| ONCEASSITIED | | | |
|--|--|--|--|
| AD NUMBER: AD0383411 | | | |
| CLASSIFICATION CHANGES | | | |
| TO: Unclassified | | | |
| FROM: Confidential | | | |
| LIMITATION CHANGES | | | |
| TO: | | | |
| Approved for public release; distribution is unlimited. | | | |
| | | | |
| FROM: | | | |
| Distribution authorized to US Government Agencies only; Export Control; 1 Aug 1967; Other requests shall be referred to Air Force Rocket Propulsion Laboratory, Edwards AFB, CA 92523. | | | |
| AUTHORITY | | | |
| C to U per GP-4, DoDD 5200.1; ST-A per AFRPL ltr dtd 5 Feb 1986 | | | |
| | | | |

GENERAL DECLASSIFICATION SCHEDULE

IN ACCORDANCE WITH DRB 5200.1-R & EXECUTIVE ORDER 11652

SECURITY MARKING

The classified or limited status of this report applies to each page, unless otherwise marked.

Separate page printouts MUST be marked accordingly.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18, U.S.C., SECTIONS 793 AND 794. THE RANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW.

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

AFRPL-TR-67-208, PART II

(Unclassified)

HEAT TRANSFER STUDY OF MHF-5 AND MMH

Donald C. Rousar Norman E. Van Huff Roger E. Anderson Arnold Fink Aerojet-General Corporation

TECHNICAL REPORT AFRPL-TR-67-208, PART II

August 1967

Downgraded at 3 Year Intervals Declassified after 12 Years DOD DIR 5200.10

In addition to security requirements which must be met, this document is subject to special export controls, and each transmittal to foreign governments or foreign nationals may be made only with prior approval of AFRPL (RPPR/STINFO), Edwards, California, 93523

This material contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

Prepared for

A I R F O R C E R O C K E T P R O P U L S I O N L A B O R A T O R Y Edwards Air Force Base California

1068

NOTICES

When US Government drawings, specifications, or other data are used for any purpose other than a definitely related government procurement operation, the government thereby incurs no responsibility nor any obligation whatsoever, and the fact that the government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise, as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

CONFIDENTIAL (This page is unclassified)

AFRPL-TR-67-208, Part II

(Unclassified)

HEAT TRANSFER STUDY OF MHF-5 AND MMH

Donald C Rousar Norman E Van Huff Roger E Anderson Arnold Fink

Downgraded at 3 Year intervals
Declassified after 12 Years
DOD DIR 5200.10

In addition to security requirements which must be met, this document is subject to special export controls, and each transmittal to foreign governments or foreign nationals may be made only with prior approval of AFRPL (RPPR/STINFO), Edwards, California, 93523

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, title 18, U.S.C., Sections 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

COMPUNITAL

AFRPL-TR-67-208

APPENDIX A

(c) PHYSICAL PROPERTIES OF MHF-5 (u)

AFRPL*TR-67-208, Appendix A

(u) TABLE OF CONTENTS

| | | | Page | |
|--------|--|--|------|--|
| I. | Estimated Pseudocritical Pressure of MHF-5 | | | |
| | A. | Kay's Method | 1 | |
| | B. | Extrapolation of Vapor Pressure Data | 2 | |
| | C. | Other Methods | 3 | |
| | D. | Recommended Value | 4 | |
| II. | Estimated Pseudocritical Temperature of MHF-5 | | | |
| | A. | Kay's Method | 5 | |
| | В. | Vowles' and Lydersen's Methods | 6 | |
| | C. | Method of Smith et al | 7 | |
| | D. | Recommended Value | 8 | |
| III. | Estimated Pseudocritical Volume and Density of MHF-5 | | | |
| | Α. | Herzog's Method | 9 | |
| • | В. | Meissner's Method | 11 | |
| | C. | Vowles' and Lydersen's Method | 12 | |
| | D. | Recommended Value | 12 | |
| IV. | Density of MHF-5 | | | |
| | A. | Experimental Data | 13 | |
| | В. | Extrapolation of Experimental Data | 14 | |
| ٧. | Viscosity of MHF-5 | | | |
| | Α. | Experimental Data | 15 | |
| | B. | Extrapolation of Experimental Data | 15 | |
| VI. | Heat | Capacity of MHF-5 | | |
| | A. | Experimental Data | 18 | |
| | B. | Extrapolation of Experimental Data | 18 | |
| VII. | Thermal Conductivity of MHF-5 | | | |
| | A. | Experimental Data | 21 | |
| | B. | Estimation of MHF-5 Thermal Conductivity | 21 | |
| VIII. | Vapor Pressure of MHF-5 | | | |
| | A. | Experimental Data | 23 | |
| | B. | Extrapolation of Experimental Data | 23 | |
| List c | f Ref | erences | | |

AFRPL-TR-67-208, Appendix A

| (u) TABLE LIST | | |
|--|-------|--|
| | Table | |
| Viscosity of MHF-5 | 1 | |
| Heat Capacity of MHF-5 | 2 | |
| Thermal Conductivity of AeroZINE 50, MMH, UDMH and NoHL | 3 | |
| Vapor Pressure of MHF-5 | 4 | |
| (u) FIGURE LIST | | |
| <u>F</u> | igure | |
| Vapor Pressure of MMH and MHF-5 | 1 | |
| MMH and MHF-5 Vapor Pressure Correlation | 2 | |
| Experimental Density of MHF-5 | 3 | |
| Extrapolated Specific Gravity of MHF-5 | 4 | |
| Experimental Viscosity of MHF-5 | 5 | |
| Reduced-State Viscosity Correlation for MHF-5 | 6 | |
| Extrapolated Viscosity of MHF-5 | 7 | |
| Reduced-State Heat Capacity Correlation for MHF-5 | 8 | |
| Extrapolated Heat Capacity of MHF-5 | 9 | |
| Thermal Conductivity Correlation of Hydrazine-Type Fuels | 10 | |
| Extrapolated Thermal Conductivity of MHF-5 | | |

12

Extrapolated Vapor Pressure of MHF-5

AFRPL-TR-67-208, Appendix A

I. ESTIMATED PSEUDOCRITICAL PRESSURE OF MHF-5

A. KAY'S METHOD

(u) The pseudocritical pressure of MHF-5 can be estimated by Kay's method (Ref 1) from the composition of MHF-5 and the critical pressures of its components by the following formula:

$$P_c$$
, mix = $y_A P_{c,A} + y_B P_{c,B} + y_C P_{c,C}$

where y_A , y_B , y_C are the mole fraction of the components A, B, and C

P_{c,A}, P_{c,B}, and P_{c,C} are the critical pressures of components A, B, and C.

(c) MHF-5 is composed of 55 wt% monomethylhydrazine (MMH), 26% wt hydrazine (N₂H₄), and 19 wt% hydrazine nitrate (HN). This corresponds to the following composition in terms of mole fractions:

| Component | Mole Fraction |
|-----------|---------------|
| MMH | 0.54140 |
| N2H4 | 0.36795 |
| HN | 0.09065 |

The critical pressure of MMH is 1195 psia (Ref 2) and of $\rm N_2H_4$ is 2131 psia (Ref 3). No experimental value is available for HN but one can be estimated by various methods.

(u) From Riedel's method (Ref 4) the critical pressure of HN is estimated to be 894 psia, from Lydersen's method (Ref 5) 1134 psia, from Vowles' method (Ref 6) 655 to 734 psia, and from Herzog's method (Ref 7) 682 to 749 psia. Based on the data in Section I,C, Vowles' methods appears most applicable.

AFRPL-TR-67-208, Appendix A

I, A, Kay's Method (cont.)

(u) Using an average value from Vowles' method of 695 psia as the critical pressure of HN, the pseudocritical pressure of MHF-5 is evaluated by Kay's method:

$$P_c = (.54150)(1195) + (.36795)(2131) + (.09065)(695) = 1494 psia$$

Note that a significant error in the critical pressure of HN has a relatively small effect on the estimated pseudocritical pressure of MHF-5.

- B. EXTRAPOLATION OF VAPOR PRESSURE DATA
- (u) The resendocritical pressure of MHF-5 has also been estimated by extrapolation of experimentally determined vapor pressure data to the estimated presided temperature.
- (u) Vapor pressures of MHF-5 over the temperature range 32 to 203°F have teen reported by Reaction Motors Division of Thiokol Chemical Corporation in References 8 and 9. These data and those for monomethylhydrazine (MMH) from References 2 and 10 have been plotted on log p versus reciprocal absolute temperature coordinates to yield the smooth curves shown in Figure 1. The vapor pressure curve of MHF-5 has been extrapolated by first developing a Duhring-type plot Figure 2, a plot of the temperatures at which MHF-5 exerts a given pressure versus the temperature at which some reference material exerts the same vapor pressures) utilizing monomethylhydrazine as the reference material. The Duhring plot Figure 2) and the experimentally defined vapor pressure curve of MMH (Figure 1) permits extrapolation of the MHF-5 curve to the critical pressure of MMH. Finally, the MHF-5 vapor pressure curve is graphically extrapolated from the critical pressure of MMH to the estimated pseudocritical temperature of MHF-5 (1100 to 1180°R). This later extrapolation yields a value in the range of 1150 to 1750 psia as the Feedocritical pressure of MHF-5.

AFRPL-TR-67-208, Appendix A

I, B, Extrapolation of Vapor Pressure Data (cont.)

(u) Assuming the pseudocritical pressure estimated in the preceding paragraph (1494 psia) is correct, the vapor pressure curve (Figure 1) would indicate the pseudocritical temperature should be approximately 1150°R.

C. OTHER METHODS

(u) The use of the methods of Reidel (Ref 1), Lyderson (Ref 5) Vowles (Ref 6) and Herzog (Ref 7) have also been briefly examined for applicability to the estimation of the pseudocritical pressure of MHF-5 directly. This has been done by using the methods to estimate the critical pressures of MMH and N₂H₄ (primary components of MHF-5) and comparing the estimated values with the experimental values. The results are shown below:

| | Error in Predicting Pc, % | | |
|----------|---------------------------|--------------|--|
| Method | N2H4 | MMH | |
| Riedel | -32.0 | -11.5 | |
| Lydersen | -21.3 | -10.8 | |
| Vowles | - 2.8 | - 1.9 | |
| Herzog | -43.1 | -26.3 | |

From the above it is readily evident that Vowles' method is most applicable to hydrazine-type structures. Applying Vowles' method to MHF-5 by the following equation:

$$P_c = \left(\frac{T_c}{\Upsilon}\right)^{1.25}$$

where T is taken as 638.89 °K (1150 °R) and γ is 16.578 evaluated from Vowles' atomic contribution increments

$$P_c = (38.54)^{1.25} = 96.03 \text{ atm} = 1411 \text{ psia}$$

Assuming the errors involved in predicting NoHh and MMH critical pressures are

AFRPL-TR-67-208, Appendix A

I, C. Other Methods (cont.)

equivalent in the prediction of the productional pressure of MHF-5 by Vowles' method, the value above should be adjusted upward by approximately 2.3%. This adjustment yields an estimated page 4 critical pressure of 1443 psia.

D. RECOMMENDED VALUE

(u) From Section I, a the predictritical pressure of MHF-5 is estimated to be 1494 psia, from I. B to be in the range of 1150 to 1750 psia, and from paragraph I. C to be 1443 psia. The average of the first and last values is judged to the most reasonable value and is recommended.

 $F_{\rm c}$, avg = $1^{\rm h}70$ psia = 100 atm

AFRPL-TR-67-208, Appendix A

II. ESTIMATED PSEUDOCRITICAL TEMPERATURE OF MHF-5

A. KAY'S METHOD

(u) The pseudocritical temperature of MHF-5 can be estimated by Kay's method (Ref 1) from the composition of MHF-5 and the critical temperatures of the substances composing MHF-5 by the following formula:

$$T_c$$
, mix = $y_A T_{c,A} + y_B T_{c,B} + y_C T_{c,C}$

where y_A , y_B , and y_C are the mole fractions of components A, B, and C.

Tc,A, Tc,B, and Tc,C are the critical temperatures of components A, B, and C.

- (c) The critical temperature of MMH is given as $1053.3^{\circ}R$ in Ref 2 and N_2H_4 is given as $1175.7^{\circ}R$ by Ref 3. The critical temperature of HN is not known and must be estimated before Kay's methods can be applied to MHF-5.
- (u) Although the critical temperature of HN probably has no real physical meaning because of its relatively poor thermal stability, values can be estimated on the basis of the following correlation:

$$T_c = \frac{T_b}{Q}$$

where T_b = normal boiling point, °K

 $T_c = critical temperature, ^{\circ}K$

 θ = a constant

The constant, Θ , can be calculated by summing atomic and structural contributions given by Vowles (Ref 6) or from a simple equation and atomic and structural contributions given by Lydersen (Ref 5). The boiling point of HN can, perhaps, be reasonably assumed to be its sublimation temperature, 140°C (Ref 11) in view of the fact that HN does not exhibit a normal boiling point. Taking 140°C as equivalent to

AFRPL-TR-67-208, Appendix A

II, A, Kay's Method (cont.)

the normal boiling point and evaluating values for θ by the methods of Vowles and Lydersen, critical temperatures of 1063 and 1084°R, respectively, are estimated for HN. The average of these two values appears to be the most desirable single value to utilize.

(u) Substituting the mole fractions and critical temperatures of MHF-5's components into Kay's equation, the pseudocritical temperature of MHF-5 is:

$$T_c = (.54140)(1053.3) + (.36795)(1175.7) + (.09065)(1073.5)$$

= 1100°R

B. VOWLES' AND LYDERSEN'S METHODS

- (c) The pseudocritical temperature of MHF-5 can be estimated directly by the methods of Vowles and Lydersen in a manner similar to that used to estimate the critical temperature of HN as given above. Using the boiling point of MHF-5 from Tannenbaum (Ref 8), 207°F, and evaluating the constant, 0, by the methods of Vowles (Ref 6) and Lydersen (Ref 5), the pseudocritical temperature of MHF-5 is estimated to be 1041 and 1048°R by the respective methods.
- (u) It is known that each of these methods yield estimated values for hydrazine which are approximately 60°R low (Ref 12). Since MHF-5 is a hydrazine-based fuel, it would appear that an adjustment in the estimated values of MHF-5 would be reasonable. Thus, a value of approximately 1107°R is the most logical value to evolve from these methods.

AFRPL-TR-67-208, Appendix A

II, Estimated Pseudocritical Temperature of MHF-5 (cont.)

C. METHOD OF SMITH et al

(u) Smith, Greenbaum, and Rutledge (Ref 13) have proposed the following equation for the estimation of critical temperature, $T_{\rm c}$:

$$T_{c} = \frac{T_{2} - T_{1}}{(\rho_{1}/\rho_{2})^{10/3} - 1} + T_{2} + 6$$

where T_c = critical temperature, °K

 T_1 , T_2 = temperatures, °K, at which liquid densities P_1 , and P_2 are measured

Based on a recommendation by Rutledge (Ref 14), it appears that if possible, the temperature interval should be at least 20°C and that the arithmetic average temperature, 0.5 $(T_2 + T_1)$, should be about 75% of the value of the normal boiling point expressed in degrees absolute.

- (c) The normal boiling point of MHF-5 is reported to be 207°F (666.7°R) by Tannenbaum (Ref 8). Thus, the most desirable temperature interval to be considered in evaluating Eq. (1) with respect to MHF-5 is an interval near 500°R (75% of 666.7°R). Density data on MHF-5 are available from 395 to 660°R from References 8, 9, and 15 and therefore, permit the evaluation of Eq. (1) as recommended.
- (c) Taking T_1 and T_2 as 394.7 and 604.7°R, respectively ρ_1 and ρ_2 are found to be 1.076 and 0.979 g/ml, respectively, from Figure 3 which was constructed from the density data presented in References 8, 9, and 15. Evaluating Eq. (1):

$$T_{c} = \frac{(604.7-394.7)/1.8}{(1.076/0.979)^{10/3} -1} + \frac{604.7}{1.8} + 6$$

$$T_{c} = 657^{\circ}K = 1183^{\circ}R = 723^{\circ}F$$

AFRPL-TR-67-208, Appendix A

II, Estimated Pseudocritical Temperature of MHF-5 (cont.)

D. RECOMMENDED VALUE

(u) The scatter in the estimated values of the pseudocritical temperature of MHF-5 as given in the preceding paragraphs is quite large, nearly 13%, and the applicability of each of the estimation techniques is questionable. It does appear, however, that a value in the range of 1100 ot 1180°R is reasonable and a value of 1145°R is most consistent with the estimated pseudocritical pressure (1470 psia) and extrapolated vapor pressure data (Figure 1).

CONFIDENTIAL
(This Page is Unclassified)

AFRPL-TR-67-208, Appendix A

III. ESTIMATED PSEUDOCRITICAL VOLUME AND DENSITY OF MHF-5

(u) Although no known method for the estimation of pseudocritical volume appears to be applicable to complex systems such as MHF-5, the need for a value forces one to utilize some of the more well known correlations in spite of their apparent inapplicability.

A. HERZOG'S METHOD

(u) Herzog (Ref 7) relates critical volume to the parachor and critical temperature as shown below:

$$V_{c} = \frac{k(P_{ch})^{1.2}}{0.3}$$
 cm³/g-mole (2)

where k would appear to be 2.92 for substances not containing

-C = 0, -C = N, -CCOH, -OH and one to three additional nonfunctional carbons

T = critical temperature, °K

P_{ch} = the parachor, a measure of the molecular volume of a liquid at a standard surface tension and defined as:

$$P_{ch} = \frac{M \sigma^{0.25}}{\rho_1 - \rho_g} \tag{3}$$

where M = molecular weight

o = surface tension, dynes/cm

 $P_1 = \text{density of liquid, g/cm}^3$

 $P_g = \text{density of gas, g/cm}^3$

AFRPL-TR-67-208, Appendix A

III, A, Herzog's Method (cont.)

(c) Now, considering MHF-5 to be composed of 55 wt% monomethylhydrazine (MMH), 26 wt% hydrazine (N_2H_5), and 19 wt% hydrazine nitrate (HN) and assuming that the HN is totally ionized to hydrazinium ion (N_2H_5) and nitrate ion (N_3), the mean molecular weight is calculated to be:

$$\overline{M} = 41.58$$

which corresponds to the following empirical formula:

MHF-5 =
$$C.4964 + H_{4.7434} + N_{1.9169} + O.2494$$

(u) The surface tension of MHF-5 has been determined by Cabeal (Ref 16) at $77^{\circ}F$ and found to be:

$$\sigma = 45.7 \text{ dynes/cm}$$

(c) Taking the density of MHF-5 at $77^{\circ}F$ from Figure 3 as 1.010 g/cm³ and assuming the density of the vapor to be negligible, the parachor is calculated from Eq. (3) to be:

$$P_{ch} = \frac{41.58 (45.7)^{0.25}}{1.010} = 106.8$$

This value is in excellent agreement with the value of 106.7 estimated on the basis of the structural and atomic contributions of Quale (Ref 17).

(u) Taking the estimated pseudocritical temperature of MHF-5 as 636° K (1145°R) and P_{ch} and k from above, the pseudocritical volume, V_c, is defined by evaluation of Eq. (2):

$$V_c = \frac{2.92(106.8)^{1.2}}{636} = 114.5 \text{ cm}^3/\text{g-mole}$$

AFRPL-TR-67-208, Appendix A

III, Estimated Pseudocritical Volume and Density of MHF-5 (cont.)

B. MEISSNER'S METHOD

(u) Meissner (Ref 18) relates critical volume to the parachor and molar refraction by the following equation:

$$v_c = 0.55(1.5 P_{ch} + 9 - 4.34 R_D)^{1.155} cm^3/g-mole$$
 (4)

where P_{ch} = parachor

R_D = molar refraction

(u) The molar refraction is related to the index of refraction, density and molecular weight by the following equation:

$$R_{D} = \frac{n^{2} - 1}{n^{2} + 2} \cdot \frac{M}{\rho}$$
 (5)

where n = index of refraction

M = molecular weight

p = density

(u) The index of refraction of MHF-5 has been determined by Cabeal (Ref 16) to be 1.461 at 77°F. This value and the values of M and P from above permit the definition of $R_{\rm D}$ from Eq. (5):

$$R_D = \frac{1.461^2 - 1}{1.461^2 + 2} : \frac{41.58}{1.010} = 11.30$$

Substituting the values of RD and Pch into Eq. (4):

$$v_c = 0.55 \left[(1.5)(106.8) + 9 - (4.34)(11.30) \right]^{1.155} = 140.6 \text{ cm}^3/\text{g-mole}$$

AFRPL-TR-67-208, Appendix A

III, Estimated Pseudocritical Volume and Density of MHF-5 (cont.)

- C. VOWLES' AND LYDERSEN'S METHODS
- (u) Vowles (Ref 6) and Lydersen (Ref 5) have both proposed methods of estimating critical volume on the basis of summing incremental constants representing various atom or atomic configurations. Applying their incremental contributions to MHF-5, pseudocritical volumes of 123.2 and 131.1 cm³/g-mole are obtained.
 - D. RECOMMENDED VALUE
- (u) It is, thus, seen that values of 114.5, 140.6, 123.2, and 131.1 are obtained for the pseudocritical volume of MHF-5 by the methods of Herzog, Meissner, Vowles, and Lydersen, respectively. The scatter in these values is rather disheartening but not unexpected. Of these values only the one based on Herzog's method can be justifiably eliminated. That value is eliminated on the basis that Herzog's correlation involves a constant which is not readily defined for MHF-5 and the critical temperature which is, in turn, an estimated value. The three remaining values appear to be nearly equally reliable and, therefore, the average of these three values is recommended. The average value is given below:

$$V_c = 131.6 \text{ cm}^3/\text{g-mole}$$

(u) From the above value the pseudocritical density, \mathbf{P}_{C} , can be defined as

$$\rho_{c} = \frac{M}{V_{c}} = \frac{41.58}{131.6} = 0.316 \text{ g/cm}^{3}$$

AFRPL-TR-67-208, Appendix A

IV. DENSITY OF MHF-5

A. EXPERIMENTAL DATA

(c) The density of MHF-5 has been measured by RMD over the temperature range -65.2 to 194°F (Ref 8, 9, 15) and in Ref 8 is reported to vary with temperature according to the following equation:

$$d(g/ml) = 1.045-4.61 \times 10^{-4} T(^{\circ}F)$$

This equation is claimed to be applicable from -65 to 200°F. The data points retrieved from Ref 9 and 15 are plotted in Figure 3 and do clearly indicate that the density varies with temperature in nearly a linear manner.

(c) AFRPL (Ref 19) prepared MHF-5* for test firing and reports the density to be defined by an equation equivalent to the one below:

$$d(g/ml) = 1.0461-5.0888 \times 10^{-4}T(°F)$$

No indication is given concerning the range of temperatures for which the equation is valid.

(u) A comparison of the two equations shows the latter to give a density 0.1% higher than the former at 0°F, approximately 0.9% lower at 100°F, and equal values at 23°F.

⁽c)*Material assayed MMH, 52.8 wt %; N₂H₄, 25.5 wt%; N₂H₅NO₃, 17.9 wt%; H₂O, 2.6 wt%; and impurities 1.2 wt%. Note that this material is slightly low in N₂H₅NO₃ content.

AFRPL-TR-67-208, Appendix A

IV, Density of MHF-5 (cont.)

B. EXTRAPOLATION OF EXPERIMENTAL DATA

(u) The method of Lydersen, Greenkorn, and Hougen (Ref 20) has been used to extrapolate the available density data to the estimated critical temperature and pressures to 400 atm. This method is based on a correlation between specific volume (or density) and reduced temperature, reduced pressure and critical compressibility. Utilizing the estimated critical temperature, pressure, and volume from the preceding sections, the critical compressibility, Z_c, is estimated to be:

$$Z_c = \frac{P_c V_c}{RT_c} = \frac{(100)(131.6)}{(82.06)(636.1)} = 0.252$$

From tables (Ref 20) relating Z_c , reduced temperature $(T_R = T/T_c)$, and reduced pressure $(P_R = P/P_c)$, values of reduced density were obtained. Taking the experimental density values from Ref 9 and 15 and the reduced densities from Ref 20, values for a critical density were evaluated from:

$$\rho_{c} = \rho/\rho_{R}$$

These calculations resulted in a value for ρ_c of 0.3184 +.0030* Using the value 0.3184 for ρ_c and taking ρ_R values from tables (Ref 20), the densities at elevated temperatures and pressures were calculated from:

$$\rho = \rho_{\rm c} \rho_{\rm R}$$

These calculated values and the experimental data (Ref 9 and 15) were graphically smoothed in the temperature region of 100 to 200°F so that primary emphasis was placed on the experimental data at temperatures below 100°F and on the calculated values of temperatures above 200°F. The resulting curves of specific gravity versus temperature are given in Figure 4.

^{*}Note the excellent agreement between this value and the value of 0.316 g/cm³ estimated in Section III, D.

AFRPL-TR-67-208, Appendix A

V. VISCOSITY OF MHF-5

A. EXPERIMENTAL DATA

(u) The viscosity of MHF-5 has been measured (presumably at 1 atm) by RMD over the temperature range of -67 to 160°F (Ref 8 and 9) and by Aerojet (Ref 21) at -40 and 77°F. The original RMD data from Ref 9 was presented in units of centistokes and has been converted to centipoise units by multiplying by corresponding densities taken from Figure 3. The density curve (Figure 3) is, in turn, based upon RMD data from Ref 9 and 15. The resulting compilation of viscosity values is presented in Table 1. These values are also presented graphically in Figure 5.

B. EXTRAPOLATION OF EXPERIMENTAL DATA

- (u) The viscosity data presented in Table 1 and Figure 5 have been extrapolated to the estimated critical temperature and to high pressures utilizing a reduced state viscosity correlation.
- (u) An inspection of available correlations for water (Ref 22), NH₃ (Ref 23), CO₂ (Ref 24), SO₂ (Ref 25), diatomic gases (Ref 26), and inert gases (Ref 27) indicated the correlation for water to be most applicable to MHF-5. Testing of the water correlation of Theiss (Ref 22) showed that it could predict very closely the experimental viscosity data for MHF-5 if a critical viscosity of approximately 0.104 centipoise was assumed. The use of this correlation, the assumed critical viscosity mentioned above, and the experimental data permitted the generation of a viscosity-temperature curve for the saturated liquid up to the critical temperature. The correlation was also utilized for defining similar curves at high pressure and temperatures from the lower limit of the correlation (approximately 180°F) to the critical temperature. Attempts were made to extend these latter curves to lower temperatures (-65°F) by employing a variety of curve-fitting and graphical extrapolation procedures. These attempts failed to yield a consistent set of data.

 Because of this failure it was decided to attempt to extend Theiss' correlation to

AFRFL-TR-67-208, Appendix A

V. B. Extrapolation of Experimental Data (cont.)

lower temperatures (it was considered likely that the viscosity of compressed water should be available in the literature down to its freezing point and thereby permit such an extension).

- (u) The search for the madessary supplemental water viscosity data was somewhat limited in scope but did yield two extensive compilations (Ref 28 and 29), data on supercooled water (Ref 30 and 31), and references to recent Russian (Ref 32) and German (Ref 33 and 34) data. Of the data that were immediately available (Ref 28, 29. 31, and 33) those from Ref 29 and 31 were judged to be most useful in extending the available water correlation. Using the data from Ref 29 and 31, and the critical viscosity of 0.043 centipoise for water from Ref 22 the reduced state correlation shown in Figure 6 was developed. This correlation agrees with that of Theiss very closely for the saturated liquid but deviates substantially at elevated pressures. It is interesting to note that the crossing of the curves in Figure 6 at a reduced temperature of approximately 0.47 corresponds to a change in the sign of the pressure coefficient of viscosity whereas no such trend is indicated in Theiss' correlation. The validity of the change in the sign of the pressure coefficient of viscosity cannot be completely proven but an abstract of Weber's recent work (Ref 34) and Moszynski (Ref 35) specifically mention such a change occurring at $_{3}$ 2°C ($T_{\rm R}$ = 0.471) and 35°C ($T_{\rm R}$ = 0.476), respectively, and tends to verify the behavior exhibited in Figure 6.
- Figure 6 was thus taken as the best correlation that could be derived for generating MHF-5 viscosity data. Using Figure 6 and the graphically smoothed experimental viscosity data for MHF-5 from Figure 5, values for the critical viscosity of MHF-5 were calculated from:

$$\mu_c = \frac{\mu}{\mu_R}$$

AFRPL-TR-67-208, Appendix A

V, B, Extrapolation of Experimental Data (cont.)

The values obtained were 0.1043^{+.0018} centipoise. The viscosity of MHF-5 was then calculated from:

$$\mu = \mu_c \mu_R$$

Where $\mu_{\rm C}$ was taken as 0.1043 and values of $\mu_{\rm R}$ were taken from Figure 6. These data and points from Figure 5 (the experimental data) were then utilized to construct the viscosity-temperature-pressure plot given in Figure 7. Rather than allowing the curves for the elevated pressures to intersect the saturated liquid curve (as predicted by Figure 6) they were simply allowed to converge into the saturated liquid curve at a temperature corresponding to $T_{\rm R}=0.47$. This was done because the peculiar behavior exhibited by Figure 6 at low temperatures and high pressure is likely to be correct only for water and because it seems reasonable that the viscosity of a liquid such as MHF-5 increases rapidly as its degree of association or packing increases and that this degree of association or packing becomes almost entirely temperature dependent at some relatively low temperature.

(u) The viscosity data were extended to pressures equivalent to a reduced pressure of only two because of the limitation of immediately available water data. However, based on the data from Ref 33 and an abstract of Ref 34 it appears that viscosity increases linearly with pressure (to at least $P_R = 3.5$) in the temperature region of $T_R = 0.5$ to 0.9. Thus, Figure 7 can probably be linearly extrapolated to pressures of at least 350 atm in the temperature range of approximately 110 to 570°F.

AFRPL-TR-67-208, Appendix A

VI. HEAT CAPACITY OF MHF-5

A. EXPERIMENTAL DATA

(c) The heat capacity of MHF-5 has been measured by RMD (Ref 8) over the temperature range of 40 to 155°F in a standard adabatic calorimeter. A straight-lire fit of the eight data points reported yields the following equation:

$$Cp(Btu/1b-^cF) = 0.6518 + 1.61 \times 10^{-4}T(^cF)$$

The experimental data deviate from values calculated from the above equation by a maximum of \pm 1%. The experimental and calculated values are presented in Table 2.

B. EXTRAPOLATION OF EXPERIMENTAL DATA

- (u) A review of the recommended methods of estimating and correlating liquid heat capacities as presented in Reid and Sherwood's very recent and authoritative book (Ref 36) shows that no truly good method is available for complex mixtures such as MHF-5. Of the available methods, Watson's method (Ref 37) as modified by Sobel (ref 38) appears preferable for non-hydrocarbons. Unfortunately, even this method is limited to pure components, the saturated liquid, temperatures between $T_{\rm F}=0.7$ and 0.95, and requires the separate estimation of the ideal gas heat capacity. It, thus, becomes apparent that some other method has to be devised.
- (u) Chow and Bright (Ref 39) suggested that the variation of heat capacity with temperature might be correlated with Watson's expansion factor ω since heat capacities have been successfully correlated with densities of petroleum liquids. Tests of the correlation they presented failed to yield acceptable results for the polar liquid water when a wide temperature range is considered, and therefore, is judged to be unacceptable for MHF-5 also.

AFRPL-TR-67-208, Appendix A

VI, B, Extrapolation of Experimental Data (cont.)

- (u) It is noted, however, that both of the methods cited above basically involved the correlation of heat capacity with reduced temperature, pressure, density, and compressibility. In the case of Chow and Bright's method, the correlation is relatively simple but appears unsuitable for polar liquids and wide temperature range. In the case of Watson's method, the correlation is very complex and virtually impossible to apply to MHF-5. On the basis of these methods it is postulated that, perhaps, a normalized heat capacity of some model substance can be correlated with its reduced density and be applied to MHF-5 and to then use Lydersen's tables (Ref 20) which correlate reduced density to arrive at a reasonable temperature-pressure-heat capacity relationship.
- (u) In accordance with the preceding postulate, heat capacity was normalized to the normal boiling point value as follows: C_{p_b}/C_{p_t} . The boiling point was utilized to achieve a semblance to a corresponding state. The fraction form given above was chosen (rather than its inverse form) so that the normalized values would approach zero rather than infinity as the critical point was approached. Water was chosen as the model substance because data are readily available and because of a number of similarities to MHF-5: (1) they are both polar, (2) both exhibit hydrogen bonding, and (3) they have similar boiling points, densities, and critical temperatures.
- (c) Heat capacity data for water were taken from Ref 29, interpolated as necessary, and normalized as defined above. The corresponding reduced densities of water were taken from Lydersen (Ref 20). These data, thus, provided the basic correlation between normalized heat capacity, reduced density, and reduced pressure shown in Figure 8. Using Figure 8 and the heat capacity of MHF-5 at its boiling point, the heat capacity of MHF-5 was defined as a function of reduced pressure and density. The normal boiling point of MHF-5 is reported to be 207°F (Ref 8) and the heat capacity at that temperature was estimated to be 0.6851 Btu/lb-°F, assuming the equation presented in the preceding section is valid to the boiling point. Using Lydersen's tables which correlate reduced temperature, pressure, and critical

AFRPL-TR-67-208, Appendix A

VI, B, Extrapolation of Experimental Data (cont.)

compressibility with reduced density (Ref 20), the reduced temperatures corresponding to the various heat capacity-reduced density-reduced pressure values were defined where the critical compressibility (Z_c) of MHF-5 was taken as 0.25 (see Section IV, B for the derivation of Z_c). The reduced temperatures were then converted to normal units of temperature employing 1145°R as the critical temperature of MHF-5 (see Section II, D). The resulting values were plotted and are presented in Figure 9. At temperatures below approximately 250°F the curves were smoothed in to coincide with the available experimental data.

AFRPL-TR-67-208, Appendix A

VII. THERMAL CONDUCTIVITY OF MHF-5

A. EXPERIMENTAL DATA

(c) No experimental thermal conductivity data for MHF-5 were found; however, substantial data are available for related fuels. Constantine (Ref 40) reports the thermal conductivity of AeroZINE 50 (N₂H₄-UDMH fuel blend) over the nominal temperature range of 50 to 305°F to be represented by the following equation:

$$k(Btu/hr-ft-°F) = 0.171 - 6.45 \times 10^{-5}T - 1.25 \times 10^{-7}T^2$$

where T is in °F. Similarly, Constantine (Ref 40) reports the thermal conductivity of monomethylhydrazine over the nominal temperature range of 0 to 305°F to be represented by the following equation:

$$k(Btu/lb-ft-°F) = 0.146 - 1.63 \times 10^{-5}T - 3.39 \times 10^{-7}T^2$$

The thermal conductivity of UDMH is reported in Ref 41 for the temperature range of 0 to 251°F and a single value is available for hydrazine at 77°F (Ref 42). These data are summarized in Table 3.

B. ESTIMATION OF MHF-5 THERMAL CONDUCTIVITY

(u) From the data presented in Table 3 a plot of thermal conductivity versus reduced temperature for each substance was constructed. The composition of MMH was redefined in terms of an equivalent UDMH - N_2H_4 mixture (34.78 N_2H_4 and 65.22% wt UDMH) and the data cross-plotted to yield a graph of thermal conductivity versus composition at various reduced temperatures (Figure 10). The composition of the solvent portion of MHF-5 (N_2H_4 and MMH) was then defined in terms of an equivalent N_2H_4 - UDMH mixture (55.72 N_2H_4 and 44.28% wt UDMH) and located on Figure 10. Thus, the thermal conductivity of the solvent portion of MHF-5 was defined within the reduced temperature interval of 0.4565 to 0.70. Assuming that the thermal

AFRPL-TR-67-208, Appendix A

VII, B, Estimation of MHF-5 Thermal Conductivity (cont.)

diffusivities $(k/\rho C_p)$ of a given solvent and solvent-solute system are the same (analogous to Krummel's assumption (Ref 43) whereby he estimated the thermal conductivity of sea water from that of pure water), the thermal conductivity of MHF-5 was estimated to be 5% greater than that of its solvent portion.

The estimated thermal conductivities of MHF-5 were then extrapolated into the high temperature (T_R = 0.0 to 1.0) and high pressure (saturation to 400 atm) region using the average of the reduced state thermal conductivity correlations for water and ethylene from Theiss (Ref 22) and Owens (Ref 44), respectively, and assuming a critical thermal conductivity of 0.052 Btu/hr-ft-°F. This value provides the best correlation between the previously estimated thermal conductivities and the reduced state correlation derived from those of water and ethylene. The low temperature ($T_R < 0.0$) and high pressure ($P_R \ge 1.0$) region was defined by applying pressure corrections (established from the previously mentioned reduced state correlations) to the estimated saturated liquid data. The resulting data are presented in Figure 11°.

Page 22

CONFIDENTIAL (This Page is Unclassified)

Recent unpublished measurements by Rocketdyne under Contract AF 04(611)-11407 at low pressure and 0 to 200°F temperature compare with the saturated liquid line in Figure 11 within 2%.

AFRPL-TR-67-208, Appendix A

VIII. VAPOR PRESSURE OF MHF-5

A. EXPERIMENTAL DATA

(c) The vapor pressure of MHF-5 has been measured by RMD over the temperature range of 32 to 203°F (Ref 8 and 9) and can be described within these limits by the following equation:

$$log_{10}P(mmHg) = 8.2875 - \frac{1996}{T(^{\circ}K)}$$

The experimentally determined values are presented in Table 4.

B. EXTRAPOLATION OF EXPERIMENTAL DATA

(u) The procedure utilized to extrapolate the experimental data to the estimated critical point is described in Section I,B, and the resulting data are presented in Figure 1 in the form of a log P versus reciprocal absolute temperature plot. The temperature scale in Figure 1 has been converted to a conventional scale to yield the more readable vapor pressure plot given in Figure 12.

AFRPL-TR-67-208, Appendix A

(u) LIST OF REFERENCES

- 1. Kay, W. B., Ind. Eng. Chem., 28, 1014 (1936)
- 2.* Lawrence, R. W., "Handtock of the Froperties of unsym-Dimetnylhydrazine and Monomethylhydrazine". Aerojet-General Corp., Azusa, California, Report No. 1292, May 1958, Contract AF 33(616)-3655. CONFIDENTIAL
- 3. International Critical Tables, Vol. 3, p. 299, McGraw Hill Book Co. (1928)
- 4. Riedel, L., Z. Electrochem; <u>53</u>, 222 (1949)
- Lydersen, A.L., "Estimation of Critical Properties of Organic Compounds", Coll. Eng., Univ. Wisconsin, Eng. Expt. Sta. Report 3, Madison, Wisconsin, April 1955.
- Vowles, C., S.M. Thesis in chemical engineering, Massachusetts Institute of Technology, 1951
- 7. Herzog, R., Ind. Eng. Chem., 36, 997 (1944)
- 8.* Tannenhaum, S., "Advanced Propellants Investigation for Prepackaged Liquid Engines", Thiokol Chem. Corp., Reaction Motors Division, Report RMD 5046-F, 11 May 1964-10 June 1965, Contract N600(19)62259. CONFIDENTIAL
- 9.* Tannenbaum, S., "Packaged Liquid Propellants", Thiokol Chemical Corp., Reaction Motors Division. Report RMD 5005-F, 2 January to 30 September 1962. Contract NOw 62-0785-c. CONFILENTIAL
- 10. Aston, J. G., J. L. Fink, G. L. Janz, and K. E. Russel, J. Am. Chem. Soc., 13, 1939-43 (1951)
- 11. Handbook of Chemistry and Physics, 46th ed., 1965-66. The Chemical Rubber Co.
- 12, Reid, R.C. and T.K. Sherwood, <u>The Properties of Gases and Liquids</u>, McGraw-Hill. Book Co., (1958)
- 13. Smith, W.T., S. Greentaum, and G.P. Rutledge, J. Phys. Chem., 58, 443 (1954)
- Pulledge, G. P., "A Study of the Thermal Expansion Coefficients of Organic Lights", M.S. Thesis, Lept. of Chemistry, Univ. of Tennessee, 1948
- Tannenbaum, S., et. al., "Advanced Propellants Investigation for Prepackaged Liquid Engines", Thiokol Chemical Corp., Reaction Motors Division, Report. RMI 5046-Q2, 11 August 10 November 1964, Contract N600(19)62259, CONFIDENTIAL
- Cateal, J. A., Lab Notecook No. 8, Propellant Chemistry Laboratory, Acrojet-General Corp., Sacramento, California, 4 August 1966

Page 24

CONFIDENTIAL

'(This Page is Unclassified)

AFRP2-TR-67-208, Appendix A

LIST OF REFERENCES (cont.)

- 17. Quale, O. R., Chem. Revs., 53, 439 (1953)
- 18. Meissner, H. P., Chem. Eng. Progr., 45, 149 (1949)
- 19.* "Experimental Evaluation of Compound 'A' with Selected Hydrazine Fuels", AFRPL, Edwards, California, AFRPL-TR-64-162, September 1964. CONFIDENTIAL
- 20. Lydersen, A. L., R. A. Greenkorn, and O. A. Hougen, "Generalized Thermo-dynamic Properties of Pure Fluids", Coll. Eng. Univ. Wisconsin, Eng. Expt. Sta. Rept. 4, Madison, Wisconsin, October 1955.
- 21. Fish, W. R., "Propellant Technology", Aerojet-General Corporation, Sacramento, California, Report 8709-25, 29 November 1965.
- Theiss, R. V., "The Viscosity and Thermal Conductivity of Water in the Gaseous and Liquid States," M.S. Thesis, Northwestern University, Evanston, Illinois (1960)
- 23. Groenier, W. S. and George Thodos, "Viscosity and Thermal Conductivity of Ammonia in the Gaseous and Liquid States," J. Chem. and Eng. Data, 6, 240, (1961)
- 24. Kennedy, J. T. and George Thodos, "The Transport Properties of Carbon Dioxide," A.I. Ch. E. Journal, 7, 625-31 (1961)
- 25. Meyer, G. R., "The Viscosity and Thermal Conductivity of Sulfur Dioxide Gaseous and Liquid States," M.S. Thesis, Northwestern University, Evanston, Illinois (1960)
- 26. Brebach, W. J. and George Thodos, "Viscosity-Reduced State Correlation for Diatomic Gases," Ind. Eng. Chem., 50, 1095 (1958)
- 27. Shimotake, Hiroshi and George Thodos, "Viscosity: Reduced State Correlation for the Inert Gases," A.I. Ch.E. Journal, 4, 257, (1958)
- Dorsey, N. Ernest, <u>Properties of Ordinary Water-Substance</u>, Reinhold Publishing Corp., New York, (1940)
- Wellman, E. J., "A Survey of the Thermodynamic and Physical Properties of Water," M. S. Thesis, Purdue University, January 1950 (as presented in The Reactor Handbook, Volume 2 Engineering, United States Atomic Energy Commission, AECD-3646, May 1955)
- 30. Taketoshi Ono, Tieon Kagaku, No. 18A, 1-8 (1959)
- 31. Hallet, J., Proc. Phys. Soc. (London), 82(530), 1046-50, (1963)

AFRPL-TR-67-208, Appendix A

LIST OF REFERENCES (cont.)

- 32. Timrot, D. L. and A. V. Khlopkina, Teploenergetika, 10(7), 64-67 (1963)
- 33. Mayinger, F., Intern. J. Heat Mass Transfer, 5, 807-24 (1962)
- 34. Weber, Wolf, Z. Angew. Phys., 15, 342-52 (1963)
- 35. Moszynski, J. R., J. Heat Transfer, 83, 111-124 (1961)
- Reid, R. C. and T. K. Sherwood, <u>The Properties of Gases and Liquid: Their Estimation and Correlation</u>, second ed., McGraw-H.11 (1966)
- 57. Watson, K. M., Ind. Eng. Chem., <u>35</u>, 398 (1943)
- 38. Sobel, J. E. and R. C. Reid, Ind. Eng. Chem. Fundamentals, 4, 328 (1965)
- 39. Chow, W. M. and J. A. Bright, Chem. Eng. Progr., 49, 175 (1953)
- Constantine, M. I., "Engineering Properties of Rocket Propellant," Final Report, AFRPL-TR-66-122, Contract AF 04(611)-10546, July 1966. CONFIDENTIAL
- "Engineering Property Data on Rocket Propellants," First Quarterly Report, AFRFL-TR-66-171, Contract AF 04(611)-11407, July 1966. CONFIDENTIAL
- Thompson, T. L., and J. W. Parsons, "Data on Properties and Manufacturing Methods for Anydrous Hydrazine," North American Aviation, Inc., Report No. AL-275, September 18, 1947. CONFIDENTIAL
- Krummel, 0., "Handbuch der Ozeanographic," Vol. 1, p. 208, Stuttgart, J. Engelhorn, 1907.
- Owens, E. J., and George Thodos, "Thermal Conductivity: Reduced State Correlation for Ethylene and its Application to Gaseous Aliphatic Hydrocarbons and Their Derivatives at Moderate Pressures," A.I.Ch. E. Journal, 6, 676 (1960)

AFRPL-TR-67-208, Appendix A

TABLE 1

(c) VISCOSITY OF MHF-5 (u)

| | Viscosity | | |
|-----------------|-------------|------------|--------|
| Temperature, °F | Centistokes | Centipoise | Ref |
| -67 | 111.4 | 120.0 | 9 |
| - 65 | | 108 | 8 |
| - 65 | 90.0 | 96.8 | 9 |
| -40 | | 9.2* | 21 |
| -31.1 | 19.4 | 20.6 | 9 |
| 3.4 | 6.7 | 7.0 | 9 |
| . 64 | 2.3 | 2.3 | 9 |
| 77 | 1.9 | 1.9 | 8,9,21 |
| 95 | 1.6 | 1.6 | 9 |
| 113 | 1.3 | 1.3 | 9 |
| 131 | 1.1 | 1.1 | 9 |
| 149 | 1.0 | 1.0 | 9 |
| 160 | 0.9 | 0.9 | 9 |

^{*}This value appears to be a typographic error and is rejected from further consideration. The correct value is 29.

AFRPL-TR-67-208, Appendix A

TABLE 2

(c) HEAT CAPACITY OF MHF-5 (Ref. 8) (u)

| Femperature F | Heat Capacit Experimental | y, Btu/lb-°F Calculated (1) | Deviation, %(2) |
|---------------|------------------------------|--------------------------------|-----------------|
| 39.2 | 0.661 | 0.658 ₁ | +0.4 |
| 41.9 | 0.652 | 0.658 ₅ | -1.0 |
| 78.8 | 0.671 | 0.6645 | +1.0 |
| 81.5 | 0.666 | 0.664 | +0.2 |
| 82.4 | 0.663 | 0.665 | -0.3 |
| 151.7 | 0.672 | 0.676 ₂ | -0.6 |
| 153.5 | 0.679 | 0.676 ₅ | +0.4 |
| 154.4 | 0.674 | 0.6767 | -0.4 |

(1) Calculated from the equation:

$$Cp(Btu/lb-°F) = 0.6518 + 1.61 \times 10^{-4}T (°F)$$

- (2) (Experimental-Calculated) (100)/Experimental
- (3) Sobscripted numbers are of questionable significance

AFRPL-TR-67-208, Appendix A

TABLE 3

(c) THERMAL CONDUCTIVITY OF AEROZINE 50, MMH, UDMH and N2H4 (u)

AeroZINE 50(1)

| Temperature, °F | Thermal Cond, Btu/lb-ft-°F | Ref |
|-----------------|----------------------------|-----|
| 50 | 0.167 ₅ * | 40 |
| 100 | 0.1633 | 40 |
| 150 | 0.1585 | 40 |
| 200 | 0.1531 | 40 |
| 250 | 0.1471 | 40 |
| 300 | 0.1404 | 40 |
| | Monomethylhydrazine (2) | |
| 0 | 0.146 | 40 |
| 50 | 0.144 ₃ | 40 |
| 100 | 0.1410 | 40 |
| 150 | 0.1359 | 40 |
| 200 | 0.1292 | 40 |
| 250 | 0.1207 | 40 |
| 300 | 0.1106 | 40 |
| | | |

^{*}Subscripted number indicates questionable significance.

AFRPL-TR-67-208, Appendix A

TABLE 3 (cont.)

unsym-Dimethylhydrazine (3)

| Temperature, °F | Thermal Cond, Btu/lb-ft-°F | Ref | | | | |
|-----------------|----------------------------|-----|--|--|--|--|
| 0.6 | 0.104 | 41 | | | | |
| 51.05 | 0.0958 | 41 | | | | |
| 100.7 | 0.0862 | 41 | | | | |
| 150.68 | 0.0822 | 41 | | | | |
| 200.88 | 0.0740 | 41 | | | | |
| 251.0 | 0.0665 | 41 | | | | |
| Hydrazine | | | | | | |
| 77 | 0.29 | 42 | | | | |

(1) Calculated from:
$$k = 0.171 - 6.45 \times 10^{-5} T - 1.25 \times 10^{-7} T^2$$

(2) Calculated from:
$$k = 0.146 - 1.63 \times 10^{-5} T - 3.39 \times 10^{-7} T^2$$

(3) Average values for replicate samples

AFRPL-TR-67-208, Appendix A

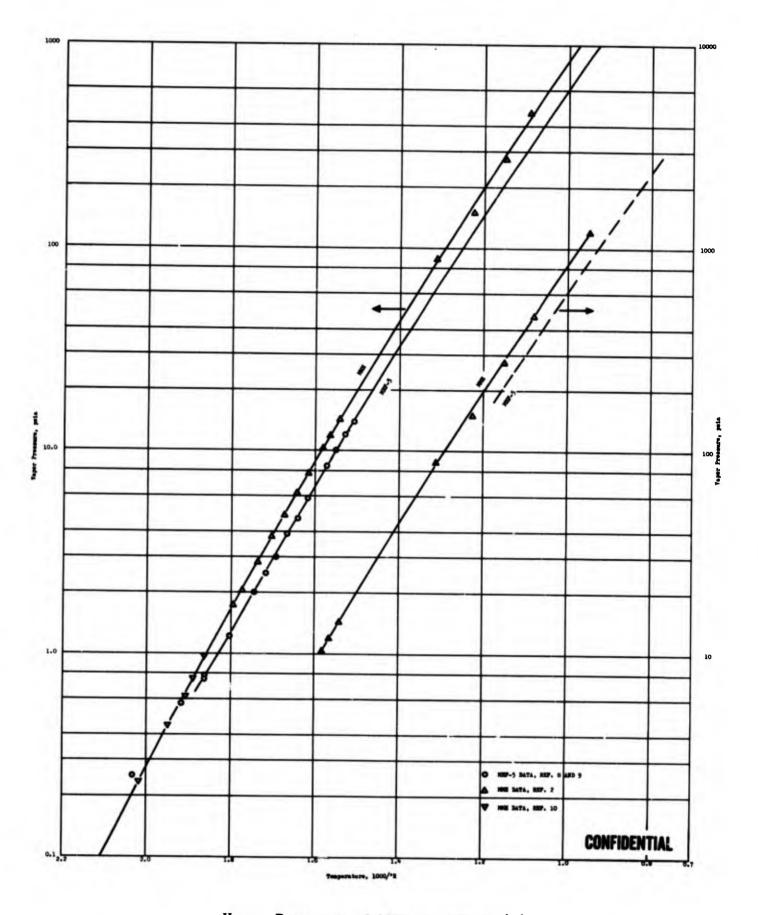
TABLE 4

(c) VAPOR PRESSURE OF MHF-5 (u)

| | Vapor Pr | essure | | |
|-----------------|----------|--------|-----|--|
| Temperature, °F | mm Hg | psia | Ref | |
| 32 | 13. | 0.25 | 8 | |
| 62 | 29.4 | 0.568 | 9 | |
| 77 | 39• | 0.75 | 8 | |
| 77 | 39•9 | 0.771 | 9 | |
| 95 | 63. | 1.2 | 8 | |
| 95 | 63.8 | 1.23 | 9 | |
| . 113 | 103.5 | 2.001 | 9 | |
| 122 | 129. | 2.49 | 8 | |
| 131 . | 154.8 | 2.993 | 9 | |
| 140 | 201.0 | 3.887 | 9 | |
| 140 | 202. | 3.91 | 8 | |
| 149 | 239.7 | 4.635 | 9 | |
| 158 | 300. | 5.80 | 8 | |
| 176 | 435. | 8.41 | 8 | |
| 185 | 524. | 10.1 | 8 | |
| 194 | 621. | 12.0 | 8 | |
| 203 | 722.* | 13.96 | 8 | |

*Corrected for residual pressure due to decomposition.

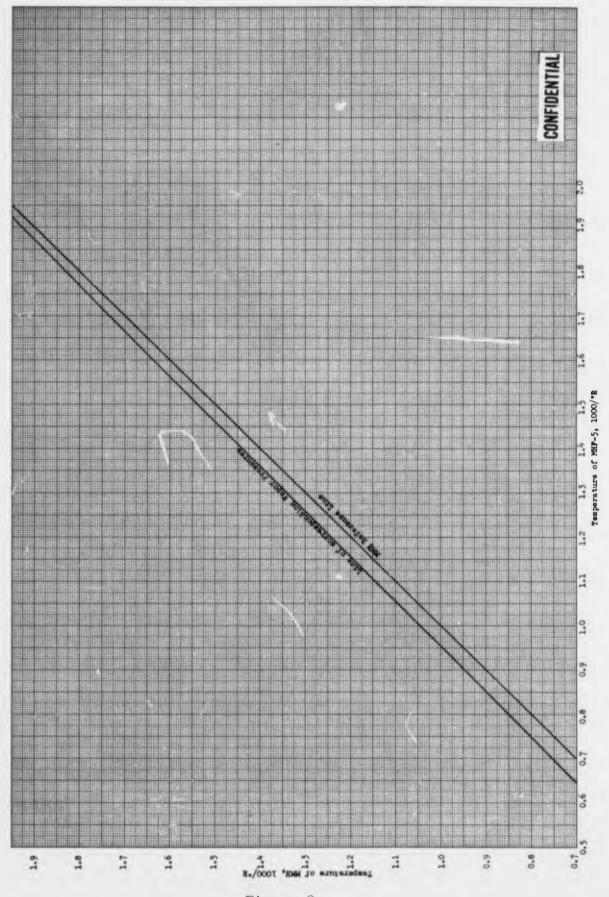
Report AFRPL-TR-67-208, Appendix A



Vapor Pressure of MMH and MHF-5 (u)

Figure 1
CONFIDENTIAL

Report AFRPL-TR-67-208, Appendix A



and MHF-5 Vapor Pressure Correlation (u)

Figure 2

CONFIDENTIAL

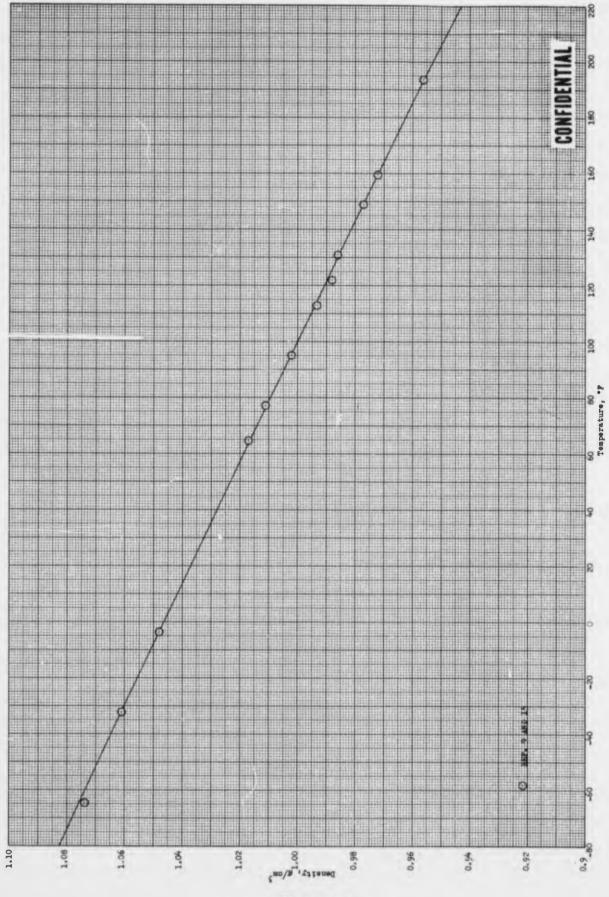
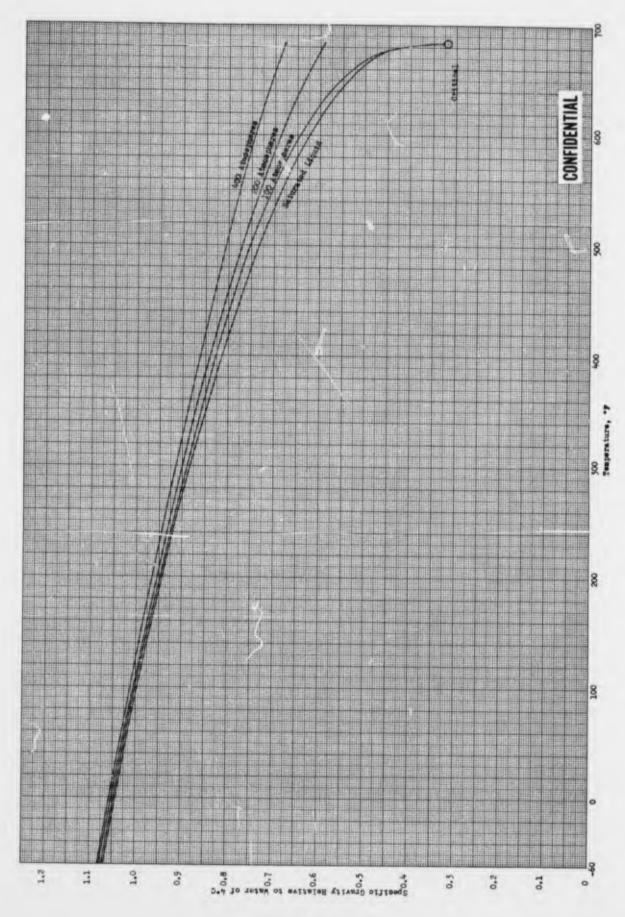


Figure 3

Experimental Density of MHF-5 (u)

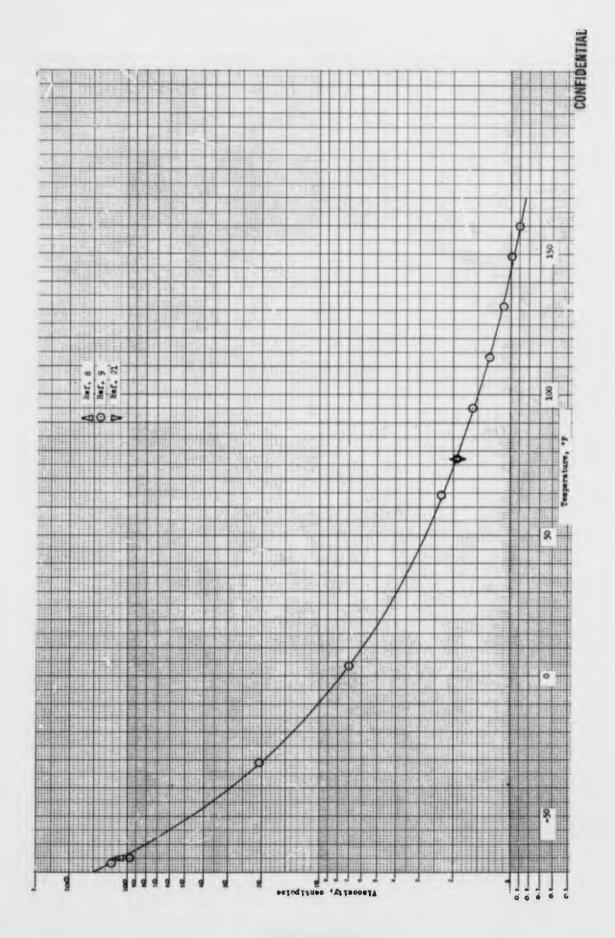
Report AFRPL-TR-67-208, Appendix A



Extrapolated Specific Gravity of MHF-5 (u)

Figure 4

CONFIDENTIAL



Experimental Viscosity of MHF-5 (u)

Figure 5
CONFIDENTIAL

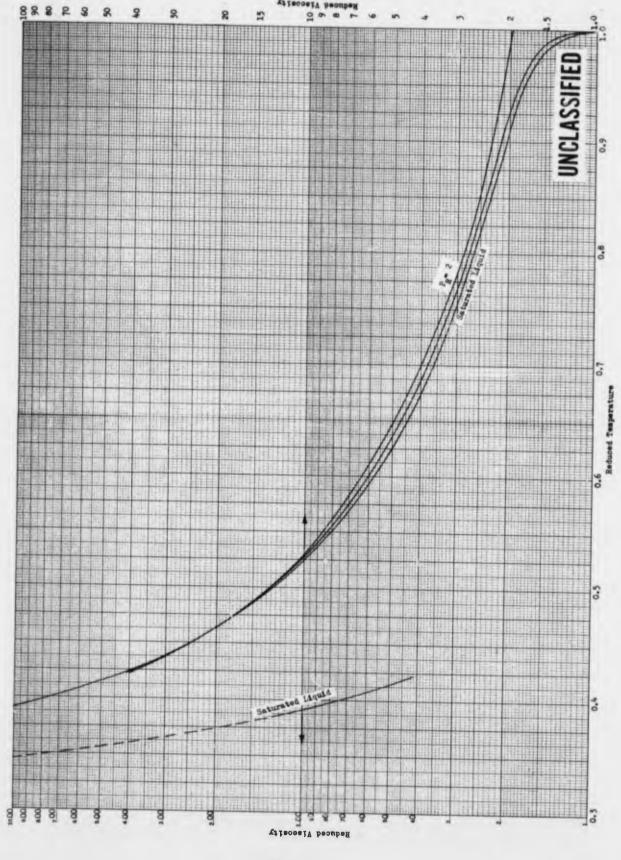


Figure 6

CONFIDENTIAL (This Page is Unclassified)

Reduced State Viscosity Correlation for MHF-5

Report AFRPL-TR-67-208, Appendix A

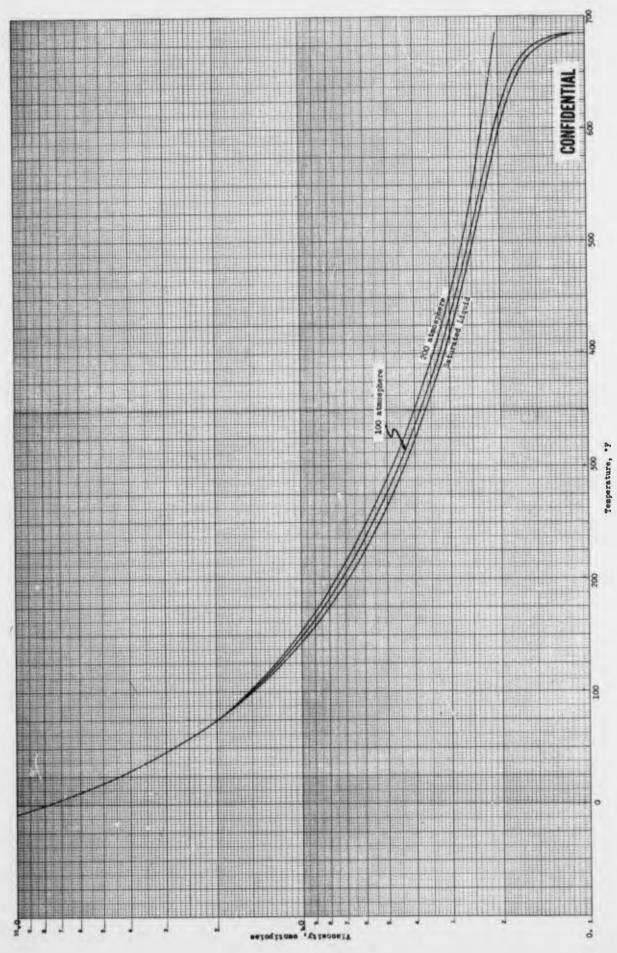
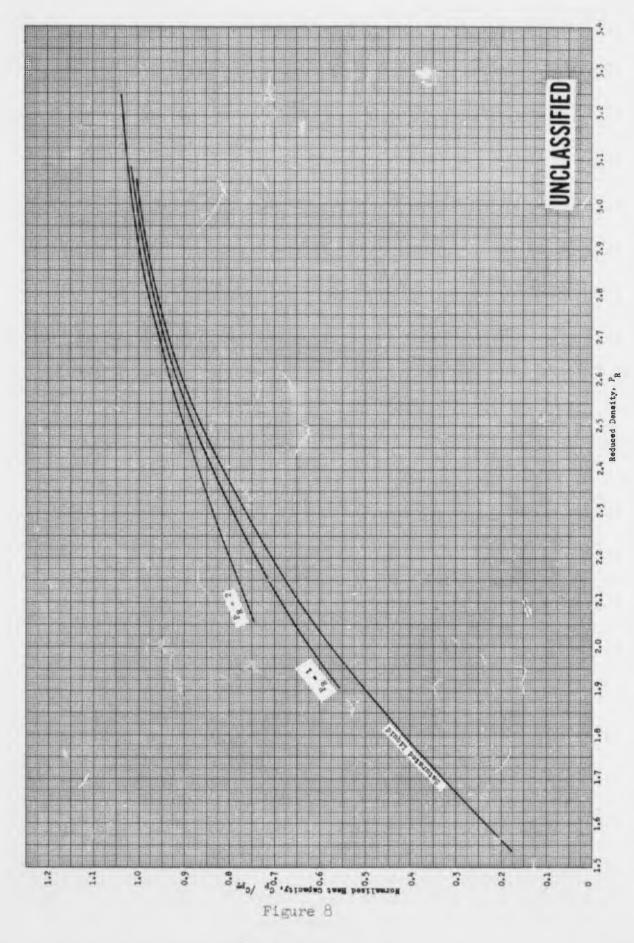


Figure 7
CONFIDENTIAL

Extrapolated Viscosity of MHF-5 (u)

Report AFRPL-TR-67-208, Appendix A



Reduced State Heat Capacity Correlation for MHF-5

CCNFIDENTIAL

(This Page is Unclassified)

Report AFRPL-TR-67-208, Appendix A

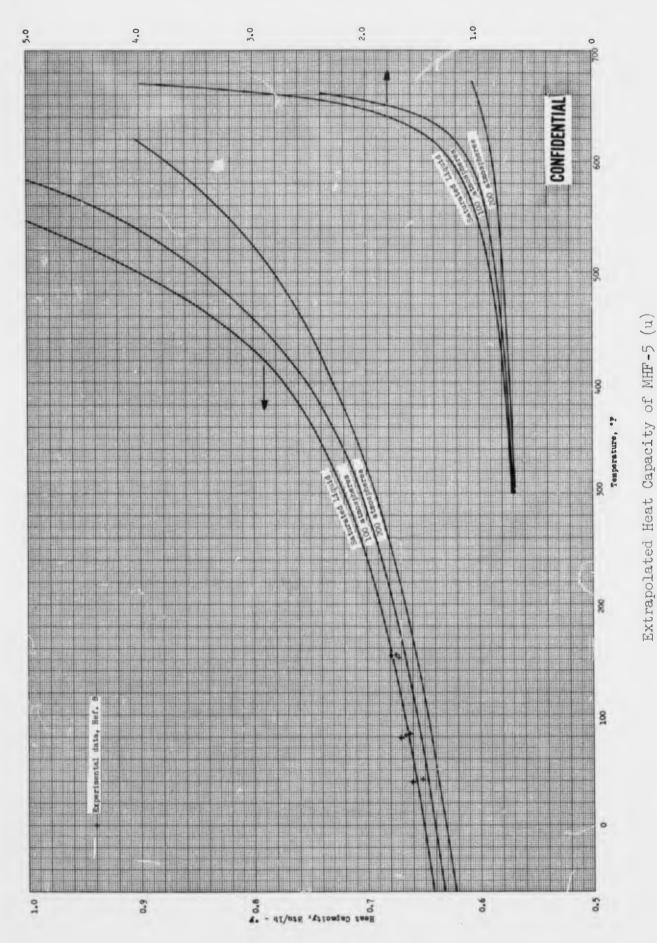
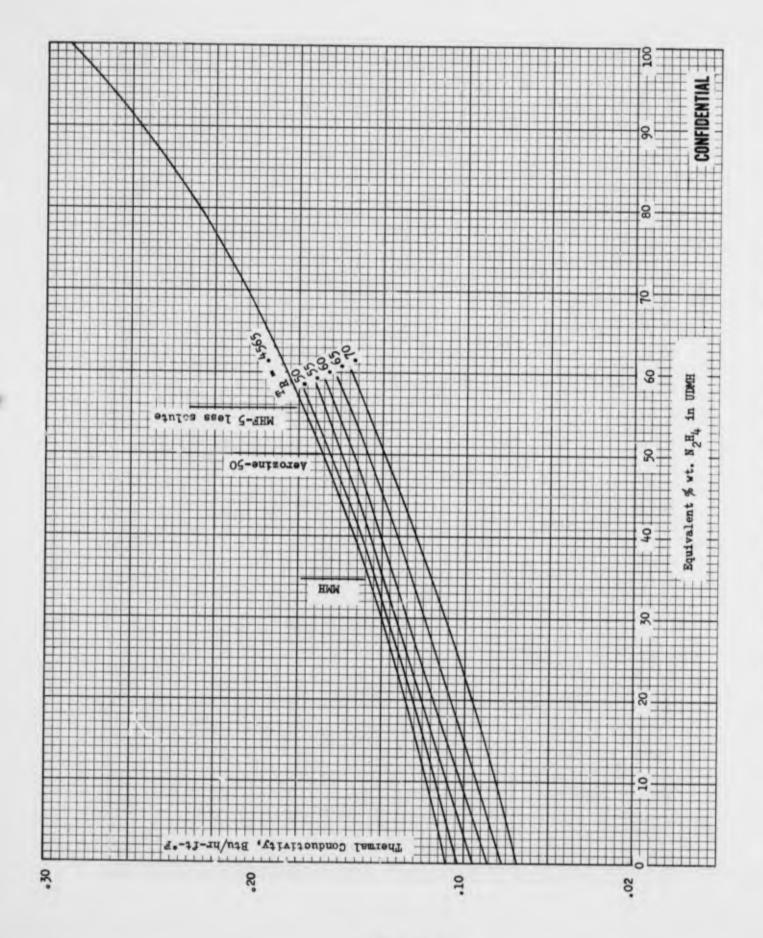


Figure 9

CONFIDENTIAL

Report AFRPL-TR-67-208, Appendix A



Thermal Conductivity Correlation of Hydrazine-Type Fuels (u)

Figure 10 CONFIDENTIAL

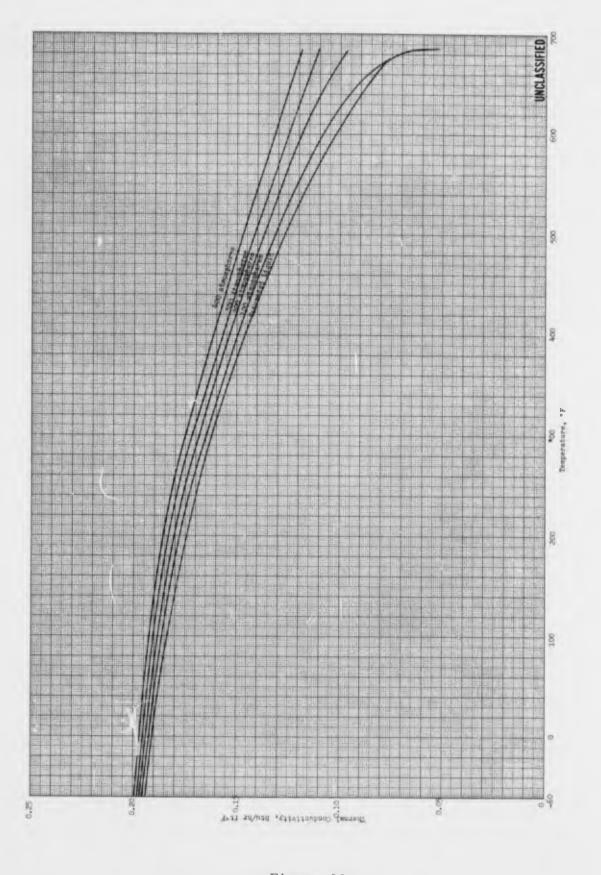


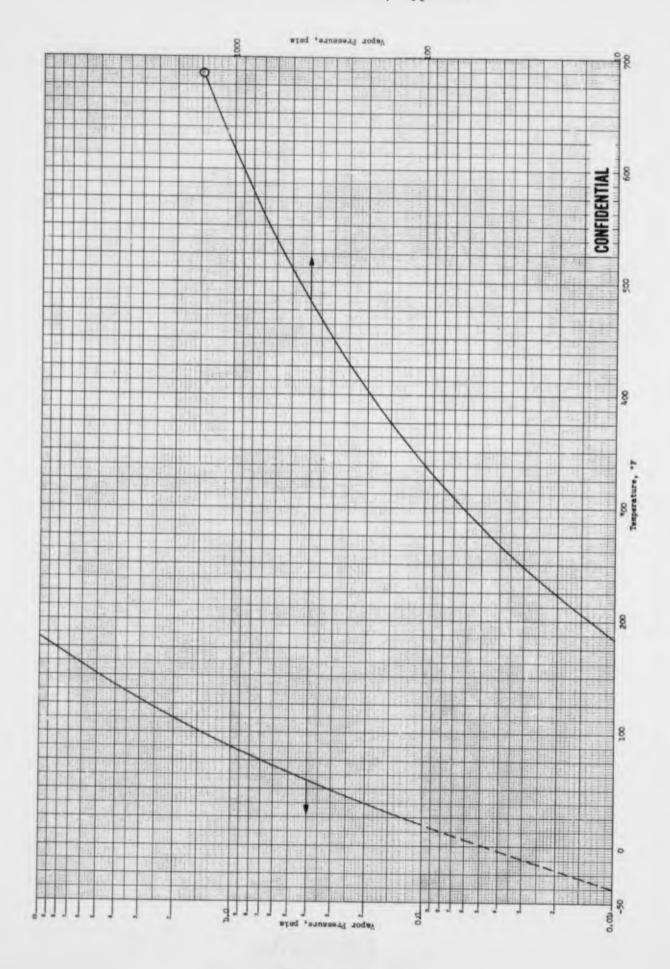
Figure 11

CONFIDENTIAL

(This Page is Unclassified)

Extrapolated Thermal Conductivity of MHF-5

Report AFRPL-TR-67-208, Appendix A



Extrapolated Vapor Pressure of MHF-5 (u)

Figure 12

CONFIDENTIAL

AFREL-ID-67-208

APPENDIX B

(c) PHYSICAL PROPERTIES OF MONOMETHYLHYDRAZINE (u)

(This Page Contains No Classified Material)
CONFIDENTIAL

PRECEDING PAGE BLANK-NOT FILMED

AFRPL-TR-67-208, Appendix B

TABLE OF CONTENTS

| | | Page |
|-------|---------------------------------------|------|
| I. | Critical Properties of MMH | 1 |
| II. | Density of MMH | |
| | A. Experimental Data | 2 |
| | B. Extrapolation of Experimental Data | 2 |
| III. | Viscosity of MMH | |
| | A. Experimental Data | 3 |
| | B. Extrapolation of Experimental Data | 3 |
| IV. | Heat Capacity of MMH | |
| | A. Literature Data | 6 |
| | B. Extrapolation of Literature Data | 6 |
| | C. Recommended Data | 8 |
| v. | Thermal Conductivity of MMH | |
| • | A. Experimental Data | 9 |
| | B. Extrapolation of Experimental Data | 9 |
| VI. | Vapor Pressure of MMH | 11 |
| Refer | rences | 12 |

AFRPL-TR-67-208, Appendix B

LIST OF TABLES

| Table | |
|--------|--|
| 1. | Density of Liquid MMH at Low Pressure |
| 2. | Density of Liquid MMH at Elevated Temperatures and Pressures |
| 3. | Viscosity of Liquid MMH |
| 4. | Heat Capacity of Liquid MMH |
| 5. | Heat Capacity of MMH Ideal Vapor |
| 6. | Estimated Heat Capacity of Saturated Liquid MMH at Elevated Temperatures |
| 7. | Thermal Conductivity of Liquid MMH |
| 8. | Vapor Pressure of MMH |
| | LIST OF ILLUSTRATIONS |
| Figure | |
| 1. | Extrapolated Specific Gravity of MMH |
| 2. | Extrapolated Viscosity of MMH |

1. Extrapolated Specific Gravity of MMH 2. Extrapolated Viscosity of MMH 3. Extrapolated Heat Capacity of MMH 4. Extrapolated Thermal Conductivity of MMH 5. Vapor Pressure of MMH

AFRPI-TR-67-208, Appendix B

I. CRITICAL PROPERTIES OF MMH

(U) The critical properties of MMH have been experimentally determined by Aerojet-General (Reference 1) to be as follows:

Tc, Critical temperature = 312°C (594°F or 1053°R)

Pc, Critical pressure = 81.3 atm (1195 psia)

ρc, Critical density = 0.29 g/ml (18 lb/ft³)*

From the above values the critical compressibility ($\mathbf{Z}_{\mathbf{c}}$) is calculated to be:

$$z_c = \frac{P_c V_c}{RT_c} = \frac{(81.3)(46.075/0.29)}{(82.06)(312+273.16)} = 0.26_9*$$

where: Vc = specific volume, cc/gm mole

R = universal gas constant cc atm/gm mole °K

^{*} A critical density of 0.2944 g/ml and a critical compressibility of 0.265 may be more correct, based on the fact that these values provide the best correlation between experimental densities and densities estimated from Lydersen's generalized correlation (see Section II,B).

AFRPL-TR-67-208, Appendix B

II. DENSITY OF MMH

A. EXPERIMENTAL DATA

(U) The density, ρ , of liquid MMH has been measured by Aerojet-General (References 1 and 2) and by Horvitz of Metalectro (Reference 3). The data available cover a temperature range of -60 to 518°F and pressures from 1 to 92.9 atm. These data are presented in Tables 1 and 2.

B. EXTRAPOLATION OF EXPERIMENTAL DATA

(U) The method of Lydersen, Greenkorn, and Hougen (Reference 4) has been used to extrapolate the available density data to the critical temperature and pressures to 5000 psia. This method is based on a correlation between reduced density, temperature, pressure and critical compressibility. The 37 experimental density values (see Tables 1 and 2) were found to agree well with Lydersen's generalized correlation when the critical temperature, pressure, density and compressibility given in Section I were utilized. It was found, however, that the best correlation occurs when the critical density and compressibility are assumed to be 0.2944 g/ml and 0.265, respectively, rather than 0.29 g/ml and 0.26 as presented in Section I. Thus, having established a "best-set" of critical values, Lydersen's correlation was utilized directly to extend the available density values to the critical temperature. Extrapolation to 650°F was subsequently accomplished swing Lydersen's generalized compressibility factors (Reference 4) adjusted in a manner such that a discontinuity did not occur at the critical point. The resulting estimated specific gravity of MMH from -60 to 650°F and saturation pressure to 5000 psia is presented in Figure 1.

AFRPL-TR-67-208, Appendix B

III. VISCOSITY OF MACH

A. EXPERIMENTAL DATA

(U) The viscosity, μ , of liquid MMH at ambient pressure has been measured by Aerojet-General (Reference 1) and by Horvitz of Metalectro (Reference 3) over the temperature range of approximately -60 to 176°F. These data are presented in Table 3.

B. EXTRAPOLATION OF EXPERIMENTAL DATA

(U) The method of Stiel and Thodos (Reference 5) has been utilized to extend the available experimental viscosity data to 650°F temperature and 5000 psia pressure. This method involves correlations between residual viscosity ($\mu - \hat{\mu}$) and reduced density (ρ_r) and has been reduced to the following equations for polar substances:

$$(\mu - \hat{\mu}) \xi = (0.607)(10^{-5})(9.045 \rho_r + 0.63)^{1.739}$$
 (1)

where: $0.10 \le \rho_r \le 0.90$

$$\log \left[-\log \left(\mu - \hat{\mu}\right) \xi\right] = 0.6439 - 0.1005 \rho_{m} - \Delta$$
 (2)

where: $0.9 \le \rho_{r} < 2.6$

and $\Delta = 0$ for ρ_r values ≤ 2.2

$$\Delta = (4.75)(10^{-4}) (\rho_r^3 - 10.65)^2$$
 for ρ_r values >2.2

 $(\mu - \hat{\mu})\xi = 0.00900$ and 0.0250 at $\rho_r = 2.8$ and 3.0, respectively

AFRPL-TR-67-208, Appendix B

III, B, Extrapolation of Experimental Data (cont.)

In the above equations, $\xi = T_c^{1/6}/M^{1/2}P_c^{2/3}$ where T_c and P_c are the critical temperature (°K) and pressure (atm), respectively and M is the molecular weight, $\hat{\mu}$ is the low-pressure viscosity (centipoise), and the quantity $\hat{\mu}$ ξ is given by the following equation for polar, hydrogen-bonding substances at reduced temperatures below 2.5:

$$\hat{\mu} \xi = (1.90T_r - 0.29)(10^{-4})Z_c^{-2/3}$$

where T_r is the reduced temperature and Z_c is the critical compressibility.

- (U) The preceeding equations were solved for μ , viscosity, at reduced densities (ρ_{r}) compatible with the desired range of temperatures and pressures or to the limit of applicability. Values for T_{c} and P_{c} were taken from Section I, M was taken as 46.075, Z_{c} as 0.265, and values of ρ_{r} from Lydersen (Reference 4). These reduced density values were previously shown to be compatible with experimental density data when Z_{c} is taken as 0.265 and the critical density as 0.2944 g/ml (see Section II.B).
- (U) Viscosity values could not be calculated at temperatures below 57°F (ρ_r of saturated liquid = 3.0) but this lower temperature limit does overlap the range of temperatures for which experimental data are available. A check of the two sets of data in the overlapping temperature region shows the calculated values to be approximately 14% and 4% higher than the experimental values at 57 and 166°F, respectively. In view of the fact that agreement improves rapidly at elevated temperatures the calculated values are judged to be acceptable above 200°F. At temperatures below 200°F the experimental data are considered to be correct for the saturated liquid. Values for the compressed liquid between approximately 60 and 200°F have been derived by applying pressure corrections (defined from the calculated viscosities at various pressures and reduced densities of 2.8 and 3.0) to the experimental values.

AFRFL-TB-67-208, Appendix B

III, B, Extrapolation of Experimental Data (cont.)

Values for the compressed liquid at temperatures below the lower limit of the calculations (57°F) were defined by simple graphical extrapolation of values at high temperatures. The resulting viscosity data are presented in Figure 2.

Page 5

CONFIDENTIAL

(This Page is Unclassified)

AD 383 411

AUTHORITY:
AFREL 14 5 Feb 86



AFRFL-TR-67-200, Appendix B

III, B, Extrapolation of Experimental Data (cont.)

Values for the compressed liquid at temperatures below the lower limit of the calculations (57°F) were defined by simple graphical extrapolation of values at high temperatures. The resulting viscosity data are presented in Figure 2.

Page 5

CONFIDENTIAL

(This Page is Unclassified)

AFRPL-TR-67-208, Appendix B

IV. HEAT CAPACITY OF MMH

A. LITERATURE DATA

(C) The heat capacity, C_p, of liquid MMH at low pressures has been measured from the freezing point to 77°F by Aston et al (Reference 6) and from 70 to 255°F by Rocketdyne (Reference 7). Rocketdyne reports that their data can be represented by the following equation:

$$C_p (cal/g^{-o}K) = -0.7458 + 0.01132T^{-0.2963} \times 10^{-4}T^2 + 0.2648 \times 10^{-7}T^3$$

where T is temperature in degrees Kelvin. The data from both these sources is presented in Table 4.

(U) The heat capacity of MMH ideal vapor has been calculated by Aston et al (Reference 6) at various temperature in the range of 77 to 2240°F. These values are given in Table 5.

B. EXTRAPOLATION OF LITERATURE DATA

(U) The heat capacity data on MMH has been extrapolated to higher temperatures (up to 700°F) and pressures (up to 5000 psia) by utilizing a variety of methods to cover the various regions of interest.

1. Saturated Liquid

(U) The heat capacity of saturated liquid MMH has been estimated over the reduced temperature interval of 0.7 to 0.95 (278 to 541°F) utilizing Embel's modification of Watson's method (Reference 8) and the ideal gas heat capacity data of Aston et al (Reference 6) presented in Table 5.

AFRPL-TR-67-208, Appendix B

IV, B, Extrapolation of Literature Data (cont.)

This method equates the saturated liquid heat capacity to the sum of the ideal gas heat capacity and a complex correction term which can be evaluated from a series of graphs presented in (Reference 9), the critical properties given in Section I, and vapor pressure data given in Section VI. The data resulting from this estimation technique are given in Table 6.

- (U) Saturated liquid heat capacities have also been estimated at temperatures between the normal boiling point (192.5°F) and 541°F by the Sakiadis and Coates energy-mode method (Reference 10). This method equates the liquid heat capacity at constant volume to the energy contributions of the various bonds in the substance. The constant volume heat capacities are then converted to constant pressure values employing a reduced state correlation. The data resulting from this estimation technique are also given in Table 6.
- (U) A comparison of the estimated heat capacities with the experimental data (see Table 6) readily shows that the values obtained with Watson's method agree with the experimental data much better than do the values estimated by the Sakiadis and Coates method. On the basis of this comparison the values obtained by the Watson method are judged to be more accurate.

2. Compressed Liquid

(U) No method could be found for the estimation of the heat capacity of compressed liquids. The correlation proposed by Chow and Bright (Reference 11), by nature, could be applied to define a pressure effect but no tests of the validity of the correlation at elevated pressures are known. A correlation previously used to estimate the heat capacity of liquid MHF-5 at reduced pressures up to two (Appendix A) was tested for applicability to MMH and found to give relatively poor results in predicting saturated liquid MMH heat capacity and was, therefore, rejected. The fact that the MHF-5 correlation failed when applied to MMH indicates that the error involved in estimating the specific heats for MHF-5 in the compressed liquid state may be significant.

AFRPL-TR-67-208, Appendix B

IV, B, Extrapolation of Literature Data (cont.)

(U) For lack of any known acceptable technique for estimating the heat capacity of compressed liquids, it has been assumed that the compressed liquid will exhibit the same heat capacity as the saturated liquid at the same reduced density. On the basis of this assumption, compressed liquid heat capacities have been estimated utilizing the saturated liquid data (both experimental and that estimated by Watson's method) and the reduced density correlation of Lydersen (Reference 4). The reduced density correlation was previously shown to agree well with experimental density data (see Section II.B).

3. Supercritical Heat Capacities

(U) The heat capacity of MMH in the supercritical region has been estimated from the ideal gas heat capacity data of Aston et al (Reference 6), the reduced state isothermal pressure correction to heat capacity of vapors given by Edminster (Reference 12), and the critical properties given in Section I.

C. RECOMMENDED DATA

(U) The recommended heat capacity data for MMH in the temperature range of -60 to 700°F and saturation pressure to 5000 psia is presented graphically in Figure 3. This figure is a composite of the experimental data given in Table 4 and the estimated values defined by employing the methods and techniques described in Section B., preceeding. Some graphical smoothing was required to eliminate discontinuities at the critical temperature.

V. THERMAL CONDUCTIVITY OF MMI

A. EXPERIMENTAL DATA

(C) The thermal conductivity, k, of liquid MMH has been reported by Constantine (Reference 7) over the nominal temperature range of 0 to 305°F to be represented by the following equation:

k (Btu/hr-ft-°F) = 0.146 -1.63 x
$$10^{-5}$$
T -3.39 x 10^{-7} T²

where T is temperature in °F. The valid experimental data are presented in Table 7 and compared with values defined by the equation above.

B. EXTRAPOLATION OF EXPERIMENTAL DATA

- (U) The experimental data presented in Table 7 have been extended to cover the temperature range of -60 to 700°F and pressures from saturation pressure to 5000 psia.
- (U) Based on the recommendation of Reid and Sherwood (Reference 9) the method of Robbins and Kingrea (Reference 13), a modification of the Weber method (Reference 14), was considered for use. The method was tested for its ability to predict available experimental data and to thereby indicate whether or not it could be reliably applied to saturated liquid MMH over its claimed limits of applicability ($T_r = 0.1 \pm 0.9$). Direct use of the method showed that it could not predict the thermal conductivity of MMH with acceptable accuracy except over a narrow temperature range extending from a reduced temperature of approximately 0.5 to 0.6. Attempts to modify the Robbins and Kingrea equation by substituting new values for the H and N factors which are supposedly related to structure and density produced an equation more applicable to MMH but still unacceptable for extending the available experimental data.

AFRPL-TR-67-208, Appendix B

V, B, Extrapolation of Experimental Data (cont.)

- (U) The use of the Stiel and Thodos correlation which relates residual thermal conductivity (k-k') to reduced density (Reference 15) was considered; however, because of the recommendation of Reid and Sherwood (Reference 9) that it not be applied to polar compounds, its use appeared unjustifiable.
- (U) For lack of any other acceptable method the use of available reduced state thermal conductivity correlations for specific compounds was considered. Inspection of such correlations for hydrogen (Reference 16), methane (Reference 17), ethylene (Reference 18), carbon dioxide (Reference 19), ammonia (Reference 20), and water (Reference 21) showed that no single correlation was acceptable for application to MMH. The basis for judging acceptability was the amount of scatter in the value of critical thermal conductivity back-calculated from the experimental MMH data and the reduced thermal conductivities defined by the reduced state correlations. Ultimately it was found that the MMH data do correlate well with a reduced state correlation based on a weighted average of the ethylene and water correlations (References 18 and 21). This situation is very similar to that previously observed in attempting to correlate and extend MHF-5 data (Appendix A). Thus, the MMH data were extended to 700°F and 5000 psia utilizing the weighed average (80/20) ethylenewater correlation and assuming the critical thermal conductivity of MMH to be 0.038 Btu/hr-ft-of. The resulting data are presented in Figure 4.

Page 10

AFRPL-TR-67-208, Appendix B

VI. VAPOR PRESSURE OF MMH

(C) The vapor pressure of MMH has been measured by Aston et al (Reference 6) over the approximate temperature range of 35 to 77°F and by Aerojet (Reference 1) from approximately 97 to 594°F. Aerojet reports that these data can be represented by the following equation:

$$\log P \text{ (mmHg)} = 31.746 - 3146/T - 7.88 \log T + 1.5 \times 10^{-12}T^4$$

where T is in °K (275 to 530°K). The data are tabulated in Table 8 and presented graphically in Figure 5.

AFRPL-TR-67-208, Appendix B

REFERENCES

- *1. Barger, J. N. tal., "Application of Alkythydrazines to Rocket Power Plants", Aeroga General Corporation, Azusa, California, Report 1293, Vol. I and II, May 1958, Contract AF 33(616)-3655. (Confidential)
- *2. Graefe, A. F., et al., "Investigation of Liquid Rocket Propellants", Aerojet-General Corporation, Azusa, California, Report 820-29, 15 July 1952. (Confidential)
- *3. Horvitz, D., "Improved Liquid Propellant", Metalectro Corporation, Report M-54-1-ONK, 1 March 195h. (Confidential)
- Lydersen, A. L. R. A. Greenkorn, and O. A. Hougen, "Generalized Thermodynamic Properties of Thre Fluids", Coll. Eng. Univ. Wisconsin, Eng. Expt. Sta. Rept. 4, Madison, Wisconsin, October 1905
- 5. Stiel, L. I., and G. Thodos, AIChE J., 10, 275 (1964)
- 6. Aston, J. G., H. L. Fink, G. L. Janz, and K. E. Russel, J. Am. Chem. Soc., 73, 1939 (1951)
- *7. Constantine, M. T., "Engineering Properties of Rocket Propellants", Rocketdyne, Final Report, AFRPL-TR-66-122, July 1966, Contract AF 04(611)-10546. (Confidential)
- 8. Sobel, J. E. and R. C. Reid, Ind. Eng. Chem. Fundamentals, 4, 328 (1965)
- 9. Reid, R. C. and T. K. Sherwood, <u>The Properties of Gases and Liquids</u>, <u>Their Estimation and Correlation</u>, 2nd ed., McGraw-Hill, (1966)
- 10. Sakiadis, B. C., and J. Coates, AIChE J., 2, 88 (1956)
- 11. Chow, W. M., and J. A. Bright, Chem. Eng. Progr., 49, 175 (1953)
- 12. Edminster, W. C., Petrol, Refiner, 27 (11), 609 (1948)
- Refiner, 41 (5), 133 (1962); preprint of paper presented at the Session on Chemical Engineering at the twnety-seventh Midyear Meeting of the American Petroleum Institute, Division of Refining, San Francisco, California, May 14, 1962.

Page 12

AFRPL-TR-67-208, Appendix B

REFERENCES (cont.)

- 14. Weber, H. F.: Wiedemann's Ann., Ann. Phys. Chem., 10, 103 (1880)
- 15. Stiel, L. I., and G. Thodos, AIChE J., 10, 26 (1964)
- 16. Schaefer, C. A., and G. Thodos, Ind. Eng. Chem., 50, 1585 (1958)
- Owens, E. J. and G. Thodos, Proceedings of the Joint Conference on Thermodynamic and Transport Properties of Fluids, Institution of Mechanical Engineers, p. 163, July 10-12, 1957.
- 18. Owens, E. J. and G. Thodos, AIChE J., 6, 676 (1960)
- 19. Kennedy, J. T. and G. Thodos, AIChE J., 7, 625 (1961)
- 20. Groenier, W. S. and G. Thodos, J. Chem. Eng. Data, $\underline{6}$, 457 (1961)
- 21. Theiss, R. V., "The Viscosity and Thermal Conductivity of Water in the Gaseous and Liquid State", M.S. Thesis, Northwestern University, Evanston, Ill. (1960)

Page 13

CONFIDENTIAL

(This Page is Unclassified)

(C) DENSITY OF LIQUID MMH AT LOW PRESSURE (u)

| Temperature | | Dens | ity | |
|-------------|----------------|---------------|--------------------|------|
| °C | o _F | g/ml | 1b/ft ³ | Ref. |
| -52.0 | -61.6 | 0.9433 | ≈8 .90 | 3 |
| -515 | -60.7 | 0.944 | 58.94 | 2 |
| -50.3 | - 58.5 | 0.9382 | 53.58 | 3 |
| -45.0 | -49.0 | 0.9319 | 58.19 | 3 |
| -42.7 | -44.9 | 0.936 | 58.44 | 2 |
| -37.0 | -34.6 | 0.9246 | 57.73 | 3 |
| -30.5 | -22.9 | 0.925 | 57.76 | 2 |
| -30.0 | -22.0 | 0.9102 | 57.33 | 3 |
| -21.0 | - 5.8 | 0.916 | 57.20 | 2 |
| -11.0 | 12.2 | 0.907 | 56.63 | 2 |
| - 1.2 | 29.8 | 0.8 98 | 56.07 | 2 |
| 0.0 | 32.0 | 0.8966 | 55.98 | 3 |
| 6.8 | 44.2 | 0 (390 | 55.57 | 2 |
| 14.3 | 57.7 | U.883 | 55.14 | 2 |
| 25.0 | 77.0 | 0.8743 | 54.59 | 3 |
| 67.5 | 153.5 | 0.8:2 | 51.95 | 1 |
| 82.5 | 180.5 | 0.829 | 51.14 | 1 |
| | | | | |

AFRPL-TR-67-208, Appendix B

TABLE 2

(C)

DENSITY OF LIQUID MMH AT ELEVATED TEMPERATURES AND PRESSURES (REFERENCE 1) (u)

| Pressure | | | | Density, g/ml | | | | | | |
|----------|-------|------|--------|---------------|-----------|-------|-------|-------|-------|-------|
| atm, abs | Temp, | °C · | + 67.5 | 82.5 | 104.5 | 150 | 180 | 210 | 242.5 | 270 |
| 4.4 | | | 0.832 | 0.819 | 0.793 | | | ~ | | |
| 11.2 | | | | | | 0.741 | | | | |
| 21.4 | | | | | | 0.742 | 0.703 | | | |
| 24.8 | | | | | | | | 0.658 | | |
| 41.8 | | | | | | | | 0.664 | 0.611 | |
| 55.4 | | | | | | | | | 0.615 | |
| 69.0 | | | 0.837 | 0.823 | 0.799 | 0.750 | 0.712 | 0.668 | 0.619 | |
| 82.7 | | | | | | | | | | 0.576 |
| 87.8 | | | | · | | | | | | 0.579 |
| 92.9 | | | | | ** ** *** | | | | | 0.581 |

AFRPL-TR-67-208, Appendix B

TABLE 3

(C)

VISCOSITY OF LIQUID MMH (u)

| Tempe | rature | viscosity | | | | | | | |
|-----------|----------------|------------|----------------------------|------|--|--|--|--|--|
| °C | o _F | Centipoise | $lb(m)/ft-sec \times 10^4$ | Ref. | | | | | |
| -52 | -61.6 | 13.319 | 89.50 | 3 | | | | | |
| -50 | -58 | 11.673 | 78.44 | 3 | | | | | |
| -45 | -49 | 7.279 | 48.91 | 3 | | | | | |
| -37 | -34.6 | 4.821 | 32.40 | 3 | | | | | |
| -30 | -22 | 3.467 | 23.30 | 3 | | | | | |
| 0 | 32 | 1.347 | 9.05 | 3 | | | | | |
| 20 | 68 | 0.845 | 5.68 | 1 | | | | | |
| 25 | 77 | 0.781 | 5.25 | 3 | | | | | |
| 25 | 77 | 0.771 | 5.18 | 1 | | | | | |
| 30 | 86 | 0.706 | 4.74 | 1 | | | | | |
| 40 | 104 | 0.601 | 4.04 | 1 | | | | | |
| 50 | 122 | 0.520 | 3.49 | 1 | | | | | |
| 50 | 140 | 0.456 | 3.06 | 1 | | | | | |
| 70 | 158 | 0.405 | 2.72 | 1 | | | | | |
| ೮೦ | 176 | 0.362 | 2.43 | 1 | | | | | |

AFRPL-TR-67-208, Appendix B

TABLE 4

(C)

HEAT CAPACITY OF LIQUID MMH (u)

| Tempera | ture | Heat Cap | acity | |
|---------|--------|-------------|-----------|------|
| °C | op. | cal/mole-oK | Btu/lh-oF | Ref. |
| -52.37 | -62.27 | 31.27 | 0.6787 | 6 |
| -43.16 | -45.69 | 31.40 | 0.6815 | 6 |
| -33.16 | -27.69 | 31.52 | 0.6841 | 6 |
| -23.16 | - 9.69 | 31.64 | 0.6867 | 6 |
| -13.16 | 8.31 | 31.76 | 0.6893 | 6 |
| _ 3.16 | 26.31 | 31.88 | 0.6919 | 6 |
| 6.84 | 44.31 | 32.01 | 0.6947 | 6 |
| 16.84 | 62.31 | 32.14 | 0.6976 | 6 |
| 21.1 | 70.0 | 31.8 | 0.689 | 7 |
| 22.2 | 72.0 | 32.0 | 0.694 | , 7 |
| 23.4 | 74.1 | 32.2 | 0.700 | 7 |
| 24.6 | 76.3 | 32.1 | 0.697 | 7 |
| 25.0 | 77.0 | 32.25 | 0.6999 | 6 |
| 25.7 | 78.3 | 32.2 | 0.699 | 7 |
| 25.7 | 78.3 | 32.2 | 0.698 | 7 |
| 26.9 | 80.4 | 32.3 | 0.701 | 7 |
| 27.8 | 82.0 | 32.4 | 0.703 | 7 |
| 32.6 | 90.7 | 32.2 | 0.698 | 7 |
| 39.5 | 103.1 | 32.4 | 0.704 | 7 |
| 44.8 | 112.6 | 33.0 | 0.716 | 7 |
| 49.8 | 121.6 | 32.8 | 0.711 | 7 |

AFRPL-TR-67-208, Appendix B

TABLE 4 (cont.)

| Tempe | rature | Heat Cap | acity | |
|-------|----------------|-------------|-----------|------|
| o.C | o _F | cal/mole-oK | Btu/lb-oF | Ref. |
| 59.0 | 138.2 | 33.0 | 0.716 | 7 |
| 64.9 | 148.8 | 32.9 | 0.715 | 7 |
| 68.5 | 155.3 | 33.1 | 0.719 | 7 |
| 75.4 | 167.7 | 33.3 | 0.722 | 7 |
| 80.3 | 176.5 | 33.3 | 0.722 | 7 |
| 85.4 | 185.7 | 33.4 | 0.724 | 7 |
| 100.8 | 213.4 | 33.7 | 0.732 | 7 |
| 104.4 | 219.9 | 33.5 | 0.728 | 7 |
| 114.9 | 238.8 | 33.9 | 0.736 | 7 |
| 123.9 | 255.0 | 33.8 | 0.733 | 7 |
| | | | | |

AFRPL-TR-67-208, Appendix B

TABLE 5

(U) HEAT CAPACITY OF MMH IDEAL VAPOR (REFERENCE 6)

| Tempera | | Heat | Capacity |
|---------|----------------|-------------|-----------|
| •K | o _F | cal/mole-oK | Btu/lb-oF |
| 298.15 | 77 | 17.0 | 0.369 |
| 400 | 260 | 21.0 | 0.456 |
| 500 | 440 | 24.3 | 0.527 |
| 600 | 620 | 27.1 | 0.588 |
| 700 | 800 | 29.3 | 0.636 |
| 800 | 980 | 31.3 | 0.679 |
| 900 | 1160 | 33.1 | 0.718 |
| 1000 | 1340 | 34.6 | 0.751 |
| 1200 | 1700 | 37.1 | 0.805 |
| 1500 | 2240 | 39.8 | 0.864 |

CONFIDENTIAL

(This Page is Unclassified)

AFRPL-TR-67-208, Appendix B

TABLE 6

(C) ESTIMATED HEAT CAPACITY OF SATURATED LIQUID MMH AT ELEVATED TEMPERATURES (u)

| Tempe | rature | Estimated He | | |
|-------|--------|---------------|--------------------------|-----------------|
| | Tr | Watson Method | Sakiadis & Coates Method | Expt. Value (*) |
| 192.5 | 0.619 | ** ** | 0.588 | 0.725 |
| 225 | 0.65 | | 0.603 | 0.730 |
| 278 | 0.70 | 0.741 | 0.634 | 0.740 |
| 330 | 0.75 | 0.769 | 0.677 | - |
| 383 | 0.80 | 0.792 | 0.746 | Pr 00 |
| 436 | 0.85 | 0.823 | 0.859 | |
| 488 | 0.90 | 0.866 | 1.01 | |
| 541 | 0.95 | 1.048 | 1.16 | |
| | | | | |

*Calculated from Rocketdyne's heat capacity equation (Reference 7): $C_{p}(cal/g^{-0}K) = -0.7458 + 0.01132T - 0.2963 \times 10^{-4} \text{ T}^{2} + 0.2648 \times 10^{-7} \text{ T}^{3}$

where T = °K

AFRPL-TR-67-208, Appendix B

TABLE 7

THERMAL CONDUCTIVITY OF LIQUID MMH (REFERENCE 7) (u)

| | Thermal Conductiv | ity, Btu/hr-ft-°F |
|-----------------|--------------------|-------------------|
| Temperature, °F | Avg. Expt. Value* | Calc. Value** |
| 0 | | 0.1460 |
| 0.62* | 0.1470 | 0.1460 |
| 50.00 | | 0.1443 |
| 50.92* | 0.1430 | 0.1443 |
| 100.00 | | 0.1410 |
| 100.54* | 0.143 ₅ | 0.1409 |
| 150.00 | | 0.1359 |
| 150.58* | 0.1332 | 0.1359 |
| 200.00 | | 0.1292 |
| 200.89* | 0.1298 | 0.1290 |
| 250.00 | | 0.1207 |
| 250.98* | 0.1232 | 0.1206 |
| 300.00 | • • | 0.1106 |
| 305.04* | 0.1088 | 0.1095 |

 $k(Btu/hr-ft-{}^{\circ}F) = 0.146 - 1.63 \times 10^{-5}T - 3.39 \times 10^{-7}T^{2}$

where T is temperature in oF

^{*}Average of two to four data points **Calculated from Rocketdyne's equation (Reference 7):

AFRPL-TR-67-208, Appendix B

TABLE 8

VAPOR PRESSURE OF MMH (u)

| ОС Тетре | rature | Vapor | Pressure | |
|----------|----------------|-------|----------|------|
| | o _F | mm Hg | psia | Ref. |
| 1.99 | 35.58 | 12.11 | 0.2342 | 6 |
| 11.77 | 53.19 | 22.85 | 0.4419 | 6 |
| 17.79 | 64.02 | 31.76 | 0.6142 | 6 |
| 20.56 | 69.01 | 38.72 | 0.7488 | 6 |
| 25.00 | 77.00 | 49.63 | 0.9598 | 6 |
| 25.20 | 77.36 | 50.00 | 0.9670 | 6 |
| 36.28 | 97.30 | 89.6 | 1.733 | 1 |
| 39.88 | 103.78 | 105.4 | 2.038 | 1 |
| 46.52 | 115.74 | 147.4 | 2.851 | 1 |
| 52.57 | 126.63 | 194.7 | 3.766 | 1 |
| 58.49 | 137.28 | 248.7 | 4.810 | 1 |
| 64.61 | 148.30 | 319.4 | 6.177 | 1 |
| 70.15 | 158.27 | 400.0 | 7.736 | 1 |
| 77.87 | 172.17 | 535.7 | 10.36 | 1 |
| 81.48 | 178.66 | 611.7 | 11.83 | 1 |
| 86.91 | 188.44 | 743.7 | 14.38 | 1 |
| 150 | 302 | 4580 | 88.58 | 1 |
| 180 | 356 | 7740 | 149.7 | 1 |
| 210 | 410 | 14200 | 274.6 | 1 |
| 240 | 464 | 24020 | 464.5 | 1 |
| 312 | 593.6 | 61770 | 1194.6 | 1 |

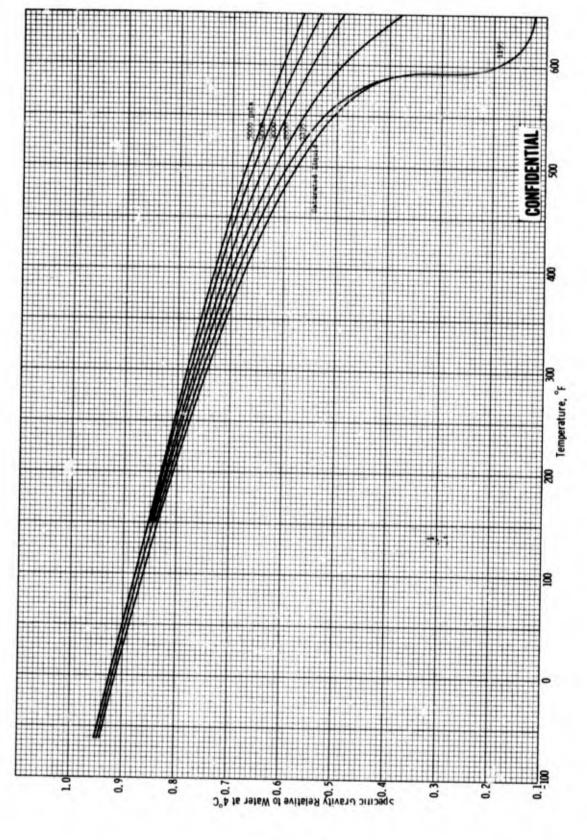
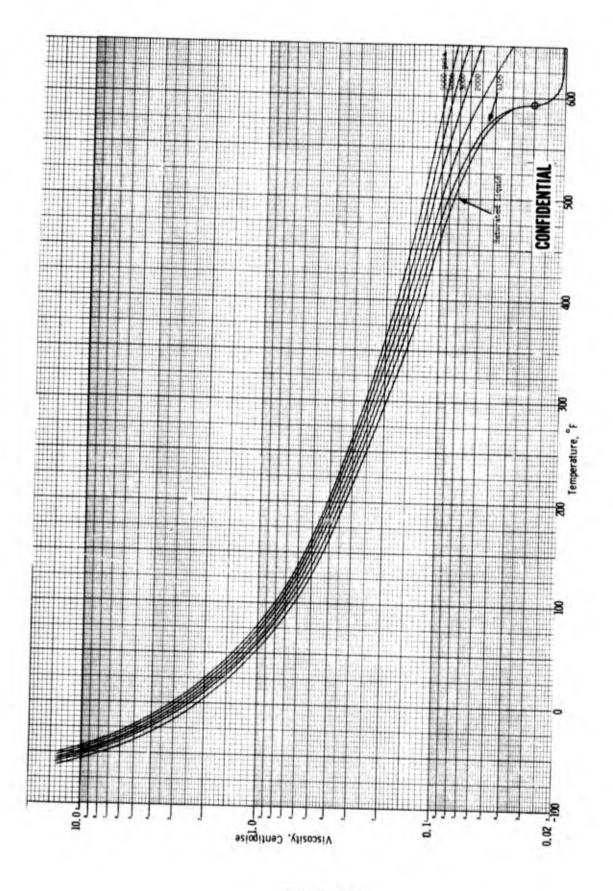


Figure 1

Extrapolated Specific Gravity of MMH (u)

Report AFRPL-TR-67-208, Appendix B



Extrapolated Viscosity of MMH (u)

Figure 2

CONFIDENTIAL

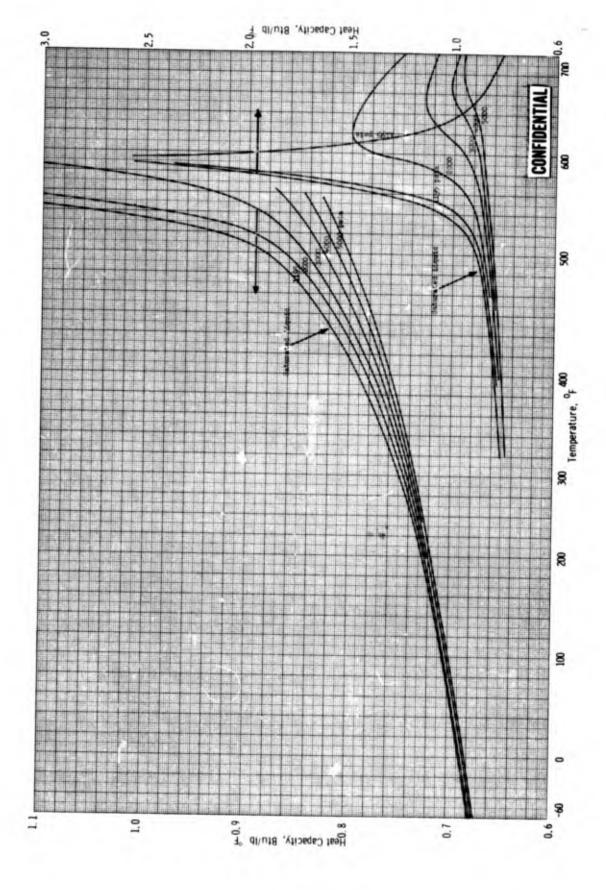


Figure 3

Extrapolated Heat Capacity of MMH (u)

Report AFRPL-TR-67-208, Appendix B

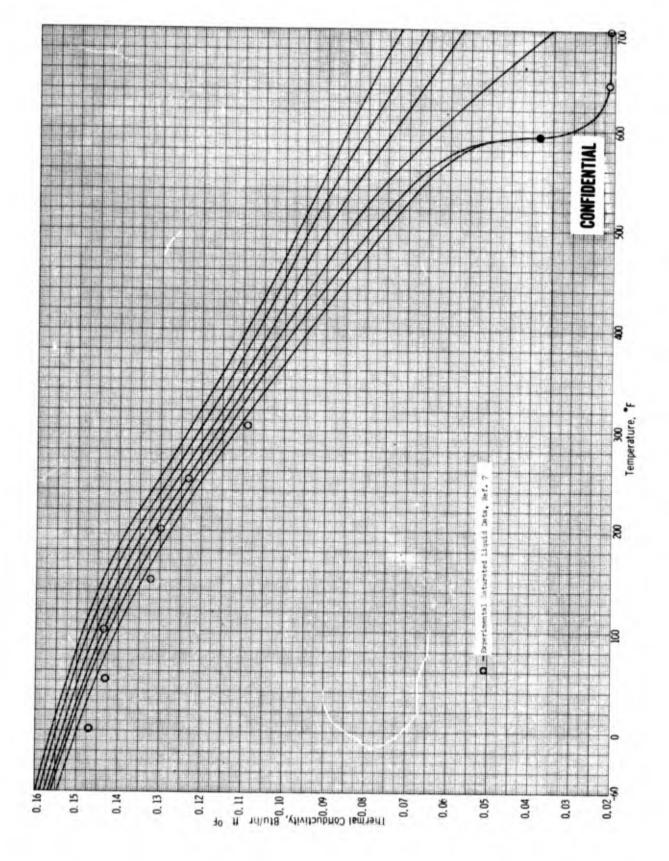


Figure 4

CONFIDENTIAL

Extrapolated Thermal Conductivity of MMH (u)

Report AFRPL-TR-67-208, Appendix B

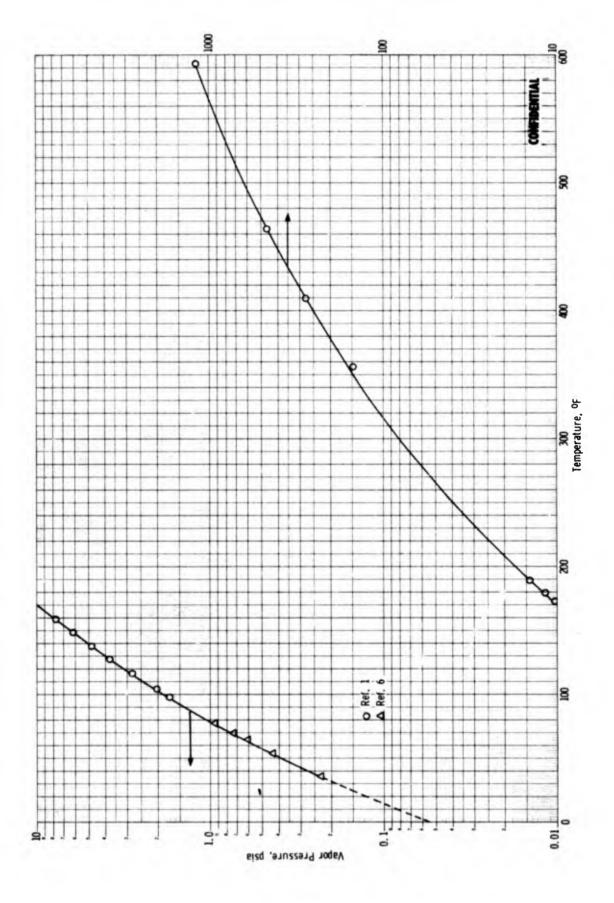


Figure 5

Vapor Pressure of MMH (u)

AFRPL-TR-67-208

APPENDIX C
TABULATED TEST RESULTS

AFRPL-TR-67-208, Appendix C

APPENDIX C

The output from the data reduction computer program for the MHF-5 and MMH heat transfer tests is given in the following pages. The data are listed in numerical order by test number. The equations used in the computer program are given in Section V of the main body of this report.

