SPACE SHUTTLE

AN INVESTIGATION OF THE LOAD DISTRIBUTION OVER THE SRB AND EXTERNAL TANK OF A 0.004 SCALE MODEL OF THE 049 SPACE SHUTTLE LAUNCH CONFIGURATION

by

Robert A. Lott, LMSC/HREC
Paul Ramsey, NASA/MSFC

MSFC 14-INCH TRISONIC WIND TUNNEL

Marshall Space Flight Center

NASA

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SADSAC/SPACE SHUTTLE

WIND TUNNEL TEST DATA REPORT

CONFIGURATION: 0.004 SCALE MODEL OF SPACE SHUTTLE 049 LAUNCH CONFIGURATION

TEST PURPOSE: PRESSURE DISTRIBUTION OVER THE SRB AND EXTERNAL TANK OF LAUNCH VEHICLE.

TEST FACILITY: NASA/MSFC 14 x 14 INCH TRISONIC TUNNEL

TESTING AGENCY: LOCKHEED-HUNTSVILLE

TEST NO. & DATE: MSFC TWT 543, AUG 11 TO SEPT 1, 1972

FACILITY COORDINATOR: Jim Weaver, NASA/MSFC

PROJECT ENGINEER(S): Robert A. Lott, IMSC/HREC
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LIAISON: V. W. Sparks

DATA OPERATIONS: H. C. Zimmerle

RELEASE APPROVAL: J. T. Kenney, Supervisor
                  Aero Thermo Data Group

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AN INVESTIGATION OF THE LOAD DISTRIBUTION OVER
THE SRB AND EXTERNAL TANK OF A 0.004 SCALE MODEL OF
THE 049 SPACE SHUTTLE LAUNCH CONFIGURATION

By R. Lott and P. Ramsey

ABSTRACT

The National Aeronautics and Space Administration has established the
general space shuttle launch configuration geometry and is presently in
the process of better defining the aerodynamic characteristics and load
distribution. In support of this effort, a study was conducted in the
MSFC 14 x 14-Inch Trisonic Wind Tunnel to determine the load distribution
over the external tank and SRB's of the launch configuration. The external
tank was sting-supported and the SRB's and orbiter mounted directly to the
external tank. The external tank was instrumented with 152 pressure ori-
fices and the SRB's contained 78 orifices. The pressure data were obtain-
ed for various combinations of the three geometric components (external
tank, SRB's and orbiter) as the gap size between the external tank and
SRB's, Mach number, angle of attack and angle of sideslip were varied.
Gap size was varied from 0.025 to 0.10, angle of attack range was -10° to
+10° and sideslip angles were from -10 to +10°. Mach numbers considered
ranged from 0.8 to 1.96.
<table>
<thead>
<tr>
<th>SYMBOL</th>
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<th>DEFINITION</th>
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<tr>
<td>s</td>
<td>Cp</td>
<td>speed of sound; m/sec, ft/sec</td>
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<tr>
<td></td>
<td>MACH</td>
<td>Mach number; V/a</td>
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<tr>
<td>p</td>
<td>q</td>
<td>pressure; N/m², psf</td>
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<tr>
<td></td>
<td>Q(NSM)</td>
<td>dynamic pressure; 1/2ρv², N/m², psf</td>
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<tr>
<td>RN/L</td>
<td></td>
<td>unit Reynolds number; per m, per ft</td>
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<tr>
<td>v</td>
<td>α</td>
<td>velocity; m/sec, ft/sec</td>
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<tr>
<td></td>
<td>β</td>
<td>angle of attack, degrees</td>
</tr>
<tr>
<td></td>
<td>ψ</td>
<td>angle of sideslip, degrees</td>
</tr>
<tr>
<td></td>
<td>φ</td>
<td>angle of yaw, degrees</td>
</tr>
<tr>
<td></td>
<td>ρ</td>
<td>angle of roll, degrees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mass density; kg/m³, slugs/ft³</td>
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**Reference & C.G. Definitions**

- Ab: base area; m², ft²
- b: wing span or reference span; m, ft
- c.g.: center of gravity
- l_REF: reference length or wing mean aerodynamic chord; m, ft
- S: wing area or reference area; m², ft²
- MRP: moment reference point
- XMRP: moment reference point on X axis
- YMRP: moment reference point on Y axis
- ZMRP: moment reference point on Z axis

**SUBSCRIPTS**

- b: base
- l: local
- s: static conditions
- t: total conditions
- co: free stream
### NOMENCIATURE (Continued)

