1-1230EC

DATA POINT 6

STA	PB	TB	TW	TI	Q/A	Q/AP	H	DEL TF	VS
1	3.022E 03	1.225E 02	1.236E 03	3.045E 02	2.850E 01	2./50E 01	1.516E-01	1.820E 02	1.864E 02
2	2.993E 03	1.336E 02	1.259E 03	3.340E 02	2.849E 01	2.750E 91	1.376E-01	2.004E 02	[illegible]

STA	L/D	DELTA E	LE
1	1.730E 01	3.099E 01	4.0C0E 00
2	2.350E 01	3.099E 01	4.000E 00

Report AFRPL-TR-66-263

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Heat-Transfer Characteristics of 98% H_2O_2 at High pressure and High Velocity

4 DESCRIPTIVE NOTES (Type of report and inclusive dates)

5 AUTHOR(S) (Last name, first name, initial)

Rousar, D. C.
Van Huff, N. E.

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10 AVAILABILITY/LIMITATION NOTICES

11 SUPPLEMENTARY NOTES	12 SPONSORING MILITARY ACTIVITY Air Force Rocket Propulsion Lab. Edwards Air Force Base, California

13 ABSTRACT High-pressure heat-transfer experiments have been conducted with both 90 and 98% H_2O_2. Electrically heated 3/16- and 1/4-in.-dia Inconel 718 and 3/16-in.-dia stainless-steel test sections were used at pressures of 850 and 4700 psi and at coolant velocities of 25 to 198 ft/sec. Titration of the peroxide after short-duration testing indicated that little or no H_2O_2 decomposition had occurred in the test section. The short-duration burnout tests have shown that the maximum burnout heat flux is directly proportional to coolant velocity and is insensitive to coolant pressure. The Dittus-Boelter equation was found to yield a conservative estimate of heat-transfer coefficients for 98% H_2O_2 and is recommended for design purposes. Long-duration tests conducted at velocities of 50 to 150 ft/sec with Inconel 718 tubing indicated that the long-duration burnout heat flux is degenerated to about 65% of that demonstrated in short-duration tests. Titration of the peroxide after these tests indicated that minor H_2O_2 decomposition had occurred. It can be concluded that 98% H_2O_2 would be an excellent regenerative coolant in rocket engine systems. The long-duration burnout phenomenon at high pressure can be avoided by limiting the design burnout heat flux to about 65% of the short-duration burnout point.

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Hydrogen Peroxide (90 and 98% H_2O_2)						
High-Pressure Testing						
Staged-Combustion Engines						
Regenerative Cooling						
High-Heat-Flux Systems						
Heat-Transfer Testing						
Forced-Convection Heat-Transfer Characteristics						
Pressure-Drop Characteristics of 98% H_2O_2						

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24 January 1967

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