The output for each test consists of two sections; overall test parameters and local test parameters. The nomenclature for each section is defined 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 with zero test section heat flux, °F |
| POINT, DATA POINT | = Refers to a certain heat flux level or, in tests HT-8-113, HT-8-114, and HT-8-134 only, a certain time. |
| 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, volts |
| 12 | = Test section current, amps |
| QP | = Electrical power, Btu/sec |
| HT BAL | = Heat Balance, % |
| G | = Mass flux, 1b/sec ft ² |

AFRPL-TR-67β208, Appendix C

Appendix C (cont.)

Test Section - Local Test Parameters

| STA | = Refers to a certain axial position |
|---------|--|
| РВ | = Local pressure, psia |
| TB | = Local bulk temperature, °F |
| TW | = Outside wall temperature, °F |
| TI | = Inside wall temperature, °F |
| Q/A | Heat flux calculated from wall temperature gradient, Btu/in. ² |
| 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 |
| vs | = Local coolant velocity, ft/sec |
| L/D | = Length to diameter ratio based on length between station location and upstream end of heated length |
| DELTA E | = Incremental voltage drop, volts |
| LE | = Length over which DELTA E was measured, in. |
| | |

| ₩. | | |
|----|--|--|
| _ | | |
| _ | | |
| | | |
| Œ | | |
| | | |
| _ | | |
| | | |
| i) | | |
| - | | |
| z | | |
| 3 | | |
| ~ | | |
| | | |
| - | | |
| | | |
| | | |
| _ | | |
| • | | |
| Ž. | | |
| ¥ | | |
| I. | | |
| | | |
| | | |
| | | |
| 2 | | |
| _ | | |
| | | |
| W7 | | |
| | | |
| • | | |
| • | | |
| - | | |
| - | | |
| | | |
| • | | |
| - | | |
| | | |
| _ | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | | | | | | DATA | DATA POINTS | | | | | | | | | | |
|-------|------------|----|-----------|---------|-----------|------------|--------------------------------------|------------|---|-----------|----|------------|----|-----------|----|--------|----|
| POINT | | | P8-001 | | 18-1N | TB-00T | | £2 | | 12 | | 8 | | HT BAL | | y | |
| | 5.290E 02 | 02 | 5-220E 02 | | 6-620E 01 | 9.540E 01 | | | | | 02 | 4.044E | 00 | 7.327F 00 | 00 | 2.659E | 03 |
| N | 5.290E 02 | 05 | 5.220E 02 | | 8.630E 01 | 1.037E 02 | | | | 7.460E | 02 | 8.571E | 00 | 1.062E 01 | 01 | 2.697E | 03 |
| m | \$.280E 02 | 05 | 5.210E 02 | | 8.640E 01 | 1.125E 02 | 02 6.9806-01 | 01 1.558E | 5 | 9.090E | 02 | 1 . 34 3E | 10 | 1.324 | 5 | 2.670E | 03 |
| | | | | | TEST | SECTION . | TEST SECTION - LOCAL TEST PARAMETERS | PARAMETERS | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | DAT | DATA POINT 1 | | | | | | | | | | |
| STA | 2 | | 18 | | - | 11 | 4/0 | Q/AP | | r | | DEL TF | | × × | | | |
| - | 5.246E 02 | | 9.1956 01 | 2.3 | 2.330E 02 | 1.966E 02 | 9.868E-01 | 9.795E-01 | ~ | 9.358E-33 | | 1.04 7E 02 | • | 4.250E 01 | | | |
| ~ | 5.235E 02 | | 9.348E 01 | 2.340E | 10E 02 | 1.977E 02 | 9.864E-01 | | _ | 9-4036-33 | | 1.042E 02 | • | | | | |
| m | 5.223E 02 | | 9.502E 01 | 2.3 | 2.340E 02 | 1.977E 02 | 9.864E-01 | 9.795E-01 | - | 9.543E-03 | | 1.026E 02 | • | 4.256E 01 | | | |
| STA | S | | DELTA E | | 1 | | | | | | | | | | | | |
| - | 1.712E 01 | • | | 6.000E | 00 € 00 | | | | | | | | | | | | |
| N | 2.169E 01 | | | 6.000E | | | | | | | | | | | | | |
| m | 2.626E 01 | | | 6.000E | | | | | | | | | | | | | |
| | | | | | | 1 | 444 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| STA | 84 | | 16 0 | | 18 | T | 4/0 | O/AP | | I | | DEL TF | | 8 | | | |
| - | 5.246E 02 | | 9.717E 01 | 3.75 | 95 | 3.019E 02 | 2.102E 00 | 2.076E 00 | | 1.014E-02 | N | 2.047E 02 | • | 4.322E 01 | | | |
| ~ | 5.235E 02 | | 1.001E 02 | 3.760E | 02 | 3.030E 02 | 2.101E 00 | 2.076E 00 | | 1.023E-02 | N | 2.029E 02 | * | 4.328E 01 | | | |
| m | 5.223E 02 | | 1.030E 02 | 3.750€ | 02 | 3.019E 02 | 2-102E 00 | 2.076E 0 | | 1.044E-02 | - | 1.989E 02 | * | | | | |
| STA | 9/1 | | DELTA E | - | | | | | | | | | | | | | |
| - | 1.712E 01 | | 1.212E 01 | 6.000E | 00 30E | | | | | | | | | | | | |
| ~ | 2.169E 01 | | | 6.000E | | | | | | | | | | | | | |
| m | 2.626E 01 | | 1.212E 01 | 6. CCOE | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | S LEIGHT | | | | | | | | | | |
| STA | 64 | | 18 | | 2 | 11 | 4 | 9/AP | | I | | DEL TF | | <i>S</i> | | | |
| _ | 5.236E 02 | | 1.027E 02 | 5.14 | 5.140E 02 | 4. CSSE 02 | 3.302E 00 | 3.252E 00 | 0 | 1.0746-02 | r) | 3.027E 02 | 4 | 1.291E 01 | | | |
| N | \$.225E 02 | | 1.071E 02 | 5.150E | 02 | 4.065E 02 | 3.301E 00 | 3.252E 00 | 0 | 1.086E-02 | | 2.995E 02 | * | 4.300E 01 | | | |
| m | 5.213E 02 | | 1.114E 02 | 5, 130E | 0.5 | 4.044E 02 | 3.303E 00 | | • | 1.110E-02 | | 2.929E 02 | • | | | | |
| STA | 973 | | DEL TA F | • | 4 | | | | | | | | | | | | |
| | 1.712F 01 | | 1.55AF 01 | 9000 | 00 300 | | | | | | | | | | | | |
| ٠. | 2-169F 01 | | 1.55AF 01 | A 000F | 00 00 | | | | | | | | | | | | |
| 4 m | 2.626E 01 | | 1.558E 01 | 9.00 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DA

OVERALL TEST PARAMETERS

102. BURNDUT AT DATA PT 9. BURNOUT SITE COND. AT DATA PT 10

| | 9 | 2.835E 0 | | | | | | | BOE 0 | 92E 0 | 38E 0 | | | | | | | | | | | | | | | | | | | |
|--------|-----------|------------|-----------|-----------|------------|-----------|-----------|--|-----------|-----------|--------------------|--|--------------------------------------|------------|-----|------------|-----------|-----------|--------|--------|---------|--------|------------|-----|-----------|-----------|-----------|-------|--------|--|
| | | 2.8 | 2.8 | 2.65.6 | 2-9345 | 2000 | | Z. 901E | 2.980E | 2.992E | 2.988E | | | | | | | | | | | | | | | | | | | |
| | پ | -3.888E 00 | 00 | | | | | | | | 88 | | | | | | | | | | | | | | | | | | | |
| | HT BAL | 38 BE | 129E | 156E | 50.56 | 1754 | | ֚֓֞֝֜֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֡֓֓֓֓֓֡֓֡֓֡֓֡ | 10 | 2 | 57E | | | | | | 10 | | 5 | | | | | | | 0 | 5 5 | | | |
| | I | | -7.129E | | | | | | -4.00it | -9.467E | -8.257E -6.257E | | | | | S A | 4.52SE | 4.530E | 3050 | | | | | | S A | 4.631E | 4.6395 | | | |
| | | 8 | 00 | 5 | 5 | 0 | | | | | 5 5 | | | | | | | | | | | | | | | | | | | |
| | 0 | 5.882E | 8.561E | 1.413E | 2.136E | 2.750E | 3.55AF | 4.2675 | 20000 | 5.072E | 5.980E | | | | | DEL TF | | 1.569E 02 | | | | | | | DEL TF | 2.262E 02 | 2.241E 02 | | | |
| | | 20 | 02 | 02 | 60 | 03 | 0.3 | 10 |) [| 3 6 | 9 9 | | | | | _ | _ | | | | | | | | ٩ | 'n | | | | |
| | | | | | 1 - 1 09E | 1.252E | 1.410E | | | | | | | | | I | 9-074E-03 | 9.079E-03 | | | | | | | I | 9-166E-03 | 9.251E-03 | | | |
| | | | - | • | _ | - | _ | | • | | - | | | | | | 9.0 | 0.0 | | | | | | | | -16 | . 29 | | | |
| | | | | | | 5 | 5 | 6 | | | | | | | | | | | | | | | | | | | | | | |
| | E2 | 9.880E | 1.217E | 1.620E | 2.032E | 2.324E | 2.660E | 2.934E | 3.227F | 3.538F | 3.5386 | | TEST SECTION - LOCAL TEST PARAMETERS | | | Q/AP | 1.425E 00 | 1.425E 00 | | | | | | | O/AP | 2.073E 00 | 2.073E 00 | | | |
| | | 5 | 5 | 0 | 0 | 0 | ē | -01 | -01 | 5 | 0 | | PA | | | | | | | | | | | | • | 4 6 | W 64 | | | |
| : | | 1 | 10-30,000 | 10-30-0-1 | 1.6 70E-01 | 1.110E-01 | 7.740E-01 | 7.790E-01 | 7-820E-01 | 7-810E-01 | 7-8106-01 | | TEST | - | | A 70 | 0 0 | 000 | | | | | N | | | 3 | 80 | | | |
| | , | | | | : | | 7:7 | 7.7 | 7.8 | 7.8 | 7.8 | | DCAL | DATA POINT | • | A 205 A. | 00 300 | 1-436E | | | | | DATA POINT | | 2-1055 00 | 2.104E OG | 2.102E 00 | | | |
| , | | | | | | 9 | 0 | | 02 | 02 | 05 | | 1 | 4 | | | | | | | | | 9 | | • | , , | 1 10 | | | |
| 70.01 | 905 4.0 | 1.0036 | 1.1106 | 2200 | 2 | 1 | 1.565 | 1.7116 | 1.877E | 2.051E | 2.051E | | NO | DAT | ; | PARAF 02 | | 05 | | | | | DAT | ; | . 00 | | 02 | | | |
| | | | | | | | | 1.1 | 1.8 | 2.0 | 2.0 | | ECT | | ĺ | 464 | | 2.506E | | | | | | ٠ | 3.1035 | 3.204E | 3.225E | | | |
| | | | | : : | : : | : : | | 5 | 5 | 0.1 | - | | ST S | | | 2 | | 8 | | | | | | | - | | | | | |
| TH- IN | | | | | | | | | | | | | 16 | | | 02 | 0 | 0.5 | | 5 | 3 8 | 300 | | | 25 | 02 | 05 | | | |
| 2 | 6-130F | 8- 14 OF | 6.150F | A. IAAF | 8.1406 | | | 20110 | 8. 180E | 8.190E | 8. 190E | | | | - | 2.580E 02 | 90E | | | | | | | - | 3-520E 02 | ae G | | 4 | | |
| | | | | | | | | | | | • | | | | | 2.5 | 3.000E | 3.020 | • | 2000 | 2000 | 6.000E | | | 3.52 | 3. 930E | 3.950E | - | 4.000 | |
| - | 0 | 02 | | | | | | | | | 05 | | | | | | | | | | | | | | | | ۳, | | 4 | |
| P8-047 | 5.330E 02 | 5.330E | 5.330E | 5.330E | 5.330E | 5- 160F | 36.05 | 5 | 30210 | 5.310E | 5.310€ | | | | 18 | E 0 | E 01 | E 01 | u | | | | | 60 | 0 | 10 | 10 | ш | | |
| 0 | 5 | 5 | 5 | | | | | | 'n | 10 | 6 | | | | | 8.942E 01 | 9.159E 01 | 9.376E | DEL TA | 0.8805 | S. AAAE | 9.680E | | | 9.315E 01 | 9.62BE | 9.942E 01 | DELTA | 1-2176 | |
| | 20 | 02 | 20 | 02 | 02 | 0.2 | 00 | | 2 | 20 | 20 | | | | | | • | · | C | | | • | | | • | 6 | • | ō | - | |
| N1-84 | 30 | JOE. | | | | | | | | | | | | | | 05 | 0 | 05 | | 0 | . 0 | - | | | 0.2 | 02 | 95 | | 0 | |
| 9 | 5.390E 02 | 5.400E | 5.390E | 5.390E | 5.400E | 5.430E | E. AAOF | | | 3.380E | 30 36 OE | | | | 96 | 5.352E 02 | 5.342E 02 | 5.332E | 3 | | | | | P.8 | 5.356E | | 5.333E | 6/3 | 1.712F | |
| POINT | | | | | | | | | | | | | | | | ŝ | 'n | \$ | | - | 2 | 2 | | | 2 | 3 | 5 | | 7 | |
| Ξ | _ | N | _ | _ | _ | | | | | > < | | | | | STA | - | | m | STA | | | | | STA | | | | STA | | |

| | | | Ī | HT-8-102 DATA | DATA POINT 3 | | | | | |
|----------|--|--|---|---|---|---|--|---|---|--|
| 4 - N F | 6.352E 02 5.342E 02 5.332E 02 | 16 1.005E 02 1.056E 02 1.106E 02 | 5.730E 02 5.730E 02 5.730E 02 | 7.611E 02 4.611E 02 4.611E 02 | 4 4 4 4 4 0 0 0 | 3.422E 00 3.422E 00 3.422E 00 | 9.490E-03 9.625E+03 9.764E-03 | DEL TF 3.606E 02 3.555E 02 3.505E 02 | VS 4.691E 01 4.703E 01 4.715E 01 | |
| 4 - N F | 1.712E 01 2.169E 01 2.626E 01 | DELTA E 1.620E 01 1.620E 01 | 0.000 00 00 00 00 00 00 00 00 00 00 00 0 | | | | | | | |
| STA - ST | 95.352E 02.352E 02.3532E 02.352E 02.3 | 1.100E 02 | 7.060E 02 | DATA TI 5.452E 02 5.474E 02 | DATA POINT 4 1 Q/A 02 5.269E 00 02 5.266E 00 | S-174E 00 | 1.169E-02 1.204E-02 | DEL 1F 4-352E 02 4-399E 02 | VS 4.732E 01 | |
| 3 - 2 6 | L/D 1.7126 01 2.1696 01 2.6266 01 | 2.032E 01.2.032E 01.2.032E 01.2.032E 01.2.032E 01.2.032E 01.2.032E 01.2.032E 01.2.032E 01.2.032E | | | | | | | | |
| | | | | DATA | DATA POINT S | | | | | |
| 4 - N F | 5.356E 02 5.345E 02 5.333E 02 | 1.162E 02 1.279E 02 1.377E 02 | 7.620E 02 7.640E 02 7.560E 02 | 5.579E 02 5.602E 02 5.510E 02 | 0/A 6.791E 00 6.786E 00 6.805E 00 | 0/AP 6.681E 00 6.681E 00 6.681E 00 | H 1.519E-02 1.545E-02 1.616E-02 | 0EL TF 4.397E 02 4.323E 02 4.133E 02 | VS 4.777E 01 4.801E 01 | |
| THN M | L/0 1.712E 01 2.169E 01 2.626E 01 | DELTA E 2.324E 01 2.324E 01 2.324E 01 | 6.000E 00 6.000E 00 6.000E 00 | | | | | | | |
| Y-NF | 5.360E 02 5.360E 02 5.357E 02 | | 18 8.320E 02 8.350E 02 8.360E 02 | 0ATA T1 5.742E 02 5.778E 02 5.790E 02 | DATA POINT 6 1 | 6.611E 00 | 1.932E-02 1.971E-02 2.023E-02 | DEL TF 4.458E 02 4.369E 02 4.256E 02 | VS 4.821E 01 4.834E 01 | |
| - 2 5 | L/D 1.712E 01 2.169E 01 2.626E 01 | 2.660E 01 2.660E 01 2.660E 01 | 6.000E 00 6.000E 00 | | | | | | | |

| | vs 4.876E 01 4.917E 01 4.960E 01 | VS 4.92 % 01 4.97 % 01 5.02 6E 01 | VS 4 6 6 0 1 7 3 6 0 1 | 8 8 6 01 8 8 6 01 8 9 6 01 |
|---------------------|---|--|--|---|
| | | | 4 N N | N N N |
| | DEL TF 4.596 02 4.463 02 4.406 02 | DEL TF 4.736 02 4.566 02 4.566 02 | DEL TF 4.829E 02 4.904E 02 | DEL TF 4.904E 02 4.904E 02 4.904E 02 |
| | H 2.252E-02 2.315E-02 2.349E-02 | 2.59E-02 2.650E-02 2.694E-02 | 2.999E-02 2.952E-02 2.953E-02 | z. |
| | 0/AP 1.035 01 1.035 01 1.035 01 | 0/AP 1.2286 01 1.2286 01 1.2286 01 | 0/AP 1-446E 01 -446E 01 1-446E 01 | 0/AP 1.448E 01 1.448E 01 1.448E 01 |
| POINT 7 | 02 1.045E 01 02 1.044E 01 02 1.042E 01 | 0,A 1,236 01 1,236 01 1,235 01 | 0/A 0/A 1.465E 01 1.446E 01 | 01MT 10 |
| HT-3-102 DATA POINT | 11 5-964E 02 5-969E 02 6-073E 02 | T I T C S S S S S S S S S S S S S S S S S S | DATA POINT T1 6.418E 02 1.465 6.706 02 1.455 | 0ATA POINT |
| be | 18 9.590E 02 9.010E 02 9.080E 02 LE 6.000E 00 6.000E 00 | 9.7% 0E 02 9.80 0E 02 9.86 0E 02 0.60 0E 06 6.00 0E 06 | 1. 050E 03 1. 072E 03 1. 080E 03 LE 6.000E 00 6.000E 00 | 1 TE |
| | 1.376E 02 1.525E 02 1.674F 02 DELTA E 2.934E 01 2.934E 01 2.934E 01 | 1.480E 02 1.656E 02 1.635E 02 05LTA E 3.227E 01 3.227E 01 | 16 589E 02 1-794E 02 2-000E 02 DELTA E 3-530E 01 3-530E 01 3-530E 01 3-530E 01 | 78 2.030E 02 2.030E 02 2.030E 02 DELTA E 3.538E 01 |
| | 5.390E 02 5.37E 02 5.363E 02 1.712E 01 2.169E 01 | PB 5.424E 02 5.421E 02 1.712E 01 2.169E 01 2.626E 01 | 6.336E 02 5.325E 02 5.313E 02 L/0 1.712E 01 2.169E 01 | 5.311E 02 5.311E 02 5.311E 02 L/D |
| | 8 - 8 B - 8 B | ATA BE ATA | 4 - 0 m 4 - 0 m | ST S |

Report AFRPL-TR-67-208, Appendix C

IQUID SIDE MEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

HT-8-103 . BURNOUT AT DATA PT 10. BURNOUT SITE COND AT DATA PT 11

| | | | | | | | DATA | POINTS | 15 | | | | | | | | | |
|-------|-----------|-----|-----------|-----|-----------|---|-----------|--------|-----------|----|-----------|----|-----------|----|-----------|-----|----------|---|
| THEOR | -B- | * | PB-001 | _ | 18-11 | 7 | | | | | £2 | | 12 | | | | HT BAL | |
| • pet | 1-1396 03 | 03 | 1.076E 03 | 03 | 9.790E 01 | 0 | 1.037E 02 | 2 | 1.204E 00 | 00 | 7.060E 00 | 00 | 4.740E 02 | 20 | 3.172E 00 | 00 | 7.1566 0 | · |
| ~ | 1.1398 | 03 | 1.079E | 93 | 5.930E | 5 | | 25 | 1.212E | 00 | 1.0295 | õ | 6.540E | 02 | | 00 | -5-595E | v |
| m | 1.136 | 0.3 | 1.0796 | 03 | 9.91 0E | 5 | | 25 | 1.219E | 00 | 1.4536 | 10 | 8.610E | 02 | | 5 | -8.2396 | U |
| • | 1.1356 | 60 | 1.078 | 03 | 5.880E | 6 | | 2 | 1.222E | 00 | 1.840€ | 10 | 1.029E | 03 | | 0 1 | -7.873E | • |
| sn | 1.1336 | 0 | 1.0795 | 03 | 9.850E | 0 | | 2 | 1.221E | 00 | 2.213E | 70 | 1.177E | 60 | | 5 | -6.985E | |
| • | 1.1326 | 03 | 1.076E | 03 | 9.860E | 0 | | 25 | 1.226E | 00 | 2.616E | 10 | 1.341E | 03 | | 0 | -7.326E | v |
| _ | 1.132 | 93 | 1.076E | 6.0 | 5.890E | 0 | | 20 | 1.224E | 00 | 3.005E | 0 | 1.500€ | 03 | | - | -6.995E | 9 |
| • | 1.1348 | 03 | 1.076E | 03 | 5.560E | 5 | | 2 | 1.236E | 00 | 3.343E | 01 | 1.629€ | 03 | | 0 | -7.790E | o |
| • | 1.1336 | 03 | 1.075E | 03 | 9.970E | 6 | | 25 | 1.238€ | 00 | 3.587E | 10 | 1.720E | 03 | | | -8.432E | O |
| 10 | 1.1306 | 03 | 1.0696 | 03 | 5.930E | 0 | | 2 | 1.224E | 00 | 3.811E | 0 | 1.7936 | 03 | | 5 | -8-544E | 0 |
| | | | | | 0000 | | | • | 1100 | | | | | | | | 1 | 1 |

88888888888888888

Report Arnri-TR-67-208, Appendix C

TEST SECTION - LDCAL TEST PARAMETERS HT-8-103. BURNGUT AT DATA PT 10. BURNGUT SITE COND AT DATA PT 1

| VS 01 1.472E 02 01 1.473E 02 |
|---|
| 0EL TF 4.647E 4.502E |
| 3.504E-02 |
| 1.628E 00 1.628E 00 1.628E 00 |
| 0/A 1.675E 00 1.675E 00 |
| 1.469E 02 1.469E 02 1.459E 02 |
| 7W 2.090E 02 2.090E 02 2.060E 02 |
| TB 1.004E 02 1.019E 02 1.033E 02 |
| PB 1.112E 03 1.097E 03 1.082E 03 |
| • N m |

TEST SECTION - LOCAL TEST PARAMETERS (III-8-10) . BURNOUT AT DATA PT :

| 1.1996 03 1.1376 02 0.406 02 0.406 02 1.1376 03 1. | | | | | DATA | DATA POINT S | | | | | |
|--|-----|-----------|-------------|------------|------------|--------------|-------------|-------------|-----------|----|-----|
| 1.100 23 1.1376 02 0.4506 02 1.1376 01 1.2676 01 1 | • | 2 | 16 | | - | 4/9 | 9/AP | I | DEL TF | * | |
| 1.0996 03 1.3156 02 4.3066 02 4.3066 02 1.3316 01 1.2076 01 4.2066-02 3.0136 02 1.3166 03 1.3166 02 4.3266 02 1.3316 01 1.2076 01 4.2066-02 3.0136 02 1.3176 1.3076 1 | _ | | 1.137E 02 | 8.54 0E | 4.640E 02 | 1.320E 01 | 1.267E 01 | 3.6165-02 | 3.503€ 02 | | • |
| 1.08 | • | | 1.224E 02 | 8-480E | 4. SAIF 42 | 1.323€ 01 | 1.267E 01 | 3.7985-02 | | | |
| 1.1276 01 2.131 01 4.0000 00 | _ | | 1.310E 02 | 8.3006 | 4.324E 02 | 1.331E 01 | 1.267E 01 | 4.206E-02 | | | . ~ |
| 1-1796 01 2-2136 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-326 01 4-0006 00 2-4196 01 2-346 02 1-346 02 2-736 01 2-456 01 7-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 02 1-4596 01 1-4596 02 1-4596 02 1-4596 01 1-4596 01 1-4596 02 1-4596 02 1-4596 01 1-459 | STA | 200 | | | | | | | | | |
| 1.1774E 01 2.213E 01 4.000E 00 2.419E 01 2.416E 02 0.480E 02 1.777E 01 1.707E 01 4.774E-02 1.777E 01 1.707E 01 4.707E 01 4.707E 02 1.777E 01 1.707E 01 4.774E-02 1.777E 01 1.707E 01 1.707E 01 4.774E-02 1.777E 01 1.707E 01 4.774E-02 1.777E 01 1.707E 01 4.707E 02 1.777E 02 | - | | | 4.000 | | | | | | | |
| 2.419E 01 2.213E 01 4.000E 00 1.100E 03 1.105F 02 1.002E 03 4.000E 00 1.100E 03 1.105F 02 1.002E 03 4.000E 02 1.777E 01 1.707E 01 4.224E-02 3.776E 02 1.537E 1.100E 03 1.105F 02 1.002E 03 4.000E 02 1.778F 01 1.707E 01 4.724E-02 3.776E 02 1.537E 1.100E 03 1.205E 01 4.000E 02 4.003E 02 1.709E 01 1.707E 01 5.226E-02 3.706E 02 1.537E 1.100E 03 1.205E 01 4.000E 00 2.410E 01 2.616E 01 4.000E 00 2.410E 01 3.400E 02 1.226E 01 2.600E 01 7.916E-02 3.300E 02 1.539E 1.000E 03 1.300E 01 4.000E 00 2.410E 01 3.400E 02 2.731E 01 2.600E 01 7.916E-02 3.300E 02 1.500E 2.410E 01 3.400E 00 1.226E 03 5.600E 02 2.731E 01 2.600E 01 7.916E-02 3.300E 02 1.500E 2.410E 01 3.400E 00 1.226E 01 3.400E 00 1.600E 00 2.410E 01 3.400E 01 1.776E 01 3.400E 00 1.600E 00 2.410E 01 3.400E 01 1.400E 00 2.410E 01 1.400E 01 1.400E 00 2.410E 01 1.400E 01 1.400E 00 2.410E 01 1.400E 01 2.410E 01 1.40 | | | | - C00E | | | | | | | |
| 1.1096 03 1.1876 02 1.0026 03 4.4056 02 1.7776 01 1.7776 01 1.7076 01 4.2246-02 3.7766 02 1.5276 1.0946 03 1.1876 02 1.0026 02 4.4076 02 1.7896 01 1.7076 01 4.7746-02 3.5766 02 1.5276 1.0776 03 1.1876 02 4.4056 02 4.4076 02 1.7896 01 1.7076 01 4.7746-02 3.5766 02 1.5276 1.0776 03 1.2466 02 4.4056 02 4.4076 03 4.7866-02 3.7866 02 1.5376 1.076 03 1.2446 02 1.1056 03 4.4086 02 2.5076 01 2.1036 01 5.2776-02 3.5766 02 1.5376 1.0776 03 1.3896 02 1.1076 03 4.5006 02 2.5076 01 2.1036 01 7.3976-02 2.4056 02 1.5376 1.0776 03 1.3896 02 1.1076 03 4.5006 02 2.5076 01 2.1036 01 7.3976-02 2.4056 02 1.5376 1.0776 03 1.3896 02 1.1076 03 4.5006 02 2.5077 01 2.1036 01 7.3976-02 2.4056 02 1.5376 1.0776 03 1.3896 02 1.2278 03 4.5006 02 2.5077 01 2.1036 01 7.916-02 3.3966 1.0776 03 1.3896 02 1.2278 03 4.5006 03 2.5077 01 2.1036 01 7.916-02 3.3967 1.0096 03 1.446 02 1.2276 03 5.5096 02 2.7316 01 2.6506 01 7.916-02 3.3967 1.0096 03 1.446 02 1.2276 03 5.5096 02 2.7316 01 2.6506 01 7.916-02 3.3967 1.0096 03 1.446 02 1.2276 03 5.5096 02 2.7316 01 2.6506 01 7.916-02 3.3967 1.0096 03 1.446 02 1.2276 03 5.1086 02 2.7316 01 2.6506 01 7.916-02 3.3967 1.0096 03 1.446 02 1.2276 3.3967 02 2.7316 01 2.6506 01 7.916-02 3.3967 1.0096 03 1.446 02 1.2276 03 4.6006 00 7.916-02 2.4967 01 2.6506 01 7.916-02 2.4967 1.1776 01 3.9336 01 4.0006 00 7.9376 01 7.916-02 2.4967 01 2.4967 1.1776 01 3.446 02 1.2276 03 2.4496 01 | _ | | | 4.000E | | | | | | | |
| 1.096 03 1.1876 02 0.026 03 0.040 0.04 | | | | | | | | | | | |
| 1.1096 0.3 1.1016 0.4 | | | | | DATA | | | | | | |
| 1.100E 03 1.100E 02 1.000E 02 4.000E 02 1.77F 01 1.77F 01 4.772E-02 3.77E 02 1.23E 1.079E 03 1.100E 02 0.000E 02 4.000E 02 1.79F 01 1.70F 01 5.226E-02 3.576E 02 1.23E 1.079E 03 1.100E 03 0.000E 02 4.000E 02 1.79F 01 1.70F 01 5.226E-02 3.70E 02 1.23E 1.709E 01 2.016E 01 4.000E 00 1.774E 01 3.00SE 01 1.00E 03 4.00E 02 2.30F 01 2.193E 01 7.39F 02 1.53F 02 1.53F 02 1.53F 03 1.53F 03 1.50F 03 | 4 | 84 | 10 | | 1 | 4/0 | 97.70 | 3 | | • | |
| 1.0946 03 1.302f 02 9.966 02 4.0776 02 1.7916 01 1.7076 01 4.7766 02 3.7566 02 1.5316 1.1076 03 1.4166 02 0.8266 02 4.0836 02 1.7916 01 1.7076 01 4.7766 02 3.7666 02 1.5316 1.1076 01 2.6166 01 4.0006 00 2.4196 01 2.6166 01 4.0006 00 2.4196 01 2.6166 01 4.0006 00 2.4196 01 2.6166 01 4.0006 00 2.4196 01 2.6166 01 4.0006 00 2.4196 01 2.6166 01 4.0006 00 2.4196 01 2.6166 01 4.0006 00 2.4196 01 2.6166 01 4.0006 00 2.4196 01 2.6166 01 4.0006 00 2.4196 01 3.0056 01 4.0006 00 2.4196 01 3.4056 02 1.2256 01 2.6506 01 2.6506 01 7.6596-02 3.3066 02 1.5356 01 2.6506 01 7.6596-02 3.3066 02 1.5356 01 2.6506 01 7.6596-02 3.3066 02 1.5356 01 2.6506 01 7.6596-02 3.3066 02 1.5506 01 2.6506 01 7.6596-02 3.3066 02 1.5506 01 2.6506 01 7.6596-02 3.3066 02 1.5506 01 2.6506 01 7.6596-02 3.3066 02 1.5506 01 7.6596-02 3.3066 01 7.6596-02 3.3066 01 7.6596-02 3.3066 01 7.6596-02 3.3066 01 7.6596-02 3.3066 01 7.6596-02 3.3066 01 7.6596-02 3.3066 01 7.6596-02 3.3066 01 7.6596-02 3.3 | | 1.108E 03 | 1.187E 02 | 1.002E 03 | 4.960E 02 | 1.777F 01 | 1.7076 01 | A . 8345-03 | 1 111 | | |
| 1.079E 03 1.416E 02 0.620E 02 4.403E 02 1.799E 01 1.707E 01 5.226E-02 3.506E 02 1.531E 1.1276E 01 2.616E 01 4.000E 00 2.419E 01 3.005E 01 4.000E 00 2.419E 01 3.400E 02 1.235E 01 2.650E 01 7.014E-02 3.340E 02 1.535E 1.109E 03 1.306E 02 1.235E 03 5.590E 02 2.731E 01 2.650E 01 7.014E-02 3.340E 02 1.535E 1.109E 03 3.431E 01 4.000E 00 2.419E 01 3.431E 01 4.000E 00 | | | 1.302E 02 | 9.960E 02 | 4.877E 02 | 1.7AIF OI | 1.7075 | 4-774E-02 | 30 746 02 | | N (|
| 1.1296 01 2-6166 01 4-0006 00 -1746 01 2-6166 01 4-0006 00 -1746 01 2-6166 01 4-0006 00 -1746 01 2-6166 01 4-0006 00 -1746 01 2-6166 01 4-0006 00 -1746 01 2-6166 01 4-0006 00 -1746 01 2-6166 01 4-0006 00 -1746 01 2-6166 01 4-006 02 -1746 01 2-6166 01 4-006 00 -1746 01 3-0056 01 4-0006 00 -1746 01 3-0056 01 4-0006 00 -1746 01 3-0056 01 4-006 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4-0066 00 -1756 01 4 | | | 1.416E 02 | 9-820E 02 | 4.683E 02 | 1.789€ 01 | 1.707E 01 | 5.226E-02 | 3.266E 02 | | |
| 1.179E 01 2.616E 01 4.000E 00 2.419E 01 3.005E 01 4.000E 00 2.419E 01 3.000E 02 1.225E 03 4.000E 00 2.419E 01 3.435E 01 4.000E 00 | < | 27 | DELTA E | 1 | | | | | | | |
| 1-74E 01 2-616E 01 4-000E 00 -7419E 01 3-616E 01 4-000E 01 -7419E 01 3-616E 02 1-25E 03 -7419E 03 1-345E 01 4-000E 00 -7419E 01 3-616E 02 1-25E 03 -7419E 01 3-616E 02 1-25E 03 -7419E 01 3-616E 02 1-25E 03 -7419E 01 3-616E 03 -7419E 01 3-616E 02 -7419E 01 3-616E 02 -7419E 01 3-616E 02 -7419E 01 3-616E 03 -7419E 01 3-616E 02 -7419E 02 3-616E 03 -7419E 03 3-616E 03 -7410E 03 3-616E 03 -7410E 04 05 05 | | | | | | | | | | | |
| DATA POINT T PB TB TB TF TI 0/A 0/AP H DEL TF VS 1.100F 03 1.2446 02 1.1066 03 4.6166 02 2.3016 01 2.1936 01 6.4996-02 3.3756 02 1.5156 1.009E 03 1.3897 02 1.1676 03 4.5006 02 2.3076 01 2.1936 01 5.3276-02 4.1176 02 1.5276 1.009E 03 1.3056 01 4.0006 00 1.7746 01 3.0056 01 4.0006 00 2.4196 01 3.0056 01 4.0006 00 2.4196 01 3.0056 01 4.0006 00 2.4196 01 3.3066 02 1.2256 03 4.4996 02 2.7316 01 2.6506 01 7.6596-02 3.3466 02 1.5356 1.009E 03 1.3006 02 1.2256 03 4.4996 02 2.7316 01 2.6506 01 7.6596-02 3.3466 02 1.5546 1.1296 03 1.3466 02 1.2256 03 5.5696 02 2.7566 01 2.6506 01 7.6596-02 3.3466 02 1.5546 1.1296 01 3.3436 01 4.0006 00 1.1296 01 3.3436 01 4.0006 00 2.4196 01 3.3436 01 4.0006 00 1.7746 01 3.3436 01 4.0006 00 1.7747 01 3.3436 01 4.0006 00 2.4196 01 3.3436 01 4.0006 00 | | | | | | | | | | | |
| DATA POINT 7 PB TB TB TB TI 0/A 0/AP H DEL TF VS 1-108E 03 1-244E 02 1-106E 03 4-618E 02 2-301E 01 2-193E 01 6-499E-02 3-375E 02 1-515E 1-1094E 03 1-389F 02 1-167E 03 5-506E 02 2-307E 01 2-193E 01 5-37E-02 4-117E 02 1-539E L/O DELTA LE 1-124E 01 3-005E 01 4-000E 00 1-774E 01 3-005E 01 4-000E 00 2-419E 01 3-305E 01 4-000E 00 2-419E 01 3-343E 01 4-000E 00 1-774E 01 3-343E 01 4-000E 00 2-419E 01 3-343E 01 4-000E 00 1-774E 01 3-343E 01 4-000E 00 | | | 2.616E 01 | | | | | | | | |
| 1-108E 03 1-246 02 1-106E 03 4-618E 02 2-301E 01 2-193E 01 6-499E-02 3-375E 02 1-515E | | | | | DATA | POINT 7 | | | | | |
| 1-108E 03 1.244E 02 1.106E 03 4.610E 02 2.301E 01 2.193E 01 6.499E-02 3.375E 02 1.515E 1.099E 03 1.399E 02 1.167E 03 5.506E 02 2.257E 01 2.193E 01 7.397E-02 4.117E 02 1.515E 1.079E 03 1.399E 01 1.079E 03 1.390E 01 4.000E 00 1.718 01 2.193E 01 7.397E-02 2.965E 02 1.539E 1.539E 1.539E 02 1.539E 03 1.509E 03 1.500E 03 | _ | 8 | | | | *** | 0000 | ; | | | |
| 1.079E 03 1.389C 02 1.167E 03 5.506E 02 2.37F 01 2.193E 01 7.397E-02 4.117E 02 1.513E 1.079E 03 1.535E 02 1.696L 03 4.500E 02 2.307E 01 2.193E 01 7.397E-02 2.307E-02 1.537E 1.129E 01 3.005E 01 4.000E 00 2.419E 01 3.005E 01 4.000E 00 2.419E 01 3.005E 01 4.000E 00 3.419E 01 3.005E 01 4.000E 00 3.419E 01 3.305E 01 4.000E 00 3.4105E 02 3.4115E 02 1.5549E 1.129E 01 3.305E 01 4.000E 00 3.4115E 02 1.5549E 3.4115E 02 1.5549E 1.129E 01 3.305E 01 4.000E 00 3.4115E 02 1.5549E 3.4115E 02 1.5549E 1.129E 01 3.305E 01 4.000E 00 3.4115E 02 1.5549E | | 1.108E 03 | 1.244E 02 | 1.106E 03 | 4.618F 02 | 2.1016 01 | 2 35 01 . C | E 2004 9 | DEL IF | | |
| 1.079E 03 1.535E 02 1.098E 03 4.500E 02 2.307E 01 2.193E 01 7.327E-02 2.965E 02 1.530E 1.129E 01 3.005E 01 4.000E 00 1.774E 01 3.005E 01 4.000E 00 2.419E 01 3.005E 01 4.000E 00 2.419E 01 3.005E 01 4.000E 00 1.539E 1.094E 03 1.300E 02 1.225E 03 4.649E 02 2.756E 01 2.650E 01 7.914E-02 3.346E 02 1.5549E 1.096E 03 1.649E 02 1.255E 03 5.108E 02 2.756E 01 2.650E 01 7.6549E-02 3.460E 02 1.5549E 1.129E 01 3.343E 01 4.000E 00 2.419E 01 3.343E 01 4.000E 00 2.419E 01 3.343E 01 4.000E 00 2.419E 01 3.343E 01 4.000E 00 | | 1.094E 03 | 1.389C 02 | 1-167E 03 | 5.506E 02 | 2.257F 01 | | 20-364-0-5 | 3.3756 02 | | |
| L/O DELTA E LE 1.129E 01 3.005F 01 4.000E 00 1.774E 01 3.005F 01 4.000E 00 2.419E 01 3.005F 01 4.000E 00 2.419E 01 3.005F 01 4.000E 00 1.109E 03 1.300E 02 1.255E 03 4.249E 02 2.756E 01 2.650E 01 7.914E-02 3.346E 02 1.5549E 1.000E 03 1.649E 02 1.255E 03 5.108E 02 2.756E 01 2.650E 01 7.659E-02 3.460E 02 1.5549E 1.129E 01 3.343E 01 4.000E 00 2.419E 01 3.343E 01 4.000E 00 2.419E 01 3.343E 01 4.000E 00 2.410E 02 2.756E 01 2.650E 01 7.659E-02 3.460E 02 1.5649E 1.546E 01 3.343E 01 4.000E 00 | | | 1.535E 02 | 1. C98£ 03 | 4.500E 02 | 2.3075 01 | | 7.3976-02 | 2.965E 02 | | |
| 1.129E 01 3.005E 01 4.000E 00 1.774E 01 3.005E 01 4.000E 00 2.419E 01 3.005E 01 4.000E 00 | _ | 2 | | 14 | | | | | | | |
| 1.774E 01 3.005E 01 4.000E 00 2.419E 01 1.300E 02 1.255E 03 4.649E 02 2.751E 01 2.650E 01 7.914E-02 3.346E 02 1.535E 1.694E 03 1.474E 02 1.255E 03 5.169E 02 2.756E 01 2.650E 01 7.659E-02 3.460E 02 1.546E 1.1529E 01 3.343E 01 4.000E 00 2.4774E 01 3.343E 01 4.000E 00 2.4774E 01 3.343E 01 4.000E 00 2.4774E 01 3.343E 01 4.000E 00 | | | | | | | | | | | |
| 2.419E 01 3.005E 01 4.000E 00 DATA PDINT 6 PB TB | | | | | | | | | | | |
| PB TB TB TB T TD T TD T TD TO | | | | | | | | | | | |
| PB TB | | | | | DATA | | | | | | |
| 1100E 03 1.300E 02 1.225E 03 4.649E 02 2.781E 01 2.650E 01 7.914E-02 3.346E 02 1.535E 11.009E 03 1.474E 02 1.285E 03 4.649E 02 2.781E 01 2.650E 01 7.914E-02 3.346E 02 1.5549E 11.000E 03 1.648E 02 1.285E 03 5.160E 02 2.756E 01 2.650E 01 7.659E-02 3.460E 02 1.549E 11.29E 01 3.343E 01 4.000E 00 1.549E 11.29E 01 3.343E 01 4.000E 00 1.549E 11.29E 01 3.343E 01 4.000E 00 1.549E 11.29E | | | | | | | | | | | |
| 1-109E 03 1-300E 02 1-225E 03 4-649E 02 2-781E 01 2-650E 01 7-914E-02 3-348E 02 1-535E 1-694E 03 1-474E 02 1-287E 03 5-589E 02 2-731E 01 2-650E 01 6-440E-02 4-115E 02 1-549E 1-1080E 03 1-648E 02 1-255E 03 5-108E 02 2-756E 01 2-650E 01 7-659E-02 3-460E 02 1-549E 1-129E 01 3-343E 01 4-000E 00 1-549E 01 3-343E 01 4-000E 00 1-549E 01 3-343E 01 4-000E 00 1-549E 01 3-343E 01 4-000E 00 | | D . | 8 | - | = | 4/0 | 9/AP | I | DEL TF | 84 | |
| 1.094E 03 1.474E 02 1.287E 03 5.589E 02 2.731E 01 2.650E 01 6.440E-02 4.115E 02 1.549E 1.080E 03 1.648E 02 1.255E 03 5.108E 02 2.756E 01 2.650E 01 7.659E-02 3.460E 02 1.564E L/D DELTA E LE 1.129E 01 3.343E 01 4.000E 00 1.774E 01 3.343E 01 4.000E 00 2.419E 01 3.343E 01 4.000E 00 | | 1.109€ 03 | 1.300E 02 | 1.225E 03 | 4.649E 02 | 2.781E 01 | 2.650E 01 | 7.914E-02 | 3.348E 02 | | |
| 1.080E 03 1.648E 02 1.255E 03 5.108E 02 2.756E 01 2.650E 01 7.659E-02 3.460E 02 1.564E L/D DELTA E LE 1.129E 01 3.343E 01 4.000E 00 1.774E 01 3.343E 01 4.000E 00 2.419E 01 3.343E 01 4.000E 00 | | 1.094E 03 | 1.474E 02 | 1.287E 03 | 5.589E 02 | 2.731E 01 | 2.650E 01 | 6.440E-02 | 4.115E 02 | | |
| L/D DELTA E LE 1.129E 01 3.343E 01 4.000E 1.774E 01 3.343E 01 4.000E 2.419E 01 3.43E 01 4.000E | | 1.080E 03 | 1.648E 02 | | 5.108E 02 | 2.756E 01 | 2.650E 01 | 7.659E-02 | 3.460E 02 | | |
| 1.129E 01 3.343E 01 4.000E 1.774E 01 3.343E 01 4.000E 2.419E 91 3.343E 01 4.000F | STA | 7/0 | DELTA E | | | | | | | | |
| 1.774E 01 3.343E 01 4.000E 2.419E 91 3.343E 01 4.000E | | 1-120F 01 | 7. 14 16 A1 | 4.000 | | | | | | | |
| 2-419E 01 3-343E 01 4-000F | | 1-774E 01 | 3. 14 1F 01 | | | | | | | | |
| | | | 3,3436 01 | | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS 8-103. BURNOUT AT DATA PT 10. BURNOUT SITE COMD AT DATA PT 11

| | | 0.5 | | | | | | | | | 02 | 0 | 05 | | | | | | | 02 | 02 | 02 | | | | |
|--------------|--------|-----------|-----------|-----------|---------|-----------|-----------|-----------|---------------|--------|-----------|-----------|-----------|---------|-----------|-----------|------------|-------------|--------|-----------|-----------|-----------|---------|-----------|------------|------------|
| | * | 1.540E | 1.5566 | 1.574E | | | | | | > | 1.526E | 1.544E | 1.564E | | | | | | > | 1.561E 02 | 1.561E | 1.561E | | | | |
| | DEL TF | 3.761E 02 | 4.105E 02 | 3.461E 02 | | | | | | DEL TF | 4.691E 02 | 4.022E 02 | 3.974E 02 | | | | | | DEL TF | 3.974E 02 | 3.974E 02 | 3.974E 02 | | | | |
| | I | 7.982E-02 | 7.314E-02 | 8.675E-02 | | | | | | I | 7.087E-02 | 8.267E-02 | 8-368E-02 | | | | | | I | | | | | | | |
| | Q/AP | 3.002E 01 | 3.002E 01 | 3.002E 01 | | | | | | 94/0 | 3.325E 01 | 3-325E 01 | 3.325E 01 | | | | | | 9/AP | 3.325E 01 | 3.325E 01 | 3-325E 01 | | | | |
| DATA POINT 9 | 4/0 | 3.126E 01 | 3.097E 01 | 3.121E 01 | | | | | DATA POINT 10 | 4/0 | 3.433E 01 | 3.454E 01 | 3.445E 01 | | | | | THIRD PAINT | A/0 | • | • | • | | | | |
| DATA | 11 | 5.103E 02 | 5.644E 02 | 5.1976 02 | | | | | DATA | 1.1 | 6.069E 02 | 5.620E 02 | 5.792E 02 | | | | | ATAO | 11 | • | • | • | | | | |
| | 2 | 1.341E 03 | 1.376E 03 | 1.3476 03 | 3 | 4.000E 00 | | 4.CCOE 00 | | 2 | 1.484E 03 | 1.455E 03 | 1.466E 03 | 9 | 4.000E 05 | 4.000E 00 | 4. CODE 00 | | H. | • | • | • | 7 | 4.000E 00 | 4. CODE 00 | 4. CCDE 00 |
| | 18 | 1.342E 02 | 1.539E 02 | 1.736E 02 | DELTA E | 3.567E 01 | 3.5e7E 01 | 3.587E 01 | | 18 | 1.378E 02 | 1.598E 02 | 1.818E 02 | DELTA E | 3.811E 01 | 3.811E 01 | 3.8116 01 | | 10 | 1.785£ 02 | 1.785E 02 | 1.785E 02 | DELTA E | 3.811E 01 | 3.611E 01 | 2.811E 01 |
| | 84 | 1-108E 03 | 1.093E 03 | 1.079E 03 | S | 1.129E 01 | 1.774E 01 | 2.419E 01 | | 0 | 1.103E 03 | 1.088E 03 | 1.C73E 03 | 27 | 1.129E 01 | 1.774E 01 | 2.419E 01 | | 80 | 1.075E 03 | 1.075E 03 | 1-075E 03 | 2 | 2.323E 01 | 2.323€ 01 | 2.323E 01 |
| | STA | - | ~ | m | STA | - | N | n | | STA | - | N | n | STA | _ | ~ | m | | STA | _ | ~ | m | Y T | _ | 2 | m |

Report AFRPL-TR-67-208, Appendix C

IQUID SIDE HEAT TRANSFER TEST DATA

DVERALL TEST TARAMETERS

| - | |
|-------|--|
| • | |
| • | |
| DAT | |
| 0 | |
| - | |
| - | |
| å | |
| COND | |
| 3 | |
| w | |
| SITE | |
| S | |
| - | |
| 3 | |
| URNOU | |
| 5 | |
| 0 | |
| | |
| - | |
| = | |
| _ | |
| ATA | |
| 3 | |
| - | |
| < | |
| - | |
| 8 | |
| ž | |
| 3 | |
| 2 | |
| | |
| ್ವ | |
| 2 | |
| Į. | |
| | |

| 19-01 | | 1.227E | 202 | 1.540E | 1.5916 | 2 | ۵ | 71 2.121E | 1 | • | 2.500E 1.916E | ۵ | - | w |
|--------|--|------------|---------------------|-----------------|-----------|--------------------------------------|------------|--|---|--------------|--|--------------|-----------|---------------------|
| 2 | 1.128E 02 1.216E 00 1.148E 02 1.219E 00 | 1.210€ | 1.420E 02 1.222E 00 | DE 02 1.225E 00 | 02 1.216E | TEST SECTION - LOCAL TEST PARAWETERS | DATA POINT | 2.121E 02 Z.111E 00 1.668E 02 Z.124E 00 | | DATA POINT 2 | 2.500E 02 2.857E 00 1.916E 02 2.877E 09 | DATA POINT 3 | 5.888 | 3.511E 02 5.901E 00 |
| £2 | 9.170E 00 | 1.5576 | 2.448E 01 | 2.841E 01 | | ARAMETERS | | 0/AP 2.146E 00 2.146E 00 | | | 0/AP 2.913E 00 2.913E 00 | | | 6.071E 00 |
| 12 | 4.343E 02 | 7.238E | 1.1146 03 | 1.287E 03 | 1.361 | | | 2.111E-02 | | | 2-107E-02 | | 2.360E-02 | 2.645E-02 |
| 8 | 3.775E 00 5.126E 00 | 1.068E | 2.585E 01 | 3.466E 01 | 3.8726 | | | DEL TF 1.017E 02 5.443E 01 | | | DEL TF 1.382E 02 7.737E 01 | | | 2.295E 02 |
| HT BAL | 3.979E 30 | -6.755E 30 | -6.038E 00 | -6.720E 00 | | | | VS 1.402E 02 1.404E 02 | | | VS 1.407E 02 | | | 1.404E 02 |

| | 02 | | | N | en en | | | | | | | | | | | | | | |
|---------------------|---|------------------------|---------------|--------------------------------|-----------------------------------|------------|---------|-----------|-----------|------------------------|------------|----|------------------------|-----------|-----------|------------|----|-----------|------------|
| | | | | | E 02 | | | 02 | | | | | | 02 | | | | 02 | 0.5 |
| | VS 1-414E 1-419E | | | VS 1-423E | | | | 1.433 | 1.44% | | | | VS 1.424E | 1.436E | | ~*! | | VS | 1.427E |
| | DEL TF 3.622E 02 3.444E 02 | | | 0EL TF | 20 36 05 | | | 5.493E 02 | 4.801E 02 | | | | DEL TF 6.173E 02 | 4.500E 02 | | | | DEL TF | •• 500E 02 |
| | 2.847E-02 | | | 3.252E-02 | | | : | 3.586E-02 | 30-36-05 | | | | 3.565E-02 | 20-3690· | | | | I | |
| | 0/AP 1.031E 01 1.031E 01 | | | 0/AP 1.469E 01 1.469E 01 | | | 9770 | 1.970€ 01 | | | | | 2.200E 01 | | | | | 2.200E 01 | , |
| POINT | 0/A 9.913E 00 9.921E 00 | | DATA POINT S' | 1.406E 01 | | 90 INT | % */ | 1.879E 01 | | | 7 TNIO | ; | 2-092E 01 | | | DINT 's | | • | |
| HT-8-104 DATA POINT | 4.844E 02 | | DATA | 71 5-809E 02 5-587E 02 | | DATA POINT | = | 6.864E 02 | | | DATA POINT | 1 | 02 | | | DATA POINT | ; | | |
| | 6.080E 02 | 3.500E 00 | | 1.023E 03 | 3.500E 00 | | 2 | 1.240E 03 | 2 | 3.500E 00 | | 2 | 1.353E 03 | , e | 3.500E 00 | , | 1 | | J. 500E 00 |
| | 1.222E 02 | 2.041E 01 | | TB 1.292E 02 1.394E 02 | DELTA E 2-448E 01 2-448E 01 | | T. | 1.506E 02 | DELTA E | 2.841E 01 2.841E 01 | | 10 | 1.403E 02 1.553E 02 | w | 3.001E 01 | 1 | 16 | 2 2 | 3.501E 01 |
| | 1.070E 03 | 1.407E 01 2.032E 01 | | P6 1.068E 03 1.056E 03 | L/D 1.407E 01 2.032E 01 | | P8 | 1.058E 03 | 5 | 2.032£ 01 | | 8 | 1.059E 03 | 27 | 5 5 | | 99 | 1.067E 03 | 1.563E 21 |
| | 5 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - | 5 - 2 | | ST - 2 | A = 0 | | STA | ~ | • | • 01 | | _ | - ~ | _ | | | | - 2 | STA 1. |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

HT-8-105 . BURNDUT AT DATA PT 7. BURNOUT SITE COND. AT DATA PT 8

L = 0.350E 01

| | | | | DATA POINTS | INTS | | | | | |
|------|------------|-----------|-------------|-------------|--------------------------------------|------------------|-----------|-----------|------------|-----------|
| TNI | NI - BB | PB-0UT | 18-IN | 100-01 | • | £2 | | 8 | HT BAL | |
| | - | _ | 1 1.099E 02 | 1.1725 02 | 1.302E | 9.220E | | 3.8726 | | |
| | 1.102E 03 | 1.0536 | | 1.193E 02 | 1.3035 | 1.115E | | 5.623E | | |
| | 1.0928 03 | | 1 1.095E 02 | 1.262E 02 | 1 - 30 7E | 1.596€ | | 1.135 | | |
| | | | | 1.351E 02 | 1.306E | 2.095E | 9.720E | 1.930E | | |
| | | 1.047E | 1.C87E 02 | 1.422E 02 | 1.307E | | 1.136 | 2.54BE | | |
| | | 1.047 | | 1.535E 02 | 1.398E 00 | 2.822E | | 3.467E | | |
| • | | 1.0436 | 1.0916 | | 1.311E 00 | 3.169E 01 | | 4.371E | | |
| | | 1.043 | 1.091E | | 1.311E 00 | 3.169E 01 | 1.455E 03 | 4.371E 01 | -5.371E 00 | 9.391E 03 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | 0 1001 | A 0 4 15 7 5 0 5 | | | | |
| | | | E S | T SECTION - | TEST SECTION - LOCAL TEST PARAMETERS | AKAME I CHS | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 1 | | | | | |
| | | ; | : | : | ₹/0 | 9/ 46 | I | DEL TF | | |
| ۷. | | 20 3746 | 2. 0206 02 | 2.014F 02 | 2.137E 00 | 2.200E 00 | 2.534E-02 | 8.682E 01 | | |
| - 2 | 1.046E 03 | 1.167E 02 | 2. el CE 02 | 1.895E 02 | 2.140E 00 | 2.200E 00 | 3.020E-02 | 7.286E 01 | 1.507E 02 | |
| : | | DEI TA F | <u>.</u> | | | | | | | |
| ٠. | 12.407E 01 | 9.220E 00 | 3.500E 00 | | | | | | | |
| ٠ ٨ | 2.032E 01 | 9.220E 00 | 3.500E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 2 | | | | | |
| ; | 9 | 2 | - | 11 | 4/0 | Q/AP | z | DEL TF | | |
| ۲ . | 1.0716.01 | Š | 3.710E 02 | 2.454E 02 | 3.095E 00 | 3.196E 00 | 2.469E-02 | 1.294E 02 | | |
| • 12 | 1.957E 03 | 1.186E 02 | 3.600E 02 | 2.332E 02 | 3.100E 00 | 3.196E 00 | 2.790E-02 | 1.145E 02 | 1.509€ 02 | |
| * | 9 | DELTA E | i. | | | | | | | |
| | 1.407E 01 | | 3.500E 00 | | | | | | | |
| . ~ | | 1.115€ 01 | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| 1 | ď | 81 | | 11 | 4/9 | Q/AP | I | DEL TO | | |
| | 1-060F 03 | | 5. 860E 02 | 3.590E 02 | 6.190€ 00 | 6.449E 00 | 2.701E-02 | 2-388E CS | 1.5156 02 | |
| . ~ | 1.046E 03 | 1.250E 02 | 5.700E 02 | 3.403E 02 | 6.201E 00 | 6.449E 00 | 2.995E-02 | 2.153E 02 | 1.5196 02 | |
| Y | 200 | DELTA E | LE | | | | | | | |
| - | 1-407E 01 | 1.596E 01 | 3.500E 00 | | | | | | | |
| ~ | 2.032E 01 | 1.596E 01 | 3.500E 00 | | | | | | | |

| | VS 1.518E 02 1.524E 02 | | | vs 1.523E 02 1.531E 02 | | VS 1.530E 02 1.540E 02 | | | VS 1.539E 02 1.553E 02 | | | VS 1.544E 02 1.544E 02 | |
|---------------------|----------------------------------|-----------------------------------|------------|---|--------------|--------------------------------------|-----------------------------------|--------------|--|-----------------------------------|------------|------------------------------------|-----------------------------------|
| | DEL TF 3.645E 02 3.220E 02 | | | DEL TF 4.331E 02 3.727E 02 | | DEL TF 5.371E 02 1 4.367E 02 1 | | | DEL TF 6.283E 02 1. 4.319E 02 1. | | | DEL 7F 4-319E 02 1-4-319E 02 1- | |
| | 3.010E-02 | | | 3.346E-02 | | 3.668E-02 | | | 3.954E-02 5.752E-02 | | | I | |
| | 0/AP 1.097E 01 1.097E 01 | | | 0/AP 1.448E 01 1.448E 01 | | 0/AP 1.970E 01 1.970E 01 | | | 0/AP 2.484E 01 2.484E 01 | | | 0/AP 2-484E 01 2-484E 01 | |
| POINT | 0/A 1.043E 01 1.045E 01 | | DATA POINT | 0/A 1.371E 01 1.375E 01 | DATA POINT 6 | 0/A 1.854E 01 1.858E 01 | | DATA POINT 7 | 2.331E 01 2.334E 01 | | POINT | | |
| HT-8-105 DATA POINT | TI 4.902E 02 4.552E 02 | | DATA | 71 5.633E 02 5.125E 02 | DATA | 71 6.746E 02 5.870E 02 | | DATA | 7.728E 02 5.921E 02 | | DATA POINT | | |
| | TW 8.380£ 02 8.090E 02 | 3.500E 00 | | 1W 9.980E 02 9.570E 02 LE 3.500E 00 3.500E 00 | | 1.224E 03 | 3.500E 00 | | 1.426E 03 | 1.500E 00 | | | 3.500E 00 |
| | 1.257E 02 | DELTA E 2.055E 01 2.095E 01 | | 1.302E 02 1.398E 02 DELTA E 2.415E 01 2.415E 01 | | TB 1.375E 02 1.503E 02 | DELTA E 2.822E 01 2.822E 01 | | TB 1.445E 02 1.603E 02 | DELTA E 3.169E 01 3.169E 01 | | 1.500E 02 | DELTA E 3.169E 01 3.169E 01 |
| | P8 1.065E 03 1.053E 03 | L/D 1.407E 01 2.032E 01 | | PB 1.061E 03 1.050E 03 L/D 1.407E 01 2.032E 01 | | P8 1.061E 03 1.050E 03 | L/D 1.407± 01 2.032E 01 | | PB 1.060E 03 1.046E 03 | L/D 1.407E 01 2.032E 01 | | рв 1.055E 03 1.055E 03 | L/D 1.625E 01 1.625E 01 |
| | 51 A | STA 1 | | STA 2 | | STA 1 2 | ST 2 2 | | S - 2 | \$ - 2 | | STA 1 2 | 51 A |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

OVEMALL TEST PARAMETERS

HT-8-106. BURNOUT AT DATA PT 10. BURNOUT SITE COND AT DATA PT 11

| | | | DATA POINTS | INTS | | | | | |
|-----------------|-----------|-------------|--------------------------------------|--------------|-------------|-----------|----------------------------------|------------------------------|---------|
| F8-11 | P8-0UT | 18-1N | 10-01 | > | £2 | 12 | 80 | HT BAL | y |
| 1.110E 03 | 1.056E | 1.026E | - | 1.220€ | 7.051E | 4.709E | 3.1485 | | 9.306E |
| 1.109E 03 | 1.058E 03 | 3 1.024E 02 | 1.132E 02 | 1.223E 00 | 1.045E 01 | 6.586E 02 | 6.527E 00 | | 9.329E |
| 1.107E 03 | 1.060E 03 | 3 1.021E 02 | 1.207E G2 | 1.228E 00 | | 8.752E | | -9.125E | 9.367E |
| 1.106E 03 | 1.060E 03 | 3 1.019E 02 | 1.288E 02 | 1.230E 00 | | 1.039E 03 | 1.849E 01 | -9.981E 00 | 9-382E |
| 1.105E 03 | 1.061E 03 | 3 1.017E 02 | 1.376E 02 | 1.2336 00 | 3 2.273E 01 | 1.195E 03 | 2.575E 01 | -7.891E 00 | 9.4 05E |
| 1-105E 93 | 1.059E 03 | 3 1.018E 02 | 1.474E 02 | 1.2346 00 | 0 2.618E 01 | 1.337E 03 | 3.318E 01 | -7.910E 00 | 9.4136 |
| 1.104E 03 | 1.05FE 03 | 3 1.020E 02 | 1.603E 02 | 1.237E 00 | 3.041E 01 | 1.510E 03 | 4.3536 01 | -6.666E 00 | 9.436E |
| 1.1056 03 | 1.058E 03 | 3 1.022E 02 | 1.713E 02 | 1.237E 00 | 3.334E 01 | 1.623E 03 | 5.130E 01 | -8.050E 00 | 9.4.36E |
| 1.108E 03 | 1.065E 03 | 3 1.023€ 02 | 1.839E 02 | 1.234E 00 | 3.661E 01 | 1.7436 03 | 6.050E 01 | -8.611E 00 | 9.413E |
| 1.109£ 03 | 1.062E 03 | 3 1.325E 02 | 1.896E 02 | 1.233E 00 | 3.821E 01 | 1.798E 03 | 6.514E 01 | -7.851E 00 | 9.405E |
| | - | 1.925E | ~ | 1.233E 00 | 3.821E 01 | 1.798E 03 | 6.514E 01 | -7.851E 00 | 9.4 05E |
| | | 165 | TEST SECTION - LOCAL TEST PARAMETERS | LOCAL TEST P | PARAMETERS | | | | |
| | | | DATA | DATA POINT 1 | | | | | |
| PB 1.086E 03 | 1.053E 02 | Z. 230E 02 | 1.619E 02 | 1.660E 00 | 1.616E 00 | 2.854E-02 | DEL TF 5.661E 01 5.250E 01 | VS 1.494E 02 1.497E 02 | |
| 1.059E 03 | 1-0835 02 | 20 3022·2 | 20 3600-1 | 00 3100-1 | 20 30 10 11 | 20.000 | | | |
| 1 /0 | DEL TA F | 1.6 | | | | | | | |

| | | | | HT-8-106 DATA POINT | A POINT 2 | | | | | |
|----------|------------|--------------|--------------|---------------------|--------------|-----------|-----------|------------|------------|-----|
| STA | W. W. | : | | | | | | | | |
| - | 1-047 | | | | 4/0 | 9770 | | | | |
| N | | 3 1-125E 02 | 2 3.480E 02 | 2.258E 02 | 3.4796 00 | | | DEL TF | | |
| | | | | | 3.479E 00 | 3.350E 00 | | | 2000 | 0 0 |
| 5 - | 5 | DELTA | | | | | | | | N O |
| • • | 2.422E | 01 1.045E 01 | | | | | | | | |
| | | | - 000E | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| STA | 9d | 2 | | | | | | | | |
| - | 1.08 | 1.102 | 1 S. 100E A. | | | 9/46 | I | | | |
| N | 1.063E 03 | | | 3.2185 02 | 6-629E 00 | 6.359E 00 | | 2.116E 02 | 1.5085 | ć |
| STA | 2 | DELTA | | | | 8 334E 00 | 3.126E-02 | | | 0 2 |
| - | 1-1306 01 | 1.493E | A - 0006 | | | | | | | |
| ~ | | 1.4936 | | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| STA | 6 | | | | | | | | | |
| _ | 1.086 | 1.137 | T 2205 | 11 | 0/A | 0/AP | 1 | | | |
| N | 1.063E 03 | | | 4.205E 02 | 9.853E 00 | 9.490E 00 | 3.093E-02 | J. O. O. | | |
| | | | | ** 10 /E 02 | 9.864E 00 | 9-490E 00 | 3.277E-02 | 2. BOKE 02 | | 20 |
| STA. | 2 | | LE | | | | | 30 706047 | 1.524E C | ~ |
| - ~ | 2.422E 01 | 1.877E 01 | 4.000E 00 | | | | | | | |
| | | | | DATA POINT | POINT 5 | | | | | |
| STA | 8 | 18 | ; | | | | | | | |
| _ | 1.086E 03 | 1.174E 02 | 9-1105 02 | 11 | ٥/٨ | Q/AP | = | 100 | | |
| N | 1-064E 03 | 1.354E 02 | | 5.256E 02 | 1.366E 01 | 1.322E 01 | 3.3016-02 | 4.004E 02 | 1.520E 0 | • |
| STA | 5 | DELTA E | 4 | | | 10 | 3.38/E-02 | 3.902E 02 | 1.534E 02 | |
| | 1-130E 01 | 2.273E 01 | A. Cone on | | | | | | | |
| N. | 2.* F2E 01 | 2.2736 01 | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | THIRD WIND | OINT 6 | | | | | |
| 4 | 80 | 18 | 2. | 11 | .,, | | | | | |
| - 0 | | 1.217E 02 | 1.053E 03 | 20 | | Q/AP | I | DEL TF | | |
| | 1.000 | 1.445E 02 | 1.043E 03 | | 1.756E 01 | 1.703E 01 | 3-8445-02 | | | |
| STA | 27 | DELTAF | | | | 10 700 | * 188E-02 | 4.067E 02 | 1.54.3E 02 | |
| | | 2.618E 01 | 4.000E 00 | | | | | | | |
| | 10 3224.0 | 2.618E 01 | 4.000E 00 | | | | | | | |

| | 20 | | | 0 0 5 | | | 02 | | | 02 | | | 02 | |
|---------------------|----------------------------------|-----------------------------------|--------------|-----------------------------------|------------------------|------------|----------------------------------|-----------------------------------|------------|----------------------------------|-----------------------------------|------------|----------------------------------|--|
| | 1.533E | | | vs 1.537E 1.566E | | | 1.537E | | | VS 1.538E 0 1.576E 0 | | | VS 1.561E 0 1.561E 0 | |
| | DEL 7F 4.504E 02 4.127E 02 | | | DEL TF 4.796E 02 4.202E 02 | | | DEL TF 5.313E 02 4.217E 02 | | | DEL TF 5.457E 02 4.064E 02 | | | DEL TF 4.064E 02 4.064E 02 | |
| | H 4.961E-02 5.414E-02 | | | H 5.490E-02 6.266E-02 | | | 3.844E-027.365E-02 | | | H 6.127E-02 8.227E-02 | | | ı | |
| | 2.234E 01 | | | 0/AP 2.635 01 2.633E 01 | | | 3.105E 01 | | | 3.344£ 01 | | | 3.344E 01 | |
| POINT 7 | 2.294E 01 2.298E 01 | | DATA POINT 6 | 2.694E 01 2.705E 01 | | POINT | 3.161E 01 3.196E 01 | | POINT 10 | 0/A 3.409E 01 3.457E 01 | | 11 THID | ٠٠٠ | |
| HT-8-106 DATA POINT | 5.779E 02 5.693E 02 | | DATA | 5.872E 02 | | DATA POINT | 71 6.693E 02 6.005E 02 | | DATA POINT | T1 6.863E 02 5.906E 02 | | DATA POINT | : | |
| | Tw 1-1986 03 1-1926 03 | A.000E 00 | | 1.320E 03 1.303E 03 | 4.000E 00 | | TW 1.472E 03 1.426E 03 | A.000E 00 | | 1.540E 03 | 4.000E 00 | | ; | |
| | 18 1.275E 02 1.567E 02 | DELTA E 3.041E 01 3.041E 01 | | 1.3246 02 1.670E 02 DELTA E | | | 1.380E 02 | DELTA E 3.661E 01 3.661E 01 | | TB 1.406E 02 1.642E 02 | DELTA E 3.821E 01 3.621E 01 | | 10.678E 02 | |
| | 1.084E 03 | L/0 1.130E 01 2.422E 01 | | 1.084E 03 | 1.130E 01 2.422E 01 | | 1.089E 03 | L/0 1.130E 01 2.422E 01 | | P8 1.088E 03 1.065E 03 | L/D 1-130E 01 2-422E 01 | | PB 1.074E 03 1.074E 03 | |
| | ST = 2 | M - M | | 5 - 5 ST | - ~ | | \$ 1 2 | ST & - 2 | | STA 1 | # - a | | 4 - × | |

UID SIDE HEAT TRANSFER TEST DATA

RALL TEST PARAMETERS

1-8-107. BURNOUT AT DATA PT 6. BURNOUT SITE COND. AT DATA PT ?

| | | 6E 03 | | | | 8E 03 | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|-----------|------------|--------------------------------------|------------|-----|------------|---|-------|---------|--------|------------|------|-----------|-----------|-----------|-------|--------|--------|------------|---------|------------|-----------|-----------|-------|---------|---|
| | 9 | 0.266E | A 2776 | 6.296E | 6.296 | 6.268E | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0 6 | | | | 5 6 | | | | 6 | 200 | v | | | | | | • • | | | | | | | | | | | | |
| | HT BAL | 7 17 0E | -4-5875 | -9.270E | -1.373 | -1.9816 | | | | | | | | | | | | 3 6 | | | | | | 4 | | F 02 | | | | |
| | -, | ' | | 0 | 7 | ii | | | | SA | 1.004€ | 200-1 | | | | | > | 1.006E | 1.009 | | | | | | 2010 | 1.019 | 1.016 | | | |
| | | 000 | | | | 0 0 | | | | 0 | 20 | | | | | | | N N | | | | | | | | | | | | |
| 8 | 3 | 6.76SF | 1-1635 | 1.684E | 2.442E | 2.435E | | | | <u>.</u> 9 | 9E 0 | | | | | | 4 | M 02 | | | | | | la b | - 2 | M 92 | | | | |
| | - | | - | - | 2 | ~ ~ | | | | DEL TF | 1.0186 | | | | | | DEL TF | 1.821E 02 | 1.712E | | | | | 75 | 2. AGAF AZ | 2.886E | 2.683E | | | |
| | 0 | | | | | M 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| | A.A.A. | 5.977E | 7.781E | 9-306E | 1.117E | 1.1166 | | | | SE-0. | E-02 | | | | | | _ ; | E-02 | E-02 | | | | | | E-02 | E-02 | E-02 | | | |
| | 4 | 50 | | • | - | : : | | | | 1.695E-02 | 1.690E-02 | | | | | | I | 1.693E-02 | 1-809E-02 | | | | | I | 1-638E-02 | 1.845E-02 | 1.985E-02 | | | |
| | 00 | 5 | 5 | 5 | 5 | 5 5 | | | | | | | | | | | | | | | | | | | _ | , _ | - | | | |
| 62 | 8.850E | 1.194E | 1.577E | 1.909€ | 2.307E | 2.301E | ERS | | | 21E OC | E 00 | | | | | | 9 | 000 | 00 | | | | | ٥ | 00 | 0 | | | | |
| | .0 | = | - | 1.9 | 8 | 2 . | TEST SECTION - LOCAL TEST PARAMETERS | | | 1.721E 00 | 1.721E 00 | | | | | | O/AP | 3.098E | 3.098E | | | | | 9//0 | 5-327E 00 | 5.327E | 5.327E | | | |
| | 10- | -0 | -01 | - | 9 | 6 | 1 PA | - | | | 000 | | | | • | | | | | | | | _ | | | | | | | |
| - | 6-600E-01 | 6-600E-01 | 6.610E-01 | 6.630E-01 | 6.630E-01 | 6-6006-01 | TES | | 3 | BE O | | | | | | | 3 | F 00 | 00 € | | | | m | 8 | E 00 | E 00 | E 00 | | | |
| | ø | ė | ė | • | • | • | OCAL | DATA POINT | | 1.788E 00 | 1.788E | | | | TATO | | A 70 | 3.167E | 3.190€ | | | | IN | 0 | 5.444E 00 | 5.442E 00 | 5.44 BE | | | |
| = | 0.5 | | | | 3 6 | | ١ | 4 | | O. | n. N | | | | DATA POINT | | | | | | | | DATA POINT | | | | | | | |
| TB-00T | 1.131E 02 | 1.220E | 1.331€ | 1.4696 | 7266 | 1.726E | NOIL | O | = | 3€ 02 | 2 S S S S S S S S S S S S S S S S S S S | | | | O | | _ Z | E 02 | E 02 | | | | DAT | - | E 02 | | E 02 | | | |
| - | - | - | = | <u>.</u> | | - | SEC | | | 2.103E | 2.125E | | | | | | 71 95.65 | 3.004E | 2.923E | | | | | | 4.095E 02 | 4.143E | 3.999€ | | | |
| z | 02 | 0.5 | | 200 | | 05 | TEST | | | | | | | | | | | | | | | | | | * | • | m | | | |
| T8-1N | 1.035E 02 | 1.036E | 1.0336 | 1.0286 | 1.036 | 1.035E | _ | | 2 | E 02 | E 02 | | | E 00 | | | T# 02 | | 05 | | 0 0 | | | * | 0.5 | 0.5 | | | 0 | |
| _ | - | : | | | | : | | | | 3.310€ | 3.3306 | | \$.000E | 5.000 | | | T1 | 4.580E | 4.910 | LE | 5-000E | 5.000E | | _ | 7.180E 02 | 7.220E | 7.100E | F | 5. CODE | - |
| | 03 | 60 | F (| 7 6 | 70 | 03 | | | | | | | so. | N N | | | • | ÷ | ÷ | • | 'n | w | | | | ٠, | | | 5 | |
| PB-0UT | | | | | | | | | 48 | 0.5 | 0 7 | u | | 88 | | | 37E 02 | 74E 02 | 95 | | 5 6 | | | | 05 | 05 | 0 | w | 5 | |
| 9 | 3.0 | 3.0346 | 3.034 | 3.0.26 | 3.032E | 3.0326 | | | | 088E 02 | 1.107E | 1 130 | 8.850E | 8.850E | | | 1 37E | | 2115 | DELTA | 946 | 194E | | 18 | 197E 02 | 1.256E | 310E | DELTA | 377E | |
| | 5 | 50 | 7 6 | | 50 | 03 | | | | - | | • | • | | | | = | | - | ă. | | = | | | - | - | - | ă | - | |
| P8-18 | | | | 1 1 | AE C | 45 0 | | | • | 03 | 9 6 | | | 5 5 | | | 9 | 60 | 93 | ; | 5 6 | 0.1 | | | 50 | m r | ŋ | | 5 | |
| 4 | 3.07 | 3.070E | 3.0000 | 3.06 | 3.064E | 3.064E | | | 9 | 3.051E 03 | 3.036E 03 | 2 | 1.979€ | 2.418E | | 8 | 3.050E 03 | 3.043E 03 | 305 | | 2.699E | | | 6 | 3.049E | | 3.0306 | | | |
| F | | | | | | | | | | m | , m | | - | , | | | 3.0 | 6 | , | | 2.6 | 3.6 | | | 0.0 | D (| 9 | | 1.979E | |
| POINT | | N F | 1 4 | 10 | • | ~ | | | STA | - 0 | w m | STA | | W #7 | | * 12 | ٤ | N F | , | STA. | | - | | STA | 1 | N F | | STA | | • |

| | 2 2 2 0 | | 2 2 2 | | | 2 2 2 | | | 0 | |
|---------------|--|--------------|---|-------------------------------------|------------|---|--|------------|---|--|
| | VS 1.017E 1.021E 1.026E | | VS 1.023E 1.030E | | | VS 1.020E 0 1.027E 0 | | | VS 1.031E 02 1.031E 02 | |
| | J. 6946 02 3. 6946 02 3. 5206 02 | | DEL TF 4.769E 02 4.769E 02 5.108E 02 | | | DEL TF 5.354E 02 5.354E 02 6.125E 02 | | | 0EL TF 6.125E 02 6.125E 02 6.125E 02 | |
| | 2.000E-02 2.000E-02 2.191E-02 | | 2.345E-02 2.345E-02 2.189E-02 | | | H 2.083E-02 2.083E-02 1.821E-02 | | | r | |
| | 0/AP 7.712E 00 7.712E 00 7.712E 00 | | 0/AP 1-118E 01 1-118E 01 1-118E 01 | | | 0/AP 1-115E 01 1-115E 01 1-115E 01 | | | 0/AP 1-115E 01 1-115E 01 | |
| DATA POINT 4 | 7.669E 00 7.87E 00 7.674E 00 | DATA POINT 5 | 0/A 1.140E 01 0. | | 901NT 6 | 0/A 1.134E 01 0. | | 7 TH10 | *** | |
| HT-8-107 DATA | 5.126E 02 5.035E 02 4.967E 02 | DATA | F1 6.161E 02 0. 6.762E 02 | | DATA POINT | 6.769E 02 0. 7.817E 02 | | DATA POINT | : | |
| E H | 9.205 02 9.1506 02 9.1506 02 5.0006 00 5.0006 00 | | 1.176E 03 0. 1.224E 03 | 5.000E 00 5.000E 00 5.000E 00 | | Tw 1.222E 03 0. 1.307E 03 | 5.000E 00 5.000E 00 5.000E 00 | | | 5.000E 00 5.000E 00 5.000E 00 |
| | 1.271E 02 1.396E 02 1.447E 02 DELTA E 1.909E 01 1.909E 01 | | 1.392E 02 1.523E 02 1.654E 02 | DELTA E 2.307E 01 2.307E 01 | | 1.415E 02 1.553E 02 1.691E 02 | DELTA E 2.301E 01 2.301E 01 2.301E 01 | | 1.629E 02 1.629E 02 1.629E 02 | DELTA E 2.3016 01 2.3016 01 2.3016 01 |
| | 3.0476 03 3.0476 03 3.0466 03 1.0466 01 2.6996 01 3.4196 01 | | PB 3.047E 03 3.040E 03 | 1.9796 01 2.6996 01 3.4186 01 | | PB 3.046E 03 3.040E 03 | L/D 1.979£ 01 2.699£ 01 3.418£ 01 | | PB 3.036E 03 2.036E 03 | 3.094E 01 |
| | 4 - N F - N F | | ¥ - 12 F) | ₩ - 0 F) | | 2 - 2 F | A - 5 E | | 5 1 2 F | STA 2 3 |

Report AFRPL-TR-67-208, Appendix C

IOUID SIDE HEAT TRANSFER TEST DATA

RALL TEST PARAMETERS

ET-8-108 . BURNOUT AT DATA PT 7, BURNOUT SITE COMD. AT DATA PT 8

NT PB-IN PB-OUT 78-IN 78-DUT W E2 12 090 1 1.094 01 1.094 01 1.258 02 2.902 01 1.095 01 1.095 03 2.902 03 1.095 02 1.095 02 1.106 02 2.902 03 1.095 03 1.095 02 1.106 02 0.500 01 1.094 03 2.902 03 1.095 02 1.470 02 0.530 0-01 1.996 01 1.103 03 2.230 01 -5.630 01 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 2.230 01 1.757 01 -9.23 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 2.902 03 1.094 03 2.902 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 2.902 03 1.094 03 1.094 03 1.094 03 2.290 03 1.259 03 2.803 03 2.808 03 1.094 03 2.902 03 1.755 02 0.710 01 2.229 01 1.263 03 2.808 03 1.094 03 1.755 02 0.710 0-01 2.229 01 1.263 03 2.808 03 1.094 03 1.755 02 0.710 0-01 2.229 01 1.263 03 2.808 03 1.094 03 1.094 03 1.755 03 2.808 03 1.094 03 1.755 03 2.808 03 1.094 03 1.755 03 2.808 03 1.094 03 1.755 03 2.808 03 1.094 03 1.808 03 1.094 03 1.755 03 2.808 03 1.094 03 1.808 0