#### Body Axis System

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<thead>
<tr>
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<tr>
<td>$C_N$</td>
<td>CN</td>
<td>normal force coefficient; $F_N/q_S$</td>
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<tr>
<td>$C_A$</td>
<td>CA</td>
<td>axial force coefficient; $F_A/q_S$</td>
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<tr>
<td>$C_{A_b}$</td>
<td>CAB</td>
<td>base axial force coefficient; $[-1] \left( \frac{P_b - p \omega}{q} \right) \left( \frac{A_b}{S} \right)$</td>
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<tr>
<td>$C_{A_f}$</td>
<td>CAF</td>
<td>forebody axial force coefficient; $C_A - C_{A_b}$</td>
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<td>$C_m$</td>
<td>CIM</td>
<td>pitching moment coefficient; $M_y/q_S l_{ref}$</td>
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<tr>
<td>$C_y$</td>
<td>CY</td>
<td>side force coefficient; $F_y/q_S$</td>
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<tr>
<td>$C_n$</td>
<td>CYN</td>
<td>yawing moment coefficient; $M_z/q_S b_{ref}$</td>
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<tr>
<td>$C_\ell$</td>
<td>CBL</td>
<td>rolling moment coefficient, $M_x/q_S b_{ref}$</td>
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### NOMENCLATURE (Continued)

(Additions for MSFC Test 543)

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<tr>
<td>$C_N'$</td>
<td>DCN/DX</td>
<td>local normal force coefficient $\frac{\partial C_N}{\partial (x/c)}$</td>
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<tr>
<td>$C_A'$</td>
<td>DCA/DX</td>
<td>local axial force coefficient $\frac{\partial C_A}{\partial (x/c)}$</td>
</tr>
<tr>
<td>$C_Y'$</td>
<td>DCY/DX</td>
<td>local side force coefficient $\frac{\partial C_Y}{\partial (x/c)}$</td>
</tr>
<tr>
<td>$C_{mN}$</td>
<td></td>
<td>local pitching moment coefficient due to normal force $\left[\frac{\partial C_{mN}}{\partial (x/c)}\right]_{C_N}$, referenced to the launch vehicle MRP.</td>
</tr>
<tr>
<td>$C_{mA}$</td>
<td></td>
<td>local pitching moment coefficient due to axial force $\left[\frac{\partial C_{mA}}{\partial (x/c)}\right]_{C_A}$, referenced to the component longitudinal centerline.</td>
</tr>
<tr>
<td>$C_{nY}$</td>
<td></td>
<td>local yawing moment coefficient due to side force $\left[\frac{\partial C_{nY}}{\partial (x/c)}\right]_{C_Y}$, referenced to the launch vehicle MRP.</td>
</tr>
<tr>
<td>$C_{nA}$</td>
<td></td>
<td>local yawing moment coefficient due to axial force $\left[\frac{\partial C_{nA}}{\partial (x/c)}\right]_{C_A}$, referenced to the component longitudinal centerline.</td>
</tr>
<tr>
<td>$C_{N\alpha}'$</td>
<td>CNDXDA</td>
<td>change in local normal force with $\alpha$; $\frac{\partial C_N'}{\partial \alpha}$</td>
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<tr>
<td>$C_{Y\beta}'$</td>
<td>CYDXDB</td>
<td>change in local side force with $\beta$; $\frac{\partial C_Y'}{\partial \beta}$</td>
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<td>$\alpha_1$</td>
<td>ORBINC</td>
<td>orbiter incidence angle relative to the external tank longitudinal $G_2$; positive when nose up; deg.</td>
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<tr>
<td>$\Delta g$</td>
<td>SRBGAP</td>
<td>gap size between external tank and SRB, inches model scale.</td>
</tr>
<tr>
<td>$x_s$</td>
<td></td>
<td>distance between the external tank nose and the orbiter nose measured along the tank longitudinal centerline, inches model scale.</td>
</tr>
<tr>
<td>$\phi_s$</td>
<td>PHIS</td>
<td>radial position of solid rocket booster relative to the vertical plane, deg.</td>
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NOMENCLATURE (Concluded)

(Additions for MSFC Test 543)

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<td>SRB</td>
<td>SRBPOS</td>
<td>radial position of SRB (See Figure 6), position code number.</td>
</tr>
<tr>
<td>x/\bar{c}</td>
<td>X/LREF</td>
<td>longitudinal distance measured from the nose of the external tank and divided by orbiter wing m.a.c.</td>
</tr>
<tr>
<td>\phi</td>
<td>PHI</td>
<td>radial position angle measured from the vertical plane, degrees; first quadrant is upper left looking forward.</td>
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CONFIGURATIONS INVESTIGATED

The launch configuration consists of the double delta wing orbiter with one large external hydrogen-oxygen tank and two solid rocket boosters (SRB) underslung beneath the orbiter (see Figure 2). Configuration components investigated were:

Symbol

<table>
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<th>Symbol</th>
<th>Description</th>
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<tr>
<td>01</td>
<td>baseline orbiter (less abort solid rocket motors)</td>
</tr>
<tr>
<td>02</td>
<td>baseline orbiter</td>
</tr>
<tr>
<td>T1</td>
<td>346-in. diam. external tank with 22-deg nosecone (baseline) (with structural rings)</td>
</tr>
<tr>
<td>S1</td>
<td>156-in. diam. solid rocket motor with 17-deg nosecone (baseline)</td>
</tr>
</tbody>
</table>

Combinations of these components as they were investigated are shown in Table II entitled Dataset Collations.
TEST FACILITY DESCRIPTION

The Marshall Space Flight Center 14" x 14" Trisonic Wind Tunnel is an intermittent blowdown tunnel which operates by high pressure air flowing from storage to either vacuum or atmospheric conditions. A Mach number range from .2 to 5.85 is covered by utilizing two interchangeable test sections. The transonic section permits testing at Mach 0.20 through 2.50, and the supersonic section permits testing at Mach 2.74 through 5.85. Mach numbers between .2 and .9 are obtained by using a controllable diffuser. The range from .95 to 1.3 is achieved through the use of plenum suction and perforated walls. Mach numbers of 1.44, 1.93 and 2.50 are produced by interchangeable sets of fixed contour nozzle blocks. Above Mach 2.50 a set of fixed contour nozzle blocks are tilted and translated automatically to produce any desired Mach number in .25 increments.