Page 20

TEST SECTION - LOCAL TEST PARAMETERS HT-8-108 . BURNOUT AT DATA PT ?: BURNOUT SITE COND. AT DATA PT 8

| THE TOWER OF 2.520E 02 1.300E 02 1.346E 00 1.329E 00 1.4776E-02 7.003E 01 9.00E 01 1.110E 02 2.430E 02 1.70E 02 1.346E 00 1.329E 00 1.4776E-02 7.003E 01 9.00E 01 1.110E 02 2.430E 02 1.70E 02 1.356E 00 1.329E 00 1.30E-02 6.71E 01 9.00E 01 0.30E 02 0.30E 02 0.30E 01 0.30E 02 0.30E 02 0.30E 02 0.30E 02 0.30E 01 0.30E 02 0.30E 01 0.30E 02 0.30E 01 0.30E 02 0.30E 02 0.30E 02 0.30E 03 | THE | 2.5226 02 1.6036 02 1.3446 00 1.3726 00 1.4076 02 7.0035 01 9.0005 2 2.5006 02 1.4036 02 1.3346 00 1.3326 00 1.4076 02 1.7016 02 1.3365 00 1.3296 00 1.4066-02 7.0035 01 9.0005 01 5.0006 02 1.7016 02 1.3365 00 1.3296 00 1.4066-02 5.6006 01 9.0006 01 5.0006 00 1.7016 02 1.3306 00 1.3296 00 1.4016-02 5.6006 01 9.0006 01 5.0006 00 1.4016 02 1.4016 | TW TITE OF THE O | TW TIME OF THE ORIGINAL OF THE | TW TI OATA POINT 2 0.44 H DEL TF VS COLOR 00 1.2706 00 1 | TW TOTAL COLUMN TO THE COLUMN | | | 2770 | | | | | |
|--|--|--|--|--|--|--|-----------|-----------|-----------|------------------|-----------|-------------|-----------|----|
| 1.00 | 2 2.52 E | 2 2-200E 02 1-501E 02 1-344E 00 1-329E 00 1-360E-02 7-060E 01 9-00E 2 2-200E 02 1-501E 02 1-344E 00 1-329E 00 1-360E-02 7-060E 01 9-00E 2 2-200E 02 1-701E 02 1-345E 00 1-329E 00 1-360E-02 7-060E 01 9-00E 2 2-200E 00 5-000E 00 1-329E 00 1-329E 00 1-360E-02 1-301E 01 9-00E 3 5-000E 00 5-000E 00 3-597E 00 1-369E-02 1-913E 32 9-064E 4-610E 02 3-078E 02 3-675E 00 3-597E 00 1-960E-02 1-913E 32 9-064E 5-000E 00 5-000E 00 3-675E 00 3-597E 00 1-960E-02 1-329E 02 1-001E 5-000E 00 5-000E 00 5-499E 00 5-499E 00 1-960E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-499E 00 5-495E 00 2-296E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-499E 00 5-495E 00 2-296E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-499E 00 5-495E 00 2-296E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-499E 00 5-495E 00 2-296E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-495E 00 5-495E 00 2-296E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-495E 00 5-495E 00 2-296E-02 2-749E 02 1-001E 5-000E 00 5-490E 02 7-451E 00 7-745E 00 7-745E 02 1-001E 5-000E 00 5-491E 02 7-451E 00 7-745E 00 7-745E 02 1-001E | 2 2-200E 02 1-505E 02 1-505E 00 1-329E 00 1-379E 00 1-379E 01 1-37 | 2 2-206 02 1.7016 02 1.3446 00 1.3246 00 1.3746-02 7.0836 10 7.7946 12 2-2066 02 1.7016 02 1.3446 00 1.3246 00 1.3246 00 1.3746-02 7.0836 10 7.7946 12 2-2066 02 1.7016 02 1.3446 00 1.3246 00 1.3246 00 2.2866-02 5.4006 01 9.4006 01 5.0006 00 5.0006 00 5.0006 00 5.0006 00 5.0006 00 5.0006 00 5.4006 00 3.5976 00 1.9066-02 1.913 22 9.9946 1.4016 02 3.7756 02 3.4756 00 3.5976 00 1.9066-02 1.913 22 9.9946 1.4016 02 2.7756 02 3.7776 00 3.5976 00 1.9066-02 1.913 22 9.9946 1.4016 02 2.7756 02 3.7776 00 3.5976 00 1.9066-02 1.913 22 9.9946 1.4016 02 2.7756 02 3.5106 00 3.5976 00 1.9066-02 2.7796 02 9.9946 02 9.9976 02 1.0016 02 5.0006 00 5.4006 00 5.4006 00 2.2796 02 1.0016 02 5.0006 00 5.4006 00 5.4006 00 2.2796 02 2.7716 02 1.0016 02 5.0006 00 5.4006 00 5.4006 00 2.2796 02 2.7716 02 1.0016 02 5.0006 00 5.4016 02 2.7716 02 1.0016 02 5.0006 00 5.4016 02 2.7716 02 1.0016 02 5.0006 00 5.4016 02 2.7716 02 1.0016 02 5.0006 00 5.4016 02 2 | 0.2 2.526 0.2 1.00 0.2 1.346 0.0 1.3766 0.0 1. | 0.2 2.526 0.2 1.00 0.2 1.346 0.0 1.3766 0.0 1. | | | DATA | POINT | | | | |
| 02 2.20E 02 1.70FE 02 1.356E 00 1.329E 00 1.900E-02 6.71IE 01 9.800E 00 5.000E 00 01 5.000E 00 02 4.810E 02 3.075E 02 3.575E 00 1.901E-02 1.902E 02 9.905E 03 4.810E 02 3.075E 02 3.707E 00 3.597E 00 1.904E-02 1.902E 02 9.905E 04 4.810E 02 3.075E 02 3.707E 00 3.597E 00 1.904E-02 1.902E 02 9.905E 05 4.810E 02 3.075E 02 3.707E 00 3.597E 00 1.904E-02 1.902E 02 9.905E 01 5.000E 00 01 5.000E 00 01 5.000E 02 3.796E 00 5.405E 00 5.405E 00 2.353E-02 2.796E 02 1.001E 02 6.200E 02 3.711E 02 5.549E 00 5.405E 00 2.779E-02 2.771E 02 1.001E 01 5.000E 00 | 2 2.500E 02 1.70FE 02 1.345E 00 1.329E 00 1.900E-02 6.71E 01 9.000E 2 5.400E 02 1.70FE 02 1.350E 00 1.329E 00 2.286E-02 5.606E 01 9.000E 3 5.000E 00 5 | 2 2.200E 02 1.70FE 02 1.35FE 00 1.32PE 00 1.900E-02 6.71FE 01 9.000E 5.000E 00 5.000E | 2 2-2006 02 1.7816 02 1.3856 00 1.3296 00 1.9996-02 6.7116 01 9.0006 5 5.0006 00 | 2 2-4006 02 1-7816 02 1-3456 00 1-3296 00 1-9086-02 6-7116 01 9-8096 2 -4306 02 1-7076 02 1-3506 00 1-3296 00 2-2866-02 5-8066 01 9-8096 3 5-8006 00 5 | 0.2 2.500E 0.2 1.701E 0.2 1.335E 0.0 1.329E 0.0 1.900E-02 2.711E 0.000E 0.00 | C | 1.094E 02 | | 1.80 X 02 | 0/A 1.344E 00 | 0/AP | H 1-876F-02 | 7.08 % 01 | |
| E LE DATA POINT 2 AAP H DEL TF V5 9.000E 01 5.000E 02 3.075E 00 1.329E 00 2.286E-02 5.800E 01 9.000E 00 00 5.000E 00 3.075E 00 1.080E-02 1.913E 32 9.904E 02 4.610E 02 3.075E 02 3.075E 00 1.996E-02 1.913E 32 9.904E 02 4.610E 02 3.075E 02 3.075E 00 1.996E-02 1.913E 32 9.904E 02 4.610E 02 3.075E 02 3.075E 00 3.597E 00 1.996E-02 1.913E 32 9.904E 02 4.610E 02 3.075E 02 3.075E 00 3.597E 00 1.996E-02 1.529E 02 1.001E 03 1.001E 03 1.001E 03 1.001E 04 | 2 2.430E 02 1.707E 02 1.350E 00 1.329E 00 2.288E-02 5.806E 01 9.806E 5.000E 00 5.000E | 2.430E 02 1.707E 02 1.350E 00 1.329E 00 2.286E-02 5.806E 01 9.806E 5.000E 00 | 2 2.430E 02 1.707E 02 1.350E 00 1.329E 00 2.286E-02 5.866E 01 9.806E 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 02 5.000E | 2 2.4306 02 1.707E 02 1.350E 00 1.320E 00 2.288E-02 5.806E 01 9.606E 5.000E 00 5.000E 00 5.000E 00 5.000E 02 5.000E 02 5.000E 02 5.000E 00 5.000E | O | O | 1.110E 02 | 2-500E | 1.781E 02 | 1.345E 00 | 1.329E 00 | 1.960E-02 | 6.711E 91 | |
| DATA POINT 2 DATA POINT 2 *** *** *** *** *** *** *** *** *** | 5.000E 00 | 5.000E 00 5.000E | 5.000E 00 5.000E | 5.000E 00 5.000E | DATA POINT 2 DATA POINT 4 DEL TF VS 1-012E 02 1 | DATA POINT 2 *** COOR COO S.000 COO S.000 COO S.000 COO COO COO S.000 COO COO COO COO COO COO COO COO COO | 1.1265 02 | 2.430€ | 1.707E 02 | 1.350E 00 | 1.329E 00 | 2.288E-02 | 5.806E 01 | |
| 00 5.000E 00 01 5.000E 02 02 4.610F 02 2.775E 02 3.707E 00 3.597E 00 1.996E-02 1.613E 02 9.995E 03 4.610F 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 01 5.000E 00 01 5.000E 00 01 5.000E 00 01 5.000E 02 3.900E 03 5.405E 00 2.006E-02 2.749E 02 9.976E 02 6.520E 02 3.670E 00 5.405E 00 2.006E-02 2.779E 02 1.001E 03 6.500E 02 3.711E 02 5.516E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 04 5.000E 00 05 6.500E 00 5.405E 00 5.405E 00 2.279E-02 2.771E 02 1.000E 05 6.500E 00 5.405E 00 5.405E 00 2.279E-02 2.771E 02 1.000E 06 6.500E 00 5.405E 00 5.405E 00 2.279E-02 2.771E 02 1.000E 07 6.500E 00 5.405E 00 5.405E 00 5.405E 00 5.279E-02 2.771E 02 1.000E | 5.000E 00 3.000E 00 3.000E 00 3.000E 00 3.000E 00 3.000E 00 5.000E 00 | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 3.076E 02 3.676E 00 3.597E 00 1.681E-02 1.613E 32 4.610E 02 3.076E 02 3.675E 00 3.597E 00 1.681E-02 1.613E 32 4.610E 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.629E 02 9.964E 5.000E 00 | DATA POINT 2 TW TI 0/A 0/A 0/AP H DEL TF VS 4.610E 02 3.078E 02 3.666E 00 3.597E 00 1.096E-02 1.013E 02 9.964E 4.610F 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E LE 5.000E 00 5. | 5.000E 00 5.000E | DATA POINT 2 | OO 5.000E 00 S.000E 00 S | | | | | | | | |
| DATA POINT 2 B | TW TI 0/A 0/AP | 5.000E 00 DATA POINT 2 4.870E 02 3.070E 5.000E 02 3.070E 02 3.070E 02 3.070E 02 3.070E 02 3.070E 5.000E 02 3.070E 6.200E 02 3.070E 02 3.070E 02 3.070E 02 3.070E 02 3.070E 6.200E 03 3.070E 02 3.070E 5.000E 00 5 | 5.000E 00 DATA POINT 2 T | 5.000E 00 DATA POINT 2 4.870E 02 3.078E 02 3.646E 00 3.597E 00 1.881E-02 1.813E 32 9.864E 4.610E 02 3.078E 02 3.675E 00 3.597E 00 1.881E-02 1.802E 02 9.895E 4.610E 02 2.775E 02 3.777E 00 3.597E 00 2.353E-02 1.802E 02 9.895E 5.000E 00 DATA POINT 3 A B B B B B B B B B B B B B B B B B B | DATA POINT 2 ***COOKE 00 ***COOKE 02 ***COOKE 03 ***C | DATA POINT 2 *** TW TI | | 5.000E | | | | | | |
| B TW TI ACAP HOLINT 2 0.2 4-870E 0.2 3.070E 0.2 3.666E 0.0 3.597E 0.0 1.001E-0.2 1.913E 3.2 9.904E 0.2 4-810E 0.2 3.070E 0.2 3.767E 0.0 3.597E 0.0 1.006E-0.2 1.802E 0.2 9.904E 0.3 4-810E 0.2 3.775E 0.2 3.767E 0.0 3.597E 0.0 1.906E-0.2 1.529E 0.2 1.001E E LE 0.1 5.000E 0.0 1 5.000E 0.0 1 5.000E 0.0 2 5.400E 0.2 3.760E 0.2 5.490E 0.0 5.405E 0.0 1.906E-0.2 2.779E 0.2 9.976E 0.2 6.420E 0.2 3.781E 0.2 5.545E 0.0 5.405E 0.0 2.279E-0.2 2.771E 0.2 1.001E E LE 0.3 5.000E 0.0 3.771E 0.0 5.405E 0.0 2.279E-0.2 2.771E 0.2 1.001E 0.4 5.000E 0.0 3.771E 0.2 5.545E 0.0 5.405E 0.0 2.279E-0.2 2.771E 0.2 1.001E 0.5 5.000E 0.0 3.771E 0.2 5.545E 0.0 5.405E 0.0 2.279E-0.2 2.771E 0.2 1.001E 0.7 5.000E 0.0 3.771E 0.2 3.771E 0.2 1.001E | TW TI OVA DATA POINT 2 1 4-870E 02 3-075E 02 3-656E 00 3-597E 00 1-881E-02 1-913E 32 9-964E 4-810E 02 3-075E 02 3-675E 00 3-597E 00 1-996E-02 1-802E 02 9-964E 5-000E 00 3-970E 02 3-775E 02 3-775E 00 3-597E 00 2-353E-02 1-529E 02 1-001E 5-000E 00 5-000E 00 5-405E 00 1-966E-02 2-749E 02 1-001E 6-500E 02 3-966E 02 5-496E 00 5-405E 00 2-279E-02 2-749E 02 1-001E 5-000E 00 5-405E 00 5-405E 00 2-279E-02 2-749E 02 1-001E 5-000E 00 5-405E 00 5-405E 00 2-279E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-405E 00 2-279E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-405E 00 2-279E-02 2-749E 02 1-001E 5-000E 00 5-000E 00 5-405E 00 2-279E-02 2-749E 02 1-001E | TW TI O/AP H DEL TF VS 4-870E 02 3.070E 02 3.666E 00 3.597E 00 1.481E-02 1.913E 32 9.964E 4-810E 02 3.070E 02 3.675E 00 3.597E 00 1.996E-02 1.802E 02 9.964E 4-810E 02 3.070E 02 3.777E 02 3.777E 00 3.597E 00 2.353E-02 1.529E 02 1.001E LE 5.000E 00 6.200E 02 6.200E 03 | TW TI O/A DOINT 2 0/APP H DEL TF VS 4-870E 02 3.077E 02 3.597E 02 1.996E-02 1.913E 32 9-995E 4-810E 02 3.070E 02 3.577E 00 3.597E 00 1.996E-02 1.602E 02 9-995E 5-000E 02 2.775E 02 3.777E 00 3.597E 00 1.996E-02 1.529E 02 1.001E 5-000E 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | ## TI O/A POINT 2 4-870E 02 3.075E 02 3.646E 00 3.597E 00 1.881E-02 1.913E 32 9.984E 4-810E 02 2.775E 02 3.707E 00 3.597E 00 1.996E-02 1.802E 02 9.985E 4-610F 02 2.775E 02 3.707E 00 3.597E 00 1.996E-02 1.529E 02 1.001E 5-000E 00 5-000E 0 | DATA POINT 2 1 | DATA POINT 2 B TW TI 0/A 0/AP | 6.340E 00 | 5.000E | | | | | | |
| TW TI O/A | TW TI 0/A 0/A 0/A H DEL TF VS 4-870E 02 3.070E 02 3.656E 00 3.597E 00 1.881E-02 1.913E 32 9.965E 4-810E 02 3.006E 02 3.675E 00 3.597E 00 1.996E-02 1.802E 02 9.965E 5-000E 00 5.000E 00 5.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 5-000E 00 5.000E 00 5.409E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6-500E 02 3.960E 02 5.499E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6-200E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-07 2.771E 02 1.004E 5-000E 00 5.000E 00 5.405E 00 7.755F 00 7.007F 00 7.007F 00 7.775F 00 7.007F 00 7.775F 00 7.007F 00 7.775F 00 7.77 | TW TI 0/A 0/A 0/AP H DEL TF VS 4-870E 02 3.078E 02 3.675E 00 1.681E-02 1.913E 02 9.964E 4-810E 02 3.008E 02 3.675E 00 3.597E 00 1.996E-02 1.913E 02 9.964E 4-810E 02 3.705E 02 3.707E 00 3.597E 00 1.996E-02 1.529E 02 1.001E 5.000E 00 5.000E 00 5.000E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6.500E 00 5.000E 00 5.405E 00 2.279E-02 2.749E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 6.200E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 6.200E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.001E | TW TI 0/A 0/A 0/AP H DEL TF VS 4-870E 02 3.070E 02 3.646E 00 3.597E 00 1.881E-02 1.913E 32 9.964E 4-810E 02 3.070E 02 3.675E 00 3.597E 00 1.996E-02 1.802E 02 9.998E 5-000E 00 2 2.775E 02 3.707E 00 3.597E 00 2.333E-02 1.529E 02 1.001E 5-000E 00 5-000E 00 5-000E 00 5-000E 00 5-496E 00 5-496E 02 2.749E 02 9.976E 6-250E 02 3.960E 02 5.496E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6-250E 02 3.960E 02 5.496E 00 5.405E 00 2.279E-07 2.771E 02 1.001E 5-000E 00 5-000E 00 5-405E 00 2.279E-07 2.771E 02 1.001E 5-000E 00 5-405E 00 5-405E 00 2.279E-07 2.771E 02 1.000E 6-250E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-07 2.771E 02 1.000E 6-250E 02 3.711E 02 5.545E 00 2.405E 00 2.779E-02 1.000E 6-260E 00 5-405E 02 7.851E 00 7.735E 00 2.466E-02 3.767E 02 1.010E 6-260E 02 4.912E 02 7.852E 00 7.735E 00 2.466E-02 3.767E 02 1.010E 6-260E 02 4.912E 02 7.852E 00 7.735E 00 2.466E-02 3.767E 02 1.010E 6-260E 02 4.912E 02 7.852E 00 7.735E 00 2.466E-02 3.767E 02 1.010E | TW TI 0/A 0/AP H DEL TF VS 4-810E 02 3.078E 02 3.686E 00 3.597E 00 1.096E-02 1.913E 32 9.964E 4-810E 02 3.008E 02 3.675E 00 3.597E 00 1.096E-02 1.802E 02 9.984E 4-810E 02 3.008E 02 3.707E 00 3.597E 00 1.096E-02 1.529E 02 1.001E 5-000E 00 5-000E 00 5.009E 00 5.403E 00 1.996E-02 1.529E 02 1.001E 5-000E 00 5-000E 00 5.409E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6-250E 02 3.966E 02 5.596E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6-290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-0? 2.771E 02 1.001E 5-000E 00 5-000E 00 5.405E 00 7.735E 00 2.053E-02 3.771E 02 1.001E 6-300E 00 5-000E 00 5.403E 02 7.851E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 6-320E 02 4.619E 02 7.851E 00 7.735E 00 2.446E-02 3.163E 02 1.010E 6-300E 02 4.619E 02 7.916E 00 7.735E 00 2.446E-02 3.163E 02 1.010E | 02 4-870E 02 3.070E 02 3.666E 00 3.597E 00 1.881E-02 1.913E 32 9.964E 02 4.810E 02 3.070E 02 3.656E 00 3.597E 00 1.986E-02 1.913E 32 9.964E 02 4.810E 02 3.070E 02 3.570E 00 3.597E 00 1.996E-02 1.802E 02 9.9965E 03 1.000E 02 3.070E 02 3.775E 02 3.777E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 02 1.500E 00 01 5.000E 00 | 02 4-270E 02 3.076E 02 3.655E 00 3.597E 00 1.681E-02 1.913E 32 9-964E 02 4-610E 02 3.070E 02 3.675E 00 3.597E 00 1.966E-02 1.913E 32 9-964E 03 4-610E 02 2.775E 02 3.707E 00 3.597E 00 1.966E-02 1.929E 02 9-965E 01 5.000E 00 01 5.000E 00 02 6-500E 02 3.966E 02 5.495E 00 5.405E 00 2.279E-02 2.749E 02 1.001E 02 6-500E 02 3.966E 02 5.496E 00 5.405E 00 2.279E-02 2.741E 02 1.001E 03 6-700E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.741E 02 1.001E 04 15.000E 00 05 6-300E 02 3.711E 02 5.405E 00 2.279E-02 2.741E 02 1.001E 05 6-300E 00 00 01 5.000E 00 7.735E 00 2.406E-02 3.767E 02 1.010E 02 6-300E 02 4.619E 02 7.916E 00 7.735E 00 2.406E-02 3.163E 02 1.010E 01 5.000E 00 | | | DATA | | | | | |
| 02 4-870E 02 3.070E 02 3.656E 00 3.597E 00 1.041E-02 1-913E 02 9.964E 02 4-810E 02 3.000E 02 3.675E 00 3.597E 00 1.996E-02 1.913E 02 9.964E 02 4-810E 02 2.775E 02 3.707E 00 3.597E 00 1.996E-02 1.529E 02 1.001E 01 5.000E 00 01 5.000E 00 01 5.000E 02 3.966E 02 5.405E 00 1.966E-02 2.749E 02 1.001E 02 6.550E 02 3.970E 02 5.405E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 03 5.000E 00 04 5.000E 00 05 6.500E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 04 5.000E 00 05 6.500E 00 06 5.000E 00 07 7.000E 07 7.000E 08 7.000E 09 7.000E 09 7.000E 09 7.000E 00 7. | ## ## ## ## ## ## ## ## ## ## ## ## ## | 4.870E 02 3.070E 02 3.675E 00 3.597E 00 1.881E-02 1.913E 32 9.964E 4.810E 02 3.070E 02 3.675E 00 3.597E 00 1.996E-02 1.913E 32 9.964E 5.000E 00 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 5.405E 00 1.966E-02 2.779E 02 9.976E 6.250E 02 3.966E 02 5.405E 00 5.405E 00 2.279E-02 2.779E 02 1.001E 5.000E 00 5.400E 00 5.405E 00 2.279E-02 2.779E 02 1.001E 5.000E 00 5.400E 00 5.405E 00 2.279E-02 2.779E 02 1.001E 5.000E 00 5.405E 00 2.405E 00 2.279E-02 2.779E 02 1.001E 5.000E 00 5.405E 00 2.405E 00 2.279E-02 2.779E 02 1.001E 5.000E 00 5.405E 00 2.405E 00 2.279E-02 2.779E 02 1.001E 6.320E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.779E 02 1.001E 6.320E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.779E 02 1.001E 6.320E 02 3.711E 02 7.455E 00 7.775E 02 2.779E-02 1.001E | 4.870E 02 3.070E 02 3.675E 00 3.597E 00 1.881E-02 1.913E 32 9.964E 4.810E 02 3.000E 02 3.675E 00 3.597E 00 1.996E-02 1.913E 32 9.964E 5.000E 00 3.707E 00 3.597E 00 1.996E-02 1.529E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 1.966E-02 2.749E 02 1.001E 6.500E 02 3.966E 02 5.496E 00 5.405E 00 1.966E-02 2.749E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-07 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.476E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-07 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.476E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-07 2.771E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-07 2.771E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-07 2.771E 02 1.001E 6.290E 02 3.711E 02 7.455E 00 2.406E-02 3.767E 02 1.010E 6.290E 02 4.619E 02 7.455E 00 2.406E-02 3.767E 02 1.010E 6.290E 02 4.619E 02 7.455E 00 2.406E-02 3.767E 02 1.010E 6.290E 02 4.619E 02 7.455E 00 2.406E-02 3.767E 02 1.010E 6.290E 02 4.619E 02 7.455E 00 2.406E-02 3.767E 02 1.010E | ## ## ## ## ## ## ## ## ## ## ## ## ## | 02 4-8706 02 3-0786 02 3-6566 00 3-5976 00 1-8816-02 1-913 02 9-9466 02 4-8106 02 3-0706 02 3-57076 00 3-5976 00 1-9966-02 1-913 02 9-9466 02 4-8106 02 3-0706 02 3-57076 00 3-5976 00 1-9966-02 1-5296 02 1-0016 02 1-5006 00 1-9966-02 1-5296 02 1-0016 02 1-5006 00 1-9966-02 1-5296 02 1-0016 02 1-5006 00 1-9966-02 1-5296 02 1-0016 02 1-5006 00 1-9966-02 1-5296 02 1-0016 02 1-5006 02 1-5 | 02 4-8706 02 3.0706 02 3.6566 03 3.5976 00 1.0816-02 1.9136 32 9946 02 4-8106 02 3.006 02 3.6756 00 3.5976 00 1.9966-02 1.8026 02 9-9986 02 4-8106 02 2.7756 02 3.7076 00 3.5976 00 1.9966-02 1.8026 02 9-9986 02 1.0016 02 1.5006 00 1.9966-02 1.5296 02 1.0016 02 1.5006 00 1.9966-02 1.5296 02 1.0016 02 1.5006 00 1.9966-02 1.5296 02 1.0016 02 1.5006 00 1.9966-02 1.5296 02 1.0016 02 1.5006 00 1.9966-02 1.5296 02 1.0016 02 1.5006 00 1.9966-02 1.5296 02 1.0016 02 1.5006 02 1.5006 00 1.9966-02 1.5096 02 1.0016 02 1.5006 00 1.5006 | | : | ; | | | | | |
| 02 4-810E 02 3-000E 02 3-675E 00 3-597E 00 1-996E-02 1-8013E 32 9-964E 02 4-610F 02 2-775E 02 3-707E 00 3-597E 00 2-353E-02 1-8013E 32 9-964E 01 5-000E 00 01 5-000E 00 01 5-000E 00 01 5-000E 00 02 6-500E 02 3-906E 02 5-405E 00 1-964E-02 2-749E 02 9-976E 02 6-500E 02 3-870E 02 5-516E 00 5-405E 00 2-066E-02 2-749E 02 1-001E 03 6-290E 02 3-771E 02 5-516E 00 5-405E 00 2-279E-02 2-771E 02 1-001E 04 5-000E 00 05 6-290E 02 3-771E 02 5-516E 00 5-405E 00 2-279E-02 2-771E 02 1-001E 06 5-290E 02 3-771E 02 5-516E 00 5-405E 00 2-279E-02 2-771E 02 1-001E 07 8-000E 00 08 5-000E 00 09 5 | 4.610F 02 3.000E 02 3.775E 02 3.575E 00 1.996E-02 1.913E 32 9.964E 5.000E 00 5.000E 02 3.777E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 5.000E 00 5.000E 00 5.000E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6.500E 02 3.906E 02 5.496E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 6.200E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 6.200E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 6.200E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.004E | 4.610E 02 3.000E 02 3.675E 00 3.597E 00 1.996E-02 1.613E 32 9.964E 4.610E 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.629E 02 1.001E 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 6.500E 00 5.000E 00 5.405E 00 5.405E 00 2.006E-02 2.749E 02 9.976E 6.500E 02 3.966E 02 5.969E 00 5.405E 00 2.006E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 5.405E 00 2.006E-02 2.771E 02 1.000E 5.000E 00 5.000E 00 5.405E 00 2.006E-02 2.771E 02 1.000E 5.000E 00 5.000E 00 5.405E 00 2.005E-02 2.771E 02 1.000E 6.300E 00 5.000E 00 5.405E 00 2.005E-02 3.767E 02 1.000E 6.300E 00 5.000E 00 5.405E 00 2.005E-02 3.767E 02 1.000E | 4.610F 02 3.700E 02 3.707E 00 3.597F 00 1.996E-02 1.801E 32 9.964E 4.610F 02 2.775E 02 3.707E 00 3.597F 00 2.353E-02 1.801E 02 9.963E 5.000E 00 | 4.610F 02 3.700E 02 3.777E 00 3.597E 00 1.996E-02 1.801E 32 9.964E 5.000E 00 5.000E 00 5.775E 02 3.777E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 5.000E 00 5.000E 00 5.000E 00 5.405E 00 2.353E-02 1.529E 02 1.001E 6.500E 02 3.966E 02 5.405E 00 5.405E 00 2.079E-02 2.779E 02 1.001E 6.200E 02 3.870E 02 5.516E 00 5.405E 00 2.079E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.079E-02 2.771E 02 1.004E 5.000E 00 5.405E 00 5.405E 00 2.079E-02 2.771E 02 1.004E 6.290E 02 3.711E 02 5.516E 00 5.405E 00 2.079E-02 2.771E 02 1.004E 6.290E 02 3.711E 02 7.821E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 6.290E 02 4.912E 02 7.821E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 6.290E 02 4.912E 02 7.916E 00 7.735E 00 2.446E-02 3.767E 02 1.010E | 02 4.610E 02 3.705E 02 3.707E 00 3.597E 00 1.996E-02 1.612E 02 9.995E 02 4.610E 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 01 5.000E 00 01 5.000E 00 01 5.000E 02 3.906E 02 5.498E 00 5.405E 00 1.966E-02 2.749E 02 1.001E 02 6.500E 02 3.906E 02 5.498E 00 5.405E 00 1.966E-02 2.749E 02 1.001E 03 6.500E 02 3.906E 02 5.498E 00 5.405E 00 2.066E-02 2.771E 02 1.001E 04 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.056E-02 2.771E 02 1.001E 05 6.200E 00 01 5.000E 00 0 | 02 4.010E 02 3.000E 02 3.707E 00 3.597E 00 1.096E-02 1.012E 02 9.0905E 02 0.000E 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 1-105E 02 | 4.870E 02 | 3-0785 02 | 3.666F 00 | 0/AP | I . | DEL TF | |
| 02 4.610F 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E E | 1 4-610F 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 5.000E 00 | ## 4.610F 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E 5.000E 00 5.000 | TW TI OATA POINT A DATA POINT A | TW TI DATA POINT A TW TI | 02 4.610F 02 2.775E 02 3.707E 00 3.597E 00 2.353E-02 1.529E 02 1.001E E LE 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.500E 02 03 6.500E 02 04.420E 02 05 6.500E 02 05 6.420E 02 05 6.420E 02 05 6.420E 02 05 6.420E 02 06 6.420E 02 07.40E | 02 4-610F 02 2.775F 02 3.707F 00 3.597F 00 2.353E-02 1.529F 02 1.001E E LE 01 5.000E 00 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.500E 02 3.976E 02 5.405E 00 1.966E-02 2.799E 02 1.001E 02 6.500E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.0004E 01 5.000E 00 | 1.206E 02 | 4.810E 02 | | 3.675E 00 | 3.597E 00 | 1 -9965-02 | | |
| E LE 01 5.000E 00 02 6.500E 02 3.900E 02 5.405E 00 1.906E-02 2.749E 02 9.976E 02 6.200E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.591E 02 1.004E E LE 01 5.000E 00 01 5.000E 00 01 5.000E 00 | 5.000E 00 5.000E | TW TI OATA POINT 3 10 ATA POINT 3 6.500E 00 5.000E 0 | TW TI OATA POINT 3 6.500E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 02 5.000E 02 5.000E 02 5.000E 02 5.000E 02 5.000E 00 5.000E | TW TI DATA POINT 3 **COOPE 00 5.000E 00 5 | S.000E 00 S.00E 00 S.0 | S. 000E 00 S. | 1.247E 02 | 4.610F 02 | | 3.707E 00 | 3.597E 00 | 2.353E-02 | 1.529€ 02 | |
| DATA PDINT 3 TW TI OLA PDINT 3 LOAD HOELTF VS 0.2 6-500E 0.2 3-908E 0.2 5-408E 0.0 2-086E-0.2 2-749E 0.2 9-976E 0.2 6-290E 0.2 3-711E 0.2 5-516E 0.0 5-405E 0.0 2-279E-0.2 1-001E E LE 0.1 5-000E 0.0 1.004E 0.2 5-000E 0.0 1.004E | 5.000E 00 5.000E | 5.000E 00 5.000E | 5.000E 00 5.000E | 5.000E 00 5.000E | 01 5.000E 00 02 6.500E 02 3.90EE 02 5.49EE 00 5.40SE 00 1.906E-02 2.749E 02 9.976E 02 6.520E 02 3.51EE 02 5.51EE 00 5.40SE 00 2.006E-02 2.749E 02 9.976E 02 6.520E 02 3.71E 02 5.51EE 00 5.40SE 00 2.279E-02 2.77EE 02 1.001E 01 5.000E 00 01 5 | 01 5.000E 00 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.500E 02 3.908E 02 5.498E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 02 6.500E 02 3.500E 02 5.516E 00 5.405E 00 1.966E-02 2.749E 02 9.970E 02 6.500E 02 3.711E 02 5.516E 00 5.405E 00 2.006E-02 2.771E 02 1.001E 03 6.500E 00 01 5.000E 00 | DELTA E | 3 | | | | | | |
| 11 5.000E 00 DATA PDINT 3 LATE TH TA A/A D/AP H DEL TF VS 02 6.500E 02 3.808E 02 5.498E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 02 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E E LE 01 5.000E 00 01 5.000E 00 | 5.000E 00 5.000E | 5.000E 00 5.000E | 5.000E 00 5.000E 02 5.409E | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 02 5.490E 02 5.400E | DATA PDINT 3 TW TI O/A 0/AP H DEL TF VS 6 6.5006 02 3.986 02 5.496 00 5.4056 00 1.9666-02 2.7496 02 9.9766 72 6.5206 02 3.5876 02 5.496 00 5.4056 00 1.9666-02 2.7796 02 9.9766 73 6.5206 02 3.7116 02 5.5456 00 5.4056 00 2.2796-02 2.7716 02 1.0016 74 6.7006 00 1 5.0006 00 75 6.4306 02 5.4516 00 7.7356 00 2.0536-02 3.7676 02 1.0106 75 6.4306 02 5.4516 02 7.8216 00 7.7356 00 2.0536-02 3.7676 02 1.0106 75 6.4306 02 4.6196 02 7.9106 00 7.7356 00 2.4466-02 3.1636 02 1.0196 75 6.4006 00 4.6196 02 7.9106 00 7.7356 00 2.4466-02 3.1636 02 1.0196 | DATA PDINT 3 LATA PDINT 3 DATA PDINT 4 LE C 6.50E 02 3.968E 02 5.498E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 02 6.520E 02 3.711E 02 5.516E 00 5.405E 00 2.086E-02 2.749E 02 1.0016 03 6.520E 02 3.711E 02 5.516E 00 5.405E 00 2.279E-02 2.771E 02 1.0016 04 5.000E 00 05 5.000E 00 06 5.000E 00 07 7.735E 00 2.053E-02 3.767E 02 1.010E 08 6.430E 02 4.619E 02 7.851E 00 7.7735E 00 2.085E-02 3.767E 02 1.010E 09 6.990E 02 4.619E 02 7.851E 00 7.7735E 00 2.0846E-02 3.163E 02 1.019E 00 6.090E 02 4.619E 02 7.918E 00 7.7735E 00 2.446E-02 3.163E 02 1.019E 01 5.000E 00 02 6.090E 02 4.619E 02 7.918E 00 7.7735E 00 2.446E-02 3.163E 02 1.019E 03 6.090E 03 4.619E 02 7.918E 00 7.7735E 00 2.446E-02 3.163E 02 1.019E | 1.094E 01 | | | | | | | |
| DATA PDINT 3 TW TI DEL TF VS 02 6-500E 02 3.968E 02 5.498E 00 5.405E 00 1.966E-02 2.779E 02 9.976E 02 6-290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E E LE 01 5.000E 00 01 5.000E 00 | 1 DATA POINT 3 1 TH TI Q/A Q/AP H DEL TF VS 6.500E 02 3.900E 02 5.409E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 6.420E 02 3.711E 02 5.516E 00 5.405E 00 2.006E-02 2.749E 02 1.004E 1 LE 5.000E 00 | 5.000E 00 DATA PDINT 3 TW T1 OAA 0/AP H DEL TF VS 6.500E 02 3.968E 02 5.496E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6.200E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.004E LE 5.000E 00 5.00 | 5.000E 00 Tw T1 | 5.000E 00 Tw Ti | DATA POINT 3 LE CA 6.500E 02 3.960E 02 5.490E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 02 6.420E 02 3.761E 02 5.516E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 02 6.420E 02 3.711E 02 5.516E 00 5.405E 00 2.006E-02 2.591E 02 1.0016 01 5.000E 00 01.735E 00 2.053E-02 3.767E 02 1.010E 02 6.320E 02 4.619E 02 7.910E 00 7.735E 00 2.046E-02 3.163E 02 1.019E 01 6.00E 00 01 6.00E | DATA POINT 3 LATE TW TI 0/A 0/AP H DEL TF VS 02 6.500E 02 3.960E 02 5.490E 00 5.405E 00 1.966E-02 2.749E 02 9.970E 03 6.420E 02 3.711E 02 5.516E 00 5.405E 00 2.086E-02 2.749E 02 9.970E 04 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.080E-02 2.771E 02 1.001E 05 6.420E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 06 1 5.000E 00 07 7.735E 00 2.456E-02 3.767E 02 1.010E 07 6.320E 02 4.619E 02 7.852E 00 7.7735E 00 2.446E-02 3.163E 02 1.011E 08 6.090E 02 4.619E 02 7.916E 00 7.7735E 00 2.446E-02 3.163E 02 1.019E 09 6.090E 02 4.619E 02 7.916E 00 7.7735E 00 2.446E-02 3.163E 02 1.019E 00 6.090E 00 4.619E 02 7.916E 00 7.7735E 00 2.446E-02 3.163E 02 1.019E | 1.094E 21 | | | | | | | |
| B TW TI Q/A Q/AP H DEL TF VS 02 6-500E 02 3-960E 02 5-490E 00 5-405E 00 1-966E-02 2-749E 02 9-976E 02 6-420E 02 3-870E 02 5-516E 00 5-405E 00 2-006E-02 2-591E 02 1-001E 02 6-290E 02 3-711E 02 5-545E 00 5-405E 00 2-279E-07 2-371E 02 1-004E 01 5-000E 00 01 5-000E 00 | 1 | 6.500E 02 3.908E 02 5.498E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.711E 02 5.515E 00 5.405E 00 1.906E-02 2.771E 02 1.001E 5.000E 00 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 5.000E 00 5.000 | 6.500E 02 3.908E 02 5.498E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.768E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.711E 02 5.515E 00 5.405E 00 1.906E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 6.200E 00 5.000E 00 5.00 | 6.500E 02 3.908E 02 5.498E 00 1.906E-02 2.749E 02 9.976E 6.420E 02 3.908E 02 5.498E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 6.420E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.004E TW T1 0./A 0./AP H DEL TF VS 6.320E 02 4.912E 02 7.852E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 6.000E 02 4.619E 02 7.852E 00 7.735E 00 2.446E-02 3.163E 02 1.019E | DATA PDINT 3 TW TI O/A 0/AP H DEL TF VS 02 6.5006 02 3.986 02 5.496 00 5.4056 00 1.9666-02 2.7496 02 9.9766 02 6.2906 02 3.7116 02 5.5166 00 5.4056 00 2.0866-02 2.7496 02 9.9766 03 6.2906 02 3.7116 02 5.5456 00 5.4056 00 2.2796-02 2.7716 02 1.0016 01 5.0006 00 01 5.0006 00 01 5.0006 00 01 5.0006 00 02 6.4306 02 5.0516 02 7.7356 00 2.0536-02 3.7676 02 1.0106 02 6.4306 02 4.6196 02 7.7356 00 2.0466-02 3.1636 02 1.0196 03 6.9906 02 4.6196 02 7.9106 00 7.7356 00 2.4466-02 3.1636 02 1.0196 | DATA PDINT 3 TW TI Q/A Q/AP H DEL TF VS 02 6.5006 02 3.9686 02 5.4986 00 5.4056 00 1.9666-02 2.7496 02 9.9766 02 6.4206 02 3.7116 02 5.5166 00 5.4056 00 2.0866-02 2.7496 02 1.0016 02 6.4206 02 3.7116 02 5.5166 00 5.4056 00 2.2796-02 2.7716 02 1.0016 01 5.0006 00 01 5.0006 00 01 5.0006 00 02 6.4306 02 5.0516 02 7.8516 00 7.7356 00 2.0536-02 3.7676 02 1.0196 02 6.4306 02 4.6196 02 7.6516 00 7.7356 00 2.4666-02 3.1636 02 1.0196 03 6.0906 02 4.6196 02 7.9186 00 7.7356 00 2.4466-02 3.1636 02 1.0196 04 6.0006 00 05 6.0006 00 06 7.7356 00 2.4466-02 3.1636 02 1.0196 | | | | | | | | |
| TH TW TI DEL TF VS 02 6-500E 02 3-908E 02 5-499E 00 1-906E-02 2-749E 02 9-976E 02 6-420E 02 3-870E 02 5-516E 00 5-405E 00 2-006E-02 2-591E 02 1-001E 02 6-290E 02 3-711E 02 5-545E 00 5-405E 00 2-006E-02 2-591E 02 1-001E E LE 01 5-000E 00 01 5-000E 00 | 6.500E 02 3.900E 02 5.490E 00 5.405E 00 1.906E-02 2.749E 02 9.970E 6.420E 02 3.870E 02 5.516E 00 5.405E 00 1.906E-02 2.749E 02 9.970E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E LE 5.000E 00 | 6.500E 02 3.966E 02 5.496E 00 5.405E 00 1.066E-02 2.749E 02 9.976E 0.2420E 02 3.870E 02 5.496E 00 5.405E 00 2.086E-02 2.749E 02 9.976E 0.2420E 02 3.871E 02 5.596E 00 5.405E 00 2.086E-02 2.591E 02 1.001E 0.2500E 00 5.405E 00 5.405E 00 2.770E 02 1.004E 0.2500E 00 5.000E 00 5.00 | TW T | TW T | DATA POINT 4 TW TTW TTW TTW TTW TTW TTW TTW TTW TTW | B TW TW TO THE TOTAL TOT | | | ATAC | | | | | |
| 8 TW TI 0/A 0/AP H DEL TF VS 02 6-500E 02 3-960E 02 5-490E 00 5-405E 00 1-966E-02 2-749E 02 9-976E 02 6-420E 02 3-870E 02 5-516E 00 5-405E 00 2-086E-02 2-591E 02 1-001E 02 6-290E 02 3-711E 02 5-545E 00 5-405E 00 2-279E-02 2-371E 02 1-004E E LE 01 5-000E 00 01 5-000E 00 | 6.500E 02 3.908E 02 5.498E 00 1.906E-02 2.749E 02 9.976E 6.420E 02 3.870E 02 5.498E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 6.420E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 8.600E 00 5.000E 00 | 6.500E 02 3.908E 02 5.498E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.749E 02 5.405E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000 | 6.500E 02 3.908E 02 5.498E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.908E 02 5.495E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.711E 02 5.515E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000E 0 | 6.500E 02 3.908E 02 5.498E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.780E 02 5.405E 00 1.906E-02 2.749E 02 9.976E 6.290E 02 3.711E 02 5.515E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 5.000E 00 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 5.000E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 6.320E 02 4.912E 02 7.916E 00 7.735E 00 2.446E-02 3.163E 02 1.019E 02 1.019E | 02 6.500E 02 3.908E 02 5.498E 00 1.966E-02 2.749E 02 9.976E 02 6.420E 02 3.870E 02 5.498E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 02 6.420E 02 3.870E 02 5.516E 00 5.405E 00 2.006E-02 2.749E 02 1.001E 02 6.290E 02 3.711E 02 5.515E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 01 5.000E 00 02 6.430E 02 7.910E 00 7.735E 00 2.046E-02 3.163E 02 1.013E 02 6.400E 02 4.619E 02 7.910E 00 7.735E 00 2.446E-02 3.163E 02 1.019E | 02 6.500E 02 3.908E 02 5.499E 00 1.966E-02 2.749E 02 9.976E 02 6.420E 02 3.506E 02 5.499E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 02 6.420E 02 3.711E 02 5.545E 00 5.405E 00 2.086E-02 2.771E 02 1.001E 01 5.000E 00 01 5.000E 00 01 5.000E 00 01 5.000E 02 02 6.430E 02 5.651E 02 7.821E 00 7.735E 00 2.083E-02 3.767E 02 1.010E 02 6.430E 02 4.619E 02 7.821E 00 7.735E 00 2.085E-02 3.163E 02 1.019E 03 6.090E 02 4.619E 02 7.910E 00 7.735E 00 2.46E-02 3.163E 02 1.019E 04 5.000E 00 | | | | | | | | |
| 02 6-200E 02 3-606E 02 5-490E 00 1-960E-02 2-749E 02 9-976E 02 6-200E 02 3-711E 02 5-516E 00 5-405E 00 2-206E-02 2-591E 02 1-001E 02 6-290E 02 3-711E 02 5-545E 00 5-405E 00 2-279E-02 2-771E 02 1-004E 01 5-000E 00 01 5-000E 00 | 0.5500E 02 3.960E 02 5.490E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6.420E 02 3.870E 02 5.516E 00 5.405E 00 2.086E-02 2.591E 02 1.001E 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.371E 02 1.004E LE 5.000E 00 | 6.290E 02 3.696E 02 5.496E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6.290E 02 3.711E 02 5.516E 00 5.405E 00 2.086E-02 2.771E 02 1.001E LE 5.000E 00 5.000E 0 | 0.5500E 02 3.606E 02 5.496E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6.290E 02 3.711E 02 5.516E 00 5.405E 00 2.086E-02 2.771E 02 1.001E 0.25.90E 02 3.711E 02 5.506E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 0.25.00E 00 5.000E 00 | 0.5500E 02 3.606E 02 5.496E 00 5.405E 00 1.966E-02 2.749E 02 9.976E 6.290E 02 3.711E 02 5.516E 00 5.405E 00 2.086E-02 2.771E 02 1.001E 5.600E 00 5.000E 00 5.405E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 5.000E 00 5.000E 00 5.000E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 5.000E 00 5.000E 00 5.405E 00 7.75E 00 2.053E-02 3.767E 02 1.010E 6.290E 02 4.619E 02 7.852E 00 7.775E 00 2.466E-02 3.163E 02 1.015E | 02 0.500E 02 3.906E 02 5.498E 00 5.405E 00 1.906E-02 2.749E 02 9.976E 02 6.290E 02 3.405E 00 5.405E 00 2.086E-02 2.791E 02 1.001E 02 6.290E 02 3.711E 02 5.516E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 01 5.000E 00 5.0 | 02 0.500E 02 3.90EE 02 5.498E 00 1.906E-02 2.749E 02 9.976E 02 6.290E 02 3.711E 02 5.516E 00 5.405E 00 2.086E-02 2.771E 02 1.001E 01 5.000E 00 0.2 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.001E 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.430E 02 5.051E 02 7.821E 00 7.735E 00 2.083E-02 3.767E 02 1.010E 02 6.430E 02 4.619E 02 7.821E 00 7.735E 00 2.084E-02 3.163E 02 1.019E 03 6.090E 02 4.619E 02 7.910E 00 7.735E 00 2.046E-02 3.163E 02 1.019E 01 5.000E 00 | 10 | 2 | 7.1 | A/0 | OZAP | I | DEL TF | SA |
| 02 6-2906 02 3-711E 02 5-545E 00 5-405E 00 2-206E-02 2-591E 02 1-004E E | C. 290E 02 3.711E 02 5.545E 00 5.405E 00 2.006E-02 2.591E 02 1.001E LE 5.000E 00 5.000E 00 5.000E 00 1.004E 1.004 | LE 5.000E 00 5.405E 00 2.279E-02 2.591E 02 1.001E 5.000E 00 5.405E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 5.000E 00 5.400E 00 5.400E 00 5.400E 00 5.400E 00 5.405E 00 2.405E 00 2.771E 02 1.004E 6.320E 02 4.912E 02 7.851E 00 7.775E 00 2.053E-02 3.767E 02 1.000E 6.320E 02 4.912E 02 7.851E 00 7.775E 00 2.053E-02 3.767E 02 1.000E | 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.591E 02 1.001E 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.200E 02 3.511E 02 5.545E 00 5.405E 00 2.279E-02 2.771E 02 1.004E 5.000E 00 6.200E 00 6.200E 00 7.755E 00 2.053E-02 3.767E 02 1.010E 6.250E 02 4.912E 02 7.852E 00 7.735E 00 2.464E-02 3.163E 02 1.619E 6.290E 02 4.619E 02 7.916E 00 7.735E 00 2.464E-02 3.163E 02 1.619E | 6.290E 02 3.711E 02 5.545E 00 5.405E 00 2.279E-02 2.591E 02 1.001E 5.000E 00 5.000E 00 5.000E 00 5.000E 00 7.735E 00 2.446E-02 3.163E 02 1.010E | 02 6-2906 02 3-711E 02 5-545E 00 5-405E 00 2-206E-02 2-591E 02 1-001E E LE 01 5-000E 00 02 6-430E 02 5-051E 02 7-821E 00 7-735E 00 2-053E-02 3-767E 02 1-010E 02 6-430E 02 5-051E 02 7-821E 00 7-735E 00 2-0546E-02 3-767E 02 1-010E 03 8-090E 02 4-619E 02 7-910E 00 7-735E 00 2-446E-02 3-163E 02 1-019E 04 6-400E 02 4-619E 02 7-910E 00 7-735E 00 2-446E-02 3-163E 02 1-019E | 02 6.2906 02 3.711E 02 5.545E 00 5.405E 00 2.006E-02 2.591E 02 1.001E E LE 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.430E 02 5.051E 02 7.051E 00 7.735E 00 2.055E-02 3.767E 02 1.010E 02 6.430E 02 4.619E 02 7.610E 00 7.735E 00 2.046E-02 3.163E 02 1.019E E LE 01 5.000E 00 03 6.000E 00 04 6.000E 00 05 6.000E 00 06 7.735E 00 2.046E-02 3.163E 02 1.019E 07 6.000E 00 08 6.000E 00 | 1.2796 02 | 6-500E 02 | 3.968E 02 | 5.498E 00 | | 1.966E-02 | 2.749E 02 | |
| 01 5.005 00 01 5.006 00 01 5.006 00 | 5.000E 00 5.000E 00 | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.430E 00 6.430E 02 6.330E | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.300E 00 6.300E 02 6.300E 02 6.300E 02 6.300E 02 6.300E 02 7.705E 00 7.705E | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.000E 00 6.000E 00 6.000E 00 7.735E 00 | E LE 01 5.000E 00 02 6.430E 02 5.051E 02 7.821E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 02 6.430E 02 4.619E 02 7.910E 00 7.735E 00 2.446E-02 3.163E 02 1.010E E LE | E LE 01 5.000E 00 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.430E 02 5.051E 02 7.85E 00 2.053E-02 3.767E 02 1.010E 02 6.430E 02 4.619E 02 7.85E 00 7.735E 00 2.064E-02 3.163E 02 1.019E E LE 01 5.000E 00 | 1.340E 02 | 6.2906 02 | 3.711E 02 | 5.545E 00 | 5.405E 00 | 2.086E-02 | 2.591E 02 | |
| 01 5.000E 01 5.000E | 5.000E 00 5.000E 00 5.000E 00 DATA POINT 4 TW TI Q/A Q/AP H DEL TF VS | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.430E 00 6.430E 02 6.430E 02 6.330E 03 6.330E | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.320E 02 6.320E | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.430E 02 6.430E 02 6.430E 02 6.430E 02 6.430E 02 6.430E 02 6.430E 02 6.430E 02 7.435E 00 7.735E 00 | 01 5.000E 00 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.430E 02 5.051E 02 7.491E 00 7.735E 00 2.446E-02 3.163E 02 1.019E 02 8.090E 02 4.619E 02 7.910E 00 7.735E 00 2.446E-02 3.163E 02 1.019E 03 6.000E 00 4.619E 02 7.910E 00 7.735E 00 2.446E-02 3.163E 02 1.019E | 01 5.000E 00 | | 1 | | | | | | |
| 01 5.000E | 5.000E 00 5.000E 00 5.000E 00 DATA POINT 4 0.430E 02 5.05IE 02 7.85E 00 7.735F 00 2.051E.00 7.735F | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.430E 02 6.320E | 5.000E 00 5.000E 00 5.000E 00 5.000E 00 6.320E 02 5.051E 02 7.851E 00 2.053E-02 3.767E 02 1.010E 6.320E 02 4.619E 02 7.852E 00 7.735E 00 2.464E-02 3.764E 02 1.010E 6.000E 02 4.619E 02 7.916E 00 7.735E 00 2.464E-02 3.163E 02 1.019E | 5.000E 00 5.000E 00 5.000E 00 TW T1 0/A 0/AP H DEL TF VS 6.320E 02 5.051E 02 7.821E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 6.320E 02 4.912E 02 7.916E 00 7.735E 00 2.446E-02 3.163E 02 1.019E | 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.430E 02 5.051E 02 7.451E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 02 6.430E 02 4.619E 02 7.916E 00 7.735E 00 2.446E-02 3.163E 02 1.019E E | 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 6.430E 02 5.051E 02 7.821E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 02 6.430E 02 4.619E 02 7.916E 00 7.735E 00 2.46E-02 3.163E 02 1.019E 03 6.090E 02 4.619E 02 7.916E 00 7.735E 00 2.46E-02 3.163E 02 1.019E 01 5.000E 00 | | | | | | | | |
| 01 5.000E | 5.000E 00 DATA POINT 4 TW T1 0/A 0/AP H DEL TF VS 8.430E 02 5.051E 02 7.851E 00 7.735F 00 2.851E.00 | 5.000E 00 DATA POINT 4 TW TI 0/AP H DEL TF VS 8.430E 02 5.05IE 02 7.85E 00 2.0536E 02 1.010E 8.320E 02 4.912E 02 7.855 00 7.735E 00 1.625.02 | 5.000E 00 DATA POINT 4 1 0/AP 0.40 0.4 | 5.000E 00 DATA POINT 4 0/AP 0.4AP 0.4AP 0.4AP 0.4AP 0.430E 02 0.510E 02 0.610E 0.610E | DATA POINT 4 0/A 0/AP H DEL TF VS 02 8-430E 02 5-051E 02 7-821E 00 7-735E 00 2-055E-02 3-767E 02 1-010E 02 8-690E 02 4-619E 02 7-910E 00 7-735E 00 2-46E-02 3-163E 02 1-010E E LE | DATA POINT 4 DATA POINT 4 1 | | | | | | | | |
| | DATA POINT 4 TW TI Q/A Q/AP H DEL TF VS 8-430E 02 5-051E 02 7-821E 00 7-735F 00 2-845E-02 7-75-75 | DATA POINT 4 1 | DATA PDINT 4 1 | DATA POINT 4 0/AP H DEL TF VS 6-330E 02 5-051E 02 7-821E 00 7-735E 00 2-053E-02 3-767E 02 1-010E 6-320E 02 4-512E 02 7-516E 00 7-735E 00 2-46E-02 3-163E 02 1-019E | 3 TW TI Q/AP H DEL IF VS 10.0 2.053E-02 3.767E 02 1.010E 02 8.430E 02 5.051E 02 7.851E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 02 8.090E 02 4.619E 02 7.910E 00 7.735E 00 2.446E-02 3.163E 02 1.019E E LE | 3 TW TI Q/A Q/AP H DEL TF VS 02 8-430E 02 5-051E 02 7-821E 00 7-735E 00 2-053E-02 3-767E 02 1.010E 02 8-3090E 02 4-619E 02 7-910E 00 7-735E 00 2-144E-02 3-163E 02 1.019E E LE 01 5-000E 00 | | | | | | | | |
| | 8-430E 02 5-051E 02 7-821E 00 7-735F 00 2-0547E-02 1-75-75 0 | 8-430E 02 5-051E 02 7-821E 00 7-735E 00 2-053E-02 3-767E 02 1-010E | 8-430E 02 5-051E 02 7-821E 00 7-735E 00 2-053E-02 3-767E 02 1-010E 8-320E 02 4-912E 02 7-852E 00 7-735E 00 2-184E-02 3-542E 02 1-010E 8-090E 02 4-619E 02 7-916E 00 7-735E 00 2-446E-02 3-163E 02 1-019E | 8.430E 02 5.051E 02 7.821E 00 7.735E 00 2.053E-02 3.767E 02 1.010E 8.320E 02 4.912E 02 7.852E 00 7.735E 00 2.184E-02 3.542E 02 1.010E 8.090E 02 4.619E 02 7.918E 00 7.735E 00 2.446E-02 3.163E 02 1.019E | 02 0-430E 02 5.051E 02 7.021E 00 7.735E 00 2.055E-02 3.767E 02 1.010E 02 0.320E 02 4.619E 02 7.016E 00 7.735E 00 2.104E-02 3.767E 02 1.013E E LE | 02 8-430E 02 5-051E 02 7-821E 00 7-735E 00 2-053E-02 3-767E 02 1-010E 02 8-990E 02 4-619E 02 7-852E 00 7-735E 00 2-184E-02 3-542E 02 1-013E 02 8-090E 02 4-619E 02 7-918E 00 7-735E 00 2-446E-02 3-163E 02 1-019E 01 5-000E 00 | 48 | * | 11 | 4/0 | 9470 | 2 | | |
| TW TE 11 0/4 0/40 | | 6-320E 02 4-912E 02 7-852F 00 7-73KF AA 2 14-5-A1 | 8.320E 02 4.912E 02 7.852E 00 7.735E 00 2.184E-02 3.542E 02 1.010E 8.090E 02 4.619E 02 7.916E 00 7.735E 00 2.446E-02 3.163E 02 1.019E | 8.320E 02 4.912E 02 7.852E 00 7.735E 00 2.184E-02 3.163E 02 1.019E 8.090E 02 4.619E 02 7.918E 00 7.735E 00 2.446E-02 3.163E 01 1.019E | 02 0.320E 02 4.619E 02 7.852E 00 7.735E 00 2.164E-02 3.542E 02 1.013E E LE O1 4.006E 04 | 02 6.320E 02 4.512E 02 7.652E 00 7.735E 00 2.164E-02 5.542E 02 1.015E E LE 01 5.000E 00 | 1.284E 02 | 8.430E 02 | 5.051E 02 | 7.821E 00 | 7.735E 00 | 2.053F-02 | 1.767E 02 | |

TEST SECTION - LOCAL TEST PARAMETERS
NT-8-106 . BURNOUT AT DATA PT 7. BURNOUT SITE COMD. AT DATA PT

| | | | | 4 | S INION VIVO | | | | | |
|-----|-----------|-----------|------------|-----------|--------------|-----------|-----------|------------|------------|----|
| STA | | 2 | 2 | - | 8 | Q/AP | r | DEL TF | 54 | |
| - 1 | 2.995E 03 | | 1.034E | 6.136E 02 | 1.0316 01 | 1.025E 01 | 2.146E-02 | 4.777E 02 | 1.037E 02 | A. |
| N (| Z-989E 03 | | 1 . 01 6E | 5.902E 62 | 1.036E 01 | 1.025E 01 | 2.313E-02 | 4.431E 02 | 1.04 3E 02 | - |
| n | Z.983E 03 | 1.584E 02 | 1.011E 03 | 5.837E 02 | 1.03eE 01 | 1.025E 01 | 2.410E-02 | 4.253E 02 | 1.049E 02 | 84 |
| STA | 1/0 | DELTA E | 5 | | | | | | | |
| | 1.979E 01 | | 5.0 | | | | | | | |
| N | 2.599E 01 | 1.996E 01 | S. C00E | | | | | | | |
| P) | 3-4106 01 | 1.996E 01 | 5.000E | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 6 | | | | | |
| STA | 9 | 2 | - | 11 | 4/0 | 9/46 | 1 | DEL TE | 2 | |
| - | 2.993E 03 | 1.393E 02 | 1.106 | 6.488E 02 | 1-1436 01 | 1-134F 01 | 2.226F-02 | S. 004E 12 | 0100 | |
| ~ | 2.987E 03 | 1.519E 02 | | 6.853E 02 | 1.134E 01 | 1.1346 01 | 2.126E-02 | 5-337F 02 | | |
| m | 2.981E 03 | 1-645E 02 | 1-107E 03 | 6.501E 02 | 1-1436 01 | 1.134E 01 | 2.336E-02 | | | |
| STA | 2 | DELTA E | 97 | | | | | | | |
| - | 1.979€ 01 | 2.120E 01 | 5.0 | | | | | | | |
| ~ | | | 5-000E | | | | | | | |
| F1 | | | 5.0C0E | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 7 | | | | | |
| STA | 8 | 2 | 2 | 11 | 4/0 | 9770 | 1 | 96. 16 | 3 | |
| - | 2.993E 03 | 1.436E 02 | 1.162E 03 | 6.696E 02 | 1.248E 01 | 1.222F 01 | 2-122F-02 | 6.261E 03 | 0 305 0 1 | |
| ~ | 2.987E 03 | 1.578E 02 | 1.192E 03 | 7.091E 02 | 1.238E 01 | 1.222E 01 | 2.216E-02 | 5.514F 02 | | |
| P) | 2.981E 03 | 1.720E 02 | 1.245E 03 | 7.779E 02 | 1.221E 01 | 1.222E 01 | 2.0165-02 | 6.060E 02 | | |
| STA | 2 | DELTA E | 1 | | | | | | | |
| - | 1.979E 01 | | 5.000E 00 | | | | | | | |
| ~ | 2.699E 01 | 2.229E 01 | 5.000E 00 | | | | | | | |
| P) | 3.418E 01 | 2.229E 01 | S.CCOE 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 8 | | | | | |
| STA | 94 | 62 | 2 | 1 | 4/0 | 9/46 | I | DEL TF | <i>y</i> | |
| - | | 1.571E 02 | • | • | • | 1.222E 01 | | 6.060E 02 | 1.045E 02 | |
| N | 2.987E 03 | 1.5716 02 | • | • | • | 1.222E 01 | | 6.060E 02 | | |
| m | 2.987E 03 | 1.571E 02 | • | • | • | 1.222E 01 | | 6.060E 02 | | |
| STA | 1/0 | DELTA F | 4 | | | | | | | |
| - | 2.6635 01 | 2.229F 01 | S. 000F 00 | | | | | | | |
| . ~ | 2.663E 01 | 2.229E 01 | 5.000E 00 | | | | | | | |
| | 2.44.0 | 2.220E 01 | 2000 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

n n n n n n

LIQUID SIDE MEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

| - |
|----------|
| - |
| DATA |
| 4 |
| COND. |
| SITE |
| BURNOUT |
| ÷ |
| = |
| DATA |
| ¥ |
| BURNOUT |
| |
| HT-8-109 |

| | | | | | | 18-00T | | | | | | |
|-------|------------|-----------|-----|------------|-----|--------------|--------------------------------------|-----------|-----------|-------------|--------------|--------|
| POINT | | | | TB-1N | | 1 . 1 36F 02 | | | 12 | 8 | | |
| - | | 3.001E | 03 | 1.056E 02 | 95 | - | | 9.720E | 4 · 100E | 3.778E | 2.9716 | 3.0936 |
| N F | 3.008E 03 | 2.9996 | D 0 | 1.069E | 2 6 | 1.1996 02 | 8-300E-01 | 1.1746 01 | 4.900E 02 | 2 5.453E 00 | 0 -1.662E 01 | 3.0896 |
| • | | 2.992E | 9 0 | | 20 | 1.449E 02 | | 1.9936 | 8.250E | 1.5596 | -2.41 BE | 3.096 |
| 10 | | 2.990E | 03 | | 05 | | | 2.324€ | 9.5106 | 2.095E | -4.652E | 3.055E |
| • | 2.998E 03 | 2.988 | 03 | 1.0826 | 02 | 1.711E 02 | 8-200E-01 | 2.386E | 9.740€ 02 | | 1 -5.021E 01 | 3.052E |
| - | 2.998E 03 | 2.966E | 60 | 1.082E | 02 | 1.7116 02 | F.200E-01 | 2.386E 01 | 9.740E 02 | 2 2.203E 01 | 1 -5.021E 01 | 3.052E |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | - | FST | SECTION - | IFST SECTION - LOCAL TEST PARAMETERS | ARABETERS | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | DATA | DATA POINT | | | | | |
| | | | | | | | | | | | | |
| STA | | 10 | | | | 11 | 0/A | OZAP | I | DEL TF | | |
| - • | 3.0036 03 | 1.1035 02 | | 2.44.0E 02 | | 2.203E 02 | 9.3445-01 | 9-84/6-01 | 0.906E-03 | 1.1146 02 | A. 05.7F 01 | |
| , P | | 1.132E 02 | | | | | 9.344E-01 | 9-8476-01 | 9.200E-03 | 1.070E 02 | | |
| | | | | | | | | | | | | |
| STA | | | | | | | | | | | | |
| - • | 10.464E 01 | 9.720E 00 | | DO 2000 00 | | | | | | | | |
| 4 - | | | | | | | | | | | | |
| • | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | DATA | DATA PUINT 2 | | | | | |
| STA | 8 | 10 | | 2 | | = | A/0 | O/AP | I | DEL TF | S.A. | |
| - | 3,003E 03 | 1.146E 02 | | | | | 1.349E 00 | 1.421E 00 | 7.755E-03 | 1.833€ 02 | | |
| N | | 1-169E 02 | | 3-600E 02 | | | 1.348E 00 | 1.421E 00 | 7.6795-03 | 1.651E 02 | | |
| n | 2.999E 33 | 1.1936 02 | | 3.560E 02 | | 2.979E 02 | 1.349E 00 | 1.421E 00 | 7.960E-03 | 1.786E 02 | 4.970E 01 | |
| STA | 2 | DELTA E | | 7 | | | | | | | | |
| | 1.464E 01 | | | | | | | | | | | |
| N | | | | 5.500E 00 | | | | | | | | |
| •1 | 2.365E 01 | 1.174E 01 | | 5.500E 00 | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | DATA POINT | POINT 3 | | | | | |
| | | | | 1 | | | | | : | | | |
| STA | | 18 | | | | - | 4/0 | O/AP | I . | DELTE | | |
| - | | 1.215E 02 | | | | | 2.370E 00 | 2.543€ 00 | 7.623E-03 | 3.335E 02 | | |
| N | | | | | | 4.582E 02 | 2.369E 00 | | 1.0465-03 | 3.324E 02 | | |
| m) | 2.995E 03 | 1.300£ 02 | | 5.430E 02 | | 4.508E 02 | 2.3716 00 | 2.543E 00 | 7.927E-03 | 3.207E 02 | 5.027E 01 | |
| STA | 9/1 | DELTA E | | 91 | | | | | | | | |
| - | 1.464E 01 | 1.571E 01 | | 5.5COE 00 | | | | | | | | |
| · N | | | | | | | | | | | | |
| | 2.365E 01 | | | 5.500E 00 | | | | | | | | |
| , | | | | | | | | | | | | |

| | 5.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | V5 4.975E 01 5.029E 01 | vs 4.976E 01 5.005E 01 5.034E 01 | VS 5.003E 01 5.003E 01 |
|---------------------|--|------------|---|--|---|
| | DEL 1F 5-017E 02 6-733E 02 | | 0-6.572E 02 6.572E 02 6.327E 02 | DEL TF 6.266 02 6 6.34 % 02 | DEL TF 6.343E 02 5 6.343E 02 5 6.343E 02 5 |
| | 8.09.01 0.2796-03 0.2796-03 0.5036-03 | | H 6.309E-63 8.240E-03 6.631E-03 | # 160E-03 8.559E-03 9.053E-03 | H 9.053E-03 9.053E-03 9.053E-03 |
| | 0/AP 4.063E 00 4.063E 00 4.063E 00 | | 0/AP 5.461E 00 5.461E 00 5.461E 00 | 0/AP 5.742E 00 5.742E 00 5.742E 00 | 0/AP 5.742E 00 5.742E 00 |
| THICA | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | POINT | 5.049E 00 5.049E 00 5.050E 00 | 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 | 0.00.00.00.00.00.00.00.00.00.00.00.00.0 |
| HT-8-109 DATA PRINT | 7 7 7 | DATA PUINT | 7.999E 02 9.161E 02 7.967E 02 | DATA POINT T. 7.7226 02 5.31 8.2746 02 5.31 8.0256 02 5.31 | 00.00.00.00.00.00.00.00.00.00.00.00.00. |
| H.T. | 7.66 02 7.5006 02 7.5006 02 7.5006 02 5.5006 00 5.5006 00 | | 14 9.6556 02 9.6506 02 9.6206 02 9.6206 00 5.5006 00 | 18 9.4806 02 9.4906 02 9.7606 02 LE 5.506 00 5.506 00 | |
| | 1.296E 02 1.365E 02 1.432E 02 DELTA E 1.993E 01 1.993E 01 | | 1.427E 02 1.633E 02 1.639E 02 DELTA E 2.324E 01 2.324E 01 2.324E 01 | 1.4546 02 1.564E 02 1.564E 02 1.662E 02 DELTA E 2.366E 01 2.366E 01 2.366E 01 | TB 1.562E 02 1.562E 02 1.562E 02 |
| | PB 2.996E 03 2.996E 03 2.992E 03 1.464E 01 1.914E 01 2.365E 01 | | 2.994E 03 2.992E 03 2.992E 03 2.990E 03 1.466E 01 1.914E 01 2.305E 01 | 2.992E 03 2.990E 03 2.990E 03 L/0 1.914E 01 2.365E 01 | 2.990E 03 2.990E 03 2.990E 03 L/D |
| | 4 - N P | | H - N M H - N M | 4 - N M H - N P) | A - S - A - |

Page 24

Report AFRPL-TR-67-208, Appendix C

| DATA |
|----------|
| TEST |
| TRANSFER |
| HEAT |
| SIDE |
| 1.10010 |

RALL TEST PARAMETERS

HT-8-110 . BURNOUT AT DATA PT 5. BURNOUT SITE COND. AT DATA PT 6

| | 4 | | | | DATA POINTS | DINTS | | | | | | |
|-------|--|-----------|-------------|-------|-------------|---------------------------------|-------------|-----------|---------------------------------|----|-----------|--------|
| POINT | N1-00 | P8-301 | 13-E1 | Z | 18-001 | 3 | E2 | 12 | ec | | 47 34L | 19 |
| | 5.150E 02 | 5.150E 32 | 2 7.430E 01 | E 01 | 1.096E 32 | 2 2-8305-31 | 1 1.051 31 | 6.553≘ | 5.5993 | 93 | 6.235=-32 | 1.081= |
| | 5.150E 02 | | | 5 31 | 1.551 | 02 2.750=-31 | 1.631 | 9.730 | | 10 | 1.072= 00 | 1.055 |
| | | 5.130 | | | 1.774 | | 1 1.863 23 | 1-199 | 03 1.943E | 16 | 1.648€ 00 | 1.3695 |
| | 5.120E 02 | 5.110E | | | 2.073E | | 2.157 | 1 - 24 36 | 03 2.542 | 16 | | 1.051 |
| | 5. 120E. 02 | 5-1205 | | | 2.194E | | 2.285 | 1 - 30 3E | 03 2.324E | 10 | 7.532E 00 | 1.030 |
| | 5.1206.02 | S-120E 02 | 2 7.5905 | W | 2.194E | 32 2.670E-01 | 1 2.2855 01 | 1.3035 | 03 2.924 | 5 | 7.532E 00 | 1.030 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | Legion and the party of the legion and the legion a | , | | | | | | | | | | |
| | | | | | | | | | | | | |
| | * * | | | TEST | | SECTION - LOCAL TEST PARAMETERS | PARAMETERS | | | | | |
| | | | | | | | | | Common and a sales of the sales | | | |
| | in | | | | DATA | DATA POINT 1 | | | | | | |
| | | 5 | 1.0 | | 1.1 | 0/A | 64/0 | T | 3E. TF | | × × | |
| | 5.168E-02 | 9.516 01 | | 02 | 5.674E 02 | 1.801E 00 | 1.7495 33 | 3.7036-03 | 4.7235 32 | | | |
| | 5.165€ 02 | 1.0165 02 | | 02 | 5.455F 02 | 1.9145 30 | 1.7496 50 | 3.9396-03 | 4.4395 32 | | | |
| | 5.161E 02 | 1.080= 02 | 5.760= | 05 | 5.161E 32 | 1.8335 00 | 1.749E 30 | 4.2845-03 | 4.091E 32 | | 1.741 51 | |
| | \$ | DELTA E | ä | | | | | | | | | |
| | 1.49IE 01 | | | 00 | | | | | | | | |
| | 2.408E 01 | 1.061E 01 | 5.5005 | 9 6 | | | | | | | | |
| | | | | | DATA | DATA POINT 2 | | | | | | |
| | | Ę | - | | ī | 4/6 | 6476 | İ | 35. 15 | | 5 ^ | |
| | 5.1685 02 | 1.222E 02 | 7.290 32 | 20 | 5.009E 02 | 4.132E 00 | 3.993E 33 | 8.342E-33 | 4.797E 32 | | 1.729= 31 | |
| | 5.165E C2 | 1.368 02 | | 95 | 5.779E 02 | 4.161E 30 | 3.993E 30 | 9.054E-03 | 4.413 32 | | | |
| | S.161E 02 | 1.5145 02 | 6.840≘ (| 95 | 5.514E 02 | 4.197E 30 | 3.993E 30 | 9.9836-33 | 4.003E 32 | | 1.757E 01 | |
| | 5 | DEL TA E | E | | | | | | | | | |
| | 1.4912-01 | 1.631E 01 | 5.500E | 00 | | | | | | | | |
| | 1.950E 01 | | | 00 | | | | | | | | |
| | 2.408E 01 | 1.631E 01 | 5.500E | 00 | | | | | | | | |
| | | | | | | | | | | | | |

| 666 | 0 0 0 | 200 | |
|---|---|---|---|
| 1 - 7 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 | V V V V V V V V V V V V V V V V V V V | 1.7 VS | VS 1.7705 1.7705 1.7705 |
| F TO | | . 8 8 8 | |
| 0E. TF 4.597E 02 4.396E 02 3.874E 02 | 35.077E 32.4.274E 32.4.274 | JE TF 5.2136 32 4.7536 02 4.627E 32 | 0 0 |
| 1.098E.32 1.172E-32 1.331E-02 | 1.326-32 1.436-32 1.5766-02 | 1.4 BE-02 1.565E-12 1.95 BE-02 | |
| 9.156E 00 5.156E 00 5.156E 00 | 6.746F 00 6.746F 00 6.746F 00 | 7.495F 00 7.495F 00 7.495F 00 | 0/A ³ 7.405E 00 7.405E 00 7.495E 00 |
| 5.337E 00 5.334E 00 5.611E 00 | 1 0/A 0/A 02 6.956E 00 02 6.959E 00 02 6.951E 00 02 7.021E 20 | 07.728E 30 7.728E 30 7.559E 30 | 00.00 |
| 5.052E 02 5.35 5.940E 02 5.35 5.602E 02 5.41 | DATA 5-509E 02 6-47E 92 5-297E 92 | 0.414 POINT 11 6.816E 02 7.72 5.654E 02 7.75 6.955E 02 7.59 | 71 DATA POINT 71 D |
| # Hi | N N N 000 | 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | . 00 |
| 7.690 102 7.590 102 7.590 102 7.590 102 5.500 103 5.500 103 | # # # # # # # # # # # # # # # # # # # | 78 9.0903 02 9.0903 02 9.0103 02 5.0000 00 5.5000 00 | 00.000 00.000 00.000 00.000 00.000 00.000 |
| 92 92 92 91 91 | 000 W 22 2 | 000 m000 | 200 mgg |
| 1.355E 1.561E 1.727E 06LTA 1.953E 1.953E | 13 1.532E (2.013E (2.013E (2.157E (2.1 | 13 1.465 02 7.1246 02 05LTA E 2.286E 01 2.286E 01 | 13 2.1746 02 2.1746 02 2.1746 02 DELTA E 2.2966 01 |
| 8 0 0 0 0 mm m | 000 000 | N N N N N N N N N N N N N N N N N N N | |
| 5.1345 02 5.1345 02 5.1305 02 L/O 1.4915 01 1.4956 01 2.4085 01 | 5.1145 02 5.1145 02 5.1106 02 1.4918 01 1.9506 01 | 36.120E 02.5.120E 02.5.120E 02.120E 01.1.050E 01.2.120E 01.2.120E 01.2.406E | 5-1206 02 5-1206 02 5-1206 02 5-1206 02 2-4906 01 |
| N N N N | | ที่ที่ที่ | 000 |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

VERALL TEST PARAMETERS

0-1705 01

55555

Page 27

TEST SECTION - LOCAL TEST PARAMETERS
8-111. BURNOUT AT OATA PT 4. BURNOUT SITE COMD. AT DATA PT

| | 9.830E-13 4.201E 32 1.120E-32 3.675E 32 | | | Н DE. TF 1-360E-32 5-112E 32 1-529E-02 4-547E 92 | | | H DE. TT 1.717E-02 5.432E 02 1.967E-32 4.743E 32 | | | 2.350E-92 5.690E 02 2.124E-02 5.481E 02 | | | H DE TF |
|--------------|--|-----------------------------------|--------------|--|-----------------------------------|--------------|--|-----------------------------------|------------|--|-----------------------------------|------------|------------------------------|
| | 0/AP 4.115E 00 4.115E 00 | | | 6.951E 30 | | | 0/AP 9.328E 30 9.328E 30 | | | 0/AP 1-164E 01 1-164E 01 | | | 0/A7 1.164E 01 3 |
| DATA POINT 1 | 0/A 4.524E 39 | | DATA POINT 2 | 0/A 7.587E 00 7.686E 00 | | DATA POINT 3 | 0/A 1.017E 31 1.032E 01 | | POINT 4 | 0/A 1.270E 01 1.271E 31 | | POINT 5 | 0.0 0.0 |
| DATA | 5.779E 92 | | DATA | 78 5.832E 32 6.364E 02 | | DATA | 7.274E 92 6.716E 92 | | DATA POINT | 7.641E 92 | | DATA POINT | 11 |
| | 7.270E 02 | 5.000E 00 5.000E 00 | | 9-190E 02-8-790E 02 | 5.000E 00 | | T# 1.034E 03 9.880E 02 | 5.000E 00 5.000E 00 | | TW 1-137E C3 1-134E 03 | S.030E 00 S.030E 00 | | |
| | T3 1.577E 02 1.635E 02 | DELTA E 1.501F 01 1.501E 01 | | 1.720E 32 | DELTA E 1.997E 01 1.997E 01 | | T3 1.843E 02 1.973E 02 | DELTA E 2.345E 01 2.345E 01 | | T3 1.951= 02 2.123E 02 | DELTA E 2.651E 01 2.651E 01 | | T3 2.151E C2 2.151E 02 |
| | PB 1.030£ 03 1.029E 03 | 1.736E C1 2.199E 01 | | 1.029E 03 | 1.736E 01 2.199E 01 | | PB 1.029E 03 1.028E 03 | L/D 1.736E 01 2.199F 01 | | 38 1.9265 03 1.024E 03 | L/0 1.736E 01 2.199E 01 | | 08 1.024E 03 1.024E 93 |
| | STA 1 2 | Z - 2 | | ST 2 | STA 1 | | 5TA 1 | STA 1 2 | | STA 2 | ¥ - 2 | | ¥ 1 2 |

Report AFRPL-TR-67-208, Appendix C

000

VS 9.3995 9.4295 9.4595

DEL TF 4.264E 92 3.947E 02

500

VS 9.434E 9.484E

000

#-NE #-NE

LIGUTO STOE

DATA ¥ 5. BURNOUT SITE F ¥

55555 5 10 555555 5 8.750E-01 8.750E-01 8.740E-01 8.740E-01 6.730E-01 H POINTS 6-850E 01 6-850E 01 6-850E 01 6-870E 01 6-970E 01 1.036 0 1.036 0 1.035 0 1.035 0 1.027 0 1.027 0 1.063E 03 1.060E 03 1.050E 03 1.051E 03 1.052E 03 1.052E 03 AF

5.932E 5.932E 5.925E 5.925E

H.383E-02 1.494E-02 1.576E-02 H 1.750E-02 1.935E-02 000 000 0/AP 1.033E 0 1.033E 0 0/A 5.674E 00 5.723E 00 5.752E 00 9.827F 00 9.837E 00 9.926E 00 5.057E 02 4.802E 02 TI 6.765E 32 6.547E 02 6.409E 02 T 02 020 888 4.000E 7.935E 01 8.555E 01 9.175E 01 79 8.659E 01 1.071E 02 DELYA E 8.268E 01 2.269E 01 DELTA E 1.659E 1.659E 1.659E 1.051E-03 1.044E 03 1.038E 03 1.064E 01 1.672E 01 2.280E 01 5.50 5000 1.049E 1.043E 1.037E

Page 29

| | 1 1 1 111 | | H | HT-8-112 DATA | DATA POTNT 3 | | | | | |
|---------------------|-------------|-----------|-----------|---------------|--------------|-----------|-----------|------------|---------|-----|
| | | 18 | * | 11 | 4/6 | OVAP | I | DEL TF | 51 | |
| 03 | 9.50 | | 1.034F 03 | | 1.512E 01 | 1.581E 01 | 2.502E-02 | • | 9.454 | - |
| 1.041E 03 1.101E | 1.10 | E 02 | | 7.377E 32 | | | 2.5195-02 | | | 6 |
| 1.035E.03 1.251E | 1.251 | E 02 | 1.021E 03 | 7-112E 02 | 1.518E 01 | 1.581E 01 | 2.698E-02 | 5.851E 02 | | 5 |
| DELTA | DEL | | i, | | | | | | | |
| | 2.864 | | | | | | | | | |
| | 2.86 | | | | | | | | | |
| 01 Z. 804E | 2.80 | 9 | 4.03CE 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| 84 | | R L | - | - | *** | | ; | | : | |
| M | 1.01 | 1.012E 92 | 1-150F 03 | TARKE 02 | 1. BOIL OI | 1.0875 | | 056 17 | 500 | |
| | 1 . 19 | ¥ 02 | 1-1135 03 | 7.30SE 02 | | 1.987F 01 | 3.252F-32 | A. 109F 02 | 30.00 | 5 6 |
| 03 1.381E | 1.36 | | | 7.217E 92 | | | 3.404E-02 | | 9.680E | : 5 |
| DEL TA | 190 | 4 | 4 | | | | | | | |
| 93.2486 | 3.24 | | 4.000E 09 | | | | | | | |
| 01 3.28BE | 3.28 | E 01 | 4.000E 00 | | | | | | | |
| 01 3.248E | 3.24 | E 01 | 4.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | • | | |
| | | | | DATA | DATA POINT 5 | | | | | |
| 2 | | 2 | 2 | 1 | 4/0 | 9/49 | 1 | 75 | 2 | |
| | 1.06 | | | 8.301E 02 | 2.199E 01 | 2.296E 01 | 3-172E-02 | 7.236E 02 | 9.510 | 01 |
| 03 1.276 | 1.27 | SE 02 | | 7.427E 32 | 2.239E 01 | | 3.732E-02 | 5.151E 92 | 9.51 7E | 91 |
| • | | | 101936 93 | 7.5165 02 | Z.Z35E 01 | 2.296E 01 | 3.509E-02 | 6.027E 92 | 9.7245 | 6 |
| DELTA | ٦, <u>ه</u> | TA E | | | | | | | | |
| | 3.53 | | 4-000F 90 | | | | | | | |
| | 3.53 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 6 | | | | | |
| | | 9 | A | 1.1 | 4/0 | 9770 | 3 | 100 | 2 | |
| 1.031E 03 1.410E C2 | 1.410 | E C2 | 9. | | .0 | 2.296F 31 | | | | 2 |
| | 1.419 | € 02 | | | • | 2.296E 91 | | | | : 5 |
| 03 1.410E | 1-41 | 5 C2 | 9. | •• | • | 2.295E 91 | • | • | | |
| DELTA | DEL | 7 E | Ä | | | | | | | |
| | 3.536 | | | | | | | | | |
| 01 3.536E | 3.536 | 01 | 4.COCE 00 | | | | | | | |
| | 050-5 | | **000E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

QUED SEDE HEAT TRANSFER TEST DATA

ERALL TEST PAZAMETERS

5-113. EXTENDED DURATION TEST, DATA AT ONE MINUTE INTERVAL

| | | | | | DATA | DATA POINTS | | | | | | |
|------|-----------|-----------|----------|-----------|------------|--------------|--------------------------------------|-------------|-------------|---------------|----------|------|
| -NEG | Pa-14 | THE-RO | | 73.15 | | 1 | 1 | | | | | |
| | | | | | 20-01 | | E 2 | 12 | ac | | () | Ĩ |
| | | 10000 | | | 10 | | 2.6345 | 1.391 | 3.4735 | 31 -4.512E 00 | 3.142 | 33 0 |
| | | 3010 | | | 1.431 | | 2.6215 | 1.3995 | | 31 -5.895E 50 | 3.130 :: | 1 60 |
| η. | | 30110 | | | 1.437E | | 2.622E | 01 1.385E 1 | 33 3.443E 0 | OF -7.486E 00 | | |
| • | | 5.170E | | | 1.440E | 02 8.070E-91 | 2.620 | 31 1.394E 0 | | -7. 986= | | |
| 'n | | 5.140 | | 7.450E 31 | 1.442E | 02 8.C60E-31 | 2.629€ | 01 1.3695 3 | 3.462= | -7.420F | | |
| • | | 5.140E | | 7.450E 91 | 1.523 | 02 8.360E-91 | 2.82E | 1.4725 | 3.038 | - A - 78 7 = | | |
| | 5.190E 02 | 5.120E | 62 7. | 7.470E 31 | 1.5375 | 32 8.3505-01 | 2.825F | 1.476 | 1.06.12 | 1000 | | |
| • | 5.150E 02 | 5.120E | 0.2 7. | 7.470E 31 | 1.5375 | 92 8-360E-01 | 2.816F | 16.44 | 1000 | 10000 | | |
| ٥ | 5.180E 02 | 5.10CE | C2 7. | | 1.539E | | 2.822 | 2474 | 3 9 4 5 | 10.00 | | |
| - | 5-170E 02 | 5.100E | 0.2 7. | 7.430E 01 | 1.540E | | 2.515 | 1.4725 | 3.930 | | 3.091E | 24 6 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | TE | ST SECTION | - LOCAL TEST | TEST SECTION - LOCAL TEST PARAMETERS | | | | | |
| | | 1 | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 1000 | i, | | | | DAT | DATA BOINT 1 | | | | | | |
| | 1 | | | | | | | | | | | |
| < | | - | | 2 | = | 4/0 | | r | JE, TF | 5 A | | |
| | | 100 | | | 5.8126 02 | 6.917E 50 | 8.451E | 1-8176-32 | 4.650E 02 | 5.0835 01 | | |
| N | | 2 | | | | | 9,451 | 1.908E-32 | | 5.11 JE 01 | | |
| | 5.202E 02 | 1.3575 02 | 9.5605 | 20 30 | 5.908E 32 | 8.793E 00 | 6.451E 30 | 1.5698-12 | 4.521E 32 | 5.1445 51 | | |
| 27.6 | | DEL TA E | | tu - | | | | | | | | |
| - | 1.720E 01 | | 6.000F | 10F 00 | | | | | | | | |
| | 2.176E 01 | ų | 6-002E | | | | | | | | | |
| | 2.637E C1 | W | 5.090E | | | | | | | | | |
| | | | | | | | | | | | | |
| | | 1 | | | DATA | POINT 2 | | | | | | |
| STA | | 2 | | 1 | = | *** | 6776 | 1 | | • | | |
| | 5.216E 02 | 3.174E 02 | B. 5.30H | 0 E 0 2 | S. REAF 32 | A.722F 20 | | | 4 6306 93 | 2 | | |
| N | 5.205E 02 | 101 | 9.409E | | 5.744E 22 | 8.752E 03 | A. 391F | 1.4435-02 | A. 4565 93 | A. 00 mm | | |
| 10 | 5.193E C2 | | 3.550Ξ | | 5.924E 92 | | 8.391E | 1.556E-02 | 4.5215 32 | | | |
| | | | • | | | | | | | | | |
| | | | , | | | | | | | | | |
| | 10.3024-1 | | 6.000E | | | | | | | | | |
| u = | 2-617F 01 | 2.4216 91 | 4.000 | 00 40 | | | | | | | | |
| | Z.DJIE U. | u | 0.00 | | | | | | | | | |

| | | | * | HT-8-113 DATA | DATA POINT 3 | | | | | |
|-----|------------|------------|---------------|---------------|---|-------------|-----------|-----------|----------|-----|
| STA | A 1966 | | | | | 0/ AP | I | DFL TF | 8 > | |
| . ~ | 5-165E 02 | 1.2935 02 | 8.490E 02 | | 8.732E 00 | 8.375F no | 1-7936-52 | 4.572E | 5.0 | 11 |
| • | | 1-408E | 8.5605 | 5.933E 02 | | 8.375E 03 | | | | 10 |
| | | | | | | | 20-3169-1 | **525E 92 | 5.1126 | 5 |
| | 1.7305 21 | 1 | | | | | | | | |
| . N | | 2.622F | 0000000 | | | | | | | |
| • | | 2.622E | | | | | | | | |
| | 41 | | | | | | | | | |
| 4 | | 1/4 | | DATA | DATA POINT 4 | | | | | |
| STA | 80 | 7 | 1 | ; | | | | | | |
| _ | 5.204 | 1.19 | B - 800 B - 8 | 11 | A/0 | CA10 | r | DE. TF | 5 ^ | |
| ~ | - | 1.295 | 8.440E D2 | 5.794F 12 | 8.715E CO | 8-364E 00 | 1.785E-02 | • | | 10 |
| • | 9.174E 02 | 1.411E 02 | | 5.938E 02 | | | 1.5485-02 | 4.5275 | 5.3755 | 5 6 |
| STA | 2 | DELTA E | ų | | | | | | | : |
| _ | 1.720E 01 | | 6.006. 00 | | | | | | | |
| ~ | | | | | | | | | | |
| m | 2.637E 01 | 2.620E 01 | | | | | | | | |
| | | | | | | | | | | |
| | į. | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 5 | | | | | |
| STA | 84 | 2 | 2 | : | | | | | | |
| | 5.166E 02 | 1.1816 02 | 8-490E 02 | S. 835F 02 | A.ZHOF DO | 0/AP | r | | | |
| ~ | 5.155E 02 | 1.297 € 02 | 8.430E 02 | 5.763E 02 | 8.798E 00 | A. A. 3E DO | 20-2016-1 | | | 10 |
| m | 5.143E 02 | 1.413E 02 | | | 6.765E 00 | | 1-8796-92 | 4.482E 92 | 5.059E 7 | 10 |
| STA | 5 | DELTA E | Ļ | | | | | | | |
| | | | | | | | | | | |
| 9 - | 2 4276 61 | | | | | | | | | |
| , | | 10 3636.01 | 3.000 00 | | | | | | | |
| | | , | | | *************************************** | | | | | |
| | | | | | | | | | | |
| STA | 84 | 2 | T | 11 | 0/A | O/AP | 1 | 31 | 3 | |
| _ (| | | | 5. 865E 32 | 1.003E 01 | 9.581E 33 | 2.058E-32 | 4.634= 32 | A. 0.11 | |
| N F | 5.1616 02 | | 8.840E 02 | | | 9.581E 93 | 2-1455-92 | | | |
| Ę i | 20. | 70 =16. | 5.950E 02 | 5.963E 92 | 1.330E 31 | 9.581E 20 | 2-143E-32 | 4.4725 02 | | _ |
| * | | | 3 | | | | | | | |
| | | | | | | | | | | |
| V F | 2.4178E 01 | 2.8225 01 | | | | | | | | |
| | | | 0.000E 00 | | | | | | | |

| | | | FT-6-113 | | | | • | | |
|-----------|-----------|-----------|-----------|--------------|-----------|-----------|-----------|------------|---|
| 4. | | 1 | | | | | | | |
| • | T3 | | | 9/0 | OVAP | r | 0E. TF | | |
| | | 8.890E 02 | 5.883E 02 | 1.0046 01 | 9.618E 30 | 2.072E-92 | 4.64ZE 3Z | 3.04 Se 01 | |
| 5.135E 02 | 1.372E 02 | 9.000E 02 | 6.017E 02 | 1.0316 01 | 9.510E 30 | 2.1316-92 | 4.5136 92 | | |
| | | | | | | | | | |
| 22 | DELTA E | LE . | | | | | | | |
| 2.178E G1 | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | DATA | DATA POINT 8 | | | | | |
| 9 | 13 | | 1 | 4/0 | 0/A® | I | DEL TF | 8 > | |
| 5.142E 02 | 1.241= 02 | 3.860≘ 02 | 5.857E 32 | 9.935E CO | 9.541E 90 | 2.963E-92 | 4.626E 92 | | |
| 5.132E 02 | 1.372E 02 | 8.730 02 | 5.708E 32 | 1.003E C1 | | 2.201E-02 | 4.3355 32 | | _ |
| 5.123E 02 | 1.504E 02 | 8.983E 02 | 5.013E 02 | 9.948E 00 | 9.541E 30 | 2.116E-02 | 4.509E 02 | 5.127E 91 | _ |
| 2 | DELTA E | n, | | | | | | | |
| | | 6.000E 00 | | | | | | | |
| 2.178E 01 | 2.815E 01 | 6.000E 00 | | | | | | | |
| 2.637E 01 | 2.816E 01 | 6.000E 00 | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | DATA | DATA POINT 9 | | | | | |
| 0 | E | 1 | 11 | 4/0 | 9/ 49 | I | DEL TF | 8 > | |
| 5.130E 02 | 1.2425 32 | 8.683 02 | 5.633E 32 | 1.039E 01 | 9.594E 00 | 2.185E-02 | 4.391E 02 | | _ |
| 5-117E 02 | 1.3748 02 | 3.790E 02 | 5.755E 02 | 1.006E 01 | 9.594E 03 | 2.190E-32 | 4.381E 32 | | _ |
| 5.103E 02 | 1.576€ 02 | 8.960E 02 | 5.975E 02 | 9.997E 30 | 9.594E 30 | 2.147E-02 | 4.459E 32 | 5.102E 01 | - |
| 2 | DELTA E | LE | | | | | | | |
| | | | | | | | | | |
| | | | • | | | | | | |
| 2.637E 01 | 2.822E 01 | 6.000E 03 | | | | | | | |
| | | | 4740 | THI 00 4140 | | | | | |
| | | | | | | | | | |
| 80 | E . | 18 | 1.1 | ٧/٥ | OZAP | I | DE. TF | | |
| | | | | | 9.561E 30 | 2.573E-52 | | | |
| | | 8.770= 02 | 5.757E 02 | | 9.561E 33 | 2.182E-32 | 4.392E 02 | | |
| 5.103E 02 | 1.507E 02 | 8.9905 32 | 6.025E 02 | 9.945€ 00 | 9.561E 33 | 2.116E-52 | 4.513E 02 | 5.096E 01 | _ |
| 27 | DELTA E | ĹĒ | | | | | | | |
| | | | | | | | | | |
| 2.178E 01 | 2.416F 91 | | | | | | | | |
| 2.637E C1 | 2.816E 01 | 6.00E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

ERALL TEST PARAMETERS

HT-8-1144, EXTENDED DURATION TEST, DATA AT ONE MINUTE INTERVAL

| | | | | | | | 14.30 |
|----------------------|-------------|--------|--------|-------|--------|--------|------------|
| | | | ; | ;; | :: | :: | 5 6 |
| 2005 01 | | | | | | | 10 11 10 1 |
| | | | | : | 2 : | 3 6 | |
| DELTA TO = 0.200E 01 | | | | | | | 1.5000 03 |
| 190 | | | | : | : : | | ; ; |
| | | 23 | 3.241F | 3.245 | 3.9415 | 3.2305 | 3.2416 01 |
| 96 0 | | | 20 | 00 | 90 | | 000 |
| L . 0.409E 01 | | | 344 | ** | | | 1.244E 30 |
| | 5 | | 1.2 | 2 | 2 | 3 | 2 |
| 7 | POIN | | 0.2 | 03 | 0.5 | 20 | 20 |
| | DATA POINTS | 18-001 | -5195 | -533E | . 533E | -538E | 1.542E 02 |
| 0 = 0.1276-01 | | | | | | | |
| 6 | | - | - | 50E | 90 9 | 50E | 8.970E 31 |
| | | - | 8.9 | 9.0 | 8.9 | 8.9 | |
| ۵ | | | 63 | 63 | 63 | 6.0 | 60 |
| -63 | | PB-001 | 1.058 | 1.056 | 1.055E | 1.054E | 1.052E 03 |
| AF = 0.129E-03 | | | 50 | 93 | 50 | 69 | 1.1336 03 |
| • | | - | 375 | 17E | 366 | 366 | 336 |
| | | ā | : | : | : | : | : |
| | | POINT | - | N | • | | 10 |

T SECTION - LOCAL TEST PARAMETERS

| | . 5 5 | |
|------------|--------------------------------------|---------------------|
| | 2.536E 01 | |
| - | | |
| DATA POINT | 2.718E 01 | |
| | 200 | |
| | 5.807E 02 | |
| | . 22 | 8 |
| | 1.339E 03 | 4.000E |
| | 200 | w 5 |
| | TR 1.167E 02 | 3-241E 01 4-000E 00 |
| | | 5 |
| | STA PB 1 1.102E 03 2 1.063E 03 | STA |
| | | ž |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | T105, 50 | - | 2 | • |
|----------------------|---|-------|-----------|-----------|------------|--------|------------------------|-----------|-----------|------------|--------|------------------------|---------|---------|----|-------|------------|-----------|----------|-----------|-----------|---|-------------------------|-------------------------------------|-----------|-------------|----------|-----------|----------|-----------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9.6632 | 9.655 | 9.639 |
| | 05 | | | | | | 02 | | | | : | 95 | | | | | ; | 200 | | | | | | | | | 1 | E 00 | -164E-01 | 00 3 |
| | 1.574E | | | | | | 1.574E | | | | | 1.586 | | | | | 84 | 1.5895 | | | | | | | | | HT 34L | -1.2505 | -1.164E- | -1.189 |
| | 2 2 2 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | 95 | | | | | | 200 | | | | | | | _ | | | H 10 | | |
| | 05L TF 4.566E 3.998E | | | | | DEL TF | 4.452E 02 3.929E 02 | | | | DEL TF | 3.6976 | | | | | | 3.5535 | | | | | | | 0.280E 01 | | 90 | 5.649E | 5.653 | 5.691 |
| | | | | | | | | | | | | | | | | | | | | | | | | | H | | | | | |
| | 5.606E-02 | | | | | I | 5.742E-02 6.506E-02 | | | | r | 5.953E-72 6.912E-02 | | | | | I | 6.396E-02 | | | | | | | DELTA TO | | 12 | 1.7106 | 1.713€ | 1.716 |
| | | | | | | | | | | | | | | | | | | | | | | | | SV AL | 90 | | | 66 | | |
| | 2.559E 01 2.559E 01 | | | | | Q/AP | 2.556E 01 2.556E 01 | | | | O/ AP | 2.556E 01 2.556E 01 | | | | | 9/AP | 2.555E 91 | | | | ATA | | MINUTE INTERVAL | 10 | | E2 | 3.485 | 3.4636 | 3.492E |
| ~ | 55 | | | | m | | | | | • | | | | | | • | | | | | | 181 | S | 7 | 9.400E | | | | 000 | |
| TNIO | 2.727E 0 2.747E 0 | | | | DATA FOINT | 9/A | 2.727E 91 2.745E 01 | | | DATA POINT | 0/A | 2.730E 01 | | | | POINT | 4/0 | 2.739E 01 | 10000 | | | LIQUIO SIDE HEAT TRANSFER TEST DATA | OVERALL TEST PARAMETERS | EXTENDED DURATION TEST, DATA AT OWE | ار # | STAI | * | | 1.2325 | |
| TAP | 28 | 1 | | | TA E | | | | | ATA P | | 92 | | | | DATA | | 200 | 4 | | | ======================================= | TSE | DAT | | DATA POINTS | 5 | | N 00 N | |
| BT-8-114A DATA POINT | TI 5.740E 9 | | | | ò | = | 5.627E 02 5.263E 02 | | | ò | 11 | 5.463E 02 | | | | ā | 11 | 5.370E 02 | 2 4 6 6 | | | 10E HEA | FRALL T | N TEST. | 10- | DAT | 18-001 | 1.620€ | 1.626 | 1.629F |
| HT-8 | 200 | | 0 | 60 | | | 03 | 000 | | | | 93 | | 00 | 90 | | | | | | 99 | 010 | 6 | RATEC | 9.1275-01 | | 2 | | 91 | |
| | 1.336E 0 | | | | | | 1.327E 0 | 44 14 | | | - | 1.315E 0 | Ä | \$-000E | | | 2 | 1.310E 03 | 1.679 | 4.000E | | L19 | | NDED DU | H C | | 18-18 | 6.950E 31 | 8.990E | B. 000F |
| | | | | | | | | | | | | | | | | | | | | | | | | EXTE | | | - | 60 | 5 | 3 6 |
| | 1.174E 02 | | 3.245E 01 | 3.245E 01 | | 2 | 1.1756 02 | | | | 13 | 1.177E 02 | DELTA E | | | | # + | 1.179€ 62 | 1.3402 0 | DELTA E | 3.241E 01 | | | HT-8-1148 | E-03 | | PR-3UT | 1.039E 03 | 1.0346 | 310001 |
| | | | | | | | | | | | | | | | | | | | | | | | | - L | 0.1295-03 | | | 6.0 | 03 | 2 6 |
| | 1.1026 03 | 31000 | 1,146 | 1.797E 01 | | 6 | 1.101E 03 | 1.1446 01 | 1./9/E 01 | | 9 | 1.100E 03 | 6/3 | | | | ā | 1.9965 03 | 1.0776 0 | 1.1446 91 | | | | | AF # 0 | | 71-64 | 1.121E 03 | 1.1236 | 1.1235 03 |
| | \$14 1 | | | . ~ | | ; | | <u>-</u> | | | STA | | < | | 2 | | 25 | | N | • | ٠. | | | | | | POINT | i – | 81 | m · |

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-1148 . EXTENDED DURATION TEST, DATA AT ONE MINUTE INTERVAL

| | | 1 1 | | DATA | DATA POINT | | | | | |
|------------|--|--|-----------|-----------|--------------|-----------|-----------|-----------|-----------|-----|
| STA | 2 | 2 | * | 11 | A/0 | 9/46 | | DEL TE | * | |
| ~ | 1.085E:03 | -1 | 1.401E 03 | 5.344E 92 | 3.121E 01 | 2.936E 01 | 7.1105-02 | 4.132E 02 | | 20 |
| N | 1.0656 03 | 1-3936 02 | 1.3436 03 | 4.417E 02 | 3.170E 01 | 2.938E 01 | 9.716E-02 | 3.024E 02 | | 20 |
| STA | | DELTA E | LE | | | | | | | |
| *** | 1.1446 01 | 3.485E 01 | | | | | | | | |
| ~ | 1.797E 01 | 3.485E 01 | 4.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 2 | | | | | |
| STA | 2 | | 7. | 11 | 0/A | O/AP | I | DEL TF | S A | |
| (| 1.086E 03 | | 1.393E 03 | 5.219E 02 | 3.127E 01 | 2.938E 01 | 7.341E-02 | 4.002E 32 | | 92 |
| N | 1.0655.03 | 1.399E 02 | 1.344E 93 | 4.433E 02 | 3-169E 01 | 2.936E 31 | 9.682E-02 | 3.034E 02 | 1.5805 0 | 02 |
| STA | 3 | | e e | | | | | | | |
| - ~ | 1.797€ 61 | 3.485E 01 | 4.000F 00 | | | | | | | |
| | The state of the s | in the second se | | | | | | | | |
| | | • | | DATA | DATA POINT 3 | | | | | |
| S.T.A | ď | 2 | : | ; | ; | | ; | ; | | |
| - | 1.085€ 03 | 1.223E 02 | 1.377E 03 | 4.990E 32 | 3-133E 01 | 2.940E 01 | 7.804E-02 | 3-767F 32 | 1.564F 32 | |
| N | 1.064£ 03 | 1.4036 02 | 1.320E 03 | 4.064E 02 | 3.183E 01 | 2-940E 01 | 1-104E-01 | 2.662E 32 | | . ~ |
| STA | 27 | DELTA E | 9 | | | | | | | |
| - ^ | 1.144E 01 | 3.401E 01 | 4.009E 00 | | | | | | | |
| 1 | | | | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| STA | 8 | 57 | 2 | 11 | 4/0 | O/AP | r | DEL TF | SA | |
| - | 1.082E 03 | 1.218E | 1.374E 03 | 4.874E 92 | 3.156E 01 | 2.954E G1 | 8.0815-02 | 3.655E 02 | 1.561E 02 | |
| N | 1.061E 03 | 1.401E 02 | 1.316E 03 | 3.925E 02 | 3.209E 01 | 2.954E 01 | 1.1706-01 | 2.525E 02 | 1.576E 02 | |
| STA | 77 | DELTA E | 7 | | | | | | | |
| _ | 1.144E 01 | | 4.000E 00 | | | | | | | |
| N | 1.797E 01 | 3.492E 01 | 4.000E 00 | | | | | | | |
| | Total State of the | 14, to | | | | | | | | |
| | | | | DATA | DATA POINT S | | | | | |
| STA | 80 | 13 | 7 | 11 | A/0 | Q/AP | I | DEL TF | 8 > | |
| - (| 1.082E 03 | 1.218E 02 | | 4.814E 02 | 3.142E 01 | 2.943E 01 | 8-1845-92 | 3.596E 02 | 1.5595 02 | |
| N | 1.061E 03 | 1.401E 02 | 1.307E 03 | 3.848E 02 | 3.197E 01 | 2.943E 01 | 1.203E-01 | 2.447E 02 | 1.5745 02 | • |
| STA | S | DELTA E | 7 | | | | | | | |
| - , | 1.1445.01 | 3.481E 01 | 4.000E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

DUID SIDE HEAT TRANSFER TEST DATA

RALL TEST PARAMETERS

115 5. BURNOUT AT DATA PT 10. BURNOUT SITE COND AT DATA PT 11

| | MY BAL 2-334 6 00 -7-073 6 00 -5-34 6 00 -2-575 6 00 -2-575 6 00 -3-475 6 00 -3-475 6 00 -4-475 6 00 - |
|-------------|---|
| | 2.85 E 00 1.196E 01 1.96E 01 3.816E 01 3.816E 01 4.419E 01 5.746E 01 6.439E 01 |
| | 5.366 02 1.0166 03 1.2466 03 1.645° 03 1.645° 03 1.645° 03 2.1166 03 2.1166 03 2.1166 03 |
| | 5.610E 00 1.242E 01 2.0643E 01 2.390E 01 2.390E 01 2.799E 01 3.011E 01 3.310E 01 |
| 115 | 9.800E-01 9.910E-01 9.910E-01 9.900E-01 9.880E-01 9.880E-01 9.850E-01 |
| DATA POINTS | 78-00F 01 9-420E 01 1-059E 02 1-186E 02 1-32E 02 1-52E 02 1-52E 02 1-524E 02 1-794E 02 |
| | 76-1N 7.230E 01 7.260E 01 7.260E 01 7.290E 01 7.390E 01 7.310E 01 7.320E 01 7.320E 01 |
| | \$6.650E 02 6.650E 02 6.670E 02 6.670E 02 6.610E 02 6.580E 02 6.550E 02 6.530E 02 6.530E 02 |
| | PB-IN 7.4166 02 7.3106 02 7.3206 02 7.3206 02 7.3106 02 7.3006 02 7.2006 02 7.2806 02 7.2806 02 |
| | 7 0 - 0 0 4 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 |

SECTION - LOCAL TEST PARAMETERS

| | 1.632E 00 2.59 | |
|------------|--|--|
| - | * * * * * * * * * * * * * * * * * * * | |
| DATA POINT | 2 1.626E 00 | |
| DATA | 2 0 0 | |
| | 1.396E 02 | |
| | 000 | 8 |
| | TW 2.260E 02 | 4.000E |
| | . 5 5 | w 8 8 |
| | 78 02 7.663E 01 2 | STA L/D DELTA E LE 1 1-978E 01 5-610E 00 4-000E 00 |
| | 000 | 5 5 |
| | STA PB 1 6-667E 02 2 6-697E 02 | 1.9786 |
| | STA 2 | 51A |

| | | | | HT-8-115 DATA POINT | POINT 2 | | | | | |
|-------------|-----------|-------------|------|---------------------|------------------|-----------|-------------|-----------|----------|-----|
| | | | | • | | | | | | |
| 6-889E 02 | 8.745E 01 | | T# 6 | 3.717E 02 | 0/A 6.781E 00 | 0/AP | H 2.409F-02 | DEL TF | | |
| 0.714E 02 | 9.2856 01 | 1 6.780E 02 | . 02 | 3.729E 02 | | 6-847E CO | 2.445E-02 | 2.801E 02 | 1.494E | 0 0 |
| | | LE LE | | | | | | | | |
| 2.696E 01 | 1.242E 01 | 4.000E | 0 0 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| 94 | 92 | • | 2 | 11 | */6 | 4470 | | | | |
| 6.876E 02 | 9.556E 01 | | 0.2 | 5.032E 02 | 1.093€ 01 | 1.1115 01 | 7.724E-03 | DEL TF | 5> | |
| D. / IIE 02 | 1.036E 02 | 9.560E 02 | 0.5 | 5.045E 02 | 1.093E 01 | 1.111E 01 | 2.772E-02 | 4.007E 02 | 1.512F | 0 0 |
| 27 | DELTA E | | | | | | | | | ; |
| | | | | | | | | | | |
| 2.6985 01 | 1.643E 01 | 4.000E | 00 | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| 2 | 10 | - | • | | | | | | | |
| 6.859E 02 | 1.043E 02 | 1 . 17 | 03 | 5.6616 02 | 1.6505 01 | OVAP | I | DEL TF | y. A | |
| 6.692E 02 | 1.157E 02 | | 63 | 5.661E 02 | 1.550€ 01 | 1.580E 01 | 3.510E-02 | 4.503E 02 | 1.5135 | 05 |
| 2 | DELTA | | | | | | | | | J |
| 1.978E 01 | | • | 8 | | | | | | | |
| 2.696E 01 | 2.006E 01 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT S | | | | | |
| 2 | 18 | 2 | _ | - | 470 | | | | | |
| 6.832E 02 | 1-151E 02 | | 03 | 5.767E 02 | 2-134E 01 | 2-186F 01 | A. 7365A. | DEL TF | | |
| 6.654E 02 | 1.305E 02 | 1.376€ 03 | 03 | 5-707E 02 | 2.136E 01 | 2.186E 01 | 4.966E-02 | 4.402E 02 | 1.5196 | 200 |
| 2 | DELTA E | , LE | | | | | | | | 4 |
| | 2.398E 01 | | 00 | | | | | | | |
| 2.698E 01 | 2.398E 01 | 4.000€ | 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA POINT | POINT 6 | | | | | |
| 2 | 9 | 2 | | 11 | 470 | 9470 | | | | |
| 6.815E 02 | 1-213E 02 | 1-493E 03 | 03 | 5.838E 02 | 2.466E 01 | 2.530E 01 | A. 4695-02 | DEL TF | | |
| 20 365 34 | 1.368E 02 | 1.493€ 03 | 0.3 | 5.838E 02 | 2.466E 01 | 2.530E 01 | 5.685E-02 | 4.450E 02 | 1.521E 0 | 02 |
| 2 | DELTA E | , LE | | | | | | | | |
| 1.970E 01 | 2-600E 01 | 4.000E 00 | 00 | | | | | | | |
| 10 3040. | 2-600E 01 | 4.000E 00 | 0 | | | | | | | |

| TT-8-115 |
|------------|
| |
| DATA POINT |
| = |
| DATA POINT |
| F |
| |
| DATA POINT |
| F |
| |
| DATA POINT |
| |
| |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE MEAT TRANSFER TEST DAT

OVERALL TEST PARAMETERS

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-116. BURNOUT AT DATA PT 11.

| | | | | DATA | DATA POINT 1 | | | | | |
|-----|-----------|------------|------------|-----------|--------------|-----------|-----------|-----------|-----------|-----|
| STA | 4 | 13 | 2 | 1 | 4/0 | 9/49 | r | DEL TE | > | |
| - | 5.664E 02 | | | 2.013E 32 | 1.2265 30 | 1.229E 09 | 2.520E-32 | 4.877F DE | | 6 |
| ~ | 5.582£ C2 | 1.535 | 2.660E | | 1.226E 00 | 1.229E 00 | 2.517E-92 | 4.8835 91 | | 32 |
| m | 5.500E 02 | 1.545E 02 | 2.620E 02 | 1.981E 02 | 1.228E 30 | 1.229E 00 | 2.819E-02 | | | 20 |
| STA | 6/1 | DELTA E | 97 | | | | | | | |
| - | | | 9 | | | | | | | |
| r4 | 3.405E 01 | 7.380E 00 | | | | | | | | |
| m | 4.122E 01 | 7.390E 00 | 6.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 2 | | | | | |
| STA | 60 | 13 | 2 | 11 | 4/0 | 97.48 | 1 | 34 | 2 | |
| | 5.672E 02 | 1.597E 02 | 4.110 02 | 2.886E 02 | 2.492E 00 | 2.531E 00 | 1.9636-32 | 1.243F 02 | | • |
| ~ | 5.596E 02 | 1.623E 02 | | 2.919E 32 | 2.489E 00 | 2.531E 00 | 1.953E-02 | 1.296F 32 | | 9 6 |
| m | 5.519E 02 | 1.649E 02 | 4.050E 02 | 2.82CE 02 | | 2.531E 09 | 2.163E-32 | 1.1705 02 | | 20 |
| STA | 7/0 | DELTA F | ia. | | | | | | | |
| - | 2.688E 01 | | 6.6 | | | | | | | |
| ~ | | | FO00 | | | | | | | |
| m | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| STA | 8 | 13 | | 1 | 470 | 0470 | 3 | | • | |
| - | 5.675E 02 | 1.691 02 | 6.250 F 62 | 4.045F 02 | A. 915E 30 | 4 26 5 20 | 1 100 | DEL TF | | |
| ~ | 5.602E 02 | 1.743€ 02 | | 4-136F 02 | A-8046 30 | 4-955E 00 | 20-3/80-2 | 2.374E 32 | | N (|
| m | | 1.795E 02 | 9081.9 | 3.981E 02 | 4.529E 60 | | 2.266E-02 | 2.186E 02 | 1-041E 32 | N N |
| : | | | | | | | | | | |
| < - | 2.688F C1 | 1. KA25 01 | LE DOOF OF | | | | | | | |
| | | | 20000 | | | | | | | |
| m | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| STA | 0 | T3 | 14 | 1 | 4/0 | 6470 | 1 | * | 3 | |
| - | | | 8.7705 02 | 5.465E 32 | 7.912E 90 | 8.292F 00 | 2.243E-02 | 3.658F 02 | 1.0435 12 | |
| 2 | 5.586E 02 | 1.5935 52 | 8.830E C2 | 5.540E 32 | 7.896E 00 | 8.202E 03 | 2.243F-02 | 3.5475 12 | | |
| m | 5.509E 02 | 1.978E 02 | | | | | 2.4495-02 | | | |
| AT. | 5 | 2 44 6 | | | | | | | | |
| ١. | 2 4405 | | 3100 | | | | | | | |
| • 0 | 3.405F 01 | 2.042F 01 | 6.000E 00 | | | | | | | |
| | | 2.082F 01 | | | | | | | | |

| | | | | DAT | DATA POINT 5 | | | • | | |
|-----------|-----------|------------|--------------|------------------|--------------|-----------|-----------|-----------|--------|-----|
| STA | | | | 1 | 470 | | | | | |
| - (| | | 02 1.005E 03 | 5.615 | 1.047E 01 | 4470 | * | | S A | |
| N . | 5.620= 02 | 2.014 | | | 1-049F 31 | 10 2990-1 | 2.776E-02 | 3.912E | 1.050E | 95 |
| 7 | 2.548E 02 | 2.124E | 32 9.630E 02 | | | 1.086E 01 | 2-887E-02 | 3.7635 | | |
| STA | 1/0 | DEL TA F | | | | | | | 1-065 | |
| - | 2.688E 01 | 2.434F | 01 6.000# 00 | | | | | , | | |
| ~ | | 2.434E | 6-300F | | | | | | | |
| m | 4.122E 01 | 2.434E | 6.000 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 6 | | | | | |
| STA | 80 | 13 | - | ; | | | | | | |
| ~ | 5.671E 02 | 1.9865 02 | 1.130 | 5. 94AF 32 | 9/A | OVAP | T | DEL TF | 8 | |
| ~ | 5.500E 02 | | | S. 921F 42 | 1.2275 01 | | 3-349E-02 | 3.962E 02 | 1.0525 | 95 |
| 7 | 5.528E 02 | 2.253E 02 | 2 1.071E 93 | 5.554E 02 | | 1.327E 31 | 3.491E-02 | 3.602E 02 | 1.051E | 26 |
| STA | | - | | | | | 20-36-05 | 3.302E 32 | 1.0705 | 20 |
| - | 2.6 | • | | | | | | | | |
| ~ | | 2.715 | 90000 | | | | | | | |
| m | | 2.71SE | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 7 | | | | | |
| STA | 84 | 1.3 | 2 | ; | | | | | | |
| | 5.662E C2 | 2.07 | 1.20 | 11 A. 004E 22 | A/0 | O/AP | r | DEL TF | 8 > | |
| N | | | | S. 9966 02 | | | 3.967E-02 | 4.521E 02 | | 20 |
| m | 5.509E 02 | 2.389€ | 1.178 | 5.743E 02 | 1.544E 01 | 1.595E 01 | 4.237E-02 | 3.755€ 32 | | 0.5 |
| STA | 2 | DEL TA F | • | | | | 70-755 | 303336 02 | 1.076E | 20 |
| _ | 2.688E C1 | | 4 | | | | • | | | |
| N | 3.40%E C1 | | 6.000F | | | | | | | |
| m | 4.122E 01 | 3.997E 01 | 6.200E | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA POINT | POINT 8 | | | | | |
| STA | 60 | 13 | 3 | : | | | | | | |
| | 5.650E 02 | 2.130 € 02 | 1.279 | 4.25.45 | 9/4 | 0/ AP | I | DEL TF | SA | |
| N | | 2.307E 02 | | A-116F 33 | 10 27171 | | 4.332E-02 | 4.127E 32 | | 20 |
| ~ | 5.490E 02 | | 1.256E | S. GPAF AS | 10 1226 | 1.788E 01 | 4.695E-02 | 3.807E 52 | | 00 |
| | | | | 36 7676 06 | | 1.788E 91 | 5.190E-02 | 3.444E 32 | | 02 |
| Y | | DELTA E | LE | | | | | | | r |
| (| | 3.234€ 01 | 6.000E 09 | | | | | | | |
| NI | 3.405E C1 | 3.204E 01 | 6.930E 00 | | | | | | | |
| m | 4.122E 01 | 3.2545 91 | | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS HT-8-116, BURNOUT AT DATA PT 11

| + | #0 10 | | | DATA | DATA POINT 9 | | | | | |
|-----|-----------|-----------|-----------|-----------|---------------|-----------|-----------|-----------|-----------|----|
| STA | 94 | 13 | 2 | 11 | 4/0 | 9/ 40 | I | DEL TF | S > | |
| - | 5.634E 02 | 2.187E 02 | 1.362E 03 | 6.449E 02 | 1.918E 01 | 1.994E 01 | 4.677E-32 | 4.2525 32 | 1.0595 02 | N |
| ~ | 5.552E 02 | 2.3936 02 | 1.353E 03 | 6.318E 32 | 1.922E 01 | 1.994E 01 | 5.066E-02 | 3.936E 02 | | 2 |
| m | 5.470E 02 | 2.579E 02 | 1.365E 03 | 6.492E 32 | 1.917E 51 | 1.994E 01 | 5.095E-02 | 3.913E 32 | 1.397E 32 | ~ |
| STA | STA L/0 | DELTA E | Ä | | | | | | | |
| - | 2.686E 01 | 3.412E 01 | 6.000E 09 | | | | | | | |
| N | | 3.412E 01 | | | | | | | | |
| m | 4.122E 01 | 3.412E 01 | 6.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 10 | | | | | |
| į | 1 | | | i | | | | | | |
| 214 | | 13 | | | 4/0 | 0/AP | I | DEL TF | S > | |
| - | 5.679E 02 | 2.283E 02 | 1.474E 03 | 6.662E 12 | 2.209E 01 | 2.281E 01 | 5.2115-32 | 4.379E 32 | 1.075E 92 | N. |
| N | 5.604E 02 | 2.506E 62 | 1.4695 03 | 6.588E 02 | 2.212E 01 | 2.281E A1 | 5.599E-02 | 4.082E 02 | 1.0915 32 | • |
| m | 5.529E 02 | 2.728E 02 | 1.461E 03 | 6.469E 92 | 2.216E 01 | 2.281E 01 | 6.0996-02 | 3.741E 02 | 1-108E 92 | ~ |
| STA | | DELTA E | 9 | | L | | | | | |
| - | 147 | 3.695E 01 | 6.000E 00 | | | | | | | |
| ~ | 3.405E 01 | 3.695E 01 | 6.COOE 00 | | | | | | | |
| m | 4.122E 01 | 3.695E 01 | 6.000E 09 | | | | | | | |
| | | | | | | | | | | |
| - | A app | | | DATA | DATA POINT 11 | | | | | |
| STA | 84 | 13 | * | 11 | 4/0 | 0/AP | I | DEL TF | 5 | |
| - | 5.515E 02 | 2.768E 02 | • | • | • | 2.281E 01 | 9. | 9. | 1.1115 02 | |
| ~ | 5.515E G2 | 2.768E 02 | • | • | • | 2.2 1E 01 | • | • | 1.1115 04 | .1 |
| * | 5.515E 02 | 2.768E 02 | • | • | • | 2.28'E 01 | • | • | 1.1115 02 | 81 |
| | | | | | | | | | | |
| STA | STA LA | DELTA E | H | | | | | | | |
| ~ | 4.251E 01 | 3.695E 01 | 6.000E 00 | | | | | | | |
| ~ | 4.251E 01 | 3.695E 01 | 6.000E 00 | | | | | | | |
| m | 4.2515 01 | 3.69SF 01 | 6.000F 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

5555555

LIQUID SIDE HEAT TRANSFER TEST DATA

VERALL TEST PARAMETERS

-8-117. BURNOUT AT DATA PT 7. BURNOUT SITE COND. AT DATA PT 8

AND CLEARED FOR PUBLIC RELEASE
UNDER DOD DIRECTIVE 5200.20 AND
NO RESTRICTIONS ARE IMPOSED UPON
ITS USE AND DISCLOSURE.

DISTRIBUTION STATEMENT A

DISTRIBUTION UNLIMITED.

Report AFRPL-TR-67-208, Appendix C

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-117', BURNOUT AT DATA PT 7, RURNOUT SITE COND. AT DATA PT 9

| | | | | DAT | DATA POINT | | | | | |
|----------|-----------|-------------|--------------|-------------|--------------|-----------|-----------|-----------|-----------|--|
| STA | 2 | 43 | 2 | : | | | | | | |
| - | 1.064E 03 | 1 - 342 | 2.590 | 1.048 | A/0 | 9/46 | r | DEL TF | 8.4 | |
| N | 1.05%E 03 | | | | 1-2616 00 | 1.289E 03 | 2.139E-02 | | 9.580E DE | |
| n | 1.052E 03 | 1 1.367E 02 | 2.660E 02 | 2.019E | 1.260E 90 | 1.289E :0 | 2.038E-52 | 6.327E 01 | 9.5855 01 | |
| STA | 2 | DELTA E | | | | | | | | |
| - | 2.660E 01 | 7.550E | 9.9 | | | | | | | |
| ~ | | 7.580€ | 9000-9 | | | | | | | |
| m | 4.978E 01 | 7.5906 00 | 6.000E | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 2 | | | | | |
| STA | 2 | 2 | 2 | 1.1 | | | | | | |
| - | 1.066E 03 | 1.475E 02 | 4.870E 02 | T. TABE AS | A 26 26 # | OZAP | I | DEL TF | 8 ^ | |
| ~ | | 1.51 SE | 4.983E 02 | 3.473E 02 | 1.237E AA | 3.324E 00 | 1.7745-02 | 1.574E 32 | 9.782E 01 | |
| ~ | 1.056E 03 | 1.555E 02 | | 3.530E 02 | 3.230E 00 | 3.324F 00 | 1.6975-32 | 1.959E 92 | 3-894E | |
| STA | 5 | DEI TA E | | | | | 30-1000 | 20 26 60 | 4.8Z6E 91 | |
| - | 2.660E 01 | | 4.000.00 | | | | | | | |
| ~ | | | | | | | | | | |
| m | 4.078E 01 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| STA | 9 | 2 | ** | | | | | | | |
| _ | 1.085€ 03 | 1.6475 02 | B. 910 = 0.9 | E 0 325 0 3 | A/0 | OVAP | r | DEL TF | S > | |
| ~ | 1.081E 03 | 1.745E 32 | 8-589F 02 | 5.901E 02 | 7 350E 07 | 7-517E 00 | 1.776E-32 | 4.290E 32 | 9.432= 01 | |
| m | 1.077E 03 | | | 6.458E 72 | 7.232E 00 | 7.517F 99 | 1.8336-12 | | | |
| STA | 2 | | | | | | 20-20-0-1 | 4.010E /Z | 9.5385 01 | |
| - | 2.660E 01 | 2.0385 01 | A. 000s 00 | | | | | | | |
| ~ | | | | | | | | | | |
| m | 4.078E 01 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT | | | | | |
| STA | 96 | | : | ; | | | | | | |
| - | 1.095E 03 | 1.937E 02 | ILLIANE DE | 11.00.7 | A/0 | J/AP | r | DEL TF | S > | |
| 8 | 1.081E 03 | 1.986E 02 | 1-1305 03 | A. 8076 02 | 10 306101 | | 2.331E-32 | 5.154E 32 | 9.4865 01 | |
| m | 1.076E 03 | 2-1356 02 | 1.1735 03 | 7.4485 02 | 1.1576 31 | 1.204E 91 | 2.451E-02 | 4.912# 32 | | |
| i | | | | 70 30000 | 1-1436 01 | 1.204F C1 | 2.265E-32 | | | |
| STA | | | Ę. | | | | | | | |
| ~ (| | | 6.0COE 00 | | | | | | | |
| ~ 1 | | | 6.9C2E 00 | | | | | | | |
| m | 4.078E 01 | 2.635E 01 | 6.930E 00 | | | | | | | |

| 5.55 | 000 | 550 | 555 |
|--|---|--|---|
| A | VS 9-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0 | 9 • 5 • 6 • 9 • 4 • 5 • 6 • 6 • 6 • 6 • 6 • 6 • 6 • 6 • 6 | VS 9.677E 9.677E 9.877E |
| . 6 6 6 | 866 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | |
| 8 DE. TF 5.394E 72 5.657E 02 | 5.561E 5.561E 5.543E | DEL VF 5.662E 32 5.877E 32 6.162E 02 | <u> </u> |
| | 0 m v e v | DEL TF 5.602E 5.827E 6.162E | DEL. |
| BURNOUT AT DATA PT 7, BURNOUT SITE COND. AT DATA PT DATA POINT 5 O/A 0/AP H TI 0/A 0/AP H 7.369E 02 1.457E 01 1.523E 01 2.818E-02 13 7.969E 02 1.441E 01 1.523E 01 2.693E-02 00 00 | 3.30 FE-02 3.162E-02 3.318E-02 | 3.666E-02 3.467E-02 3.166E-02 | I |
| 2 CONCO 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 0 1 0 0 0 1 0 0 0 0 1 0 | | | |
| 17 SITE CO 17 SITE CO 1.523E 01 1.523E 01 | 0/AP 39E 01 39E 01 39E 01 | 0/AP 50E 01 50E 01 | A M M M M M M M M M M M M M M M M M M M |
| DATA PT 7. BURNOUT SITE C DATA POINT S O/A 17.3696 02 1.4576 01 1.5236 01 7.5416 02 1.4576 01 1.5236 01 7.5416 02 1.4416 01 1.5236 01 | 0/AP 1.839E 01 1.839E 01 | 1.950E 1.950E 1.950E | 0/AP 1.950E 01 1.950E 01 |
| 8UR A 91 01 01 | 000 | ~ === | • |
| 01NT 5 0/A 1.457E 01 1.453E 01 | 36 6 7 | 2 2 2 2 | * |
| 4 IO ::: | 109 | Z 67.0 | |
| 0ATA PGINT 0 ATA PGINT 1 0 2 1 0 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 0414 POINT 5 2 1-75 5 2 1-75 | 0ATA POINT 1 02 1-86/ 02 1-85/ 02 1-83 | I O O. |
| DAT DAT 101 OF 1 | D4T T1 7.657E 32 9.132E 32 8.078E 32 | DAT T.801E 72 9.199E 72 5.766E 52 | 0 1 |
| 7 | / e e | 20 F | |
| , | ************************************** | 200 00° | . 8 |
| TT-8-117 B | 1.395F 03 1.430E 03 1.420E 03 1.420E 09 6.000E 00 | 1.41E 03 1.512E 03 1.512E 03 6.000E 09 6.000E 09 | T LE |
| | | | |
| H1 | 73 56 02 56 02 56 02 78 01 76 01 | 73 02 02 02 02 02 02 02 02 02 02 02 02 02 | # m m m m m m m m m m m m m m m m m m m |
| 1.963E 2.147E 2.332E DELTA 3.000E 3.000E | 13 2.9966 02 2.3166 02 2.5356 02 | 2.140£ 02 2.372E 02 2.4604E 02 DELTA E 3.439E 01 3.439E 01 | 73 2.646E 02 2.646E 02 1.646E 02 DELTA E |
| # 000 C 00 | ************************************** | 803 03 03 03 03 | |
| g கூர்ர் பர் சிரி இ | | | TC . |
| P8 1.093E 03 1.074E 03 1.074E 03 1.076E 03 2.660E 21 3.369E 01 | PB 1.092E 93 1.077E 03 1.072E 03 L/D L/D 2.660E 01 3.369E 01 | 1.002E 03 1.007E C3 1.007E C3 1.002E 03 2.000E C1 3.309E C1 | 1.071E C3 1.071E C3 1.071E C3 1.071E C3 6.206E C1 |

Page 46

Report AFRPL-TR-67-208, Appendix C

OUTO SIDE HEAT TRANSFER TEST DATA

PALL TEST PARAMETERS

HT-8-118. BURNOUT AT DATA PT 4. BURNOUT SITE COND. AT DATA PT S

| 85E-01 L = 3.550E 01 DELTA TO = 0.100E 31 DATA POINTS | 12 0P HT 8AL 01 9-140E 01 3.200E-01 1.024E 01 4.330E 02 4.203E 00 -9.700E-01 01 1.000E 02 3.200E-01 1.254E 01 5.220E 02 6.205E 00 -1.608E 01 01 1.31ZE 02 3.200E-01 1.501E 01 6.280E 02 8.936E 00 -1.608E 01 01 1.565E 02 3.170E-01 1.722E 01 7.210E 02 1.177E 01 -4.917E 01 |
|---|--|
| D = 0.185E-01 | TB-IN 6.900E 01 7.010E 01 7.020E 01 7.020E 01 |
| 10-20F-03 | 2-974E 03 2-969E 03 2-971E 03 2-966E 03 2-964E 03 2-964E 03 2-967E 03 2-961E 03 |
| | 0 - N n - n |

| PARAMETERS | |
|------------|--|
| TEST | |
| LOCAL | |
| N NO | |
| SECT | |
| TEST | |

| | | | | | | | DATA | DATA POINT | - | | | |
|-------|-----------|------------|-----------------|-------|--------------|-----|------------|------------------|-----|-----------|----|--|
| ¥ - 0 | 2.971E 93 | | 78 8-256E 01 | . 5 8 | T# 4.420E 02 | N | T. 007E 02 | 0/A 1.017E 90 | 0 | 1.096E 00 | 0 | |
| ı m | | 200 | 9.042E | 5 6 | 4.290E 0 | N N | 4.007E 02 | 1.017E | 000 | 1.096E | 88 | |
| Y. | 5 | J | DELTA | w | 3 | | | | | | | |
| - N | 1.464E 01 | 5 5 | 1.024E 01 | 5 E | 5.500E 0 | | | | | | | |
| ۳, | 2.365E | 5 | 1.024€ | : = | 5.500E 00 | | | | | | | |

555

| | 555 | | 555 | | | 555 | | | 555 |
|---------------------|---|-------------------------------------|--|--|--------------|---|--|--------------|---|
| | VS 1.890E 1.896E 1.902E | | VS 1.904E 1.915E 1.925E | | | VS 1.900E 1.915E 1.931E | | | VS 1.927E 1.927E |
| ٠, | 5.369E 02 5.273E 02 4.828E 02 | | 0EL 1F 6.146E 02 5.942E 02 5.727E 02 | | | DEL TF 6.273E 02 6.095E 02 5.771E 02 | | | 5.771E 02 5.771E 02 5.771E 02 |
| | 3.012E-03 3.067E-03 3.350E-03 | | 3.790E-03 3.920E-03 4.067E-03 | | | A.890E-03 5.033E-03 5.316E-03 | | | 5.316E-03 5.316E-03 5.316E-03 |
| | 0/AP 1.617E 00 1.617E 00 1.617E 00 | | 2.329E 00 2.329E 00 2.329E 00 | | | 3.068E 00 3.068E 00 | | | 2/AP 3.068E 00 3.068E 00 |
| POINT 2 | 0/A 1-494E 00 1-494E 00 | | DATA POINT 3 1 0/A 02 2.124E 00 02 2.125E 00 02 2.127E 00 | | DATA POINT 4 | Q/A 2.788E 00 2.788E 00 2.791E 00 | | DATA POINT S | * |
| HT-8-118 DATA POINT | TE 6.283E 02 6.252E 02 5.871E 02 | | 7.2006 02 7.1156 02 7.0116 02 | | DATA | 7.465E 02 7.464E 02 7.297E 02 | | DATA | |
| -FH | TW 6.820E 02 6.790E 02 6.420E 02 | LE 5.500E 00 5.500E 00 | T# 7.940E 02 7.850E 02 7.750E 02 | S.500E 00 5.500E 00 | | TW 8.430E 02 8.410E 02 8.250E 02 | S.500E 00 5.500E 00 5.500E 00 | | |
| | 78 9.131E 01 9.764E 01 1.044E 02 | DELTA E 1.254E 01 1.254E 01 | TB 1.062E 62 1.173E 02 1.204E 02 | DELTA E 1.501E 01 1.501E 01 | | 78 1.212E 02 1.369E 02 1.526E 02 | DELTA E 1.722E 01 1.722E 01 1.722E 01 | | 1.487E 02 1.487E 02 1.487E 02 |
| | P8 2.968E 03 2.967E 03 2.966E 03 | 1.464E 01 1.914E 01 2.365E 01 | PB 2.966E 03 2.965E 03 2.964E 03 | L/D 1.464E 01 1.914E 01 2.365E 01 | | 2.963E 03 2.962E 03 2.961E 03 | L/D 1.464E 01 1.914E 01 2.365E 01 | | PB 2.962E 03 2.962E 03 |
| | STA 2 3 | 4 = 17 F) | ¥ = 0 P | F = 0 F | | W N N | 5 - 5 F | | S - 2 F |

Report AFRPL-TR-67-208, Appendix C

2.910E 2.910E 2.910E 2.910E 2.910E 2.910E 2.910E HT 04L 5.121E 01 1..346E 00 7.131E-01 1.416E-01 1.416E-01 5.469E-01 1.269E-01 1.269E-01 10 0000000000 5

LIQUID SIDE HEAT TRANSFER TEST

n n n n n n n n n n

Page 49

TEST SECTION - LOCAL TEST PARAMETERS
119 BURNOUT AT DATA PT 9. BURNOUT SITE COND. AT DATA PT 10

| | 5 | 5 5 | | | | | - | 5 | | | | | : | 0 | | | | | | | | | | | | | 5 6 | | | |
|------------|-------------------|------------|-----------|-------------|--------------|-----|---------------------|------------|------------|-----------|------------|------|-----------|------------|---------|-----------|------------|------|------------|-----------|---------|-----------|-----------|------------|-----|-------------|------------------------|---------|---|-----------|
| | V S V S | | | | | | 4.969E | | | | | | | 4.991E | | | | | | 5.014E 0 | | | | | | SA | *** ** | | | |
| | DEL TF | 3.905E 01 | | | | | DEL TF 1-515E 02 | 1.459E 02 | | | | | DEL TF | 2.882E 02 | | | | | DEL TF | 3.313E 02 | | | | | | DEL TF | 02 | | | |
| | H 1.423E-02 | 1.51 36-02 | | | | : | 1-136E-02 | 1.180E-02 | | | | | 1 100F-02 | 1.24 6E-02 | | | | | | 1.5636-02 | | | | | | I | 1.973E-02 2.138E-02 | | | |
| | 0/AP 5.908E-01 | 5-908E-01 | | | . | | 1.722E 00 | 1.722E 00 | | | | | 3.591E 00 | 3.591E 00 | | | | | S. 1705 AD | 5.179E 00 | | | | | | Q/AP | 7.213E 00 7.213E 00 | | | |
| DATA POINT | 0/A 6.057E-01 | 6.062E-01 | | | DATA POINT 2 | 476 | 1.766E 00 | 1.768E 00 | | | POINT 3 | į | 3.677E 00 | 3.685E 00 | | | 4 TN 104 | **** | 5.301F 00 | 5.327E 00 | | | | TATO | | 8 | 7.431E 00 | | | |
| DATA | 7.1 2.596E 02 | 2.575E 02 | | | DATA | | 3.560E 02 | 3.529E 02 | | | DATA POINT | : | 5.063E 02 | 4.997E 02 | | | DATA POINT | 1 | 5.637E 02 | 5.479E 02 | | | | DATA POINT | | 11 | 5.813E 02 5.626E 02 | | | |
| | 74 2.820E 02 | 2. 800E 02 | | 4.500€ 00 | | | 4-180E 02 | 20 30CI •• | LE | 4.500E 00 | | | 6.250E 02 | 6.190E 02 | 3 | 4.500E 00 | | 1 | 7-290E 02 | 7-150E 02 | u l | 4.500E 00 | 4.500E 00 | | | AL . | 7.910E 02 | la . | 1 | |
| | 78 2.180E 02 | Z-183E 0Z | 4.720E 00 | 4.720E 00 | | 40 | 2.045E 02 | 20 3600.5 | B. 2705 AG | | | 18 | 2.066E 02 | 2.115E 02 | DELTA E | 1.237E 01 | | 5 | 2.098E 02 | 2.166E 02 | DELTA E | 1.509E 01 | 1.509E 01 | | } | B 36.36 - 6 | 2.252E 02 | DELTA F | 1 | |
| | 5.395E 02 | 70 3000 00 | 1.0326 01 | I o sale of | | 64 | 5.378F 02 | - | L/D | 1.4916 01 | | 80 d | 5.390E 02 | E.386E 02 | | 1.032E 01 | | 84 | 5.390E 02 | 5.386E 02 | 677 | 1.032E 01 | 1.491E 01 | | | 50 300F . 2 | 5.381E 02 | 1/0 | j | 1 673E At |
| | ST C | | \$T. | 4 | | STA | - ^ | | STA | ~ | | STA | - (| N | STA | - ~ | | STA | - | N | STA | _ | ~ | | 413 | | • ~ | STA | | - |

Report AFRPL-TR-67-208, Appendix C

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-119. BURNOUT AT DATA PT 9. BURNOUT SITE COND. AT DATA PT 10

| | | | | DATA | DATA POINT 6 | | | | | |
|----------|-------------------------------|-----------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|-----------------------------|----------------------------------|------------------------------|---|
| 51 A | 5-390£ 02 5-377£ 02 | 2.202E 02 2.315E 02 | 0.500E 02 | TI 5.951E 02 5.771E 02 | 0/A 8.973E 00 9.018E 00 | 0/AP 8.756E 00 8.756E 00 | H 2.336E-02 2.534E-02 | DEL TF 3.749E 02 3.455E 02 | VS 5.012E 01 5.049E 01 | - |
| STA 1 | L/0 1.032E 01 1.491E 01 | DELTA E 1.998E 01 1.998E 01 | 4.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 7 | | | | | |
| STA 1 | PB 5.375E 02 5.366E 02 | 78 2.241E 02 2.377E C2 | 9.410E 02 | TI 6-279E 02 6-230E 02 | 0/A 1.064E 01 1.065E 01 | 0/AP 1.041E 01 1.041E 01 | H 2.577E-02 2.701E-02 | 0EL TF 4.036E 02 3.053E 02 | VS 5.025E 01 5.069E 01 | |
| 2 - 2 | 1.032E 01 | DELTA E 2.197E 01 2.197E 01 | 4.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 8 | | | | | |
| ST - 2 | PB 5.375E 02 5.364E 02 | 78 2.286E 02 2.443E 02 | TW 1.015E 03 1.013E 03 | 11 6.581E 02 6.556E 02 | 0/A 1.237E 01 1.238E 01 | 0/AP 1.208E 31 1.206E 01 | H 2.813E-02 2.938E-02 | DEL TF 4.295E 02 4.113E 02 | VS 5.033E 01 5.005E 01 | |
| 2 - 2 | L/D 1.032E 01 1.491E 01 | 2.34.E 01 2.391E 01 | 4.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 9 | | • | | | |
| ST - 2 | 98 5.380E 02 5.371E 02 | 78 2.294E 02 2.459E 02 | TW 1.054E 03 1.057E 03 | T1 6-818E 02 6-856E 02 | 0/A 1.305E 01 1.304E 01 | 0/AP 1.277E 0/ 1.277E 01 | A 2.822E-02 | DEL TF 4.524E 02 4.397E 02 | VS 5.042E 01 5.098E 01 | |
| STA 2 | L/D 1.032E 01 1.491E 01 | 2.468E 01 | 4.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 10 | | | | | |
| 2 - 2 | 5.361E 02 5.361E 02 | 78 2.652E C2 2.652E O2 | • • • | | | 0/AP 1.277E 01 1.277E 01 | : •• | 06L FF | VS 5.166E 01 5.166E 01 | |
| ¥ - 8 | 2.027E 01 | 2.468E 01 | 4.500E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

::::::

DATA POINT 1

1.105E 03 7.250E 01 4.040E 02 2.130E 02 7.273E 00 7.085E 00 5.04

1.083E 03 7.850E 01 5.120E 02 3.388E 02 6.946E 00 7.085E 00 2.77

L/D DELTA E LE

1.534E 00 6.630E 00 1.500E 00
7.671E 00 6.630E 00 1.500E 00

TEST SECTION - LOCAL TEST PARAMETERS

| | 2 20 | | | 2 2 | | | 0 2 | | | 2 2 | | | N N |
|---------------------|----------------------------------|-----------------------------------|--------------|------------------------|-----------------------------------|------------|----------------------------------|-----------------------------------|------------|---------------------------------------|-----------------------------------|------------|-----------------------------------|
| | VS 1-0666 1-0766 | | | VS 1.866E 1.880E | | | 1.866E 0 | | | VS 1.865E 0 1.886E 0 | | | VS 1.863E 02 1.888E 02 |
| | 06L TF 6.42ZE 02 5.481E 02 | | | 6.743E 02 5.039E 02 | | | DEL 1F 5.639E 02 5.839E 02 | | | 5.839E 02 | | | DEL 1F 5.839E 02 5.839E 02 |
| | 3.435E-02 | | | A-125E-02 | | | 4.763E-02 | | | H 4.763E-02 | | | z |
| | 0/AP 2.206£ 01 2.206£ 01 | | | 2.781E 01 2.781E 01 | | | 3.44-F 51 | | | 4.258E 01 | | | Q/AP 4.962E 01 4.962E 01 |
| POINT 2 | 2.117E 01 2.156E 01 | | DATA POINT 3 | 2.673E 01 | | + INIDA | * | | S THIO | · · · · · · · · · · · · · · · · · · · | | 6 TWI 0 | 3 |
| HT-8-120 DATA POINT | 7.166E 02 | | DATA | 7.494E 02 | | DATA POINT | | | DATA POINT | | | DATA POINT | - |
| -TH | TW 1.146£ 03 1.083€ 03 | 1.500E 00 | | T# 1.276£ 03 | LE 1.500E 00 1.500E 00 | | | LE 1.500E 00 1.500E 00 | | | 1.500E 00 | | |
| | 7.436E 01 8.712E 01 | DELTA E 1.269E 01 1.269E 01 | | 7.505E 01 9.045E 01 | DELTA E 1.444E 01 1.444E 01 | | 7.590E 01 | DELTA E 1.646E 01 1.646E 01 | | 7.668E 01 9.862E 01 | DELTA E 1.820E 01 1.820E 01 | | 7.745E 01 1.024E 02 0ELTA F |
| | 1.103E 03 | 1.£34£ 00 7.671£ 00 | | 1.102E 03 | 1.534E 00 7.671E 00 | | PB 1.100E 03 1.079E 03 | L/D 1.534E 00 7.671E 00 | | 1.100£ 03 1.078£ 03 | L/D 1.534E 00 7.671E 00 | | 1.098E 03 |
| | 5TA 1 2 | STA | | ST - 5 | 2 2 | | 51 A | 57 A | | ST - 2 | 2 - 2 | | STA STA |

| | y | 2.764E 03 | | | | | 2.752E 03 | | | | | | | | | | | | | | |
|-------------|--------|-----------|-----------|-----------|-----------|-----------|------------|--------|--------------------------------------|------------|---|---------|---------|----------|-----------|-----------|---|------------|--------------|------------------------|---|
| | HT BAL | 8.842E 01 | | | | | 2.23% 00 | | | | VS 4.734E 01 4.734E 01 | | | 5 | 4.759E 01 | | | | VS 4.7705 01 | | |
| 4 | 8 | 1.707E 00 | | 1-227E | 2.017E | 2.626E | 3.666E 01 | | | | 3.785£ 01 3.675£ 01 3.675£ 01 | | | DEL TF | 1.364E 02 | 1.315E 02 | | | 06L 1F | 2.971E 02 2.790E 02 | |
| | 2 | | 6.520E | 9.780E | 1.234 | 3926 | 1.69% | | | | 1.96 XE-02 1.50 YE-02 1.51 IE-02 | | | z | 1.190E-02 | 1-235E-02 | | | H H | 1.339E-02 | |
| | 2 | 0.636E 00 | 6-100E 00 | | 1.72€ | | 2.40% | | ARANE TERS | | 5.539E-01 5.539E-01 5.539E-01 | | | 474 | 1.62% 00 | 1.624€ 00 | | | 0/NF | 3.979E 00 | |
| ints | • | 7-1166-01 | | 7.1366-01 | 7-1-6 | 7-1365-01 | 7-136-01 | | OCAL PEST A | 1 | 5.88.41 5.88.41 5.88.41 | | POINT 2 | 3 | | 1-600E 00 | | £ 11110. | A.00. | | |
| SATA POLNTS | 118-61 | 2,200 02 | 2.32EE | 2.466 | Z-013E | 2.736 | 2. 92 M 92 | | TEST SECTION - LOCAL TEST PARAMETERS | DATA POINT | 71 2.629E 02 2.614E 02 2.614E 02 | | PATA | : | 3.6496 02 | | | DATA POINT | 11 | 5-372E 02 5-251E 02 | |
| | 11-ET | | | 2.23 X | 2.22 | 2.22 | 2.2166 02 | | 25 | | 70 2.00E 02 2.03E 02 2.03E 02 | 7 6 6 6 | | : | 4.24E 02 | | 2 % % % % % % % % % % % % % % % % % % % | | 10 200 | | |
| \$ | lie, | S. 316 | Ĩ | 5-316E | 5-326E | 81 | 20 Mar. 4 | | | | 2,204E 02 2,204E 02 2,204E 02 | | | 2 | 2.20K 02 | - | | | 7 | | |
| | į | 4 | 5-316E 02 | 5-316E 02 | S-326E 02 | 9-30E | S-100 02 | | | | \$-316 02 \$-316 02 \$-316 02 | 3 | | • | S.3160 02 | | | 1 | A. 316. 63 | 5.316E 02 5.316E 02 | |
| | Ī | | 64 | _ | _ | _ | |)) | | | | 5 | | 4 | | | | | • | | • |

Page 54

| | | S > | 02 4.809F 01 | 4.837E | 4.866E | | | | | | | | > | 4.6 | 4.858 | 02 4.896E 01 | | | | | | | S.A | 2 4.650E 01 | 4.904E | 4.956E 01 | | | | | | | | 4.96AF 01 | | 4.966E 01 | | | |
|---------------|-----|------------|--------------|------------|------------|----------|------------|-----------|-----------|--|--------------|-----|------------|------------|------------|--------------|----------|-----------|----|-----------|------------|-----|------------|-------------|-----------|-----------|------------|---|-----------|---|------------|------|-----------|-----------|-----------|-----------|----------|-----------|-----------|
| | | DEL TF | 3.287E 02 | 3.074E 02 | 2.988E 02 | | | | | | | | DEL TE | 3.426F 02 | 3.229€ 0 | 3.1166 | | | | | | | DEL TF | 3.941E 92 | 3,8635 02 | 2000 | | | | | | i | DEL TF | • | • | • | | | |
| | | I | 1.990E-02 | 2.128E-02 | 2.190E-02 | | | | | | | | 1 | 2.487E-02 | 2.638E-02 | 20-346.05 | | | | | | | I | 3.0165-02 | 3.061E-02 | | | | | • | | , | | • | • | : | | | |
| | | O/AP | 6.543€ 00 | | 6.543E 00 | | | | | | | | 9/10 | 8.519E 00 | 6.51 PE 00 | | | | | | | | dy Apr | | 1.1896 01 | | | | | | | 9770 | 141495 01 | 2000 | | | | | |
| DATA POINT 4 | | 6 | 6.628E 00 | 6-854E 00 | 6. 854E 00 | | | | | | DATA POINT S | | 4/0 | 8-917E 00 | 8-538E 00 | | | | | | 9 LAID | *** | 1.2405 01 | 1. 24 75 01 | | | | | | | 7 TA 10 | ٧/٥ | | | • | | | | |
| HT-8-121 DATA | | 11 | 30.709E 02 | 20 318C ·C | 5.541E 02 | | | | | | DATA | | 11 | 5. 910F 02 | 5.618E 02 | | | | | | TAIDE ALEO | | 6.50 BE 02 | 6-608F 02 | 6.708E 02 | | | | | | DATA POINT | = | | | .0 | | | | |
| TH | 1 | | 20 2000 | | 7. 100E 02 | 9 | 4.500F DO | | | | | • | A 2002 6 | A. 520- 02 | | | . | | | 4.500E 00 | | 1.0 | 1.012E 03 | 1.020E 03 | | • | 4. 5005 00 | | | | | 2 | | • | | | " | 4.500E 00 | 4-500t DO |
| | : | 9-421K A3 | 2-507F 03 | 2.4036 03 | 20 3646.5 | DEL.TA F | 1.724E 01 | | | | | : | 2.474F 02 | 2.589E 02 | 2.702E 62 | | | | | 1-9905 01 | | 18 | 2.566E 02 | 2.725E 02 | 2.883E 02 | DE TA E | | | | | | 16 | 2.913E 02 | 2.913E 02 | 2.913E 02 | | | 2.402E C1 | 2.402F CI |
| | 40 | S. 120F 02 | 5-320F 02 | | | 1/0 | 1.0 32E 01 | 1.491E 01 | 1.950E 01 | | | 70 | \$-330E 02 | 5.326E 02 | 5.321E 02 | | 270 | 1.0326 01 | | 10 306 01 | | 20 | 5.310E 02 | 5.306E 02 | 5.301E 02 | 9/1 | 1.032E 01 | | 1.950E 01 | | | 64 | | | 5.300E 02 | | | | 2.037£ 01 |
| | STA | - | N | - |) | STA | - | ~ | m | | | STA | - | ~ | m | S.T.A | | • • | ٠, | , | | STA | - | N | m | STA | - | ~ | m | | | _ | | | | | | | 2 |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

PALL TEST PARAMETERS

-2-122 . BURNOUT AT DATA PT 6. BURNOUT SITE COND. AT DATA PT 7

| (| | | | | | | DATA | DATA POINTS | 15 | | | | | | | |
|-------|-----------|-----|-----------|------|-----------|----|-----------|-------------|-----------|-----------|------|-----------|-----|-----------|---|-----------|
| PCINT | 21-9d | , | P8-0L | = | 10-IN | z | 18-0LT | | > | £2 | | 12 | | 8 | | HT BAL |
| | 5.350€ | 20 | 5.3208 | 0.2 | - 81 0E | 9 | 3.110€ | 10 | 4.730E-01 | | E 00 | | 02 | 3.233E 00 | | AFF |
| | 5.330E 02 | 02 | 5.310€ 02 | . 02 | 1.860E 01 | 0 | 3.820E 01 | 16 | 4.700E-01 | | E 00 | | 0.2 | 5.503E 00 | | 35 |
| | 5.330E | 0.2 | 5.31 CE | 0.2 | - 940E | • | 4.940E | 9.1 | 4.710E-01 | | E 00 | | 03 | 8.933E 00 | | AE O |
| | 5.330E | 02 | 5.310E | 92 | .020E | 10 | 5.670E | 10 | 4.710E-01 | | E 00 | | E 0 | 1.0895 01 | | 7E 0 |
| | 5.320E | 0.2 | 5.3COE | 0.2 | . 11 OE | 0 | 6.400E | 10 | 4.720E-01 | | € 01 | | 0.3 | 1.281E 01 | | 25 0 |
| | 5.320E | 02 | 5.300E | 0.2 | . 140E | 0 | 6.700E | 9.1 | 4.720E-01 | | E 01 | | 60 | 1.361E 01 | | 0 30 |
| | 5. 320E | 0.2 | 5.300E | 0.2 | -140€ | • | 6.700E | = | 4.720E-01 | 1.1366 01 | E 01 | 1.280E 03 | 03 | 1.381E 01 | | 3.490E 00 |
| | 1 | 4 | 3000 | 3 | • | 5 | 2001.00 | = | 10-202/- | | 5 | | 0.0 | 1.391E 0 | - | |

| PARAMETERS | |
|------------|--|
| TEST | |
| LOCAL | |
| Z | |
| | |
| SE | |
| - | |

| | 55 | | | 3 5 | |
|------------|--------------------------------------|---------------------------------------|--------------|--------------------------------------|---------------------------------------|
| | 4.985E 01 5.005E 01 | | | VS 4.957E 01 | |
| | . 8 8 | | | | |
| | DEL TF 4.616E 02 5.058E 02 | | | DEL FF 5.329E 02 5.198E 02 | |
| | 9.060E-03 | | | 1.336E-02 1.369E-02 | |
| | . 88 | | | . 88 | |
| | 0/AP 4.182E 00 4.182E 00 | | | 0/AP 7.119E 00 7.119E 00 | |
| - | . 88 | | ~ | 000 | |
| DATA POINT | 0/A 4.110E 00 4.035E 00 | | DATA POINT 2 | 0/A 6.983E 00 6.983E 00 | |
| ATA | 05 | | ATA | 05 | |
| | T1 4.816E 02 5.347E 02 | | • | 7.6 5.547E 02 5.547E 02 | |
| | 2 6 | 00 | | 05 | 88 |
| | 5.800E 02 | 1.500E 00 | | 7.140E 02 | 1.500E 00 |
| | 55 | A 000 | | 35 | m 0 0 |
| | 78 2.027E 01 2.893E 01 | DELTA E 5.190E 09 5.190E 00 | | TB 2.187E 01 7.2 3.493E 01 7. | DFLTA E 6.910E 00 6.910E 00 |
| | 05 | 00 | | 95 | 00 |
| | 5TA PB 1 5.345E 02 2 5.325E 02 | STA L/D 1 1.524E 00 2 7.620E 00 | | STA PB 1 5-327E 02 2 5-313E 02 | STA L/D 1 1.524E 00 2 7.620E 00 |
| | 5TA 1 | 1 2 2 | | STA 1 2 | 2 2 |

| | | | 5 6 | | | 5 5 | | | 55 | | | | |
|---------------------|---|------------|--------------------------------|-------------------------|------------|--|---|------------|--------------------------------|-------------------------|------------|--------------------------------|------------------|
| | VS 4-973E 5.019E | | VS 4.978E 0 5.032E 0 | | | VS 4.993E 0 5.058E 0 | | | VS 4.994E 0 5.064E 0 | | | 4.984E 01 | |
| | | | * 10 | | | * 10 | | | 4 0 | | | | |
| | 17 E 02 | | TF 02 | | | TF 6 02 | | | TF 02 | | | TF 02 | |
| | DEL TF 5.500E 02 5.360E 02 | | 5.607E 02 | | | DEL TF 5.973E 02 5.587E 02 | | | DEL TF 6.155E 5.838E | | | 5.828E 02 5.838E 02 | |
| | E-02 | | E-02 | | | E-02 | | | E-02 | | | | |
| | 2.1016-02 2.1536-02 | | 2.511E-02 2.578E-02 | | | 2.775E-02 2.915E-02 | | | 2.903E-02 | | | I | |
| | 5 5 | | | | | 400 | | | 4 5 5 | | | . 5 5 | |
| | 9/AP 1.156E 01 | | 0/AP 1.408E 01 1.408E 01 | | | 0/AP 1.658E 1.658E | | | 0/AP 1.786E 01 1.786E 01 | | | 0/AP 1.786E 01 1.786E 01 | |
| n | 0/A 166 01 136 01 | • | 9/A SE 01 1E 01 | | 80 | * 5 5 | | ٠ | 4 55 | | ^ | 4 | |
| POINT | 0/A 1.136E 01 1.133E 01 | POINT | 0/A 1.385E 01 1.381E 01 | | THIO | 0/A 1.627E 01 1.627E 01 | | TAIO | 0/A 1.756E 01 1.756E 01 | | DINT | è :: | |
| DATA | 7 L 76 02 | DATA POINT | F 02 | | DATA POINT | T1 E 02 E 02 | | DATA POINT | 95 | | DATA POINT | _ | |
| HT-8-122 DATA POINT | 5.744E 02 5.815E 02 | | 5.870E 02 5.968E 02 | | | T1 6.255E 02 6.255E 02 | | | TI 6.45E 02 6.432E 02 | | | :: | |
| H | . N 88 | | 2 2 | 88 | | 0 0 0 | 00 | | 200 | 000 | | | 8 |
| | 5.250 5.320 1.500 1.500 1.500 | | 0.890E 02 | 1.500E | | 9.725E 9.720E | LE 1.500E | | 1.014E 03 | 1.500E | | | LE 1.:00E |
| | | | | | | . 5 5 | 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 0 1 0 0 0 0 0 1 0 | | . 5 5 | 310 | | | 9 |
| | 78 4-473E 01 4-473E 01 DELTA E 8-940E 00 | | 78 2.626E 01 5.062E 01 | 9.950E | | 2.825E 01 5.685E 01 | DELTA 1.090E 1.090E | | 78 2.900E 01 5.540E 01 | 06LTA E 1-138E 91 | | 78 2.444E 01 2.444E 01 | DELTA E |
| | ### O## | | P 02 | 00 | | M 92 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 88 | | 000 | 000 | | 0 0 0 0 | 10- |
| | 5.327E 02 5.313C 02 L/0 1.524E 00 7.620E 00 | | 5.127E 02 5.313E 02 | L/0 1.524E 7.620E | | 5.317E 02 5.303E 02 | 1.524E 00 7.620E 00 | | 5.317E 02 | L/0 1.5246 7.6206 | | 5.319E 02 | L/0 6.0965-01 |
| | S 2 2 4 1 4 | | STA 2 | 2 = 2 | | 51A 2 | 5 = 2 | | ST A 1 2 | STA 2 | | 2 1 2 | STA |

Report AFRPL-TR-67-208, Appendix C

555555

200000

3.4230 6.9267 1.0230 11.5310 1.5737 1.6737

7.5.2 7.5.2

0000000

OUTO SIDE HEAT TRANSFER TEST DA

ALL TEST PARAMETERS

1.105E-03 D = 0.116E-01 L = 0.630E 01 DELTA TD

POINT P3-1N P8-DUT TB-IN TH-OUT
1 2-959E 03 2-959E 03 7.010E 71 1.099E 02
3 2-945E 03 2-949E 03 7.030E 71 1.099E 02
4 2-949E 03 2-949E 03 7.030E 71 1.396E 02
5 2-949E 03 2-949E 03 7.020E 71 1.396E 02
5 2-946E 03 2-949E 03 7.020E 71 1.700E 02
7 2-946E 03 2-945E 03 7.020E 71 1.700E 02

Page 58

TEST SECTION - LOCAL TEST DARAMETERS

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-123, BURNOUT AT DATA DT A. MUDMANT SITE COLD.

| | | | | 140 | DATA BOINT S | | | | | |
|----------|-----------|-----------|------------|------------|--------------|-------------|-----------|-------------|-----------|---|
| TA | 0 | 10 | 2 | 1 | 4/0 | 9470 | ; | | | |
| _ | 2.950E 03 | 1.258E 02 | 9.190 € 02 | 6.793E 92 | 5.847F 20 | S. RABE 22 | 1.056 | E ASAT OF | 5 0 0 | |
| N | 2.950E 03 | 1.406E 02 | 9.420E 02 | 7.061F 92 | 5. 434F DO | A 3446. A | 27 36600 | 20 3050.0 | | - |
| n | 2.950E 03 | 1.554F 02 | 3.4105 92 | 7.05CE 32 | 5.837E 30 | 5.844E 20 | 1.0635-32 | 5.436F 32 | 5.1295 91 | 5 |
| ¥. | 97 | OFI TA F | 4 | | | | | | | - |
| - | 2.698E 01 | 1.797 | A. 000F 00 | | | | | | | |
| N | | 1.797E 01 | S.OCOF DO | | | | | | | |
| m | 4.1375 61 | 1.7975 21 | 6.030E 39 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA SOINT 6 | | | | | |
| 4 | m a | #C | - | 1 | *** | 8470 | : | | | |
| | 2.946E 03 | 1.3255 02 | 2.410E 22 | 5. 973F C2 | A. 5086 20 | 2000 | 1 | DEL TE | | |
| ~ | 2.9465 03 | 1.492E 02 | 9. BRIE 92 | 7.291F 32 | Seasar on | A TARKE OF | 1010111 | 3. 34 FE 32 | 5.1545 01 | - |
| E | 2.946E 03 | 1.658E 02 | 9.923E 92 | 7.3396 92 | 6.447E 00 | 5.385F 03 | 1-1246-92 | 5.679E 02 | 5.2425 21 | |
| ¥ | 6/2 | DELTA E | u i | | | | | | | |
| _ | 2.698E 01 | 1.396E 01 | 5.009E 00 | | | | | | | |
| ~ | 3.417E 01 | 1.936F 01 | 6.03E 00 | | | | | | | |
| m | 1:37E 01 | 1.906€ 01 | 6.000E 00 | | | | | | | |
| | | | | DATA | DATA POINT 7 | | | | | |
| 4 | 20 | 13 | 2 | | Š | | ; | | | |
| _ | 2.946E C3 | 1.035E 02 | | | | 4 7 7 7 7 7 | : • | DEL TF | | |
| ~ | 2.9465 03 | 1.0356 02 | • | | | 6 305E 5 | | ••• | | _ |
| m | 2.946E 03 | 1.0356 02 | | 3. | ÷ | 6.395E 00 | | | 5.070= 01 | |
| 4 | 1/0 | DELTA E | Ę | | | | | | | |
| _ | 1.439E 01 | 1.9065 21 | 5.303E 04 | | | | | | | |
| ~ | 1-4395 01 | | 6.939E C9 | | | | | | | |
| <u></u> | 1.439E 01 | 1.906F 01 | A. BOOK CA | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

VERALL TEST PARAMETERS

1-8-124. BURNOUT AT DATA PT 8. BURNOUT SITE COND. AT DATA PT 9

| | 6 1.255E 1.260E | -1.618E 00 1.267E 04 -1.263E 00 1.266E 04 -9.639E-01 1.250E 04 6.810E-01 1.236E 04 2.292E-01 1.232E 04 | | S 02 02 02 02 02 02 02 02 02 02 02 02 02 |
|-------------|-------------------------------------|--|--------------------------------------|--|
| | | 2 2 6 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | VS 1.9956 1.9976 |
| | 2.230E 1.192E | 2.3366 3.3176 5.3996 5.3456 6.8386 7.6256 7.8256 | | DEL TF 3.256E 01 3.116E 01 3.407E 01 |
| | | 1.376E 03 1.592E 03 1.776E 03 1.937E 03 2.162E 03 2.300E 03 | | 13.949E-02 4.123E-03 3.773E-02 |
| | | 1.792E 01 2.194E 01 2.610E 01 2.911E 01 3.589E 01 3.589E 01 | RAMETERS | 9/AP 1.286€ 00 1.286€ 00 |
| NTS | | 1.31 % 00 11.31 % 00 11.31 % 00 11.32 % 00 11.32 % 00 11.32 % 00 11.37 % 00 1 | DCAL TEST PA | 0/A 1.270 |
| DATA PCINTS | 9-840E 01 1-124E 02 | | TEST SECTION - LOCAL TEST PARAMETERS | 1.279E 02 1.279E 02 1.321E 02 |
| | 78-IN 9-290E 01 9-450E 01 | | TEST | 1.980E 02 1 1.990E 02 1 2.020E 02 1 L.E. 4.000E 00 |
| | 3.017E 03 3.019E 03 3.016E 03 | | | 78 9.531E 01 5.666E 01 9.806E 01 6ELTA F 4.840E 00 |
| | 3.123E 03 3.113E 03 3.113E 03 | | | PB 3.077E 03 9 3.050E 03 5 3.024E 03 9 1.70 1.266E 01 4 |
| | POINT 2 3 | ******** | | K- N K- N |

| | | | HT-8-124 DATA POINT | POINT 2 | | | | | |
|--|--|---|---|-------------------------------------|---|--|---|----------------------------------|-----|
| 3.072E 03 3.048E 03 3.025E 03 | 16 023E 02 1-068E 02 1-113E 02 | 4.590E 02 2 6.390E 02 2 6.390E 02 | 3.441E 02 3.172E 02 3.185E 02 | 0/A 6.729E 00 6.787E 00 | 0/AP 6.871E 00 6.871E 00 | 2.842E-02 3.266E-02 3.317E-02 | DEL TF 2.410E 02 2.104E 02 2.072E 02 | VS 2.010E 2.015E 2.019E | 02 |
| 555 | DELTA E 1.210E 01 1.210E 01 1.210E 01 | LE 4.000E 00 | | | | | | | |
| | | | DATA | DATA POINT 3 | | | | | |
| 3.065E 03 3.044E 03 | 1.087E 02 1.166E 02 1.244E 02 | 1.035E 03 | 4.769E 02 4.426E 02 4.526E 02 | 0/A 1.326E 01 1.339E 01 | 0/AP 1.348E 01 1.348E 01 1.348E 01 | 3.660E-02 4.134E-02 4.106E-02 | 06L TF 3.082E 02 3.260E 02 3.282E 02 | VS 2.027F 2.035E 2.044E | 02 |
| 555 | DELTA E 1.792E 01 1.792E 01 1.792E 01 | LE **000E 00 | | | | | | | |
| | | | DATA | DATA POINT . | | | | | |
| 3.053E 03 3.032E 03 | 1.139E 02 1.245E 02 1.353E 02 | 1.348E 03 1.305E 03 | 6.263E 02 5.63E 02 5.616E 02 | 0/A 1.865E 01 1.865E 01 | 0/AP 1.912E 01 1.912E 01 | H 3.731E-02 4.361E-02 4.487E-02 | 5.126E 02 4.385E 02 4.263E 02 | VS 2.031E 2.042E 2.053E | 200 |
| 555 | DELTA E 2-190E 01 2-190E 01 2-190E 01 | A.000E 00 | | | | | | | |
| | | | DATA | DATA POINT 5 | | | | | |
| 3.034E 03 3.014E 03 2.993E 03 | 1.216E 02 1.372E 02 1.526E 02 | TW 1.751E 03 1.717E 03 1.699E 03 | 11 4.881E 02 6.396E 02 6.135E 02 | 2.467E 01 2.480E 01 2.487E 01 | 2.536E 01 2.536E 01 2.536E 01 | 3.310E-02 3.611E-02 3.838E-02 | DEL TF 7.662E 02 7.023E 02 6.609E 02 | VS 2.033E 2.049E 2.065E | 222 |
| L/D 1.268E 01 1.993E 01 2.717E 01 | 2.610E 01 2.610E 01 2.610E 01 | LE 4.000E 00 4.000E 00 4.000E 00 | | | | | | | |

Page 62

| | | 9 | 200 | 95 | | | | | | | 1 | 20 | 2 0 | | | | | | | | • | | | | | | | | | | | A J | A. | • | | | | |
|---------------------|------|-----------|-----------|-----------|-------|--------|--------|---------|------------|-----|-----------|-----------|-----------|-------|-------|--------|----------|------------|-----|----------|-----------|-----------|-----------|-------|----------|--------|----------|--|------------|-----|-----------|------------|-----------|----------|-----|-----------|--------|-----------|
| | | | | | | | | | | | | | | | | | | | | | IF 02 | | E 02 | | | | | | | | | | | € 02 | | | | |
| | | > (| 2.017 | 2.052E | | | | | | | > | Z-005E | 2.049E | | | | | | | 8 | 2.001F | 2.026E | 2.052E | | | | | | | | SA | 2.054E | 2.054E | 2.054E | | | | |
| | | Def. 15 | AF 0.2 | | | | | | | | 4 | | | | | | | | | 16 | | | | | | | | | | | 4 | | | | | | | |
| | i | | A. TAAR | 6.25 | | | | | | | | | | | | | | | | DEL TF | • | • | • | | | | | | | į | _ | | • | • | | | | |
| | ; | E | 84.35-02 | 4.926E-02 | | | | | | : | r | | | | | | | | | x | | | | | | | | | | ; | r | | | | | | | |
| | | c | • | • | | | | | | | • | | • | | | | | | | | • | · | ċ | | | | | | | | | • | • | ; | | | | |
| | 9470 | 3.0825 01 | 3.062E 01 | | | | | | | | 1. 940F D | 1.940F 01 | 3.940E 01 | | | | | | | OVAP | | 4.512E 01 | 4.512E 01 | | | | | | | 900 | 1 1 1 1 1 | 4.512E 01 | 4-512F 01 | 10 3316. | | | | |
| 01NT 6 | 4/0 | | 3.055E 01 | 3,353E 01 | | | | | 7 TH 10 | *** | | 9. | • | | | | | SINT 8 | | 9/ A | • | • | • | | | | | | 6 INT | 4/0 | , | • 1 | | | | | | |
| A V | | | | 2 | | | | | DATA POINT | | | | | | | | | DATA POINT | | | • | • | • | | | | | | DATA POINT | | • | , 0 | 0 | • | | | | |
| 24 0 | - | | 7.777E 02 | 7.838E 02 | | | | | 8 | - | : | | | | | | | ă | | = | | | | | | | | | DA | Ξ | • | | | | | | | |
| HT-8-124 DATA POINT | | • | 7.7 | 7.8 | | | | | | | 0 | 0 | • | | | | | | | , | • | • | • | | | | | | | | .0 | : | | | | | | |
| | | | | 03 | | | 00 | | | 1. | , | | | | 0 | | | | , | • | | | | | 00 | | 00 | | | _ | | | | | | 00 | 00 | 00 |
| | | • | 1.847E | 1.051E | 7 | 4.000 | 4.000E | . 000E | | - | • | • | • | | 4.000 | 4.000 | A. 0.00F | | | 3 | • | . | • | | 4.000E | 4.000E | 4.000E | | | - | • | | • | | | | 4.000E | 4.000E |
| | | 0.5 | 95 | 02 | w | | | | | | 20 | 02 | 0.2 | | . 5 | | 10 | | | | 70 | 20 | 20 | w | 10 | 10 | 10 | | | | 20 | 20 | 20 | | w i | - | 61 | |
| | 16 | 1.245E 02 | 1.413E 02 | 1.582E 02 | DELTA | 2.911E | 2.911E | 2.91 IE | | 10 | 1.319E 02 | 1.530E 02 | 1.741E 02 | DELTA | 3.334 | 3.334E | 3.334 | | | B | 1.3695 02 | 3110 | 1.60 35 | DELTA | | | | | | 16 | 1.678E 02 | 1.878E 02 | 1.878E 02 | | | | | 3.569E (|
| | | 6.0 | 60 | 50 | | 0 | 0.0 | 010 | | | 93 | 63 | 20 | | 10 | 0 10 | | | | | | 2 6 | | | 10 | 010 | | | | | | | | | | | | |
| | 9 | 2.976E 03 | 2.959E 03 | 2.939 | 2 | | 1.9936 | 2.717E | | 8 | 2.912E 03 | 2.891E | 2.871E 03 | 2 | | 1.993€ | | | 0 | B 4020 | 20105 | 20000 | 312000 | 2 | 1.268E 0 | | 2.717E 0 | | | 8 | 2.829E 03 | | 2.829E 03 | | | 2 700C 01 | | Z. FUE DI |
| | STA | - | N | m | STA | - | ~ | • | | STA | - | 2 | m | STA | | N | m | | 414 | | | | | STA | | | | | | _ | | 8 | | | _ | | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

UL TEST PARAMETERS

HT-8-125. BURNDUT AT DATA PT 10. BURNOUT SITE COND AT DATA PT 11

| | HT BAL 3.052E 01 -1.035E 01 -6.939E 00 -5.904E 00 -1.127E 01 -1.127E 00 -1.475E 00 -1.475E 00 -8.689E-01 |
|--------|---|
| | 1 BA 0526 0356 9396 9396 9366 1276 1756 1756 1836, |
| | H - 9 N N - H - H - N N |
| | 000000000000000000000000000000000000000 |
| | 2.002E 1.487E 2.044E 3.515E 4.449E 6.234E 6.234E 7.156E |
| | N M M M M M M M M M M M M M M M M M M M |
| | 12 4.2006 1.0256 1.3496 1.6736 1.5406 1.9626 1.9666 |
| | 00000000000 |
| | 2. 236 E 2. 236 E 2. 236 E 2. 236 E 3. 801 E 3. |
| | ************************************** |
| | |
| | # 730E-01 5.730E-01 5.720E-01 5.720E-01 5.500E-01 5.500E-01 5.500E-01 5.510E-01 |
| yn. | 9.73 9.73 9.72 9.56 9.55 9.55 |
| PCINTS | - ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ |
| DATA P | 588688366688 |
| V | TB-CUT 1.19% 02 1.41% 02 1.41% 02 1.69% 02 1.72% |
| | |
| | - B - B - B - B - B - B - B - B - B - B |
| | TB-IM 8-96 E 01 9-140 E 01 9-140 E 01 9-130 E 01 9-130 E 01 9-130 E 01 9-100 E 01 8-030 E 01 8-010 E 01 |
| | |
| | 200000000000000000000000000000000000000 |
| | 2.69% 03 2.69% 03 2.69% 03 2.62% 03 2.62% 03 2.62% 03 2.63% 03 2.63% 03 2.60% 03 2.6 |
| | * ถ่าก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ก็ |
| | ,0000000000 |
| | 2.967E 03 2.925E 03 2.925E 03 2.925E 03 2.920E 03 2.930E 03 2.92E 03 2.962E 03 2.961E 03 2.961E 03 2.960E 03 |
| | _ |

Report AFRPL-TR-67-208, Appendix C

TEST SECTION - LOCAL TEST PARAMETERS 8-125. BURNDUT AT DATA PT 10. BURNDUT SITE COND AT DATA PT 11

| | | | | DATA | DATA POINT 1 | | | | | |
|-----|-----------|-----------|-----------|-----------|--------------|-----------|------------|-----------|------------|----|
| *** | : | • | - | 11 | 4/6 | 9/46 | I | DEL TF | S A | |
| - | 2.034F 01 | 9.202F 01 | 1.800F 02 | 1.2706 02 | 9.3455-01 | 9.6045-01 | 2.74 7E-02 | 3.496E 01 | No. O | 02 |
| . ~ | 2.900E 03 | 9-290E 01 | 1.790E 02 | 1.259€ 02 | 9-550E-01 | 9.604E-01 | 2.908E-02 | 3.303€ 01 | | 02 |
| 7 | 2.893E 03 | 9.376E 01 | 1.790E 02 | 1.259E 02 | 9.550E-01 | 9.604E-01 | 2.988E-02 | 3.215¢ 01 | 1.489€ 0 | 95 |
| *** | | 9 11 10 | | | | | | | | |
| - | - | | 5.000E 00 | | | | | | | |
| * | | | 5.000E 00 | | | | | | | |
| •• | 3.4425 01 | 5.230E 00 | 5.000E 00 | | | | | | | |
| | | | | DATA | DATA POINT 2 | | | | | |
| | | | į | ; | ; | | : | | 3 | |
| STA | | 9 | - | | 4 | O/AP | Ι. | חבר | | |
| - | | 1.669E 02 | | 3.896E 02 | 6.777E 00 | 6-857E 00 | 2.425E-02 | | | 20 |
| ~ | | 1.125E 02 | | 3.934E 02 | 6. 76 9E 00 | | 2.441E-02 | 2.810E 02 | | 20 |
| ~ | 2.659E 03 | 1.181E 02 | 7.300E 02 | 4.262E 02 | 6.69 9E 00 | 6.857E 00 | 2.226E-02 | 3.081E 02 | 1.5065 0 | 95 |
| STA | 170 | DELTA E | 3 | | | | | | | |
| - | - | 1.5306 01 | S.000E 00 | | | | | | | |
| ~ | | | | | | | | | | |
| m | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| STA | : | 2 | 2 | 11 | 4/0 | O/AP | r | DEL TF | S A | |
| - | 2.061E 03 | 1.1916 92 | 1.105€ 03 | 5.830€ 02 | 1. 2006 31 | | 2.828E-02 | 4.639E 02 | | 05 |
| N | 2.846E 03 | 1.291E 02 | | 5.885E 02 | 1.279€ 01 | 1.312E 01 | 2.856E-02 | | | 05 |
| P) | 2.835E 03 | 1.392E 02 | 1.151E 03 | 6.451E 02 | 1.263E 01 | 1.312E 01 | 2.5936-02 | 5.059E 02 | 1.5236 0 | 05 |
| STA | \$ | DELTA E | re F | | | | | | | |
| - | | 2.224E 01 | 00 3000 C | | | | | | | |
| N | | 2.224E 01 | 5.000E 00 | | | | | | | |
| m | 3.4426 01 | 2.224E 01 | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| STA | 8 | 5 | 1.0 | 11 | 4/0 | O/AP | I | DEL TF | SA | |
| - | 2.856E 03 | 1.249E 02 | 1.293E 03 | 6.827E 02 | 1.574E 01 | | 2.90 7E-02 | 5.577E 02 | | 05 |
| ~ | 2.844E 03 | 1.371E 02 | 1.290E 03 | 6.785E 02 | 1.575E 01 | 1.621E 01 | 2.994E-02 | 5.414E 02 | | 05 |
| m | 2.832E 03 | 1.493E 02 | 1.370E 03 | 7.875E 02 | 1.545E 01 | 1.621E 01 | 2.540E-02 | 6.381E 02 | 1.527E 0 | 05 |
| STA | 5 | DELTA E | 97 | | | | | | | |
| - | 100 | | 5.000E 00 | | | | | | | |
| ٠ ، | | | | | | | | | | |
| m | | | | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-125. BURNOUT AT DATA PT 10. BURNDUT SLIF COM AT DATA AT ...

| | | | | DAT | DATA POINT 5 | | | | | |
|----------|-------------|--------------|------------|-----------|---|-----------|------------|-------------|---------|-----|
| STA | | 18 | 2 | | | | | | | |
| # | 2.850E 03 | 1.345E 02 | 1 - 52 | 8.869 | * | dV/D | I | DEL TF | 5 4 | |
| ~ | 2.838E 03 | 1-502E 02 | | | 76.05 | | Z-446E-02 | 7.524E 02 | 1.51 0E | 02 |
| n | 2.826E 03 | 1.659E C2 | 1.587E | | 1.755E 01 | 1.0405 01 | Z-440E-02 | 7.541E 02 | 1. 522E | 05 |
| STA | 9/1 | 061 74 6 | | | | | 70-3005-7 | 7.979E 02 | 1.534E | 20 |
| - | 1 | | | | | | | | | |
| ~ | | | 5-000E 00 | | | | | | | |
| •• | | | 5.000E | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT A | | | | | |
| | | | | | | | | | | |
| - | 2.4 305 6.5 | - TB | - | 11 | 49 | O/AP | 3 | | | |
| ٠, | 2.8365 03 | 1.359E 02 | 1.585E 03 | | 1.987E 01 | 2.052E 01 | 2.794F-02 | 7. 14 75 92 | | |
| | 2.0105 03 | 10251E 02 | | | 1.980E 01 | 2.052E 01 | 2.753F-02 | | | 20 |
|) | 50 341000 | 1.00 JE 02 | 1.665E 03 | 9.782E 02 | 1.9618 01 | | 2.533E-02 | A.000F A2 | 1.512E | 20 |
| STA | 9/1 | DELTA F | 9.1 | | | | | | | 2 |
| - | 1.9936 01 | | A. 000E DA | | | | | | | |
| N | 2.717E 01 | | | | | | | | | |
| m | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 7 | | | | | |
| STA | • | | | | | | | | | |
| - | 2.830F 07 | 1.40 20 00.1 | | | 4/0 | Q/AP | = | DEL TE | 3 | |
| ~ | 2.81AF 03 | 20 20 20 1 | | 1.034E 03 | 2.356E 01 | 2.449E 01 | 2.741E-02 | A. GTAF 02 | 200 | • |
| M | 2.804F AT | 20 20 20 | | 8.494E 02 | 2.401E 01 | 2.449E 01 | 3.54 15-02 | 4.0125.02 | | 20 |
| , | 50 3000 | 1./64E 02 | 1.836E 03 | 1.0416 03 | 2.354E 01 | | 2-6336-02 | 8.64% 02 | 1.53115 | 2 6 |
| TA | 2 | DELTA E | 4 | | | | | | | 4 |
| - | 1.993E 01 | | S. 000F 00 | | | | | | | |
| N | 2.717E 01 | | | | | | | | | |
| n | 3.442E 01 | | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT | | | | | |
| Y | 6 | - | | | | | | | | |
| _ | 2.830E 03 | 1.474F 02 | 2.0476 | 11 | 5 | Q/AP | r | DEL TF | 2 | |
| ~ | 2.016E 03 | 1. ABOF AS | 20000 | 1.145E 03 | 2.778E 01 | 2.875E 01 | 2.883E-02 | 9.9755 02 | | , |
| - | 2-806E 03 | 1-887F 02 | 1.00% 03 | 9.256E 02 | 2.823E 01 | 2.875E 01 | 3.7965-02 | 7.5755 02 | | 700 |
| | | | • | • | • | 2.875E 01 | • | 0. | | 200 |
| 4 | 2 | DELTA E | 1 | | | | | | | ı |
| | 1.993E 01 | 3.513E 01 | 5.000E 00 | | | | | | | |
| ~ | 2.717E 01 | | 5.000E 00 | | | | | | | |
| , | | | | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS
-8-125. BURNOUT AT DATA PT 10. BURNOUT SITE COND AT DATA PT 1.

| | | | | DATA | DATA POINT 9 | | | | | |
|----------|------------------------|-----------------------------------|--|-----------------|---------------|-----------|-----------|---------------------|------------------------|--|
| STA | | TB 1.532E 02 | 7# 2-165E 03 | T1 1.171E 03 | 3.11.6 | 3.202E 01 | 3.147E-02 | DEL TF 1.018E 03 | VS 1.502E 02 | |
| NM | 2.806E 03 | 1.990E 02 | :: | | • • | 3.2025 01 | • | :: | | |
| 2 - 2 | 1.993E 2.717E | 06LTA F 3.733E 01 3.733E 01 | | | | | | | | |
| - | 3.442E 01 | 3.7336 01 | S. 000E 00 | 4149 | OF THE COLUMN | | | | | |
| | | | | | | | | | | |
| STA | | 1.546E 02 | 7 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. | TI 1.211E 03 | 3.224E 01 | 3.301E 01 | 3.124E-02 | 1.057E 03 | | |
| N M | 2.817E 03 2.805E 03 | 1.784E 02 2.019E 02 | •• | ••• | •• | 3.301E 01 | ••• | | 1.520E 02 1.539E 02 | |
| STA | L/0 | DELTA E | S.000E 00 | | | | | | | |
| · N m | | 3.801E 01 | | | | | | | | |
| | | | | DATA | DATA POINT 11 | | | | | |
| STA | • | - | ** | I | 4/0 | OVAP | 1 | DEL TF | 82 | |
| | 2.80 | 2.043E 02 | • | • | • | 3.301E 01 | • | • | 1.541E 02 | |
| M | 2.604E 03 | 2.043€ 02 | | : | | 3.301E 01 | | | 1.541E 02 | |
| STA 1 | | DELTA E 3.801E 01 3.801E 01 | S.000E 00 | | | | | | | |
| ~ | 3.514E 01 | 3.401E 01 | \$.000E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

RALL TEST PARAMETERS

8-126. BURNOUT AT DATA PT 5. BURNOUT SITE COND. AT DATA PT 6

| AF = 0.259F-03 D = 0.182E-01 L = 0.600E 01 DELTA TO = 0. DATA PCINTS WT PB-IN PB-OUT TB-IN TB-OUT W E2 12 0P 1.426E 03 1.415E 03 1.000E 02 1.017E 02 7.550E-01 1.516E 01 8.750E 02 1.259E 01 1.425E 03 1.414E 03 1.025E 02 1.721E 02 7.550E-01 2.19E 01 1.165E 03 2.429E 01 1.422E 03 1.412E 03 1.024E 02 1.721E 02 7.550E-01 2.734E 01 1.355E 01 1.422E 03 1.412E 03 1.024E 02 1.721E 02 7.540E-01 2.734E 01 1.355E 03 3.425E 01 1.422E 03 1.412E 03 1.024E 02 1.721E 02 7.550E-01 2.734E 01 1.355E 03 3.425E 01 | | | | | 0 | _ | _ | - | |
|--|-------|------|-------|-------|-------|-------|-------|-------|-------|
| PB-IN PB-DUT TB-IN TB-DUT W E2 120E 01 DELTA TO = 0. DATA PCINTS PB-IN PB-DUT TB-IN TB-DUT W E2 120E 02 1.425E 03 1.415E 03 1.001E 02 1.462E 02 7.550E-01 1.516E 01 8.750E 02 1.422E 03 1.412E 03 1.025E 02 1.405E 02 7.550E-01 2.606E 01 1.165E 03 1.422E 03 1.412E 03 1.024E 02 1.721E 02 7.520E-01 2.606E 01 1.354E 03 1.422E 03 1.412E 03 | | | | • | 9 | 0 36 |)E 0 | 3 | 4 |
| PB-IN PB-DUT TB-IN TB-DUT W E2 120E 01 DELTA TO = 0. DATA PCINTS PB-IN PB-DUT TB-IN TB-DUT W E2 120E 02 1.425E 03 1.415E 03 1.001E 02 1.462E 02 7.550E-01 1.516E 01 8.750E 02 1.422E 03 1.412E 03 1.025E 02 1.405E 02 7.550E-01 2.606E 01 1.165E 03 1.422E 03 1.412E 03 1.024E 02 1.721E 02 7.520E-01 2.606E 01 1.354E 03 1.422E 03 1.412E 03 | | | | ð | 2.30 | 1.250 | 2.428 | 3.425 | 3.550 |
| AF = 0.259E-03 D = 0.182E-01 L = 0.600E 01 DETA DATA PCINTS PB-IN PB-OUT TB-IN TB-DLT 1.426E 03 1.415E 03 1.001E 02 1.017E 02 7.550E-01 1.516E 01 1.426E 03 1.416E 03 1.025E 02 1.459E 02 7.550E-01 2.196E 01 1.426E 03 1.412E 03 1.024E 02 1.721E 02 7.550E-01 2.196E 01 1.426E 03 1.412E 03 1.024E 02 1.730E 02 7.550E-01 2.734E 01 | • | | | 1 | 20 | 02 | 03 | 0.3 | 6.0 |
| AF = 0.259E-03 D = 0.182E-01 L = 0.600E 01 DETA DATA PCINTS PB-IN PB-OUT TB-IN TB-DLT 1.426E 03 1.415E 03 1.001E 02 1.017E 02 7.550E-01 1.516E 01 1.426E 03 1.416E 03 1.025E 02 1.459E 02 7.550E-01 2.196E 01 1.426E 03 1.412E 03 1.024E 02 1.721E 02 7.550E-01 2.196E 01 1.426E 03 1.412E 03 1.024E 02 1.730E 02 7.550E-01 2.734E 01 | | | 9 | 7 | 20E | 30E | 55E | 34E | 72F |
| AF = 0.259E-03 D = 0.182E-01 L = 0.600E 01 DETA DATA PCINTS PB-IN PB-OUT TB-IN TB-DLT 1.426E 03 1.415E 03 1.001E 02 1.017E 02 7.550E-01 1.516E 01 1.426E 03 1.416E 03 1.025E 02 1.459E 02 7.550E-01 2.196E 01 1.426E 03 1.412E 03 1.024E 02 1.721E 02 7.550E-01 2.196E 01 1.426E 03 1.412E 03 1.024E 02 1.730E 02 7.550E-01 2.734E 01 | ¥ | | | | • | 9.7 | 1:1 | 1.3 | 1.3 |
| PB-IN PB-DUT TB-IN TB-DATA PCINTS PB-IN PB-DUT TB-IN TB-DATA PCINTS 1-4266 03 1-4196 03 1-0016 02 1-0176 02 7-5506-01 1-5166 01 1-428 03 1-4126 03 1-0256 02 1-428 02 7-5506-01 2-1986 01 1-428 03 1-4126 03 1-0246 02 1-7366 02 7-5506-01 2-5686 01 1-428 03 1-4126 03 1-0246 02 1-7366 02 7-5506-01 2-5686 01 1-428 03 1-4126 03 1-0246 02 1-7366 02 7-5506-01 2-5436 01 1-428 03 1-4126 03 1-0246 02 1-7366 02 7-5506-01 2-5436 01 2- | DELT | | | | | _ | _ | _ | _ |
| PB-IM PB-OUT TB-IM TB-OUT 1-25E-01 L = 0.600E 0 DATA PCINTS PB-IM PB-OUT TB-IM TB-OUT 1-25E 02 7.550E-01 1-425E 03 1-415E 03 1-001E 02 1-25E 02 7.550E-01 1-425E 03 1-412E 03 1-024E 02 1-751E 02 7.550E-01 1-425E 03 1-412E 03 1-024E 02 1-751E 02 7.550E-01 1-422E 03 1-412E 03 1-024E 02 1-751E 02 7.550E-01 | _ | | | | 5 | ě | 9 | E 0 | ė, |
| PB-IM PB-OUT TB-IM TB-OUT 1-25E-01 L = 0.600E 0 DATA PCINTS PB-IM PB-OUT TB-IM TB-OUT 1-25E 02 7.550E-01 1-425E 03 1-415E 03 1-001E 02 1-25E 02 7.550E-01 1-425E 03 1-412E 03 1-024E 02 1-751E 02 7.550E-01 1-425E 03 1-412E 03 1-024E 02 1-751E 02 7.550E-01 1-422E 03 1-412E 03 1-024E 02 1-751E 02 7.550E-01 | | | - | | - | . 516 | . 198 | . 668 | .736 |
| PB-IN PB-OUT TB-IN TB-DIT O 1.422E 03 1.412E 03 1.024E 02 1.422E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.4124E | 5 | | | | | | | | |
| PB-IN PB-OUT TB-IN TB-DIT O 1.422E 03 1.412E 03 1.024E 02 1.422E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.4124E | 300 E | | | 3 | 5 | 101 | ē | ē | ē |
| PB-IN PB-OUT TB-IN TB-DIT O 1.422E 03 1.412E 03 1.024E 02 1.422E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.4124E | 9.0 | | | 20.00 | | 550E | 26 OE | 24 OE | 52 DE |
| PB-IN PB-OUT TB-IN TB-DIT O 1.422E 03 1.412E 03 1.024E 02 1.422E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.024E 02 1.721E 03 1.412E 03 1.4124E | * | S | | | | • | - | | - |
| PB-IN PB-OUT TB-IN 1-425E 03 1-624E 02 1-422E 03 1-412E 03 1-624E 02 1-525E 03 1-625E 02 1-625E 03 1-625E | _ | PCIA | | 2 | | 20 | 2 | 2 | 02 |
| PB-IN PB-OUT TB-IN 1-425E 03 1-624E 02 1-422E 03 1-412E 03 1-624E 02 1-525E 03 1-625E 02 1-625E 03 1-625E | | 1 | 750 | * | | ď | × | Ä | ¥ |
| PB-IN PB-OUT TB-IN 1-425E 03 1-425E 03 1-412E 03 1-024E 02 1-425E 03 1-412E 03 1-024E 02 1-422E 03 1-412E 03 1-024E 02 1-422E 03 1-412E 03 1-024E 02 1-422E 03 1-412E 03 1-024E 02 | _ | 5 | - | 1001 | | 07.1 | . 49 | 1.72 | 1.78 |
| PB-IN PB-OUT 1-426 03 1-4156 03 1-4256 03 1-4156 03 1-4256 03 1-4166 03 1-4256 03 1-4126 03 1-426 03 1-4126 03 | E-0 | | | | | | | | |
| PB-IN PB-OUT 1-426 03 1-4156 03 1-4256 03 1-4156 03 1-4256 03 1-4166 03 1-4256 03 1-4126 03 1-426 03 1-4126 03 | . 182 | | Z | 5 02 | | | 0.0 | 95 | 20 3 |
| PB-IN PB-OUT 1-426 03 1-4156 03 1-4256 03 1-4156 03 1-4256 03 1-4166 03 1-4256 03 1-4126 03 1-426 03 1-4126 03 | • | | 18- | 00 | 9 | | K 20 | 95 | 0246 |
| PB-IN PB-OUT 1-426 03 1-4156 03 1-4256 03 1-4156 03 1-4256 03 1-4166 03 1-4256 03 1-4126 03 1-426 03 1-4126 03 | | | | - | | : | • | • | - |
| PB-1N 1-426E 03 1-429E 03 1-429E 03 1-429E 03 | | | - | 03 | | 3 6 | 2 (| 2 5 | 2 |
| PB-1N 1-426E 03 1-429E 03 1-429E 03 1-429E 03 | | | -0 | 156 | 35 | | | 2 | - |
| PB-1N 1-426E 03 1-429E 03 1-429E 03 1-429E 03 | .03 | | 2 | 1.4 | 401 | | | | |
| | .29E | | | | | | | | |
| | 0.5 | | 2 | 9 | 9 | 4 | | | 9 4 |
| | | | \$ | -426 | . 425 | | | | |
| 5 | 4 | | | | - | - | • - | • | • • |
| 0 - Nn + m | | | POINT | _ | ~ | * | • | | , , |

2.910E 03 2.914E 03 2.918E 03 2.910E 03 2.902E 03

| 10 | |
|----------|--|
| Ľ | |
| RS | |
| 144 | |
| = | |
| _ | |
| ш | |
| 3 | |
| ARAME | |
| - | |
| œ | |
| = | |
| - | |
| 4 | |
| | |
| | |
| _ | |
| ES | |
| 44 | |
| _ | |
| - | |
| | |
| | |
| - | |
| • | |
| ğ | |
| × | |
| 0 | |
| | |
| _ | |
| | |
| | |
| • | |
| _ | |
| ž | |
| | |
| _ | |
| - | |
| - | |
| | |
| ~ | |
| 6 | |
| ch. | |
| ٠. | |
| | |
| - | |
| | |
| ., | |
| w | |
| = | |
| | |

| | 1.020E-02 | |
|--------------|--------------------------------|-----------------------------------|
| | 0/AP 5.619E-01 5.619E-01 | |
| DATA POINT 1 | 2 5.065E-01 2 5.071E-01 | |
| DATA | 71 1.562E 02 1.542E 02 | |
| | . 00 | 00 |
| | 1.790E 02 | 6.000E 00 |
| | 2 2 | m 000 |
| | 78 1.011E 02 1.014E 02 | DELTA E 6.060E 00 6.060E 00 |
| | 25 | |
| | 1.419E 03 | 1.720E 01 |
| | | |

VS 4.657E 01 4.658E 01

| 4.7(3E 01 | | | | VS 4.745E 01 4.764E 01 | | | | | | | | | | |
|----------------------------------|-----------------------------------|------------|-------------------------------|------------------------------|-----------------------------------|-------------|--|---|--|---|---|---|---|--|
| 06L TF 3.1916 02 3.1106 02 | | | 08L 7F | 5.125E 02 5.080E 02 | 5.125E 02 5.080E 02 | 5.080E 02 | 5.125E 02 5.080E 02 DEL 7F 5.703E 02 | 5.080E 02 5.080E 02 DEL 7F 5.703E 02 | 5.080E 02 5.080E 02 DEL TF 5.703E 02 5.868E 02 | 5.080E 02 5.080E 02 5.703E 02 5.868E 02 6.127E 02 | 5.080E 02 5.080E 02 5.703E 02 5.868E 02 5.784E 02 6.127E 02 | 5.080E 02 5.080E 02 5.703E 02 5.868E 02 6.127E 02 | 5.080E 02 5.080E 02 5.703E 02 5.868E 02 6.127E 02 | 5.080E 02 5.080E 02 5.703E 02 5.868E 02 6.127E 02 6.127E 02 |
| 9.566E-03 | | | 1.153E-02 | 1.1635-02 | 1.1636-02 | 1.1636-02 | 1.16 3E-0 2 H 1.401E-0 2 1.400E-0 2 | 1.1636-02 H 1.6016-02 1.4206-02 | 1.163E-02 1.461E-02 1.420E-02 | 1.163E-02 1.461E-02 1.420E-02 H 1.497E-02 1.413E-02 | 1.1636-02 1.4616-02 1.4206-02 1.4976-02 | 1.1636-02 1.4616-02 1.4206-02 1.4976-02 1.4136-02 | 1.163E-02 1.401E-02 1.420E-02 1.437E-02 1.413E-02 | 1.163E-02 1.401E-02 1.420E-02 1.413E-02 1.413E-02 |
| 3.060E 00 | | | 0/AP 5.906E 00 | 5.906E 00 | S. 906E 00 | 5. 40 6E 00 | 5.906E 00 Q/AP 8.332E 00 6.332E 00 | 5.906E 00 0/AP 8.332E 00 | 5.906E 00 0/AP 6.332E 00 | 0.4P 6.332E 00 6.332E 00 6.568E 00 6.658E 00 | 0/AP 0.332E 00 0.332E 00 0.AP 0.AP 0.650E 00 | 0.4P 0.4P 0.332E 00 0.4P 0.650E 00 6.650E 00 | 5. 90 6E 00 6. 33 2E 00 6. 33 2E 00 6. 65 9E 00 | 0.4P 0.32E 0.4P 0.4P 0.4P 0.4P 0.4P 0.4P 0.4P 0.65E 0.65E |
| 3.196£ 00 3.200€ 00 | | OINT 3 | 0/A 6.133E 00 6.127E 00 | | | 1 | 3 2 2 | 9 % % | 9 2 2 | 26 | % % % % % % % % % % % % % % % % % % % | 26 | % % % % % % % % % % % % % % % % % % % | 2 |
| 4.362E 02 4.329E 02 | | DATA POINT | T1 6-443E 02 6-477E 02 | | | 0. | | 4 | | | 4 | 4 | 4 4 | 11 11 144E 02 444E 02 154E 02 754E 02 |
| | 000 | | 200 | ! | 00 | | | 200 200 | , nn ee | | 00 00 00 00 | 00 NN 00 NN 00 | 00 NN 00 NN 00 | 00 NN 00 NN 00 |
| 5.430E 02 5.400E 02 | 6.000E | | T. 6.290E | 6. 320E | 6. 000E | 6.000e | 8.320£ 02 LE 6.000E 00 6.000E 00 78 9.680E 02 9.920E 02 | 6.000 E C C C C C C C C C C C C C C C C C | 9-320g 6-000g 9-9-20g 6-000g | 6.320E 02 1.030E 03 1.030E 03 | 6.0006 6.0006 6.0006 6.0006 6.0006 6.0006 6.0006 | 6.000 | 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 | 8-330 6-000 6- |
| 1-171E 02 1-211E 02 | DELTA E 1-516E 01 1-516E 01 | | 1.319E 02 | | DELTA E 2-150E 01 2-190E 01 | 2.198E 01 | DELTA E 2.150E 01 2.190E 01 1.460E 02 1.576E 02 1.576E 02 | 2.150E 01 2.150E 01 2.190E 01 1.460E 02 1.576E 02 06LTA E 2.660E 01 | 76 1.460E 02 1.460E 02 1.576E 02 1.576E 02 2.660E 01 | DELTA E 2.156E 01 2.156E 01 1.460E 02 1.576E 02 0ELTA E 2.660E 01 2.660E 01 1.500E 02 1.527E 02 | 76 1.460E 01 1.460E 02 1.576E 02 1.576E 02 1.576E 02 2.669E 01 1.627E 02 06LTA E 2.669E 01 2.669E 01 | 78 1.460E 01 2.198E 01 1.460E 02 1.576E 02 1.576E 02 2.660E 01 2.660E 01 1.627E 02 1.627E 02 1.627E 02 2.736E 01 | DELTA E 2.156E 01 2.156E 02 1.576E 02 05LTA E 2.666E 01 2.666E 01 2.666E 01 2.666E 01 2.666E 01 2.656E 01 2.656E 01 2.656E 01 2.656E 01 2.656E 01 2.656E 01 | DELTA E 2.196E 01 2.196E 02 1.576E 02 06LTA E 2.666E 01 1.576E 02 06LTA E 2.666E 01 1.576E 02 1.767E 02 1.767E 02 |
| 1.4196 03 | 1.720€ 01 2.179€ 01 | | PB 1.417E 03 1.416E 03 | | 1.720E 01 | | | 1.7206 01 2.1796 01 1.4156 03 1.4146 03 1.7206 01 2.1796 01 | | | 1.720E 01 2.179E 01 1.415E 03 1.414E 03 1.720E 01 2.179E 01 1.416E 03 1.414E 03 1.414E 03 1.720E 01 2.179E 01 | 1.7266 01 2.1796 01 1.4156 03 1.4146 03 1.4146 03 1.4146 03 1.7206 01 1.7206 01 1.7206 01 | 1.7266 01 1.4156 01 1.4156 03 1.4146 03 1.4146 03 1.4146 03 1.7266 01 | 1.720E 01 2.179E 01 1.415E 03 1.416E 03 1.416E 03 1.720E 01 2.179E 01 2.179E 01 2.179E 01 2.179E 01 |
| - ~ | ST - 2 | | STA - S | | 174 | | | | The state of the s | | | | | |

LIQUID SIDE HEAT TRANSFER TEST DATA

PERALL TEST PARAMETERS

| ā |
|--------|
| < |
| TAC |
| 0 |
| - |
| • |
| ė |
| QN QS |
| ō |
| w |
| E |
| 47 |
| 5 |
| URMOUT |
| ě |
| 8 |
| |
| • |
| - |
| • |
| DATA |
| š |
| _ |
| • |
| - |
| õ |
| ž |
| 2 |
| - |
| 2 |
| 3-127 |
| જ |
| E- |

| 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | | | |
|---|------------|--|-----------------------------------|
| | | | |
| 6 2.9776 2.9776 3.0046 3.0056 2.9756 2.9486 2.9486 | | | |
| | | | |
| HT GAL -6.684E 00 -7.619E 00 -9.353E 00 -9.354E 00 -1.014E 01 -1.017E 01 -1.017E 01 | | . W W W | |
| - 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | VS 4.763E 4.775E | |
| | | | |
| 1.000000000000000000000000000000000000 | | | |
| | | DEL TF 1-007E 1-056E 1-022E | |
| 3 3 3 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 | | | |
| 4 + 4 2 0 6 6 1 1 0 6 6 1 1 0 6 6 1 1 0 6 6 1 1 0 6 6 1 0 6 6 1 0 6 6 6 1 0 6 6 6 1 0 6 6 6 1 0 6 6 6 1 0 0 6 6 6 1 0 0 6 6 6 1 0 0 6 6 6 1 0 0 6 6 6 1 0 0 6 6 6 1 0 0 6 6 6 1 0 0 6 6 6 1 0 0 6 6 6 6 | | 3E-0 | |
| * 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | | H-113E-02 1-061E-02 1-097E-02 | |
| 0000000 | | | |
| 4.6406 7.0706 9.1306 1.1376 1.3866 1.3866 1.3866 | | 0/AP 21E 00 21E 00 21E 00 | |
| ************************************** | | 0/AP 1-121E 00 1-121E 00 | |
| 0000000 | _ | | |
| 3.090E-01 3.090E-01 3.080E-01 3.160E-01 3.150E-01 3.150E-01 3.000E-01 3.000E-01 | _ | ZE O | |
| TB-DUT W TB-DUT W E2 10. 1.093E 02 3.090E-01 4.640E 02 1.241E 02 3.090E-01 7.070E 02 1.37E 02 3.080E-01 9.130E 02 1.35E 02 3.160E-01 1.130E 02 1.55E 02 3.150E-01 1.130E 02 1.635E 02 3.150E-01 1.130E 02 1.617E 02 3.060E-01 1.30EE 02 1.817E 02 3.060E-01 1.30EE 02 1.817E 02 3.060E-01 1.30EE 03 1.817E 02 3.060E-01 1.30EE 04 1.817E 02 3.060E-01 1.30EE 05 1.817E 02 3.060E-01 1.30EE 06 1.817E 02 3.060E-01 1.30EE 07 1.817E 02 3.060E-01 1.30EE 08 1.817E 02 3.060E-01 1.30EE 09 1.817E 02 3.060E-01 1.30EE 09 1.817E 02 3.060E-01 1.30EE | IN | 0/A 1-132E 00 1-128E 00 1-129E 00 | |
| 1 6000000 | DATA POINT | | |
| 16007 | 3 | 71 56 02 96 02 | |
| 200 | | 2.045E 02 2.119E 02 2.109E 02 | |
| TEST 022 | | | - 5 3 - 1 |
| 10.01 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | | T 000 | |
| | | 2.650E 2.720E 2.710E | 4.000E |
| _ n n n n n n n n n n n n n n n n n n n | | | |
| PB-DUT 2.0256 2.0256 2.0256 2.0206 2.0216 2.0216 2.0216 2.0106 2.0106 | | TB 02 | M 0 0 0 |
| | | 1.030E 02 1.063E 02 1.067E 02 | CELTA E 4.640E 4.640E 6 |
| | | | - 4 4 4 |
| PB-1M PB | | F 03 | 000 |
| | | 2.033€ 03 2.030€ 03 2.027€ 03 | L/0 1.2666 1.953E 2.717E |
| 0 - N M 4 N 4 F B O | | | |
| 0 - N M 4 N 4 F 40 P | | STA 2 2 2 3 | STA |

| 2.391E 00 2.361E 00 0.018E-03 2.647E 02 4.796E 01 2.392E 00 2.361E 00 0.013E-03 2.679E 02 4.796E 01 2.393E 00 2.361E 00 0.013E-03 2.679E 02 4.796E 01 2.393E 00 2.361E 00 0.013E-03 2.679E 02 4.796E 01 3.735E 00 3.663E 00 9.13E-03 4.779E 02 4.793E 01 3.731E 00 3.663E 00 9.13E-03 3.690E 02 4.793E 01 3.731E 00 3.663E 00 9.13E-03 3.690E 02 4.793E 01 3.731E 00 4.450E 00 9.37E-03 4.666E 02 4.906E 01 3.640 00 4.450E 00 9.637E-03 4.524E 02 4.906E 01 3.640 00 4.450E 00 9.637E-03 4.524E 02 4.906E 01 3.640 00 4.450E 00 9.637E-03 4.524E 02 4.906E 01 3.640 00 4.450E 00 9.637E-03 4.75E 02 4.906E 01 3.640 00 5.413E 00 9.680E-03 5.475E 02 4.905E 01 3.6413E 00 5.413E 00 1.021E-02 5.301E 02 4.957E 01 3.6413E 00 5.413E 00 1.721E-02 5.301E 02 4.957E 01 | - |
|--|----------------|
| 0./A 0./AP H DEL TF VS 1.0. 3.60.5E 00 0.004E-03 2.622E 02 4.01E 1.0 3.60.5E 00 0.13.E-03 2.622E 02 4.01E 1.0 3.60.5E 00 0.13.E-03 3.00.0E 02 4.03.E 1.0 3.60.5E 00 0.12.7E-03 3.00.E 02 4.03.E 1.0 3.60.5E 00 0.12.7E-03 3.00.E 02 4.03.E 1.0 0 4.450E 00 0.12.7E-03 4.66.E 02 4.00.E 1.0 0 4.450E 00 0.12.7E-03 4.66.E 1.0 0 4.450E 00 0.12.7E-03 4.66.E 1.0 0 0.10.02.E-03 0.15.E 1.0 0 0.10.02.E-03 0.10.E 1.0 0 0.10.03.E 1.0 0.10.03.E 1.0 0 0.10.E 1.0 0 0. | 0.2 |
| 0/A 0/AP 0 | 3.849E 02 |
| 0/A 0/AP H DEL TF VS 15E 00 3.663E 00 9.133E-03 4.032E 02 4.762E 15E 00 3.663E 00 9.137E-03 4.035E 02 4.825E 15E 00 3.663E 00 9.467E-03 3.690E 02 4.825E 15E 00 4.450E 00 9.497E-03 4.779E 92 4.940E 15E 00 4.450E 00 9.497E-03 4.566E 02 4.940E 15E 00 4.450E 00 9.637E-03 4.566E 02 4.940E 15E 00 5.413E 00 9.886E-03 5.45E 02 4.955E 15E 00 5.413E 00 1.021E-02 5.301E 02 4.955E | |
| 0/A 0/AP H DEL TF VS SE 00 3.663E 00 9.133E-03 4.032E 02 4.762E SE 00 3.663E 00 9.467E-03 4.035E 02 4.603E SE 00 4.450E 00 9.467E-03 4.770E 02 4.940E SE 00 4.450E 00 9.497E-03 4.566E 02 4.940E SE 00 4.450E 00 9.637E-03 4.566E 02 4.960E SO 0.4450E 00 9.637E-03 4.566E 02 4.960E SO 0.4450E 00 9.637E-03 4.566E 02 4.960E SO 0.413E 00 9.886E-03 5.45E 02 4.893E SO 0.413E 00 1.021E-02 5.301E 02 4.953E SO 0.413E 00 1.021E-02 5.301E 02 4.955E | |
| 0/A 0/AP H DEL TF VS 15E 00 3.663E 00 9.13E-03 4.032E 02 4.762E 15E 00 3.663E 00 9.137E-03 4.035E 02 4.603E 15E 00 3.663E 00 9.467E-03 3.690E 02 4.603E 15E 00 4.450E 00 9.497E-03 4.779E 92 4.914E 15E 00 4.450E 00 9.637E-03 4.566E 02 4.960E 15E 00 4.450E 00 9.637E-03 4.524E 02 4.960E 15E 00 5.413E 00 9.886E-03 5.475E 02 4.993E 15E 00 5.413E 00 1.021E-02 5.391E 02 4.955E 15E 00 5.413E 00 1.021E-02 5.391E 02 4.955E | |
| 0/A 0/AP H DEL TF VS 15E 00 3.663E 00 9.133E-03 4.032E 02 4.762E 15E 00 3.663E 00 9.127E-03 3.690E 02 4.762E 15E 00 4.450E 00 9.312E-03 4.779E 02 4.914E 15E 00 4.450E 00 9.497E-03 4.524E 02 4.960E 15E 00 4.450E 00 9.637E-03 4.524E 02 4.960E 15E 00 5.413E 00 9.837E-03 5.475E 02 4.992E 15E 00 5.413E 00 1.021E-02 5.394E 02 4.955E 15E 00 5.413E 00 1.021E-02 5.394E 02 4.955E 15E 00 5.413E 00 1.021E-02 5.394E 02 4.955E | DATA POINT |
| 0/A 0/AP H DEL TF VS 31E 00 3.683E 00 9.137E-03 4.032E 02 4.782E 31E 00 3.683E 00 9.467E-03 3.890E 02 4.603E 31E 00 3.683E 00 9.467E-03 4.770E 02 4.603E 35E 00 4.450E 00 9.312E-03 4.770E 02 4.940E 35E 00 4.450E 00 9.837E-03 4.568E 02 4.940E 35E 00 4.450E 00 9.837E-03 4.568E 02 4.966E 35E 00 5.413E 00 9.886E-03 5.475E 02 4.965E 35E 00 5.413E 00 1.003E-02 5.394E 02 4.925E 35E 00 5.413E 00 1.003E-02 5.394E 02 4.955E 37E 00 5.413E 00 1.003E-02 5.394E 02 4.955E 37E 00 5.413E 00 1.003E-02 5.394E 02 4.955E | |
| 31E 00 3.683E 00 9.137E-03 4.032E 02 4.782E 31E 00 3.683E 00 9.467E-03 3.899E 02 4.803E 52 00 4.450E 00 9.312E-03 4.779E 02 4.940E 1E 00 4.450E 00 9.837E-03 4.54E 02 4.940E 1E 00 4.450E 00 9.837E-03 4.524E 02 4.966E 50 4.450E 00 9.837E-03 4.524E 02 4.966E 50 5.413E 00 9.886E-03 5.475E 02 4.965E 50 5.413E 00 1.003E-02 5.394E 02 4.955E 51 00 5.413E 00 1.003E-02 5.394E 02 4.955E 52 00 5.413E 00 1.003E-02 5.394E 02 4.955E 53 00 5.413E 00 1.003E-02 5.394E 02 4.955E | T1 |
| 31E 00 3.683E 00 9.467E-03 3.890E 02 4.893E 02 4.893E 02 4.893E 02 4.893E 02 4.893E 02 4.893E 02 4.850E 00 9.497E-03 4.574E 02 4.996E 02 4.966E 02 4.993E 02 4.925E 03 5.413E 00 1.003E-02 5.301E 02 4.957F 03 5.413E 00 1.003E-02 5.301E 02 4.957F 03 5.413E 00 5.413E 00 1.021E-02 5.301E 02 4.955F | |
| 9/A 0/AP H 0FL TF VS 5E 00 4.450E 00 9.312E-03 4.779E 02 4.914E 4E 00 4.450E 00 9.497E-03 4.524E 02 4.960E 1E 00 4.450E 00 9.637E-03 4.524E 02 4.966E 9/A 0/AP H 0FL TF VS 6E 00 5.413E 00 1.003E-02 5.394E 02 4.925E 9E 00 5.413E 00 1.021E-02 5.301E 02 4.957F | |
| 9/A | |
| 9/A | |
| 5E 00 4.450E 00 9.312E-03 4.779E 72 4.914E 4E 00 4.450E 00 9.497E-03 4.576E 02 4.940E 1E 00 4.450E 00 9.497E-03 4.524E 02 4.960E 1E 00 4.450E 00 9.637E-03 4.524E 02 4.960E 5 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | |
| 9/A 9/AP H 0FL TF VS 5E 00 4.450E 00 9.312E-03 4.779E 72 4.914E 1E 00 4.450E 00 9.497E-03 4.524E 02 4.940E 1E 00 4.450E 00 9.637E-03 4.524E 02 4.966E 3 | |
| 9/4 0/AP H DFL TF VS 5E 00 4.450E 00 9.31ZE-03 4.779E 02 4.914E 1E 00 4.450E 00 9.497E-03 4.524E 02 4.940E 1E 00 4.450E 00 9.837E-03 4.524E 02 4.940E 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | DATA POINT |
| 90.00 90 | ; |
| 1E 00 4.450E 00 9.437E=03 4.779E 92 4.914E 1E 00 4.450E 00 9.637E=03 4.524E 02 4.940E 1E 00 4.450E 00 9.637E=03 4.524E 02 4.940E 34 0.48 | 4 CO 35 80 - 5 |
| 5 4.940E 5 4.940E 6 0.637E-03 4.524E 02 4.940E 7 4.966E 8 0.74 1 0.74 1 0.74 1 0.74 1 0.75 2 0.75 2 0.75 2 0.75 3 0.75 1 0.75 2 0.75 3 0.75 1 0.75 2 0.75 3 0.75 3 0.75 4 0.75 5 0.75 5 0.75 6 0.75 6 0.75 6 0.75 6 0.75 7 0.75 6 0.75 6 0.75 7 0.75 7 0.75 8 | |
| 5 0/AP H DEL TF VS 65 0 9.6865-03 5.4756 02 4.9575 05 5.4135 00 1.0215-02 5.3045 02 4.9575 05 5.4135 00 1.0215-02 5.3015 02 4.9575 | |
| 5 0/A 0/AP H DFL TF VS 6E 90 5.413E 00 9.886E-03 5.475E 02 4.893E 9E 00 5.413E 00 1.003E-02 5.394E 02 4.925E 3E 00 5.413E 00 1.021E-02 5.301E 02 4.925E | |
| 9 0/AP H DFL TF VS 65 0 5.413E CO 1.021E-02 5.301E 02 4.957F | |
| 5 0/A 0/AP H DEL TF VS 6E 70 5.413E 00 9.886E-03 5.475E 02 4.893E 9E 00 5.413E 00 1.003E-02 5.394E 02 4.925E 3E 00 5.413E 00 1.021E-02 5.301E 02 4.957E | |
| 5 0/A 0/AP H DEL TF VS 6E 70 5.413E 00 9.886E-03 5.475E 02 4.893E 60 05.413E 00 1.003E-02 5.394E 02 4.925E 3E 00 5.413E 00 1.721E-02 5.301E 02 4.957E | |
| 5 0/A 0/AP H DEL TF VS 6E 00 5.413E 00 9.886E-03 5.475E 02 4.893E 9E 00 5.413E 00 1.003E-02 5.394E 02 4.923E 3E 00 5.413E 00 1.021E-02 5.301E 02 '4.957F | |
| 54 0/AP H DFL TF VS 6E 00 5.413E 00 9.886E-03 5.475E 02 4.893E 9E 00 5.413E 00 1.003E-02 5.394E 02 4.925E 3E 00 5.413E 00 1.021E-02 5.301E 02 '4.957F | |
| A 0/AP H DEL TF VS 00 5.413E 00 9.886E-03 5.475E 02 4.893E 00 5.413E 00 1.003E-02 5.394E 02 4.925E 00 5.413E 00 1.021E-02 5.301E 02 4.957F | DATA POINT |
| 00 5.413E 00 9.886E-03 5.475E 02 4.695E 00 5.413E 00 1.003E-02 5.394E 02 4.925F | - |
| 00 5.413E CO 1.003E-02 5.394E 02 4.925E | 6.721E 02 5. |
| 00 5.413E CO 1.021E-02 5.301E 02 4.95FF | |
| | |
| | |
| | |
| | |
| | |

| | | | | 40E 01 | | | | | | | | 25.01 | | | | | | | | | 10 34 | | | | | | | | | | SE 01 | | | |
|---------------|------|--------------|------------|-----------|---------|-----------|------|-----------|--------------|------|-----------|------------|-----------|---------|-----------|---|-----------|------------|------|-----------|-----------|-----------|---------|----------|-----|-------------|------------|------|-----------|-----------|-----------|------|-----------|---|
| | | | | 2 4.97 FF | | | | | | | | 4.6236 | | | | | | | | | | | | | | | | | S A . | 4.905E | 4.905 | | | |
| | | DELTE | 70 344446 | 5.295E 02 | | | | | | | DEL T | 5. 806E 02 | 5.671E 02 | | | | | | i | 6.225E A2 | 6-374E 02 | 6.3546 02 | | | | | | | DEL TF | • | • | 3 | | |
| | ; | E 0 - 20 - 0 | L. OORE-D. | 1.025E-02 | | | | | | : | - 3050-1 | 1-042F-02 | 1.066E-02 | | | | | | ; | 1.239F-02 | 1.210E-02 | 1.214E-02 | | | | | | : | Ξ. | • | • | | | |
| | 47.0 | S. 430F 00 | S. 430F 00 | | | | | | | 9470 | 6.04AF 00 | 6.048E 00 | 6.040E 00 | | | | | | 0470 | 7.711E 00 | 7.711E 00 | 7.711E 00 | | | | | | 9770 | 7.71.7 | 7-7115 00 | 7.711E CO | | | |
| DATA POINT 6 | 4/0 | 5.432E 00 | 5.428E 00 | 5.423E 00 | | | | | DATA POINT 7 | *** | 6.056E 00 | 6.045E 00 | 6.043E 00 | | | | | POINT 8 | */0 | 7.726E 00 | 7.663E 00 | 7.632E 00 | | | | | 9 TA10 | *** | | | | | | |
| HT-6-127 DATA | 11 | 6.740E 02 | 6.763E 32 | 6.798E 02 | | | | | DATA | 11 | 7.157E 02 | 7.227E 02 | 7.239E 02 | | | | | DATA POINT | 1 | 7.596E 02 | 7.943E 02 | 6.122E 02 | | | | | DATA POINT | 11 | | • | : | | | |
| | 1. | 9.020E 02 | 9.040E 02 | 9.070E 02 | | 4.000E 00 | | 4.000E 00 | | 2 | 9.650E 02 | 9.710E 02 | 9.720E 02 | 97 | 4.000E 00 | | 4.000E 00 | | 1 | | 1.098E 03 | 1.1135 03 | 3 | | | 4.000E 00 | | - | • | | | • | 2 0 0 | |
| | 2 | 1-246E 02 | 1.375E 02 | 1.5036 02 | DELTA E | | | 1.1386 01 | | 10 | 1.277E 02 | 1.422E 02 | 1.568E 02 | DELTA E | | | 1.212E 01 | | 91 | 1-370E 02 | 1.569E 02 | 10.00 D | DELTA E | | | 1 - 366E 01 | | 10 | 1.787E 02 | 1.787E 02 | 1.787E 02 | 2 11 | | |
| | 2 | 2.027E 03 | 2.024E 03 | 2.022E 03 | 2 | | | 2.717E 01 | | 0 | 2.026E 03 | 2.023E 03 | Z.021E 03 | 1/0 | | | 2.717E 01 | | 84 | 2.024E 03 | 2.021E 03 | 50 36101 | 2 | | | 4.717E 01 | | 96 | 2.010E 03 | 2.018E 03 | 2.016E 03 | 5 | 2.7005 01 | |
| | STA | - | N | m | STA | - | 14 F | 1 | | STA | - | ~ 1 | 7 | STA | - | ~ | m | | STA | - (| N F | , | STA | - | N P | 1 | | STA | _ | 8 | m | STA | - | • |

Report AFRPL-TR-67-208, Appendix C

66555555

OUID SIDE HEAT TRANSFER TEST DATA

PALL TEST PARAMETERS

AF = 0.266E-03 D = 0.184E-01 L = 0.500E 01 DELTA TO 3.99E-03 D = 0.184E-01 L = 0.500E 01 DELTA TO 3.99E-03 3.99E-03 1.099E-02 1.266E-02 8.390E-01 1.6020E 01 5.994E-03 3.93E-03 1.099E-02 1.246E-02 8.390E-01 1.6020E 01 5.994E-03 3.93E-03 1.099E-02 1.2420E-02 8.390E-01 1.609E-01 5.934E-03 3.93E-03 1.103E-02 1.510E-02 8.360E-01 1.609TE-01 5.6528-03 3.93E-03 1.103E-02 1.579E-02 8.360E-01 2.109E-01 1.095E-03 3.693E-03 1.105E-02 1.579E-02 8.360E-01 2.109E-01 1.095E-03 3.693E-03 1.105E-02 1.713E-02 1.713E-02 1.713E-01 1.2179E-01 2.713E-01 1.2179E-03 3.693E-03 1.106E-02 1.713E-02 8.190E-01 2.712E-01 1.2179E-03 3.693E-03 1.106E-02 1.693E-02 8.190E-01 2.712E-01 1.2179E-03 3.693E-03 1.106E-02 1.693E-02 8.190E-01 2.712E-01 1.2179E-03 3.693E-03 1.106E-02 1.693E-02 8.190E-01 2.712E-01 1.2179E-03 1.2179E-03 1.2179E-03 1.2179E-03 1.2172E-03 1.2179E-03
Page 73

N N + N + N 0

TEST SECTION - LOCAL TEST PARAMETERS
T-8-128. BURNOUT AT DATA PT 8. BURNOUT STE COME.

| 1 | | | DAT | DATA POINT 1 | | | | | |
|-----------|--------------|--------------|-------------|--------------|-----------|-----------|-----------|-----------|---|
| 3.951E 03 | TB 1-1445 02 | THE COLUMN | | | Q/AP | I | 1 | • | |
| 03 | | | 2 2.571E 02 | 1.2386 | 1.309E 00 | 9.176E-03 | - | 5.048F 01 | |
| 03 | 1.1816 | 2 3.170E 02 | 2.623F | 1.238E 00 | 1.309E 00 | 9.094E-03 | | 5.0536 | |
| | DEI TA E | | | | | 4.080E-03 | 1.442E 02 | 5.058E 01 | _ |
| 0 | - | LE 5.000F 00 | | | | | | | |
| 9 | 1.020E | 5.000E | | | | | | | |
| 2 | 1.020E 01 | S.000E | | | | | | | |
| | | | | | | | | | |
| | | | DATA | DATA POINT 2 | | | | | |
| 90 | 13 | 3 | ; | 4 | | | | | |
| 3.944E 03 | | 4.760 | 3.902 | 0/A | OVAP | I | DEL TF | 82 | |
| 0 | 1.224E | | | 2.129F 30 | 2.276E 00 | 8.394E-03 | 2.712E 02 | 5.060E 01 | |
| m 0 | 1.258E 02 | 4.750E | | 2.129E 00 | 2.276F 30 | 8.567E-03 | 2.657E 02 | | |
| | OF! TA S | ٠ | | | | 50-38-0-0 | 2.634E 02 | 5.077E 01 | |
| 0 | | 7 000 | | | | | | | |
| 01 | | | | | | | | | |
| 0 | | 5.000E | | | | | | | |
| | | | DATA | DATA POINT | | | | | |
| | 4 | • | | | | | | | |
| 3.937E 03 | 1.234E 32 | 6.230F A2 | 11 | 4/0 | O/AP | r | DEL TF | > | |
| C3 | 1.2936 32 | | | 3-1145 90 | 3.371E 00 | 8.898E-03 | 3.827F 32 | S.065F A. | |
| 60 | 1.332E 02 | | | 3-116E 00 | 3.371E 00 | 9.051E-03 | 3.725E 02 | | |
| | DELTAF | 4 | | | | ****** | 3.087E 02 | 5.089£ 01 | |
| 5 | | S.000E | | | | | | | |
| 10 | | | | | | | | | |
| 5 | | | | | | | | | |
| | | | DATA | DATA POINT 4 | | | | | |
| | T3 | | ; | | | | | | |
| 3.930E 03 | 1.276F 02 | 7.6195 02 | 11 | 4/0 | 0/AP | T | DEL TF | > | |
| 0.3 | 1.340E 02 | 7.520F 32 | A. After an | 4-116E 30 | 4-480E 00 | 9-1916-03 | 4.874E 02 | 5.043E 01 | |
| 03 | 1.404E 02 | | A-043E 02 | 4-119E 00 | 4.480E 03 | 9.5045-03 | 4.714E 02 | | |
| | | | 20 35 05 | 4-119E 00 | 4.480E 00 | 9.5578-03 | 4.639E 02 | | |
| | DELTA E | , E | | | | | | | |
| 0.0 | | 5.000E 00 | | | | | | | |
| | 1.897E 01 | 5.000E 90 | | | | | | | |
| - | 1.8975 01 | A. DOOR | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-128, BURNOUT AT DATA PT A. MUDANNUT SITE COUN. AT STA

| | | | | DATA | DATA POINT 5 | | | | | |
|------------|-----------|-----------|-----------|-----------|--------------|----------------|-----------|-------------|------------|---|
| STA | 6 | 6 | 2 | - | 4/6 | 97.70 | 3 | | • | |
| - | 3.919E 03 | 1.327E 02 | 6.990E 02 | 7-292E 32 | 5.048E 00 | S.493F 00 | 9-20RF-03 | K. 944E 93 | 5 4 5 6 | |
| ~ | 3.917E 03 | 1.408E 02 | 8.740E 02 | 7.022E 02 | 5.055E 00 | 5.493E 00 | 9.786F-03 | S. 61 75 02 | 20000 | - |
| m | 3.915E 03 | 1.490E 02 | 8.830E 02 | 7-119E 02 | 5.052E 00 | | 9.758E-33 | | | - |
| STA | 2 | DELTA E | u. | | | | | | | |
| - | 1 | | 5.000F 00 | | | | | | | |
| * | | | | | | | | | | |
| m | 2.150E 01 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 6 | | | | | |
| STA | • | 13 | 7 | 1 | 4/0 | 8470 | 1 | | | |
| | 3.899E 03 | 1.365E 02 | 1.007E 03 | 8-119F 02 | A.037F 00 | A. 660F AD | | י אניי ייי | | |
| ~ | 3.897E 03 | 1.460E 02 | 9.990E 02 | 3.032E 02 | 6.035E 33 | 20 A A A A A A | 1.0186-03 | 6.671E 02 | | |
| ۴٦ | 3.6956 03 | 1.555E 02 | 9.920E 02 | | | | 1.042E-02 | | 5.0976 01 | |
| STA | 6/9 | DELTA E | N. | | | | | | | |
| - | 1.245E 01 | 2.311E 01 | 5.000E 00 | | | | | | | |
| N | 1.697E 01 | | | | | | | | | |
| m | 2.150€ 01 | 2.311E 01 | | | | | | | | |
| | | | | | | | | | | |
| - | | | | DATA | DATA POINT 7 | | | | | |
| STA | 60 | 18 | 2 | - | 4/0 | 9470 | 1 | | ; | |
| - | | 1.4395 02 | 1-136E 03 | 9.018E 02 | 7.531E 90 | 8.382F 00 | 1.196F-02 | 7.570F 02 | K. 0268 D. | |
| N | 3.653€ 03 | 1.561E 02 | | 3.908E 92 | 7.633E 00 | 8.382E 00 | 1-1416-02 | 7.347F 02 | | |
| P) | 3.051E 03 | 1.683E 02 | 1.1236 03 | 4.853E 02 | 7.633E 00 | | 1.1695-02 | | | |
| STA | 1/0 | DELTA E | W | | | | | | | |
| - | | | 5.000E 00 | | | | | | | |
| 2 | | 2.604E 01 | 5.000E 00 | | | | | | | |
| m | 2.150E 01 | 2.604E 01 | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | 4140 | DAIA PUINI 6 | | | | | |
| STA | 84 | 13 | | 1 | 4/0 | 0/AP | 1 | 1 | ŭ | |
| - | | 1.506E 02 | 1.218E 03 | 9.693E 32 | 8-255E 00 | 9.152E 00 | 1.118E-02 | B.187F 32 | S. DIAF DI | |
| N | 3.831E 03 | 1.651E 02 | 1.171E 03 | 9.174E 02 | 8.271E 00 | 9.152E 00 | 1.217E-02 | 7.522F 92 | | |
| m | 3.829E 03 | 1.797E 02 | 1.226E 03 | 9.781E 02 | 8.264E 99 | | 1-146E-02 | 7.984E 02 | | |
| STA | 1/0 | DELTA E | u | | | | | | | |
| - | 1.2456 01 | | 5.000F 00 | | | | | | | |
| ~ | | | 5.0008 00 | | | | | | | |
| n | | 2.712F 01 | 2000 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

00000

HT BAL 3.441E 01 9.497E 00 1.050E 01 9.855E 00

00000

1.172E 2.711E 3.181E 3.604E

N N N N N

0

LIOUID SIDE HEAT TRANSPER TEST DATA

ALL TEST PARAMETERS

Page 76

TEST SECTION - LOCAL TEST PARAMETERS 17-8-130, BURNOUT AT DATA PT 4, BURNOUT SITE COMP. AT DATA BT &

| | 5 5 | | | 2 2 | | | 5 5 | | | 55 | | | 5 5 | |
|--------------|-----------------------------|-----------------------------------|--------------|----------------------------------|-----------|--------------|----------------------------------|-----------------------------------|--------------|----------------------------------|------------------------|------------|---|-----------|
| | VS 5.422F 5.422E | | | VS 5.331E 5.331E | | | vs 5.319E 5.319E | | | VS 5.249E 5.249E | | | VS 5.238E 5.238F | |
| | 5.919E 02 | | | 06L TF 6-175E 02 5-501E 02 | | | 06L TF 6.453E 02 5.618E 02 | | | 06L TF 1.454E 03 5.863E 02 | | | 06. TF | |
| | 1 4.567E-03 4.864E-03 | | | 1.012E-02 | | | 1.137E-02 | | | 5.716E-03 | | | z | |
| | 2.703E 00 2.703E 00 | | | 0/AP 6.251E 00 6.251E 00 | | | 0/AP 7.336E 00 7.336E 00 | | | 0/AP 6.312E 00 8.312E 00 | | | 0/AP 6.312E 00 6.312E 00 | |
| DATA POINT 1 | 2.636E 30 2.66 9E 30 | | DATA POINT 2 | 0/A 6-180E 00 6-301E 00 | | DATA POINT 3 | 0/A 7.209E 00 7.374E 00 | | DATA POINT 4 | 7.177E 00 8.436E 00 | | POINT 5 | • | |
| DATA | 5.640E 02 5.207E 02 | | DATA | 5.952E 02 | | DATA | 7.1 6.239E 02 5.403E 02 | | DATA | T1 1.434E 03 5.683E 02 | | DATA POINT | | |
| | 4.830E 02 | 1.000E 00 | | TW 8.600E 02 8.040E 02 | 1.000E 00 | | 7# 9.270E 02 8.590E 02 | 1.000E 00 | | T# 1.671E 03 | 1.000E 00 | | | 1.000E 00 |
| | -2.710E 01 | DELTA E 1.920E 00 1.920E 00 | | 78 -2.230E 01 -2.230E 01 | 3.010E 00 | | 78 -2.143E 01 -2.143E 01 | DELTA E 3.280E 00 3.280E 00 | | -2.000E 01 | 3.540E 00 | | 78 -2.460E 01 -2.460E 01 | 3-540E 00 |
| | 5-140E 02 | L/0 5.435E 00 5.435E 00 | | 5.100€ 02 5.100€ 02 | 1.435E 00 | | PS 5.100E 02 5.100E 02 | 5.435E 00 | | 9.123E 02 5.123E 02 | E.435E 00 5.435E 00 | | 5.125E 02 5.125E 02 | 3.623E 00 |
| | 51A 2 | 5 - 2 | | STA 2 | ST 2 | | ST - N | \$ - × | | 2 - s | 5TA 1 | | \$ - S | STA L |
| | | | | | | | | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

P P P P P P

HT BAL 4.309E 00 4.623E 00 1.991E 00 8.288E-01 5.694E-01

000000

200000

LIQUID SIDE HEAT TRANSFER TEST DATA

ALL TEST PARAMETERS

#T-8-131. BLANDUT AT DATA PT 5. BLRNDUT SITE COND. AT DATA PT 6

0.104E-03 D = 0.115E-01 L = 0.100E 01 DELTA TO

DATA POINTS

-IN PB-DUT TM-IN TB-DUT W E2 70E-01 2.970E 00 0.230E

7E 03 1.064E 03 7.300E 00 2.010E 01 6.960E-01 4.070E 00 1.200E

7E 03 1.064E 03 7.300E 00 2.500E 01 6.960E-01 4.070E 00 1.200E

7E 03 1.064E 03 7.300E 00 2.300E 01 6.960E-01 5.960E 00 1.620E

**E 03 1.065E 03 7.300E 00 3.310E 01 6.960E-01 6.370E 00 1.634E

**E 03 1.063E 03 7.310E 00 3.310E 01 6.960E-01 6.370E 00 1.771E

0.320E 01

Page 78

TEST SECTION - LOCAL TEST PARAMETERS HT-6-131, BURNOUT AT DATA PT 5, BURNOUT SITE COND. AT DATA PT 6

| | 20 | | | 20 | | | 20 | | | | | | 02 | | | 2 | |
|------------|--|------------------------|--------------|---|-----------|--------------|---------------------------------|-----------|--------------|-------------------------------|--|--------------|-------------------------------|-----------|--------------|--|--------------------|
| | 1.032E | | | 1.0336 | | | 1.0345 52 | | | 1.0366 | | | VS 1.037E | | | 1.0296 02 | |
| | 06L TF | | | 5.969E 02 | | | 06L 1F 6.397E 02 | | | 3.311E-02 6.390E 02 1.036E 02 | | | 06L TF 6.365E 02 | • | | DEL 17 | |
| | 1.31 2E-02 | | | H 1.783E-02 | | | Z.401E-02 | | | 3.3116-02 | | | 3.743E-02 6.365E 02 1.037E 02 | | | | |
| | 0/AP | | | 1.068E 01 1.763E-02 5.969E 02 1.033E 02 | | | 0/AP H DEL TF | | | 0/AP | | | 2.363E 01 | | | 2.363E 01 0. | |
| DATA POINT | 0.4 6.22 E 00 | | DATA POINT 2 | | | DATA POINT 3 | | | DATA POINT . | 2.149€ 01 | | DATA POINT S | 2.42% 01 | | DATA POINT 6 | | |
| DATA | STA PB TB TO | | DATA | 6.157E 02 1.080E 01 | | 4740 | 6.602E 02 1.555E 01 | | DATA | 0.438E 02 2.149E 01 | | DATA | 6.631E 02 2.425E 01 | | 4740 | 1 1.073E 03 9.700E 00 0. TW 0. TI 0.4A | |
| | 7. 630E 02 | 1.000E 00 | | 1.056 03 | 1.000€ 00 | | | 1.000E 00 | | 1.47# 03 | 1.0006 00 | | 1.56 X 03 | 1.000E 00 | | : | 3 |
| | TB 1-3976.1 | 2.970E 00 | | | DELTA E | | 1 1.065E 03 2.057E 01 1.266E 03 | DELTA E | | 78 2.475¢ 01 | STA L/D DELTAE LE 1 5.435E 00 5.960E 00 1.000E 00 | | 78 2.660E 01 | DELTA E | | 9.7006 00 | STA L/O DELTA E LE |
| | 1.0725 03 | STA L/0 1 5.435€ 00 | | STA PB TB | STA C/0 | | 1.005 03 | STA | | 1.066E 03 | S. 386 | | STA PB | | | PB 1.073E 03 | 9 |
| | 1. | 1. | | 4. | 2- | | 1. | 1. | | 1. | 1. | | 1. | 1. | | 1. | : |

Report AFRPL-TR-67-208, Appendix C

HT BAL 2.476 00 2.4714 00 4.114 00 2.090 00 1.739 00 1.739 00 1.239 00 2.984 00

......

-

LIQUID SIDE HEAT TRANSFER TEST DATA

0.7226 3.2926 4.8826 6.6056 7.8116 1.0946 1.4996 1.4906 1.4906 2 00000000000 62 3.950E 5.950E 5.950E 6.950E 6.950E 9.110E 9.430E COND # 7. 05 GE - 01 7. 05 GE - 01 6. 97 06 E - 01 6. 94 06 E - 01 6. 93 06 E - 01 6. 92 06 E - 01 6. 98 06 E - 01 9. BURNOUT SITE POINTS 16-DUT 1.330E 01 1.620E 01 2.590E 01 2.930E 01 3.120E 01 3.590E 01 4.290E 01 4.290E 01 DATA PT ¥ 30046E 03 30044E 03 30044E 03 30041E 03 30041E 03 30046E 03 30046E 03 30046E 03

| | | | | | 16.9 | ST SECTION - | TEST SECTION - LOCAL TEST PARAMETERS | PARAMETERS | | | | |
|--------|------------------------------|-----------------------------------|-------|------------------------------|-------|------------------------------|--------------------------------------|--------------------------------|--|----------------------------------|------------------------------|-----|
| | | | | HT-8-132 | 2 | INOUT AT DAT | A PT 9. BURN | OUT SITE CON | HT-8-132. BURNOUT AT DATA PT 9. BURNOUT SITE COND. AT DATA PT 10 | T 10 | | |
| | | | | | | DATA | DATA POENT 1 | | | | | |
| S - 8 | 3.042E 03 | 78 9.550E 00 1.255E 01 | . 8 3 | TH 1.970E 02 2.250E 02 | 0 7 0 | 1.257E 02 | 0/A 1.31 SE 00 1.299E 00 | 0/AP 1.331E 00 1.331E 00 | 1.146E-02 | 06L TF 1-161E 02 1-430E 02 | 1.023E 02 | A A |
| Z - × | 1.799E 00 | DELTA 1.8706 1.8706 | m 0 0 | 1.500E | 00 | | | | | | | |
| | | | | | | DATA | DATA POINT 2 | | | | | |
| ST - 2 | 3.042E 03 | 1.003E 01 | _ 55 | 7# 5.740E 02 7.030E 02 | 2 2 | 71 3.341E 02 4.863E 02 | 0/A 5.100E 00 4.846E 00 | 0/AP 5.024E 00 5.024E 00 | 1.550E-02 1.065E-02 | DEL TF 3.240E 02 4.717E 02 | VS 1.022E 02 1.025E 02 | |
| 21 - 2 | 1.799E 00 | DELTA E 3.950E 00 3.950E 00 | m 8 8 | 1.500E 1.500E | 00 | | | | | | | |
| | | t | | | | DATA | DATA POINT 3 | | | | | |
| ST - 2 | 7.040E 03 | TB 1.070E 01 1.950E 01 | . 5 5 | 6.010E 02 | 0 5 | T1 4.733E 02 6.508E 02 | 0/A 7.550E 00 7.189E 00 | 0/AP 7.451E 00 7.451E 00 | H 1.61 1E-02 | DEL TF 4.626E 02 6.313E 02 | VS 1.017E 02 1.016E 02 | |
| N - 2 | 1.799E 00 | DELTA 4.990E 4.990E | m 0 0 | 1.500E | 00 | | | | | | | |
| | | | | | | DATA | DATA POINT 4 | | | | | |
| ST N | PB 3.039E 03 | TB 1-148E 01 2-302E 01 | 55 | TE 1.049E 03 | 5 5 | T1 6-484E 02 7-690E 02 | 9.999E 00 9.727E 00 | 0/AP 1.008E 01 1.008E 01 | H 1+583E-02 1+351E-02 | 0EL TF 6.369E 02 7.460E 02 | VS 1.006E 02 1.013F 02 | |
| 4 - v | 1.799E 00 8.995E 00 | 5.550E 0 | m 6 6 | 1.500E | 00 | | | | | | | |
| | | | | | | DATA | DATA POINT 5 | | | | | |
| Z - 2 | P8 3.037E 03 3.029E 03 | T0 1.222E 01 2.588E 01 | | TW 1.215E 03 1.284E 03 | 2 2 | 71 7.712E 02 8.583E 02 | 0/A 1.164E 01 1.144E 01 | 0/AP 1-192E 01 1-192E 01 | H 1.571E-02 1.432E-02 | DEL TF 7.590E 02 8.324E 02 | VS 1.007E 02 1.013E 02 | |
| ¥ - 2 | 1.799E 00 | 6.550E 00 | w 8 8 | 1.500E 00 | 000 | | ٠ | | | | | |

Page 81

TEST SECTION - LOCAL TEST PARAMETERS

HT-8-132. BURNOUT AT DATA PT 9. BURNOUT SITE COMD. AT DATA OF ...

| 1.285E 01 1.318E 01 1.663E-02 1.271E 01 1.318E 01 1.576E-02 1.271E 01 1.318E 01 1.576E-02 A POINT 7 0/AP H 1.620E 01 1.670E 01 1.693E-02 1.621E 01 1.670E 01 1.643E-02 | A POINT 7 O'AP H 1.620E 01 1.670E 01 1.663E-02 1.271E 01 1.310E 01 1.570E-02 0/A 0/AP H 1.620E 01 1.670E 01 1.694E-02 1.621E 01 1.670E 01 1.994E-02 | A POINT 7 0/AP H 1.285E 01 1.310E 01 1.663E-02 1.271E 01 1.310E 01 1.570E-02 0/A 0/AP H 1.620E 01 1.670E 01 1.599E-02 1.621E 01 1.670E 01 1.943E-02 | 1.285E 01 1.318E 01 1.663E-02 1.271E 01 1.318E 01 1.663E-02 1.271E 01 1.318E 01 1.576E-02 1.620E 01 1.670E 01 1.894E-02 1.621E 01 1.670E 01 1.993E-02 | 1.285E 01 1.318E 01 1.663E-02 1.271E 01 1.318E 01 1.553E-02 1.271E 01 1.318E 01 1.573E-02 1.620E 01 1.670E 01 1.894E-02 1.621E 01 1.670E 01 1.943E-02 1.621E 01 1.670E 01 1.943E-02 1.621E 01 2.279E-02 2.093E 01 2.151E 01 2.379E-02 | 25 | 86 01 2.151E 01 2.279E-02 7 0/A 0/AP H 1.516E 01 1.5653E-02 1.516E 01 1.5656E-02 1.516E 01 1.576E-02 1.516E 01 1.576E-02 1.516E 01 1.576E-02 1.516E 01 2.279E-02 1.516E 01 2.279E-02 | #\$5 01 1.318E 01 1.663E-02 71E 01 1.318E 01 1.663E-02 0/A | 85E 01 1.318E 01 1.663E-02 71E 01 1.318E 01 1.576E-02 0/A 0/AP H 00 01 1.670E 01 1.894E-02 21E 01 1.670E 01 1.943E-02 21E 01 2.151E 01 2.279E-02 22 0/A 0/AP H 3E 01 2.151E 01 2.396E-02 3E 01 2.151E 01 2.396E-02 | 0/A 0/AP H 0/A 0/AP H 00 0/AP H | 0/A 0/AP H 0/A 0/AP H 0/A 0/AP H 1.943E-02 1.576E-02 1.670E 01 1.699E-02 11E 01 1.670E 01 1.943E-02 12E 01 2.151E 01 2.279E-02 13E 01 2.151E 01 2.396E-02 15E 01 2.275E 01 1.820E-02 15E 01 2.275E 01 1.820E-02 | 0/A 0/AP H 0/A 0/AP H 1.670E 01 1.653E-02 1.670E 01 1.694E-02 1.670E 01 1.694E-02 1.670E 01 1.694E-02 1.670E 01 1.694E-02 1.670E 01 1.694E-02 1.670E 01 1.696E-02 1.670E 01 1.670E-02 1.670E 01 1.670E-02 1.670E 01 1.670E-02 1.670E 01 2.275E 01 1.620E-02 1.670E 01 2.275E 01 1.620E-02 |
|--|--|--|--|---|---|--|--|--|--|---|--|
| A POINT 7 A POINT 7 O/AP 1.620E 01 1.310E 01 1.620E 01 1.670E 01 1.621E 01 1.670E 01 | A POINT 7 0/AP 1.310€ 01 1.271€ 01 1.310€ 01 1.271€ 01 1.310€ 01 1.620€ 01 1.670€ 01 1.621€ 01 1.670€ 01 1 | A POINT 7 O/AP 1.285E 01 1.316E 01 1.271E 01 1.316E 01 1.620E 01 1.670E 01 1 | 1.285E 01 1.318E 01 1.271E 01 1.318E 01 1.271E 01 1.318E 01 1.620E 01 1.670E 01 1.621E 01 1.670E 01 1.621E 01 1.670E 01 2.093E 01 2.151E 01 2.093E 01 2.151E 01 | 0/A 0/AP 71E 01 1.318E 01 7 0/AP 0/A 0/AP 10 1.670E 01 11E 01 1.670E 01 11E 01 2.151E 01 10 1 1.610E 01 | 0/A 0/AP 71E 01 1.318E 01 710 0/A 0/AP 0E 01 1.670E 01 1E 01 1.670E 01 1E 01 2.151E 01 8E 01 2.151E 01 | 0/A 0/AP 71E 01 1.318E 01 7 7 0/AP 80 01 1.670E 01 81E 01 1.670E 01 86 01 2.151E 01 86 01 2.151E 01 | 0/A 0/AP 71E 01 1.318E 01 71E 01 1.318E 01 100A 0/AP 00E 01 1.670E 01 11E 01 1.670E 01 | 0/A 0/AP 71E 01 1.318E 01 7 7 0/AP 0/A 0/AP 11E 01 1.670E 01 11E 01 1.670E 01 12 0/AP 13 0/AP 14 0/AP 15 01 2.151E 01 16 01 2.275E 01 16 01 2.275E 01 | 0/A 0/AP 71E 01 1.318E 01 7 7 0/A 0/AP 10E 01 1.670E 01 11E 01 1.670E 01 8E 01 2.151E 01 8E 01 2.75E 01 10E 01 2.275E 01 | 0/A 0/AP TIE 01 1.318E 01 TIE 01 1.318E 01 O/A 0/AP SE 01 2.151E 01 SE 01 2.151E 01 SE 01 2.275E 01 EE 01 2.275E 01 EE 01 2.275E 01 EE 01 2.275E 01 |
| A POINT 7 | A POINT 7 | A POINT 7 1.6216 01 1.6216 | 0.A 1.285E 01 1.271E 01 0.A 1.620E 01 1.621E 01 | 0.AA 1.285E 01 1.271E 01 1.620E 01 1.621E 01 1.621E 01 1.621E 01 1.621E 01 1.621E 01 1.621E 01 1.621E 01 1.621E 01 | 0.4 A 8 6 01 2 8 6 01 2 | 0.0 A 7 7 7 6 0 1 1 1 5 0 1 1 1 5 0 1 1 1 5 0 1 1 1 1 | 0/A 7/E 01 1/E 01 1/E 01 1/E 01 8/E 01 2 | 0/A 7/E 01 7/F 01 1/E 01 1/E 01 8/E 01 2 | 0/A 71E 01 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | 0/A 7 | 0/A 601 2 60 |
| | | ă â | ā | 2 | 0./A 1.620E 0 1.621E 0 1.621E 0 0./A 2.093E 01 | 0/A -621E 0 -621E 0 -621E 0 -093E 01 | NT 62 00 A 0 | MT | MT M | 7 6 01 6 01 6 01 6 01 6 01 6 01 6 01 6 0 | INT 0/A 0/A 09 SE 01 09 SE 01 09 SE 01 09 SE 01 09 SE 01 |
| a. | 4 | 4 | 4 | 1.65 II.65 N | POIN 2.09 | 7 44 7 88 | 2 30 2 22 6 | 2 33 5 22 - | 2 2 2 2 4 4 | | 2 44 7 88 7 12 |
| DAT 11 49E 02 | 0AT TI E 02 | AT 022 | - 00 | | | 4 | 4 | 4 | 4 4 | | 4 4 4 4 |
| | 966 | 11 1. 94.9E | 0A 1.940E 0 1.910E 0 | DAT. 1.1 8-940E 02 8-910E 02 DATA 7.1 9-583E 02 | DATA T1 10.9496 02 10.9106 02 10.9106 02 10.9106 02 | \$ * | 4 | 4 | 4 | 4 4 4 | 4 4 4 |
| TW 1-475£ 03 8.9 1-472£ 03 6.9 | | 77 00 | m m 000 | mm 00 mm | , " 00 | | , n 00 | mn 00 mn 00 | mm 000 mm | 77 00 | 77 00 |
| T8 1-323E 01 1-4 3-137E 01 1-4 | 000 | 800 m | | | B 00 m 10 m | 00 | 00 m 00 00 00 00 00 00 00 00 00 00 00 00 | 20 w 00 w 000 | | | |
| 3.028E 03 3.137E | n 00 | m 00 | | | | n 00 nn 00 | n 00 nn 00 | | n 00 | n 00 | 17 00 mm |
| | L/O DELTA E LE 1.799E 00 7.910E 00 1.500E 8.955E 00 7.910E 00 1.500E | L/D DELTA E LE 1.790E 00 7.910E 00 1.500E 8.965E 00 7.910E 00 1.500E | A 1.799E 00 7.910E 00 1.500E 8.955E 00 7.910E 00 1.500E 7.910E 00 1.500E | 1.799E 00 7.910E 00 1.500E 8.955E 00 7.910E 00 1.500E 8.955E 00 7.910E 00 1.500E 3.034E 03 1.440E 01 1.670E 3.026E 03 3.720E 01 1.663E | 1.799 00 7.910E 00 1.500E 0.955E 00 7.910E 00 1.500E 0.955E 00 7.910E 00 1.500E 0.950E | 1.799E 00 7.910E 00 1.500E 8.955E 00 7.910E 00 1.500E 8.955E 00 7.910E 00 1.500E 3.034E 03 1.440E 01 1.653E L/O | 00 7.910E 00 1.500E 00 7.910E 00 1.500E 00 7.910E 00 1.500E 03 1.440E 01 1.663E 03 3.720E 01 1.663E 09 9.110E 00 1.500E | 1.799E 00 7.910E 00 1.500E 8.955E 00 7.910E 00 1.500E 3.034E 03 1.440E 01 1.670E 1.799E 00 9.110E 00 1.500E 6.995E 00 9.110E 00 1.500E | 1.799 00 7.910 00 1.500 0.500 | 1.799E 00 7.910E 00 1.500E 0.955E 00 7.910E 00 1.500E 0.955E 00 7.910E 00 1.500E 0.955E 03 1.440F 01 1.663E 1.799E 00 9.110E 00 1.500E 0.955E 00 9.110E 00 1.500E 0.955E 00 9.110E 00 1.500E 0.955E 00 9.110E 00 1.500E | 1.799E 00 7.910E 00 1.500E 8.955E 00 7.910E 00 1.500E 3.034E 03 1.440E 01 1.670E 3.026E 03 3.720E 01 1.653E 1.799E 00 9.110E 00 1.500E 6.995E 00 9.110E 00 1.500E 6.995E 00 9.110E 01 1.955E 3.023E 03 1.460E 01 1.955E 3.025E 03 3.962E 01 1.665E |

Report AFRPL-TR-67-208, Appendix C

00000000

LIQUID SIDE HEAT TRANSFER TEST DATA

FRALL TEST PARAMETERS

T-E-133, BLANGUT AT DATA PT 7, BURNOUT SITE COND. AT DATA PT B

. = 0.104E-03 D = 0.115E-01 L = 0.550

MT PB-IN PB-DUT TB-I 3-1176 03 3-0000 03 2-3950 3-1116 03 3-0000 03 2-3950 3-1116 03 3-0000 03 2-3920 3-1116 03 3-0000 03 2-3920 3-1110 03 3-0000 03 2-3920 3-1110 03 3-0000 03 2-3920

Page 83

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-13), BURNOUT AT DATA PT 7, BURNOUT SITE COND. AT DATA P

| | | | | DATA | DATA POINT 1 | | | | | |
|-------|-----------|--------------|-----------|------------|--------------|-----------|--------------|-----------|----------|-----|
| STA | PB 3.1015 | TB 2.40%E A2 | TW TW | 11 | 9 | Q/AP | I | DEL TF | | |
| N | 3.095E 03 | 2.408E 02 | | 2.640E 02 | 7.717E-01 | 7.698E-01 | 3-71 SF-02 | 2.767E 01 | 9.875E | 5 5 |
| m | 3.089E 03 | 2.411E 02 | 3.040E 02 | 2.640E 02 | 7.717E-01 | 7.698E-01 | 3.360E-02 | 2.291E 01 | | 5 5 |
| STA | 2 | DELTA E | 1 | | | | | | | |
| - | | | 5. 500E | | | | | | | |
| N m | 3.080E 01 | 5.350E CO | 5.500E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | 2 | CAIA PUINI C | | | | | |
| STA | 8 | 10 | 2 | 11 | 9 | 9/AP | I | DEL TE | > | |
| - | 3.098E 03 | 2.456E 02 | | 3.366E 02 | 1.807E 00 | 1.799E 00 | 1.97 7E-02 | 9.098E 01 | | 0 |
| ~ | 3.092E 03 | 2.475E C2 | | 3.334E 02 | 1.80 9E 00 | 1.799E 00 | 2.094E-02 | 6.589E 01 | | 5 6 |
| P) | 3.086E 03 | 2.493E 02 | 4.200E 02 | 3.301E 02 | 1.812E 00 | 1.799E 00 | 2.226F-02 | | | 5 |
| STA | 5 | DELTA E | 9 | | | | | | | |
| - | 2.355E 01 | | 5 | | | | | | | |
| N | 3.080E 01 | 8-380E 00 | | | | | | | | |
| m | 3.804E 01 | 8.380E 00 | 5.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| STA | 4 | 4 | 1 | : | *** | | : | | | |
| - | 3.098E 03 | 2.520F 02 | 5.01 | A. 180F 02 | 1. 21.25 AA | 44.50 | | DEL TF | | |
| ~ | 3.092E 03 | 2.559E 02 | | 4.169F 02 | 3.714F 00 | 3.66RE 00 | 2 22 25 - 02 | 20 3100-1 | | 2 |
| - | | | 5.840E | 4.100E 02 | 3.722E 00 | | 2.441E-02 | 1.502E 02 | 1.002E 0 | 0 2 |
| P. T. | S | DELTA E | 97 | | | | | | | |
| - | 2.355E 01 | | 5 | | | | | | | |
| ~ | 3.080E 01 | 1.236E 01 | 5.500F | | | | | | | |
| n | 3.804E 01 | 1.236E 01 | 5.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| | | | | | | | | | , | |
| TA | 6 | 18 | | 1.1 | 0/A | Q/AP | I | DEL TF | × × | |
| - | 3.097E 03 | 2.602E 02 | 7. 84 0E | 5.129E 02 | 6.202E 00 | 6.160E 00 | 2.438E-02 | 2.526E 92 | | 02 |
| ~ | 3.092E 03 | 2.667E 02 | 7.820E | 5.105E 02 | 6.207E 00 | 6.160E 00 | 2.527E-02 | 2.437E 02 | | 02 |
| PI | 3.066E 03 | 2.732E 02 | 7.750E 02 | 5.019E 02 | 6.223E 00 | 6.160E 00 | 2.693E-02 | 2.288E 02 | | 0 5 |
| TA | 2 | DELTA | 4 | | | | | | | |
| _ | 2.355E 01 | 1.647E 01 | 5 | | | | | | | |
| ~ | 3.080E 01 | 1.647E 01 | S. 500E | | | | | | | |
| • | B.ROAF 01 | 1.647F 01 | A. 8000 | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-133 . EURNOUT AT DATA PT 7. BURNOUT SITE COMD. AT DATA

| | | | | | DAT | DATA POINT S | | | | | |
|------------|-----------|-----------|-----------|-----|---------------|-------------------------|-------------|-----------|------------|-----------|-----|
| STA | A P8 | 2 | • | 1 | | | | | | | |
| - | | 2.658 | 9-200 | | 11 | | OZAP | I | OEL TF | 2 | |
| ~ | 3.091E | | | | 5. 323E 02 | | 8.094E 00 | 2.559E-02 | 3.164E 02 | 1.0095 | |
| ~ | 3.0856 03 | 2.827E | | | 5.685E 02 | 8-00 00 00 8-0795 00 | 8.098E 00 | 2.673E-02 | 3.030E 02 | 1.014E | 6 5 |
| STA | • | | | | | | 200 | 4.633E-02 | 2.858E 02 | 1.019€ | 62 |
| - | | VEL IA | | | | | | | | | |
| ~ | 3.080F | 30.00 | | | | | | | | | |
| P) | 3.804E | | 5.5006 | 000 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DATA | DATA POINT 6 | | | | | |
| STA | | 10 | ** | | ; | | | | | | |
| - | 3.094E 03 | 2.724 | 1 - 06 | 6 | 11 | 4/4 | OLAP | I | DEL TF | > | |
| ~ | 3.089E 03 | | 1.065 | | 6-546F 02 | 1.0186 01 | 1.0316 01 | 2.679E-02 | 3.6465 02 | | 6 |
| m | 3.084E 03 | 2.936E 02 | 1.067E | 0 | 6.572E 02 | 1.01 BE 01 | 1.031E 01 | 2.773E-02 | 3.717E 02 | | 0 2 |
| STA | 0/1 | DEL TA E | | | | | | 30-3 | 3.03/E 02 | 1.028E 0 | 05 |
| - | 2.3 | 2.192F | 100 | - | | | | | | | |
| N | 3.080E 01 | 2-192E | | 9 6 | | | | | | | |
| ~ | 3.804E 01 | | | 90 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DATA | DATA POINT 7 | | | | | |
| STA | 8 | 47 | 1 | | | | | | | | |
| - | 3.054E 03 | 2.790E 02 | 1.227F 03 | 2 | 11 T. 4065 A. | 6 | Q/AP | I | DEL 15 | 2 | |
| ~ | 3.089E 03 | 2.919E 02 | 1.2295 | 9 6 | 7. 7315 02 | 1.191E 01 | 1.217E 01 | 2.481E-02 | 4.905F 02 | | |
| m | 3.084E 03 | 3.048E 02 | 1.310€ | 03 | 8.746E 02 | 1-1905 01 | 1.217E 01 | 2.5346-02 | 4. B02E 02 | | 02 |
| STA | | | | | | | 10 31 17 11 | 4.135E-02 | 5.699E 02 | 1.035E 02 | 2 |
| - | 2 | Zediar on | | | | | | | | | |
| ~ | | | 30000 | 0 0 | | | | | | | |
| m | | | | 000 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DATA | DATA POINT 8 | | | | | |
| STA | 8 | 41 | 3 | | i | | | | | | |
| *** | 3.088E 03 | 2.949E 02 | | | - | 0/A | 9/AP | r | DEL TF | 2 | |
| 8 | 3.088E 03 | 2.949E C2 | | | • | • | 1.217E 01 | • | • | 1.0206 02 | |
| n | 3.000E 03 | 2-949E 02 | • | | | • | 1.217E 01 | • | • | | |
| į | | | | | • | • | 1.217E 01 | • | • | | |
| 4 . | 2 | DELTA E | ۳ | | | | | | | | |
| → ^ | 3.246E 01 | 2-416E 01 | | 00 | | | | | | | |
| w ~ | 3-246E 01 | 2.416E 01 | | 00 | | | | | | | |

LIQUID SIDE HEAT TRANSFER TEST DATA

VERALL TEST PARAMETERS

T-8-134 . Extended duration test, burnout at data point 16

| | | | | | | _ | | | | | | | |
|-------------|--------|------------|---------|-----------|---------|---------|---------|---------|----------|---------|--|---------|-----------|
| | | TIME, SEC | 4 | - | | - | | | 3 | | _ | 30 | - |
| | | | | | | | | | | | | | 50 |
| | ٠ | 1.27AF | 3.2665 | 3.256E | 3.247E | 3.256E | 3.247E | 3.1985 | 3.247E | 3.247E | 3.247E | 3.256E | 3.189E |
| | 2 | 00 | E 00 | | | | | | | E 01 | | | 6 6 |
| | HT AA | -7.781F 00 | -9.291E | -1.027E | -1.051E | -1.109E | -8.882E | -8.797E | -1.077E | -1.271E | -1.3895 | -1.64BE | -1.6256 |
| | | 0 | | | 5 | 10 | 0 | - | 0 | - | 5 | 5 | 5 5 |
| | 8 | 1.186 | 1.1916 | 1.1916 | 1.191E | 1.1906 | 1.326E | 1.314E | 1.3146 | 1, 3236 | 1 - 29 3E | 1.312E | 1.3106 |
| | | 92 | | 02 | 02 | 02 | 02 | 02 | 05 | 0 | 0 2 | 02 | 0 0 |
| | 12 | 8.0 | | 8.100E | 8.110E | 8.100E | | 8.440E | 8.430E | 8.440E | 8.360E | 8. 410E | 8. 390E |
| | | 0.1 | 10 | 0 | | | | | | 0 | | | ē ē |
| | E2 | 1.5475 | 1.551E | 1 · 55 1E | 1.54% | 1.550€ | 1.650E | 1.642 | 1.6446 | 1.653 | 1.632E | 1.646E | 1.6495 |
| | | 9 | -01 | -0 | - | 5 | ē | -0 | -0 | - | 9 | -0 | 9 9 |
| DATA POINTS | * | 3.400E-01 | | | | | | | | | | | 3.400E-01 |
| 9 | - | | | | | | | 0 5 | | | | | 0 2 |
| DATA | | | 1.454E | | | 1.467 | | | | | | | 1.57% |
| | | | | | | | | | | | | | 5 6 |
| | 18-1N | 9.500E | 8.500E | | | | | | | 9.320E | 90 00 00 00 00 00 00 00 00 00 00 00 00 0 | 0.54 CE | 8.560€ |
| | - | | | | 3 6 | | | | | | 2 6 | | |
| | D-84 | 3.053E | 3.0495 | 20000 | 10.00 | 1.0 205 | 3.0346 | 2 0 3 E | 3.0 3 an | 10000 | 30000 | 3.030E | 3.027E |
| | 2 | | 9 6 | | | | 3 6 | 9 6 | | | 3 6 | 9 6 | 03 |
| | | 3090 F | 3.00 | 3040- | 3.046 | - 04 | 3-0416 | 3000 | 30030 | 3.0 305 | 300366 | 200 | 3.0336 |
| | POINT. | - (| v r | ٠ - | | | | | | | | | |
| | K. | (| | • | | | , ,- | • | | | : = | 12 | 2 |

| VS 5.278F 01 | 5. 31 0E | | | | | 8 | VS 5.277E | VS 5.277E 5.308E | VS 5.277E 5.308E | VS 5.277E 5.308E | VS 5.277E 5.308E | VS 5.277E 5.308E | VS 5.277E 5.308E VS | VS 5.277E 5.308E 5.308E 5.308E 5.308E | VS 5.277E 5.308E VS 5.398E 5.330E | VS 5.277E 5.308E VS 5.298E 5.330E | VS 5.277E 5.308E VS 5.330E 5.330E | VS 5.277E 5.308E 5.330E 5.330E | 5.277E 5.306E 5.330E | 5.277E 5.308E 5.330E 5.330E | S 5.2776 5.3086 8.2986 5.3306 5.1916 5.2236 | \$ 5.2776 5.3086 5.3066 5.3306 5.1916 5.236 | \$ 5.277E 5.308E 5.308E 5.30E 5.23E 5.23E | VS | 5.2776 5.2776 5.2966 5.2966 5.2966 5.2236 | \$ 5.277E 5.308E 5.306E 5.336E 5.33E | \$ 5.277E 5.308E 5.330E 5.33E 5.33E 5.33E |
|--|-------------|------------------|---------------|-------------|-----------|-----------|--------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------------|--|--|--|--|--|----------------------------|--------------------------------------|--|--|--|-----|--|--|--|
| | 4.498E 02 | | | | | 4.562E 02 | | | | | i | 4-491E 02 | | | | | | DEL TF | 4.438E 02 | | | | | | DEL TF 4.425E 02 | 4.919E 02 | |
| H 1-1166-02 | 1.1306-02 | | | : | 1-110F-02 | 1.090E-02 | | | | | 1 | 1-123E-02 | 1.0716-02 | | | | | r | 1.134E-02 | | | | | | 1-139F-02 | 20-34-20-1 | |
| 0/AP 5.083E 00 | 5.083E 00 | | | | 4.971E 00 | 4.971E 00 | | | | | 0470 | 5.044E 00 | 5.044E 00 | | | | | 0/AP | 5.035E 00 | | | | | | 5.038E 00 | - | |
| 3 5-169E 00 | 5.16/E 00 | | DATA POINT 10 | *** | 5.057E 00 | 5.028E 00 | | | | DATA POINT | • | | 5.085E 00 | | | DATA POINT 12 | | A/0 | 5.076E 00 | | | | POINT 13 | *** | 5-155E 00 | | |
| 5. 956E 02 | 20 34 10 *0 | | DATA | 11 | 5.875E 02 | 6.073E 02 | | | | DATA | ī | 5.906E 02 | 20 3747.0 | | | DATA | • | 5-862F 02 | 6-407E 02 | | | | DATA POINT | 1 | 5.853E 02 | | |
| | | 88 | | > | 02 | 02 | | 00 | | | _ | 0 5 | 4 | | 88 | | | 02 | 02 | | 00 | 0 | | | | | |
| 6-170E 02 | 307710 | 6.000E | | 7.4 | 8.050E 02 | 8.220E | 4 | 6.000E | | | A. | 6-110E 02 | | LE | 6- 000E | | - | 8.080E 02 | 8.550E 02 | LE | 9000 -9 | 6.000E 00 | | _ | 8.070E 02 | | ۳ ا |
| T 02 | | | | 18 | 05 | 0 | w | 5 5 | | | 10 | 0 0 | ; | w 6 | | | • | 02 | 62 | w | 5 | 5 | 1 | | 020 | u | u |
| 10 10 10 10 10 10 10 10 10 10 10 10 10 1 | DELTA | 1.6536 | | | 1.396€ 02 | 1.510E 02 | DELTA | 1-632E 01 | | | <u>.</u> | 1.532F 02 | | DELTA | 1.646 | | 16 | 1.424E 02 | 1.544E 02 | DELTA | 1.649 | 1.049 | | 5 | 1.428E 02 | 2 47 50 | DELIA |
| 8 H M | | 55 | | 2 | 00 | 2 | | = = | | | | 0 0 | | ē | 5 | | | 03 | 03 | | 5 | 5 | | | 53 | | |
| 3.036 | S | 3.442E 4.167E | | 4. | 3.033E 03 | 30000 | 2 | 3.442E | | | 9 | 3.030E 03 | | 3.4425 | 4.167E | | 84 | 3.028E 03 | 3.027E 03 | | | | | 9 | 3.020E 03 | 2 | |
| STA - S | STA | → ? | | STA | | | STA | - ~ | | | STA. | - ~ | | ¥ | | | STA | | | STA | | | | STA | | STA | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

ERALL TEST PARAMETERS

HT-8-135. BLANDUT AT DATA PT S. BURNGUT SITE COND. AT DATA PT 6

| | | 000000 |
|----------------------|-------------|---|
| DELTA TO = 0.220E 01 | | 1.3000 00 0.000 00 00 00 00 00 00 00 00 00 |
| | | N n n n n n |
| LTA TO | | 4.180E 1.011E 1.359E 1.618E 1.767E |
| 8 | | 000000 |
| | | 5.2806 9.3706 1.3856 1.7006 2.0716 2.0116 |
| L = 0.300E 01 | | |
| 300 | | |
| ò | | 1.0266 1.0266 1.0226 1.0226 1.0226 |
| 11 | NTS | |
| - | 2 | 2000000 |
| _ | DATA PCINTS | 18-001 1-396E 02 1-512E 02 1-637E 02 1-694E 02 1-894E 02 |
| E-0 | | |
| 0.1156-01 | | TB-IN 1.376E 02 1.376E 02 1.376E 02 1.366E 02 1.366E 02 |
| Ŏ | | 37 06 37 06 36 76 36 66 |
| | | |
| | | # n n n n |
| 3 | | 2.070E 03 2.074E 03 2.074E 03 2.070E 03 2.060E 03 |
| | | ###### • • • • • • • |
| | | PB-IN 2.120E 03 2.127E 03 2.124E 03 2.120E 03 2.119E 03 |
| • | | |

SECTION - LOCAL TEST PARAMETERS

| 0/AP 9.991E-01 9.991E-01 | |
|--|-----------------------------------|
| T1 Q/A E 02 1.014E 00 E 02 1.013E 00 | |
| T1 1.632E 02 1.643E 02 | |
| 7W 2.160E 02 2.190E 02 | 3.200E 00 3.000E 00 3.200E 00 |
| T3 1-386E 02 1-394E 02 | DELTA E 3.200E 00 3.200E 00 |
| PB 2.094E 03 2.075E 03 | L/D 1.268E 01 1.993E 01 |
| ST - 2 | ST 2 |

| 2 0 | 3 | | 0 5 | | 20 | N | N N | | |
|----------------------------------|---|--------------|----------------------------------|---|------------------------------|-------------------------|---|------------|--------------------------------|
| | | | | | | | 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | 0 0 |
| VS 1.615E | | | VS 1.615E | | VS 1-622E | | VS 1.628E 1.643E | | VS 1.638E 1.638E |
| DEL TF 1.927E 02 1.984E 02 | ! | | DEL TF 3-363E 02 3-515E 02 | | DEL TF 4.394E 02 | , , | 7F E 02 E 02 | | |
| 1.92 | | | DEL TF 3.363E 3.515E | | 4.394E | | DEL TF 6-115E 02 6-465E 02 | | 06L TF 0. |
| 3.582E-02 | | | 4.078E-02 | | H 4.776E-02 3.696E-02 | | 4.235E-02 | | : •• |
| 0/A? 6.903E 00 6.903E 00 | | | 0/AP 1.372E 01 1.372E 01 | | 2.099E 01 | | 0/AP 2.5896 01 2.5896 01 | | 0/AP 2.589E 01 2.589E 01 |
| 7.07% C0 7.057E C0 | | DATA POINT 3 | 0/A 1.365E 01 1.378E 01 | DATA POINT | 2.131E 01 2.085E 01 | , 2 | 2E 0 | • IN 10 | |
| 3.382E 02 | | DATA | T. 4.889E 02 5.130E 02 | ATAO | TI 6.006E 02 7.430E 02 | 44 | 7.769E 02 | DATA POINT | |
| TE 02 | 00 | | TW IE 03 | 000 | . n n | 80 | , m m 00 | | |
| FW 6.660E 02 6.740E 02 | 3.000E | | 1.061E 03 | 3.000E | TW 1-411E 03 1-508E 03 | 3.000E | 1 699E 03 1 735E 03 1 735E 03 2 000E 00 | | 0. 0. |
| TB C 2 E 02 | 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | TB 02 | 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 02 | 9 0 0 | 005 01 01 | | |
| 1.454E 02 | DELTA 9.370E 9.370E | | 1.526E 02 | DELTA 1.385E 1.385E | TB 1-612E 02 1-752E 02 | DELTA E 1.780E 0 | 78 1.674E C2 1.656E C2 DELTA E 2.011E 01 2.011E 01 | | 1.795E 02 |
| 25 | 5 E | | n n | | m m | 5 5 | 033 | | |
| PB 2.095E (3 2.077E 93 | 1.268E 1.993E | | 2.095E 03 | 1.269E | 2.091E 03 | L/D 1.26EE 1.993E | 2.089E 03 2.072E 03 L/D 1.268E 01 1.993E 01 | | 2.078E 03 |
| | 2 1 2 2 | | 2 - 2 | STA 2 | | | | | |

Report AFRPL-TR-67-208, Appendix C

.....

02020

1.844 1.503E 2.459E 2.459E

N N N N N

LIGUID SIDE HEAT TRANSFER TEST DATA

ALL TEST PARAMETERS

Page 91

TEST SECTION - LOCAL TEST PARAMETERS HT-8-136 . BURNOUT AT DATA PT 4. BURNOUT SITE COND. AT DATA PT 5

| | | | | DAT | DATA POINT 1 | | | | | |
|-------|------------|-----------|--|-----------|--------------|-----------|-----------|-----------|------------|------|
| STA | | 18 | 1 | : | | | | | | |
| - | 3.953E 03 | 1.467E 02 | | | | 0/AP | I | DEL TF | SA | |
| ~ | 3.941E 03 | 1.469€ | 3.010E 02 | 2.279E 02 | 1.776E 00 | 1.839E 00 | 2.273E-02 | 8.329E 01 | 1.3036 | 200 |
| STA | A L/0 | DELTAF | Li I | | | | | | | 9 |
| - | | 4.850E | | | | | | | | |
| ~ | 1.097E 01 | 4.850 | 2.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DAT | DATA POINT 2 | | | | | |
| STA | A P9 | 18 | 1 | ; | | | | | | |
| - | | 1.5406 02 | I 128F OR | 7.1745 03 | A/0 | O/AP | I | DEL TF | 8 / | |
| ~ | 3.677E 03 | 1.638E 02 | 1.1065 03 | 6.910E 02 | 1.396E 01 | 1.499E 01 | 2.661E-02 | 5.634E 02 | | 20 |
| 412 | | | | | | | 30.7 | 20 22/200 | 1.306 | 25 |
| - | A. 7035 00 | | | | | | | | | |
| · N | 1.097F | 1.4096 01 | | | | | | | | |
| | | | Z.010E 00 | | | | | | | |
| | | | | • | | | | | | |
| | | | | | £ 10101 | | | | | |
| STA | | 13 | 36 | : | • | | | | | |
| - | 3.777E 03 | 1.606E 02 | 1.5835 03 | 1-024F 03 | A 20.00 | 0/AP | I | DEL TF | s A | |
| ~ | 3.767E 03 | 1.781E 02 | 1.548E 03 | 9.8206 32 | 2.179E 01 | 2.345F 01 | 2-7175-32 | 8.632E 02 | | 02 |
| CTA | 5 | | | | | | 76-311603 | 0.0392 72 | 1.2945 32 | N |
| - | | DELTA E | LE | | | | | | | |
| N | 1.0975 01 | | 2-000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| STA | 80 | 13 | 2 | | • | | | | | |
| - | 3.756E 03 | 1.609E 02 | 1.634E 03 | 1.056F 03 | 2. 288F A. | O/AP | r | DEL TF | S ^ | |
| ~ | 3.746E 03 | 1.786E 02 | 1.601E 03 | 1.016E 03 | 2.285E 01 | 2.453E 01 | 2.741E-32 | 8.948E 32 | 1.2795 52 | 01.6 |
| STA | 1/0 | DELTA E | 4 | | | | | | | u |
| - | 4.703E 00 | | 2.900F OO | | | | | | | |
| ~ | 1.0976 01 | | 2.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 5 | | | | | |
| STA | 90 | 18 | ## # · · · · · · · · · · · · · · · · · | - | *** | | | | | |
| - | 3.744E 03 | 1.821E 02 | • | | | 4 10 6 | r | DEL TF | S A | |
| 8 | 3.744E 03 | 1.921E 02 | | | • | 2.453F 91 | • | • 0 | | _ |
| 4 1 2 | • | | | | 3 | 1 | • | • | 1.293E 32 | |
| ٧. | | | Ë | | | | | | | |
| | 1.2236 01 | 1.506E 01 | 2.000E 00 | | | | | | | |
| v | 1.223E 01 | 1.896E 01 | 2.000E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

ALL TEST PARAMETERS

HT-8-137, BURNOUT AT DATA PT 15, BURNOUT SITE CONO. AT STATION 3

HT BAL 1.982E 01 -5.275E 00 -2.775E 00 -9.574E 00 -9.574E 00 -9.75E 00 -9.75E 00 -9.75E 00 -9.75E 00 -9.75E 00 -1.00E 00 -1.10E 00 -1.10E 00 0000000000000000 2.901E 6.975E 1.418E 2.561E 2.561E 4.055E 4.055E 4.052E 5.246E 5.477E 5.266E 5 12 7,2706 9,6906 1,2706 1,5106 000000000000000 6.4306 1.0126 2.1276 2.7666 2.7106 2.7106 2.7106 2.9966 3.9966 3.2236 3.4066 3.4066 7. 85 0E - 01 7. 83 0E - 01 7. 85 0E - 01 7. 85 0E - 01 PCINTS 3.040E 3.040E 3.040E 3.019E 3.019E 3.010E 3.000E 2.99E 2.99E 2.99E 2.99E 2.99E 3.000E 3.000E 3.000E 3.005E 3.005E 3.005E 3.005E 3.005E 3.005E

TEST SECTION - LOCAL TEST PARAMETERS
HT-8-137 . BURNOUT AT DATA PT 15. BURNOUT SITE COLD. AT CT.

| 1,00 | | | | | DAT | DATA POINT | | | | | |
|--|------------|-----------|-----------|------------|-----------|------------|-----------|------------|-----------|--------|-----|
| 1.004E 03 1.02TE 02 2.33E 02 1.579E 02 1.595E 00 1.305E 02 2.37EC 02 2.31E 01 1.119E 1.004E 03 1.02TE 02 2.33E 02 1.595E 02 1.395E 00 1.305E 00 2.47EC 02 5.31E 01 1.119E 1.004E 03 1.02TE 02 2.33E 02 1.596E 02 1.395E 00 1.305E 00 2.37EC 02 5.39E 01 1.119E 2.009E 01 6.43DE 00 5.00E 00 3.015E 01 6.43DE 00 5.00E 00 3.015E 01 6.43DE 02 5.32E 02 1.395E 00 1.305E 00 1.305E 00 1.305E 01 1.119E 2.009E 01 1.012E 02 4.32DE 02 2.72TE 02 3.00E 00 3.19E 00 2.01EC 02 1.39E 02 1.19TE 3.005E 03 1.00DE 02 4.32DE 02 2.72TE 02 3.00E 00 3.19E 00 2.01EC 02 1.39E 02 1.19TE 2.009E 01 1.012E 01 5.00DE 00 3.015E 01 1.012E 0 | STA | | 18 | - | ; | | | | | | |
| 3.00346 03 1.03096 02 2.3306 02 1.5996 02 1.5996 00 1.365 00 2.600E-02 5.596 01 1.11096 3.0036 03 1.0306 00 5.0006 00 3.116 01 0.3306 00 5.0006 00 3.116 01 0.3306 00 5.0006 00 3.116 01 0.3306 00 5.0006 00 3.116 01 0.3306 00 5.0006 00 3.116 01 0.316 02 4.3206 02 2.2216 02 3.0906 00 3.194 00 2.006-02 1.936 02 1.1906 3.1036 03 1.1306 02 4.3206 02 2.2216 02 3.1996 00 3.194 00 2.006-02 1.936 02 1.1906 3.1036 03 1.1306 02 4.3206 02 746 02 3.1996 00 3.194 00 2.006-02 1.936 02 1.1906 3.1036 03 1.1306 02 4.3206 02 746 02 3.1996 00 3.194 00 2.006-02 1.936 02 1.1906 3.1036 03 1.1306 02 7.1206 02 4.1206 02 6.4996 00 2.196 00 2.1976 02 1.1906 3.1036 03 1.1306 02 7.1206 02 4.1226 02 6.4996 00 2.196 00 2.106-02 3.0006 02 1.1006 3.1036 03 1.1306 02 7.1206 02 4.1226 02 6.4996 00 2.1276-02 3.1006 02 1.1206 02 1.2006 3.1036 03 1.1306 02 7.1206 02 4.1226 02 6.4996 00 2.1276-02 2.1976 02 1.2006 3.1036 03 1.1306 02 7.1206 02 4.1226 02 6.4996 00 2.1276-02 2.1976 02 1.2006 02 1.2006 3.1036 03 1.1306 02 7.1206 02 4.1226 02 6.4916 00 2.1276-02 2.1976 02 1.2006 02 1. | - | 3.066E 03 | | | | 1 305 00 | OVAP | I | DEL TF | S. A | |
| 1.09 1.01 1. | N 1 | 3.054E 03 | | 2. 330E | | 1-395F 00 | | 20-10-02 | 5.516E 01 | 1.169E | |
| 1.4778 01 0.0ELTA F | 7 | 3.043E 03 | 1.051 | 2.320E | | 1.395E 00 | | 2.640E-02 | | 1.1906 | |
| 1.6996 01 6.4306 00 5.0000 00 3.446e 01 6.4306 01 6.4306 00 3.446e 01 6.4306 01 6.4306 01 3.446e 01 6.4306 01 6.4306 01 3.446e 01 6.446e 01 3.446e 01 6.446e 01 3.446e 01 6.446e 01 3.446e 01 | STA | | | | | | | | | | |
| 2.699E 01 6.430E 00 5.00E 00 3.441E 01 6.430E 00 5.00E 00 3.441E 01 6.430E 00 5.00E 00 3.409E 01 6.430E 02 5.00E 00 3.409E 01 1.012E 01 2.020E 02 7.46 02 3.199E 00 3.194E 00 1.907F-02 1.524E 02 1.194E 3.409E 01 1.012E 01 5.00E 00 3.410E 01 1.012E 01 5.00E 00 | - | | | 5.000 | | | | | | | |
| 3.44fe 01 6.430e 00 5.00e 00 3.44fe 01 1.697fe 02 4.320e 02 2.7216 02 3.202e 00 3.194e 00 1.697fe 02 1.194e 3.459fe 03 1.126e 02 4.320e 02 7.44fe 02 3.199e 00 3.194e 00 1.697fe 02 1.194e 3.459fe 03 1.126e 02 4.320e 02 7.44fe 02 3.199e 00 3.194e 00 2.017fe 02 1.194e 3.459fe 03 1.1012e 03 5.000e 00 3.41fe 03 1.1012e 03 5.000e 00 3.41fe 04 1.012e 04 5.000e 00 3.41fe 04 1.1012e 04 5.000e 00 3.41fe 05 1.1012e 04 5.000e 00 3.41fe 05 1.1012e 04 5.000e 00 3.41fe 05 1.1012e 07 5.000e 00 3.41fe 07 1.1012e 07 5.000e 00 3.41fe 07 1.1012e 07 5.000e 00 3.41fe 08 7Ff 07 7F | ~ | | | 5-000 | | | | | | | |
| 1.9756 03 1.0976 02 4.320k 02 2.7216 02 3.2026 00 3.1946 00 1.9676 02 1.6246 02 1.1946 1.945 02 1.1946 02 2.7216 02 3.1996 00 3.1946 00 2.0066-02 1.6246 02 1.1946 1.945 02 1.1946 00 2.0066-02 1.6246 02 1.1946 1.945 02 1.1946 00 2.0066-02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 02 1.1946 02 1.1946 02 2.9356 0 | e, | | | \$.000E | | | | | | | |
| DATA POINT 2 1.0996 03 1.0997 03 1.0997 03 4.3206 02 2.7216 02 3.0926 00 1.9977-02 1.6246 02 1.1946 3.0326 03 1.1606 02 4.3206 02 2.7216 02 3.1996 00 1.9977-02 1.6246 02 1.1946 3.0326 03 1.1606 02 4.3206 02 7446 02 3.1996 00 3.1946 00 2.0066-02 1.5946 02 1.1946 3.0326 03 1.1606 02 4.3206 02 7446 02 3.1996 00 3.1946 00 2.0176-02 1.5946 02 1.1946 2.6999 01 1.0126 01 5.0006 00 00 00 00 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 3.03E 03 1.130E 02 4.320E 02 2.721E 02 3.199E 00 3.194E 00 1.907E-02 1.524E 02 1.194E 3.03EE 03 1.130E 02 4.330E 02 3.199E 00 3.194E 00 2.006E-02 1.592E 02 1.194E 3.03EE 03 1.130E 02 4.330E 02 3.199E 00 3.194E 00 2.006E-02 1.592E 02 1.194E 3.03EE 03 1.130E 02 4.330E 02 3.199E 00 3.194E 00 2.017E-02 1.594E 02 1.194E 2.699E 01 1.012E 01 5.000E 00 3.199E 00 2.017E-02 1.594E 02 1.197E 3.03EE 03 1.012E 01 5.000E 00 3.199E 00 3.194E 00 2.164E-02 1.594E 02 1.197E 3.03EE 03 1.247E 02 1.236E 02 4.123E 02 6.497E 00 6.491E 00 2.257E-02 2.977E 02 1.206E 3.030E 03 1.247E 02 7.000E 02 4.223E 02 6.497E 00 6.491E 00 2.257E-02 2.977E 02 1.206E 3.0378E 03 1.508E 03 | | | | | DATA | | | | | | |
| 3.0595 03 1.0975 02 4.3206 02 2.7216 02 3.5026 00 3.1946 00 1.0976 02 1.0946 3 1.1026 03 1.11296 02 4.3206 02 2.7216 02 3.5026 00 3.1946 00 2.0066-02 1.5926 02 1.1946 3 1.1026 03 1.1026 02 4.3206 02 2.7216 02 3.1996 00 3.1946 00 2.00776-02 1.5926 02 1.1976 1.1976 01 1.0126 01 5.0006 00 3.1946 00 2.01776-02 1.5946 02 1.1976 3.4166 01 1.0126 01 5.0006 00 3.1946 00 2.01776-02 1.5946 02 1.1976 3.4166 01 1.0126 01 5.0006 00 3.1946 00 2.01776-02 1.5946 02 1.1976 3.4166 01 1.0126 01 5.0006 00 4.1916 00 2.1046-02 3.0006 02 1.2066 3.4166 02 4.2236 02 6.4916 00 2.2576-02 2.9776 02 1.2066 3.4166 01 1.5126 01 5.0006 00 4.2236 02 6.4916 00 2.2576-02 2.9776 02 1.2066 2.6996 01 1.5126 01 5.0006 00 4.2236 02 6.4916 00 2.2576-02 2.9776 02 1.2066 2.6996 01 1.5126 01 5.0006 00 4.2236 02 6.4916 00 2.2576-02 2.9776 02 1.2066 2.6996 01 1.5126 01 5.0006 00 4.2236 02 6.4916 00 2.2576-02 2.9776 02 1.2066 2.6996 01 1.5126 01 5.0006 00 4.2236 02 6.4916 00 2.2576-02 2.9156 02 1.2066 2.6996 01 1.5126 01 5.0006 00 4.2236 02 1.1066 01 1.1776 01 2.4936-02 4.556 02 1.2066 3.0006 00 4.2060 01 1.1776 01 2.4936-02 4.556 02 1.2196 01 1.7786 01 2.12776 | STA | | 2 | 1 | ; | | | | | | |
| 3.032E 03 1.122E 02 4.322E 02 2.721E 02 3.109E 00 3.104E 00 1.040F-02 1.534E 02 1.194E 1.997E 01 1.012E 01 5.000E 00 2.699E 01 1.012E 01 5.000E 00 3.418E 01 1.000E 02 1.000E 00 3.418E 01 1.000E 00 3.418E 01 1.000E 02 1.000E 00 3.418E 01 1.000E 00 3.100E | - | 3.059E 03 | 1.097E 02 | 40.320 | | A | O/AP | I | DEL TF | 8 > | |
| 3.03EE 03 1.166E 02 4.340E 02 74E 02 3.199E 00 3.194E 00 2.017E-02 1.594E 02 1.197E 2.699E 01 1.012E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 | N | | 1.129E 02 | | | 3.202E 00 | 3.194E 00 | 1.967E-02 | 1.624E 02 | | 02 |
| 1.00 | m | | 1.160E 02 | 4.340E 0 | | 3.199E 00 | 3.194E 00 | 2.006E-02 | 1.5845 02 | | 020 |
| 1.979E 01 1.012E 01 5.000E 00 3.419E 01 1.012E 01 5.000E 00 3.0039E 03 1.186E 02 7.120E 02 4.186E 02 6.491E 00 6.491E 00 2.257E-02 2.677E 02 1.200E 3.033E 03 1.208E 02 7.070E 02 4.123E 02 6.497E 00 6.491E 00 2.257F-02 2.677E 02 1.200E 3.033E 03 1.208E 01 5.000E 00 3.418E 01 1.512E 01 5.000E 00 3.418E 01 1.778E 01 2.6378E 02 1.165E 01 1.179E 01 2.630E-02 4.578E 02 1.219E 1.200E 3.005E 03 1.217E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 | STA | | | 4 | | | | | | | , |
| 2.699E 01 1.012E 01 5.000E 00 3.41EE 01 1.012E 01 5.000E 00 3.41EE 01 1.012E 01 5.000E 00 3.035E 03 1.136E 02 7.120E 02 4.123E 02 6.491E 00 2.154E-02 3.000E 02 1.206E 3.033E 03 1.247E 02 7.120E 02 4.123E 02 6.491E 00 2.257E-02 2.977E 02 1.206E 2.697E 01 1.512E 01 5.000E 00 3.41BE 01 1.512E 01 5.000E 00 4.236 02 1.166E 01 1.73E 01 2.483E-02 4.526E 02 1.206E 02 1.206E 03 1.206E | - | | | | | | | | | | |
| 3.416E 01 1.012E 01 5.000E 00 DATA POINT 3 DATA POINT 4 PB TT | N | | | | | | | | | | |
| DATA POINT 3 DATA POINT 4 PB TT | m | | | | | | | | | | |
| DATA POINT 3 DATA POINT 4 PB TB TW | | | | | | | | | | | |
| 3.052E 03 1.186E 02 7.120E 02 4.186E 02 6.494E 00 6.491E 00 2.164E-02 3.000E 02 1.200E 02 3.045E 03 3.034E 03 1.186E 02 7.150E 02 4.123E 02 6.507E 00 6.491E 00 2.257E-02 2.077E 02 1.200E 03 3.034E 03 1.512E 01 5.000E 00 0 2.227E-02 2.915E 02 1.200E 03 2.699E 01 1.512E 01 5.000E 00 0 0 0.491E 00 2.227E-02 2.915E 02 1.200E 00 2.699E 01 1.512E 01 5.000E 00 0 0.491E 00 2.227E-02 2.915E 02 1.200E 00 0.491E 01 2.630E-02 2.915E 02 1.200E 00 0.491E 01 2.630E-02 2.915E 02 1.200E 00 0.491E 01 2.630E-02 2.915E 02 1.200E 01 1.173E 01 2.630E-02 2.915E 02 1.200E 02 1.200E 01 1.173E 01 2.631E-02 4.459E 02 1.219E 02 2.699E 02 1.160E 01 1.173E 01 2.651E-02 4.550E 02 1.219E 02 2.699E 01 2.127E 01 5.000E 00 0.491E 01 2.127E 0 | | | | | DATA | | | | | | |
| 3.052E 03 1.186E 02 7.120E 02 4.186E 02 6.494E 00 6.491E 00 2.164E-02 3.000E 02 1.200E 3.033E 03 1.247E 02 7.150E 02 4.123E 02 6.507E 00 6.491E 00 2.257E-02 2.570E-02 1.200E 3.033E 03 1.308E 02 7.150E 02 4.223E 02 6.487E 00 6.491E 00 2.227E-02 2.915E 02 1.200E 1.9779E 01 1.512E 01 5.000E 00 2.699E 01 1.512E 01 5.000E 00 3.418E 01 1.512E 01 5.000E 00 3.418E 01 1.512E 02 1.074E 03 6.033E 02 1.160E 01 1.173E 01 2.561E-02 4.558E 02 1.216E 3.025E 03 1.310E 02 1.079E 03 6.099E 02 1.160E 01 1.173E 01 2.561E-02 4.578E 02 1.216E 1.9779E 01 2.127E 01 5.000E 00 3.448E 01 2.127E 01 5.000E 00 | STA | 20 | | 1 | ; | į | | | | | |
| 3.043£ 03 1.247£ 02 7.070£ 02 4.123£ 02 6.507£ 00 2.157£-02 3.000£ 02 1.200£ 3.0336 03 1.308£ 02 7.150€ 02 4.223€ 02 6.467£ 00 6.491£ 00 2.257£-02 2.677 02 1.204£ 1.979€ 01 1.512£ 01 5.000€ 00 2.699€ 01 1.512£ 01 5.000€ 00 3.418€ 01 1.512£ 01 5.000€ 00 3.418€ 01 1.512£ 02 1.074€ 03 6.039€ 02 1.160€ 01 1.173€ 01 2.483€-02 4.723€ 02 1.206€ 3.025€ 03 1.310€ 02 1.079€ 03 6.099€ 02 1.160€ 01 1.173€ 01 2.561€-02 4.558€ 02 1.219€ 1.979€ 01 2.127€ 01 5.000€ 00 2.699€ 01 2.127€ 01 5.000€ 00 3.418€ 01 2.127€ 01 5.000€ 00 3.418€ 01 2.127€ 01 5.000€ 00 | | 3.052E 03 | 1.186E 02 | 7.120E 02 | | 6.494F 00 | 0/AP | I | DEL TF | SA | |
| 3.033E 03 1.309E 02 7.150E 02 4.223E 02 6.407E 00 6.491E 00 2.227E-02 2.915E 02 1.204E 1.979E 01 1.512E 01 5.000E 00 2.699E 01 1.512E 01 5.000E 00 3.418E 01 1.512E 01 5.000E 00 3.418E 01 1.512E 01 5.000E 00 3.418E 01 1.512E 01 5.000E 00 3.037E 03 1.310E 02 1.074E 03 6.033E 02 1.166E 01 1.173E 01 2.483E-02 4.723E 02 1.206E 3.026E 03 1.512E 02 1.079E 03 6.099E 02 1.160E 01 1.173E 01 2.561E-02 4.723E 02 1.219E 1.970E 01 2.127E 01 5.000E 00 3.466E 01 2.127E 01 5.000E 00 | N | 3.043£ 03 | 1.247E 02 | | Ī | 6.507F 00 | 4 491E 00 | Z-164E-02 | 3.000E 02 | | 05 |
| 1.4796 01 1.512E 01 5.000E 00 2.699E 01 1.512E 01 5.000E 00 3.418E 01 1.512E 01 5.000E 00 3.037E 03 1.415E 02 1.074E 03 6.033E 02 1.165E 01 1.173E 01 2.483E-02 4.723E 02 1.206E 3.037E 03 1.512E 02 1.079E 03 5.099E 02 1.166E 01 1.173E 01 2.551E-02 4.723E 02 1.219E 1.979E 01 2.127E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 | m | 3.033E 03 | 1.308E 02 | | | 6-487E 00 | 6.491E 00 | 2.22 7E-02 | 2.877E 02 | | 200 |
| 1-979E 01 1-512E 01 5.000E 00 2-699E 01 1-512E 01 5.000E 00 3-418E 01 1-512E 01 5.000E 00 3-037E 03 1-415E 02 1-074E 03 6.033E 02 1-166E 01 1-173E 01 2-630E-02 4-723E 02 1-206E 3-026E 03 1-512E 02 1-079E 03 6.099E 02 1-160E 01 1-173E 01 2-561E-02 4-570E 02 1-219E 1-970E 01 2-127E 01 5-000E 00 3-699E 01 2-127E 01 5-000E 00 3-699E 01 2-127E 01 5-000E 00 3-699E 01 2-127E 01 5-000E 00 | STA | 2 | | <u>u</u> | | | | | | | 7 |
| 2.699E 01 1.512E 01 5.000E 00 3.418E 01 1.512E 01 5.000E 00 3.418E 01 1.512E 01 5.000E 00 4.418E 01 1.512E 01 5.000E 00 5.418E 01 1.512E 01 5.000E 00 5.418E 01 1.512E 01 5.000E 00 5.418E 01 2.512F 01 5.000E 00 5.409E 02 1.510E 6.099E 02 1.500E 01 1.73E 01 2.561E-02 4.578E 02 1.219E 6.097E 01 2.127E 01 5.000E 00 5.498E 01 2.127E 01 5.000E 00 5.498E 01 2.127E 01 5.000E 00 | | | | | | | | | • | | |
| 3.418E 01 1.512E 01 5.000E 00 DATA POINT 4 DATA POINT 4 3.045E 03 1.310E 02 1.074E 03 6.033E 02 1.162E 01 1.173E 01 2.483E-02 4.723E 02 1.206E 3.027E 03 1.415E 02 1.062E 03 5.873E 02 1.160E 01 1.173E 01 2.630E-02 4.458E 02 1.213E L/O CELTA F LE 1.970E 01 2.127E 01 5.000E 00 2.699E 01 2.127E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 3.418E 01 2.127E 01 5.000E 00 | N | | | | | | | | | | |
| DATA POINT 4 3.045E 03 1.310E 02 1.074E 03 6.033E 02 1.162E 01 1.173E 01 2.483E-02 4.458E 02 1.213E 3.037E 03 1.415E 02 1.062E 03 5.873E 02 1.166E 01 1.173E 01 2.630E-02 4.458E 02 1.213E L/O CELTA F LE 1.970E 01 2.127E 01 5.000E 00 2.699E 01 1.173E 01 2.561E-02 4.578E 02 1.219E 3.445E 01 2.127E 01 5.000E 00 3.445E 01 2.127E 01 5.000E 00 | r) | | | | | | | | | | |
| PB TB TW TI OCAP H DEL TF VS 3.045E 03 1.310E 02 1.074E 03 6.033E 02 1.162E 01 1.173E 01 2.483E-02 4.723E 02 1.206E 3.037E 03 1.415E 02 1.062E 03 5.873E 02 1.166E 01 1.173E 01 2.483E-02 4.723E 02 1.213E L/D CELTA F LE 1.979E 01 2.127E 01 5.000E 00 2.699E 02 1.160E 01 1.173E 01 2.561E-02 4.578E 02 1.219E 2.699E 01 2.127E 01 5.000E 00 3.416E 01 2.127E 01 5.000E 00 | | | | | | | | | | | |
| 3.045E 03 1.310E 02 1.074E 03 6.033E 02 1.162E 01 1.173E 01 2.483E-02 4.723E 02 1.206E 3.037E 03 1.415E 02 1.074E 03 6.093E 02 1.166E 01 1.173E 01 2.483E-02 4.723E 02 1.206E 3.026E 03 1.421E 02 1.079E 03 6.099E 02 1.160E 01 1.173E 01 2.630E-02 4.458E 02 1.213E 1.077E 01 2.127E 01 2.127 | | | | | DATA | POINT 4 | | | | | |
| 3.045E 03 1.310E 02 1.074E 03 6.033E 02 1.162E 01 1.173E 01 2.453E-02 4.723E 02 1.206E 3.037E 03 1.415E 02 1.062E 03 5.673E 02 1.166E 01 1.173E 01 2.4530E-02 4.458E 02 1.213E L/D CELTA F LE 1.979E 01 2.127E 01 5.000E 00 3.416E 01 2.127E 01 5.000E 00 | STA | 80 | 18 | 1 | ; | į | | | | | |
| 3.037E 03 1.415E 02 1.062E 03 5.873E 02 1.105E 01 1.173E 01 2.635E-02 4.723E 02 1.206E 3.028E 03 1.521E 02 1.079E 03 6.099E 02 1.160E 01 1.173E 01 2.630E-02 4.458E 02 1.213E 1.275E 01 2.177E 01 2.631E-02 4.578E 02 1.219E 1.979E 01 2.127E 01 2.127E 01 2.000E 00 1.219E 3.48E 01 2.127E 01 5.000E 00 1.215TE 01 5.000E 00 1.215T | *** | 3.045E 03 | 1.310E 02 | 1.0745 03 | A-032E A3 | A/0 | OZAP | r | DEL TF | SA | |
| 3.026E 03 1.521E 02 1.079E 03 6.099E 02 1.160E 01 1.173E 01 2.630E-02 4.458E 02 1.213E L/O CELTA F LE 1.979E 01 2.127E 01 5.000E 00 3.416E 01 2.127E 01 5.000E 00 | ~ | 3.037E 03 | 1.415E 02 | 1.062E 0.3 | 5.873F 02 | 10 3261 01 | | 2-483E-02 | 4.723E 02 | | 2 |
| L/O CELTA F LE 1.976E 01 2.127E 01 5.000E 00 2.699E 01 2.127E 01 5.000E 00 3.416E 01 2.127E 01 5.000E 00 | m | 3.028E 03 | 1.521E 02 | 1.079€ 03 | 6.099E 02 | 1.160E 01 | | 2.630E-02 | | | ~ |
| 2.699E 01 2.127E 01 5.000E 2.699E 01 2.127E 01 5.000E 3.416E 01 2.127E 01 5.000E | \$ T.A | | | | | | | | | | ~ |
| 2.699E 01 2.127E 01 5.000E 3.416E 01 2.127E 01 5.000E | - | 1.0795 | | | | | | | | | |
| 3.416E 01 2.127E 01 5.000E | • • | 2.699F 01 | | | | | | | | | |
| | P) | 3.416E 01 | 2.127E 01 | | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS

1-8-137 . BURNOUT AT DATA PT 15. BURNOUT SITE COMD. AT STATIOM

| | | 2 | 02 | 02 | | | | | | | | 0 | 0 2 | 05 | | | | | | | | 9 6 | 95 | | | | | | | (| 20 | 2 0 | ě | | | |
|------------|------|-----------|-----------|-----------|-------|--------|---------|--------|---|------------|------|-----------|------------|-----------|-------|--------|--------|--------|------------|------|------------|-----------|-----------|--------|---------|--------|--------|------------|---|---------------|-----------|------------|---|-------|---------|--------|
| | * | | | | | | | | | | 2 | | | | | | | | | • | | | | | | | | | | | | | | | | |
| | | 201 | 1.2 | 1.2 | | | | | | | • | 2.5 | 1.226E | 1.236€ | | | | | | • | 2 | 3266 | 1.2376 | | | | | | | • | 1.215E | 1.226E | : | | | |
| | | 0 | 0.0 | 05 | | | | | | | | 6 | 95 | 02 | | | | | | | | 2 6 | 0 0 | | | | | | | | 20 | 200 | ; | | | |
| | 1 | 5.549E 02 | 5.1706 | 7.031E 02 | | | | | | | 100 | 7-270F 02 | 6.754E | 7.361E 02 | | | | | | - | 7. 15.05 | 9000 | 7.544E | | | | | | | DEL TF | 7.010E 02 | 7.039E 02 | | | | |
| | 7 | 2.7655-02 | 2.967E-02 | 2.182E-02 | | | | | | | 1 | 2.429E-02 | 2.61 4E-02 | | | | | | | 3 | 2. 4035-03 | 2.729F-02 | | | | | | | : | F 60 3 F 60 5 | 2015E-04 | Z-0-32E-05 | | | | |
| | 9/49 | 1.5346 01 | 1.534E 01 | 1.534E 01 | | | | | | | 94/0 | 1.766E 01 | 1.766E 01 | 1.766E 01 | | | | | | 8470 | LASSE DI | 1.856F 01 | | | | | | | | L SOAF AT | 1.0045 | 1.994E 01 | | | | |
| 'n | 6/A | 1.529E 01 | 1.536E 01 | 1.482E 01 | | | | | • | • | 4/0 | E 01 | E 01 | E 01 | | | | | • | 4/0 | | 10 3 | E 01 | | | | | • | | 3F 0.1 | | . 6 | | | | |
| DATA POINT | ı | 1.52 | 1.53 | 1.48 | | | | | | PAIN POINT | | 1.728E 01 | 1.737E | 1.7186 | | | | | DATA POINT | | 1.824F 01 | 1.829€ 01 | 1.806E 01 | | | | | DATA POINT | • | 1.96 35 01 | 200 | 1.940E 01 | | | | |
| DATA | 1 | E 02 | E 02 | E 02 | | | | | | 4 | : | 102 | 20 | | | | | | DATA | - | 0.2 | 0.2 | | | | | | DATA | ; | . 02 | 0 | ; | | | | |
| | | 6.969E 02 | 6.735E 02 | 8.741E 02 | | | | | | | | 8.748E 02 | 8.399E 02 | | | | | | | - | 8.637E 02 | 8.447E 02 | | | | | | | • | 8-906E 02 | 8-715F 02 | | | | | |
| | 2 | 03 | 03 | 03 | | | | 8 | | | | 03 | 03 | | | 00 | | | | | 03 | 03 | | | 00 | 00 | 00 | | | 0.3 | 0.3 | ; | | | 00 | |
| | - | 1.284E 03 | 1.267E | 1.417E | i | 5.000E | 5. 600E | 5.000E | | | 18 | 1.499E 03 | 1.473€ 03 | | 4 | 5.000E | 5.000E | 5.000E | | 1 | 1.521E 03 | 1.597E 03 | | - | 5,000E | 5.000E | 5.000E | | | 1.588E 03 | 1.574E 03 | 1 | 1 | | 5-000E | 9000 |
| | 9 | 0.5 | . 02 | 95 | w | | | 5 | | | 16 | 02 | 05 | 05 | w | | | 01 | | | 02 | 02 | 05 | ш | | | 01 | | | 92 | 02 | | | | 5 3 | |
| | | 1.419E 02 | 1.565E 02 | 1-711E 02 | DELTA | 2.496E | 2.496E | Z-496E | | | - | 1.477E 02 | 1.645E 02 | 1.812E 02 | DELTA | 2.710E | 2.710E | 2.710E | | 10 | 1.479E 02 | 1.647E | 1.816E 02 | DEL TA | 2.78 TE | 2.787E | 2.787E | | - | 1.500E 02 | 1.676E | 1-852E | | DELTA | Z. 905E | 2.0050 |
| | | 03 | 0 | 0 | | | | 10 | | | • | 03 | 03 | 50 | | 5 | 010 | 0 | | | 03 | 63 | 03 | | 10 | 5 | | | | 03 | 03 | 03 | | ; | | |
| | • | 3.038E 03 | 3.029E 03 | 3.020E 03 | 3 | 1.979E | 2.699E | 3.4186 | | | 9 | 3.033E 03 | 3.024E 03 | 3.015E 03 | 1/0 | 1.979€ | 2.699E | 3.418 | | 8 | 2.030E 03 | | 3.012€ | 2 | 1.979€ | 2.699E | 3.418E | | 6 | 3.027E 03 | 3.018E | | | | 3676- | |
| | STA | _ | ~ | ۳, | STA | _ | N I | ŋ ' | | | STA | _ | N | - | STA | _ | ~ | P) | | TA | _ | 8 | m | T.A | _ | ~ | m | | 2 | | | - | | | - (| |

Report AFRPL-TR-67-208, Append_x C

HT-8-137 . BURNOUT AT DATA PT 15. BURNOUT SITE COND. AT STATION 3 TEST SECTION - LOCAL TEST PARAMETERS

| 1 1.70° C | STA | | | | | | | | | | |
|--|------|-----------|-----------|-----------|-----------|------------|-------------|-----------|------------|-----------|-----|
| 3.0016 03 1.5016 02 1.6416 03 5.1385 02 2.0716 01 2.036 01 2.7016 02 1.2208 03 1.2208 03 1.7008 03 1.6408 02 1.6228 03 1.6408 02 2.0408 01 2.1028 01 2.7008 03 1.6208 | - | | - | 2 | = | 9 | Q/AP | I | DEL TF | S > | |
| 3-0166 03 1-0306 02 1-0226 03 0-0756 02 2-0786 01 2-1026 01 2-1026 02 1-2216 | | 3.024E 03 | 1.517E 02 | 1.641E 03 | 9.135E 02 | 2.071E 01 | 2-10 3E 01 | 2.760E-02 | 7.618E 02 | 1.21 BE | 0.2 |
| 3-0066 03 1-0086 02 3-4066 01 2-7946 01 5-0006 00 3-4106 01 2-7946 01 5-0006 00 3-4106 01 2-7946 01 5-0006 00 3-4106 01 2-7946 01 5-0006 00 3-4106 01 2-7946 01 5-0006 00 3-4106 01 2-7946 01 5-0006 00 3-4106 01 3-1326 01 2-7946 01 3-1326 01 2-7066 02 1-2316 3-50016 03 1-3526 01 5-0006 00 3-4106 01 3-1326 01 2-7066 02 1-2316 3-4106 01 3-1326 01 1-706 03 1-706 03 1-706 02 1-2316 3-4106 01 3-1326 01 1-706 03 1-706 0 | ~ | 3-015E 03 | 1.700E 02 | 1.622E 03 | 8.875E 02 | 2.078E 01 | 2.10 3E 01 | 2.931E-02 | 7.17SF 02 | 1.220F | 6 |
| 2409E 01 2-999E 01 5-000E 00 2409E 01 2-999E 01 5-000E 00 2409E 01 2-999E 01 5-000E 00 2409E 01 1-599E 01 2-999E 01 2-599E | - | 3.0066 03 | 1.863E 02 | | | 2.04 BE 01 | 2.1035 01 | | 8.247E 02 | 1.241E | 92 |
| 14-196 01 2-9946 01 5-0006 00 3-4196 01 2-9946 01 5-0006 00 3-4196 01 2-9946 01 5-0006 00 3-4196 01 2-9946 01 5-0006 00 3-4196 01 2-9946 01 5-0006 00 3-4196 01 1-4956 02 1-7076 03 9-2599 02 2-2596 01 2-2819 01 2-9926 02 1-2319 01 2-9926 02 1-2319 01 2-9926 01 2-2819 01 3-1746-02 7-1916 02 1-2319 01 3-1326 01 3 | STA | | | רפ | | | | | | | |
| 2.4986 01 2.9946 01 5.0006 00 3.4186 01 2.9946 01 5.0006 00 3.4186 01 2.9946 01 5.0006 00 3.4186 01 2.9946 01 5.0006 00 3.4186 01 1.5396 02 1.7796 03 9.2596 02 2.5366 01 2.2836 01 3.1746-02 7.7096 02 1.23186 3.4186 01 3.1326 01 5.0006 00 3.4186 01 3.1326 01 5.0006 00 3.4186 01 3.1326 01 5.0006 00 3.4186 01 3.1326 01 5.0006 00 3.4186 01 3.2236 01 3.3216-02 7.7196 02 1.2318 01 3.1136-02 7.7196 02 1.2318 01 3.1326 01 5.0006 00 3.4186 01 3.2236 01 5.0006 00 3.4186 01 3.2236 01 3.4026 01 3.3116-02 7.7196 02 1.2318 01 2.4026 01 3.3116-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.3216-02 7.7196 02 1.2318 01 2.4026 01 3.2196 02 1.2318 01 2.4026 01 3.2196 02 1.2318 01 2.4026 01 3.2196 02 1.2318 02 1.2318 01 2.4026 01 3.4026 | _ | | | | | | | | | | |
| 3-416E 01 2-594E 01 5-500E 00 3-42E 03 1-553E 02 1-707E 03 9-259E 02 2-250E 01 2-205E 01 2-705E 02 1-210E 3-402E 03 1-709E 02 1-707E 03 9-259E 02 2-250E 01 2-205E 01 2-705E 02 1-210E 3-402E 03 1-709E 02 1-709E 02 1-509E 01 2-705E 01 3-709E 02 1-220E 3-402E 03 1-709E 02 1-709E 02 1-709E 02 1-220E 3-402E 03 1-709E 02 1-709E 03 1-709E 02 1-709E 02 1-220E 3-402E 03 1-709E 02 1-709E 03 1 | N | | | | | | | | | | |
| DATA POINT 10 3.021E 03 1.555E 02 1.707E 03 9.259E 02 2.550E 01 2.283E 01 3.174E-02 7.770E 02 1.231E 3.012E 03 1.945E 02 1.644E 03 8.940E 02 2.550E 01 2.283E 01 3.174E-02 7.101E 02 1.231E 1.070E 03 1.945E 02 1.644E 03 8.940E 02 2.550E 01 2.283E 01 3.174E-02 7.101E 02 1.231E 1.070E 03 1.945E 02 1.644E 03 9.90E 02 2.375E 01 2.402E 01 3.137E-02 7.131E 02 1.231E 3.418E 01 3.132E 01 5.000E 00 DATA POINT 11 0/A 0/AP H DEL FF VS 3.010E 03 1.734E 02 1.724E 03 9.017E 02 2.397E 01 2.402E 01 3.131E-02 7.233E 02 1.231E 1.070E 03 1.222E 01 5.000E 00 DATA POINT 12 2.402E 01 3.321E-02 7.331E 02 1.231E 1.090E 03 1.322E 01 5.000E 00 2.990E 01 2.302E 01 3.000E 00 2.990E 01 3.222E 01 5.000E 00 2.990E 01 3.222E 01 5.000E 00 2.990E 01 3.232E 01 5.000E 00 2.990E 01 3.303E 01 3.000E 00 2.990E 01 3.303E 01 3.000E 00 2.990E 01 2.500E 01 3.200E 02 1.232E 2.990E 01 3.303E 01 3.000E 00 | P) | 3-410E 01 | | | | | | | | | |
| 3-012E 03 1.535E 02 1.707E 03 9.559E 02 2.559E 01 2.705E 02 7.706E 02 1.231E 3-003E 03 1.745E 02 1.684E 03 8.940E 02 2.559E 01 2.723E 01 3.174E-02 7.706E 02 1.231E 3-003E 03 1.745E 02 1.684E 03 8.940E 02 2.259E 01 2.283E 01 3.174E-02 7.7191E 02 1.231E 2.799E 01 3.132E 01 5.000E 00 3-131E 01 5.000E 00 | | | | | DATA | | | | | | |
| 3-021E 03 1-553E 02 1-707E 03 9-259E 02 2-259E 01 2-263E 01 3-174E-02 7-191E 02 1-218E 3-2012E 03 1-749E 02 1-644E 03 8-960E 02 2-259E 01 2-263E 01 3-174E-02 7-191E 02 1-231E 3-699E 01 3-132E 01 5-600E 00 3-132E 01 3-600E 00 3-600E 01 3 | STA | 8 | 40 | - | | *** | 6770 | ; | | | |
| 3.012E 03 1.740E 02 1.646E 03 6.940E 02 2.250E 01 2.283E 01 3.174E-02 7.170E 02 1.231E 3.003E 01 1.740E 02 1.640E 03 6.940E 02 2.250E 01 2.283E 01 3.174E-02 7.170E 02 1.231E 2.499E 01 3.132E 01 5.000E 00 3.410E 01 3.132E 01 5.000E 00 2.499E 01 3.233E 02 1.724E 03 0.017E 02 2.390E 01 2.402E 01 3.131E-02 7.731E 02 1.231E 3.410E 01 3.223E 01 5.000E 00 3.410E 01 3.233E 01 5.000E 00 3.410E 01 3.404E 02 2.405E 01 2.500E 01 3.404E-02 7.239E 02 1.237E 2.490E 03 3.403E 01 5.000E 00 3.410E 01 3.403E 01 5.000E 00 | - | 3.021E 03 | 1.553E 02 | 1.707E 03 | 9.259F 02 | 2.2505 01 | 2. 28 TE A1 | 2 0435 03 | 7 3045 02 | 10.0 | |
| 3.003E 03 1.945E 02 L/D DELTA DATA POINT 11 DATA POINT 12 L/D 2.390E 01 3.731E-02 7.718E 02 1.729E 3.016E 03 1.739E 02 2.390E 01 3.731E-02 7.718E 02 1.239E 3.016E 03 1.739E 02 2.390E 01 2.402E 01 3.731E-02 7.739E 02 1.239E 3.016E 03 1.223E 01 5.000E 00 3.016E 03 1.001E 02 1.700E 03 0.004E 02 2.402E 01 3.704E-02 7.709E 02 1.235E 3.007E 03 1.203E 02 1.700E 03 0.004E 02 2.403E 01 2.500E 01 3.704E-02 7.209E 02 1.235E L/D DATA POINT 12 DATA POINT 12 DATA POINT 12 PB TW TI DATA POINT 12 DATA POINT 12 AND H DELTF VS 3.016E 03 3.704E 02 2.403E 01 2.500E 01 3.704E-02 7.709E 02 1.235E L/D DATA POINT 12 DATA POIN | ~ | 3.012E 03 | 1.749E 02 | 1.684E 03 | 8.940E 02 | 2.25 NF 01 | 2.283F 01 | 1.174F-02 | 7. 1016 02 | 201701 | 9 6 |
| 1.70 DELTA E LE 1.470 E DELTA E LE 1.470 E DELTA E LE 1.470 E DI 3.132E 01 5.000E 00 3.410E 01 3.223E 01 5.000E 00 3.410E 01 3.303E 01 5.000E 00 | m | 3.003E 03 | | | | 2.220€ 01 | 2.283E 01 | | 8.526E 02 | 1.2436 | 02 |
| 1.479E 01 3.132E 01 5.000E 00 3.418E 01 3.132E 01 5.000E 00 3.001E 03 1.736E 02 1.736E 03 2.373E 01 2.402E 01 3.113E-02 7.718E 02 1.218E 3.001E 03 1.736E 02 1.726E 03 9.017E 02 2.373E 01 2.402E 01 3.131E-02 7.718E 02 1.245E 1.979E 01 3.223E 01 5.000E 00 3.418E 01 3.223E 01 5.000E 00 3.418E 01 3.223E 01 5.000E 00 3.418E 01 3.233E 01 5.000E 00 3.418E 01 3.233E 01 5.000E 00 3.418E 01 3.203E 01 5.000E 00 3.418E 01 3.203E 01 5.000E 00 3.418E 01 3.203E 01 5.000E 00 3.418E 01 3.303E 01 5.000E 00 | STA | 5 | | , | | | | | | | |
| 2.699E 01 3.132E 01 5.000E 00 3.419E 01 3.132E 01 5.000E 00 DATA POINT 11 PB TW | - | | | | | | | | | | |
| DATA POINT 11 PB TW TV TI | N | | | | | | | | | | |
| 3.010E 03 1.578E 02 1.784E 03 9.296E 02 2.373E 01 2.402E 01 3.113E-02 7.718E 02 1.218E 3.010E 03 1.578E 02 1.7784E 03 9.017E 02 2.390 01 2.402E 01 3.113E-02 7.718E 02 1.218E 3.010E 03 1.990E 02 1.728E 03 9.017E 02 2.390 01 2.402E 01 3.321E-02 7.723E 02 1.231E 3.010E 03 1.990E 02 1.784E 03 9.017E 02 2.390 01 2.402E 01 3.321E-02 7.723E 02 1.245E 3.016E 03 1.5223E 01 5.000E 00 3.418E 01 3.223E 01 5.000E 00 3.418E 01 3.223E 01 5.000E 00 3.418E 03 3.202E 02 1.785E 03 9.405E 02 2.485E 01 2.508E 01 3.446E-02 7.239E 02 1.223E 3.007E 03 1.601E 02 1.765E 03 9.405E 02 2.485E 01 2.508E 01 3.446E-02 7.239E 02 1.223E 3.418E 01 3.303E 01 5.000E 00 3.418E 01 3.303E 01 5.000E 00 3.418E 01 3.303E 01 5.000E 00 | F) | | | | | | | | | | |
| 3.016E 03 1.578E 02 1.748E 03 9.296E 02 2.373E 01 2.402E 01 3.113E-02 7.718E 02 1.218E 3.010E 03 1.578E 02 1.748E 03 9.296E 02 2.373E 01 2.402E 01 3.113E-02 7.718E 02 1.231E 3.010E 03 1.778E 02 1.726E 03 9.017E 02 2.373E 01 2.402E 01 3.21E-02 7.733E 02 1.231E 3.010E 03 1.728E 02 1.728E 03 9.017E 02 2.391E 01 2.402E 01 3.21E-02 7.731E 02 1.231E 3.010E 03 1.728E 01 5.000E 00 3.418E 01 3.223E 01 5.000E 00 3.418E 01 3.223E 01 5.000E 00 3.418E 03 1.601E 02 1.799E 03 9.054E 02 2.482E 01 2.508E 01 3.213E-02 7.204E 02 1.223E 2.998E 03 2.029E 02 1.759E 03 9.054E 02 2.450E 01 2.508E 01 3.204E-02 7.239E 02 1.223E 3.409E 03 3.002E 00 5.000E 00 3.409E 03 3.002E 00 5.000E 00 3.409E 01 3.303E 01 5.000E 00 3.409E 01 3.303E 01 5.000E 00 3.409E 01 3.303E 01 5.000E 00 | | | | | DATA | | | | | | |
| 3.010E 03 1.570E 02 1.740E 03 9.296E 02 2.3775 01 2.402E 01 3.113E-02 7.710E 02 1.210E 3.010E 03 1.7740E 02 1.720E 03 9.017E 02 2.390E 01 2.402E 01 3.211E-02 7.233E 02 1.231E 3.001E 03 1.7740E 02 1.720E 03 9.017E 02 2.390E 01 2.402E 01 3.211E-02 7.233E 02 1.231E 1.001E 03 1.7740E 02 1.7700E 00 3.410E 01 3.223E 01 5.000E 00 3.410E 01 3.223E 01 5.000E 00 3.410E 03 1.601E 02 1.7700E 03 9.054E 02 2.482E 01 2.508E 01 3.213E-02 7.504E 02 1.223E 2.990E 03 2.029E 02 1.765E 03 9.054E 02 2.450E 01 2.506E 01 3.213E-02 7.504E 02 1.223E 2.990E 03 3.003E 01 5.000E 00 3.400E 01 3.303E 01 5.000E 00 | STA | 8 | 10 | - | 11 | 4/0 | 07.40 | 1 | 1000 | 2 | |
| 1-010E 03 1-784E 02 1-726E 03 9-017E 02 2-300E 01 3-321E-02 7-235E 02 1-235E 03 1-736E 02 1-240E 01 3-321E-02 7-235E 02 1-235E 03 1-790E 01 3-223E 01 5-000E 00 3-419E 01 3-235E 01 3-64E-02 7-304E 02 7-305E 02 7-305E 02 1-235E 03 1-235E | - | 3.010E 03 | 1.578E 02 | 1.748E 03 | 9.296E 02 | 2.3736 01 | 2.402E 01 | 3-1135-02 | 7.718E 02 | 1.218F | 00 |
| 3.001E 03 1.990E C2 L/O DELTA E LE 1.979E 01 3.223E 01 5.000E 00 2.697E 01 3.223E 01 5.000E 00 3.410E 01 3.423E 01 5.000E 00 3.410E 01 3.423E 01 3.404E 02 2.450E 01 3.404E-02 7.239E 02 1.223E 2.990E 03 2.029E 02 2.450E 01 2.508E 01 3.404E-02 7.239E 02 1.223E 3.409E 03 2.029E 02 5.000E 00 3.409E 01 3.303E 01 5.000E 00 3.409E 01 3.303E 01 5.000E 00 3.409E 01 3.303E 01 5.000E 00 | N | 3.010E 03 | 1.784E 02 | 1.728E 03 | 9.017E 02 | 2.389E 01 | 2. 402E 01 | 3.321E-02 | 7.233F 02 | 1.2316 | 6 |
| L/O DELTA E LE 1.979E 01 3.223E 01 5.000E 00 3.410E 01 3.223E 01 5.00E 02 3.400E 03 1.601E 02 1.790E 03 9.054E 02 2.482E 01 2.506E 01 3.464E-02 7.239E 02 1.223E 2.990E 03 2.029E 02 2.490E 01 2.506E 01 3.464E-02 7.239E 02 1.223E 2.990E 03 2.029E 02 2.490E 01 2.506E 01 3.464E-02 7.239E 02 1.223E 3.990E 03 2.029E 02 2.490E 01 2.506E 01 3.464E-02 7.239E 02 1.223E 3.990E 03 3.002E 00 3.000E 00 5.000E 00 3.469E 01 3.303E 01 5.000E 00 3.469E 01 3.303E 01 5.000E 00 | m | 3.001E 03 | 1.990E C2 | | | 2.3416 01 | | | 8.749€ 02 | 1.245E | 02 |
| 1.979E 01 3.223E 01 5.000E 00 2.699E 01 3.223E 01 5.000E 00 3.41EE 01 3.235E 01 5.000E 00 2.459E 03 2.029E 02 1.759E 03 9.054E 02 2.450E 01 2.506E 01 3.464E-02 7.209E 02 1.223E 2.998E 03 2.029E 02 1.750E 03 9.054E 02 2.450E 01 2.506E 01 3.464E-02 7.239E 02 1.223E 2.998E 03 2.029E 02 1.750E 00 2.450E 01 2.506E 01 3.464E-02 7.239E 02 1.250E 3.459E 01 3.303E 01 5.000E 00 3.469E 01 3.303E 01 5.000E 00 3.469E 01 3.303E 01 5.000E 00 | 2 | % | | , re | | | | | | | |
| 2.699E 01 3.223E 01 5.000E 00 3.418E 01 3.223E 01 5.000E 00 DATA POINT 12 PB TW TT CAA CAAP H DEL TF VS 3.016E 03 1.601E 02 1.769E 03 9.054E 02 2.480E 01 3.203E 01 3.404E-02 7.239E 02 1.223E 2.998E 03 2.029E 02 1.765E 03 9.054E 02 2.450E 01 2.506E 01 3.404E-02 7.239E 02 1.237E 1.999E 01 3.303E 01 5.000E 00 3.408E 01 3.303E 01 5.000E 00 3.408E 01 3.303E 01 5.000E 00 3.408E 01 3.303E 01 5.000E 00 | _ | 1.979E 01 | | | | | | | | | |
| 3.418E 01 3.223E 01 5.000E 00 DATA POINT 12 PB TW TI Q/A Q/AP H DEL TF VS 3.0016E 03 1.601E 02 1.790E 03 9.054E 02 2.482E 01 2.508E 01 3.213E-02 7.504E 02 1.223E 2.998E 03 2.029E 02 2.450E 01 2.508E 01 3.404E-02 7.239E 02 1.223E L/D OELTA & LE 1.979E 01 3.303E 01 5.000E 00 3.408E 01 3.303E 01 5.000E 00 3.408E 01 3.303E 01 5.000E 00 3.408E 01 3.303E 01 5.000E 00 | ~ | | | | | | | | | | |
| DATA PGINT 12 3.016E 03 1.601E 02 1.790E 03 9.405E 02 2.482E 01 2.508E 01 3.213E-02 7.804E 02 1.223E 2.998E 03 2.029E 02 1.755E 03 9.054E 02 2.491E 01 2.508E 01 3.464E-02 7.239E 02 1.223E L/D 0ELTA & LE 1.979E 01 3.303E 01 5.000E 00 3.409E 01 3.303E 01 5.000E 00 3.409E 01 3.303E 01 5.000E 00 | r) | | | | | | | | | | |
| PB TB TB TW TI | | | | | DATA | | | | | | |
| 3.016E 03 1.601E 02 1.790E 03 9.405E 02 2.482E 01 2.508E 01 3.213E-02 7.204E 02 1.223E 2.990E 03 1.615E 02 1.765E 03 9.054E 02 2.491E 01 2.508E 01 3.464E-02 7.239E 02 1.237E 2.990E 03 2.029E 02 1.765E 03 9.054E 02 2.491E 01 2.508E 01 3.464E-02 7.239E 02 1.230E 2.490E 01 3.403E 01 5.000E 00 3.416E 01 3.303E 01 5.000E 00 3.416E 01 3.303E 01 5.000E 00 | Y. | 84 | 91 | | 11 | 4/6 | O/AP | I | DE TE | 3 | |
| 3.007E 03 1.615E C2 1.765E 03 9.054E 02 2.491E 01 2.508E 01 3.464E-02 7.239E 02 1.237E 2.998E 03 2.029E 02 2.729E 02 1.230E 01 2.508E 01 3.464E-02 7.239E 02 1.250E 1.979E 01 3.309E 01 5.000E 00 3.418E 01 3.303E 01 5.000E 00 3.418E 01 3.303E 01 5.000E 00 | _ | 3.016E 03 | 1.601E 02 | 1.790E 03 | 9.405E 02 | 2.482E 01 | 2.50 BE 01 | 3.213E-02 | 7.804E 02 | 1.22 3 | 2 |
| 2.996E 03 2.029E 02 2.450E 01 2.506E 01 0.851E 02 1.250E L/D 0ELTA & LE 1.979E 01 3.303E 01 5.000E 00 3.416E 01 3.303E 01 5.000E 00 3.416E 01 3.303E 01 5.000E 00 | ~ | 3.007E 03 | 1.815E C2 | 1.765E 03 | 9.054E 02 | 2.491E 01 | 2.50 BE 01 | 3.464E-02 | 7.239E 92 | 1 - 23 7E | 0 |
| L/O OELTA è LE 1.979E 01 3.303E 01 5.000E 2.699E 01 3.303E 01 5.000E 3.418E 01 3.303E 01 5.000E | n | 2.998E 03 | 2.029E 02 | | | 2.450E 01 | | | 8.851E 02 | 1.250E | 02 |
| 2.699E 01 3.303E 01 5.000E 2.699E 01 3.303E 01 5.000E 3.418E 01 3.303E 01 5.000E | TA | 2 | | LE | | | | | | | |
| 2.699E 01 3.303E 01 5.000E 3.418E 01 3.303E 01 5.000E | - | | | | | | | | | | |
| 3.418E 01 3.303E 01 5.000E | ~ | | | | | | | | | | |
| | י יי | | | | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS
8-137. BURNOUT AT DATA PT 15. BURNOUT SITE COND. AT STATION

| | | | | | DATA | DATA POINT 13 | | | | | |
|------------|------------|-----------|-------------|-----|-----------|---------------|------------|------------|-----------|-----------|-----|
| STA | 9 | 18 | * | | 1.1 | 4/0 | 9/AP | I | 0F1 TF | * | |
| _ | 3.014E 03 | 1.630E 02 | 2 1.845E 03 | 0.3 | 9.550E 02 | 2.626E 01 | 2.64 BE 01 | 3.3436-02 | 7.921E 02 | 1.2236 | 0.5 |
| ~ | 3.005E 03 | 1.855E C2 | 2 1.813E 03 | 03 | 9.099E 02 | 2.637E 01 | 2.648E 01 | 3.655E-02 | 7.244E 02 | 1.238F 02 | 02 |
| m | 2.996E 03 | 2.080E 02 | ~ | | | 2.594E 01 | 2.648E 01 | | 8.953E 02 | 1.252E | 02 |
| ST.A | 2 | DELTA E | 1 | | | | | | | | |
| _ | 1.979E 01 | 3.406€ 01 | 8 | 00 | | | | | | | |
| ~ | 2.699E 01 | 3.406€ 01 | | 00 | | | | | | | |
| m | 3.4186 01 | 3.406E 01 | | 00 | | | | | | | |
| | | | | | DATA | DATA POINT 14 | | | | | |
| 1 | 0 | | , | | ; | | | | | | |
| | | | | | | 3 | 4479 | • | DEL TF | S > | |
| . . | 3.011E 03 | 1.6585 02 | | 6 | 9.649E 02 | 2.758E 01 | 2.783E 01 | 3.482E-02 | 7.991E 02 | 1.225E | 0 |
| v (| 3.00 E 03 | 1.893E 02 | 1-856 03 | 0 | 9.166E 02 | 2.769E 91 | 2.783E 01 | 3.826E-02 | 7.273E 02 | 1.240E | 02 |
| n | 2.993E 03 | 2.129E 02 | • | | | 2.728E 01 | 2.7836 01 | | 8.956E 02 | 1.255E | 05 |
| TA | 1/0 | DELTA | , , | | | | | | | | |
| _ | 1.979E 01 | 3.497E 01 | \$.000E | 00 | | | | | | | |
| 8 | 2.699E 01 | 3.497E 01 | 5.000E | 00 | | | | | | | |
| ۳) | | 3.497E 01 | | 00 | | | | | | | |
| | | | | | DATA | DATA POINT 15 | | | | | |
| 1 | 8 | 4 | 7 | | : | | | ; | | | |
| | TO 35 10.5 | 1.4835 03 | 0 | | | | 4470 | | 100 | | |
| . ~ | 3.00eF 03 | 1.926F 02 | | 2 6 | 9-2175 02 | 2.0000 01 | 2.009E 01 | 3.6165-02 | 7.935E 02 | | 92 |
| , 173 | 2.995E 03 | 2-171E 02 | | 3 | 20 3/17:4 | 2.812E 01 | 2.869E 01 | 3. 436E-02 | 9.979E 02 | 1.257E | 20 |
| Y. | 27 | DELTA E | 1 | | | | | | | | |
| _ | 1.979E 01 | 3.565E 01 | 80 | 00 | | | | | | | |
| ~ | 2.699E 01 | 3.565€ 01 | | 0 | | | | | | | |
| F | 3.418E 01 | 3.565E 01 | | 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIGUID SIDE HEAT TRANSFER TEST DATA

PALL TEST PARAMETERS

3-138. BURNDUT AT DATA PT 5. BURNDUT SITE COND. AT DATA PT 6

| | | | | | | DATA POINTS | OINTS | 5 | DEC 1 4 10 | N | 0-3006-03 | _ | | | |
|---|---|--|--|--|--|-------------------------------------|---|---|-------------------------------------|-----|---|--------|---|---|--|
| 0 - S - S - S - S - S - S - S - S - S - | PB+IN 3.008E 3.004E 3.004E 2.996E 2.997E | ************************************** | 2.997E C 2.997E C 2.995E C C C 2.995E C C C C C C C C C C C C C C C C C C C | 18-17 03 5-730E 03 5-710E 03 5-710E 03 5-730E 03 5-730E | 5.730E 01 5.710E 01 5.710E 01 5.710E 01 5.710E 01 5.730E 01 | N 0 m m m m | 3,206-01 3,2106-01 3,2106-01 2,3,2106-01 2,3,2106-01 2,3,2106-01 | 1.007E | 44006 | | 0P 6.2045 02 5.2045 02 6.3335 02 1.335 02 1.3355 02 1.3395 | 000000 | 1.2126 01 -1.294 00 -2.455 01 -2.796 01 -3.109 01 | 1 | |
| | | | | | TES | T SECTION - | TEST SECTION - LOCAL TEST PARAMETERS | ARAMETERS | | | | | | | |
| Y - O F | PB 3.006E 03 3.006E 03 | | 78 6-805E 01 7-136E 01 7-467E 01 | 1w 4.390E 02 4.420E 02 | # 02 02 02 | 71 3.930E 02 3.941E 02 | 0/A 1-105E 00 1-105F 00 | 0/AP 1-102E 00 1-102E 00 | 3.390E-03 3.414E-03 3.416E-03 | E 0 | DEL TF 3.250E 02 3.2276 02 | | VS 1.8996 91 1.9016 91 | | |
| HINE | 1.470E 01 1.923E 01 2.375E 01 | | 06LTA E 1.067E 01 1.067E 01 | 5.500E 5.500E 5.500E | 200 | | | | | | | | | | |
| | | | | | | DATA | DATA POINT 2 | | | | | | | | |
| 4 - N M | 3.002E 03 3.002E 03 3.001E 03 | 7.7 | 73 246E 01 719E 01 192E 01 | 5.650E 02 5.640E 02 5.640E 02 | 2000 | 5.145E 02 5.124E 02 5.124E 02 | 0/A 1.355E 00 1.355E 00 | 0/AP 1.369E 00 1.369E 00 1.369E 00 | 3.146E-03 | | DEL TF 4.429E 02 4.352E 32 | | VS 1.905E 01 1.900E 01 | | |
| 4 . N. | 1.470E 01 | 8 | DELTA E 1-189E 01 1-189E 04 | S.500E | 000 | | | | | | | | | | |

| | | | | | | | | | | | 10 3 | | E 01 | | | | | | | | 16 3 | | 16 3 | | | | | | | | 5 6 | | | | | |
|---------------------|------|-----------|-----------|-----------|---------|------------|-----------|-----------|------------|--------|-----------|-----------|-----------|---------|-----------|-----------|-----------|--|-----------|--------|-----------|-----------|-----------|---------|-----------|-----------|-----------|------------|--------|-----------|-----------|-----------|---|---------|-----------|-----|
| | 2 | 1000 | 1 01 7 | 1-926€ | | | | | | S > | 1.911 | 1.922E | 1.9335 | | | | | | | 8 > | 1.9285 | 1.94 35 | 1.9585 | | | | | | 2 | | 1000 | 1.94.5 | | | | |
| | 1 | A.244F 92 | 6.09GF 02 | 6.102E 32 | | | | | | DEL TF | 6.315E 02 | 6-134E 02 | 6.141E 02 | | | | | | | DEL TF | 5.905E 02 | 6.205E 32 | 6.336E 92 | | | | | | DE: TE | | • | | | | | |
| | 1 | 3.696F-0 | 3.583E-03 | 3.5766-03 | | | | | | r | 4.331E-03 | 4.459E-03 | 4.454E-03 | | | | | | | r | 5.935E-03 | 5.648E-03 | 5.5326-03 | | | | | | 1 | | | | | | | |
| | 9470 | 2-182E 99 | 2.182E 00 | 2.182E 50 | | | | | | 0/AP | 2.735E 00 | | 2.735E 00 | | | | | | | O/AP | 3.505F 00 | 3.505F 00 | 3.505E 00 | | | | | | 9/40 | 4.505 | 3.505F 00 | | | | | |
| POINT | 4/0 | 2.150E 30 | 2.161E 00 | 2.160E 00 | | | | | DATA DOTAT | A/0 | 2.690E 30 | 2.690E 00 | 2.699E 00 | | | | | | 177100 | 4/0 | 3.45BE 00 | 3.449E 39 | 3.445E CO | | | | | POINT & | 4/6 | | , , | | | | | |
| HT-8-138 DATA POINT | 11 | 7.113E 02 | 7.051E 92 | 7.155E 32 | | | | | 4140 | I | 7.270E 32 | 7.207E 92 | 7.332E 32 | | | | | | TATO ATAC | 11 | 6.979E 32 | 7.434E 22 | 7.714E 32 | | | | | DATA POINT | 11 | | | •6 | | | | |
| 121 | 2 | 7.850E 02 | 7.800E 02 | 7.900E 02 | Ä | 5.500E CO | 5.500E CO | | | T.W. | 8.190E 02 | 6.1305 02 | 8.250E CZ | r, | 5.500E 00 | | 5.500E 00 | | | | 8-170E 02 | 9.603E 02 | A.879E 02 | LE | 5.500E CO | | 5.500E OC | | ** | " | | ٠. | | LE | A 4000 00 | |
| | 6 | 8.594E 01 | 9.612E 01 | 1.053E 02 | DELTA E | 1.51 1€ 01 | 1.513E 91 | | | £ | 9alf 91 | 1.0735 62 | 101916 32 | DELTA E | | 10 3066-1 | 1.590E 01 | | | 4. | 1.074F 92 | 1.2280 02 | 1.3925 02 | DELTA F | | 1.916E "1 | 1.315€ 91 | | 10 | 1.244E 02 | 1.244F C2 | 1.244E 02 | | DELTA E | 1.9166 | |
| | T | 2.998E C3 | 2.998E 03 | 2-997E 03 | 57 | 1.470E C1 | 1.923€ 01 | 2-375E 01 | | 200 | | 2.996E C3 | | 1/10 | 1.4706 01 | 1.923E 01 | 2.375E 01 | | | 2 | | | 2.4050 93 | 1/0 | 1.470E 01 | 1.923E 01 | 2.3755 01 | | Ť | 2.995E 03 | 2.995E 93 | 2.995€ 33 | ! | 6/10 | 1.9646 01 | |
| | STA | - | ~ | m | STA | - | ~ | m | | STA | _ | N P | 1 | STA | - | 8 | m | | | STA | - | ۰. | m | STA | ~ | rvi | F | | STA | - | 2 | E | į | 4 L | ٠, | . = |

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

| 2 |
|------------|
| 4 |
| DATA |
| A |
| CNO. |
| SITE |
| BURNOUT |
| |
| 4 |
| DATA |
| 4 |
| BURNOUT |
| нТ-8-139 . |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

| PO - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - | 0 | 2 0 | 2.6705 02 2.550E 02 2.510E 02 | | | | | | | | | | | | | | | |
|--|-----------|-----|-------------------------------------|---------|-----------|-----------|------------|--------------------------------------|-------------|----------|--------|------------|-----|------------|---|------------|-----|-------------|
| - ~ ~ ~ | - | 32 | 2.550E 2.550E 2.613E | | AI-EL | TB-00T | - | • | | | | - | | 8 | | | | |
| and b. | 2.790E 32 | | | | 4.970E 31 | • | 10 | 4-9395-91 | 9.1 | | 30 4. | tı | 00 | h | c | 7.656= 03 | 6 | 3 6 . |
| n = 10 ; | 2.749E | | | | 4.999E 31 | | 10 | 4.3205-71 | | | | | | | 1 | -1.2933 | 2 5 | 1.040- |
| - 10 : | 2.713E | | | 62 5. | 5-0106 11 | 1.1835 | 20 | 4.C1CE-31 | | | | | | | | -1-1167 | | 3.061E |
| ĸ'n, | 2.690E | | | | | 1.333F | 26 = | 4.030E-31 | | | | | | | | -9.332 | 00 | 3.0534 |
| , | 2.670E | | 2.580E | | 5.010E 91 | 1.541F | 20 . | 3.990E-01 | | 2.5865.9 | | | E0 | | | - 6. 341 | 0 | 3.046 |
| ٥ | 2.670E | | | | 5.010F 91 | 1 1.720E | 20 | 3.9906-01 | | | | | | | | -5-705= | , , | 100 |
| 4 | 2.650E | 32 | 2.550E | 62 5. | 5.C19E 31 | 1.8375 | 32 | 3.9505-21 | | | | | | | | F 858 - 4- | | 2 . D 2 3 1 |
| 80 | 2.640E | 92 | 2.540E | 02 5. | 5.003E n1 | | | 3-9305-21 | | | | | | | | 3.5185 | | |
| • | 2.543E | 0.2 | 2.530E | 62 5. | 5.007E 01 | | | 3-930E-31 | | | Ī | | | | | - 2 - 2 | 2 0 | 110000 |
| 0 | 2.640E | 02 | 2.530E | 92 5. | 5.000E 31 | - | | 3.9306-31 | | | | | | | | -2.295 | 9 6 | |
| | | | | | # 8 | T SECTION | | TEST SECTION - LOCAL TEST DARAMETERS | PARAMETI | S. | | | | | | | | |
| | | | | | | P | DATA POINT | 1 TM10 | | | | | | | | | | |
| STA | 9 | | 13 | | * | 1.1 | | 4/0 | 9470 | 0 | | 1 | č | טפו בפ | | 2 | | |
| 1 2. | 2.715E 02 | | 5.7625 01 | 2.79 | 2.799E 02 | 2.299E 92 | | 1.4195 20 | 1 - 4C7F 30 | 90 | A. 28 | A-2115-04 | 3 | 1.7176 03 | • | A 9366 A | | |
| 2 2. | 2.695E 02 | | 5.375E 01 | 2.8495 | 195 92 | 2.342E 92 | | 1.4165 00 | LADZE PO | | | 8-040E-04 | | 7416 33 | | | | |
| | 2.675E 02 | | | 2.84 | 2.849E 02 | 2.3426 92 | | 1.4166 33 | 1.407E 20 | 90 | 3.19 | 8-1945-33 | : : | 1.717E 32 | | | | |
| STA | 1/0 | | DELTA E | ر | W. | | | | | | | | | | | | | |
| | | | 9-150F CO | 5.500E | 00 30 | | | | | | | | | | | | | |
| 2 2. | | | | 5.500E | 3€ 3¢ | | | | | | | | | | | | | |
| | 3.386E 01 | | 9.163E CC. | 5.500F | | | | | | | | | | | | | | |
| | | | | | | •0 | DATA POINT | S INT | | | | | | | | | | |
| STA | 10. | | 13 | | 2 | - | | 4/0 | 0/ AP | ۵ | 1 | 1 | Č | 120 | | 2 | | |
| 1 2. | 2.537F 02 | | 7.1296 91 | 5.93 | 5.999 32 | 4.947E 32 | | 3.394F 3P | 3.156F 03 | 6 | 7.457 | 7.4535-03 | 3 | A. 2345 13 | • | | | |
| | 2.670E 02 | | 7.737E 01 | 5.9235 | 55 32 | 4.969F 02 | | 3.092F 0C | 100 C 100 C | 6 | 7.6.13 | 7.5.12F-13 | | 4.1265 72 | | | | |
| | 2.654E 02 | | 8.4456 01 | 5.749E | 9E 02 | 4.774F 32 | | 3-193E 00 | 3.156F | | 8.331 | 8.331F-n3 | E E | 3.9306 32 | 4 | 4.8875 21 | | |
| *** | 5 | | | | | | | | | | | | | | | | | |
| | 2.0045 01 | • | | 1 6 6 6 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | ** | | | | | | | | | | | | | |

| 0.0755 01 1705 02 5.100 12 5.02 10 0 0.1315 02 1.406-02 4.4351 02 4.995 01 1.436 02 7.1705 02 5.4140 02 5. | 7.1706 02 5.4146 22 5.4916 00 6.1316 00 1.3756-02 4.4916 02 4.4916 02 7.1706 02 5.4146 22 5.4146 | | | | | | | | | | | | | |
|--|--|------------|---|------------|---|--------|-----|------------|-----------|-----------|-------------|------------|--------|-----|
| THE CASE OF STATE OF | 0.2 7.1702 0.2 5.414E 72 5.913E 00 6.133E 01 1.441E-02 4.435E 02 4.932E 02 0.2 1.170E 02 5.414E 72 5.913E 00 6.133E 01 1.441E-02 4.257E 02 4.932E 02 0.1350E 00 5.135E 00 1.441E-02 4.257E 02 4.932E 02 0.1350E 00 5.136E 00 5.136E 00 1.441E-02 4.257E 02 4.932E 02 0.1500E 02 0.1 | 2.451F 12 | Ť | | | - 66 | . : | 11 | 4/0 | 0/AP | r | DEL TF | \$ > | |
| 2 7.170E C2 5.414E 72 5.913E 00 6.133E C3 1.441E-02 4.23TE 32 4.03ZE 1 5.500E 30 1 5.500E 30 1 5.500E 30 1 5.500E 30 2 7.430E 32 7.330E 30 7.555E 00 1.696E-92 4.135E 32 4.03ZE 2 7.500E 32 5.405E 32 7.330E 30 7.555E 00 1.696E-92 4.130E 32 4.03ZE 2 7.500E 32 5.405E 32 7.330E 30 7.555E 00 1.696E-92 4.130E 32 4.03ZE 2 7.500E 32 5.405E 32 7.330E 30 7.555E 30 1.696E-92 4.130E 32 4.09ZE 2 7.500E 32 5.405E 32 7.330E 30 7.555E 30 1.696E-92 4.130E 32 4.09ZE 3 5.500E 30 5 5.500E 3 | 02 7.170E CR 5.414E 72 5.913E 00 6.113E CD 1.441E-02 4.23EE 02 4.93EE 02 1.25E 02 0.13EE 02 1.441E-02 4.23EE 02 4.93EE 02 1.25EE 02 0.25EE 02 1.25EE 02 1.25 | 95 | | | | 7.170E | | 5-414F 02 | 5.9216.30 | 6.1335 00 | 1.375E-02 | 4.4515 02 | ₩.890 | 16 |
| 5.500E 00 5.500E | 1 5.500E 00 2 1.600E 00 2 1.60 | 2.615E 02 | | | | 7-170E | | 5.4146 32 | 5.913E 00 | | 1.441E-02 | | 4.9215 | 5 5 |
| 1 5.50F 00 1 5.50F 02 1 5.50F 02 2 7.30F 02 3 7.30F 02 | DATA POINT 4 13.570F 00 11.550F 00 11.550F 00 11.550F 00 11.550F 00 12.550F 00 13.550F 00 13.5 | S | | | 4 | 4 | | | | | | | 7766 | |
| 1 5.500E 20 1 5.500E 20 2 7.500E 20 2 7.500E 02 3 5.500E 03 3 5.500E 03 3 5.500E 03 3 5.500E 03 4 5.500E 03 5 5.50 | 5.500E 00 0.414 POINT 4 0.44 | | | | | 5.520F | | | | | | | | |
| DATA DOINT A T. CACE CO CO. T. CACE CO C. 5.656 CO C. 7.5656 CO C. 7 | 01 5.500E 00 0.01A POINT A 1.626E 02 5.475E 02 7.307E 00 7.565E 00 1.707E-02 4.403E 02 4.099E 02 7.630E 02 5.475E 02 7.307E 00 7.565E 00 1.707E-02 4.403E 02 4.099E 03 1.550E 02 5.475E 02 7.307E 00 7.565E 00 1.707E-02 4.100E 02 4.099E 04 1.550E 02 5.475E 02 7.307E 00 7.565E 00 1.707E-02 4.100E 02 4.099E 05 9.320E 02 5.431E 02 9.331E 00 9.655E 00 2.336E-02 4.535E 02 4.955E 06 9.320E 02 5.631E 02 9.331E 00 9.655E 00 2.336E-02 4.335E 02 4.955E 07 9.320E 02 5.631E 02 9.331E 00 9.655E 00 2.336E-02 4.335E 02 5.018E 08 9.320E 02 5.631E 07 9.331E 00 9.655E 00 2.336E-02 4.335E 02 5.018E 09 9.320E 02 5.535E 02 1.109E 01 1.1146E 01 2.740E-02 4.300E 02 5.039E 09 9.320E 02 5.770F 02 1.109E 01 1.1146E 01 2.740E-02 4.300E 02 5.039E 09 9.320E 02 5.770F 02 1.109E 01 1.1146E 01 2.740E-02 4.300E 02 5.039E 09 9.320E 02 5.770F 02 1.109E 01 1.1146E 01 2.740E-02 4.300E 02 5.039E 00 9.320E 02 5.770F 02 1.109E 01 1.1146E 01 2.740E-02 4.300E 02 5.039E 01 5.500E 00 | 2.741E 01 | | | | 3005 · | | | | | | | | |
| DATA POINT 4 T. 620E 02 T. 630E 03 T. 6 | 11 7.6266 02 5.4756 02 7.3376 00 7.5656 00 1.4966-02 4.1835 02 4.9996 02 7.4526 02 5.4756 02 7.3376 00 7.5656 00 1.4066-02 4.1835 02 4.9996 02 7.4526 02 5.4756 02 7.3376 00 7.5656 00 1.4066-02 4.1806 02 4.9996 02 1.5006 02 02 5.4756 02 7.3376 00 7.5656 00 1.4016-02 4.1806 02 4.9996 02 1.5006 02 | 3.386E 01 | | | | 300€ | | | | | | | | |
| THE TOTAL TO | 1 7.6200 02 5.4750 02 7.3340 00 7.5550 00 1.65800 22 4.6900 02 7.6300 02 7.5300 00 7.5550 00 1.65800 1.65800 22 4.6900 02 7.6300 02 7.5300 00 7.5550 00 1.81000 02 4.9300 02 7.5300 00 7.5500 00 1.81000 02 4.9300 02 1.8000 02 4.9300 02 1.8000 02 4.9300 02 1.8000 02 4.5500 03 1.8000 03 1. | | | | | | | DATA | | | | | | |
| TWANTE OF TABLE OF TA | 3 7.6200 02 7.500 00 7.5550 00 1.500 02 4.500 02 4.500 02 7.500 00 00 00 00 00 00 00 00 00 00 00 00 | | | | | | | | | | | | | |
| 7.620E 02 | 7.6266 02 5.4976 02 7.3076 00 7.5556 00 1.6976-02 4.6936 02 4.9996 02 7.4026 02 7.4026 02 7.5056 00 1.7426-02 4.316 02 4.9996 02 7.4026 02 7.5056 00 1.7426-02 4.316 02 4.9996 02 7.5056 00 1.6106-02 4.1006 02 4.9996 01 5.506 02 01 5.506 02 01 5.506 02 0.4036 02 7.5056 00 1.6106-02 4.1006 02 4.9996 01 5.506 02 0.4036 00 0.4056 00 0.40 | 80 | | 13 | | Ē | | 11 | 4/0 | O/AP | I | טבו גב | 2 | |
| 7.630E 72 5.487E 72 7.334E 70 7.565E 00 1.742E-02 4.335E 02 4.936E 50 5.505E 70 5.505E 70 1.00E_02 4.936E 70 5.505E 70 5.505E 70 1.00E_02 4.936E 70 5.505E 70 7.307E 7.307 | TABLE DE SABNE DE 7.3346 DO 7.5656 DO 1.7426-02 4.335 02 4.9366 1 5.5026 DO 1 5.5026 DO 1 5.5026 DO 1.7426-02 4.1806 DO 7.5656 DO 7.5656 DO 7.7426-02 4.1806 DO 7.5656 DO 7.7426-02 4.1806 DO 7.7426-02 7.742 | 2.549= 02 | | 9.926E | | | | | | 7.565E 00 | 1.698E-22 | 4.483E 32 | | - |
| DATA POINT 5 5.500E 03 5.500E 0 | DATA POINT 5 10 5-500E 00 11 5-500E 00 12 5-500E 00 13 5-500E 00 14 5-500E 00 15 5-500E 00 16 5-500E 00 17 | 2.623E 92 | | | | . 630E | 6 6 | 5.487E 32 | | | 1.742E-02 | | | = |
| DATA POINT 5 5.500E 00 5.500E 00 5.500E 00 5.500E 00 5.500E 02 5.500E 02 5.500E 00 5.500E 0 | DATA POINT 5 13 5.500E 0.0 14 5.500E 0.0 15 5.500E 0.0 16 5.500E 0.0 17 | | | | | 3036. | 4 | 30 30100 | | | 1.810E-02 | | | = |
| 5.500E 03 5.500E 03 5.500E 03 5.500E 03 Tw | DATA POINT 5 DATA POINT 5 10 5.500E 00 10 5.500E 00 11 5.500E 00 12 5.500E 00 13 5.500E 00 14 5.500E 00 15 5.500E 00 16 5.500E 00 17 | | | | | 'n | | | | | | | | |
| DATA POINT 5 1 | DATA POINT 5 DATA POINT 6 LE LE LE DATA POINT 6 TM TM TM TM TM TM TM TM TM T | | | | | .500E | 60 | | | | | | | |
| 5.500E 00 5.500E 00 5.320E 02 5.631E 02 5.450E 02 5.320E 02 5.500E 00 | DATA POINT 5 TT | | | | | · SCCE | C | | | | | | | |
| DATA POINT 5 9.320E 02 5.631E 02 9.335E 00 2.136E-02 4.515E 02 4.917E 9.320E 02 5.631E 02 9.335E 00 9.655E 00 2.136E-02 4.515E 02 4.917E 9.320E 02 5.631E 02 9.333E 00 9.655E 00 2.136E-02 4.515E 02 4.965E 5.500E 00 5 | DATA POINT 5 TW TI | 3. 3695 01 | | | | . 500E | 20 | | | | | | | |
| 11 | 102 9-320E 02 5-631E 72 9-333E 00 9-655E 00 2-136E-02 4-515E 72 4-917E 102 9-320E 02 5-631E 72 9-333E 00 9-655E 00 2-136E-02 4-515E 72 4-917E 103 9-320E 02 5-631E 72 9-333E 00 9-655E 00 2-136E-02 4-350E 72 4-965E 104 5-50E 00 105-50E 00 105-5 | | | | | | | DATA | | | | | | |
| TW 11 0/A 0/AP H 0E_ TF VS 9.330E 02 5.631E 02 9.333E 00 9.655E 00 2.136E-02 4.515E 02 4.917E 9.320E 02 5.651E 02 9.333E 00 9.655E 00 2.136E-02 4.515E 02 4.917E 5.500E 00 5.631E 07 9.313E 00 9.655E 00 2.314E-02 4.337E 02 4.955E 5.500E 00 5.500E 00 5.500E 00 5.500E 00 5.500E 00 5.500E 00 5.500E 00 7 7 M 0/A 0/AP M 0EL TF VS 9.550E 02 5.705E 02 1.106E 01 1.146E 01 2.440E-02 4.340E 02 4.931E 9.920E 02 5.705F 02 1.106E 01 1.146E 01 2.440E-02 4.340E 02 5.055E | TW TI OVA OVAP H DEL TF VS 02 9.330E 02 5.631E 02 9.333E 00 9.655E 00 2.138E-02 4.515F 02 4.917E 02 9.320E 02 5.631E 02 9.333E 00 9.655E 00 2.338E-02 4.55E 02 4.997E 01 5.500E 00 5.500E 00 01 5.500E 00 | | | | | | | | | | | | | |
| 9.320E 02 5.631E 02 9.333E 00 9.655E 00 2.136E-02 4.515E 02 4.917E 9.320E 02 5.631E 02 9.333E 00 9.655E 00 2.136E-02 4.515E 02 4.965E 3.320E 02 5.631E 02 9.333E 00 9.655E 00 2.136E-02 4.350E 02 4.965E 5.500E 00 5.600E 00 6.600E 00 6.600 | 02 9.320E 02 5.631E 72 9.335E 00 9.655E 00 2.136E-02 4.515E 92 4.917E 92 9.320E 02 5.651E 72 9.335E 00 9.655E 00 2.136E-02 4.515E 92 4.965E 93 9.320E 02 5.651E 72 9.335E 00 9.655E 00 2.136E-02 4.515E 92 4.965E 91 5.500E 00 92 9.350E 02 5.651E 72 9.335E 01 9.655E 01 2.366E-02 4.137E 92 5.016E 93 9.350E 02 5.596E 02 1.139E 01 1.146E 01 2.560E-02 4.475E 92 4.931E 94 920E 02 5.770F 72 1.196E 01 1.146E 01 2.790E-02 4.475E 92 4.931E 95 9.350E 02 5.770F 72 1.196E 01 1.146E 01 2.790E-02 4.106E 92 5.055E 94 920E 02 5.770F 72 1.196E 01 1.146E 01 2.790E-02 4.106E 92 5.055E 95 9.350E 00 5.770F 72 1.196E 01 1.146E 01 2.790E-02 4.106E 92 5.055E 95 9.350E 00 5.770F 72 1.196E 01 1.146E 01 2.790E-02 4.106E 92 5.055E | ec a | | 13 | | - | | 1.1 | 4/0 | 0/AP | I | 75 | 2 | |
| 4.340E 02 5.655E 02 9.326E 00 9.655E 00 2.219E-02 4.350E 02 4.965E 5.500E 00 5.501E 07 9.335E 00 9.655E 00 2.334E-02 4.37E 02 5.018E 5.500E 00 5 | 32 3-340E 02 3-555E 02 9-326E 00 9-655E 00 2-219E-02 4-350E 02 4-965E 00 1 5-360E 02 4-350E 02 4-350E 02 4-965E 00 1 5-360E 00 01 5-560E 02 1-106E 01 1-166E 01 2-560E-02 4-106E 02 4-931E 02 4-931E 02 4-965E 02 1-106E 01 1-166E 01 2-560E-02 4-106E 02 5-093E 02 4-931E 02 5-055E 02 1-106E 01 1-166E 01 2-560E-02 4-106E 02 5-055E 01 1-166E 01 1 | | | | | | 20 | 5.631E 12 | 9.333E 00 | 9.655E 00 | 2-1385-02 | A. 515F 13 | | |
| 3.32-E 02 5.631E 32 9.373E 32 9.655E C0 2.334E-32 4.137E 32 5.018E 5.500E 00 5.500E 02 5.000E 02 | 02 3.32-6 02 5.6316 32 9.3336 93 9.6556 03 2.1376-32 4.1376 92 5.0186 01 5.5006 09 01 5.5006 09 01 5.5006 09 01 5.5006 09 01 5.5006 09 01 5.5006 00 | 2.500E 02 | | | | | 25 | 3.555F 32 | 9.326F 00 | | 2.2105-02 | 76.00 | | |
| 5.500E 00 5.500E 00 5.500E 00 5.500E 00 5.500E 00 TW TI 0/A 0/AP H DELTF VS 9.550E 02 5.596E 02 1.109E 01 1.146E 01 2.560E-02 4.931E 9.920E 02 5.70F 02 1.106E 01 1.146E 01 2.540F-02 4.340E 02 4.991E 9.910E 02 5.770F 02 1.106E 01 1.146E 01 2.540F-02 4.340E 02 5.055E | DATA JOINT 6 TW TT 0/A 0/AP H DEL TF VS 22 9.850E 02 3.850E 02 5.50E 03 CI 5.50E 02 CI 106E 01 CI 1146E CI 2.40E-02 CI 106E 01 CI 1146E CI 2.790E-02 CI 106E 02 CI 106E 03 CI 106E 0 | 2.5846 32 | | | | | 0.2 | | 9.333E 00 | | 2-3346-02 | 4.137E 92 | | |
| 5.50E 00 5.50E 00 5.50E 00 5.50E 00 DATA POINT 6 9.550E 02 5.596E 02 1.109E 01 1.146E 01 2.560E-02 4.75E 02 4.931E 9.720E 02 5.70F 02 1.106E 01 1.146E 01 2.540E-02 4.340E 02 4.991E 9.910E 02 5.770F 02 1.106E 01 1.146E 01 2.540E-02 4.106E 02 5.055E | DATA POINT 6 TW TI Q/A Q/AP H DEL TF VS 22 9.550E 00 9.550E 00 12 9.550E 00 12 9.550E 02 1.106E 01 1.146E 01 2.790E-02 4.106E 02 4.991E 1.146E 01 2.500E-02 4.106E 02 5.055E 01 5.500E 02 5.500E 03 6.500E 1.146E 01 6.500E 6.500E 6.100E 6.500E 6.5 | 6/7 | | | | W. | | | | | | | | |
| 5.500E 00 5.500E 00 5.500E 00 DATA POINT 6 9.550E 02 5.506E 02 1.109E 01 1.146E 01 2.500E-02 4.475E 02 4.931E 9.550E 02 5.708 02 1.106E 01 1.146E 01 2.5409E-02 4.340E 02 4.991E 9.910E 02 5.770F 02 1.106E 01 1.146E 01 2.5409E-02 4.106E 02 5.055E | 01 \$-500E 00 | | | | | | 00 | | | | | | | |
| 5.500E 00 DATA POINT 6 1 | DATA POINT 6 TW TI 0/AP H DEL TF VS 22 9.8505 72 5.5966 72 1.1396 11 1.1466 11 2.5606-72 4.756 72 4.9315 02 9.9105 07 5.7706 72 1.1966 01 1.1466 01 2.5606-72 4.1066 72 5.0556 01 5.5005 00 01 5.5005 00 | 2.741E 01 | | | | | 99 | | | | | | | |
| DATA POINT 6 9.550E D2 5.596E 32 1.139E 31 1.146E 31 2.560E-32 4.75E 32 4.931= 9.920E C2 5.73E 32 1.106E 31 1.146E 01 2.543E-02 4.340E 32 4.991E 9.910E 02 5.770F 32 1.106E 01 1.146E 01 2.540E-02 4.340E 32 5.055E | DATA JOINT 6 O/AP H DEL TF VS 02 9.850E 02 5.506E 02 1.109E 01 1.106E 01 2.500E-02 4.475E 02 4.931E 02 9.920E 02 5.770F 02 1.106E 01 1.146E 01 2.405E-02 4.106E 02 4.991E E LE 01 5.50E 00 | 01 | | | | | 23 | | | | | | | |
| 9.850E 02 5.596E 02 1.109E 01 1.146E 01 2.560E-02 4.475E 02 4.931E 9.920E 02 5.770F 02 1.106E 01 1.146E 01 2.440E-02 4.340E 02 4.931E 9.910E 07 5.770F 02 1.106E 01 1.146E 01 2.440E-02 4.106E 02 5.055E | 07 9.850E 02 5.596E 02 1.109E 01 1.146E 01 2.560E-02 4.475E 02 4.93IE 02 9.920E 02 5.770F 02 1.106E 01 1.146E 01 2.40E-02 4.340E 02 4.99IE 02 3.910E 02 5.770F 02 1.106E 01 1.146E 01 2.40E-02 4.106E 02 4.99IE 01 5.500E 00 01 01 01 01 01 01 01 01 01 01 01 01 | | | | | | | DATA | | | | | | |
| 9.950E 02 5.504E 02 1.109E 01 1.146E 01 2.506E-02 4.475E 02 4.931E 9.920E 02 5.733E 02 1.106E 01 1.146E 01 2.440E-02 4.340E 02 4.991E 9.910E 07 5.770F 02 1.106E 01 1.146E 01 2.440E-02 4.106E 02 5.055E | 02 9.850E 02 5.596E 02 1.105E 01 1.146E 01 2.560E-02 4.475E 02 4.931E 02 9.920E 02 5.770F 02 1.106E 01 1.146E 01 2.540E-02 4.340E 02 4.931E 02 3.910E 07 5.770F 02 1.106E 01 1.146E 01 2.790E-02 4.106E 02 5.055E 01 5.500E 00 | 6 | | Ξ | | - | | : | *** | | | | | |
| 9.920E C2 5.735E 72 1.106E 01 1.146E 01 2.440E-02 4.340E 02 4.931E 3.910E 07 5.770F 02 1.106E 01 1.146E 01 2.790E-02 4.106E 02 5.055E | 02 9.920E C2 5.70F 02 1.106E 01 1.106E 01 2.500E-02 4.975E 02 4.93IE 02 9.920E 02 5.770F 02 1.106E 01 1.106E 01 2.500E-02 4.106E 02 4.99IE 0 5.500E 00 5.770F 02 1.106E 01 1.106E 01 2.790E-02 4.106E 02 5.055E 01 5.500E 00 | 2.605E 32 | | 1.2212 0 | | 35.0= | 0 | 5. 40AF 32 | 10000 | 44/0 | I | DEL TF | | |
| 3-910E 02 5-770F 32 1-196E 01 1-146E 01 2-790E-02 4-106E 92 5-055E | 02 3-910E 07 5-770F 02 1-196E 01 1-146E 01 2-740E-02 4-196E 02 4-991E E LE 01 5-500E 00 | 2.585E C2 | | 1 . 443F C | | | . 0 | | 10066 01 | 16 2001 | Z-200E-22 | 4.475E 32 | | _ |
| 100 to 10 | E LE 01 5.5055E | 2.555 02 | | 1.6555 0 | | | 0.0 | | | | 2.5435-02 | 4.340E 32 | | _ |
| | 01 5.500E | | | | | | ; | | | 10 30+1+1 | Z - 140E-32 | 4.106E 32 | | _ |
| | S.503E | 2.096E 01 | | 2.837E 01 | | | ၁၀ | | | | | | | |
| 01 5.500E | | 57 | | 2.837E 0 | | | 00 | | | | | | | |

| ر د د | A. 924F 01 | | | | | | | | | | | 5.059E 01 | | | | | | | V V V | | | | | | | | <i>u</i> | S. DAAE OF | | 445 91 | | | |
|----------|------------|-----------|-----------|-----|---|---|-----------|--------------|-----|------------|------------|-----------|---------|-----------|---|-----------|------------|-----|------------|-----------|-----------|---------|---|------------|-----------|-----------|----------|------------|-----------|-----------|---------|-----------|--|
| | | _ | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | 8 | 5.0445 | | | |
| DEL TF | 4.489F | 4.396E 32 | 4.190E 02 | | | | | | | DEL TF | 4.453E 92 | 4.631E 02 | | | | | | i | A-5415 02 | 4.590F 32 | 4.822E 02 | | | | | | DF. 15 | | | 0.0 | | | |
| I | 2.9116-32 | 2.970E-02 | 3.0116-92 | | | | | | | I | 3-102E-02 | 2.983E-02 | | | | | | 1 | 3.04 AF-12 | 3-317E-32 | 2.935E-32 | | | | | | I | | .0 | • | | | |
| 9/46 | 1.262E 01 | 1.262E 31 | | | | | | | | A 30 00 1 | 1 3050 | | | | | | | | 1.4158 31 | 1.4156 91 | | | | | | | Q/AP | 1.415F 01 | 1.415E 21 | 1.415E 01 | | | |
| A/0 | 1.221E :1 | 1.216E 01 | 1.215E 01 | | | | | DATA POINT 6 | | TANE . | 1. 3335 01 | | | | | | POINT 9 | | 1.364E 01 | 1.353E 01 | | | | | | 01 10 | A/0 | 9. | •• | •• | | | |
| = | 5.779E 02 | 5.929E 02 | 5.966E 32 | | | | | DATA | ; | 5. A12F 32 | 6.141F 02 | 6.518E 02 | | | | | DATA POINT | 1 | 6.01AE 32 | 6.335F 92 | 6.736E 02 | | | | | DAIA PUIN | : | .0 | •• | ٠. | | | |
| 2 | | | 9.370E 02 | LE | | | 5.500E 00 | | 3 | 9.5705 02 | 9.930E 02 | 1.013E 94 | 4 | 5.500F 00 | | | | 1 | 9.800E C2 | 1.005E 03 | 1.037E 93 | LE E | | | 5.500E 00 | | 2 | •• | ٠. | 9. | LE | 5.500E 00 | |
| Ę, | 1.2906 02 | 1.533E 02 | 1.776E 02 | | | | 2.9315 01 | | _ | 1.3595 02 | 1.623€ 02 | | DELTA E | | | 3.151E 01 | | 18 | 1.375E 02 | 1.644E 02 | 1.914E 02 | | | | 3.1845 01 | | TP | 1.959E 02 | 1.9595 02 | 1.959€ 52 | DELTA E | 3.184E 01 | |
| 8 | 2.591E 02 | 2.573E 02 | 2.555E 02 | 2 | | | 3.386E 01 | | 6 | 2.581E 02 | 2.563E 02 | 2.545E 02 | 1/0 | 2.096E 01 | | 3.386E 01 | | 98 | | | 2.535E 02 | | | | 3.3866 01 | | 80 | | | 2.532E 32 | 1/0 | | |
| STA | _ | ~ | m | STA | - | ~ | m | | STA | | ~ | m | STA | _ | 2 | m | | STA | _ | N | m | STA | _ | N 1 | | | STA | _ | N I | | STA | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

VERALL TEST PARAMETERS

9-101. WHISTLE AT DATA PUINT 9. TLUE CRACK AT DATA POINT 10

| ## TH-OUT ## DATA PLINES ## B | TOTAL FINE THE PARTY IN THACOUT TO TATION TO TATION THACK THE TO TATION THACK THE TOTAL THACK TH |
|--|--|
| TCST SECTION - LOCAL TEST PARAMETERS TCST SECTION - LOCAL TEST PARAME | TCST SECTION - LOCAL TEST PARAMETERS TCST SECTION - LOCAL TEST PARAME |
| TH-GUT B. 9-50-05 B. 9-90-05 | TH-DUT W U-DUT U-DUT W U-DUT |
| 12 00 00 4.350E 02 2.965E 01 6.100E 02 1.917E 01 1.210E 03 2.662E 01 1.294E 03 2.991E 01 1.394E 03 3.459E 01 1.395E 03 3.459E 01 1.393E 03 4.372E 01 2.8266-02 4.460E 91 3.043E-02 4.460E 91 0 2.2667-02 1.314E 02 2.2667-02 1.314E 02 2.409E-02 1.314E 02 | 12 |
| 00 4.350E 02 2.965E 01 5.866E 02 1.917E 01 1.210E 03 2.662E 01 1.294E 03 2.662E 01 1.294E 03 3.459E 01 1.395E 03 1.347E 01 2.826E-02 4.469E 03 0.266E-02 1.314F 02 | 12 |
| 12 000 0.350E 02 2.965E 01 5.840E 02 5.653E 01 6.100E 02 1.917E 01 1.210E 03 2.662E 01 1.204E 03 3.459E 01 1.305E 03 3.459E 01 1.305E 03 3.459E 01 1.305E 03 3.459E 01 1.305E 03 4.347E 01 1.305E 03 4.347E 01 1.305E 03 4.347E 01 2.825E-02 4.603E 03 0.43E-02 1.131E 02 0.2286F-02 1.131E 02 | 12 0P HT BAL 00 4.350E 02 2.965E 00 8.710E 01 5.840E 02 5.563E 00 -1.016E 01 1.140E 03 2.662E 01 -9.901E 01 1.294E 03 2.662E 01 -7.331E 01 1.294E 03 3.459E 01 -4.623E 01 1.395E 03 3.459E 01 -4.623E 01 1.395E 03 4.172E 01 -2.116E 01 1.395E 03 4.32E 01 1.472E 02 2.825E-02 4.450E 01 1.473E 02 3.635E-02 4.460E 01 1.479E 02 2.256E-02 1.131E 02 1.479E 02 2.265E-02 1.131E 02 1.479E 02 2.409E-02 1.074E 02 1.479E 02 |
| 00 2,965E 1,176 2,662E 2,961E 2,961E 3,459E 4,172E 4,347E 4,460E 1,144E 1,1 | 2.965E 00 8.710E 5.965E 00 -1.010E 1.917E 01 -9.901E 2.931E 01 -6.790E 3.450E 01 -4.623E 4.347E 01 -2.113E 4.347E 01 1.473E 02 4.460E 01 1.473E 02 4.460E 01 1.475E 02 4.460E 01 1.475E 02 4.460E 01 1.475E 02 4.460E 01 1.475E 02 |
| | WT BA 9.7106 -1.0106 -7.316 -5.7306 -3.6306 -3.6306 -2.1106 -2.2756 1.4736 C2 1.4736 C2 1.4796 C2 1.4796 C2 1.4796 C2 |

| 5.030E 72 1.00E 02 5.030E 02 5.040E 02 5 | 1 8.680E 02 5.545E 01 | | | | | | | | | | |
|--|--|------------|---------|-----------|-------------|-------------|-----------|------------|-----------|-----|-----|
| E 00 CATA POINT 4 TW TW TW TW TW TW TW TW TW T | | 7.545E 01 | | 5.030E 0. | | | QZAP | | | SA | |
| CATA POINT 4 CATA POINT 4 TW TI 0/A 0/AP A 2.57E-02 3.43E-02 1.49F-02 4.47E-02 3.43E-02 1.49F-03 | | 9.992E C1 | | 5.040E 0 | | | 5.378E 90 | | | | 20 |
| CATA POINT 4 CATA POINT 4 L 02 | | ! | | | | | | | | | 200 |
| CATA POINT 4 TH TH TH TH TH TH TH TH TH T | 1-456E 01 1-530E C1 4.5 | <u>.</u> ت | | | | | | | | | |
| E 00 CATA POIAT 4 Tu Tu Tu Tu Tu Tu Tu Tu Tu T | CI 1.530E CI | 5 | | | . ~ | | | | | | |
| CATA POINT 4 TU TI OATA POINT 4 TU TI OATA POINT 5 S. 578E-02 3.44E 0.2 1.499E C. 2. 4.42E 0.2 9.04E 0.0 4.774E 0.0 2.754E-02 3.442E 0.2 1.499E C. 2. 4.42E 0.2 9.04E 0.0 4.774E 0.0 2.74E-02 3.442E 0.2 1.499E C. 0. 4.47E 0.2 9.065E 0.0 6.774E 0.0 2.74E-02 3.20IE 0.2 1.499E C. 0. 4.47E 0.2 9.065E 0.0 6.774E 0.0 2.74E-02 3.20IE 0.2 1.499E C. 0. 4.47E 0.2 1.250E 0.1 1.216F 0.1 2.776E-02 4.35E 0.2 1.497E DATA POINT 6 DATA POINT 6 DATA POINT 6 TI 0/A 3/AP H 0EL TF VS C. 5.456E 0.2 1.256E 0.1 1.216F 0.1 3.72E-02 4.35E 0.2 1.516E C. 0. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. 6. | ************************************** | 7 | | | | | | | | | |
| TW TI 0/A 0/APP H DEL TF V5 E C2 4.21E D2 9.244E D3 6.774E D0 2.571E-02 3.412E D2 1.491E E C2 4.21E D2 9.644E D3 8.774E D3 2.654E-02 3.343E C2 1.4991E E C2 4.21E D2 9.645E D3 8.774E D3 2.654E-02 3.343E C2 1.4991E E C0 | | | | | CAT | | | | | | |
| 2 4.421E 02 9.044E 00 2.571E-02 3.41ZE 02 1.491E 2 4.421E 02 9.044E 00 8.774E 00 2.571E-02 3.41ZE 02 1.491E 2 4.421E 02 9.044E 00 8.774E 00 2.741E-02 3.41ZE 02 1.498E 2 4.447E 02 9.065E 00 8.774E 00 2.741E-02 3.201E 02 1.505E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | STA P8 TH | | | , | į | | | | | | |
| DATA PCINT S DATA PCINT S To a sample of the sample of t | 02 1.CCBE 02 7.190 | | 7-1506 | 02 | | 9-744F 90 | OZAP | I | DEL TF | > | |
| DATA PCINI S 11 | 05 | | 3061 € | C 2 | | 9. CA 4E 00 | 8.774E 90 | 2.571E-02 | 3-412E 02 | | 25 |
| DATA PCINT 5 11 | 1.1466 02 | 20 | 7-1306 | 05 | | 9.065E 00 | 8-774E 00 | 2.741E-32 | | | 2 5 |
| DATA PCINT S 11 | CELTA E | w w | LE | | | | | | | | v |
| DATA PCINT 5 11 | 2-104E 01 2-024E 01 4-500E | | 4.500E | | | | | | | | |
| DATA PCINT 5 11 | 01 2.024E C1 | 5 5 | 4.590E | 000 | | | | | | | |
| 11 0/A 0/AP H DEL TF VS 5.303E 02 1.250E 01 1.219E 01 2.779E-02 4.385E 02 1.497E 5.303E 02 1.255E 01 1.219E 01 2.933E-02 4.154E 02 1.507E 5.265E 02 1.256E 01 1.214E 01 3.026E-02 4.024E C2 1.516E DATA POINT 6 3/AP H DEL TF VS 5.320E 02 1.402E 01 1.355E 01 3.376E-02 4.081E 02 1.597E 5.320E 02 1.402E 01 1.355E 01 3.377E-02 4.081E 02 1.510F 5.320E 02 1.402E 01 1.355E 01 3.377E-02 4.081E 02 1.510F | | | | | ATAG | | | | | | |
| 11 | | | | | A I A O | | | | | | |
| 5.463E 02 1.250E 01 1.218E 01 2.779E-02 4.385E 02 1.497E 5.393E 02 1.255E 01 1.218F 01 2.913E-02 4.154E 02 1.507E 1.507E 02 1.207E 02 1.507E 02 1.507E 02 1.507E 02 1.307E 01 1.305E 01 3.204E-02 4.181E 02 1.507E 02 1. | | | - | _ | 11 | A/0 | 0/40 | 1 | | | |
| 5-303E no 1-255E 01 1-218E 01 2-053E-02 4-154E 02 1-507E 5-265E 02 1-256E 01 1-218E 01 3-028E-02 4-154E 02 1-516E DATA POINT 6 5-476E 02 1-397E 01 1-365E 01 3-172E-02 4-194E 02 1-516E 5-320E 02 1-402E 01 1-365E 01 3-264E-02 4-181E no 1-510F 5-320E 02 1-403E 01 1-365E 01 3-377E-02 4-041E 02 1-520E | 1 140F 02 | | 9.050c | 05 | 5.443E 02 | 1.250E 01 | 1.218E 01 | 2.779F-02 | A JOSE OF | | |
| DATA POINT 6 5.470E C2 1.397E 91 1.365E 01 3.172E-02 4.024E C2 1.516E 5.2592 02 1.402E 91 1.365E 91 3.264E-02 4.181E 02 1.409E 5.320E C2 1.403E 91 1.365E 91 3.377E-02 4.041E 92 1.520E | 95 | | 6.540E | 2 0 | 5.303E n2 | 1.2556 01 | 1.219F 21 | 2.9 33E-02 | 4-154E 02 | | ~ ~ |
| 5.476 C2 1.397E 31 1.355E 01 3.102E-02 4.399E 02 1.499E 5.320E C2 1.402E 91 1.355E 01 3.254E-02 4.181E 02 1.510E | 2 47 130 | | 1 | | | | | 3-72 RE-02 | 4.024E C2 | | N |
| 5.476 C2 1.397E 91 1.355E 91 3.102E-02 4.399E 02 1.499E 5.320E 02 1.403E 91 1.355E 91 3.377E-02 4.181E 02 1.520E | OLLIA E LE | , LE | | | | | | | | | |
| 5.476F 02 1.397E 01 1.365F 01 3.377E-02 4.399E 02 1.499E 5.320E 02 1.403E 01 1.365E 01 3.377E-02 4.041E 02 1.520E | 20 20 20 20 20 20 20 20 20 20 20 20 20 2 | 5 6 | 4.500E | 0 | | | | | | | |
| 5.476F 02 1.397F 01 1.355F 01 3.377E-02 4.399E 02 1.499E 5.320E 02 1.403E 01 1.355E 01 3.377E-02 4.041E 02 1.520E | 01 2.446 | 5 5 | * 500t | 0 0 | | | | | | | |
| 5.470F 02 1.397E 01 1.355F 01 3.1C2E-02 4.399E 02 1.499E 5.320E 02 1.402E 01 1.355E 01 3.254E-02 4.181E 02 1.510F 5.320E 02 1.403E 01 1.355E 01 3.377E-02 4.041E 02 1.520E | | | | | DATA | | | | | | |
| 5.476 C2 1.397E 91 1.365F 91 3.102E-02 4.399E 02 1.499E 5.350E 02 1.402E 91 1.365E 91 3.377E-02 4.181E 02 1.510F 5.320E 02 1.403E 91 1.365E 91 3.377E-02 4.041E 92 1.520E | 11 | | 3 | | ; | | | | | | |
| 5-350E 02 1-403E 01 1-365E 01 3-102E-02 4-399E 02 1-499E 5-350E 02 1-403E 01 1-365E 01 3-377E-02 4-181E 02 1-510F | 1.C77E C2 9.47 | | 9.470C | 20 | 5-476F A2 | A/0 | SIAP | ī | DEL TF | 8 > | |
| 5-320E C2 1-403E 01 1-355E 01 3-254E-02 4-041E 02 1-510F | 02 1-178E C2 9.38nc | 9.38A | | 20 | 5. 75.92 03 | 10 30 40 1 | | 3.102E-02 | 4.399E 02 | | _ |
| 00 00 00 00 00 00 00 00 00 00 00 00 00 | 6-444E 02 1-279E 02 9-350E | | 9.350E | 1 N | 5.320E 12 | | | 3.254E-02 | 4.181E 02 | | |
| | 770 | | | | | | | 30-31/5-02 | 4.041E 92 | | |
| | 91 2.599E | | P. SOA | | | | | | | | |
| | 6.599E 01 | 5 | 4.50 PF | | | | | | | | |

| | | | | HT-9-101 DATA | DATA POINT 7 | | | | | |
|----------------|--|--|-------------------------------------|-------------------------------------|--|---|--|---|---|--|
| A - S D | PB 8.620E 02 8.522E 02 E.424E 02 | TB 1.1086 C2 1.2226 02 1.336E 02 | 1.019E 03 5.840E 02 1.039E 03 | 5.650E 02 5.182E 02 5.517E 02 | 1.617E 01 1.636E 01 1.622E 01 | 0/AP 1.583E 01 1.583E 01 1.583E 01 | 3.487E-02 4.000E-02 3.788E-02 | DEL TF 4.541E 02 3.959E 02 4.180E 02 | VS 1.501E 02 1.513E 02 1.524E 02 | |
| S = 2 E | 1.456E 01 2.164E 01 2.751E 01 | DELTA E 2.620E 01 2.620E 01 2.820E 01 | 4.500E 00 4.500E 00 4.500E 00 | | | | | | | |
| | | | | DATA | DATA PUINT 8 | | | | | |
| STA 2 2 2 2 | PB 8.620E 02 8.527E 02 | TB 1.135E 02 1.260E 02 1.385E 02 | 1.090E 03 1.128E 03 1.121E 03 | TI 5.968E 02 6.395E 02 | 0/A 1.791E 01 1.774E 01 1.774E 01 | 0/AP 1.760E 91 1.750E 91 | H 3.641E-02 3.427E-02 3.522E-02 | 0EL TF 4.83E 02 5.136E 92 4.997E 02 | VS 1.504E 02 1.516E 02 1.529E 02 | |
| ST = 2 | L/D 1-456E 01 2-194E 01 2-751E 01 | DELTA E 2.953E C1 2.953E C1 2.993E 01 | 4.500E 00 4.500E 00 4.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 9 | | | | | |
| 4 - 2 m | 8.630E 02 8.541E 02 8.452E 02 | 1.153E C2 1.286E C2 1.419E C2 | TW 0. 1.242E 03 | 71 0. 7.370E 92 0. | 0/A 0. 1.926E 01 0. | 1.910E 01 1.910E 01 1.910E 01 | н 3.1396-02 0. | DEL TF 0. 6.084E 02 0. | VS 1.508E 02 1.522E 02 1.535E 02 | |
| ST - S E | 1.456E 01 2.104E 01 2.751E 01 | DELTA E . 3.164E 01 3.164E C1 3.164E C1 | 4.500E 00 4.500E 00 4.500E 00 | | | | | te:) | | |
| | | | | CATA | CATA POINT 10 | | | | | |
| ST - 2 E | PB 4.360E 02 8.244E 02 | 1.161E 02 1.200E C2 1.438E 02 | | | · · · · | 0/AP 1.590E 01 1.990E 31 1.990E 01 | : | DEL TF. | VS 1.507E 02 1.521E 02 1.534E 02 | |
| 51 S | 1.456E 61 2.104E 01 2.751E 01 | DELTA E 3.292E C1 3.292E C1 3.292E C1 | 4.500E 00 4.500E 00 4.500E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

| | AF = 0 | 0.1056-03 | E-03 | | .0 | 0-116E-01 | 10-3 | _ | | 0.500E 01 | | | DELT | DELTA TO | N | 0.16 | 0.160E 01 | | | |
|-------|-----------|-----------|---------|-----|-----------|-----------|-----------|-------------|-----|--------------|--------|-------|------|----------|------|------|-----------|------------|------------|------|
| | | | | | | | DATA | DATA POINTS | 115 | | | | | | | | | | | |
| POINT | N 1 - 8 d | z | *100-80 | | | | | | | | | | | | | | | | | |
| | 4.073E A | | 200 | . : | N - 0 | z | 19-001 | _ | | | | | | 6.8 | | | | | | |
| | 2000 | 3 | 3.037 | 03 | 8.730E UI | 5 | 9.440E 01 | 01 | 9 | 6-150F-01 | 8.0700 | | | 3 | | | 0 | | HT BAL | ¥ |
| | 3.071E | | 3.035E | 0.3 | 8.880E | 0 | 1.020F | 0 | | | | ¥ : | | 4.590E | E 02 | Ň | 2.59BE | 00 | 8.894E 00 | E 00 |
| | 3.067E | 03 | 3.0346 | 0.3 | 8.990E | 0 | 1-1616 | | , | 10-205 | 8.180 | | | 9010-9 | E 02 | Ī | 1.661F | 00 | -7.211E | E 00 |
| | 3.065E | 03 | 3.033E | 03 | 9.000 | | 1000 | y 6 | • | 10-1001-0 | 1.2286 | | - | 8.280E | E 02 | • | 9.639E | 00 | -1-01AF | - |
| | 3.063E | 03 | 3.032E | | 90100 | | 1000 | 20 | ċ | 6-150E-01 | 1.509E | | | 9.570E | E 02 | - | 369€ | | 1 1 1 1 | |
| | 3.062E | 03 | 3.031 | | 90000 | | 1.3546 | 20 | • | 6-150E-04 | 1.730E | 0E 0 | _ | 1.046E | E 03 | - | 1.715E | | -1.0346 | |
| | 3.060E | 03 | 3.030E | 03 | 9.010 | | 2070 | 20 | • | 6-150E-01 | 1.8935 | 3K 01 | - | 1.1116 | E 03 | - | 9946 | | 1.0605 | |
| | 3.059E | 03 | 3.029E | | 9.0105 | 5 6 | 1047 IE | 200 | • | 6-1506-01 | 1.991 | 1E 0 | - | 1.149E | E 03 | ~ | 2.169E | | -1-0745 | |
| | 3.058E | 03 | 3.029E | 03 | 9.0206 | | 2000 | 2 6 | • | 0-150E-01 | 2.136E | 9 J | _ | 1.20SE | E 03 | 2 | 2.440E | C 1 | -9. 899F | |
| | 3.056E | 03 | 3.02 AE | 03 | 9.020F | | 1.6306 | 9 6 | | 10-30E-01 | 2.2596 | 9E 0 | _ | 1.255E | E 63 | 8 | 2.688E | 0.1 | -9.397F | 0 |
| | 3.056E | 03 | 3.027E | 03 | 9.010E | | 1.6775 | 9 6 | | 10-20-1-0 | 2.301E | IE OI | | 1.271E | E 03 | 8 | 2.772E | 10 | -9.82SE | 00 |
| | 3.055E | 03 | 3.026E | 03 | 9.010F | | 716 | , | • | 10-10-110 | 2.409E | 9 | _ | 31 1E | £ 03 | 5 | 2.994E | 10 | -1.019F | |
| | 3.053E | 03 | 3.024E | 03 | 9.000F | | 76.05 | 9 6 | • | 10-30+1·0 | 2.4916 | IE O | - | 1.335€ | 0.3 | n | 3.1536 | 10 | -1.00AF | |
| | 3.052E | 03 | 3.021E | 03 | 9-000F | | 20 36 04 | 9 6 | | 0-140E-01 | 2.624E | 0 | - | . 369€ | £ 03 | 3. | 3.405E | 0.1 | -6.873F | |
| | 3.051E | 03 | 3.017E | 03 | 8.980F | | 10000 | 7 6 | | 0-140E-01 | 2.697E | 0 | _ | • 39 9E | . 03 | 8 | 1.574E | 0 | -7.669F | 0 |
| | 3.049E | 0.3 | 3.017E | 03 | 8.980F | | | 2 6 | | 0-130E-01 | 2.777 | - L | - | -462E | . 03 | m | 1.849E | 0.1 | -6.3376 | 0 |
| | 3.048E | 03 | 3.017E | 0.3 | 8.960E | | 1.0776 | 200 | | 0-130E-01 | Z-900E | 9 | - | . 502E | 03 | : | -129E | 10 | -6.052E | 0 |
| | 3.047E | 0.3 | 3.016E | 0.3 | 8-950F | | 20000 | 9 6 | • | 0-140E-01 | 3.020E | 0 | _ | .541E | 03 | | 1.412E | 10 | -5-230F | 0 |
| | 3.045E | 03 | 3.015E | E 0 | 8.0305 | | | 2 0 | • | 5 - 1 30E-01 | 3.096 | 0 | - | -581E | 03 | • | -640F | | -4-1715 | 3 8 |
| | 3.044E | 60 | 3.01SF | 60 | M. 91 0F | | | 70 | • | 0-140E-01 | 3.2006 | 0 | - | •632E | 03 | | .951E | | -4.522E 00 | 3 8 |
| | 3.039E | 03 | 3.011F | | 8.80 | | 2.157E | 20 | • | 6 - 1 30E-01 | 3.3316 | | - | -690E | 03 | 2 | 3376 | | -2-103E 00 | 3 8 |
| | | | | , | 2000 | 5 | | • | | | - | | | | | | | , | | |

TEST SECTION - LOCAL TEST PARAMETERS

| | 2.250E-02 | • |
|------------|---|-------------------------------------|
| | 0/AP 1.190E 00 1.190E 00 | |
| DATA POINT | 0/A 1-200E 00 1-199E 00 | |
| DATA | 71 1-423E 02 1-455E 02 1-465E 02 | |
| | 2.070E 02 2.100E 02 2.110E 02 | 5.000E 00 |
| | 75 9-120E 01 9-262E 01 9-404E 01 | 5.970£ 00 5.970£ 00 5.970£ 00 |
| | PB 3.053E 03 3.046E 03 3.039E 03 | 1.978E 01 2.698E 01 3.417E 01 |
| | 4 - 2 F | ST - S E |

02 00

| DATA POINT 3 DATA POINT 3 DATA POINT 3 DATA POINT 4 1.03.56 02 5.13.56 02 5.13.56 00 1.7365-02 1.20.57 02 | 16 | 1 to 2 | 11 | 4/0 | | I | DEL TF | | |
|--|------------------------|-----------|------------------------|-----------|------|-----------|------------------------|-----------|----|
| E LE 01 5.000E 00 02 5.000E 00 03 5.000E 00 04.41E 00 1.736E-02 1.229E 02 05 5.000E 00 05 5.000E 00 05 5.000E 00 06 5.000E 00 07 5.000E 00 08 5.000E 00 09 5.000E | 9.606E 01 | 3.250E 02 | 2-143E 02 | 2-151E 00 | | 1.8045-02 | 1.163E 02 | 1.074E 02 | |
| E LE DATA POINT 3 DATA POINT 4 DATA POINT 4 DATA POINT 5 S. 5000 0 1 | 1.013E 02 | 3.340E 02 | 2.2426 02 | 2-143E 00 | | 1.736E-02 | 1.229€ 02 | | |
| DATA POINT 3 TT T | | | | | | | | | |
| DATA POINT 3 THE THE THE OLYPE OF CAMPE OF CAMP | | | | | | | | | |
| DATA POINT 3 1 TW TI O A A A A A A A A A A A A A A A A A A | | | | | | | | | |
| THE TW TI OVA OVAP H DELTF 02 5.520E 02 3.411E 02 4.461E 00 4.414E 00 1.664E-02 2.399E 02 03 5.520E 02 3.404E 02 4.428E 00 1.664E-02 2.399E 02 04 5.000E 00 15 5.000E 00 10 5.000E | | | DATA | | | | | | |
| 2.5.520E 02 3.411E 02 4.446E 00 4.414E 00 1.664E-02 2.356E 02 02 5.559E 02 3.406E 02 3.406E 02 4.426E 00 4.414E 00 1.702E-02 2.379E 02 01 5.000E 00 | 13 | 2 | 11 | 4/0 | O/AP | r | DEL TF | S > | |
| 02 5.5906 02 3.4946 02 4.4266 00 4.4146 00 1.8406-02 2.4776 02 01 5.000 00 01 | 1.043E 02 | | 3.411E 02 | 4.461E 00 | | 1.864E-02 | 2.368E 02 | | |
| E LE 01 5.000E 00 01 5.000E 00 01 5.000E 00 02 7.170E 02 4.329E 02 6.375E 00 6.269E 00 1.936E-02 3.226E 02 02 7.250E 02 4.427E 02 6.317E 00 6.269E 00 1.936F-02 3.235E 02 02 7.410E 02 4.624E 02 6.317E 00 6.269E 00 1.936F-02 3.375E 02 03 7.410E 02 4.624E 02 6.317E 00 6.269E 00 1.936F-02 3.375E 02 04 5.000E 00 05 5.000E 00 05 6.500E 02 5.065E 02 6.015E 00 7.855E 00 1.916F-02 3.915E 02 05 6.500E 02 5.204E 02 8.045E 02 7.965E 00 7.855E 00 1.916F-02 3.915E 02 06 5.000E 00 07 5.000E 00 08 5.000E 00 09 5.000E 00 10 5.000E 00 | 1.095E 02 1.148E 02 | | 3.494E 02 3.625E 02 | 4.428E 00 | | 1.840E-02 | 2.399E 02 2.477E 02 | 1.085E 02 | |
| DATA POINT 4 DATA POINT 5 DATA POINT 6 DATA POINT 6 DATA POINT 7 DATA POINT 7 DATA POINT 6 DATA POINT 6 DATA POINT 6 DATA POINT 7 DATA POINT 6 DA | | LE | | | | | | | |
| DATA POINT 4 DATA POINT 5 TWO TION O'AP H DEL TF DATA POINT 5 TWO TI DATA POINT 5 TWO TI DATA POINT 5 E. LE DATA POINT 5 | | | | | | | | | |
| DATA POINT 4 TT 0/A 0/AP H DEL TF 02 7.1706 02 4.3296 02 6.3756 00 6.2696 00 1.9456-02 3.2516 02 02 7.4106 02 4.6246 02 6.3176 00 6.2696 00 1.9266-02 3.2516 02 03 7.4106 02 4.6246 02 6.3177 00 6.2696 00 1.9266-02 3.2516 02 01 5.0006 00 01 5.0006 00 01 5.0006 00 02 8.5006 02 5.0656 02 8.0466 00 7.8556 00 1.9166-02 3.9156 02 03 8.5006 02 5.2046 02 8.0466 00 7.8556 00 1.9166-02 3.9037 02 04 8.5006 00 05 8.5006 00 06 9.5006 00 07 8.5006 00 08 9.5006 00 09 9.50006 00 01 5.0006 00 01 5.0006 00 01 5.0006 00 01 5.0006 00 01 5.0006 00 01 5.0006 00 01 5.0006 00 | | | | | | | | | |
| DATA POINT 4 H DEL TF 02 7.170E 02 4.329E 02 6.375E 00 6.260E 00 1.934E-02 3.226E 02 02 7.410E 02 4.624E 02 6.337E 00 6.260E 00 1.936E-02 3.251E 02 02 7.410E 02 4.624E 02 6.337E 00 6.260E 00 1.936E-02 3.375E 02 03 5.000E 00 01 5.000E 00 01 5.000E 00 02 8.500E 02 5.065E 02 8.046E 00 7.855E 00 1.916E-02 3.945F 02 03 8.500E 02 5.430E 02 8.046E 00 7.855E 00 1.916E-02 4.099E 02 04 5.000E 00 05 8.500E 00 00 1.910E-02 1.910E-02 1.910E-02 1.900E 00 1 | | | | | | | | | |
| 1.102E 02 7.170E 02 4.329E 02 6.335E 00 6.269E 00 1.943E-02 3.226E 02 1.176E 02 7.250E 02 4.427E 02 6.335E 00 6.269E 00 1.943E-02 3.226E 02 1.250E 02 7.410E 02 4.624E 02 6.317E 00 6.269E 00 1.950E-02 3.231E 02 1.250E 02 7.410E 02 4.624E 02 6.317E 00 6.269E 00 1.856F-02 3.375E 02 0.250PE 01 5.000E 00 1.850PE 01 5.000E 00 1.850PE 02 1.550PE 01 5.000E 00 1.850PE 02 1.550PE 01 5.000E 00 1.850PE 02 1.550PE 01 5.000E 00 1.850PE 02 1.500PE 02 5.000PE 02 5.000PE 02 5.000PE 02 7.965E 00 7.855E 00 1.910F-02 3.915E 02 1.331E 02 8.790E 02 5.430E 02 7.965E 00 7.855E 00 1.910F-02 3.993F 07 1.331E 02 8.790E 02 5.430E 02 7.965E 00 7.855E 00 1.910F-02 3.993F 02 1.700E 01 5.000E 00 1.700E 00 1.700E 01 5.000E 01 5.0 | | | DATA | | | | | | |
| 1.102E 02 | 6 | * | 11 | 4/0 | 9/AP | I | DEL TF | 88 | |
| 1.176E 02 7.250E 02 4.427E 02 6.317E 00 6.269E 00 1.926E-02 3.251E 02 | 1.102E 02 | 7.170E 02 | 4.329E 02 | 6.375E 00 | | 1.9436-02 | 3.226E 02 | | |
| 1.250E 02 7.410E 02 4.624E 02 6.317E 00 6.269E 00 1.858F-02 3.37SE 02 0ELTA E LE 1.509E 01 5.000E 00 1.509F 01 5.000E 02 1.315 02 8.500E 02 5.204E 02 8.005E 00 7.855E 00 1.916F-02 3.915E 02 1.730E 01 5.000E 00 1.730E 01 5.000E 00 1.730E 01 5.000E 00 1.730E 01 5.000E 00 | | | 4.427E 02 | 6.355E 00 | | 1.928F-02 | 3.251E 02 | | |
| DATA POINT 5 TO TW TI D/A POINT 5 1.509E 01 5.000E 00 1.509F 01 5.000E 00 1.709F 02 5.009F 02 7.965F 00 7.855F 00 1.916F-02 3.99FE 02 1.730F 01 5.000E 00 1.730F 01 5.000E 00 1.730F 01 5.000E 00 | 1.250€ 02 | | 4.624E 02 | 6.317E 00 | | 1-858F-02 | 3.375E 02 | 1.091E 02 | |
| 1.509E 01 5.000E 00 1.509F 01 5.000E 00 1.709E 01 5.000E 00 | | LE | | | | | | | |
| 1.509F 01 5.000E 00 1.509F 01 5.000E 00 1.509F 01 5.000E 00 1.150E 02 6.500E 02 6.004E 00 7.055E 00 2.007E-02 3.915E 02 1.31E 02 6.790E 02 5.430E 02 7.965E 00 7.055E 00 1.916E-02 3.999E 02 0.1730E 01 5.000E 00 1.730E 01 5.000E 00 1.730E 01 5.000E 00 | | | | | | | | | |
| DATA POINT S 8.500E 02 5.065E 02 8.046E 00 7.855E 00 2.007E-02 3.915E 02 8.610E 02 5.204E 02 7.855E 00 1.916E-02 3.915E 02 8.790E 02 5.430E 02 7.965E 00 7.855E 00 1.916E-02 4.099E 02 5.000E 00 5.000E 00 5.000E 00 5.000E 00 | | | | | | | | | |
| DATA POINT S 8.500E 02 5.065E 02 8.046E 00 7.855E 00 2.00TE-02 3.915E 02 8.610E 02 5.204E 02 7.855E 00 1.916E-02 3.915E 02 8.790E 02 5.430E 02 7.965E 00 7.855E 00 1.916E-02 4.099E 02 LE 5.000E 00 5.000E 00 5.000E 00 5.000E 00 | | | | | | | | | |
| 8.500E 02 5.06SE 02 8.046E 00 7.85SE 00 2.00TE-02 3.91SE 02 8.610E 02 5.204E 02 8.046E 00 7.85SE 00 2.00TE-02 3.91SE 02 8.700E 02 5.430E 02 7.96SE 00 7.85SE 00 1.916E-02 3.903F 02 LE S.000E 00 5.000E 00 5.000E 00 5.000E 00 | | | DATA | | | | | | |
| 8.500E 02 5.065E 02 8.046E 00 7.855E 00 2.007E-02 3.915E 02 8.610E 02 5.204E 02 8.015E 00 7.855E 00 1.916F-02 3.905F 02 8.790E 02 5.430E 02 7.965E 00 7.855E 00 1.916F-02 4.099E 02 LE 5.000E 00 5.000E 00 5.000E 00 | 10 | * | 11 | 4/0 | Q/AP | r | DEL TF | | |
| 1.441E 02 8.410E 02 5.204E 02 8.015E 00 7.855E 00 1.985E-02 3.963F 02 1.331E 02 8.790E 02 5.430E 02 7.965E 00 7.855E 00 1.916E-02 4.099E 02 DELTA E LE 1.730E 01 5.000E 00 1.730E 01 5.000E 00 1.730E 01 5.000E 00 | 1.150E 02 | | 5.065E 02 | 8.046E 00 | | 2.007E-02 | 3.915E 02 | | ٠. |
| E LE 01 5.000E 00 00 00 00 00 00 00 00 00 00 00 00 | 1.241E 02 | | 5.204E 02 | 7.965F 00 | | 1.982E-02 | 3.963F 07 | 1.097E 02 | |
| 01 5.000E 01 5.000E 01 5.000E | 143316 05 | | | | | | | | |
| 1.730E 01 5.000E | | | | | | | | | |
| 1.730E 01 5.000E | | | | | | | | | |
| | | | | | | | | | |

| 00 00 00 00 00 00 00 00 00 00 00 00 00 | | | | | | | | | | | | |
|--|-------|--------|------------|----------|-----|------------|------------|-----------|------------|-------------|--------|-----|
| 1.296 02 03.00 02 03.00 02 03.00 | | | | | in: | | | | | | | |
| 11-1916 02 9-5306 02 5-5596 02 0-1256 03 | | • | 10 | | | 1 | 4/0 | 8470 | 1 | | | |
| 1.499E 1 1.4 | 0 | 15E 03 | 1-191E 0 | 9.530E | 20 | 5.659E 02 | 9.357F 00 | | 2.0435-02 | 4.468E 02 | 1.0885 | 02 |
| 1.489E 1.590E 0.047A POINT 7 0.04P 0.936F-02 4.666E 0.2 1.101E 1.489E 0.1 5.000E 0.0 0.949E 0.1 0.04P | 8.03 | 3E 03 | 1.401E 0 | 9.8507 | 2 0 | 5.787E 02 | | | 2.033F-02 | | 1.094€ | 020 |
| DATA POINT 7 1.4936 01 5.0006 00 1.1-9936 0 | • | • | | | ; | 70 7000 | ** CB3E 00 | | 1.956F-02 | 4.666E 02 | 1.1016 | 05 |
| 1.8916 01 02 04 04 04 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 04 05 05 | . 6. | | | LE | | | | | | | | |
| 1.491E 01 5.000E 00 | 5.69 | | | 5.000F | 2 6 | | | | | | | |
| 1.2166 02 1.0156 03 0.0136 02 1.0106 01 0.9316 00 2.056-02 4.7799 02 1.0096 03 1.1306 02 1.0096 03 0.0136 03 0.0036 03 0.0 | 3.41 | | | S.000E | 00 | | | | | | | |
| 11.214E 02 1.015E 03 6.013E 02 1.016E 01 9.931E 00 2.090E-02 4.779F 02 1.090E 3 1.324E 02 1.047E 03 6.424E 02 1.016E 01 9.931E 00 2.090E-02 4.779F 02 1.090E 3 1.325E 02 1.047E 03 6.424E 02 1.009E 01 9.931E 00 1.993E-02 4.779F 02 1.090E 11.991E 01 5.000E 00 11.9 | | | | | | DATA | | | | | | |
| 11.2146 02 1.015 03 6.013F 02 1.016F 01 9.931F 00 2.0046 02 4.779 02 1.0296 31.3286 02 1.0266 03 6.135F 02 1.016F 01 9.931F 00 2.057F-02 4.779 02 1.0296 31.3286 02 1.0266 03 6.135F 02 1.009F 01 9.931F 00 2.057F-02 4.779 02 1.0296 31.3286 02 1.026F 03 6.424E 02 1.009F 01 9.931F 00 2.057F-02 4.779 02 1.0296 31.3286 01 5.000F 00 31.3286 02 1.107F 03 6.927F 02 1.103F 01 1.117F 01 2.027F-02 5.237F 02 1.0397 31.3286 02 1.107F 03 6.927F 02 1.134F 01 1.117F 01 2.027F-02 5.237F 02 1.097F 31.3286 01 5.000F 00 32.136F 02 1.138F 03 7.013F 02 1.238F 01 1.231F 01 2.157F 02 1.107F 02 1 | | 0 | | | | | | | | | | |
| THE TOTAL OF THE COLORS OF THE | 3.04 | AF 03 | 1.2146 02 | | . : | | 4/0 | O/AP | T | DEL TF | × > | |
| DATA POINT 8 1.991E 01 5.000E 00 2.136E 01 5.000E 00 3.100E 00 | 1.03 | | | | 2 5 | 6.013E 02 | | | 2.069E-02 | 4.799E 02 | 1.089E | 02 |
| DATA POINT 8 1.291E 01 5.000E 00 1.991E 01 5.000E 00 1.170E 01 5.000E 00 2.136E 02 1.107E 03 6.5336E 02 1.136E 01 1.117E 01 2.116E-02 5.276E 02 1.091E 2.136E 01 5.000E 00 2.1259E 03 7.144E 02 1.256E 01 1.231E 01 2.145E-02 5.730E 02 1.107E 2.2559E 01 5.000E 00 2.2559E 01 5.000E 00 2.2559E 01 5.000E 00 | 3.03 | 1E 03 | | | 03 | 6.424E 02 | | | 2.057E-02 | 4-827F 02 | 1.096E | 20 |
| DATA POINT 6 1.991E 01 5.000E 00 1.991E 01 5.000E 00 DATA POINT 6 1.250E 02 1.107E 03 6.536E 02 1.146E 01 1.117E 01 2.114E-02 5.276E 02 1.099E 1.506E 02 1.119F 03 6.692E 02 1.146E 01 1.117E 01 2.116E-02 5.215E 02 1.099E 1.506E 01 5.000E 00 1.516E 01 5.000E 00 2.136E 01 5.000E 00 2.136E 01 5.000E 00 2.136E 01 5.000E 00 2.136E 01 1.134E 01 1.117E 01 2.126E 02 1.107E 1.203E 01 5.000E 00 2.136E 01 5.000E 00 2.136E 01 1.231E 01 2.146E 02 1.256E 01 1.231E 01 2.146E 02 5.779E 02 1.107E DELTA COMBANA COMBA | نہ | 9 | | 9 | | | | | | 30 | 150101 | 2 |
| 1.991E 01 5.000E 00 | 1.97 | | | 5.000E | 00 | | | | | | | |
| TOWATE 01 5.000E 00 TOWATE DIATA POINT 6 1.250E 02 1.107E 03 6.530E 02 1.146E 01 1.117E 01 2.102E-02 5.276E 02 1.091E 1.550E 02 1.144E 03 7.016E 02 1.142E 01 1.117E 01 2.102E-02 5.315E 02 1.099E DELTA E LE 2.136E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 | 5.69 | | | 5.000E | 0 | | | | | | | |
| TB TW TW TI O/A O/AP H DEL TF VS 1.250E 02 1.107E 03 2.114E-02 5.274E 02 1.099E 1.376E 02 1.117E 03 2.102E-02 5.274E 02 1.099E 1.503E 02 1.114E 03 7.016E 02 1.134E 03 1.117E 03 2.102E-02 5.315E 02 1.099E 2.136E 03 5.000E 00 2.136E 03 7.013E 02 1.256E 03 1.233E 03 2.154E 02 5.730E 02 1.094E 1.259E 03 7.547E 02 1.256E 03 1.233E 03 2.151F-02 5.730E 02 1.107E 2.259E 03 5.000E 00 2.250E 03 5.000E 00 2.250E 03 5.000E 00 2.250E 03 5.000E 00 2.250E 0 | 3.41 | | | 5.000E | 8 | | | | | | | |
| THE TOTAL POINT B TOTAL | | | | | | | | | | | | |
| TESONE 02 1.1076 03 6.536E 02 1.146E 01 1.117E 01 2.1146-02 5.246E 02 1.0991E 1.3766 02 1.1196 03 6.692E 02 1.146E 01 1.117E 01 2.102E-02 5.315E 02 1.0991E 1.376E 02 1.1146 03 7.016E 02 1.142E 01 1.117E 01 2.027E-02 5.315E 02 1.0991E 1.2136E 01 5.000E 00 2.136E 01 5.000E 00 2.259E 01 1.231E 01 2.145E-02 5.730E 02 1.094E 02 1.256E 01 1.231E 01 2.145E-02 5.730E 02 1.094E 02 1.256E 01 1.231E 01 2.145E-02 5.730E 02 1.094E 02 1.255E 01 1.231E 01 2.145E-02 5.730E 02 1.097E 02 1.111F 02.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 | | | | | | DATA | | | | | | |
| 1.3566 02 1.107E 03 6.536E 02 1.146E 01 1.117E 01 2.114E-02 5.246E 02 1.091E 1.503E 02 1.144E 03 7.016E 02 1.142E 01 1.117E 01 2.102E-02 5.315E 02 1.099E 1.503E 01 5.000E 00 2.136E 01 1.263E 02 1.256E 01 1.231E 01 2.148E-02 5.730E 02 1.094E 02 1.255E 01 1.231E 01 2.056E-02 5.997E 02 1.11F 02 5.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 | | 84 | 18 | | | - | 4/6 | 9470 | ; | i | | |
| 1.503E 02 1.119F 03 6.992E 02 1.142E 01 1.117E 01 2.102E-02 5.315E 02 1.1094E DELTA E DELTA E LE 2.136E 01 5.000E 00 2.136E 01 5.000E 00 2.136E 01 5.000E 00 DATA POINT 9 TB TB TA TA DATA POINT 9 L.263E 02 1.148E 02 1.258E 01 1.231E 01 2.148E-02 5.730E 02 1.1094E L.263E 02 1.188E 03 7.144E 02 1.258E 01 1.231E 01 2.148E-02 5.730E 02 1.1094E 2.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 | | 2E 03 | 1.250E 02 | 1.107E | 03 | 6.536E 02 | 1.146E 01 | 1.117E 01 | 7-11 AF-02 | S. 2846 A3 | | |
| THE THE TE THE TABLE OF TABLE | 2 | 03 | 1.376E 02 | 1.119F | 60 | | | | 2.102F-02 | S. Tiffe on | | 2 |
| TO DELTA E LE 2.136E 01 5.000E 00 DATA POINT 9 1.283E 01 1.231E 01 2.149E-02 5.730E 02 1.094E 1.567E 02 1.289E 03 7.344E 02 1.244E 01 1.231E 01 2.151F-02 5.997E 02 1.1197E 2.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 6.00E 00 | | 2 | 1.503E 02 | 1-1446 | ñ | 7.016E 02 | | | 2.027E-02 | 5.517F 02 | | 2 ~ |
| 1 2.136E 01 5.000E 00 2.136E 01 5.000E 00 2.136E 01 5.000E 00 DATA POINT 9 1.283E 02 1.188E 03 7.013E 02 1.258E 01 1.231E 01 2.187E-02 5.730E 02 1.0094E 1.560E 02 1.229E 03 7.547E 02 1.244E 01 1.231E 01 2.056F-02 5.997E 02 1.111F DELTA E LE 2.259E 01 5.000E 00 2.2259E 01 5.000E 00 | ۲ | 0, | DELTA E | רנ | | | | | | | | |
| 2-136E 01 5-000E 00 2-136E 01 5-000E 00 1-203E 01 5-000E 00 1-203E 02 1-100E 03 | -97 | | | 5.000E | 00 | | | | | | | |
| DATA POINT 9 TWA | . 69 | | | 5.000E | 00 | | | | | | | |
| DATA POINT 9 1.283F 02 1.188E 03 7.013E 02 1.258E 01 1.231E 01 2.149E-02 5.730E 02 1.094E 1.567E 02 1.229E 03 7.547E 02 1.246E 01 1.231E 01 2.151F-02 5.730E 02 1.094E DELTA E LE 2.259E 01 5.000E 00 2.259E 01 6.000E 00 | - | | | 5.000E | 0 | | | | | | | |
| TB TW TI 0/AP H DEL TF VS 1.283E 02 1.188E 03 7.013E 02 1.258E 01 1.231E 01 2.148E-02 5.730E 02 1.094E 1.550E 02 1.229E 03 7.144E 02 1.255E 01 1.231E 01 2.151F-02 5.730E 02 1.094E DELTA E LE 2.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 | | | | | | | | | | | | |
| 1.263E 02 1.186E 03 7.013E 02 1.256E 01 1.231E 01 2.149E-02 5.730E 02 1.094E 1.550E 02 1.255E 01 1.231E 01 2.149E-02 5.730E 02 1.094E 1.550E 02 1.229E 03 7.144E 02 1.255E 01 1.231E 01 2.151F-02 5.732E 02 1.102F DELTA E LE 2.259E 01 5.000E 00 2.259E 01 5.000E 00 2.259E 01 5.000E 00 | | | | | | DATA | | | | | | |
| 1.203F 02 1.180E 03 7.013E 02 1.256E 01 1.231E 01 2.145E-02 5.730E 02 1.094E 1.550E 02 1.229E 03 7.144E 02 1.255E 01 1.231E 01 2.151F-02 5.730E 02 1.094E 1.550E 02 1.229E 03 7.547E 02 1.244E 01 1.231E 01 2.056F-02 5.997E 02 1.1107F 02.259E 01 5.000E 00 2.259E 01 5.000E 00 | | 94 | 10 | | | 11 | *** | | ; | 8 | | |
| 1.4222 02 1.198E 03 7.144E 02 1.255E 01 1.231E 01 2.151F-02 5.732E 02 1.094E 1.560E 02 1.229E 03 7.547E 02 1.244E 01 1.231E 01 2.056F-02 5.997E 02 1.1107F 2.259E 01 5.000E 00 2.259E 01 6.000E 00 2.259E 01 6.000E 00 | • 045 | | 1.283E 02 | | 5 | 7.013E 02 | 1.25AF 01 | 1.2415 | 1 | DEL TF | | |
| 1.560E 02 1.229E 03 7.547E 02 1.244E 01 1.231E 01 2.056F-02 5.722E 02 1.102F DELTA E LE 2.259E 01 5.000E 00 2.2259E 01 6.000E 00 | . 036 | | | 1 - 198E | 33 | 7-144F 02 | 1.2555 01 | 2315 01 | 20-36-07 | 5-730E 02 | | ~ |
| 2.259E 01 5.000E 00 2.259E 01 5.000E 00 | .030 | | 1.569E 02 | 1.229E | 2 | 7.54 TE 02 | | | 2.151F-02 | | | ٠. |
| 2.259E 01 5.000E | - | , | 2 4 7 19 0 | | | | | | 30-1000 | | | ~ |
| 2.259E 01 5.000E | 97.0 | | | | | | | | | | | |
| 2.259F 01 5.000F | 699 | | | | 0 9 | | | | | | | |
| | 417 | E 01 | | | 9 9 | | | | | | | |

| 11-9-102 03 1-297E 02 1-215E 03 7-1666 | HT-9-102 TW TW TW 1.297E 03 7.1666 | HT-9-102 | | | DATA POINT 10 TI 0/A E 02 1.298E 01 | | 2.163F-02 | DEL TF 5.869E 02 | VS 1.0936 | 20 |
|---|---|-------------------------------------|-------------------------------------|---|---|-------------------------------------|-------------------------------------|---|------------------|---|
| 3.025E 03 1.440E 02 1.222E 03 7.258E 02 3.029E 03 1.584E 02 1.260E 03 7.753E 02 | 1.564F 02 1.222E 03 7.258E 1.564F 02 1.260E 03 7.753E | 03 7.753E | 7.258E 02 | | 1.295F 01 1.283E 01 | 1.270£ 01 1.270£ 01 | 2.182E-02 2.058F-02 | 5.817E 02 6.169E 02 | 1.1016 | 0 5 5 |
| 1.978E 01 2.301E 01 5.000E 00 2.698E 01 2.301E 01 5.000E 00 3.417E 01 2.301E 01 5.000E 00 | 6 16 000 01 01 01 01 01 01 01 01 01 01 01 01 | | | | | | | | | |
| DATA | ATAG | DATA | DATA | | DATA POINT 11 | | | | | |
| P6 T9 | T areas | | 11 | | 4/6 | O/AP | I | DEL TF | × × | |
| 1.483E 02 1.287F 03 | 02 1.287F 03 02 1.522E 03 | 3 6 6 | 7.591E 02 | | 1.401E 01 1.334E 01 | 1.371E 01 1.371E 01 1.371E 01 | 2.2056-02 2.2456-02 1.5336-02 | 6.210E 02 6.108F 02 8.943E 02 | 1.094E 1.104E | 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| L/D DELTA E LE 1.978E 01 2.409E 01 5.000E 00 2.698E 01 2.409E 01 5.000E 00 3.417E 01 2.409E 01 5.000E 00 | 6 1 5.000E 01 5.000E 01 5.000E | 5.000F 00 5.000F 00 5.000F 00 | | | | | | | | |
| DATA POINT | DATA | DATA | DATA | | 01NT 12 | | | | | |
| 78 TW TI 3.039E 03 1.349E 02 1.328E 03 7.729E 02 3.033E 03 1.512E 02 1.328E 03 7.729E 02 3.327E 03 1.675E 02 1.851E 03 1.419E 03 | 02 1.328E 03 7.729E 02 1.328E 03 7.729E 02 1.851E 03 1.419E | 03 7.729E 03 7.729E 03 1.419E | 7.729E 02 7.729E 02 1.419E 03 | | 0/A 1.487E 01 1.487E 01 | 0/AP 1.444E 01 1.444E 01 | 2.263E-02 2.322E-02 1.154E-02 | DEL TF 6.379E 02 6.216E 02 1.251E 03 | 1.096E | 02 |
| L/D DELTA E LE 1.978E 01 2.491E 01 5.000E 00 2.658E 01 2.491E 01 5.000E 00 3.417E 01 2.491E 01 5.000E 00 | 6 LF 01 5.000E 01 5.000E 01 5.000E | 5.000E 00 5.000E 00 5.000E 00 | | | | | | | | |
| THICK PATA POINT | DATA PC | DATA PC | DATA PC | 2 | JINT 13 | | | | | |
| 11 | 17. 11 | 11 | | | 0/A | 9/49 | I | DEL TF | \$ > | |
| 1.552E 02 1.567E 03 1.020E 03 | 1.567E 03 1.022E 03 | 1.022E 03 | E 0 | | 1.577E 01 | 1.559E 01 | 1.763F-02 | 8-645E 02 | 1.098E | 020 |
| 3.025E 03 1.726E 02 1.947E 03 1.480E 03 | 1.947E 03 1.480E | 03 1.480E | | | 1.509E 01 | | 1.193F-02 | 1.308E 03 | | 020 |
| 1.978E 01 2.624E 01 5.000F 00 2.698E 01 2.624E 01 5.000E 00 3.417E 01 2.624E 01 5.000E 00 | 01 5.000E 01 5.000E 01 5.000E | | | | | | | | | |

| 1.756E 02 1.443E 03 1.002E 03 1.649E 01 1.637E 01 1.779 03 1.756E 02 2.174E 03 1.7714E 03 1.649E 01 1.637E 01 1.756E 01 2.4597E 01 5.000E 00 01 2.4597E 01 5.000E 00 01 2.4597E 01 5.000E 00 02 1.425E 02 1.466E 03 1.7714E 03 1.775E 01 1.765E 01 1.765E 03 1.425E 02 1.466E 03 1.074E 03 1.775E 01 1.765E 01 1.765E 04 2.777E 01 5.000E 00 05 1.425E 02 1.466E 03 1.074E 03 1.775E 01 1.765E 01 1.765E 06 2.777E 01 5.000E 00 07 2.777E 01 5.000E 00 07 2.777E 01 5.000E 00 08 1.466E 02 1.594E 03 9.439E 02 1.939E 01 1.691E 01 1.75 09 1.466E 02 1.594E 03 9.439E 02 1.939E 01 1.691E 01 1.75 09 1.406E 02 1.500E 00 09 1.406E 02 1.776E 03 1.069E 03 1.069E 03 2.044E 01 2.020E 01 1.500E 09 1.406E 02 1.776E 03 1.096E 03 2.044E 01 2.020E 01 1.500E 09 1.407E 02 1.776E 03 1.096E 03 2.044E 01 2.020E 01 1.500E 09 1.407E 02 1.776E 03 1.096E 03 2.044E 01 2.020E 01 1.500E 09 1.407E 02 1.776E 03 1.096E 03 2.044E 01 2.020E 01 1.500E 09 1.407E 03 1.000E 00 01 3.020E 01 5.000E 00 | STA | 2 | TB | - | | 11 | A/0 | OVAP | 1 | 100 | > | 2 |
|--|------------|-----------|-----------|----------|-----|-----------|-----------|-----------|-----------|-----------|--------|----------|
| 1.0786 01 1.6376 | ~ ^ | | 1.396E 0 | | 6 | 1.082E 03 | | | 1.7365-02 | | - | 1.099E |
| 1.9786 01 2.6976 01 5.0006 00 2.6986 01 2.6976 01 5.0006 00 2.6986 01 2.6976 01 5.0006 00 2.6986 01 2.6976 01 5.0006 00 3.6126 03 1.6156 02 1.6156 03 1.076 03 1.7656 01 1.7626 01 3.6126 03 1.6156 02 1.6156 03 1.076 03 1.7656 01 1.7626 01 3.6126 03 1.6156 02 1.6156 03 1.076 03 1.7656 01 1.7626 01 3.6126 03 1.616 02 1.616 02 1.616 03 1.076 03 1.7656 01 1.7626 01 3.6126 03 1.616 02 1.616 02 1.616 03 1.076 03 1.7656 01 1.7626 01 3.6126 03 1.616 02 1.616 03 0.1946 03 1.7656 01 1.6916 01 3.6126 03 1.606 02 1.6016 03 0.1866 03 1.096 01 3.6126 01 2.7776 01 5.0006 00 3.6176 01 2.7776 01 5.0006 00 3.6176 01 2.7776 01 5.0006 00 3.6176 01 2.7776 01 5.0006 00 3.6176 01 2.7776 01 5.0006 00 3.6176 01 2.7776 01 5.0006 00 3.6176 01 1.6916 01 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.6916 01 4.70 06174 6 1 1.7666 01 4.70 0617 | | | 1-756F 03 | | 5 6 | 1.0786 03 | | | 1.777E-02 | | 1.1 | 1.110F |
| 1.9796 01 2.6976 01 9.0006 00 2.6996 01 2.6976 01 9.0006 00 2.6996 01 2.6976 01 5.0006 00 3.0176 01 2.6976 01 5.0006 00 3.0126 03 1.4276 02 1.4876 03 6.3926 02 1.7966 01 1.7626 01 3.0126 03 1.4256 02 1.4816 03 1.0746 03 1.7456 01 1.7626 01 3.0196 01 2.7776 01 5.0006 00 2.6966 01 2.7776 01 5.0006 00 3.0196 03 1.4616 02 1.6916 03 9.1846 02 1.9396 01 1.6916 01 3.0196 03 1.4616 02 1.6916 03 9.1846 02 1.9396 01 1.6916 01 3.0196 03 1.4616 02 1.6916 03 1.2626 03 1.8926 01 1.8916 01 3.0196 03 1.4816 02 1.6916 03 1.2626 03 1.8926 01 1.8916 01 3.0196 03 1.4816 02 1.6916 03 1.2626 03 1.8926 01 1.8916 01 3.0196 03 1.4816 02 1.7866 03 1.2626 03 1.8926 01 1.8916 01 3.0196 03 1.4816 02 1.7866 03 1.2862 03 1.8926 01 1.8916 01 3.0196 03 1.4816 02 1.7866 03 1.2862 03 1.8926 01 1.8916 01 3.0196 03 1.4816 02 1.7866 03 1.2862 03 1.8926 01 1.8916 01 3.0196 03 1.4816 02 1.7866 03 1.8916 03 2.4446 01 2.0206 01 3.0196 03 1.4928 02 1.7826 03 1.8916 03 2.4446 01 2.0206 01 3.0196 03 1.4928 02 1.7866 03 1.8916 03 2.4416 01 2.0206 01 3.0196 03 1.4816 03 1.7826 03 1.8926 01 1.8926 01 1.8916 01 3.0196 03 1.4816 03 1.7826 03 1.8926 01 1.8926 | , | | | | | 1.71% 03 | 1.577E 01 | | 1.0646-02 | 1.538E 03 | 1.1 | 1.123E |
| DATA POINT 15 2.6986 01 2.6877 01 5.0006 00 3.4176 01 2.6877 01 5.0006 00 3.4176 01 2.6876 01 5.0006 00 3.4076 01 2.6876 01 5.0006 00 3.4076 01 2.6876 01 5.0006 00 2.9986 01 2.7776 01 5.0006 00 2.9986 01 2.7777 01 5.0006 00 3.4076 01 2.7777 01 5.0006 00 3.4076 01 2.7777 01 5.0006 00 2.9986 01 2.7777 01 5.0006 00 2.9986 01 2.7777 01 5.0006 00 3.4076 01 2.7777 01 5.0006 00 3.4076 01 2.7777 01 5.0006 00 3.4076 01 2.7777 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 5.0006 00 3.4076 01 2.7776 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 3.4076 01 3.0006 01 5.0006 00 | STA | 2 | | | | | | | | | | |
| 2.008F 01 2.697F 01 5.000E 00 3.0125 03 1.425 02 1.407F 03 6.302F 02 1.799F 01 1.702E 01 3.0125 03 1.425 02 1.407F 03 6.302F 02 1.799F 01 1.702E 01 3.010F 03 1.405F 02 1.407F 03 6.302F 02 1.799F 01 1.702E 01 1.975 01 1.975 01 1.005F 02 1.406F 03 1.074E 03 1.745F 01 1.762E 01 1.975 01 2.777F 01 5.000F 00 3.417F 01 2.900F 01 5.000F 00 3.417F 01 3.000F 01 5.000F 00 | - | | | | 8 | | | | | | | |
| 3.0176 01 2.6976 01 5.0006 00 3.026 03 1.426 02 1.4876 03 6.3326 02 1.7996 01 1.7626 01 3.0256 03 1.4266 02 1.4876 03 6.3326 02 1.7996 01 1.7626 01 3.0256 03 1.4266 02 1.4816 03 9.3106 02 1.8026 01 1.7626 01 2.9966 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4177 01 3.0006 01 5.0006 00 3.4177 01 3.0006 01 5.0006 00 3.4177 01 3.0006 01 5.0006 00 3.4177 01 3.0006 01 5.0006 00 | N | | | | 0 | | | | | | | |
| 3.0326 03 1.4256 02 1.4876 03 6.3926 02 1.7996 01 1.7626 01 3.0256 03 1.4256 02 1.4867 03 6.3926 02 1.7996 01 1.7626 01 3.0256 03 1.4866 03 1.0766 03 1.0766 01 1.7626 01 1.7626 01 1.7926 | m | | | | 00 | | | | | | | |
| DATA POINT 15 3.0326 03 1.4256 02 1.48676 03 6.3926 02 1.7826 01 3.0326 03 1.4256 02 1.48676 03 6.3926 02 1.7826 01 3.0326 03 1.4566 02 1.48676 03 6.3926 02 1.7826 01 2.6966 01 2.7777 01 5.0006 00 3.4176 01 2.7777 01 5.0006 00 3.4176 01 2.7777 01 5.0006 00 3.4176 01 2.7777 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4177 01 2.7776 01 5.0006 00 3.4177 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 3.4176 01 3.0006 01 5.0006 00 | | | | | | | | | | | | |
| 3.0126 03 1.4256 02 1.4816 03 3.9926 02 1.7996 01 1.7626 01 3.0126 03 1.4256 02 1.4816 03 4.3106 02 1.7996 01 1.7626 01 3.0126 03 1.4806 02 1.4806 03 1.0746 03 1.7856 01 1.7626 01 2.4976 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 3.0006 00 3.4176 01 3.0006 00 3.4176 01 3.0006 00 3.4176 01 3.0006 00 3.4176 01 3.0006 00 | | | | | | DATA | | | | | | |
| 3.0326 03 1.4256 02 1.4676 03 6.3926 02 1.7996 01 1.7626 01 3.0196 03 1.6666 03 1.0746 03 1.7456 01 1.7626 01 3.0196 03 1.6666 03 1.0746 03 1.7456 01 1.7626 01 1.7626 01 1.9766 01 2.7776 01 5.0006 00 2.6996 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 3.0276 01 3.0276 01 3.0276 01 3.0276 01 3.0276 01 3.0276 01 3.0276 01 3.0276 01 3.0276 01 5.0006 00 3.4176 01 3.0206 01 5.0006 00 3.0006 00 3.0006 00 3.0006 00 3.0006 00 3.0006 00 3.0006 00 3.0006 00 3.0006 00 3.0006 | STA | | 40 | Ē | | 11 | 4/0 | O/AP | 1 | 25.00 | | |
| 3.0256 03 1.6166 02 1.4616 03 6.3106 02 1.8026 01 1.7626 01 1.9766 01 2.7776 01 5.006 00 2.696 01 2.7776 01 5.006 00 3.4176 01 2.7776 01 5.006 00 3.4176 01 2.7776 01 5.006 00 3.4176 01 2.7776 01 5.006 00 3.4176 01 2.7776 01 5.006 00 3.4176 01 2.7776 01 5.006 00 3.4176 01 2.906 01 5.006 00 3.4176 01 2.906 01 5.006 00 3.4176 01 2.906 01 5.006 00 3.4176 01 2.906 01 5.006 00 3.4176 01 2.906 01 5.006 00 3.4176 01 2.906 01 5.006 00 3.4176 01 2.906 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 3.4176 01 3.006 01 5.006 00 | - | 3.032E 03 | 1.425E 02 | | 03 | | 1.799E 01 | | 2.530E-02 | 6-967F 02 | 1.099 | , # |
| 1.762E 01 | N 1 | | 1.616E 02 | | 03 | 8-310E 02 | | | 2.633E-02 | 6.694E 02 | 1.1116 | 1 |
| L/D DELTA E LE 1.9786 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.4176 01 2.7776 01 5.0006 00 3.0186 03 1.4616 02 1.5946 03 9.1846 02 1.9306 01 1.8916 01 3.0256 03 1.4616 02 1.5946 03 9.1846 02 1.9236 01 1.8916 01 1.9766 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 2.9006 01 5.0006 00 3.4176 01 3.0206 01 5.0006 00 3.4176 01 3.0206 01 5.0006 00 3.4176 01 3.0206 01 5.0006 00 3.4176 01 3.0206 01 5.0006 00 3.4176 01 3.0206 01 5.0006 00 | 2 | | 1.505E 02 | | | 1.074E 03 | | | 1.9736-02 | 8.933E 02 | 1.125E | SE |
| 2.696E 01 2.777E 01 5.000E 00 3.417E 01 2.777E 01 5.000E 00 3.417E 01 2.777E 01 5.000E 00 3.417E 01 2.777E 01 5.000E 00 3.019E 03 1.461E 02 1.594E 03 9.184E 02 1.930E 01 1.691E 01 3.025E 03 1.461E 02 1.594E 03 9.184E 02 1.930E 01 1.691E 01 3.019E 03 1.405E 02 1.613E 03 9.439E 02 1.923E 01 1.691E 01 3.019E 03 1.405E 02 1.613E 03 2.262E 03 1.862E 01 1.691E 01 2.696E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 1.691E 03 2.044E 01 2.020E 01 3.025E 03 1.707E 02 1.706E 03 1.091E 03 2.044E 01 2.020E 01 3.025E 03 1.707E 02 2.131E 03 1.537E 03 1.983E 01 2.020E 01 3.477E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 | STA | 2 | | | | | | | | | | |
| 3.417E 01 2.777E 01 5.000E 00 3.417E 01 2.777E 01 5.000E 00 3.031E 03 1.461E 02 1.594E 03 9.184E 02 1.923E 01 1.891E 01 3.031E 03 1.461E 02 1.594E 03 9.184E 02 1.923E 01 1.891E 01 3.019E 03 1.461E 02 1.681E 03 3.262E 03 1.862E 01 1.891E 01 1.976E 01 2.900E 01 5.000E 00 3.417E 01 3.620E 01 1.766E 03 1.094E 03 2.044E 01 2.020E 01 3.619E 03 1.707E 02 2.131E 03 1.537E 03 1.983E 01 2.020E 01 3.417E 01 3.620E 01 5.000E 00 | | | | | | | | | | | | |
| DATA POINT 16 3-0316 03 1-4616 02 1-5946 03 9-1846 02 1-9306 01 1-8916 01 3-0256 03 1-4656 02 1-4536 03 9-4396 02 1-9236 01 1-8916 01 3-0256 03 1-4656 02 1-4536 03 1-8626 03 1-8626 01 1-8916 01 3-0396 03 1-4656 02 1-6906 00 3-4176 01 2-9006 01 5-0006 00 3-4176 01 2-9006 01 5-0006 00 3-4176 01 2-9006 01 5-0006 00 3-4176 01 1-9766 03 1-7966 03 1-9916 03 2-0266 01 3-6196 03 1-7976 03 1-7926 03 1-7926 01 2-0206 01 3-6196 03 3-0206 01 5-0006 00 3-4776 01 3-0206 01 5-0006 00 3-4776 01 3-0206 01 5-0006 00 | y • | | | | 8 | | | | | | | |
| DATA POINT 16 3-0316 03 1-4616 02 1-5946 03 9-1846 02 1-9306 01 1-8916 01 3-0256 03 1-4616 02 1-6346 03 9-4396 02 1-9236 01 1-8916 01 3-0196 03 1-4656 02 1-6136 03 9-4396 02 1-9236 01 1-8916 01 3-0196 03 1-6056 02 1-616 03 1-2626 03 1-8626 01 1-8916 01 2-6966 01 2-9006 01 5-0006 00 3-4176 01 2-9006 01 5-0006 00 3-4176 01 2-9006 01 5-0006 00 3-4176 01 1-9766 03 1-7666 03 1-9636 01 2-0206 01 3-6196 03 1-7076 02 1-7766 03 1-9916 03 2-0466 01 3-6196 03 1-7076 02 1-7766 03 1-9936 01 2-0206 01 3-6196 03 3-0206 01 5-0006 00 3-4776 01 3-0206 01 5-0006 00 3-4776 01 3-0206 01 5-0006 00 | 1 | | | | 00 | | | | | | | |
| DATA POINT 16 3-0316 03 1-4616 02 1-5946 03 9-1846 02 1-9306 01 1-8916 01 3-0256 03 1-4656 02 1-6136 03 9-4396 02 1-9236 01 1-8916 01 3-0196 03 1-4656 02 1-6136 03 9-4396 02 1-9236 01 1-8916 01 3-0196 03 1-8706 02 1-616 03 1-2626 03 1-8626 01 1-8916 01 2-6966 01 2-9006 01 5-0006 00 3-4176 01 2-9006 01 5-0006 00 3-4176 01 2-9006 01 5-0006 00 3-4176 01 1-9236 02 1-7766 03 1-9936 01 2-0206 01 3-6196 03 1-7766 03 1-7766 03 1-9936 01 2-0206 01 3-6196 03 1-7766 03 1-9766 01 2-0206 01 3-6196 03 3-0206 01 5-0006 00 3-4776 01 3-0206 01 5-0006 00 3-4776 01 3-0206 01 5-0006 00 3-4776 01 3-0206 01 5-0006 00 | | | | | | | | | | | | |
| 3.031E 03 1.461E 02 1.594E 03 9.194E 02 1.930E 01 1.891E 01 3.025E 03 1.665E 02 1.613E 03 9.439E 02 1.923E 01 1.891E 01 3.019E 03 1.665E 02 1.613E 03 9.439E 02 1.923E 01 1.891E 01 2.019E 03 1.605E 02 1.861E 03 1.262E 03 1.862E 01 1.891E 01 2.696E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 1.766E 03 1.096E 03 2.044E 01 2.020E 01 3.025E 03 1.707E 02 1.772E 03 1.096E 03 2.044E 01 2.020E 01 3.025E 03 1.707E 02 2.131E 03 1.537E 03 1.993E 01 2.020E 01 3.477E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 | | | | | | DATA | | | | | | |
| 3.031E 03 1.461E 02 1.594E 03 9.184E 02 1.930E 01 1.891E 01 3.025E 03 1.665E 02 1.613E 03 9.439E 02 1.923E 01 1.891E 01 3.019F 03 1.665E 02 1.613E 03 9.439E 02 1.923E 01 1.891E 01 1.975E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 1.766E 03 1.094E 03 2.044E 01 2.020E 01 3.025E 03 1.775E 03 1.537E 03 1.993E 01 2.020E 01 3.020E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 | STA | 84 | 10 | 1 | | I | 4/6 | 9470 | 1 | 34 | | |
| 3.0125E 03 1.655E 02 1.613E 03 9.439E 02 1.923E 01 1.691E 01 3.019F 03 1.670E 02 1.661E 03 .262E 03 1.862E 01 1.691E 01 2.696E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 1.706E 03 1.094E 01 2.020E 01 3.035E 03 1.707E 02 1.776E 03 1.094E 01 2.020E 01 3.025E 03 1.707E 01 2.000E 00 3.477E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 | - | 3.031E 03 | 1.461E 02 | | 03 | 9-184E 02 | 1.930E 01 | 1.8916 01 | 2.448F-02 | 7.7245 03 | | |
| 3.019€ 03 1.670£ 02 1.601€ 03 1.262€ 03 1.862€ 01 1.601€ 01 L/O DELTA E LE 1.976€ 01 2.900€ 01 5.000€ 00 2.696€ 01 2.900€ 01 5.000€ 00 3.417€ 01 2.900€ 01 5.000€ 00 3.417€ 03 1.491€ 02 1.766€ 03 1.009€ 03 2.004€ 01 2.020€ 01 3.025€ 03 1.707€ 02 1.772€ 03 1.091€ 03 2.026€ 01 3.025€ 03 1.707€ 02 1.772€ 03 1.091€ 03 2.020€ 01 1.976€ 01 3.020€ 01 5.000€ 00 2.690€ 01 3.020€ 01 5.000€ 00 3.477€ 01 3.020€ 01 5.000€ 00 | N | | 1.665E 02 | | 63 | 9.439E 02 | | | 2.432F-02 | 7.774F 02 | 1011 | U 1 |
| L/O DELTA E LE 1.976E 01 2.900E 01 5.000E 00 2.696E 01 2.900E 01 5.000E 00 3.417E 01 2.900E 01 5.000E 01 2.696E 01 3.020E 01 2.020E 01 3.025E 03 1.707E 02 1.772E 03 1.094E 01 2.020E 01 3.025E 03 1.707E 02 2.131E 03 1.537E 03 1.993E 01 2.020E 01 3.025E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 | m | | | | 03 | 262E 03 | | | 1-759E-02 | | 1.1285 | <u> </u> |
| 1.976E 01 2.900E 01 5.000E 00 2.696E 01 2.900E 01 5.000E 00 3.417E 01 3.020E 01 5.000E 00 | STA | | | | | | | | | | | |
| 2.696E 01 2.900E 01 5.000E 00 3.417E 01 3.00E 01 5.000E 00 | ; - | 1.978E | | | 9 | | | | | | | |
| 3.417E 01 2.900E 01 5.000E 00 DATA POINT 17 DATA POINT 17 3.031E 03 1.491E 02 1.706E 03 1.091E 03 2.044E 01 2.020E 01 3.025E 03 1.707E 02 1.772E 03 1.091E 03 2.044E 01 2.020E 01 3.019E 03 1.923E 02 2.131E 03 1.537E 03 1.983E 01 2.020E 01 L/D DELTA E LE 1.979E 01 3.020E 01 5.000E 00 2.698E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 | ~ | | | | 2 5 | | | | | | | |
| DATA POINT 17 3.031E 03 1.401E 02 1.706E 03 1.084E 03 2.044E 01 2.020E 01 3.025E 03 1.707E 02 1.772E 03 1.091E 03 2.043E 01 2.020E 01 3.019E 03 1.923E 02 2.131E 03 1.537E 03 1.963E 01 2.020E 01 1.70 DELTA E LE 1.979E 01 3.020E 01 5.000E 00 2.698E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 6.000E 00 | • | | | | 000 | | | | | | | |
| DATA POINT 17 3-031E 03 1-491E 02 1-704E 03 1-094E 03 2-044E 01 2-020E 01 3-025E 03 1-707E 03 1-091E 03 2-044E 01 2-020E 01 3-019E 03 1-923E 02 2-131E 03 1-537E 03 1-963E 01 2-020E 01 L/D DELTA E LE 1-979E 01 3-020E 01 5-000E 00 3-477E 01 3-020E 01 6-000E 00 | | | | | | | | | | | | |
| 179 PB 1491E 02 1.706E 03 1.004E 03 2.044E 01 2.020E 01 3.025E 03 1.725E 03 1.091E 03 2.044E 01 2.020E 01 3.025E 03 1.725E 03 1.091E 03 2.044E 01 2.020E 01 3.020E 01 3.020E 01 5.000E 00 2.690E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 6.000E 00 | | | | | | | | | | | | |
| 76 11 0/A 0/AP 3.031E 03 1.401E 02 1.706E 03 1.084E 03 2.044E 01 2.020E 01 3.025E 03 1.407E 02 1.772E 03 1.091E 03 2.043E 01 2.020E 01 3.019E 03 1.923E 02 2.131E 03 1.537E 03 1.963E 01 2.020E 01 4./D DELTA E LE 1.979E 01 3.020E 01 5.000E 00 2.698E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 6.000E 00 | | | | | | DATA | | | | | | |
| 3.031E 03 1.401E 02 1.706E 03 1.004E 03 2.044E 01 2.020E 01 3.025E 03 1.707E 02 1.772E 03 1.091E 03 2.043E 01 2.020E 01 3.019E 03 1.923E 02 2.131E 03 1.537E 03 1.963E 01 2.020E 01 1.977E 01 3.020E 01 5.000E 00 2.698E 01 3.020E 01 5.000E 00 3.477E 01 3.020E 01 6.000E 00 | STA | 80 | | | | | *** | 0470 | ; | | | |
| 3.025E 03 1.707E 02 1.772E 03 1.091E 03 2.043E 01 2.020E 01 3.019E 03 1.923E 02 2.131E 03 1.537E 03 1.963E 01 2.020E 01 4./D | - | 3.031E 03 | 1.491E 02 | | 03 | 1.084E 03 | 2.044E 01 | 2.020E 01 | 2-162F-02 | 9-346F 02 | 1.105 | L |
| 3.0196 03 1.9236 02 2.1316 03 1.5376 03 1.9636 01 2.0206 01 L/D DELTA E LE 1.9796 01 3.0206 01 5.0006 00 3.4776 01 3.0206 01 6.0006 00 | ~ | | 1.707E 02 | 1.772E | 03 | 1.091E 03 | 2.043E 01 | 2.020F 01 | 24194F-02 | 9-20AF 02 | 1000 | ų ų |
| 1.70 DELTA E LE 1.978E 01 3.020E 01 5.000E 2.698E 01 3.020E 01 5.000E 3.47F 01 3.020E 01 5.000E | m | | 1.923E 02 | 2.1316 | 03 | | | | 1.503E-02 | 1.344E 03 | 1.1346 | ų ų |
| 1.978E 01 3.020E 01 5.000E 2.698E 01 3.020E 01 5.000E 3.417E 01 3.020E 01 5.000E | STA. | • | 4 4 60 | | | | | | | | | |
| 2.69E 01 3.020E 01 5.000E | | | | 2000 | | | | | | | | |
| 3-417E 01 3-020F 01 5-000F | ٠ ، | | | 5.000F | 2 6 | | | | | | | |
| 300000 10 30000 10 30000 | • | | | \$.000E | 00 | | | | | | | |

| | | | | | | | : | | • | |
|--------|------------|------------|-----------|-----------|---------------|------------|-----------|-----------|------------|-----|
| | 2 | - | | 1 | A/0 | O/AP | I | DEL TF | | |
| 9 | 3.000 POST | 1.5146 02 | 1.867E 03 | 1.0006 03 | 2-1406 01 | 2.1256 01 | 2.299F-02 | 9-242F 02 | 1.120F 0 | 200 |
| | | 1.965E 02 | 0. | 0. | | 2-125€ 01 | 0. | 0. | | 02 |
| | • | DELTA F | 4 | | | | | | | |
| 6.1 | 1.9786 01 | | 5.000E 00 | | | | | | | |
| 2.698E | | 3.0968 01 | | | | | | | | |
| 3.417 | 176 01 | 3.096€ 01 | S.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 19 | | | | | |
| | 2 | 40 | | 11 | 4/0 | Q/AP | I | DEL TF | ۸۶ | |
| 3.0 | | 1.547E 02 | 1.985E 03 | 1.274E 03 | 2.249E 01 | | 2-025E-02 | 1-120E 03 | | 20 |
| 3.0 | 3.023E 03 | 1.785E 02 | 1.7726 03 | 9.958E 02 | 2.301E 01 | | 2.7745-02 | 8-172E 02 | | 200 |
| 9.0 | 3.016E 03 | Z. 023E 02 | • | • | • | 2.20 /E 01 | • | • | 1.1.1. | V |
| _ | | | | | | | | | | |
| 1.978E | | | | | | | | | | |
| 2.698E | 986 01 | 3.200E 01 | 5.000E 00 | | | | | | | |
| 3.1.1 | | | | | | | | | | |
| | | | | | AT THE STATE | | | | | |
| | | | | | | | | | | |
| | 5 | 7. | 3. | 11 | A/0 | O/AP | I | DEL TF | | |
| 3.0 | | 1.587E 02 | | 1-147E 03 | 2.451E 01 | | 2.472F-02 | 9.883E 02 | | 05 |
| 3.0 | | 1.840E 02 | 1.815E 03 | 9.800E 02 | 2.486E 01 | | 3.070F-02 | 7.960E 02 | | 20 |
| 3.016E | 16E 03 | 2.094E 02 | • | • | • | 2.4445 01 | • | • | 1.1441 | 70 |
| _ | 6/3 | DELTA E | 3 | | | | | | | |
| 1.978 | | | | | | | | | | |
| Z-698E | | | | | | | | | | |
| 3.4176 | 175 91 | 3.331E 01 | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 21 | | | | | |
| | 8 | 2 | | 11 | 4/0 | O/AP | I | DEL TF | S A | |
| 3.0 | 3.024E 03 | 1.654E 02 | • | | | | | •0 | | 20 |
| 3.0 | 3.018E 03 | 1.933E 02 | • | • | • | | • | • | | 05 |
| 3.0 | | 2.2136 02 | • | • | • | 2.76SE 01 | • | • | 1.1535 0 | 05 |
| Ī | 5 | DELTA E | 37 | | | | | , | | |
| 1.978 | 785 01 | 3.554E 01 | 5.000E 00 | | | | | | | |
| 2-69BE | | | | | | | | | | |
| 3.417E | | | | | | | | | | |
| | | | | | | | | | | |

Page 111

| * | HT-9-103 | ž | 0UT AT DA1 | OVERALL TEST PARAMETERS HT-9-103 . BURNOUT AT DATA PT 9. BURNOUT SITE COND. O7E-03 D = 0.117E-01 DATA POINTS | DURNOUT SI L = OATA POINTS | OVERALL TEST PARAMETERS PT 9. BURNDUT SITE COND. 7E-01 L = 0.500E DATA POINTS | ¥ 5 | DATA PT 10 | 10 DELTA TO | ı | 0.170E 01 | | | | |
|--------------------------------------|---|--|---|---|---|---|---|------------|---|--|--|-------------|---|--|------------|
| # 5.01M | ************************************** | PB-0UT -230E 02 -230E 02 -220E 02 -200E 02 -150E 02 -150E 02 -150E 02 -150E 02 | 78-1N 9-0906 9-2106 9-2706 9-2706 9-2606 9-2606 9-2306 | | | 8.800F-01 8.820E-01 8.820E-01 8.820E-01 8.830E-01 8.840E-01 | 6.2 1 1.0216 1 1.5146 1 1.9736 1 2.3946 2.3946 2.4056 2.4056 | | 12 7.3706 1.0035 1.12095 1.2736 1.4106 1.5266 | 00000000000000000000000000000000000000 | 2.795E 7.133E 1.440E 1.900E 2.249E 2.549E 3.540E 3.590E 3.907E | 00000000000 | HT BAL 1.909E C1 -7.160F C0 -7.509F C0 -7.547F C0 -6.892E C0 -6.526E C0 -5.546E C0 -3.545E C0 -3.245E C0 | 6.21.F 03 6.240£ 03 6.256E 03 6.256E 03 6.256E 03 8.256E 03 8.276 03 6.277 03 | пппппппппп |
| | 9.377E 9.455E | 1000 | 7E 2.0006 02 2.0306 02 1.9906 02 | TEST SECTION DAT 1.332E 02 1.354E 02 | OM - LOCAL OATA POINT 1 1 2 1 2 1 2 2 1 2 2 1 2 2 1 2 2 2 1 2 | - LOCAL TEST PANAMETERS A POINT 1 A POINT 1 A A A A A A A A A A A A A A A A A A A | 9/AP 9/AP 9/AP 9/AP 9/AP 9/AP 9/AP 9/AP | | 3.218E-02 | M 4 ! | | . 44 | VS VS 1.523E 02 1.524E 02 | | |
| 3.392E 01 2.531E 02 2.5330E 02 | DELTA 6.180E 6.180E 6.180E 7.990E | w 6 6 0 E | | DAT TE 2.345E 92 | a < | A/0 | | · | T | | 3.626E 01 | <i>-</i> | | | |
| 5.262E 1.084E 2.678E 3.392E | | | 3.890E 02 LE 5.000E 00 5.000E 00 | 2,3116 02 | | 3-197E 00 | 3.243E 00 | | 2.357E-02 2.357E-02 | | 1.3476 02 1.2576 02 | | 1.534E 02 1.537E 02 1.540E 02 | | |

| Ē | ٤ | 2 | - | 4/0 | Q/AP | I | DEL TE | * | |
|-----------|-----------|------------|------------|--------------|-----------|------------|-----------|-----------|--|
| 5.494F C2 | | | | 6.426E 00 | 6.545E 00 | 2.61 SE-02 | 2.503E 02 | 1.545E 02 | |
| | 1.126€ 02 | | | 6.405E 3C | 6.545F 00 | 2.567E-02 | 2.550E 02 | | |
| 5.250E 02 | 1.1796 02 | 6.410E 02 | 3.500E 02 | 6.441E 00 | 6.545F 00 | 2.919E-02 | 2.321E 02 | | |
| 2/0 | DELTA E | LE | | | | | | | |
| 1.964E C1 | 1.514E 01 | 5.000E 00 | | | | | | | |
| 2.678E 01 | 1.514E 01 | 5.000E 00 | | | | | | | |
| 3.392E 01 | 1.514E 91 | \$.000E 00 | | | | | | | |
| | | | | | | | | | |
| | | | DATA | DATA POINT 4 | | | | | |
| 8 | £ | ** | 1.1 | 470 | 8470 | ; | | • | |
| | 1.116E 02 | 7.940E 02 | 4.309F 32 | A.460E 90 | 8.636E 90 | 2.705F-92 | | 1.540F 02 | |
| | | | 4.4.39E 02 | 8.4295 50 | 8.636E 00 | 2.654E-02 | 3.254F 02 | | |
| 5.230E 02 | 1.254E 02 | 7.820E 02 | 4.153E 02 | 8.498E 00 | 8-636E 00 | 2-979E-02 | 2.899E 02 | | |
| 1/0 | DELTA E | 4 | | | | | | | |
| 1.964E 01 | 1.779E 01 | 5.000E 00 | | | | | | | |
| 2.678E 01 | | | | | | | | | |
| 3.392E 01 | 1.7786 31 | | | | | | | | |
| | | | DATA | DATA POINT S | | | | | |
| | | | | | | | | | |
| | 13 | 3 | = | 4/0 | O/AP | I | DEL 1F | 8.4 | |
| | | | | 1.000E 01 | | 2.690E-32 | 3.652E 02 | 1.554E 02 | |
| 5-345E 02 | 1.227E 02 | 9-0805 02 | 4.957E 02 | | | 2.741E-02 | | | |
| | | | | 1.303E 01 | 1.0222 01 | 3.032E-02 | 3.372E 02 | 1.571E 02 | |
| | | LE | | | | | | | |
| 1.964E 01 | | | | | | | | | |
| | 1.9625 01 | 5.000E 00 | | | | | | | |
| | | | | | | | | | |
| | | | DATA | DATA POINT 6 | | | | | |
| 8 | 4 | 7 | 11 | 4/6 | 94/0 | 1 | 1 | 2 | |
| | 1.174E 02 | 9.770E 02 | 5.193E 32 | 1.126F 01 | 1.155F 01 | 2.874E-02 | 4.019E 02 | 1.557F 02 | |
| 5.335E 02 | 1.264E C2 | 9.780E 02 | 5.206E 02 | 1.126E 01 | 1.155F 01 | 2.930F-02 | | | |
| 5.219E 02 | 1.354E 02 | | 4.950E 02 | 1-1336 01 | | 3.211E-32 | 3.597F 02 | 1.576F 02 | |
| • | | | | | | | | | |
| | | | | | | | | | |
| | | 5.000E 00 | | | | | | | |
| 2.678E C1 | 2.1056 01 | 5.230E 90 | | | | | | | |
| | 201026 01 | 5.000E 03 | | | | | | | |

| | | | | HT-9-103 DATA POINT | POINT 7 | | | | | |
|------|------------|------------|------------|---------------------|--------------|-----------|------------|-----------|------------|-----|
| STA | 64 | 4.9 | ** | 11 | 4/0 | 9770 | 1 | 190 | ; | |
| - 1 | | 1.232E 02 | | 5.264E 02 | 1.421E 01 | 1.455E 01 | 3.608E-02 | 4.032E 02 | 1.501 | 00 |
| ۰, | | 1.34 3E 02 | | 5.306E 02 | 1.420E 01 | 1.455E 01 | 3.6716-02 | 3.963E 02 | 1.5736 | 02 |
| | 3-160E 02 | 1.4546 02 | 1.069E 03 | 4.967E 02 | 1.4 316 01 | 1.455E 01 | 4.142E-02 | 3.513E 02 | 1.585 | 20 |
| X: | S | DELTA E | E E | | | | | | | |
| _ | 1.96.E 01 | | 5.000E 00 | | | | | | | |
| ~ | | 2.30 tc 31 | | | | | | | | |
| m | 3.392E 01 | 2.394E 01 | | | | | | | | |
| | | | | | | | | | | |
| | | | | - | | | | | | |
| | | | | | | | | | | |
| STA | E | 6 | | 1 | A/0 | 94.00 | 1 | 100 | 2 | |
| | | | | 5.143E 02 | 1.560E 01 | 1.680E 01 | 4 340F-02 | 1.470F 02 | | |
| ~ | \$.300E 02 | | 1.245E 03 | 6.301E 92 | 1.623E 01 | 1-680E 01 | 3.427E-02 | 4.902E 02 | | |
| n | 5.150E 02 | 1.525E 02 | 1.443E 03 | A.966E 02 | 1.548E 01 | | 2.257E-02 | 7.44:E 02 | | 92 |
| STA | 2 | DELTA E | 4 | | | | | | | |
| _ | | | 5. COPE 90 | | | | | | | |
| N | | | | | | | | | | |
| m | 3.392E 01 | 2.605E 01 | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | 4 | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 9 | | | | | |
| STA | 6 | 10 | 2 | 11 | 4/6 | 6470 | , | | | |
| , | | 1.254F 02 | 1.2685 03 | 6.097E 02 | 1.740E 01 | 1-776F 01 | T. KOZE DO | A-B136 03 | | 9 |
| ~ | | | | 9.294E 12 | 1.649E 01 | 1.776E 01 | 2.255E-02 | 7.A7AF 02 | 2000 | y 6 |
| m | 5.149E 02 | 1.547E 92 | 1.5475 03 | 9.863E 32 | 1.636E n1 | | 2-136E-02 | | | 20 |
| STA | 3 | DELTA E | u u | | | | | | | |
| | | | | | | | | | | |
| N f | 2.678E 01 | | | | | | | | | |
| , | | 2. role of | 5.000E 00 | | | | | | | |
| | | | | DATA | DATA POINT | | | | | |
| STA | 8 | 9 | | i | | | | | | |
| | 5.178E A2 | 1.514F 02 | • | = | ٧/٥ | O/AP | I | DEL TF | S > | |
| ~ | 5.17RE 02 | 1.51 4F 02 | | | • | | • | : | | 95 |
| m | 5.178E 02 | 1.514E 02 | • | | | 10.776 | • | | | 200 |
| | | | | | | | • | • | 1.598E 0 | ν. |
| STA. | | | , E | | | | | | | |
| - ^ | 3.2136 01 | | | | | | | | | |
| u m | 3.2135 01 | 2.731E 01 | 5-000E 00 | | | | | | | |
| | | | ****** | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

n n n n n n n n n n n n

Page 115

| | | | | HT-9-104 | ****** | | | | | |
|------|------------|--------------|------------|-----------|--------------|------------|------------|-----------|-----------|---|
| , | | | | | - LATOL 4 | | | | | |
| STA | | 76 | | | | | | | | |
| - | 8.336E | 1.489E C2 | 2.230 | 1.81 | | O/AP | I | DEL TF | > | |
| N I | 8 - 200E | | | | 10000 | 7.7536-01 | 2.389E-02 | 3.245E 01 | 9.579E | õ |
| - | E-224E 02 | 1-494E C2 | 2.210E | | | 7.7535-01 | 2.489E-02 | 3-1155 01 | | 0 |
| STA | 977 | 054 44 5 | | | | | 1000 | 16 3006 9 | 9. 583E | |
| - | 1.5 | | e oper | | | | | | | |
| ~ | 2.698E | | 2000 | | | | | | | |
| n | 3.417E 01 | | | | | | | | | |
| | | | | | | | | | | |
| | | | | 140 | DATA POINT 2 | | | | | |
| STA | | - | 1 | • | | | | | | |
| - | 8.307E 02 | 1.539E 02 | 3. 930F 02 | 2 2005 6 | | 9/AP | I | DEL TF | > | |
| ~ | 8.255E 02 | 1.563E 02 | 3.94nE 02 | | 2 20 TE 00 | 2.249E 09 | 1.7995-02 | 1-250E 92 | 9.592E | 5 |
| - | 4.2C3E 02 | 1.586E C2 | | | 2.284E 00 | 2.249E CO | 1.817E-02 | 1.238E 02 | 9.606€ | 2 |
| STA | 957 | OE: 14 F | | | | | 70-3600-1 | 1.204E 02 | 9.620E | 6 |
| - | 1.578E 01 | 8.550F 00 | | | | | | | | |
| ~ | | | 3.000E 00 | | | | | | | |
| P) | 3.417E 01 | | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| STA | | - | 1 | • | | | | | | |
| (| 8.302E 02 | | 5.800E 02 | 3.7755 02 | A 20 20 20 A | OZAP | I | DEL TF | 8 | |
| N | 8.252E. 02 | 1.662E 02 | 5.830E 02 | | A. 33 04: 00 | | 1.984E-02 | 2.160E 92 | 9.655E | 0 |
| n | 6.202E 02 | 1-709E 02 | 5.80% 02 | 3.7756 02 | 4.345E 00 | 4.286E 00 | 1.995E-02 | 2-14BF 02 | | 6 |
| STA | 6/1 | DELTA E | | | | | | 70 700 | 3.11.6 | 5 |
| - | | | 5.000 | | | | | | | |
| C4 | | 1.219€ 51 | | | | | | | | |
| r) | 3.417E 01 | 1.219E 01 | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| STA | 9 | 18 | | - | • • • | | | | | |
| - (| | 1.679E 02 | 7.430E 02 | 4.653F 02 | A. 30 A. | GYAP | I | DEL TF | SA | |
| N (| | 1.750E C2 | 7.500E 02 | 4.7396 02 | A 198 19 | | 2.10 7E-02 | 2.974E 02 | 9.657F 01 | _ |
| n | 8.183E 02 | 1.821E 02 | | 4.714E 02 | 6.292F 00 | 6 26 EF 00 | 2.096F-02 | 2.988E 02 | | • |
| STA | 97 | | | | | 26.26.30 | Z-166E-02 | 2.893E 02 | 9.752E #1 | - |
| - | | DELTA E | Ä | | | | | | | |
| • • | 2.4985 01 | | | | | | | | | |
| • •1 | 3-417F 01 | 1.5086 01 | | | | | | | | |
| • | | 1 - 20 9E C1 | 5.000E 00 | | | | | | | |

Page 116

Report AFRPL-TR-67-208, Appendix C

| STA | • | 10 | | T | | 1 | 6 | Q/AP | I | DEL TF | 4 | TF VS |
|-----|-----------|------------|-----|---------------|-----|-----------|--------------|-----------|-------------|------------|-----|-----------|
| _ | 0.262E 02 | 1.752E 02 | 05 | 8.910E 02 | 0.2 | 5.262E 02 | 8.648E 00 | 8.598E 00 | 2.449E-02 | 3.511E 02 | 02 | 02 9.722E |
| ~ | 8.212E 02 | 1.84BE 02 | 03 | 8.750E | 02 | 5.057E 02 | 6.697E 00 | 6.598E 00 | 2.6795-02 | 3.209E 02 | 0 | |
| m | 8-162E 02 | 1.944E 02 | 05 | 8.930E 02 | 02 | 5.288E 02 | 8.642E 00 | 8.598E 00 | 2.571E-02 | 3.344E | 05 | |
| STA | 6/3 | DELTA | w | Ä | | | | | | | | |
| _ | | 1.804E | 10 | | 00 | | | | | | | |
| ~ | | 1.E04E | | 5.000E | 00 | | | | | | | |
| FI | 3.417E 01 | 1-004E | 01 | 3.000€ | 0 | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| STA | 0 | 18 | | - | | 11 | 9 | 9/AP | I | DEL TE | | SA |
| _ | 8.280E 02 | 1.803E 02 | 05 | 1.048E 03 | 03 | 6.393E 02 | 1.019E 01 | 1.025E 01 | 2.233E-02 | 4.589E 02 | 20 | |
| N | 8.222E 02 | 1.918E 02 | 02 | 1.050£ | 03 | 6.418E 02 | 1.0185 01 | 1.025E 01 | 2.278E-02 | 4.500F 02 | 20 | |
| | 6-164E 02 | 2.033E C2 | C 2 | 1.065E 03 | 03 | 6.610E 02 | 1.014E 01 | 1.025E 01 | 2.240E-02 | 4.577E 02 | 0.2 | |
| STA | 22 | CELTA | LL. | W. | | | | | | | | |
| _ | 1.578E 01 | 2.001E | 0 | 5.000E | 00 | | | | | | | |
| 2 | 2.658E 01 | 2.001E | 63 | | S | | | | | | | |
| | 3.417E 01 | 2.001E | 6 | 5.000E | 00 | | | | | | | |
| | | | | | | DATA | DATA POINT 7 | | | | | |
| TA | 8 | 18 | • | - | | | 4/6 | 9/AP | I | OFL TF | | > |
| | 8.313E 02 | 1.823E C2 | 62 | 1.269E 03 | 63 | 8.558E 02 | 1.107E 01 | 1.106E 01 | 1.64 35-02 | 6.735E C2 | N | 9.6 |
| | 8.267E 02 | 1.547E 02 | 0.2 | 1.3636 | 03 | 9.712E 02 | 1. CB4E 01 | 1.1065 01 | 1-424E-02 | 7.765E 02 | ~ | |
| m | 0.221E 02 | 2.070E 62 | 02 | 1.431E | 03 | 1.053E 03 | 1.070E 01 | 1.106E 91 | 1.307E-02 | 8.461E 02 | N | |
| Y. | 6/1 | DELTA E | w | Ą | | | | | | | | |
| = | 1.578E 01 | 2.145E | 5 | 5.000E | 00 | | | | | | | |
| | 2.698E 01 | 2 - 14 SE | 0 | | 00 | | | | | | | |
| | 3.417E 01 | 2 - 1 4 SE | 5 | | 00 | | | | | | | |
| | | | | | | DATA | DATA POINT 8 | | | | | |
| 4 | 6 | 76 | _ | - | | 11 | 4/6 | 9776 | 1 | 11 130 | | á |
| | 8-358E 02 | 1.864E 02 | 92 | 1.437E 03 | 03 | 1.001E 03 | 1.227E 01 | 1.231E 01 | 1.511F-02 | M. 147F 02 | ٨ | 0.0 |
| ~ | 8.310E 02 | 2.000E | 0.0 | 1.452 | | 1.019F 01 | 1.22 46 01 | 1.2316 01 | 1. 50 JE-02 | P. LOKE | , | |
| | 8.262E 02 | 2.136E 02 | 0 | | 03 | 1.191E 03 | 1.195E 01 | 1.2316 01 | 1.259F-02 | 9.779E 02 | | |
| : | | i | | | | | | | | | | |
| ۲. | 27 | DELTA | | ָרָבּ רַבּ | | | | | | | | |
| | 1.978E 01 | 2.295E | 5 6 | . 5.000E 00 | 88 | | | | | | | |
| | 10 2000 2 | 10 3667.7 | 5 6 | | 0 | | | | | | | |

Page 117

| , | HT-9-104 DATA POINT 9 | | 0. 0. 1.302 H OEL TF VS | 0. 0. 1.302E 01 0. 0. 9.872E | 1.30 £ 01 0. 0. 9.975£ | | | 000€ 00 | DATA POINT 10 | | 11 0/A | 1.408E 01 0. 0. 9.7 | 0. 0. 1.4085 01 0. 0. 9.9085 | | 900 | 100c 00 | 00 3000 | DATA POINT 11 | | 4/0 11 | 0. 1.463E 01 0. 0. 9.4 | | | | |
|---|-----------------------|-----|-------------------------|------------------------------|------------------------|-----------|-----------|-----------|---------------|-----|-----------|---------------------|------------------------------|---------|-----------|-----------|-----------|---------------|-----|-----------|------------------------|-----------|----------|---------|--------------|
| , | | | | | | | 5-000E 00 | | DATA | | • | | | i. | | 5.000 00 | 5.000E 00 | DATA | | | | | | | S. 000F |
| | | Te | 1.889E 02 | 2.181E 02 | | CELTA E | 2-379E 01 | 2.3796 01 | | 4 | 1.928F C2 | | | DELTA E | | | | | 47 | ~ | | | DEL TA E | | 10 HO 12 - 7 |
| | | | 3.084E 02 | 7.756E 02 | | 1.5785 01 | 2.658E 01 | 3.4176 01 | | | 8.012 | | | 7/0 | 1.97eE 01 | 2.698E 01 | 3.417E 01 | | 9 | 7.9376 02 | 7.752E 92 | 7.654E 02 | 1/0 | 1 1 1 1 | 1.578E 01 |
| | | STA | ۰ ۸ | 7 | | - | ~ | F) | | STA | - | N | m | STA | - | ~ | m | | STA | - | ~ | m | STA | • | - |

Page 118

| | | A = 0.100E-93 | | | | | | | | | |
|--|-----|---------------|--|----------|------------|--------------|-----------|------------|-----------|--------|-----------|
| Section Sect | | | | | 27.00 | CHATS | | | | | |
| 3-4-180 C 2 -3-190 C 2 -1-180 C 2 | 1 | | 170-04 | | 10-01 | | 23 | 2 | 8 | 3 | |
| ### 12 1-306 | = | Secore 02 | 5.366E 0. | 1.10 | 1.45 TE | | 4.900F | 1.7705 | 7.7. | 7.000 | |
| ### 1 | N | 5-610E C2 | 5. TSCE C. | 1.44 | 1.55E | Ī | 8.389E | S. RAGE | A. 6.30 | 30.00 | |
| ### 1 | PI | | 5. 34 CE | 1.442 | 1.656 | • | 1-147 | 7.540F | 1000 | 34.54 | |
| ### 10 1 1 1 1 1 1 1 1 1 | • | _ | いると | 1.444 | 1.72× | - | 11.11.11 | A. 5.20E | | 20000 | |
| ### 19 | * | _ | Seldie C. | 1.650 | 1.796 | • | - | 200 | | 30000 | |
| ### TO THE TO THE TOTAL TEST PARAMETERS ################################### | • | _ | SALE OF | 1.453 | | (| | 2000 | 20000 | 3-032E | |
| TEST SECTION - LOCAL TEST MANAMETERS THE TIME TO A SAME HIS SAME | | | 6.30.6 | | | ١. | | 1.041E | 1.6916 | 2.641E | 5.125E 03 |
| TEST SECTION - LOCAL TEST PARAMETERS THE TOTAL THE TOTAL TEST PARAMETERS THE TOTAL THE TOTAL TEST PARAMETERS THE TOTAL TEST SECTION - LOCAL TEST | • | | 2 20 20 20 20 20 20 20 20 20 20 20 20 20 | | | * | 1.904 | 1-1425 | 2.061E | 2.37%E | 5.096E 03 |
| TEST SECTION - LOCAL TEST PARAMETERS TEST SECTION - LOCAL TEST PARAMETERS THE TO TO THE TOTAL TEST PARAMETERS DATA POINT I PARA POINT I DATA POINT II DATA POI | • (| 70 344 | Served L | *** | 2.01 | | 1- 98 AC | 1.172 | 2.204E | 3.650 | |
| PATA POINT 1 PA | • | 25 1041-1 | | 1.454 | 2.01 | | 1.984E | 1.172E | 2-204E | 3.650 | |
| PATA POINT 1 SAME 02 1-400E 02 2-10713E 02 0-503E-01 0-200E-01 3-116E-02 2-432E 01 9-646E SAME 02 1-400E 02 1-7713E 02 0-505E-01 0-200E-01 3-116E-02 2-432E 01 9-646E SAME 02 1-400E 02 1-7713E 02 0-505E-01 0-200E-01 3-116E-02 2-506E 01 9-646E SAME 01 0-600E 01 0-600E 00 0-600E 00 SAME 01 0-600E 01 0-600E 00 SAME 01 0-600E 01 0-600E 00 | | | | j. | | LOCAL TEST (| MANETERS | | | | |
| FIG. 10 A TO THE TO THE TOTAL BASE OF THE TOTAL | | | | | 2749 | 1 11104 | | | | | |
| #### 02 1-4-9E 02 2-100E 02 1-713E 92 4-59 E-01 5-209E-01 3-110E-02 2-632E 01 9-606E ***TE 72 1-6-5E 02 2-120E 02 1-713E 92 6-505E-01 6-209E-01 3-159E-02 2-590E 01 9-651E ***TE 72 1-6-5E 02 2-120E 02 1-75-6 92 6-507E-01 6-209E-01 2-75 E-02 2-590E 01 9-651E ***TE 92 1-6-5E 02 2-120E 02 1-75-6 92 6-507E-01 6-209E-01 2-75 E-02 2-961E 01 9-651E ***TE 91 4-560E 06 5-600E 00 ***TE 91 4-560E 06 5-600E 00 | STA | | 2 | • | 11 | 3 | 988 | | 5 | ; | |
| ### 72 1-53 C 2-1916 92 1-7136 02 6-59 SE-01 6-299 E-01 3-159 E-02 2-59 06 01 9-85 16 #### 72 1-54 C 2 2-22 C 2 1-75 A 5 9 6-59 C -01 6-29 C -01 2-75 XE-02 2-96 16 01 9-85 16 #### 10 4-56 C 5-60 C 60 5-60 | - (| 20 | 1-409E (2 | 2-10E 02 | 1.71 3E 92 | 1-88-1 | 8.209E-81 | 3-118E-02 | 2.6325 01 | | |
| 1.00 DELTA F LE 1.00 DELTA F L | u m | 2.6 | 1.65% (2 | | | 17353 | 6-2085-51 | 3.159E-02 | 2.598E 01 | | |
| 1.00 00.10 L. C. | | } | | 70 | | 8. 30-3E-91 | 10-36-01 | 2.75 XE-02 | | | |
| 2-71E 01 4-500E C0 5-00E | 272 | 5 | 41 | 3 | | | | | | | |
| Total of Action of Action | = 0 | | * | | | | | | | | |
| | | *** | 1 | | | | | | | | |

| 2 | 16 | 1 | 11 | 476 | | : | 1 | | |
|------------|-------------|------------|-------------|--------------|------------|------------|-----------|--------|-----|
| 5.467E 02 | 1.507E 62 | 3.730E 0 | | 2.28 | 2.140F 00 | 2.04 35-03 | Det IF | 5 2 | : |
| 95 | | | | | 2.140E 90 | 2.04 SF-02 | 1.0476 02 | 00.0 | 5 6 |
| 62 | 1.552E C2 | 3.850E 02 | | | 2.140E 00 | 1-887E-02 | 1-134E 02 | 10000 | 5 6 |
| | DELTA S | | | | | | | | • |
| - | | 5.000C 00 | • | | | | | | |
| 5 | | 5.000E 00 | • | | | | | | |
| 5 | 8.380E CO | 5.000E 00 | 0 | | | | | | |
| | | | DATA | DATA POINT 3 | | | | | |
| | i | | | | | | | | |
| 9 | 91 | | | 4/0 | 9/AP | I | DEL TF | 5 > | |
| 2 6 | 1.500E C2 | 5.230E | 3.25CE | 4.050E 00 | 3.781E 00 | 2.23%E-02 | 1.690F 02 | 9.899E | |
| 0 2 | 1.645E 02 | | 2 3.485F 02 | 4.045E 00 | 3.781E 00 | 2.248E-02 | | | 10 |
| | | | | - | | 20-39C0 -> | 1.839€ 02 | 9.952E | 5 |
| | CELTA E | 3 | | | | | | | |
| 5 | | | _ | | | | | | |
| 7 | | | • | | | | | | |
| _ | 1-1475 01 | 5.000E 00 | | | | | | | |
| | | | | | | | | | |
| | | | CATA | POINT 4 | | | | | |
| 8 | 10 | - | - | 4/6 | 9470 | 1 | | • | |
| 5.44EE 02 | 1.537E 02 | | | 5.325E 00 | 4.964E 90 | 2.32 BE-02 | 2.1415 02 | 9.000 | 2 |
| 20 | 1.653E 02 | | 3.751E | 5.323E 00 | 4.984E CO | 2.376E-02 | 2.097E 02 | | |
| 70 | 1.709E C2 | 6.450E 32 | 3.982E 02 | 5.282E 00 | 4.984E 00 | 2-193F-02 | | | |
| | CELTA E | ĻĒ | | | | | | | |
| 70 | | | | | | | | | |
| 5 | 1.3366 -1 | 5. CORE 00 | | | | | | | |
| 5 | 1.238E 01 | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | DATA | DATA PCINT 5 | | | | | |
| 84 | 2 | 2 | 11 | 4/6 | | ; | | | |
| 51-443E 02 | 1.640E 02 | 7.219E 02 | 4.224 | 6.5395 00 | A 16 75 AC | | DEL TF | | |
| 20 | 1.709E 02 | | | 6. 536F 00 | 6 14 3F 90 | 20-3696-52 | | | - |
| 0.2 | 1.779F C2 | 7.420E 02 | | | | 2.276F-02 | 2.528E 92 | | 5 6 |
| | 3 | • | | | | | | | v |
| | | | | | | | | | |
| | 1 - 506F 01 | | | | | | | | |
| : 5 | | 5.000 | | | | | | | |
| | | | | | | | | | |

| | 00 | 10 | • | 11 | 49 | O/AP | ·Z | DEL TF | SA | |
|-----------|-----------|-----------|-----------------------|-------------------|--------------|-----------|---|------------------------|-----------|-----|
| | 5.428E 02 | 1.693€ 02 | 8-170E | 4.5146 02 | 8.231E 00 | 7.797E 00 | 2.7646-62 | | | 0.0 |
| 5.332E | 5.380E 02 | 1.066E 02 | 8.000 02 8.210€ 02 | 4.293E 02 | 8.283E 09 | 7.797E 00 | 3.1036-02 2.896E-02 | 2.513E 02 2.698E 02 | 1.004E | 020 |
| STA L | 2 | DELTA E | 7 | | | | | | | |
| 1.9536 | | | 5.000E 00 | | | | | | | |
| 3.442E | 17E 01 | 1.715 01 | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 7 | | | | | |
| | 8 | ; | : | : | *** | 8470 | , | 9 | 3 | |
| 5.4 | 5.402E 02 | 1.746E 02 | 6.6105 02 | 4.418E 02 | 1.002E 01 | 9.507E 00 | 3-5595-02 | 2.6715 02 | 9.961F 01 | |
| 5.352E | 52E 02 | 1.6530 02 | 8.560E 02 | 4.078E 92 | 1.0116 01 | 9.507E 30 | 4.273E-02 | 2.225E 02 | | . ~ |
| 5.302E | 02E 02 | 1.960E C2 | | 4.418E 02 | 1.002E 01 | 9.507E 90 | 3.8695-02 | | | 0.5 |
| STA L | 6/1 | | , re | | | | | | | |
| | | | | | | | | | | |
| 2.717E | | 1.504E C1 | | | | | | | | |
| 3.4425 | 12E 01 | 1.904E C1 | 2.000E 00 | | | | | | | |
| | | | | DATA | DATA POINT 6 | | | | | |
| | | | | i | | | | | | |
| 4 | P. 90. | 127645 62 | T. 9-240F 02 | TI A. SR 3F 02 | 0/A | 0/AP | H A A A A A A A A A A A A A A A A A A A | DEL TF | VS | |
| 3.1 | 5.3736 02 | 1.677E 02 | 9.600E 02 | 5.070E 02 | 1.062E 01 | 1.0176 21 | 3-1845-02 | 3-1935 02 | | _ |
| 5.314E | 14E 02 | 1.590E 02 | | 5.191E 02 | | | 3-1765-02 | 3.201E 02 | | |
| | 6/1 | CELTA E | LE | | | | | | | |
| 1.9936 | | | | | | | | | | |
| 2.717E | | | | | | | | | | |
| 3.442E | 12E 01 | 1.984E CI | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 9 | | | | | |
| | 0 | 18 | - | 11 | 8 | Q/AP | I | 27 50 | * | |
| 5.32 | | 1.567E 02 | | | | 1.017E 01 | • | | 1.0146 02 | _ |
| 5.326E | | | • | • | • | 1.017E 01 | • | • | | |
| \$. 326E | SE 02 | 1.9675 02 | •0 | • | ċ | 1.017E 01 | • | • | 1.0145 02 | |
| ر | 2 | DELTA E | F | | | | | | | |
| 3.257E | | 1.584E 01 | 5.000E 00 | | | | | | | |
| 3.297E | | | | | | | | | | |
| 3.257E | 10 34 | 1.584E C1 | 5.000E 00 | | | | | | | |

IQUID SIDE HEAT TRANSFER TEST DAT

ERALL TEST PARAMETERS

HT-9-106. BURNOUT AT DATA PT S. BURNOUT SITE COND. AT DATA PT 6

| | 0 | 0 | 03 | 93 | | | | | | | | | | | | | | | | | | | |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|--|--------------------------------------|------------|--------|-----------|----------------------|----------|-----------|------------------------|------------|--------|-----------|-----------|-----------|-----|---|-----------|
| e | 5.25.25 | 5.252 | 5.252 | 5.245 | 5.246 | 5.246 | | | | | | | | | | | | | | | | | |
| | 5 | | | 01 5 | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | 10 | 5 5 | | | | | | 10 | 10 | 5 | | | |
| 3 | -805-1- | -1.639E | -1.476 | -1.0305 | -7.290E | -7.2905 | | | | 8 | 9.776≡ | 9.794F | | | | | 8 | 3.800E | 9.825 | 9.8536 | | | |
| | 0 | | | 0 | 6 | | | | | | | 0 2 0 0 | | | | | | | | | | | |
| 9 | 6.420= | 9.442 | 1.367 | 2.0705 | 2.6713 | 2.4713 | | | | DEL TF | | 1.530E 0 1.523E 0 | | | | | 3E. TF | 2.1986 02 | | 2.224E 02 | | | |
| | 00 | | | 02 | 02 | 20 | | | | | | | | | | | | | | | | | |
| 2 | 5.2706 | 6.260E | 7.380E | 8.870E | 9.550E | 9.650 | | | | I | 1.680E-02 | 1.629E-02 | | | | | T | 1.667E-02 | 1.6256-02 | 1.64SE-02 | | | |
| | 0 | | | 0 | | | | | | | 0 | | | | | | | | | | | | |
| 63 | 1.285 | 1.591 | 1.954E | 2.462E | 2.701E | 2.7015 | | RAMETERS | | 9/ AP | | 2.492E 00 | | | | | 0/40 | 3.564E 00 | | 3.664E 00 | | | |
| | 0. | | -0 | 10- | -01 | 10- | | PA | | | | | | | | | | | | | | | |
| 7 | 7.7005-01 | 7.700E-01 | 7.700E-01 | 7.690E-01 | 7.6905-91 | 7-5906-01 | | ICAL TEST | INT | 4/0 | 2.464E 00 | 2.457E 00 | | | | INT 2 | A/0 | 3.628E 00 | | 3.612E 00 | | | |
| | 02 | 0.5 | 02 | 02 | 0.2 | 20 | | 2 | DATA POINT | | | | | | | DATA POINT | | | | | | | |
| TH-OUT | 1.053E 02 | 1.1216 | 1.208E | 1.3376 | 1.402E | 1.4025 | | TEST SECTION - LOCAL TEST PAMAMETERS | DAT | = | 2.473F 02 | 2.569E 02 | | | | DAT | = | 3.226F 02 | 3-324E 02 | 3.334E 02 | | | |
| , | | | 0 | 5 | 5 | 5 | | TEST. | | | | | | | | | | | | | | _ | |
| T8-1x | 9-1305 | 9.160E | 9.170 | 9.150E | 9-1306 | 9.1 30E | | | | - | | 3.190E 02 | u | | 5.000E 00 | | 2 | | | 4.240E 32 | LE | | |
| | 9 | 02 | 95 | 02 | 20 | 20 | | | | | | | | | | | | | | | | | |
| P8-001 | 4.980E | 4.980E | 4.970F | 4.950E | 4.940E | 4.940E | | | | 18 | | 1.046E 02 | DEL TA E | | 1.295E 01 | | 19 | | | 1.111E 02 | | | |
| | 0.2 | 02 | 20 | 95 | 20 | 02 | | | | | | | | - | | | | - | | _ | - | - | • |
| - Bd | 5.200E 02 | | | | | 5.160E | | | | 2 | 5.079E 02 | 4.991E 02 | 7/9 | 1.676E 01 | 2.286E 01 2.896E 01 | | 6 | 5.074E 02 | | 4.990E 02 | 2 | | 20 2000 0 |
| POINT | | ~ | | | 8 | | | | | STA | | | STA | | 2 ° ° ° | | STA | | 2 5. | | STA | - | • |

| | | | 54 | HT-9-106 DATA POINT | POINT 3 | | | | | |
|---|--|---|--|---|---|---|---|---|---|--|
| 5 - 5 W A - 5 W | 5.0446 02 5.026 02 4.980E 02 1.676E 01 2.286E 01 | 13 1.0776 02 1.1356 02 06LTA E 1.9566 01 1.9566 01 | 5.410E 02 5.520E 02 5.520E 02 5.000E 00 5.000E 00 | 4.162E 02 4.284E 02 4.284E 02 0284E 02 | 02 5.218E 00 02 5.195E 00 02 5.195E 00 02 5.195E 00 | 5.306F 00 5.306E 00 5.306E 00 | 1.7206-02 1.6956-32 1.7176-02 | 3.095E 02 3.095E 02 3.090E 02 | 9.931E 01 9.859E 01 9.907E 01 | |
| 4 - N H - N N | PB 5.0046 02 4.9606 02 1.6766 01 2.2866 01 2.896E 01 | 16.14.75 0.2 1.23.15 0.2 1.33.65 0.2 DELTA E 2.46.25 0.1 2.46.25 0.1 | 6.840E 02 6.870E 02 6.870E 02 LE 5.000E 00 5.000E 00 | 5.046E 02 5.082E 02 5.082E 02 | 0/A 7.900 00 7.891 00 7.891 00 | 0/AP 9.035E 00 8.035E 00 8.035E 00 | 2.0505-02 2.0376-02 2.1336-02 | DE_ 1F 3.901E 02 3.851E 02 3.765E 02 | VS 9-864€ 01 9-920∈ 01 9-976E 01 | |
| 4 - N P B - N P | 5.039 PB 5.0395 02 4.995E 02 4.951E 02 L/O 1.676E 01 2.896E 01 | 1.182E 02 1.280E 02 1.378E 02 0ELTA E 2.701E 01 2.701E 01 | 7.210E 02 7.280E 02 7.300E 02 7.300E 00 5.000E 00 5.000E 00 | 0.4TA 5.095E 02 5.17E 02 5.200E 02 | DATA POINT 5 1 0/A 02 9.415 00 02 9.3415 00 02 9.346 00 | 0/AP 9.590E 00 9.590E 00 | 2 • • • • • • • • • • • • • • • • • • • | DE. TF 3.913E D2 3.897E D2 3.872E D2 | VS 9-587E 01 0-951E 01 1-002E 02 | |
| A = 5 = 5 = 5 = 5 = 5 = 5 = 5 = 5 = 5 = | P3 4-9646 02 4-9646 02 4-9646 02 L/O 2-7136 01 | 1.349E 02 1.349E 02 1.349E 02 1.349E 02 DELTA E | 00. 00. 5.000E | 0 | 1 0. 0/A 0. 0. 0. | 0/AP 9.590E 00 9.590E 00 | T | 30.00. 30.00. | VS 9.997E 01 9.997E 01 | |
| 7 | 2.7/36 01 | Z. 701E 01 | 5.000E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

-107 -IMLET GLOW DPS. IN/OUT GLOW DP6. . . UDE: F. . DP12

Page 124

| | | | | 1 | | | | | | | |
|----------|-----------|-----------|---------------|-----|-------------|---|------------|-----------------|-----------|-----------|----------|
| | | | | 168 | r section - | TEST SECTION - LOCAL TEST PARAMETERS | PARAMETERS | | | | |
| | | HT-5 | 9-107 . IMLET | 3 | # DP5.1N/OU | HT-9-107 .IMLET GLOW DPS.IM/OUT GLOW DP6. | | .TUBE FAIL DP12 | DP12 | | |
| | | | | | DATA | DATA POINT 1 | | | | | |
| STA | 2 | - | - | | 11 | 4/6 | 9/46 | r | Det Te | * | |
| - | | | 2.160E | 20 | | | 1.327E 00 | 2.366E-02 | 5.609E 01 | | 02 |
| N P | 3.0466 03 | 9.0075 01 | 2-180E | 20 | 1.46RE 02 | 1.327E 00 | 1.327E 00 | 2.341E-02 | 5.669E 01 | 1.073€ 0 | 05 |
| 1 | | | | | | | | | | | <u> </u> |
| STA | | | 3 | ì | | | | | | | |
| - 6 | 2-6-0F 01 | 6.240E 00 | 3.000 | 0 0 | | | | | | | |
| m | | | 3.000€ | 8 8 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DATA | DATA POINT 2 | | | | | |
| STA | 2 | 10 | 7. | | 11 | 4/0 | 9/40 | I | DEI TE | > | |
| , | 3.050E 03 | 1.111E 02 | 8.240F 02 | 02 | 4.921E 02 | 7.709E 00 | 7.389E 00 | 1.9395-02 | 3.610F 02 | 64 | 02 |
| N | | | 9.360E | 0.2 | 5.073E 02 | 7.676E 00 | 7.389E 00 | | 3.873F 02 | | 6 |
| m | 3.038E 03 | 1.287E 02 | 8.390E | 0.2 | 5-110E 02 | 7.668E 00 | 7.389E 00 | 1.933E-02 | 3.823E 02 | | 05 |
| STA | 2 | DELTA E | 2 | | | | | | | | |
| - | 1.978E 01 | | \$.000E | 00 | | | | | | | |
| N | | | 5.000E | 00 | | | | | | | |
| n | 3.4176 01 | 1-687E 01 | 5.000E | 00 | | | | | | | |
| | | | | | ATAG | DATA POINT | | | | | |
| | | | | | | | | | | | |
| STA | 2 | | - | | 1 | 4/0 | O/AP | r | DEL TF | 8> | |
| - (| | | 1.0116 | 03 | | | | 2.025E-02 | | | ~ |
| v m | 3.0376 03 | 1.412E 02 | 1.036E | 0 0 | 6.262E 02 | 1.014E 01 | 9.684E 00 | 1.992E-02 | 4.861E 02 | 1.094E 02 | 0 0 |
| | | | | | | | | | | | ı |
| | .070 | | 2000 | 5 | | | | | | | |
| ٠ ٨ | | | 5-000E | 000 | | | | | | | |
| ~ | 3.417E 01 | 1.990€ 01 | | 00 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DATA | DATA POINT 4 | | | | | |
| STA | 9 | 2 | - | | - | 0/4 | 94/0 | ī | DEL TF | 5 | |
| - | | 1.272E 02 | | 5 | | 1.334E 01 | 1.269E 01 | 2.205F-02 | 5.756E 02 | 1.089E 02 | N |
| N | | 1.418E 02 | 1 . 237E | 03 | | | 1.269E 01 | 2.156E-02 | 5.887E 02 | 1.09AE 02 | N |
| - | 3.035E 03 | 1.564E 02 | 1.270€ | 03 | 7.738E 02 | 1.3156 01 | 1.269E 01 | 2.056E-02 | 6.173E 02 | | N |
| STA | 9/1 | DELTA E | | | | | | | | | |
| - | 1-9785 01 | | | 00 | | | | | | | |
| ~ | | | | 8 | | | | | | | |
| n | | 2.3326 01 | | 00 | | | | | | | |

| | 8 | 2 2 2 | 3 2 2 9 0 0 | 2 2 2 |
|--|-------------------------------------|--|--|---|
| V S S S S S S S S S S S S S S S S S S S | | 1.092E | 2 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × 0 × | 00 2 E 00 E |
| . N. N. | } | | | |
| DEL 7F DEL 7F 5-634E 02 5-778E 02 | | DEL TF 5-961E 02 5-960E 02 1-050E 03 | DEL TF 6.632E 02 8.405F 02 | DEL 7F 9.391E 02 8.889E 02 9.199E 02 |
| TUBE FAIL DRIZ | | 2.365E-02 2.365E-02 1.342E-02 | 1.805E-02 1.74E-02 1.856E-02 | H 739E-02 (1.775E-02 (|
| PARAMETERS 0/AP 1.275E 01 1.275E 01 | | 0/AP 1.409£ 01 1.409E 01 | 9/AP 1.558E 01 1.558E 01 1.558E 01 | 0/AP 1.633E 01 1.633E 01 1.633E 01 |
| 6LOW DP6. 6LOW DP6. 90/A 1.347E 91 1.340E 01 1.329E 01 | 1 N | 0/A 1.496 01 1.796 01 | 0/A 0/A 0/A 1.595E 01 1.593E 01 | 2. A 2. E 0. E |
| TEST SECTION - LOCAL TEST PARAMETERS HT-9-107.IM.ET GLOW DPS.IN/OUT GLOW DP6. DATA POINT S TW TI O/A O/AP 02 1.231E 03 6.912E 02 1.347E 01 1.275E 01 02 1.235 03 7.204E 02 1.340E 01 1.275E 01 02 1.264E 03 7.612E 02 1.329E 01 1.275E 01 | DATA POINT | 71 7-278E 02 7-439E 02 1-214E 03 | DATA POINT T1 9-988E 02 1-59E 1-01-2E 03 1-59E | DATA POINT T1 1.077E 03 1.655 1.094E 03 1.656 |
| 7 F. C. | 000 | | | |
| T | 5.000E 5.000E 5.000E | 1.294E 03 1.306E 03 1.678E 03 2.000E 00 5.000E 00 | 1.555E 03 1.594E 03 1.565E 03 1.565E 03 5.000E 00 5.000E 00 | 1641F 03 1-616E 03 1-655E 03 LE 5-000E 00 |
| HT-9-) TB 1-2786 02 1-5746 02 | DELTA E 01 - 342E 01 - 342E 01 | TB 1.3176 02 1.480E 02 1.642E 02 DELTA E 2.490E 01 2.490E 01 | 000000000000000000000000000000000000000 | 200 u 5 |
| N + 15 | DELTA 2-3426 2-3426 2-3426 | 1.3176 1.4806 1.6426 1.6426 2.4906 2.4906 2.4906 | 1.356E 1.533E 1.711E DELTA 2.636E 2.636E 2.636E | TB 1-375E 02 1-743E 02 1-743E 02 DELTA E 2-704E 01 |
| 98 3.047E 03 3.041E 03 | 2.698E 01 | 3.0446 03 3.0326 03 3.0326 03 1.9706 01 3.4176 01 | PB 3.040E 03 3.035E 03 3.02NE 03 1.970E 01 2.690E 01 3.417E 01 | P6 3.039E 03 3.039E 03 3.027E 03 L/D 1.976E 01 |
| * = N P | - N F | mmm = Nm | คคค | W W W |

| STATE STAT | | | | | | N | N N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------|-------------|------|------|-----------|------------|-----------|-----|--------|--------|--------|------|---|--------|-----------|-----------|------------|-----|-------|------|------|------|------|------------|------------|-------------|-----|----------|------|-----|------|---|-------------|------------|-----------|--------|-----|-----------|-------|--------|--|
| TESS SECTION - LOCAL TESS PARAMETERS THT-9-107 - LIMEF T GLOW OPS-LIM/OUT GLOW OPS TUGGE TO SECTION - LOCAL TESS PARAMETERS THT-9-107 - LIMEF T GLOW OPS-LIM/OUT GLOW OPS TUGGE TO SECTION - LOSS TO SECTION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| THE SECTION - LOCAL TEST PARAMETERS THE P-LOT - LIMET GLOW DPS. INVOIT GLOW DPS. DATA POINT 9 1.0306 03 1.4396 02 1.4481 02 1.0316 03 1.0384 00 1.4816 01 2.5566-02 4.7069 1.0306 03 1.4396 02 1.4396 02 1.4360 03 1.0386 01 1.4816 01 2.5566-02 6.7069 1.0306 03 1.4396 02 1.4396 03 1.0396 03 1.4806 01 1.4816 01 2.5566-02 6.70916 1.0306 03 1.4396 02 1.4396 03 1.0396 03 1.4806 01 1.4816 01 2.5566-02 6.70916 1.0306 03 1.4396 02 1.4396 03 1.4396 03 1.4396 01 1.4816 01 2.5566-02 6.70916 1.0307 03 1.4396 02 1.4396 03 1.4396 03 1.4396 01 1.4816 01 2.5566-02 7.70946 1.0308 03 1.4396 02 1.4396 03 1.4396 03 1.4396 01 1.4816 02 1.4396 01 1.4816-02 7.70946 1.0308 03 1.4396 02 1.4396 03 1.2396 03 1.4396 01 1.4816-02 7.70946 1.0308 03 1.4396 03 1.4396 03 1.4396 03 1.4396 01 1.4816-02 7.70946 1.0308 03 1.4396 03 1.4396 03 1.4396 03 2.44376 01 2.1366 01 1.4816-02 7.70946 2.0308 03 1.4396 03 1.4396 03 1.4396 03 2.44376 01 2.3986 01 1.4816-02 7.70946 2.0308 03 1.4396 03 1.4396 03 1.4396 03 2.4816 01 2.3986 01 3.7296-02 7.7296 03 1.7296 03 | | | | | | | 1-123 | | | | | | | > | 1.096 | 1.112 | 1-127 | | | | | | | SA | | 1 - 1 3 4 6 | | | | | | | 8 | 1.099 | 1.1176 | 1-1356 | | | | | |
| Tr.9-107 - IM.ET GLOW DPS. IN/OUT GLOW DPS. HT-9-107 - IM.ET GLOW DPS. HT-9-107 - | | ~ 140 | | 9 | 1 700E 03 | 20 2001.0 | 8.951F 02 | | | | | | | DEL TF | 7.974E 02 | 8-123E 02 | | | | | | | i | T. 6445 AT | A 107E 02 | 0. | | | | | | | DEL 71: | 8.077E. 02 | 7.72FE 02 | | | | | | |
| TEST SECTION - LOCAL TEST PARAMETER THT-9-107 - INLET GLOW DPS. IN/OUT GLOW DPG. DATA POINT 9 1.0366 03 1-4296 02 1-64616 03 1-6316 01 1-8516 1.0246 03 1-6296 02 1-64616 03 1-6316 01 1-8516 1.0246 03 1-6296 02 1-64616 03 1-6306 01 1-8516 2.6366 01 2.6396 01 1-7256 02 1-7726 02 1-8066 01 1-8516 2.6396 01 2.6396 01 1-7296 02 1-7726 02 2-1946 01 1-8516 3.0376 03 1-7296 02 1-7296 03 1-7296 03 2-1196 01 2-1266 3.0376 03 1-7296 02 1-7296 03 1-7296 03 2-1196 01 2-1266 3.0376 03 1-7296 02 1-7296 03 1-7296 03 2-1196 01 2-1266 3.0376 03 1-7296 02 1-7296 03 1-7296 03 2-1196 01 2-1266 3.0376 03 1-7396 01 1-7296 03 1-7296 02 2-1956 01 2-1266 3.0376 03 1-7396 01 1-7296 03 1-7296 03 2-1196 01 2-1266 3.0376 03 1-7396 01 1-7296 03 1-7296 02 2-1956 01 2-1366 3.0376 03 1-5606 02 1-7266 03 7-9216 02 2-1956 01 2-1366 3.0376 03 1-5906 02 1-7296 03 7-9216 02 2-1956 01 2-1366 3.0376 03 1-5906 02 1-7296 03 7-9216 02 2-1956 01 2-1366 3.0376 03 1-5906 02 1-7296 03 7-9216 02 2-1956 01 2-1366 3.0376 03 1-5906 02 1-7296 03 9-5666 02 2-5816 01 2-1366 3.0316 03 1-5906 02 1-7276 03 9-5666 02 2-5816 01 2-5346 3.0316 03 1-7396 01 5-0006 00 3. | | TUBE FAIL | | 3 | 2-1285-02 | 2. 286E-03 | 2.069E-02 | | | | | | | 1 | 2.667E-02 | 2-619E-02 | 1.9415-02 | | | | | | ; | 4.1 4AF-A2 | 3.92 16-02 | 0. | | | | | | | I | 3-137E-02 | 3.279E-02 | 0. | | | | | |
| 1.9786 01 1.4996 02 1.46118 02 1.97.01M.ET 7 3.0366 03 1.4296 02 1.46118 02 1.7128 02 1.4996 02 1.7128 02 1.4996 01 2.6896 01 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 3.1046 01 5.006 00 2.6896 01 3.1046 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.3966 01 5.006 00 3.4176 01 3.3966 01 5.006 00 3.4176 01 3.3966 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4066 01 3.4066 01 5.0066 00 3.4066 01 3.4066 01 3 | PARAMETERS | | | 9776 | | | | | | | | | | O/AP | | | | | | | | | 9470 | 2.396F 01 | | | | | | | | | O/AP | 2.534E 01 | | | | | | | |
| 1.9786 01 1.4996 02 1.46118 02 1.97.01M.ET 7 3.0366 03 1.4296 02 1.46118 02 1.7128 02 1.4996 02 1.7128 02 1.4996 01 2.6896 01 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 3.1046 01 5.006 00 2.6896 01 3.1046 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.2996 01 5.006 00 2.6996 01 3.3966 01 5.006 00 3.4176 01 3.3966 01 5.006 00 3.4176 01 3.3966 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4176 01 3.4066 01 5.0066 00 3.4066 01 3.4066 01 5.0066 00 3.4066 01 3.4066 01 3 | LOCAL TEST | 4 GLOW 0P6. | | 4/6 | 1.894E 01 | | | | | | | | | A/0 | 2.184E 01 | 2-175€ 01 | 2.119E 01 | | | | | | 470 | 2.447E 01 | 2.483E 01 | • | | | | | | | 9/4 | 2-501E 01 | 2.583E 01 | •• | | | | | |
| 1.9786 01 3.2996 02 1.4618 02 3.0366 03 1.4296 02 1.4618 02 3.0366 03 1.4296 02 1.4518 02 1.7126 03 3.0366 03 2.6896 01 5.006 00 2.6896 01 5.006 00 2.6896 01 5.006 00 3.026 01 2.8696 01 5.006 00 3.026 01 3.036 01 3.036 01 5.006 00 5.006 00 3.026 01 3.1046 01 5.006 00 5.006 00 3.026 01 3.1046 01 5.006 00 5.006 00 3.026 01 3.1046 01 5.006 00 5.006 00 3.026 01 3.2936 01 5.006 00 3.4176 01 3.2936 01 5.006 00 3.4176 01 3.2936 01 5.006 00 3.016 01 3.2936 01 5.006 00 3.016 01 3.2936 01 5.006 00 3.016 01 3.3966 01 5.006 00 3.016 01 3.3966 01 5.006 00 3.0176 01 3.3966 01 5.006 00 3.006 | ST SECTION - | DPS.1N/0U | DATA | 11 | 1.013€ 03 | 9.840E 02 | 1.079E 03 | | | | | DATA | | 11 | 9.472E 02 | 9.8526 02 | 1.20 le 03 | | | | | DATA | 11 | 9.204E 02 | 7.921E 02 | • | | | | | ATAG | | - | 9-66RE 02 | 9.584E 02 | • | | | | | |
| 3.0366 03 1.4296 3.0366 03 1.4296 3.0366 03 1.4396 3.0366 03 1.4396 2.6496 01 2.86996 3.4176 01 2.86996 3.4176 01 2.86996 3.4176 01 3.1946 3.4176 01 3.2936 3.0316 03 3.2936 3.0316 03 3.2936 3.0316 03 3.2936 3.0316 03 2.936 3.0316 03 2.936 3.0316 03 3.3966 3.0316 03 3.3966 3.0316 03 3.3966 3.0316 03 3.3966 | T. | 3 | | | 0.3 | 63 | 03 | | 6 | 0 | 0 | | | j | <u>.</u> | 2 : | 2 | | 0 | 0 | 0 | | | E | n | | | | 0 | • | | | ı | . | n | | | | | | |
| 3.0366 03 1.4296 3.0366 03 1.4296 3.0366 03 1.4396 3.0366 03 1.4396 2.6496 01 2.86996 3.4176 01 2.86996 3.4176 01 2.86996 3.4176 01 3.1946 3.4176 01 3.2936 3.0316 03 3.2936 3.0316 03 3.2936 3.0316 03 3.2936 3.0316 03 2.936 3.0316 03 2.936 3.0316 03 3.3966 3.0316 03 3.3966 3.0316 03 3.3966 3.0316 03 3.3966 | | .07 . INCET | | - | 1-661E | | | | | | | | | 2 | 1.697E | 10616 | | 1 | | | | | - | 1.756E 0 | 1-666E 0 | • | | 5.000E 0 | | | | | | 1.833E 0 | 1.827E 0 | • | | 2000 | | | |
| 3.0366 03 1.4296 3.0366 03 1.4296 3.0366 03 1.4396 3.0366 03 1.4396 2.6496 01 2.86996 2.6496 01 2.86996 3.0276 03 1.4996 3.0276 03 1.4996 3.0276 03 3.046 3.0266 03 2.046 3.0266 03 2.046 3.0266 03 2.046 3.0376 01 3.2936 3.0376 01 3.2936 3.0376 01 3.2936 3.0376 01 3.2936 3.0376 01 3.2936 3.0376 01 3.2936 3.0376 01 3.2936 3.0376 01 3.3966 3.0376 01 3.3966 | | 1-9-1 | | | 0.5 | 20 | 20 | | | - | 5 | | | | 2 5 | 2 0 | , | ia. | = | - | = | | | 2 | 2 | 2 | | = | _ | = | | | • | N 6 | ~ | ~ | | | | | |
| 3.0366 03 3.0366 03 3.0266 03 3.0266 03 3.0276 01 | | ic | | - | 9 | SE | 16 | | | | | | | - | u u | U 0 | | | | | | | - | 90 | | | | | | | | , | | | ָ עַ | e. | | | | | |
| 3.0306 3.0306 3.0306 2.6906 3.0176 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 | | | | | 1.42 | 1.63 | 3 | DEL | 2.60 | 2.88 | 2.88 | | | | | 1 . 98 | | DEL | 3.10 | 3.10 | 3-10 | | | 1.56 | 1.81 | 2.06 | DEL | 3.29 | 3.29 | 3.6 | | | | | 000 | 2-122 | 190 | | 1.104 | 101 | |
| 3.0306 3.0306 3.0306 2.6906 3.0176 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 3.0226 | | | | | 3 | 63 | 03 | | 5 | 5 | 5 | | | . ? | 3 6 | 3 6 | 3 | | 5 | 5 | 5 | | Ţ | 93 | 03 | 03 | | 5 | 5 3 | 5 | | | - | 3 5 | 2 : | n O | | : | : = | : = | |
| | | | | ā | 3.036E | 3.030E | 3.024E | 2 | 1.970€ | 2.698E | 3-4176 | | | | 3.027F | 3.021 | | 2 | 1.978 | | | | 84 | 3.032E | | 3.020E | 2 | | | | | | D 212 0 - E | 3.0056 | 20000 | | 9/1 | 1 - 97 BE | | 3.417E | |
| | | | | STA | - | N | m | STA | - | ~ | m | | i | ¥ . | ٠, | i Pi | , | STA | _ | ~ | m | | STA | - | ~ | n | STA | | | | | | | | | | STA | | | | |

Report AFRPL-TR-67-208, Appendix C

2.005 E

HT BAL 1.574E 01 8.874E 01 1.574E 01 1.1.396E 01 1.1.396E 01 1.1.559E 01 1.1.5 7.4806 9.6006 1.1.4706 1.6536 2.236 2.536 2.6356 2.6556 2.6556 222022222222

Page 128

| | | | JE | - NOT 19 | TEST SECTION - LOCAL TEST PARAMETERS | ARAMETERS | | | | |
|------------|-----------|------------------------|---|------------------------|--------------------------------------|-----------|----------------|-----------|------------------------|---|
| | | TH | HT-9-108.TS GLOW, IN/BUT DP6. IN/HID/DUT DP7. | . INVOUT DP6. | INVIED/OUT DE | | TUBE FAIL DP12 | 21 00 | | |
| | | | | DATA | DATA POINT . | | | | | |
| š - | 2 | TO 2010 | 7.6.305 0.2 | 11 | 0/A | 0/AP | H 109 M - 02 | DEL TF | VS 4.873E 01 | - |
| . ~ | 3-082E 83 | 9.004E 01 | | | 1.26 ME 00 | | 1-1196-02 | 1.134E 02 | | - |
| n | 3-031E 03 | 9-321E 01 | 2.750E 02 | 2.096E 02 | 1.261E 00 | 1.269E 00 | 1.0916-02 | 1.164E 02 | 4.906€ 01 | _ |
| š - | 5 | DENTA E | 37 000 | | | | | | | |
| . N | | | | | | | | | | |
| • | 4-120E 01 | 7.480E 00 | 9. 00E 00 | | | | | | | |
| | | | | DATA | DATA POINT 2 | | | | | |
| 214 | t | : | 2 | = | 4/0 | 9/46 | I | DEL TF | SA | |
| - | | | | 2.690E 02 | 1.623E 00 | | 9-191E-03 | | | - |
| * • | 3.029E 83 | 1.082E 02 | 3.500E 02 | 2.751E 02 | 1.612E 00 | 1.624E 00 | 9.3356-03 | 1.739E 02 | 4.8936 01 | - |
| 1 | 97 | DENTA E | 7 | | | | | | | |
| - | | | | | | | | | | |
| N 9 | 3-410E 01 | 2. 500E 00 | 6.000 00 6.000 00 | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| STA | 2 | 2 | 2 | 1.1 | 8 | OVAP | I | DEL TF | \$ > | |
| - | | 8-520E 01 | | | | | 8-107E-03 | 3.386E 02 | | - |
| 4 7 | 3.026 63 | 1.101E 02 | 5.520E 02 5.640E 02 | 4.236E 02 | 2.754E 00 | 2.745€ 00 | 8-680E-03 | 3.163E 02 | 4.969E 01 | - |
| 72 | S | DENTA E | 3 | | | | | | | |
| - • | 3.509E 00 | 10 3021-1 | 6.000E 00 | | | | | | | |
| | 4-120E 01 | | | | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | | |
| STA | | 2 | 2 | | 4/9 | OAP. | r | DEL TF | SA | |
| - | 3-030E 83 | | | 5.769E 02 | 3.908E 00 | | 7.931E-03 | 4.896E 02 | | - |
| N M | 3.0266 63 | 1.288E 02 1.386E 02 | 7.310E 02 7.470E 02 | 5.411E 02 5.792E 02 | 3.928E 00 | 3.6636 00 | 8.981E-03 | 4.323E 02 | 4.975£ 01 5.002£ 01 | - |
| | | | | | | | | | | |
| i - | 3.5096 00 | | | | | | | | | |
| N | | | 6.000E 00 | | | | | | | |
| 7 | 4-120E BI | 1-4586 01 | | | | | | | | |

Page 129

| | | | | TE | ST SECTION - | TEST SECTION - LOCAL TEST PARAMETERS | PARAMETERS | | | | |
|----------|--------------|------------|-------------|------|---------------|--|------------|----------------|-----------|-------------|-----|
| | | HT | -9-108 . TS | 2079 | . 1M/DUT 0P6. | HT-9-108 .TS GLOW . IN/BUT DP6 . IN/HID/GUT DP7. | P7. | TUBE FAIL DP12 | 21-00 | | |
| | | | | | DATA | DATA POINT 5 | | | | | |
| STA | | 2 | Te | | = | 9 | 9/48 | 1 | DEL TE | > | |
| - | 3.020E 03 | 8.087E 01 | | 02 | 7.054E 02 | 4.824E 00 | 4.822E 00 | 7.620E-03 | 6-166E 02 | Be I | 10 |
| N | | 1.484E 02 | 8.690E | 05 | 6.678E 02 | 4.876E 00 | 4.822E 00 | 9-1435-03 | 5.274E 02 | | |
| • | 3-023E 03 | 1.526E 02 | 6-890E | 05 | 6.806E 02 | 4.844E 00 | | 8.961E-03 | 5.361E 02 | | 5 |
| STA | 6/0 | DENTA F | | | | | | | | | |
| - | 8 | | 9.9 | 00 | | | | | | | |
| ~ | 3-410E B1 | 1.637E 01 | | | | | | | | | |
| 7 | 4-120E 01 | 1.6376 01 | 9000°9 | 8 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DATA | DATA POINT 6 | | | | | |
| STA | 84 | 18 | 2 | _ | 11 | 4/0 | 9770 | 3 | 9 | 3 | |
| - | 3.026E 83 | 9-038E 01 | 1.203E 03 | 03 | 9.915E 02 | 5.735E 00 | 5-899E 00 | 6-5465-03 | 9-0116-02 | A-BAAE | : |
| ~ | | 1.540E 02 | | 03 | 7.800E 02 | 6.021E 00 | | 9.4235-03 | 6-260F 02 | | ; ; |
| m | 3.021E 03 | 1-690E 02 | 1.3116 | 03 | 4-112E 03 | 5.601E 00 | | 6.257E-03 | 9.427E 02 | | ; 5 |
| STA | 7/0 | DEATA E | 1 | | | | | | | | |
| - | 3.5895 80 | | 6-00F | 00 | | | | | | | |
| ~ | | | 6.000E | 8 | | | | | | | |
| ~ | 4-128E 81 | 1.657E 01 | 9.00E | 8 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DATA | DATA POINT 7 | | | | | |
| STA | | 18 | 1 | _ | 1 | 4/0 | 94/0 | 1 | 34 | 2 | |
| - | 3.024E 83 | 9.143E 01 | 1.481E 03 | 03 | 1.267E 03 | 6.311E 00 | 6.620E 00 | 5-630E-03 | 1.176E 03 | 4.8495 01 | _ |
| 4 1 | 3.020E 03 | 1.631€ 02 | 1.171 | 69 | 9-1936 02 | 6.718E 00 | 6.620E 00 | 8.754E-03 | 7.562E 02 | | |
| 7 | 3-0192 03 | 1.500E 02 | 1-1146 | 2 | 8.635E 02 | 6-817E 00 | 6.620E 00 | 9.8296-03 | 6.735E 02 | 5.110E 01 | _ |
| STA | 20 | DELTA E | 3 | | | | | | | | |
| - | 3-589E 80 | 2-000E 01 | 9000 · 9 | 3 | | | | | | | |
| ~ 1 | | | | 8 | | | | | | | |
| • | **! Zee 11 | 7-090E 01 | 9.000E | 8 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DATA | DATA POINT 6 | | | | | |
| STA | 98 | 18 | * L | | 1 | 4/8 | O/AP | 1 | 761 16 | 3 | |
| - | 3.021E 93 | 9.289E 01 | 1.324E 03 | 0.3 | 1.033€ 03 | 8-125E 00 | 8.072E 00 | 8-5916-03 | 9-396F 02 | A. 85 3F 01 | _ |
| N | 3-017E 83 | | 1.4076 | 03 | 1-128E 03 | 7.994E 00 | 6.072E 00 | 8-489E-03 | 9.509E 02 | | |
| 17 | 3.0106 03 | 1.9686 02 | 1.330E | 63 | 1.839E 03 | 8.115E 00 | | 9.579E-03 | 8.427E 02 | | |
| ATA | 97 | DELTA E | | | | | | | | | |
| <u> </u> | 3.5895 80 | 2-244F 01 | 44 | 90 | | | | | | | |
| ٠ ٧ | 3-4106 01 | 2.234E 01 | | 90 | | | | | | | |
| 7 | 4-128E 01 | 2. PAAF 01 | | 3 8 | | | | | | | |

Page 130

Report AFRPL-TR-67-208, Appendix C

222

VS 4.833E 5.205E 5.305E

555

VS 4.799E 5.168E 5.291E

DEL TF 1.009E 03 1.129E 03 1.263E 03

H 1.315F-02 1.175E-02 1.051E-02

6 6 6

0/A 1.371E 01 1.335E 01 1.319E 01

1.100E 03 1.357E 03 1.521E 03

1.575£ 03 1.784£ 03 1.926£ 03

76 9.872E 01 2.281E 02 2.565E 02

98 3.021E 03 3.016E 03

:::

888

2.954E 2.954E 2.954E

:::

DEL TF 9.080E 02 1.003E 03 9.643E 02 7.776E 02 9.390E 02 9.564E 02 DEL TF 7.408E 02 9.694E 02 9.935E 02 21.00 0/AP 1.266E 01 1.266E 01 1.266E 01 200 555 SECTION - LOCAL TEST PARAMETERS 0.AP 9.570E 9.570E 9.570E GLOW, IN/DUT DP6, IN/HID/OUT DP7. 0/A 9.665E 00 9.37BE 00 9.399E 00 0/A 1.145£ 01 1.096£ 01 1.090€ 01 0/A 1.314E 01 1.246E 01 71 6.393E 02 4.192E 03 0.742E 02 1.146E 03 1.190E 03 200 TW 1.296E 03 1.521E 03 1.556E 03 TW 1.323E 03 1.609E 03 1.654E 03 6.000E 00 283 388 78 9-4456 01 1-9186 02 2-1476 02 DELTA 6 2-4396 01 2-4396 01 78 2.074E 01 2.335E 02 2.335E 02 DELTA E 2.635E 01 2.635E 01 2.635E 01 76 2.2225 02 2.5136 02 2.5136 02 DELTA E 2.6255 01 2.6255 01 2.6255 01 3.032E 63 3.020E 63 3.017£ 03 3.012£ 03 3.010£ 03

223

555

VS 4.845E 5.175E 5.263E

555

VS 4.857E 5.144E 5.217E

Page 131

Report AFRPL-TR-67-208, Appendix C

HT BAL 3.954E 01 3.952E 00 5.966E 01 -1.285E 00 -7.673E-01 -1.114E 00 -2.642E-01 2.895E-01

00000000

LIGUID SIDE HEAT TRANSFER TEST DATA

HT-9-109. NO TUBE FAILURE

Page 132

TEST SECTION - LOCAL TEST PARAMETERS HT-9-109 . NO TUBE FAILURE

| | | | | DATA | DATA POINT | | | | |
|--------------|-----------|-----------|-----------|-----------|--------------|-----------|-----------|------------|-----------|
| 214 | | 4 | ** | 11 | 4/0 | 9//0 | I | DEL TE | * |
| - 1 | 3.104E 03 | 1.020E 02 | 1 - 96 DE | 1-303E 02 | 1.129E 00 | 1-159E 00 | 3.3796-02 | 3.429E 01 | 1.483E 02 |
| n y (| | 1-029E 02 | 1.980E | 1.394E 02 | 1.128E 00 | 1-1596 00 | 3-267E-02 | 3.547E 01 | |
| • | 3.078E 83 | 1.039E 02 | 1.990E 02 | 1.395E 02 | 1-128E 00 | 1.159£ 00 | 3.256E-02 | 3.560F 01 | |
| STA | S | DELTA E | 1 | | | | | | |
| 4 | | | | | | | | | |
| ~ ' | | | 3.000€ | | | • | | | |
| • | 1.962F 01 | 3.520E 00 | 3.000E 00 | | | | | | |
| | | | | ATAG | DATA POINT | | | | |
| | | | | | | | | | |
| 214 | 9 | 18 | 2 | 1 | A/0 | O/AP | r | DEL TF | 8 |
| - (| 3.097E 03 | 1.0386 02 | | 2.245E 02 | 3.085E 00 | 3.113E 00 | 2.579F-02 | 1.207E 02 | 1.488E 02 |
| 4 | | 1.0056 02 | | 2.314E 02 | 3.077E 00 | 3.1134 00 | 2.493E-02 | 1.249E 02 | 1.491E 02 |
| 7 | 3.0125 03 | 1.091E 02 | 3.860E 02 | 2.34BE 02 | 3.073E 00 | 3.1136 00 | 2.4785-02 | 1.256E 02 | 1.493E 02 |
| STA | 27 | DELTA E | 1 | | | | | | |
| - | 5-350E 80 | 6.020E 00 | 3.000E 00 | | | | | | |
| 8 | 1.248£ 01 | | 3.000E 00 | | | | | | |
| 7) | 1.962E 01 | 6.020E 00 | 3.000E 00 | | | | | | |
| | | | | 4140 | E TATO | | | | |
| | | | | | | | | | |
| STA | 2 | 70 | * | 11 | 0/A | Q/AP | I | DEL TF | S |
| - (| | | 7.100E 02 | 3.761E 02 | 7.586E 00 | 7.046E 00 | 2.807E-02 | 2.724E 02 | 1.490E 02 |
| 4 | | 1.065E 02 | 7.200€ 02 | 3.689E 02 | 7.557E 00 | 7.646E 00 | 2.707F-02 | 2. 825E 02 | 1.493E 02 |
| m | 3.0715 83 | 1.002E 02 | 7.220E 02 | 3.415E 02 | 7.551E 00 | 7.646E 00 | 2.709E-02 | 2.823E 02 | |
| 314 | 1/0 | DELTA E | 16 | | | | | | |
| - | 5.350£ 80 | 9.990E 00 | 3.000 00 | | | | | | |
| N | | 9.990E 00 | 3.000E 00 | | | | | | |
| 7 | 1.962E 01 | 9.990E 00 | 3.000F 00 | | | | | | |
| | | | | DATA | DATA POINT 4 | | | | |
| ATE | 3 | 10 | * | 1 | 4/0 | 94/0 | 1 | 36 | 2 |
| - | 3.091E 93 | 1.084E 02 | 1.001E 03 | 5.237E 02 | 1.186E 01 | 1.212E 01 | 2.918E-02 | 4.155F 02 | 1.49AF 02 |
| Ŋ | 3.080E 03 | 1.176E 02 | 1.012E 03 | 5.385£ 02 | 1.182E 01 | 1.212E 01 | 2-880F-02 | 4.210F 02 | |
| • | 3.069E #3 | 1.270E 02 | 1.012E 03 | | 1.152F 01 | | 2.9456-02 | 4-1166 02 | 1.511E 02 |
| | | | | | | | | | |
| | | DELIAE | 3 | | | | | | |
| - ~ | 5.350E 00 | 1.3036 01 | 3.000€ 00 | | | | | | |
| , - | | 10 35 95 | 3.0000.00 | | | | | | |

Report AFRPL-TR-67-208, Appendix C

| DATA POINT 5 1.00A | RT-9-10 | HT-9-10 | RT-9-10 | 9. M | TEST SECTION - RT-9-109, NO TUBE FAILUME | TEST SECTION - LOCAL TEST PARAMETERS NO TUBE FAILUNE | PARAMETERS | | | |
|--|--|--------------|---------|--------|--|---|------------|------------------------|-----------|---|
| 2 1.670E 01 1.725E 01 2.996E-02 5.757E 02 1.499E 2 1.674E 01 1.725E 01 3.127E-02 5.757E 02 1.506E 2 1.674E 01 1.725E 01 3.127E-02 5.757E 02 1.506E 2 1.672E 01 1.725E 01 3.170E-02 5.460E 02 1.510E 2 2.053E 01 2.126E 01 3.091E-02 6.465E 02 1.509E 2 2.053E 01 2.126E 01 3.191E-02 6.465E 02 1.529E 2 2.055E 01 2.126E 01 3.235E-02 6.576E 02 1.529E 2 2.376E 01 2.469E 01 2.446E-02 1.006E 03 1.469E 2 2.376E 01 2.469E 01 2.446E-02 1.006E 03 1.469E 2 2.376E 01 2.469E 01 3.216E-02 9.715E 02 1.506E 2 2.746E 01 2.469E 01 3.216E-02 7.675E 02 1.521E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | DATA | | | | | |
| 1.670E 01 1.725E 01 2.996E-02 5.15F 02 1.996E 1.674E 01 1.725E 01 3.127E-02 5.15F 02 1.506E 1.674E 01 1.725E 01 3.170E-02 5.15F 02 1.506E 1.675E 01 1.725E 01 3.170E-02 5.15F 02 1.506E 2.053E 01 2.126F 01 3.091E-02 6.669E 02 1.509E 2.053E 01 2.126F 01 3.191E-02 6.669E 02 1.509E 2.055E 01 2.126F 01 3.235E-02 6.576F 02 1.509E 2.055E 01 2.126F 01 3.235E-02 6.576F 02 1.509E 2.376E 01 2.469E 01 2.546E-02 1.006E 03 1.489E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.50E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.50E 2.424E 01 2.466E 01 3.236E-02 1.506E 2.426E 01 2.466E 01 2.293E-02 1.50E 2.466E 01 2.666E 01 0. 0. 1.520E 03 1.482E 0. 2.666E 01 0. 0. 0. 2.666E 01 0. 0. 1.520E 0. 1.520E 0. 1.550E | 78 78 | | 2 | | = | 4/0 | 9770 | ; | į | |
| A POINT A DEL TF VS CONTROLL STATE CONTROLL TF VS CONTROLL TF VS CONTROLL TF C | 03 1-106E 02 1-305E 03 03 1-286E 02 1-297E 03 | 02 1.297E 03 | 500 | 6.86 | 3E 02 | | 1.725E 01 | 2.990E-02 | | |
| A POINT 6 2.052E 01 2.126E 01 3.091E-02 6.669E 02 1.495E 2.052E 01 2.126E 01 3.191E-02 6.669E 02 1.509E 2.052E 01 2.126E 01 3.235E-02 6.578E 02 1.523E 0/A 0/AP H DEL TF VS 2.376E 01 2.469E 01 2.446E-02 1.608E 03 1.489E 2.368E 01 2.469E 01 3.216E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.075E 02 1.521E 0/A 0/AP H DEL TF VS 2.740E 01 2.866E 01 2.293E-02 1.529E 03 1.482E 0.486E 01 0.486E 01 0.693E-03 1.482E 0.486E 01 0.693E-03 1.482E 0.695E-03 1.482E 0.786E-03 0.786E-03 0.786E-03 1.482E 0.786E-03 0.786E-03 0.786E-03 1.482E 0.786E-03 0.786E-03 0.786E-03 0.785E-03 1.482E 0.786E-03 0.786E-03 0.786E-03 0.785E-03 1.482E-03 0.786E-03 0.785E-03 | 02 1-301E 03 | 02 1-301E 03 | 03 | | 176 02 | | | 3-1706-02 | | |
| A POINT 6 2.053E 01 2.128E 01 3.091E-02 6.669E 02 1.495E 2.052E 01 2.128E 01 3.191E-02 6.669E 02 1.509E 2.052E 01 2.128E 01 3.235E-02 6.578E 02 1.5509E 2.052E 01 2.128E 01 3.235E-02 6.578E 02 1.5509E 2.35E 01 2.469E 01 2.446E-02 1.608E 03 1.489E 2.35E 01 2.469E 01 2.446E-02 1.068E 03 1.489E 2.424E 01 2.469E 01 3.216E-02 7.075E 02 1.520E 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.482E 0.740E 01 2.866E 01 0.893E-02 1.550E 03 1.482E 0.740E 01 2.866E 01 0.993E-02 1.550E 0.740E 01 2.866E 01 0.993E-02 1.550E 0.740E 01 2.866E 01 0.993E-02 1.550E 0.740E 01 2.866E 01 0.993E-03 1.482E 0.995E-036E-036E-036E-036E-036E-036E-036E-036 | DELTA | . | 3 | | | | | | | |
| A POINT 6 2.053E 01 2.120E 01 3.091E-02 6.669E 02 1.499E 2.052E 01 2.120E 01 3.191E-02 6.569E 02 1.523E 2.052E 01 2.120E 01 3.191E-02 6.570E 02 1.523E 2.35E 01 2.469E 01 2.466E-02 1.606E 03 1.469E 2.35E 01 2.469E 01 2.469E 03 2.541E-02 9.715E 02 1.560E 2.36E 01 2.469E 01 2.531E-02 9.715E 02 1.560E 2.424E 01 2.469E 01 3.516E-02 7.675E 02 1.521E 0./A 0/AP H DEL TF VS 2.740E 01 2.866E 01 2.293E-02 1.550E 03 1.462E 0.4 2.740E 01 2.866E 01 0. 0. 0. 1.520E 0. 2.866E 01 0. 0. 0. 0. 1.550E | 3.000€ | 3.000€ | | | | | | | | |
| A POINT 6 2.052E 01 2.128E 01 3.091E-02 6.685E 02 1.495E 2.052E 01 2.128E 01 3.091E-02 6.685E 02 1.509E 2.052E 01 2.128E 01 3.135E-02 6.578E 02 1.509E 2.052E 01 2.128E 01 3.235E-02 6.578E 02 1.523E 2.378E 01 2.469E 01 2.446E-02 1.008E 03 1.489E 2.378E 01 2.469E 01 2.446E-02 1.008E 03 1.489E 2.424E 01 2.469E 01 3.216E-02 7.075E 02 1.521E A POINT 8 A POINT 8 A POINT 8 | | 01 J.000F | | | | | | | | |
| A POINT 6 A POINT 7 A POINT 6 A POINT 6 A POINT 6 A POINT 6 A POINT 7 A POINT 6 A POINT 7 A POINT 6 A POINT 7 A POINT 7 A POINT 7 A POINT 6 A POINT 7 A POINT 6 A POINT 7 A POINT 6 A POINT 7 A POINT 8 A POINT 7 A POINT 8 | | | | | | | | | | |
| A POINT A DIAP H DEL TF VS 2.052E 01 2.129E 01 3.091E-02 6.865E 02 1.509E 2.052E 01 2.129E 01 3.091E-02 6.669E 02 1.509E 2.052E 01 2.129E 01 3.235E-02 6.579E 02 1.509E 2.376E 01 2.469E 01 2.449E-02 1.006E 03 1.489E 2.376E 01 2.469E 01 2.551E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.521E A POINT 8 U/AP H DEL TF VS 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.482E 00 2.740E 01 2.866E 01 0.000 0.000 1.550E | | | | | DATA | | | | | |
| 2.053E 01 2.126E 01 3.091E-02 6.865E 02 1.405E 2.052E 01 2.126E 01 3.191E-02 6.669E 02 1.509E 2.052E 01 2.126E 01 3.191E-02 6.669E 02 1.509E 2.376E 01 2.469E 01 2.446E-02 1.006E 03 1.469E 2.381E 01 2.469E 01 2.541E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.521E A POINT 8 U/AP H DEL TF VS 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.482E 00 0. 2.866E 01 0. 00 0. 1.500E | | | | | 1.1 | 4/0 | 9/46 | 1 | 1 | 3 |
| A POINT 7 A POINT 7 A POINT 7 A POINT 7 A POINT 8 A DEL TF VS A POINT 8 50 | 02 1.522E 03 | 50 | 8 | 00E 02 | 2.053E 01 | | 3.091E-02 | 6.885E 02 | |
| A POINT 7 2.376E 01 2.469E 01 2.449E-02 1.006E 03 1.469E 2.381E 01 2.469E 01 2.541E-02 9.715E 02 1.506E 2.424E 01 2.466E 01 3.216E-02 7.675E 02 1.521E A POINT 8 0.4 U/AP H DEL TF VS 2.740E 01 2.666E 01 2.293E-02 1.550E 03 1.482E 00 0. 2.666E 01 0. 0. 1.500E | 03 1.445E 02 1.523E 03 | 1.5236 03 | , e | 9.6 | 53E 02 | 2.054E 01 | | 3.191E-02 | | |
| A POINT 7 2.376E 01 2.469E 01 2.446E-02 1.006E 03 1.469E 2.361E 01 2.469E 01 2.541E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.521E A POINT 8 2.740E 01 2.866E 01 2.295E-02 1.250E 03 1.462E 0. 2.666E 01 0. 0. 0. 1.50E | L/O DELIA F 1 F | u | 4 | | | | | | 20.20.0 | |
| A POINT 7 2.376E 01 2.469E 01 2.446E-02 1.006E 03 1.489E 2.381E 01 2.469E 01 2.541E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.521E A POINT 8 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.482E 0. 2.666E 01 0. 0. 0. 1.520E | 00 1.889E 01 3.0 | 01 3.000E | | | | | | | | |
| A POINT 7 2.376E 01 2.469E 01 2.446E-02 1.608E 03 1.489E 2.381E 01 2.469E 01 2.541E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.521E A POINT 8 2.740E 01 2.866E 01 2.295E-02 1.250E 03 1.482E 0. 2.666E 01 0. 0. 0. 1.501E | 1.24df 01 1.509E 01 3.000E 00 1.962E 01 1.409E 01 3.006E 00 | 01 3.000E | | | | | | | | |
| A POINT 7 A POINT 7 2.376E 01 2.469E 01 2.448E-02 1.008E 03 1.489E 2.381E 01 2.469E 01 2.541E-02 9.715E 02 1.508E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.521E A POINT 8 A POINT 8 2.740E 01 2.866E 01 0.009E 01 1.550E 03 1.482E 0.2.740E 01 2.866E 01 0.00 0.1.550E 1.520E | | | | | | | | | | |
| 2.376E 01 2.469E 01 2.446E-02 1.006E 03 1.469E 2.361E 01 2.469E 01 2.541E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.521E A POINT B 2.740E 01 2.866E 01 0.00 0.1.550E 03 1.482E 0.2.666E 01 0.00 0.1.550E 1.520E | | | | | DATA | | | | | |
| 2.376E 01 2.469E 01 2.446E-02 1.006E 03 1.499E 2.361E 01 2.469E 01 2.541E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.506E 1.501E 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0 | at Ht | | = | | - | 4/0 | 9470 | 1 | | • |
| 2.381E 01 2.469E 01 2.541E-02 9.715E 02 1.506E 2.424E 01 2.469E 01 3.216E-02 7.675E 02 1.521E A POINT B 0/A U/AP H DEL TF VS 2.740E 01 2.864E 01 2.293E-02 1.250E 03 1.482E 0. 2.664E 01 0. 0. 1.501E | 03 | 1.6612 03 | 03 | = | 22F 03 | 2.3786 01 | | 2.448E-02 | 1.000€ 03 | |
| A POINT B O/A U/AP H DEL TF VS 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.482E 0. 2.666E 01 0. 0. 1.501E 0. 2.666E 01 0. 0. 1.520E | 03 1+509E 02 1+730E 03 | 02 1.730E 03 | 03 | | 14E 02 | 2.424E 01 | | 2.541E-02 3.216E-02 | | |
| A POINT B 0/A U/AP H DEL TF VS 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.462E 0. 2.866E 01 0. 0. 1.520E | L/D DELTA F LE | 'n. | 4 | | | | | | | |
| A POINT B 0/A U/AP H DEL TF VS 2.740E 01 2.866E 01 0. 0. 0. 1.520E 0. 2.866E 01 0. 0. 0. 1.520E | 00 1.994E 01 3.000E | 01 3.000£ | | | | | | | | |
| A POINT 8 0/A U/AP H DEL TF VS 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.482E 0. 2.866E 01 0. 0. 1.520E 0. 1.520E | 1.962E 01 1.994E 01 3.000E 00 | 01 3.000E | | | | | | | | |
| A POINT 6 0/A U/AP H DEL TF VS 2.740E 01 2.866E 01 0. 0. 1.550E 0. 2.866E 01 0. 0. 1.520E | | | | | | | | | | |
| 0/A U/AP H DEL TF VS 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.482E 0. 2.866E 01 0. 0. 1.501E 0. 2.866E 01 0. 0. 1.520E | | | | | DATA | | | | | |
| 2.740E 01 2.866E 01 2.293E-02 1.250E 03 1.402E 0. 2.866E 01 0. 0. 1.501E 0. 2.866E 01 0. 0. 1.501E | PB 10 11 | | 4 | | : | 4/6 | 94/0 | 1 | | ; |
| 0. 2.866E 01 0. 0. 1.520E 03 1.482E 0. 0. 2.866E 01 0. 0. 1.520E 0. 1.520E | 33 | 2.180£ 03 | | 1 . 36 | SF OF | 2-740E 01 | 2 2000 | | DEL TF | |
| 2.866E 01 0. 0. 1.520E | 1.471E 02 0. | 02 0. | | | | 0. | 2. 044E 01 | 2.293E-02 | 1.250E 03 | |
| | 1.584E 02 0. | 05 00 | | | | : 6 | | • | • • | |
| | L/0 DELTA E LE | 4 | 1 | | | | | | | |
| | 1-248E G1 2-162E G1 3-000E 00 | 3.000E | | | | | | | | |

Page 134

Report AFRPL-TR-67-208, Appendix C

50000000

IQUID SIDE HEAT TRANSFER TEST DA

| | | | | | | ì |
|--|--|--|--|--|--|---|
| | | | | | | į |
| | | | | | | į |
| | | | | | | ł |
| | | | | | | Į |
| | | | | | | |
| | | | | | | |
| | | | | | | ١ |
| | | | | | | ١ |
| | | | | | | ľ |
| | | | | | | į |
| | | | | | | ı |
| | | | | | | |
| | | | | | | i |
| | | | | | | ١ |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | i i | 3 | 0.102E-03 | _ | 6 # | 0.1146-01 | F-01 | | 0.200€ 01 | | DELTA TO | | 0-120E 01 | | |
|-------|-----------|-------------|-----------------|-----|-----------|-----------|--------------------------------------|-------------|-----------|--------------|----------|-----------|--------------|-------------|--------|
| | | | | | | | DATA | DATA PCINTS | | | | | | | |
| PCINT | | PB-IN | | _ : | TB-11 | z | 18-001 | | | | | 2 | 8 | HT BAL | y |
| | | מיים שיים ב | a sender on | 5 | 2.702E 02 | 0.5 | | | | | | | \$ 5.580E-01 | 1 3.306E 02 | 2.805E |
| • | | 3-033E 03 | | 3 6 | 2.097 | | | | | | | | 1.476 | | 2.786E |
| • | 3.031 | | | 3 6 | 2.4906 | | 311110 | | | | - | | 2.65BE | 4.789E | 2-7E6E |
| • | 3.029E | | | 3 6 | 20000 | | | 10-3040E-01 | | | , | | 3.5836 | 3.5156 | 2.176€ |
| • | 3.0286 | | | 03 | 2.703E | | | | | 0.020 | 000 | | 5.208E | 2.5146 | 2.776E |
| ^ | 2.026E | | | 03 | 2.715 | | | | | | | 1.0795 03 | 8.00 E 00 | 10 3962 01 | 2.766E |
| • | 3.025 | 25F 03 | 3 3.023E | 60 | 2.719€ | 0.5 | | | | | | 1-151E 03 | 9.515E | 1.8616 | 2.737E |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | TEST | TEST SECTION - LOCAL TEST PARAMETERS | LOCAL TES | T PARAME | FTERS | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | CATA | DATA POINT | - | | | | | | |
| i | | | | | | | | | | | | | | | |
| 418 | 9.03 | 9 4 | 76 2 4846 02 | | Te | , | 11 | ٧/٥ | | G/4P | | I | DEL TF | SA | |
| ۰ ~ | 3.03eE 03 | 3 5 | 2.659E 02 | | 3.300E 02 | v ~ | 2.9518 02 | 6.693E-01 | | 6.481E-01 | 2.3 | 2.333E-02 | 2.778E 01 | 5.726E 01 | |
| | | | | | | | | | | | | ; | 10 7076 | | |
| STA. | | 1 | | | - | | | | | | | | | | |
| | 200745 00 | 3 : | 1.600E GG | | | | | | | | | | | | |
| V | 1.277E | | 1 - 800E 00 | | Z-000E 0 | 00 | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | DATA | DATA POINT | ~ | | | | , | | |
| STA | 9 | 60 | 4 | | = | | 11 | 4/0 | • | 9470 | | 1 | 190 | • | |
| - | 3.035E 03 | 50 | 2.7056 02 | | 4.580E 02 | ~ | 3.700E 02 | 1.771E 00 | | 4€ 00 | 1.72 | 1.7236-02 | 9.949E 01 | 5-6956 01 | |
| ~ | 3.034E 03 | 03 | 2.715E 02 | | 4-590E 02 | N. | 3.711E 02 | 1.771E 00 | | 1.714E 00 | 1.72 | 1-723E-02 | 9.952E 01 | 5.699E 01 | |
| STA | 2/1 | | DELTA E | | F | | | | | | | | | | |
| - | 5.474E 00 | 00 | | | | 0 | | | | | | | | | |
| ~ | 1.277E | 5 | 3.000E 00 | | 2.000E 00 | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | DATA | DATA PUINT | | | | | | | |
| STA | 9 | 80 | 16 | | 2 | | TI | 4/6 | u | C/AP | | | 761 76 | * | |
| - | 3.033E 03 | 03 | 2.722E 02 | | 6.050E 02 | | 4.551F 02 | 3.188E 0 | | 3.088E 00 | 1.68 | 1-644F-02 | 1.828F 02 | 4.7026 01 | |
| 7 | 3.032E 03 | 03 | 2.761E 02 | | 6.050E 02 | | 4.551E 02 | 3-186F 00 | | 3.00ME 00 | 1.72 | 1.725E-02 | 1.7906 02 | 5.717E 01 | |
| A 1 2 | 3/1 | | OFL TA F | | 4 | | | | | | | | | | |
| - | 9 | 00 | 4.130E CO | | 2.000E 00 | | | | | | | | | | |
| • | | | | | - | | | | | | | | | | |

4-130E CO

| 7.190E 02 5.263E 02 7.210E 02 5.266E 02 |
|---|
| 2.000E 00 2.000E 00 DATA POINT |
| Tb T1 9.200E 02 6.595E 02 9.180E 02 6.571E 02 |
| 2.000E 00 |
| DATA POINT |
| Th 1.217E 03 9.153E 02 1.26ME 03 9.750E 02 |
| 2.000E 00 |
| DATA POINT |
| 1.412E 03 1.068E 03 |
| 2.000E 00 2.000E 00 |
| DATA POINT |
| Te TI 1.672E 03 1.297E 03 1.744E 03 1.360E 03 |
| 2.000E 00 |

Page 136

Report AFRPL-TR-67-208, Appendix C

LIQUID SIDE HEAT

DP12-13 101 18-001 2.1006-01 2.1006 00 5.200 00 7.600 00 1.2400 01 2.4700 01 2.4700 01 3.8500 01 4.4700 01

TEST SECTION - LUCAL TEST PARAMETERS
HT-9-111.nd FAILURE.TRANS HOT SPOTS VISIBLE DP7.8-9.ALL HOT DP12-13

| 5-18-3E 02 -3-517E 00 9-100E 01 5-886E 01 5-18-3E 02 -7-612E-01 5-50E 01 6-295E 01 L/U | ## 1.50 |
|--|--|
| TELTA F LE 1.610E 00 1.500E 00 1.810E CO 1.5C0E 00 1.100E 00 2.250E 02 1.100E 00 2.250E 02 2.570E 00 1.5C0E 00 4.530E 00 4.510E 02 3.633E 00 4.530E 02 4.530E 00 1.500E 00 | TB T |
| The Two | 1.610E 00 1.500E 00 1.810E 00 1.500E 00 1.810E 00 2.250E 02 1.515E 1.100E 00 2.250E 02 1.734E DLLTA F LL 2.570E 00 1.500E 00 2.570E 00 1.500E 00 3.635E 00 4.510E 02 3.436E DELTA E LE 4.530E 00 1.500E 00 4.530E 00 1.500E 00 |
| The | The |
| The | TB TW 1-2.90E 00 2.290E 02 1.519E 1.100E 00 2.490E 02 1.519E 2.970E 00 1.500E 00 2.970E 00 1.500E 00 2.970E 00 4.510E 02 3.430E DELTA E LE 4.530E 00 4.890E 02 3.430E 6.530E 00 1.500E 00 4.530E 00 1.500E 00 |
| -2.990E 00 2.250E 02 1.519E DLIA F 2.570E 00 1.500E 00 2.570F 00 1.500E 00 2.570F 00 1.500E 00 3.693E 00 4.510E 02 3.400E 3.693E 00 4.500E 00 4.530E 00 1.500E 00 4.530E 00 1.500E 00 | THOSE 00 2.250E 02 1.519E DLIA F 2.570E 00 1.500E 00 2.570E 00 1.500E 00 2.570E 00 1.500E 00 3.503E 00 4.510E 02 3.430E DELIA E 4.530E 00 1.500E 00 4.530E 00 1.500E 00 4.530E 00 1.500E 00 |
| 2.570E 00 1.5C0E 00 2.570E 00 1.5C0E 00 2.570E 00 1.5C0E 00 3.633E 00 4.510E 02 3.436E DELTA E LE 4.530E C0 1.5C0E 00 4.530E C0 1.5C0E 00 | 2.570E 00 1.5C0E 30 2.570E 00 1.5C0E 30 2.570E 00 1.5C0E 00 3.603E 00 4.510E 02 3.430E DELTA E LE 4.530E C0 1.5C0E 30 4.530E C0 1.500E 00 |
| DELTA F LE 2.970E 00 1.5C0E 00 2.970E 00 1.5C0E 00 2.970E 00 1.5C0E 00 3.603E 00 4.510E 02 3.430E DELTA E LE 4.530E C0 1.5C0E 00 4.530E C0 1.5C0E 00 | DELIA F LE 2-970E 00 1-500E 30 2-970E 00 1-500E 00 3-93E 00 4-510E 02 3-430E DELIA E LE 4-530E 00 1-500E 00 4-530E 00 1-500E 00 |
| 2.570F 00 1.5C0E 00 DATA P TB TB TB TB TB TB TB TB TB T | 2.570F 00 1.5C0E 00 CATA P TB TB T1 -2.383E 00 4.510E 02 3.606E 02 3.683E 00 4.890E 02 3.436E 02 DELTA E 4.530E C0 1.500E 00 4.530E C0 1.500E 00 |
| The Telephone Te | DATA P Ta -2.383E 00 4.510E 02 3.000E 02 3.635E 00 4.890E 02 3.430E 02 DELTA E LE 4.530E C0 1.500E 00 |
| TB TB TI TI TI TE TI TE TI TE | TB TB T1 -2.383E 00 4.510E 02 3.000E 02 3.683E 00 4.890E 02 3.430E 02 DELTA E LE 4.530E CO 1.500E 00 |
| -2.383E 00 4.510E 02 3.683E 00 4.840E 02 DELTA E LE 4.530E CO 1.50E 30 4.530E CO 1.500E 00 | -2.383E 00 4.510E 02 3.000E 02 3.633E 02 3.635E 02 DELTA E LE 4.530E CO 1.500E 00 |
| DELTA E LE 4-530E CO 1.5COE 4,530E CO 1.5GOE | DELTA E LE 4.530E CO 1.5COE 4.530E CO 1.5COE |
| 4.530E CO 1.5COE | 4.530E CO 1.500E |
| | |
| CATA POINT | |
| T T T T T T T T T T T T T T T T T T T | IT 8T TO STORY OF SPECIAL |
| T6 Te T | T6 T1 |
| Te Te Ti | 3 T6 Ta T1 02 -2.033E 00 6.2C0E 02 4.216E 02 02 5.633E 00 6.ES0E 02 4.670E 02 DFLTA E LE |

TEST SECTION - LOCAL TEST PARAMETERS

HT-9-111 .ND FAILURE.TRANS HOT SPOTS VISIBLE OPT.8-9-ALL HOT DP12-1

| 1 5.1706 62 | 5.1706 02 -1.2076 00 7.5904 02 4.6026 02 9.6946 09 9.7336 09 5.1706 02 7.6174 E LE 1.4122 00 7.0306 00 1.5006 00 6.0622 00 7.0306 00 1.5006 00 6.0622 00 7.0306 00 1.5006 00 6.0622 00 7.0306 00 1.5006 00 6.0622 00 7.0306 00 1.5006 00 6.0623 00 7.0306 00 1.5006 00 6.0624 00 7.0306 00 1.5006 00 6.0625 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 6.0606 00 1.5006 00 6.0626 00 1.5006 00 6.0 | 5.1706 02 -1.2076 00 7.5904 02 4.6028 02 9.6996 09 9.7336 09 5.0706 02 5.6077 6 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0624 00 7.0304 00 1.506 00 6.0626 02 6.0906 00 1.506 00 6.0626 03 6.0906 00 1.506 00 6.0626 03 6.0906 00 1.506 00 6.0626 03 6.0906 00 1.506 00 6.0626 03 6.0906 00 1.506 00 6.0626 03 6.0906 00 1.506 00 6.0626 00 1.506 00 1.506 00 6.0626 00 1.0064 03 6.3394 02 1.7936 01 1.8406 01 6.0626 00 1.0036 01 1.506 00 6.0627 02 7.0336 01 1.0036 01 1.5006 01 6.0626 00 1.0036 01 1.5006 00 6.0626 00 1.0036 01 1.5006 00 6.0627 02 7.0336 01 1.0036 01 1.5006 01 6.0628 00 1.0036 01 1.5006 00 6.0628 00 1.0036 01 1.5006 00 6.0629 00 1.0036 01 1.5006 00 6.0629 00 1.0036 01 1.5006 00 | 1.10 6 62 1.12876 00 7.5504 02 4.687E 02 9.699E 00 9.733E 00 6.0002 02 1.500F 00 1.500 | 1.106 62 -1.2076 00 7.590L 02 4.602E 02 9.699E 00 9.733E 00 6.002E 00 7.700E 02 1.500F 00 1.207E 02 1.207E 01 1.253E 01 1.250F 01 1.250F 01 1.253E 01 1.250F |
|--|--|--|--|--|
| 1.75 DELTA E LE 1.612E 00 7.030E 00 1.560E 00 6.062E 00 7.030E 00 1.500E 00 5.052E 02 -6.157E-01 9.060E 02 5.527E 02 1.226E 01 5.072E 02 1.297E 01 6.960E 02 5.400E 02 1.230E 01 L/C DELTA L LE 1.612E 00 8.090E 00 1.500E 00 6.062E 03 0.060E 00 1.500E 00 7.030E 00 1.500E 00 7.030E 01 0.000E 02 0.000E 01 7.030E 01 0.000E 03 5.791E 02 1.496E 01 5.027E 02 1.040E 01 9.290E 02 4.852E 02 1.532E 01 | 1.05 DELTA E LE 1.012E 00 7.030E 00 1.500E 00 0.002E 00 7.030E 00 1.500E 00 5.156E 02 -6.157E-01 9.060E 02 5.527E 02 1.226E 01 5.156E 02 -6.157E-01 9.060E 02 5.527E 02 1.230E 01 1.012E 00 0.090E 00 1.500E 00 5.027E 02 1.297E 02 1.296E 01 5.1346 02 -3.815E-06 1.500E 00 5.027E 02 1.060E 01 1.500E 00 6.027E 02 1.060E 01 1.500E 00 6.027E 02 1.060E 01 1.500E 00 6.027E 02 1.090E 01 1.500E 00 6.027E 00 1.000E 01 1.500E 01 1.500E 01 1.000E 01 1.000E 01 1.500E 00 | 1.15 DELTA E LE 1.012E 00 7.030E 00 1.500E 00 0.002E 00 7.030E 00 1.500E 00 2.150E 02 1.202E 01 2.150E 02 -6.137E-01 2.150E 02 1.202E 01 2.072E 03 1.203E 01 2.072E 03 1.2 | 1.4 C | 1.612E 00 7.030E 00 1.550E 00 6.062E 00 7.030E 00 1.550E 00 5.156E 02 -6.157E-01 9.060E 02 5.527E 02 1.226E 01 1.612E 02 6.080E 00 1.500E 02 5.400E 02 1.230E 01 1.612E 00 6.080E 00 1.500E 00 6.062E 02 6.080E 00 1.500E 00 5.133E 02 -3.815E-06 1.000E 03 5.791E 02 1.490E 01 1.612E 00 6.080E 01 1.500E 00 6.062E 02 1.530E 01 1.612E 00 6.080E 00 1.500E 02 4.652E 02 1.532E 01 1.612E 00 7.030E 00 1.500E 00 6.062E 02 1.530E 01 1.612E 00 7.030E 00 1.500E 00 6.062E 00 1.500E 00 6.062E 00 1.500E 00 1.500E 00 6.062E 00 1.500E 00 1.500E 00 6.062E 00 1.000E 01 1.500E 00 6.062E 00 1.000E 01 1.500E 00 6.062E 00 1.000E 01 1.500E 00 6.063E 00 1.000E 01 1.500E 00 6.064E 00 1.000E 01 1.500E 00 6.065E 00 1.000E 01 1.500E 00 6.064E 00 1.000E 01 1.000E 02 2.117E 01 6.065E 00 1.050E 00 1.264E 00 7.000E 02 2.117E 01 6.065E 00 1.000E 01 1.150E 01 1.150E 01 2.117E 01 6.065E 00 1.000E 00 1.000E 02 2.117E 01 6.065E 00 1.000E 00 1.000E 02 2.117E 01 6.065E 00 1.000E 01 1.150E 01 1. |
| ### TH | ### PB | DATA POINT 7 PH TH TH TW 5.156E 02 -6.137E-01 9.060E 02 5.527E 02 1.226E 01 1.612E 00 8.090E 00 1.500E 00 8.062E 02 6.00E 0 1.500E 00 8.062E 03 6.00E 00 1.500E 00 8.062E 03 6.00E 01 1.500E 01 1.612E 00 6.003E 01 1.500E 00 8.006E 01 1.500E 01 1.500E 00 8.006E 01 1.003E 01 1.500E 00 8.006E 01 1.003E 01 1.500E 00 | ### 1.500E 00 1.500E 00 1.500E 00 **COMPANY THE | Pub |
| 5.156E 02 -6.157E-01 9.000E 02 5.527E 02 1.226E 01 5.072E 02 1.296E 01 2.906E 02 5.400E 02 1.226E 01 1.612E 00 8.080E 00 1.500E 00 1.500 | DATA POINT 7 5.156E 02 -6.157E-01 9.000E 02 5.527E 02 1.226E 01 1.072E 02 1.297E 01 2.900E 02 5.400E 02 1.230E 01 1.012E 00 8.090E 00 1.500E 00 2.062E 03 1.496E 01 2.062E 04 8.090E 04 1.500E 00 2.062E 05 1.496E 01 2.062E 06 1.496E 01 2.062E 07 1.496E 01 2.062E 08 1.500E 00 2.062E 09 1.500E 00 2.062E 00 1.500E 00 3.064E 00 1.500E 00 3 | 5.156E 02 -6.157E-01 9.000E 02 5.527E 02 1.226E 01 2.072E 02 1.296E 01 E.960E 02 5.400E 02 1.230E 01 1.612E 00 6.000E 00 1.500E 00 1.500 | DATA POINT 7 5.156E 02 -6.157E-01 9.000E 02 5.527E 02 1.226E 01 L/C 0ELTA L LE 1.612E 00 8.000E 00 1.500E 00 2.022E 02 1.236E 01 L/C 0ELTA L LE 5.123E 02 1.236E 01 L/C 0ELTA L LE 5.123E 02 1.236E 01 1.502E 02 1.530E 01 1.502E 02 1.530E 01 1.502E 03 5.237E 02 1.732E 01 1.612E 00 5.030E 00 1.500E 00 6.042 00 5.030E 01 1.500E 00 1.502E 01 1.500E 00 1.502E 01 1.500E 00 1.502E 01 1.500E 00 DATA POINT 9 DATA POINT 10 DATA POINT 10 DATA POINT 10 DATA POINT 10 | 5.156E 02 -6.157E-01 9.060E 02 5.527E 02 1.226E 01 L/C |
| 5.156E 02 -6.157E-01 9.060E 02 5.527E 02 1.226E 01 5.72E 02 1.296E 01 2.72E 02 1.230E 01 1.230E 01 1.230E 01 1.230E 01 1.230E 01 1.230E 01 1.230E 00 1.20E 0 | 5.156E 02 -6.137E-01 9.060E 02 5.527E 02 1.226E 01 5.072E 02 1.292E 01 2.900E 02 5.527E 02 1.230E 01 1.612E 00 8.080E 00 1.500E 00 5.062E 03 8.080E 00 1.500E 00 5.062E 03 8.080E 00 1.500E 00 5.027E 02 1.590E 01 1.500E 02 4.852E 02 1.596E 01 1.612E 00 9.030E 00 1.500E 00 6.062E 03 1.590E 01 1.500E 00 6.062E 03 1.590E 01 1.500E 00 6.062E 03 1.590E 01 1.500E 00 6.062E 00 1.500E 01 1.500 | 5.156E 02 -6.137E-01 9.060E 02 5.527E 02 1.226E 01 5.07E 02 1.297E 01 2.900E 02 5.527E 02 1.230E 01 L/C DfLTA L LE 1.612E 00 8.090E 00 1.500E 00 6.062E 03 6.090E 00 1.500E 00 6.062E 03 6.090E 00 1.500E 00 6.062E 03 6.090E 00 1.500E 00 6.062E 04 6.090E 07 1.500E 00 6.062E 05 1.090E 01 1.500E 00 6.062E 07 1.090E 01 1.500E 00 6.062E 00 1.003E 01 1.500E 00 6.062E 00 1.003E 01 1.500E 00 6.062E 00 1.003E 01 1.500E 00 | 5.156E 02 -6.137E-01 9.060E 02 5.527E 02 1.226E 01 2.072E 02 1.297E 01 2.900E 02 5.400E 02 1.230E 01 1.612E 00 8.090E 00 1.500E 00 6.062E 03 8.090E 00 1.500E 00 6.062E 03 8.090E 00 1.500E 03 5.791E 02 1.996E 01 5.027E 02 1.090E 01 1.500E 00 6.062E 03 6.090E 00 1.500E 00 6.062E 03 6.090E 00 1.500E 00 6.062E 04 6.090E 04 1.500E 00 6.062E 05 1.090E 01 1.500E 00 6.062E 00 1.002E 01 1.500E 00 6.062E 00 1.500E 00 1.500E 00 2.117E 01 6.07A | 5.156E 02 -6.157E-01 9.060E 02 5.527E 02 1.226E 01 L/C |
| 5.1566 02 -6.1376-01 9.0606 02 5.5276 02 1.2266 01 5.0726 02 1.2926 01 2.9006 02 5.4006 02 1.2266 01 L/C OFLTA L LE 1.6126 00 8.0806 00 1.5006 00 8.0626 02 6.0806 00 1.5006 00 8.0626 02 0.0006 03 5.7916 02 1.4966 01 5.0276 02 1.0406 01 9.2906 02 4.8526 02 1.5326 01 | 5.156E 02 -6.137E-01 9.060E 02 5.527E 02 1.226E 01 5.072E 02 1.297E 01 2.900E 02 5.527E 02 1.226E 01 1.612E 00 8.090E 00 1.500E 00 6.062E 03 6.060E 00 1.500E 00 6.062E 03 6.060E 00 1.500E 00 6.062E 03 6.060E 00 1.500E 00 6.062E 04 6.060E 04 1.500E 05 6.062E 05 6.060E 06 1.500E 07 6.062E 06 1.500E 01 1.500E 07 6.062E 07 1.500E 01 1.500E 07 6.062E 08 1.500E 00 1.500E 07 6.062E 08 1.500E 00 1.500E 07 6.062E 00 1.500E 01 1.500E 07 6.062E 00 1.002E 01 1.003E 01 1.500E 00 6.062E 00 1.002E 01 1.500E 00 6.062E 00 1.002E 01 1.500E 00 | 5.156E 02 -6.137E-01 9.060E 02 5.527E 02 1.226E 01 5.072E 02 1.292E 01 2.900E 02 5.527E 02 1.226E 01 1.612E 00 6.090E 00 1.500E 00 5.062E 03 6.090E 00 1.500E 00 5.062E 03 6.090E 00 1.500E 00 5.027E 02 3.815F-06 1.000E 03 5.791E 02 1.496E 01 5.027E 02 1.640E 01 9.290E 02 1.532E 01 1.612E 00 5.030E 00 1.500E 00 6.062E 00 5.030E 00 1.500E 00 6.062E 00 1.500E 00 1.500E 00 6.062E 00 1.503E 01 1.22E 03 6.339E 02 1.793E 01 1.612E 00 1.003E 01 1.500E 00 6.012E 00 1.003E 01 1.500E 00 6.012E 00 1.003E 01 1.500E 00 6.012E 00 1.003E 01 1.500E 00 | 5.156E 02 -6.137E-01 9.060E 02 5.527E 02 1.226E 01 5.072E 02 1.292E 01 2.900E 02 5.527E 02 1.226E 01 1.612E 00 6.090E 00 1.500E 00 5.062E 03 6.090E 00 1.500E 00 5.062E 03 6.090E 00 1.500E 00 5.027E 02 0.3.815E-06 1.000E 03 5.791E 02 1.496E 01 5.027E 02 0.200E 00 1.500E 00 6.000E 00 6.090E 00 1.500E 00 6.000E 00 6.090E 00 1.500E 00 6.000E 00 6.090E 00 1.500E 00 6.000E 00 1.500E 00 6.0 | 5.156E 02 -6.157E-01 9.000E 02 5.527E 02 1.226E 01 1.412E 00 6.030E 00 1.500E 00 1.500E 00 1.500E 01 2.042E 00 6.030E 00 1.500E 00 0.485E 02 1.230E 01 2.042E 00 6.030E 00 1.500E 00 0.485E 02 1.430E 01 2.042E 00 9.030E 00 1.500E 00 4.852E 02 1.430E 01 1.412E 00 6.030E 00 1.500E 00 0.4852E 02 1.430E 01 2.042E 00 9.030E 00 1.500E 00 0.500E 00 1.500E 00 2.042E 00 9.030E 00 1.500E 00 0.500E 00 1.500E 00 2.042E 00 1.500E 01 1.500E 00 0.500E |
| 5.156E 02 -6.157E-01 9.060E 02 5.527E 02 1.226E 01 5.072E 02 1.297E 01 2.900E 32 5.400E 02 1.230E 01 L/C | 5.156E 02 -6.157E-01 9.060E 02 5.527E 02 1.226E 01 5.072E 02 1.297E 01 2.900E 02 5.400E 02 1.230E 01 L/G | 5.156E 02 -6.137E-01 9.060E 02 5.527E 02 1.226E 01 2.072E 02 1.297E 01 2.900E 02 5.400E 02 1.230E 01 1.612E 00 6.080E 00 1.500E 00 5.062E 03 6.080E 00 1.500E 00 5.027E 02 0.3415F-06 1.000E 03 5.791E 02 1.496E 01 5.027E 02 1.640E 01 9.290E 02 4.852E 02 1.532E 01 1.000E 0.000E 01 1.500E 00 6.020E 00 9.030E 00 1.500E 00 6.020E 00 9.030E 00 1.500E 00 6.020E 00 1.500E 00 1.500E 00 6.020E 00 1.500E 01 1.500E 00 6.020E 00 1.003E 01 1.500E 00 6.020E 00 1.003E 01 1.500E 00 6.020E 00 1.003E 01 1.500E 00 | 5.1546 02 -6.1376-01 9.0606 02 5.5276 02 1.2266 01 L/C | 5.156E 02 -6.157E-01 9.000E 02 5.527E 02 1.226E 01 L/C DELTA L Letize 00 6.030E 00 1.500E 00 2.062E 03 6.030E 00 1.500E 00 2.062E 03 6.030E 00 1.500E 00 5.027E 02 1.640E 01 1.500E 03 5.791E 02 1.496E 01 5.027E 02 1.640E 01 9.290E 02 1.532E 01 L/C DELTA L Letize 00 5.030E 00 1.500E 00 2.027E 02 1.640E 01 1.500E 00 2.027E 02 1.692E 01 1.500E 00 2.027E 02 1.692E 01 1.500E 00 2.027E 00 1.602E 01 1.500E 00 2.027E 00 1.502E 01 1.500E 00 2.027E 00 1.502E 01 1.500E 00 2.027E 00 1.502E 01 1.500E 00 2.027E 02 1.550E 00 1.264E 03 7.000E 02 2.117E 01 2.07A 3.07A 3.07A 5.07SE 02 1.550E 00 1.264E 03 7.000E 02 2.117E 01 2.07A 3.07B 5.07SE 02 1.550E 00 1.264E 03 7.000E 02 2.117E 01 2.07A 3.07B 5.07SE 02 1.550E 00 1.264E 03 7.000E 02 2.117E 01 2.07A 3.07B 5.07SE 02 1.550E 00 1.264E 03 7.000E 02 2.117E 01 2.07A 3.07B 5.07SE 02 1.550E 00 1.264E 03 7.000E 02 2.117E 01 2.07B |
| L/C DELTA Ł LE 1.612E 00 6.090E 00 1.500E 00 6.062E 03 6.060E 00 1.500E 00 7.062E 03 6.060E 00 1.500E 00 8.062E 03 8.091E 02 1.496E 01 8.027E 02 1.640E 01 9.290E 02 4.852E 02 1.532E 01 | L/G DELTA E LE 1.612E 00 6.090E 00 1.500E 00 2.062E 03 6.080E 00 1.500E 00 2.062E 03 6.080E 00 1.500E 00 5.123E 02 -3.815E-06 1.000E 03 5.791E 02 1.496E 01 5.027E 02 1.640E 01 9.290E 02 4.852E 02 1.532E 01 L/C DLLTA E LE 1.612E 00 5.030E 00 1.500E 00 6.062E 00 5.030E 00 1.500E 00 8.062E 00 5.030E 00 1.500E 00 8.062E 00 5.030E 00 1.500E 00 1.600E 00 1.603E 01 1.045E 03 5.297E 02 1.836E 01 1.612E 00 1.003E 01 1.500E 00 6.062E 00 1.603E 01 1.500E 00 | L/G DELTA L LE 1.612E 00 6.080E 00 1.500E 00 2.062E 02 6.080E 00 1.500E 00 3.062E 02 6.080E 00 1.500E 00 5.123E 02 -3.815E-06 1.000E 03 5.791E 02 1.496E 01 L/C DELTA L LE 1.612E 00 5.030E 00 1.500E 00 8.062E 00 5.030E 00 1.500E 00 8.062E 00 5.030E 01 1.500E 00 1.500E 00 1.500E 01 1.500E 00 1.500E 01 1.500E 01 1.500E 00 6.062E 00 1.002E 01 1.500E 00 6.062E 00 1.002E 01 1.500E 00 6.062E 00 1.002E 01 1.500E 00 | L/G | 5.1246 00 6.0806 00 1.5006 00 6.0626 00 6.0806 00 1.5006 00 6.0626 00 6.0806 00 1.5006 00 5.1246 02 -3.4156-06 1.0006 03 5.7916 02 1.4966 01 5.1246 02 -3.4156-06 1.0006 03 5.7916 02 1.4966 01 6.0276 02 1.0406 01 1.5006 00 6.0276 02 0.3076 00 1.5006 00 6.0276 02 0.3076 01 1.5006 00 6.0276 02 1.0076 01 1.5006 00 6.0276 02 1.0076 01 1.5006 00 6.0276 02 1.0076 01 1.5006 00 6.0276 02 1.5506 01 1.5006 00 6.0276 02 1.5506 01 1.5006 00 6.0276 02 1.5506 01 1.5006 00 6.0276 02 1.5506 01 1.5006 01 1.5006 01 6.0276 02 1.5506 01 1.50 |
| 1.612E 00 8.080E 00 1.500E 00 8.062E 03 8.080E 00 1.500E 00 00 8.062E 03 8.080E 00 1.500E 00 00 8.062E 03 -3.815E-06 1.000E 03 5.791E 02 1.496E 01 5.027E 02 1.080E 01 9.290E 02 4.852E 02 1.532E 01 | 1.612E 00 8.080E 00 1.500E 00 2.062E 02 8.060E 00 1.500E 00 2.062E 02 8.060E 00 1.500E 00 3.135E 02 -3.415E-06 1.000E 03 5.791E 02 1.496E 01 3.027E 02 1.640E 01 9.290E 02 4.852E 02 1.532E 01 4.6 5.027E 02 1.640E 01 9.290E 02 4.852E 02 1.532E 01 4.6 5.027E 02 1.640E 01 1.500E 00 4.6 5.027E 02 1.532E 01 4.6 5.030E 00 1.500E 00 4.6 5.030E 01 1.500E 00 5.107 02 7.633E-01 1.122E 03 5.297E 02 1.793E 01 4.70 07.4 6 1.603E 01 1.045E 03 5.297E 02 1.836E 01 1.612E 00 1.003E 01 1.500E 00 | 5.1236 02 6.060 00 1.500 00 5.062E 03 6.060 00 1.500 00 5.1236 02 -3.815E-06 1.000 03 5.791E 02 1.496E 01 5.1236 02 -3.815E-06 1.000 03 5.791E 02 1.496E 01 5.027E 02 1.500 01 1.500 02 4.852E 02 1.532E 01 1.612E 00 5.030 00 1.500 00 6.062E 00 5.030 00 1.500 00 6.062E 00 5.030 01 1.500 00 6.062E 00 1.003E 01 1.500 00 6.062E 00 1.003E 01 1.500 00 6.062E 00 1.003E 01 1.500 00 | 1.612E 00 0.090E 00 1.500E 00 | 5-1216 00 6-0606 00 1.5006 00 5-0626 00 6-0606 00 1.5006 00 5-1236 02 -3.4156-06 1.0006 03 5.7916 02 1.4966 01 5-1236 02 -3.4156-06 1.0006 03 5.7916 02 1.4966 01 5-0276 02 1.5406 01 1.5006 00 4.6526 02 1.5326 01 1-6126 00 5-0306 00 1.5006 00 6-0626 00 5-0306 00 1.5006 00 6-0626 00 5-0306 01 1.5006 00 6-0626 00 1.0026 01 1.5006 00 6-0626 00 1.0026 01 1.5006 00 6-0626 00 1.0026 01 1.5006 00 6-0626 02 1.5506 00 1.2644 03 7.0006 02 2.1176 01 7-10 00-10 00-10 00 6-0626 02 1.5506 00 1.2644 03 7.0006 02 2.1176 01 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00-10 00-10 00 7-10 00- |
| 5.06.2E 03 6.6E0E 00 1.5COE 00 DATA PUINT 8 Pri Tb Tb 0.7AP 5.12.3E 02 -3.815E-06 1.0C0E 03 5.791E 02 1.596E 01 1.5541E 01 5.02.7E 02 1.540E 01 9.250E 02 4.85.2E 02 1.532E 01 1.5541E 01 | CATA PUINT 8 5.1236 02 -3.8156-06 1.0000 03 5.7916 02 1.4966 01 1.5416 01 5.0276 02 -3.8156-06 1.0000 03 5.7916 02 1.4966 01 1.5416 01 L/C | 5.1236 02 6.000 0 1.500 00 5.1236 02 -3.8156-06 1.0000 03 5.7916 02 1.4966 01 1.5416 01 5.0276 02 1.5406 01 9.2906 02 4.8526 02 1.5326 01 1.5416 01 L/C DELTA # LE 1.4126 00 5.0306 00 1.5006 00 6.0426 00 5.0306 00 1.5006 00 6.0426 00 5.0336-01 1.1226 03 5.2976 02 1.7936 01 1.8406 01 L/D DELTA # LE 1.470 DELTA # LE 1.470 DELTA # LE 1.5006 00 1.5006 00 6.0440 1.5006 00 6.0426 00 1.5006 00 6.0440 1.5006 00 6.0440 1.5006 00 | 5-1246 02 6-0606 00 1-5006 00 5-1240 | S-125E 03 8-020E 00 1-500E 00 S-123E 02 -3-815E-06 1.000E 03 5.791E 02 1.496E 01 1.541E 01 S-123E 02 -3-815E-06 1.000E 03 5.791E 02 1.496E 01 1.541E 01 L/C |
| DATA PUINT 8 Pii Tb Tb 0/A 0/AP 5-1236 02 -3.8156-06 1.0000 03 5.7916 02 1.4966 01 1.5416 01 5.0276 02 1.5406 01 9.2906 02 4.8526 02 1.5326 01 1.5416 01 | 5-12-36 02 -3-4156-06 1.0000 03 5.7916 02 1.4966 01 1.5416 01 5-02-76 02 1.6406 01 9.2004 03 5.7916 02 1.4966 01 1.5416 01 1-6126 00 5-0306 00 1.5006 00 6-04-26 00 5-0306 00 1.5006 00 6-04-26 00 5-0306 00 1.5006 00 6-04-26 00 5-0306 00 1.5006 00 6-04-26 00 1.5006 01 1.0456 03 5.2976 02 1.7936 01 1.8406 01 1-6126 00 1.0026 01 1.5006 00 6-04-26 01 1.0456 03 5.2976 02 1.8366 01 1.8406 01 1-6126 00 1.0026 01 1.5006 00 | 5-1236 02 -3-4156-06 1.0004 03 5.7916 02 1.4966 01 1.5416 01 5-0276 02 -3-4156-06 1.0004 03 5.7916 02 1.4966 01 1.5416 01 L/C | 5.1236 02 -3.4156-06 1.0006 03 5.7916 02 1.4966 01 1.5416 01 5.0276 02 -3.4156-06 1.0006 03 5.7916 02 1.4966 01 1.5416 01 L/C | 5-13-36 02 -3-815E-06 1.0004 03 5.791E 02 1.496E 01 1.541E 01 5.027E 02 -3-815E-06 1.0004 03 5.791E 02 1.496E 01 1.541E 01 1.541E 01 1.512E 02 1.532E 02 1.532E 01 1.541E 01 1.541E 01 1.541E 01 1.541E 01 1.541E 01 1.5541E |
| 5.1236 02 -3.415F-06 1.000k 03 5.791E 02 1.496E 01 1.541E 01 5.4027E 02 1.540E 01 9.250k 02 4.852E 02 1.532E 01 1.541E 01 | 5-1236 02 -3-8156-06 1.0000 03 5.7916 02 1.4966 01 1.5416 01 5-0276 02 1.6406 01 9.2906 02 4.8526 02 1.5326 01 1.5416 01 1.6126 00 5.0306 00 1.5006 00 8-0626 00 5.0306 00 1.5006 00 8-0626 00 5.0306 00 1.5006 00 8-0626 00 5.0306 00 1.5006 00 8-0626 00 1.5036 01 1.1226 03 5.2976 02 1.8366 01 1.8406 01 8-0626 00 1.0026 01 1.5006 00 8-0626 00 1.0026 01 1.5006 00 | 5.1236 02 -3.8156-06 1.0000 03 5.7916 02 1.4966 01 1.5416 01 5.0276 02 1.5026 01 1.5416 01 1.551 | 5-1236 02 -3-8156-06 1.0006 03 5.7916 02 1.4966 01 1.5416 01 5.0276 02 1.6006 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.5416 01 1.551 | 5.1346 02 -3.415E-06 1.000t 03 5.791E 02 1.496E 01 1.541E 01 5.027E 02 1.502E 02 1.532E 01 1.541E 01 1.551E 01 1.541E 01 1.551E 01 1.551 |
| 5.133E 02 -3.415E-06 1.000E 03 5.79IE 02 1.496E 01 1.54IE 01 5.027E 02 1.540E 01 9.20E 02 4.852E 02 1.532E 01 1.541E 01 | 5-133E 02 -3-815E-06 1.0000 03 5.791E 02 1.496E 01 1.541E 01 5-027E 02 1.640E 01 9.290E 02 4.652E 02 1.532E 01 1.541E 01 L/C DELTA t LE 1.612E 00 9.030E 00 1.500E 00 e.062E 00 9.030E 00 1.500E 00 DATA POINT 9 DATA POINT 9 L/D DELTA E LE 1.612E 00 1.602E 01 1.045E 03 5.297E 02 1.636E 01 1.640E 01 L/D DELTA E LE 1.612E 00 1.002E 01 1.500E 00 | 5-133E 02 -3-815E-06 1.0000 03 5.791E 02 1.496E 01 1.541E 01 5-027E 02 1.640E 01 9.200 02 4.652E 02 1.532E 01 1.541E 01 L/C | 5.133E 02 -3.415E-06 1.0000 03 5.791E 02 1.496E 01 1.541E 01 5.027E 02 1.640E 01 9.200 02 4.652E 02 1.532E 01 1.541E 01 1.612E 00 9.030E 00 1.500E 00 6.042E 00 9.030E 00 1.500E 00 7.033E-01 1.122E 03 6.339E 02 1.793E 01 1.840E 01 5.013E 02 1.692E 01 1.045E 03 5.297E 02 1.636E 01 1.640E 01 1.612E 00 1.002E 01 1.500E 00 6.042E 00 1.002E 01 1.550E 00 1.2644 03 7.090E 02 2.117E 01 2.175E 01 4.00 6.042E 00 1.002E 01 1.550E 00 1.2644 03 7.090E 02 2.117E 01 2.175E 01 4.00 6.042E 02 1.550E 00 1.2644 03 7.090E 02 2.117E 01 2.175E 01 4.00 6.044 6.045 6.045 6.045 6.046 | 5.133E 02 -3.815E-06 1.000t 03 5.791E 02 1.496E 01 1.541E 01 5.027E 02 1.640E 01 9.290E 02 4.652E 02 1.532E 01 1.541E 01 1.612E 00 5.030E 00 1.500E 00 6.042E 00 5.030E 00 1.500E 00 6.042E 00 5.030E 00 1.500E 00 6.042E 00 1.003E 01 1.045E 03 5.297E 02 1.793E 01 1.640E 01 1.612E 00 1.603E 01 1.500E 00 6.042E 00 1.003E 01 1.500E 00 6.042E 00 1.003E 01 1.500E 00 7 |
| 3.04/E UZ 1.54UE UI 9.29UE UZ 4.85ZE UZ 1.53ZE DI 1.54IE DI | L/C DELTA t LE 1.612E 00 9.030E 00 1.500E 00 6.042E 00 9.030E 00 1.500E 00 6.042E 00 9.030E 00 1.500E 00 8.04A 0/AP 5.107t 02 7.633E-01 1.122E 03 6.339E 02 1.836E 01 1.840E 01 L/D DELTA E LE 1.612E 00 1.003E 01 1.500E 00 6.04E 00 1.003E 01 1.500E 00 | L/C DELTA # LE DATA POINT 9 | L/C DELTA # LE DATA POINT 9 5.012F 02 1.532E 01 1.541E 01 1.550E 00 1.550E 00 1.550E 00 1.550E 00 1.550E 01 1.550E | L/C DELTA t LE DATA POINT 9 CALDA CONTENT 1.541E 01 1.541E 01 1.612E 00 5.030E 00 1.500E 00 0.500E 00 1.500E 00 0.500E 00 1.500E 00 0.500E 00 1.500E 00 0.500E 00 1.500E 00 1.50 |
| | L/C DELTA t LE 1.612E 00 9.030E 00 1.500E 00 8.042E 00 9.030E 00 1.500E 00 8.042E 00 9.030E 00 1.500E 00 5.107t 02 7.033E-01 1.122E 03 6.339E 02 1.793E 01 1.040E 01 L/D DELTA E LE 1.612E 00 1.003E 01 1.500E 00 6.002E 00 1.003E 01 1.500E 00 | L/C DELTA t LE 1.612E 00 5.030E 00 1.500E 00 0.042E 00 5.030E 00 1.500E 00 DATA POINT 9 1.040E 01 1.045E 03 1.045E 03 5.297E 02 1.793E 01 1.840E 01 L/D DELTA E LE 1.612E 00 1.003E 01 1.500E 00 6.012E 00 1.003E 01 1.500E 00 E.012E 00 1.003E 01 1.500E 00 | L/C DELTA t LE 1.612E 00 9.030E 00 1.5C0E 00 6.042E 00 9.030E 00 1.5C0E 00 DATA POINT 9 TH D/A D/ADE 01 5.013E 02 1.692E 01 1.045E 03 5.297E 02 1.836E 01 L/D DELTA E LE 1.612E 00 1.003E 01 1.5C0E 00 6.042E 00 1.003E 01 1.5C0E 00 Ph Th DATA POINT 10 DATA POINT 10 DATA POINT 10 1.640E 01 1.640E 0 | L/C 56LTA t LE 1.612E 00 5.030E 00 1.560E 06 8.042E 00 5.030E 00 1.560E 06 8.043E 00 1.560E 00 5.167 |
| | 5-1C7+ 32 7-C35C-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 5-013E 02 1-793E 01 1-840E 01 1-640E 01 1-641E 00 1-C3E 01 1-560E 00 E-012E 00 1-032E 01 1-550E 00 E-012E 00 1-032E 01 1-550E 00 | 5-11C7F U2 7-233E-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 5-313E 02 1-793E 01 1-840E 01 1-642E 00 1-603E 01 1-506E 00 1-603E 01 1-506E 00 1-603E 01 1-500E 00 1-603E 01 1-503E 01 1-503 | 5-11C7F U2 7-233E-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 5-013E 02 1-792E 01 1-045E 03 5-297E 02 1-793E 01 1-840E 01 1-641E 01 1-642E 01 1-652E 01 1-552E 01 1-552 | DATA POINT 9 10 |
| E-042E 00 5.630E 00 1.500E | 5.107 | 5-167 | 5-117F 02 7-233E-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 5-013E 02 1-592E 01 1-045E 03 5-297E 02 1-793E 01 1-840E 01 1-641E 01 1-642E 01 1-652E 00 1-602E 01 1-500E 00 1-602E 01 1-500E 00 1-502E 01 1-500E 00 1-502E 01 1-502E 01 1-560E 00 1-264E 03 7-090E 02 2-117E 01 2-175E 01 4-995E 02 2-175E 01 1-150E 03 5-513E 02 2-105E 01 2-175E 01 | 5-11C7F 02 7-633E-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 5-013E 02 1-594E 01 1-045E 03 5-297E 02 1-793E 01 1-840E 01 1-640E 01 1-642E 01 1-642 |
| E-06-2E 00 9-630E CO 1-5COE 0C | 5.107F W2 7.633E-01 1.122E 03 6.339E 02 1.793E 01 1.840E 01 5.013E 02 1.594E 01 1.840E 01 1.612E 02 1.622E 00 1.602E 01 1.500E W | 5-107F U2 7-633E-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 5-013E 02 1-794E 01 1-840E 01 5-013E 02 1-594E 01 1-045E 03 5-297E 02 1-836E 01 1-840E 01 L/D 0FLTA E LF 1-612E 00 1-604E 01 1-560E U0 E-042E 00 1-002E 01 1-560E U0 DATA POINT 10 | 5.117F U2 7.633E-01 1.122E 03 6.339F 02 1.793E 01 1.840E 01 5.013E 02 1.592E 01 1.045E 03 5.297E 02 1.836E 01 1.840E 01 L/D | 5-117F J2 7-233E-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 5-013E 02 1-592E 01 1-045E 03 5-297E 02 1-536E 01 1-840E 01 L/D |
| E-06-ZE 00 9-630E CO 1-5-COE OC C-06-ZE 00 9-6-COE OC C-06-ZE 00 9-6-COE OC C-06-ZE 00 9-6-ZE 00 9-7-ZE 00 9-6-ZE 00 9-7-ZE 00 | 5-0136 02 1-5926 01 1-0456 03 5-2976 02 1-8366 01 1-8406 01 L/D DFLTA E LE 1-6126 00 1-6036 01 1-5506 00 E-062E 00 1-6036 01 1-5506 00 | 5-013t 02 1-592t 01 1-045f 03 5-297t 02 1-836f 01 1-840f | 5-0134 02 1-5926 01 1-0456 03 5-2976 02 1-8366 01 1-6406 01 L/D DELTA E LF 1-612E 00 1-003E 01 1-500E 00 E-012E 00 1-003E 01 1-500E 00 DATA POINT 10 PH Th | 5.013E 02 1.592E 01 1.045E 03 5.297E 02 1.836E 01 1.640E 01 1.0 DELTA E LE 1.612E 00 1.602E 01 1.550E 00 6.052E 00 1.002E 01 1.550E 00 7 DATA POINT 10 PH Th |
| E-04-ZE 00 5-030E CO 1-5-COE 00 DATA POINT 9 P.9 TG Tb Tb TI 0/A 0/AP 5-167F W2 7-233E-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 | L/D DELTA E 1.612E 00 1.603E 01 E.0t2E 00 1.003E 01 | L/D DELTA E LF 1.612E 00 1.003E 01 1.500E 00 E.Ut 2E 00 1.002E U1 1.500E UU DATA POINT | L/D DELTA E LE 1.62E 00 1.003E 01 1.500E 00 E.UEZE 00 1.002E 01 1.500E 00 DATA POINT 10 PH Th Th Th Th O/A O/AP 5.055E 02 1.550E 00 1.264E 03 7.000E 02 2.117E 01 2.175E 01 4.945L 02 2.375E 01 1.150E 03 5.513E 02 2.105E 01 2.175E 01 | L/D DELTA E LE 1.612E 00 1.622E 01 1.500E 00 6.012E 00 1.603E 01 1.500E 00 1.003E 01 1.500E 00 1.003E 01 1.500E 00 1.215E 02 1.550E 00 1.215E 03 7.000E 02 2.117E 01 2.175E 01 2.000E 02 2.175E 01 1.150E 03 5.513E 02 2.105E 01 2.175E 01 |
| E-06-E 00 5-030E CO 1-5-COE 00 DATA POINT 9 DA 0/AP 5-11C7F U2 7-033E-01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 5-013E 02 1-59-E 01 1-045E 03 5-297E 02 1-836E 01 1-840E 01 | 1.612E 00 1.003E 01 E.Ut2E 00 1.003E 01 | 1-612E 00 1-002E 01 1-500E 00 E-002E 00 1-002E 01 1-500E 00 | 1.612E 00 1.602E 01 1.500E 00 E.UCZE 00 1.002E U1 1.500E 00 DATA POINT 10 PH Th Th Q/A Q/AP S.CC5F 02 1.550E 00 1.204 03 7.000E 02 2.117E 01 2.175E 01 4.995E U2 2.375E 01 1.150E 03 5.513E 07 2.175E 01 | 1-612E 00 1-602E 01 1-500E 00 -6.042E 00 1-002E 01 1-500E 00 -6.042E 00 1-002E 01 1-50E 00 -6.042E 02 1-550E 00 1-2044 03 7-009E 02 2-117E 01 2-175E 01 -6.042E 02 2-375E 01 1-150E 03 5-513E 02 2-185E 01 -6.062E 02 2-175E 01 1-150E 03 2-175E 01 -6.062E 02 2-175E 01 1-150E 03 2-175E 01 -6.062E 02 2-175E 01 2-175E 01 -6.062E 03 2-175E 01 2-175E 01 -6.062E 03 2-175E -6.062E -6.0 |
| 6-04-2E 00 9-03-05 00 1-5-00E 00 DATA POINT 9 10 | E.UCZE 00 1.003E UI 1.5COE | 6.062E 00 1.002E U1 1.500E UU DATA POINT | E-UCZE 00 1.003E UI 1.5COE UU DATA POINT 10 PH TE | FOURTH OF 1.002E UT 1.500E UD DATA POINT 10 PH Th Th Th Th Q/A Q/AP 5.000E U2 2.37FE UT 1.50E UD 1.200E U2 2.117E UT 2.175E UT 4.995L U2 2.37FE UT 1.150E U3 5.513E U2 2.185E UT 2.175E UT L/C DELIA [LF |
| E-064E 00 9-030E 00 1-500E 00 DATA POINT 9 DATA POINT 9 S-11C7 - 02 7-035E -01 1-122E 03 6-339E 02 1-793E 01 1-840E 01 L/D DFLTA E LE 1-612E 00 1-035E 01 1-500E 00 | | | DATA POINT 10 PH Th TI O/A O/AP 5.0C5F, D2 1.550E 00 1.2040 03 7.090E 02 2.117E 01 2.175E 01 4.995E U2 2.375E 01 1.150E 03 5.513E 07 2.185E 01 2.175E 01 | 5.005F 02 1.550E 00 1.204 03 7.090E 02 2.117E 01 2.175E 01 4.995E 02 2.136 01 2.175E 01 |
| E-06.2E 00 9.030E 00 1.500E 00 DATA POINT 9 10 | A/0 11 14 14 14 14 | | **945E 02 2.375E 01 1.150E 03 5.513E 02 2.185E 01 2.175E 01 | 4-945£ 02 2-375e 01 1-150F 03 5-513E 02 2-165E 01 2-175E 01 |
| E-06.2E 00 5.030E 00 1.500E 00 DATA POINT 9 DATA POINT 9 DATA POINT 9 1.840E 01 5.107F 02 7.633E-01 1.122E 03 5.297E 02 1.793E 01 1.840E 01 1.612E 00 1.602E 01 1.500E 00 E-06.2E 00 1.602E 01 1.500E 00 DATA POINT 10 DATA POINT 10 DATA POINT 10 | 90 16 16 16 16 16 16 16 16 16 16 16 16 16 | 5.0°55 02 1.550E 00 1.2°44 03 7.090E 02 2.117E 01 2.175E 01 | | LZC DELTA E LF |

7657 SECTION - LOCAL TEST PARAMETERS
HT-9-111.ND FAILLRE.TRANS HOT SPOTS VISIBLE DP7.8-9.ALL HOT OP12-13

| | STA | - | N | STA | - | N | | STA | - | Ŋ | STA | - | ~ | | 814 | - | ~ | STA | - |
|---------------|------|-----------|-----------|---------|------------|-----------|---------------|-----|------------|-----------|---------|-----------|-----------|---------------|------|---------------------|-----------|---------|-----------|
| | 80 | 5-075E 02 | 4.575E 02 | 2/1 | 1.612E 00 | 8.062E 00 | | 9 | 5.055E CZ | 4.955E 02 | 1/0 | 1.612E 00 | 6.062E 00 | | a d | 5.033E 02 | 4.527E 02 | 1/0 | 1.612E 00 |
| | _ | 20 | 02 | | 00 | 0 | | _ | 3 | 62 | | 00 | 0 | | | 05 | 05 | | |
| | 18 | 2.40UE 00 | 2.760E C1 | DELTA E | 1.205E 01 | 1.205E 01 | | Ŧ | 3-167E | 3.1436 01 | DELTA L | 1.296E 01 | 1.296E 01 | | 75 | 4.950E 00 | 3.675E 01 | DELTA E | 1.401E 01 |
| | • | 00 | 5 | 4 | 0 | 10 | | 30. | 00 | 0 | | 10 | 5 | | | 00 | 5 | | |
| | 2 | 1-324E 03 | 1.2CSE 03 | - | 1.5 COE 00 | 1.500E 00 | | - | 1.419E 03 | 1-4116 03 | 16 | 1.5COF 00 | 1.500E 00 | | £ | 1.467E 03 | • | 31 | 1.5CUE 00 |
| | | 03 | 03 | | 00 | 8 | | | 6.0 | 7 | | 00 | 00 | | | 03 | | | 00 |
| DATA | 1 | £.757£ 02 | 5.092E 02 | | | | ATAO | 11 | C.952E 02 | 6.837E 02 | | | | DATA | 11 | 6.221E 02 | • | | |
| DATA PCINT 11 | 4/0 | 2.400F 01 | 2.569E 01 | | | | DATA POINT 12 | *** | 2.P 14F 01 | 2.840E 01 | | | | DATA PLINT 13 | 4/3 | 3.304E 01 | • | | |
| *** | 0770 | | | | | | 8 | | 3.6 | | | | | | 0/AP | 3.5 | | | |
| | 1 | 20.3014 | 5.227E-02 | | | | | : | 4.1.6 | 4.367E-02 | | | | | 1 | 5-273F-02 | 0. | | |
| | 100 | 1 3335 00 | 4.816E 02 | | | | | | CEC 15 | 6.523E 02 | | | | | 100 | 5.273F-02 6.172F 02 | • 0 | | |
| | , | 2 | 1.035E 02 | | | | | | 5 6 | 1.038F 02 | | | | | , | 1.0306 03 | 1.039E 02 | | |
| | | - | 200 | | | | | | 9 | N 0 | | | | | | · | . ~ | | |

Report AFRPL-TR-67-208, Appendix C

m m m m m m o o o o o

LIQUID SIDE HEAT TRANSFER TEST DATA

FRALL TEST PARAMETERS

HT-9-112. IMLET MOT SPOT DP 6 TURE BREAK AFTER DP 7

| | 2. 6046 | 2.006 | 2.01 SE | 2.934F | 2.9066 | 2.868E | 2.811E | | | | | | | | | | | | | |
|------------|-----------|-----------|-----------|------------|------------|------------|------------|--------------------------------------|------------|--------|------------------------|--------|----|--------|------------|--------|------------|------------|-----|-----------|
| , | | | 00 | | | | | | | | ; ; | | | | | | 10 | 10 | | |
| TI | 1.6165 01 | 9.2306 | 2.26% | 1.622E | 1 - 500E | -2.106E | -1.805E | | | SA | 4.936E 0 | | | | | S A | 4.954E 0 | 4.966E 0 | | |
| 90 | 5.660E-01 | 9-8236-01 | 1.895F 00 | | | | | | | DEL TF | 1.450E 02 1.908E 02 | | | | | DEL TF | 1.853E 02 | 3.139E 02 | | |
| 12 | 1.960F A2 | | | | 9.360E 02 | | | | | | 5.968E-03 | | | | | I | | 4.777E-03 | | |
| | 0 | 00 | 00 | 00 | 00 | 00 | 00 | | | | | | | | | | | | | |
| | 1.510 | 2.06 0 | 3.090E | 4.160E | 5.080E | 5.610E | 6.620E | RAMETERS | | Q/AP | 8.652E-01 | | | | | Q/AP | 1.499E 00 | 1.499E 00 | | |
| 3.0505-01 | 3.060E-01 | | 3.070F-01 | 3.090E-01 | 3.0605-01 | | 2.960E-01 | TEST SECTION - LOCAL TEST PARAMETERS | 1 INIO | 4/0 | 8.8296-01 | | | | DINT 2 | 4/0 | 1.594E 00 | 1.509E 00 | | |
| | | | | -2.300E 01 | -1.660E 01 | -5.400E 00 | -1.400E 00 | SECTION - 6 | DATA POINT | = | 1.0386 02 1.529E 02 | | | | DATA POINT | 11 | 1-449E 02 | 2.781E 02 | | |
| E 01 | | E 01 | E 01 | E 01 | E 01 | E 01 | E 01 | TEST | | ١ | 2 2 | | 00 | 00 | | | 22 | 2 | | 9 |
| -4.200E 01 | | | -4.150E | -4.080E | -4.060€ | -4-1106 | -4.180E | | | 2 | 1.530E 02 2.000E 02 | 9 | | 1.500E | | | 2.310E 02 | 3.550E 02 | 3 | 1 . SOOF |
| € 03 | € 03 | | E 03 | € 03 | E 03 | € 03 | € 03 | | | ı, | 5 5 | - س | 00 | 0 | | | - | = | ш | 9.0 |
| 3.157E 03 | | | | 3.176 | 3.1 09E | 3.004E | 2.917 | | | 2 | -4-117E 01 | DELTA | | 1.510€ | | 18 | -4.043E 01 | -3.577E 01 | | 2.0636 |
| E 03 | € 03 | | E 03 | E 03 | E 03 | | E 03 | | | | | | 9 | 8 | | | | | | 00 |
| 3.155E 03 | 3.136 | 3-163 | - | 3.1635 | 3.115 | 3.010€ | 2.923 | | | • | 3.083E 03 | 3 | | 8.993E | | 9 | 3.135E 03 | 3.1316 03 | 2 | 1.7005 00 |
| | | | • | | | | | | | STA | | STA | | | | STA | | • | STA | 1 |

| 55 | | 5 5 | | 5 5 | 5 5 |
|---|---|---|---|---|----------------------------------|
| VS 4.972E | | 5.00% 5.00% | VS 4.9646 5.0056 | V S | VS 4.8066 |
| DEL TF 4.005E 02 5.691E 02 | | DEL TF 6-304E 02 9-736E 02 | DEL 7F 1.269E 03 1.087F 03 | DEL TF 0. 2.033E 03 | DEL TF. |
| 7.222E-03 5.083E-03 | | 7.701F-03 5.044E-03 | H 5.424E-03 6.509E-03 | H 0 • 4 • 205E 0 3 | r |
| 2.893E 00 2.893E 00 | | 0/AP 4.912E 00 4.912E 00 | 0/AP 6.880F 00 6.880F 00 | 0/AP 8-5-8E 00 8-5-8E 00 | 0/AP 1-139E 01 1-139E 01 |
| 3.20%E 00 | 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0/A 5.234E 00 4.768E 00 | 0/A 0/A 6.6666 00 6.889E 00 | 0/A 0. 7.659E 00 | , v |
| 71 3.610E 02 3.20 5.373E 02 3.012 | | 5.926E 02 | DATA POINT T1 1.232E 03 6.664 | DATA POINT TI 0. 2.022E 03 7.659 | DATA POINT |
| 5.150E 02 6.720E 02 | 1.500E 00 | TW 0.170E 02 1.130E 03 LE 1.500E 00 | 1.463E 03 1.279E 03 LE LE 1.500E 00 | 7# 2.237E 03 LE 1.500E 00 | * |
| -3.957E -3.183E | DELTA E 3.090E 00 3.090E 00 | 78 -3.783E 01 -2.597E 01 DELTA E 4.160E 00 4.160E 00 | 78 -3.660E 01 -2.060E 01 DELTA F 5.080E 00 5.080E 00 | TB -3.515E 01 -1.135E 01 DELTA E 5.610E 00 | 78 -3.507E 01 -8.133E 00 |
| m m | 1.7996 00 8.9936 00 | 3.182E 03 3.177E 03 1.79E 00 8.993E 00 | 2.114E 03 3.110E 03 L/D 1.799E 00 | PB 3.009E 03 3.005E 03 L/2 1.799E 00 8.993E 00 | PH 2.922E 03 - 2.918E 03 - |
| 21 2 2 | S - 2 | STA STA | STA 2 1 2 1 2 2 1 2 2 1 2 2 2 2 2 2 2 2 2 | S S S S S S S S S S S S S S S S S S S | S1 & 1 |

Report AFRPL-TR-67-208, Appendix C

LIGULD SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

| | | | | | EST SECTION | TEST SECTION - LOCAL TEST PARAMETERS | PARAMETERS | | | | |
|------------|------------|------------|-----------|------|-------------|--------------------------------------|------------|-----------|------------|---------|-----|
| | | | HT-9-113 | 3 50 | NLL CRACK A | SMALL CRACK AT DUTLET AT D.P. 8 | 9.6. | | | | |
| | | | | | 40 | DATA POINT | | | | | |
| ETA | | 10 | | 3 | ; | | | | | | |
| - (| 2.0996 83 | 6.621 | 2.48(| E 02 | 1.601F 02 | 0/A | | | DEL TF | SA | |
| ~ | 2.001E 03 | 9. 080E 01 | | E 02 | 104126 02 | 1000 | 1.611 | | 7-387E 01 | 1.060 | 9 |
| m | 2.062E 03 | 9-539E 01 | | | 1.741E 02 | | 1.611E 00 | 2.290E-02 | 7.036E 01 | 1.071 | |
| STA | S | DELTA | | | | | | | | 1-075 | 9 |
| - | 1.799E 80 | | 8 | 9 | | | | | | | |
| N | 1. 799E 01 | | | | | | | | | | |
| n | 3-4176 01 | 6.990E 00 | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DAT | DATA POINT 2 | | | | | |
| SIA | 90 | | • | 1 | | | | | | | |
| - | 2.099E 83 | 8.855F 01 | 5.32 | | 1 | | | I | 05, 75 | 2 | |
| N | 2.081E 03 | 1.007E 02 | | 9 6 | 3.1296 02 | 4.653E | | 1.971E-02 | 2.243F 02 | 1.0735 | - |
| m | 2.064E 83 | 1-129E 02 | | | 3.117E 02 | 4.645E | 4-421E | 2.038E-02 | 2-170E 02 | 1-0806 | 9 6 |
| | | | | | 30.4036 02 | 4.608E 00 | 4.421E 00 | 1.9435-02 | | | 9 6 |
| STA | 27 | DELTA E | 4 | | | | | | | | 9 |
| - | | 1.242E 01 | 5.0 | 00 | | | | | | | |
| N | | 1.242E 01 | | | | | | | | | |
| 7 | 3.4176 01 | 1.242E 01 | 5.000E | 0 | | | | | | | |
| | | | | | | | | | | | |
| | | | | | DAT | DATA POINT 3 | | | | | |
| STA | 80 | 18 | 1 | | ; | | | | | | |
| - | 2-098E 03 | 8-974E 01 | 7.6405 | | | 4/5 | O/AP | I | DEL TF | > | |
| N | 2.081E 03 | 1.041E 02 | 7.640 | | 4.412E 02 | 7.2.20E 00 | | 1.687E-02 | 3.534E 02 | | 0 |
| m | 2.064E 03 | 1.265E 02 | 7-780E | | 4.600E 02 | 7-1-2F 00 | 6.669E 00 | 1.990E-02 | 3.351E 02 | | 02 |
| 2 | | | | | | | | 1.994E-02 | 3.344E 02 | 1.096E | 02 |
| : - | 1.7005 00 | | 1 | | | | | | | | |
| ~ | 1-700F A1 | 10 3/401 | A.000E | 00 | | | | | • | | |
| - | | | 5.000F | 0 0 | | | | | | | |
| | | | | 1 | | | | 1 | | | |
| | | | | | ATAG | DATA POINT | | | | | |
| Y | 9 | | | | | | | | | | |
| - | 2.096E 03 | 9-0505 | A | . ! | 1 | 4/0 | Q/AP | r | 44 | ; | |
| 8 | 2.079E 03 | 10 166F 02 | 1.0346 03 | 2 1 | 5.047E 02 | 1.051E 01 | 9-377E 00 | 1-824E-02 | S. 1426 03 | | |
| P) | | 1-427F 02 | | 7 6 | 5.746E 02 | | 9-377E 00 | 2.047E-02 | 4-580F 02 | 0 36 00 | 20 |
| | | | 1.032E | 2 | 6-021E 02 | 1.052E 01 | | 2-041E-02 | 4-594E 02 | | 200 |
| ٧. | 22 | DELTA E | ונ | | | | | | | | 4 |
| | | 2.015E 01 | | 00 | | | | | | | |
| N I | | | | 0 | | | | | | | |
| | 3.417E 01 | 2-015E 01 | | 00 | | | | | | | |

Page 144

| - | |
|-----------|-----------|
| PARAMETER | |
| TEST P | AT 0.P |
| LOCAL | AT OUTLET |
| NO | - |
| SECTION | CRACK |
| TEST | SHALL |
| | HT-9-113 |

| | | | | DATA | DATA POINT 5 | | | | | |
|-----|-----------|-----------|------------|-----------|--------------|-----------|-----------|-----------|------------|--|
| STA | | 1.0 | 2 | 11 | A/0 | OVAP | 1 | DEL TF | 8> | |
| - | 2.094E 03 | | | 7.054E 02 | | 1.168E 01 | 1.902E-02 | 6-142E 02 | 1.073E 02 | |
| ~ | 2.078E 03 | 1.233€ 02 | | 6.534E 02 | 1.323E 01 | 1.168E 01 | 2.204E-02 | 5.301E 02 | 1.093E 02 | |
| m | Z.062E 03 | 1.553E 02 | 1-194E 03 | 6.789E 02 | 1.316E 01 | 1.168E 01 | 2.231E-02 | 5.235E 02 | | |
| STA | 2 | DELTA E | 1.6 | | | | | | | |
| - | 1.799E 00 | | 5.000E 00 | | | | | | | |
| ~ | | | | | | | | | | |
| n | 3.417E 01 | 2.296E 01 | 5. COOE 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 6 | | | | | |
| STA | 804 | 18 | 2 | 11 | 4/0 | 9770 | 1 | 761 | 2 | |
| - | 2.093E 03 | 9.142E 01 | 1.331E 03 | 7.528E 02 | 1.530€ 01 | 1.384E 01 | 2.093E-02 | 6.6136 02 | 1-074F 02 | |
| N | 2.076E 03 | 1.285E 02 | 1.286E 03 | 6.916E 02 | 1.547E 01 | 1.384E 01 | 2.4595-02 | 5-6306 02 | | |
| ٣ | 2.060E 03 | 1.657E 02 | 1.299E 03 | 7.094E 02 | 1-542E 01 | 1.384E 01 | 2.546E-02 | | | |
| STA | 2/9 | DELTA E | 1 | | | | | | | |
| ~ | 1.799E 80 | | 5.000E 00 | | | | | | | |
| 7 | 1.799E 01 | 2.511E 01 | 5.000E 00 | | | | | | | |
| m | 3.417E 01 | 2.511E 01 | 5.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 7 | | | | | |
| STA | 8 | 18 | 1 | 11 | 4/0 | 94/0 | r | DEL TF | 95 A | |
| - | 2.090E 03 | 9.191E 01 | 1.392E 03 | 7.455E 02 | 1.728E 01 | 1.565E 01 | 2.394E-02 | 6.536E 02 | 1.074E 02 | |
| 8 | 2.074E 03 | 1.334E 02 | 1.359€ 03 | 6.996E 02 | 1.741E 01 | 1.565E 01 | 2.764E-02 | 5.662E 02 | | |
| m | 2.050E 03 | 1.749E 02 | 1-379E 03 | 7.275E 02 | 1.733E 01 | 1.565E 01 | 2.831E-02 | 5.526E 02 | | |
| STA | 6/7 | DELTA E | T. | | | | | | | |
| - | 1.799E 00 | | 5.000E 00 | | | | | | | |
| N | 1.799E 01 | 2.680E 01 | 5.000E 00 | | | | | | | |
| m | 3.4176 01 | 2.680E 01 | 5.000€ 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 8 | | | | | |
| STA | 0 | 16 | 1.0 | 11 | 4/0 | Q/AP | I | DEL TF | 84 | |
| ~ | 2.087E 03 | 9.224E 01 | 1.499E 03 | 7.898E 02 | 1.942E 01 | 1.792F 01 | 2.568E-02 | 6.976E 02 | 1.088E 02 | |
| ~ | 2.070E 03 | 1.376E 02 | 1-424E 03 | 6.834E 02 | 1-974E 01 | 1.7926 01 | 3.283E-02 | 5.457E 02 | 1.11 7E 02 | |
| m | 2.054E 03 | 1.831E 02 | • | • | • | 1.792E 08 | • | •• | 1.146E 02 | |
| STA | 27 | DEL TA E | 4 | | | | | | | |
| - | 1.799F 00 | 2-866F 01 | 5.000F 00 | | | | | | | |
| · N | 1.7995 01 | | | | | | | | | |
| | 10 36 0 1 | | | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIGUID SIDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

| | 8 | |
|--|---------------|-------------|
| | 0.500E 00 | |
| | | |
| | DELTA TO = | |
| | 0.400E 01 | |
| | | |
| <u>*</u> | ٦ | 2 |
| HT-9-115 TUBE FAILURE AT DATA POINT 14 | 0 = 0.1316-01 | STATES ATAG |
| HT-9-115 | F = 0.134E-03 | |
| | * | |
| | | |

| | 6655555566666 |
|------------|--|
| | 11 84. 12.9586 12.9586 13.9116 13.9116 14.956 15.976 16.909 |
| | |
| | 3.7326 3.9726 7.9646 1.3606 1.9666 2.75276 2.75276 3.6506 4.7016 5.2408 |
| | |
| | 2.000 E |
| | 000000000000000000000000000000000000000 |
| | 9.9406 1.6036 1.6036 1.9026 1.9026 2.9366 2.7526 2.7526 3.7536 3.7536 3.7536 3.7536 |
| ¥TS | 8.050E-01 8.050E-01 8.050E-01 8.050E-01 8.050E-01 8.020E-01 8.020E-01 8.020E-01 8.020E-01 |
| ATA POINTS | 000000000000000000000000000000000000000 |
| DATA | 16.206 02 16.236 02 16.2346 02 16.2346 02 16.346 02 16.356 02 16.3 |
| | |
| | 78-IN 1.050E 02 1.050E 02 1.050E 02 1.051E 02 1.062E 02 1.062E 02 1.067E 02 1.057E 02 1.057E 02 1.056E 02 |
| | |
| | 98-001 3-96-6 03 3-96-6 03 3-9 |
| | |
| | 2.9036 03 3.9006 03 |
| | 0 |

| v) | |
|-------------|--|
| œ | |
| | |
| • | |
| - | |
| 44.1 | |
| ARAM | |
| • | |
| • | |
| ~ | |
| 3 | |
| • | |
| a | |
| | |
| | |
| • | |
| S | |
| S | |
| • | |
| _ | |
| | |
| 1 | |
| 3 | |
| • | |
| u | |
| Ă. | |
| ٠. | |
| - | |
| | |
| | |
| • | |
| _ | |
| Z | |
| ^ | |
| _ | |
| - | |
| - | |
| | |
| ~ | |
| | |
| v) | |
| | |
| | |

| | | | | | | | ć | ATA | DATA POINT | - | | | | |
|--------------|--|-----|---|-----------|---|---------|---|-----|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|---|
| | 3.991E 03 3.980E 03 3.969E 03 | 03 | T9 1.055E 02 1.069E 02 1.123E 02 | 0000 | 78 2.610E 02 2.590E 02 2.680E 02 | 2000 | 1.662E 02 1.541E 02 1.736E 02 | 222 | 2.052E 00 2.053E 00 2.050E 00 | . 888 | 0/AP 1.891E 00 1.891E 00 | . 888 | 3.1136-02 3.4286-02 3.0746-02 | 0EL TF 6.075E 01 5.517E 01 6.152E 01 |
| | L/D 1.592E 00 1.274E 01 2.389E 01 | 855 | DELTA E 9.940E 00 9.940E 00 | w 0 0 0 | LE 4.000E 00 4.000E 00 | 888 | | | | | | | | |
| | | | | | | | 3 | ¥ | DATA JOINT | ~ | | | | |
| ~~~~~ | PB 3.988E 03 3.977E 03 | 999 | 1.056E 02 1.089E 02 1.123E 02 | 000 | 2.720E 02 2.770E 02 2.820E 02 | 2 2 2 2 | T1 1.766E 02 1.760E 02 1.815E 02 | 222 | 0/A 2.209E 00 2.206E 00 | | 2.013E 00 2.013E 00 2.013E 00 | | 3.0976-02 3.0016-02 2.9116-02 | 06L TF 6.499E 01 6.707E 01 6.915E 01 |
| ~ | 1.592E 00 1.274E 01 2.369E 01 | 855 | DELTA E 1.032E 01 1.032E 01 | # 5 5 5 E | 4.000E 00 | 000 | | | | | | | | |

92

| | S SE 02 1E 02 | े से म में 6000 6000 | 0.5 | 2 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
|---------------------|--|--|---|--|
| | 1.102E | > 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 | VS 141045 141146 | VS 1-101E 1-109E 1-119E |
| | DEL TF 1.804E 02 1.835E 02 1.835E 02 | DEL TF 1.695E 02 1.814E 02 1.693E 02 | DEL TF 2.797E 02 2.816F 02 2.635F 02 | DEL 7F 2.940E 02 2.950E 02 2.911F 02 |
| | H-2-237E-02 2-217E-02 2-199E-02 | 2.209E-02 2.307E-02 2.211E-02 | A 2.398E-02 2.362E-02 2.366E-02 | H 2.40E-02 2.462E-02 2.514E-02 |
| | 0/AP 4.036E 00 4.036E 00 | 4.186E 00 4.186E 00 4.186E 00 | 0/AP 6.707E 00 6.707E 00 | 0/AP 7.320E 00 7.320E 00 7.320E 00 |
| POINT | 0/A 4.324E 00 4.326E 00 4.315E 00 | 1 0/A 02 4-502E 00 02 4-502E 00 02 4-494E 00 | 001NT 5 0/A 7.1796 00 7.1736 00 | 0/A' 0/A' 7.70E 00 |
| HT-9-115 DATA POINT | 2.8756 02 2.967E 02 3.059E 02 | DATA 2.966E 02 2.966E 02 3.126E 02 | DATA POINT .1 3.875E 02 7.17 4.017E 02 7.17 | DATA POINT TI 4.021E 02 7.79 4.14E 02 7.77 |
| 22 | 18 4.660E 02 4.620E 02 4.620E 00 1.000E 00 4.000E 00 | 18 4.81 0E 02 4.81 0E 02 4.85 0E 02 LE 4.000E 00 4.000E 00 | TW 6.600E 02 6.70E 02 6.70E 02 LE LE 4.000E 00 6.00E | 78 6.940E 02 7.140E 02 LE |
| | 100716 02 1-1405 02 1-2275 02 056.7A E 1-4015 01 1-4615 01 | 1.0716 02 1.1516 02 1.326 02 06L74 6 1.4926 01 1.4926 01 | 70 1.2016 02 1.3236 02 DELTA E 1.9026 01 1.9026 01 | 18 1-0816 02 1-2146 02 1-3476 02 DELTA E |
| | 3.9974E 03 3.9974E 03 3.967E 03 1.592E 00 1.274E 01 2.389E 01 | 2.3696 01 | PB 3.973E 03 3.963E 03 5.562E 03 L/D L.274E 01 2.369E 01 | 78 3.974E 03 3.963E 03 3.952E 03 8.592E 00 3.5952E 00 3 |
| | A-nu F-nu | 4 - N M | # " N D # = N M | ST SE T |

| | | | 1-11-46 02 | | | | | | | | \$ > | 1.102E 02 | 1.116€ 02 | | | | | | | | S.A | | 1-117E 02 | | | | | | | | | 1-119E 02 | | | | |
|---------------------|-----|-----------------|------------|-----------|-----|-----------|---------|-----------|--------------|-----|-----------|-----------|-----------|----------|-----------|---|-----------|--|------------|-----|-------------|-----------|-----------|---------|-----------|-----|-----------|------------|-------|-----------|------------|-----------|---------|-----------|-----------|-----------|
| | | DEL TF | | 3.567E 02 | | | | | | | DEL TF | | 4.231E 02 | | | | | | | | DEL TF | | 4-509E 02 | | | | | | | DEL TF | 5.444E 02 | 5-306E 02 | | | | |
| | | N S. 606FLO3 | 2.7436-02 | 2.793E-02 | | | | | | | I | Z-962E-02 | 3-750E-02 | | | | | | | | x | 3.042E-02 | 3.203E-02 | | | | | | : | H 2006 E | 20-2005-02 | 3.735E-02 | | | | |
| | | 9.962F 00 | 9.962E 00 | 9.962E 00 | | | | | | | OVAP. | 10 319701 | | | | | | | | | Q/AP | | 1.397E 01 | | | | | | 27.00 | 1-8495 01 | 1.8495 01 | | | | | |
| POINT | | 1.060E 01 | 1.059E 01 | 1.0586 01 | | | | | DATA POINT 8 | | 1-1406 01 | 1.349F 01 | 1-348E 01 | | | | | | POINT 9 | | A/0 | 1.4506 01 | | | | | | 01 IN 10 | 4/0 | 1.934E 01 | 1.933E 01 | 1.934€ 01 | | | | |
| HT-9-115 DATA POENT | : | | 4.892E 02 | 3-001E 02 | | | | | DATA | | 5-4165 02 | 5.541E 02 | 5.714E 02 | | | | | | DATA POINT | ; | S. SARRE AS | 5.838E 02 | | | | | | DATA POINT | 1.1 | 6.544E 02 | | 05 | | | | |
| â | 7.0 | • | 8-630E 02 | | " | | | 4.000E 00 | | * | 9.990E 02 | 1.009E 03 | 1.023€ 03 | <u>.</u> | 4.000 | | | | | 2 | 1.055E 03 | 1.067E 03 | 1.074E 03 | e. | 4.000E 00 | | 4.000E 00 | | A.L | 03 | 03 | 1.271E 03 | | 4.000E 00 | | 4.000E 00 |
| | 2 | | 1-200E 02 | | | | 10 3055 | 4.330c 01 | | 16 | 1.093E 02 | 1.310E 02 | 1.527E 02 | DELTA F | | | | | | 2 | 1.094E 02 | 1.326E 02 | 1.563E 02 | DELTA E | 2.752E 01 | | Z.752E 01 | | £ | | ~ | 1-708E 02 | DELTA E | 5 | 3-1796 01 | 5 |
| | 84 | 3.971E 03 | | | | 1.592E 00 | 20 3000 | | | 0 | | | 3.945€ 03 | ١/٥ | 1.592E 00 | | 2.389E 01 | | | 60 | | | 3.942E 03 | | | | 10 3486.7 | , | | | 2 | 3.938E 03 | 6/1 | 00 | 1.274E 01 | 5 |
| | STA | - 0 | | | STA | - ^ | | , | | STA | - | ~ 1 | n | STA | - | ~ | n | | | STA | - | | | _ | | ~ . | | į | | - 0 | | | STA | | 2 6 | |

| | | | ** | THE-9-115 DATA POINT | POINT | | | | | |
|------------|-----------|------------------------|-----------|----------------------|---------------|-----------|-------------|-----------|------------|--|
| | | 1 | | | | | | | | |
| ¥ . | 4 | 91 | 2 | 11 | V . | O/AP | I | DEL TF | | |
| - ^ | 3.47% | 1-65% 02 | 1.4436 US | 7.722E 02 | 2.257E 01 | 2-167E 01 | 3. 31 9E-02 | 6.530E 02 | 1.104E 02 | |
| • | | 1.800E 02 | | | | 2.167E 01 | 3-290E-02 | 6.586E 02 | 1.150€ 02 | |
| STA | 9/1 | DEL TA S | | | | | | | | |
| - | - | | 4.000E 00 | | | | | | | |
| ~ | 1.274E 01 | 3.438E 01 | 4.000E 00 | | | | | | | |
| m | 2.389E 01 | 3.438E 01 | 4.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 12 | | | | | |
| 413 | 9 | 2 | 1 | : | *** | 9770 | 1 | | • | |
| - | 3.98 | 1-1055 02 | 1.658E 03 | 9-746E 02 | 2-472E 01 | 2.382F 01 | 2-757F-02 | A.SAIF 02 | 1.10 35 02 | |
| N | 3.968E 03 | 1.490E 02 | 1.652E 03 | 9.672E 02 | 2.471E 01 | 2.362E 01 | 2.912E-02 | 8-182E 02 | | |
| m | 3.957E 03 | 1.875E 02 | | | 2.472E 01 | | 3.046E-02 | 7.822E 02 | 1.152E 02 | |
| STA | 2 | DELTA E | 97 | | | | | | | |
| - | - | | 4.000E 00 | | | | | | | |
| N | | | | | | | | | | |
| m | 2-389E 01 | 3.591E 01 | 4.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 13 | | | | | |
| STA | 2 | 2 | 1.0 | 11 | 4/6 | 97.40 | 1 | 76 | 2 | |
| - | | | 1.807E 03 | 1.071E 03 | 2.769E 01 | 2.657E 01 | 2.766E-02 | 9-606E 02 | 1-103€ 02 | |
| N M | 3.966E 03 | 1.531E 02 1.956E 02 | 1.816E 03 | 1.082E 03 | 2.770E 01 | 2.657E 01 | 2.860E-02 | 9.291E 02 | | |
| STA | 977 | DELTA F | | | | | | | | |
| - | 1.592E 00 | | 4.000E 00 | | | | | | | |
| N | | | | | | | | | | |
| ~ | 2.369E 01 | 3.788E 01 | 4.000E 00 | | | | | | | |
| | | | | | | | | | | |
| | | | | DATA | DATA POINT 14 | | | | | |
| STA | 8 | 2 | 2 | 1.1 | 4/9 | 9/ 46 | I | DEL TF | S > | |
| - | | | | 1.289E 03 | 3.012E 01 | 2.847E 01 | 2.416E-02 | 1.178E 03 | | |
| N | | | 1.860E 03 | 1.078E 03 | 2.968E 01 | 2.847E 01 | 3.086E-02 | 9.226E 02 | | |
| 7 | 3-951E 03 | 2.007E 02 | ć | • | • | 2.847E 01 | • | • | 1.156E 02 | |
| STA | 2 | DELTA E | 91 | | | | | | | |
| - | | | | | | | | | | |
| ~ r | | | | | | | | | | |
| 7 | 2.389E 01 | 3.917E 01 | 4.000E 00 | | | | | | | |

Report AFRPL-TR-67-208, Appendix C

LIGUID SIDE HEAT TRANSFER TEST DATA

PALL TEST PARAMETERS

HT-9-116. FAINT WHISTLE DPG. LOUD WHISTLE DP 8. TUBE SPLIT DP9

TEST SECTION - LOCAL TEST PARAMETERS
HT-9-116. FAINT WHISTLE DP6. LOUD WHISTLE DP 8. TUBE SPLIT DP9

| | 5 5 | | | | 5 | _ | | | | | | | | | | | | | | | | | | | |
|------------|----------------------------------|-----------------------------------|------------|------|-----------|------------|-----------|-----------|------------|-----|-----------|-----------|----------|------------|------------|------|-----------|-----------|----------|--------|---|------------|--------|------------------------|----------|
| | | | | | | | | | | | | E 0 | | | | | | 9 | | | | | | 0 | |
| | VS 8.929E 8.939E | | | | 8.963E | 9.00 | | | | | S A 8 | 9.04 IE | | | | | 2000 | 9-100E | | | | | > | 9.078 | • |
| | TF 01 | | | | E 02 | 2 | | | | 1 | | 200 | | | | , | | 0.5 | | | | | | 200 | S |
| | 0EL TF 8.854E 01 8.019E 01 | | | | 2-340E 02 | 261.2 | | | | | 3-7716 A3 | 3.44BE 02 | | | | 3 | A.A.AE AS | 4.0665 02 | | | | | DEL TE | 6.827E 02 | |
| | 1.720E-02 | | | , | 1.4316-02 | 30-31-60-1 | | | | ; | 1.4216-02 | 1.6635-02 | | | | 3 | LARAF-02 | Z-054E-02 | | | | | I | 1.532E-02 | |
| | . 88 | | | | 88 | 3 | | | | | 00 | 00 | | | | | 00 | 00 | | | | | | | |
| | 0/AP 1.523E 00 1.523E 00 | | | 9470 | 3.348E 00 | | | | | | 5.734£ 00 | 5.734E 00 | | | | 9//8 | 8.3496 00 | 8.349E 00 | | | | | O/AP | 1.046E 01 | |
| - | *** | | ~ | | 000 | | | | m | | . 00 | 00 | | | • | | 00 | 00 | | | | n | | 0 0 | |
| DATA POINT | 0/A 1.590E 00 1.595E 00 | | DATA POINT | 4/6 | 3.562E 00 | | | | DATA POINT | 4/0 | 6.097E 00 | 6-150E 00 | | | DATA POINT | 4/6 | 8-810E 00 | 8.882E 00 | | | | 2 | 4/0 | 1.054E 01 | |
| DATA | TI E 02 | | DATA | | 2 6 | | | | MATA | | 02 | 20 | | | ATA | | 05 | 20 | | | į | DAIA PUINT | | 20 | |
| | 11 1.432E 02 1.370E 02 | | | - | 2.957E 02 | | | | | - | 4.463E 02 | 4.214E 02 | | | | 11 | 5.195E 02 | 4.936E 02 | | | | • | 11 | 7.660E 02 5.612E 02 | |
| | TW E 02 | 88 | | * | 92 | | 8 | 8 | | | 02 | 70 | | 8 8 | | | 20 | 05 | | 88 | | | | 0 2 0 | |
| | 1.900E 02 | 4.000E | | - | 3.920E 02 | | 4.000E | 4.000E 00 | | 2 | 5.980E 02 | 5.760E 02 | 9 | 4.000E | | 2 | 7.290E 02 | 7.070E | 7 | 4.000E | | | T. | 9-940E 02 | " |
| | 5 m | w 8 8 | | 100 | 5 6 | | 5 | 5 | | | 5 | 5 | w | 5 5 | | _ | 5 | 5 | . | 5 5 | | | | 5 5 | W |
| | 5.471E 01 | DELTA E 7.780E 00 7.780E 00 | | - | 6.168E 01 | DELTA | 1.214 | 1.214 | | 10 | 6.924E 01 | 7.657E 01 | DEL TA | 1.650E | | 10 | 7.711E 01 | 8.726E | DELTA | 2.025E | | | 5 | 6.329E 01 | DELTA E |
| | m 62 02 | 55 | | | 2 2 | | 5 6 | 5 | | | 0.5 | 7 | | 5 5 | | | | 20 | ; | 5 5 | | | _ ; | 2 2 | |
| | 8.116E 02 8.071E 02 | L/0 1.6696 01 2.301E 01 | | 8 | 8.093E 02 | 2 | 1.688E 01 | 2106.5 | | 6 | 8.073E 02 | 8.031E | 2 | 1.688E 01 | | 4 | | 8.010E | 27 | 2.301E | | | 8 | 7.961E 02 | 3 |
| | 2 - 2 | ¥ - 2 | | STA | - ~ | STA | | | | STA | _ | | STA | - ~ | | STA | - | N | STA . | • ~ | | | STA | - ~ | STA |

TEST SECTION - LOCAL TEST PARAMETERS
HT-9-116 . FAINT WHISTLE DP6. LOUD WHISTLE DP 6. TUBE SPLIT DP9

| | 5 5 | | 5 5 | 5 5 | 55 |
|--------------|----------------------------------|--|---|---|--|
| | VS 9.131E 9.213E | | VS 9.127E 01 9.214E 01 | VS 9.054E 9.147E | VS 9.270E 9.387E |
| | DEL TF 7-920E 02 7-322E 02 | ; | DEL 7F 8.010E 02 7.629E 02 | DEI. TF 8-963E 02 9-453E 02 | DEL TF |
| | H 1.533E-02 1.659E-02 | : | 1.588E-02 1.624E-02 | 1.543E-02 | ı |
| | 0/AP 1.215E 01 1.215E 01 | | 1.2726 01 | 0/AP 1-383E 01 1-383E 01 | 0/AP 1.680F 01 1.680E 01 |
| DATA POINT 6 | 0/A 1.253E 01 1.267E 01 | DATA POINT 7 | 1.325E 01 | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 0/A 0.00 |
| DATA | 6.808E 02 | ATAG | 8.907E 02 6.872E 02 | DATA 11 9.686E 02 1.053E 03 | DATA POINT 11 0. 0. 0. |
| | 1.140E 03 | 0000 000 000 000 000 000 000 000 000 0 | 1.160E 03 1.160E 03 4.000E 00 | T# 1,274E 03 1,330E 03 LE 4,000E 00 | 0. 0. 1. LE 4.000E 00 |
| | 18 8-807E 01 1-021E 02 DELTA E | Z-562E 01 Z-562E 01 TB | 0.972E 01 1.043E 02 DELTA E 2.640E 01 2.640E 01 | 78 9.254E 01 1.062E 02 DELTA E 2.762E 01 2.782E 01 | 78 1.193E 02 1.193E 02 DELTA E 3.097E 01 |
| | 7.999E 02 7.952E 02 | 2.301E 01 | 7.992E 02 7.933E 02 L/O 1.688E 01 2.301E 01 | 7.991E 02 7.876E 02 L/D 1.689E 01 2.301E 01 | PB 7.749E 02 7.582E 02 L/0 1.688E 01 |
| | ST S STA | 2 2 STA | 2 ST 2 2 1 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 | N - N - N - N | ST 2 - 5 |

Report AFRPL-TR-67-208, Appendix C

5 5 5 6 6 6 6

HT BAL 6.563F 01 -3.807F-01 -3.568E 00 -3.404E 00 -1.710E 00

0000000

LIQUIO SIDE HEAT TRANSFER TEST DATA

HALL TEST PARAMETERS

HT-9-117 . BURNGUT AT DATA PT 6. BURNOUT SITE COND. AT CATA PT 7

TEST SECTION - LOCAL TEST PARAMETERS
HT-9-117. BURNOLT AT DATA PT 9. BURNOUT SITE COND. AT DATA PT 9

| | | | | DATA | DATA PGINT | | | | | | |
|----------|--------------|-----------|------------|-----------|--------------|------------|-------------|--|--------|-----|--------|
| ¥18 | 2 | 10 | • | 11 | 4/0 | 8470 | : | | | | |
| -, | 5.339E 02 | 2.442E 02 | 3.020E 02 | 2.659 | 7-170F-01 | 7-1036-01 | 20.36.6 | DELTE | - | > | ×S. |
| Ŋ | 5.144E 02 | 2.466E 02 | | | 7-1485-01 | 7-10-25-01 | 30-31-35-05 | 2.171E 01 | • | 25 | 9.524E |
| m | 5.101E 02 | 2.472E 02 | 3.100E | | 7-144E-01 | 7-193E-01 | 2.660E-02 | 2.703E 01 | | 7 7 | 9.544E |
| STA | 6/3 | DELTA E | רפ | | | | | | | | |
| _ | 1.799E 00 | 5.730E CO | 9.0 | | | | | | | | |
| ~ | 3.417E 01 | 5.730E 00 | 6.000F | | | | | | | | |
| ~ | 4.1376 01 | 5.730E 00 | 3000 · 9 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | DATA | DATA POINT 2 | | | | | | |
| ¥ 1. | a | 9 | | : | | | | | | | |
| - | 5.310E 02 | 2.4535 02 | 60 30 43 4 | 11 | 4/0 | OVAP | r | DEL TF | | S | SA. |
| ~ | 5.130E 02 | 2.531E 02 | | | 2.2035 00 | Z-140E 00 | 2.078E-02 | 1-030F 02 | 9.532E | 2 | 325 |
| - | 5.090E 02 | | 4.780E | | 2.200E 00 | 2-140E 00 | 1.891E-02 | 1.132F 02 | 9.628E | 2 3 | 302 |
| | | | | | | | | 70 305101 | *** | • | 2 |
| ٠. | | | | | | | | | | | |
| ٠, | | | | | | | | | | | |
| v 1 | | | 6.000E 00 | | | | | | | | |
| - | 4.137£ 81 | 1.038E 01 | 6.000E 00 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 4 | 8 0 d | 18 | = | 11 | 4/0 | 94/0 | 1 | 75 | , | | , |
| _ | | 2.461E 02 | 5.940E 02 | 4.192E 02 | 3.668E 00 | 3.766E 00 | 2-176F-02 | 1.7305 02 | | v ç | 2 |
| | | 2.684E C2 | 6.240£ 02 | 4.536E 02 | 3.823E 00 | 3.766F 00 | 2.0136-02 | 96.36 02 | 20.00 | | K ! |
| 7 | 5.070E 02 | 2.734E 02 | | 4.616E 02 | 3.6136 00 | | 2.000E-02 | 1.883E 02 | 9.686E | 9 9 | 9 W |
| 5 | 2 | DENTA F | 4 | | | | | | | | |
| _ | 1.799E 00 | | 6-000 00 | | | | | | | | |
| ~ | 3.417E 91 | | | | | | | | | | |
| - | 4.1376 01 | 1.403E 01 | | | | | | | | | |
| | | | | DASA | 4140 | | | | | | |
| | | | | | | | | | | | |
| 4 | Ð | 1 | 2 | 11 | A/0 | 9/40 | 1 | 100 | | | , |
| _ | | | | 4.88E 02 | 5.616E 00 | 5.576E 00 | 2 - 304F-02 | 2-4216 A2 | 200 | 2 | |
| ~ | | 2.794E 02 | 7.3COE 02 | 4.876E 02 | 5.618E 00 | 5.576F 00 | 2.4796-03 | 20 20 20 20 20 20 20 20 20 20 20 20 20 2 | 10000 | | |
| _ | 5.050E 02 | 2.867E 02 | 7.270E 02 | 4.840E 02 | 5.624E 00 | | 2.826E-02 | 1-973E 02 | 9-828F | ĕ | 9F 01 |
| TA | 2/2 | DELTA 6 | u. | | | | | | | | |
| _ | 1.799E 80 | 1-72MF 01 | 6.000 | | | | | | | | |
| | | | | | | | | | | | |
| - | | | | | | | | | | | |

TEST SECTION - LOCAL TEST PARAMETERS
HT-9-117. BURNOUT AT DATA PT 9. BURNOUT SITE COND. AT DATA PT 9

| 5.259E 62 2.471E 02 8.020E 02 4.906E 02 5.056E 02 2.894E 02 7.990E 02 4.657E 02 2.998E 02 7.990E 02 4.657E 02 2.4857E 02 | 02 2.471E 02 8.020E 02 4.9066 02 2.888E 02 7.990E 02 4.857E 03 1.994E 01 6.000E 00 01 1.994E 01 6.000E 00 01 1.994E 01 6.000E 00 02 2.474E 02 8.16CE 02 4.862E 02 2.474E 02 8.16CE 02 4.862E 03 2.978E 02 8.140E 02 4.837E 04 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 | 02 2.471E 02 8.020E 02 4.9066 02 2.884E 02 7.950E 02 4.857E 00 1.994E 01 6.000E 00 01 1.994E 01 6.000E 00 01 1.994E 01 6.000E 00 01 1.994E 01 6.000E 00 02 2.474E 02 8.16CE 02 4.862E 02 2.474E 02 8.16CE 02 4.852E 03 2.474E 02 8.16CE 02 4.837E 04 2.556E 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 |
|---|---|--|
| 2.988E 02 7.990E 02 2.988E 02 7.990E 02 1.994E 01 6.000E 00 1.994E 01 6.000E 00 1.994E 01 6.000E 00 1.994E 02 8.160E 02 2.918E 02 8.130E 02 3.017E 02 8.130E 02 | DELTA COORE 02 1.994E 01 6.000E 02 1.994E 01 6.000E 00 1.994E 01 6.000E 00 1.994E 01 6.000E 00 2.474E 02 8.14CE 02 2.474E 02 8.14CE 02 2.474E 02 8.14CE 02 02 2.918E 02 8.140E 02 DELTA C L E DELTA C L E DELTA C L E DELTA C L E 00 2.056E 01 6.000E 00 11 2.056E 01 6.000E 00 | DELTA E 00 1.994E 01 6.000E 02 1.994E 01 6.000E 00 1.994E 01 6.000E 00 1.994E 01 6.000E 00 2.474E 02 8.140E 02 2.474E 02 8.140E 02 2.5918E 02 8.140E 02 02 2.5918E 02 8.140E 02 03 2.058E 01 6.000E 00 1.2058E 01 6.000E 00 |
| DELTA E LE 1.994E 01 6.000E 00 1.994E 01 6.000E 00 1.994E 01 6.000E 00 1.994E 01 6.000E 00 2.916E 02 8.14CE 02 4.862E 2.916E 02 8.14CE 02 4.852E 2.916E 02 8.14CE 02 4.852E | 00 1.994E 01 6.000E 00 01 1.994E 01 6.000E 00 01 1.994E 01 6.000E 00 02 2.474E 02 8.16CE 02 4.837E 02 2.918E 02 8.130E 02 4.837E 03 3.017E 02 8.130E 02 4.837E 04 2.056E 01 6.000E 00 01 2.056E 01 6.000E 00 01 2.056E 01 6.000E 00 | 00 1:994E 01 6.000E 00 01 1:994E 01 6.000E 00 01 1:994E 01 6.000E 00 01 1:994E 01 6.000E 00 02 2.474E 02 8.14CE 02 4.852E 02 2.918E 02 8.14CE 02 4.837E 02 2.918E 02 8.14CE 02 4.837E 02 2.918E 02 8.14CE 02 4.837E 02 2.918E 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 |
| 1.994E 01 6.000E 00 1.994E 01 6.000F 00 1.994E 01 6.000E 00 2.474E 02 8.16CF 02 4.862E 2.918E 02 8.140E 02 4.837E 3.017E 02 8.130E 02 4.837E | 1 1.994E 01 6.000E 00 1 1.994E 01 6.000E 00 1 1.994E 01 6.000E 00 2 2.474E 02 8.16CE 02 4.832E 02 2.918E 02 8.130E 02 4.832E 02 3.017E 02 8.130E 02 4.834E 02 3.05EE 01 6.000E 00 01 2.056E 01 6.000E 00 | 1 1.994E 01 6.000E 00 1 1.994E 01 6.000F 00 1 1.994E 01 6.000F 00 2 2.474E 02 8.14CE 02 4.852E 02 2.918E 02 8.14CE 02 4.837E 02 2.918E 02 8.130E 02 4.837E 02 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 |
| 1.994E 01 6.000E 30 DATA P TB TB TB TB TB TB TB TB TB T | 11.994E 01 6.000E 00 22.474E 02 8.16CE 02 4.837E 02 2.918E 02 8.130E 02 4.837E 02 02 2.918E 02 0.000E 00 01 2.058E 01 6.000E 00 | 11.994E 01 6.000E 00 DATA P 2.474E 02 8.16CF 02 4.86ZE 02 2.918E 02 8.140E 02 4.837E 02 2.918E 02 8.140E 02 4.837E 02 02 2.958E 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 |
| DATA P 2.474E 02 8.16CF 02 4.862E 02 2.918E 02 8.140E 02 4.837E C2 3.017E 02 8.130E 02 4.824E 02 | DATA P 10 2 2.474E 02 8.16CF 02 4.862E 02 02 2.918E 02 8.130E 02 4.837E 02 02 4.824E 02 02 02 02 02 02 02 02 02 02 02 02 02 | DATA P 102 2.474E 02 8.16CF 02 4.862E 02 103 2.918E 02 8.140E 02 4.852E 02 104 2.918E 02 8.130E 02 4.824E 02 105 2.058E 01 6.000E 00 105 2.058E 01 6.000E 00 105 2.058E 01 6.000E 00 |
| 2.474E 02 8.16CF 02 4.862E 02 2.918E 02 8.140E 02 4.837E C2 3.017E 02 8.130E 02 4.624E 02 | DATA P The | DATA PO DATA P |
| TB TB TB TI TB TI TB | 11 | 11 |
| 2.474E 02 8.16CF 02 4.862E 02 2.918E 02 8.140E 02 4.837E 62 3.017E 02 8.130E 02 4.824E 02 | 02 2.474E 02 8.16CF 02 4.86ZE 02 02 2.918E 02 8.140E 02 4.837E G2 3.017E 02 8.130E 02 4.824E 02 DELTA E C C 00 2.05GE 01 6.000E 00 01 2.05GE 01 6.000E 00 | 02 2.474E 02 8.16CF 02 4.862E 02 62 2.918E 02 8.140E 02 4.837E 02 3.017E 02 8.130E 02 4.824E 02 DELTA E LE LE LE LE LE LE LE LE LE COSSE 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 01 0.000E |
| 3.917E 02 8.140E 02 | 02 2.918E 02 8.140E 02 4.837E 02 02 3.017E 02 8.130E 02 4.824E 02 DELTA E LE 00 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 | 02 2.918E 02 8.140E 02 4.837E 02 02 3.017E 02 8.130E 02 4.624E 02 DELTA E LE 00 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 00 00 00 00 00 00 00 00 00 00 00 |
| | DELTA E LE 00 2.056E 01 6.000E 01 2.056E 01 6.000E 01 2.056E 01 6.000E | 00 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 |
| | #1 2.058E C1 6.000E | 01 2.058E C1 6.000E 00 |
| 00 2.058E 01 6.000E | | NIO4 TAG |
| 00 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 01 2.058E 01 6.000E 00 | 22 1 | |
| 2.058E 01 6.000E 00 2.058E 01 6.000E 00 2.058E 01 6.000E 00 3.027E 02 0. | 3.027E 02 0. Th | 3.0275 02 0. |
| 2.056E 01 6.000E 00 2.056E 01 6.000E 00 2.056E C1 6.000E 00 3.027E 02 0. 0. 0. | 3.027E 02 0. 0. 3.027E 02 0. 0. | 3.027E 02 0. 0. 0. |
| 00 2.056E 01 6.000E 00 01 2.056E 01 6.000E 00 01 2.056E 01 6.000E 00 01 3.027E 02 0. Th | 3.027E 02 0. 0. 3.027E 02 0. 0. | 3.027E 02 0. 0. 3.027E 02 0. 0. |
| 2.056E 01 6.000E 00 2.056E 01 6.000E 00 2.058E C1 6.000E 00 3.027E 02 0. Th TI 3.027E 02 0. 0. 0. 3.027E 02 0. 0. | 3.027E 02 0. 0. 3.027E 02 0. 0. 3.027E 02 0. 0. | 3.027E 02 0. 0. 3.027E 02 0. 0. |
| 2.058E 01 6.000E 00 2.058E 01 6.000E 00 2.058E C1 6.000E 00 3.027E 02 0. 0. 0. 3.027E 02 0. 0. 0. 3.027E 02 0. 0. | 3.027E 02 0. 0. 3.027E 02 0. 3.027E 02 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. | 3.027E 02 0. 0. 3.027E 02 0. 0. 3.027E 02 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. |

TEST SECTION - LOCAL TEST PARAMETERS
HT-9-117, BURNOUT AT DATA PT 9, BURNOUT SITE COND. AT DATA PT 9

| 5.259E 62 2.471E 02 5.015E 62 2.994E 02 5.011E 62 2.994E 02 1.759E 00 1.994E 01 3.417E 01 1.994E 01 4.137E 01 1.994E 01 5.249E 02 2.474E 02 5.046E 02 2.474E 02 5.046E 02 2.916E 02 | N N N N N N N N N N N N N N N N N N N |
|---|---|
| 2.886 02 2.9886 02 0 DELTA E 1.9946 01 1.9946 01 1.9946 01 1.9946 02 2.9186 02 2.9186 02 3.0176 02 | 5.0566 02 2.8946 02 5.0116 02 2.8846 02 1.7996 00 1.9946 01 4.1376 01 1.9946 01 4.1376 01 1.9946 01 5.2496 02 2.4746 02 5.0466 02 2.9186 02 5.016 02 2.9186 02 |
| 2.9886 02 DELTA E 1.9946 01 1.9946 01 1.994C 01 2.974E 02 2.976 02 2.976 02 | 5.011E 62 2.988E 02 L/C DELTA E 1.799E 80 1.994E 01 3.417E 81 1.994E 01 4.137E 81 1.994E 01 5.249E 02 2.474E 02 5.046E 62 2.918E 02 5.046E 82 3.017E 02 L/C DELTA E |
| DELTA E 1.994E 01 1.994E 01 1.994E 01 2.474E 02 2.918E 02 3.017E 02 | 1.799E 00 1.994E 01 3.417E 01 1.994E 01 4.137E 01 1.994E 01 5.249E 02 2.474E 02 5.046E 02 2.916E 02 5.01F 02 02 02 02 02 02 03 01 02 02 |
| 1.994E 01 1.994E 01 1.994E 01 2.474E 02 2.916E 02 3.017E 02 | 1.799E 80 1.994E 01 3.417E 81 1.994E 01 4.137E 81 1.994E 01 5.249E 02 2.474E 02 5.046E 82 2.918E 02 5.011F 82 3.017E 02 |
| 1.9946 01 1.994C 01 2.474E 02 2.916E 02 3.017E 02 | 3.417E 01 1.994E 01 4.137E 01 1.994E 01 5.249E 02 2.474E 02 5.046E 02 2.916E 02 5.001F 02 3.017E 02 |
| 78 2.474E 02 2.916E 02 3.017E 02 | 5.249E 02 2.474E 02 5.046E 02 5.001F 02 3.017E 02 L/C 0ELTA E |
| 2.474E 02 2.916E 02 3.017E 02 | 5.249E 02 2.474E 02 5.046E 02 5.011F 02 3.017E 02 L/C 0ELTA E |
| 78 2.474E 02 2.916E 02 3.017E 02 | 18 02 2.474E 02 02 2.916E 02 02 3.017E 02 0ELTA E |
| 2.474E 02 2.918E 02 3.017E 02 | 02 2.474E 02 02 2.918E 02 02 3.017E 02 |
| 2.916E 02 3.017E 02 | 5.040E 02 2.916E 02 5.001F 02 3.017E 02 L/C DELTA E |
| | 02 3.017E 02 DELTA E |
| | DELTA E |
| 1.199E 60 2.058E 01 6.000E | |

Report AFRPL-TR-67-208, Appendix C

HT BAL B-667E 00 1-210E 00 -2-619E 00 -3-038E 00

4.605E-01 1.452E 00 2.240E 00 3.472E 00

002

12 3.680E 6.030E 7.270E 8.890E 9.870E

00000

DELTA TO = 0.280E 01

LIGUID SEDE HEAT TRANSFER TEST DATA

OVERALL TEST PARAMETERS

HT-9-117 . NO TUBE FAILURE. TH EXC. AFTER DP S

IEST SECTION - LOCAL TEST PARAMETERS HTT-9-128, NO TUBE FAILURE, TW EXC. AFTER DP 5

| | | | | DATA | DATA POINT 1 | | | | | |
|------|-----------------|----------------------|-----------------|-----------------|------------------|-------------------|----------------|---------------------|-----------------|---|
| ¥ - | PB 5.213€ 02 | T8 -3.417E 01 | TB 1.250E 02 | TI 6.737E 01 | 0/A 6.743E-01 | 0/AP 7-029E-01 | H 5.7836-03 | DEL TF 1.215E 02 | VS 5.596E 01 | = |
| ¥ - | 8.993E 00 | DELTA E 1.320E 00 | 1.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 2 | | | | | |
| 4 | P8 5.218E 02 | TB -2.988E 01 | T# 4.550E 02 | 71 3.492E 02 | 0/A 2-181F 00 | 0/AP 2.216£ 00 | N 5.846E-03 | 0EL TF 3.791F 02 | VS 5.641E 01 | = |
| 1 | 6.993E 00 | DELTA E 2.540E 00 | LE 1.500€ 00 | | | | | | | |
| | | | | DATA | DATA POINT 3 | | | | | |
| ¥ - | | PB TB | TB 5.860E 02 | T1 | 0/A 3.404E 00 | 3.419E 00 | 7.461E-03 | 05L TF 4.582E 02 | VS 5.634E 01 | = |
| ¥ - | 8.993E 00 | DELTA E 3.250E 00 | 1.500€ 00 | | | | | | | |
| | | | | DATA | DATA PUINT 4 | | | | | |
| ¥ - | P8 5.207E 02 | TB -2.240E 01 | TB 6.720E 02 | T1 | 9/A 5.345E 00 | 0/AP | H 1.169E-02 | DEL TF 4.534E 02 | VS 5.665E 01 | = |
| ¥ - | 6.993E 80 | DELTA E 4-120E 00 | LE 1.500E 00 | | | | | | | |
| | | | | DATA | DATA POINT 5 | | | | | |
| 7 7 | | PB TB | T.230E 02 | TI 4.092E 02 | 0/A 7.023E 00 | 0/AP | H 1.583E-02 | DEL TF | VS 5.723E 01 | - |
| \$17 | 5 | DELTA E | , CE | | | | | | | |

Security Classification

| DOCUMENT C (Security classification of title, body of abstract and inde | ONTROL DATA - RAD | ed when it | he overall report is classified) | | |
|---|---|------------|----------------------------------|--|--|
| 1. ORIGINATING ACTIVITY (Corporate author) | | | T SECURITY C LASSIFICATION | | |
| Acresian Comercial Community | | Confi | dential | | |
| Aerojet-General Corporation | 2.0 | 26 GROUP | | | |
| 3. REPORT TITLE | 4 | | | | |
| | | | | | |
| Heat Transfer Study of MHF-5 and MMH | I | | | | |
| 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) | | | | | |
| Final Report, 1 July 1966 to 31 May | 1967 | | | | |
| 5. AUTHOR(S) (Last name, first name, initial) | | | | | |
| Rousar, Donald C., Van Huff, Norman | E., Anderson, Rogo | er E., | Fink, Arnold | | |
| 6. REPORT DATE | 74- TOTAL NO. OF PAGES | | 75. NO. OF REFS | | |
| August 1967 | 397 | | 89 | | |
| 87. CONTRACT OR GRANT NO. AF 04(611)-11607 | 94. ORIGINATOR'S REPORT NUMBER(S) | | | | |
| & PROJECT NO. 3148 | AFRPL-TR-67-208 | | | | |
| c . | 9b. OTHER REPORT NO(3) (Any other numbers that may be essigned this report) | | | | |
| d | | | | | |
| 10. AVAILABILITY/LIMITATION NOTICES IN ADDITION THIS DOCUMENT IS SUBJECT TO SPECIAL EXPORT NATIONALS MAY BE MADE ONLY WITH PRIOR APPR CALIFORNIA, 93523 | CONTROLS, AND EACH | TRANSMI | TTAL TO FOREIGN | | |
| 11. SUPPLEMENTARY NOTES | 12. SPONSORING MILITAI | RY ACTIV | NTY | | |
| | Air Force Rock | et Pro | opulsion Laboratory | | |
| 13. ABSTRACT THIS REPORT PRESENTS THE RESULTS OF A | N EXPERIMENTAL INVEST | TIGATIO | N OF THE HEAT TRANSFER | | |

CHARACTERISTICS OF MHF-5 AND MMH AT SUBCRITICAL AND SUPERCRITICAL PRESSURES. FIFTY-FIVE HEAT TRANSFER TESTS WERE CONDUCTED WITH ELECTRICALLY HEATED 347 STAINLESS STEEL AND INCOMEL 718 TUBES AT THE FOLLOWING RANGES OF CONDITIONS: 250 to 3960 PSIA PRESSURE, 17.7 to 205 FT/SEC VELOCITY, -42 to 3080 BULK TEMPERATURE, AND HEAT FLUXES UP to 49.6 BTU/IN.2 SEC. AT SUBCRITICAL PRESSURE, THE BURNOUT HEAT FLUX OF MHF-5 AND MMH WAS FOUND TO CORRELATE WITH THE PRODUCT OF VELOCITY AND SUBCOOLING. A REDUCTION IN BURN-OUT HEAT FLUX, ATTRIBUTED TO VISCOUS EFFECTS, WAS OBSERVED WITH MHF-5 AND MMH AT LOW BULK TEMPERATURES. THIS TYPE OF BEHAVIOR WAS FOUND TO HAVE OCCURRED IN PREVIOUS INVESTIGATIONS WITH OTHER PROPELLANTS AND A FAIRLY GENERAL CORRELATION FOR PREDICTING THIS PHENOMENON WAS ESTABLISHED. AN UNUSUAL AND PRONOUNCED EFFECT OF PRESSURE ON MHF-5 BURNOUT HEAT FLUX WAS OBSERVED AND EMPIRICALLY CORRELATED. A BURNOUTLIKE CONDITION WAS FOUND TO EXIST WITH BOTH PROPELLANTS AT SUPERCRITICAL PRESSURE. IT WAS FOUND THAT THE HEAT FLUX AT WHICH THIS CONDITION DEVELOPED, TERMED THE ULTIMATE HEAT FLUX, COULD BE PREDICTED REASONABLY WELL WITH CONVECTIONAL FORCED CONVECTION EXPRESSIONS IN CONJUNCTION WITH A MAXIMUM WALL TEMPERATURE OF 700°F. SIGNIFICANT CARBONACEOUS DEPOSITS FORMED IN THE SUPERCRITICAL PRESSURE TEST SECTIONS AND EVIDENCE OF CARBURIZATION AND INTERGRANULAR

PENETRATION BY CARBON WERE FOUND. CHEMICAL ANALYSIS SHOWED THAT NO SIGNIFICANT DECOMPOSITION OF THE MHF-5 AND MMH OCCURRED DURING TESTING. IN ADDITION, THE ELECTRICAL RESISTIVITY OF 347 STAINLESS STEEL AND INCONEL 718 TUBING WAS MEASURED, AND PHYSICAL PROPERTIES DATA FOR MHF-5 AND MMH FOUND IN THE LITERATURE WERE EXTRAPOLATED TO HIGH PRESSURES AND TEMPERATURES.

DD .5084. 1473

Unclassified