Air is supplied to a 6000 cubic foot storage tank at approximately -40°F dew point and 500 psi. The compressor is a three-stage reciprocating unit driven by a 1500 hp motor.

The tunnel flow is established and controlled with a servo actuated gate valve. The controlled air flows through the valve diffuser into the stilling chamber and heat exchanger where the air temperature can be controlled from ambient to approximately 180°F. The air then passes through the test section which contains the nozzle blocks and test region.

Downstream of the test section is a hydraulically controlled pitch sector that provides a total angle of attack range of 20° (±10°). Sting offsets are available for obtaining various maximum angles of attack up to 90°.
MODEL DESCRIPTION

A sketch of the launch configuration model geometry is shown in Figure 2 and the overall model dimensions are given in Table III. The model is 0.004 scale and is comprised of three basic geometric components: (1) the orbiter hydrogen/oxygen fuel tank; (2) two solid rocket boosters (SRB's); and (3) the orbiter configuration. The orbiter and SRB's are fastened to the external tank which is sting supported. The axial location of the orbiter is fixed with respect to the external tank (i.e., $X_s = 2.803$ in., Figure 2); however, orbiter incidence was varied during the test. The axial location of the SRB's is fixed with respect to the external tank; however, the SRB's were rolled about their longitudinal axis in 15 deg increments to vary the pressure orifice locations. Spacers were used to vary the gap between the external tank and SRB's. The bolt pattern for fastening the orbiter and SRB's to the external tank is shown in Figure 3.

The SRB's and external tank are fabricated from 2651 mm Stycast material. The orbiter model which was used in tests TWT 542 and 544 is fabricated from aluminum and stainless steel. The SRB's contain 78 pressure orifices (39 on both the right and left SRB's) and the external tank contains 152 pressure orifices, for a total of 230.

The orifice pattern on the external tank is presented in Figure 4. Since the model is symmetric about the X-Z plane, only the left side (as viewed from the rear) or quadrants I and II are instrumented. Nominally, 15 orifices are aligned in axial rows with 12 in each radial ring. In quadrant I, the orifices are located every 15 degrees and every 18 degrees in quadrant II. However,
because of the limitations imposed by model size and the maximum number of orifices available, there are a number of exceptions to the nominal orifice pattern. These occur primarily in the radial direction in the nose region and axially for orifices located on the cylindrical portion of the external tank.

The orifices on the SRB's are arranged along 4 axial rows 90 degrees apart. Three of the rows have 12 orifices and the fourth has 3 orifices located on the nose (Figure 5).

By using data from both right and left SRB's and the various combinations of bolt patterns for attaching the SRB's to the external tank, the pressure distribution over the SRB's can be obtained in 15 degree radial increments. This, however, would require 6 separate runs. In order to reduce the tunnel time required for the test, the SRB's were tested in positions I, III, II + 180, and III + 180. Figure 6 identifies the radial location of the orifices for the various bolt positions. Therefore, only four tunnel runs were required to obtain a set of data for one test condition and model orientation. The set of data is therefore comprised of data from both the left and right SRB obtained from 4 runs along with data from the external tank obtained from the run with the SRB location in position I.
DATA REDUCTION

All static pressures were reduced to coefficient form referenced to freestream static and dynamic pressure. The pressure tap locations are referenced longitudinally to the nose of the external tank for both the tank and the SRB, and non-dimensionalized by the orbiter wing M.A.C.; the radial positions are measured from the top centerline, counterclockwise looking forward on the external tank and the left SRB. All SRB data for the yawed model is referenced to the left SRB.

The pressure coefficient data was integrated using the Chrysler Corporation's SADSAC program to obtain the longitudinal distributions of the normal and side force coefficients, and the total component force and moment coefficients, for the external tank and the SRB. The following equations were used for the integrations of local force and moment coefficients:

\[
CN' = - \frac{\phi_{n=360^\circ}}{S} \sum_{\phi_1=0^\circ} \left( \frac{C_{p1} + C_{p1+1}}{2} \right) \left( r_j \sin \phi_{1+1} - r_j \sin \phi_1 \right)
\]

\[
CM_{Nj} = CN' \left[ \frac{XMRP}{c} - \left( \frac{x}{c} \right)_j \right]
\]

\[
CY' = - \frac{\phi_{n=360^\circ}}{S} \sum_{\phi_1=0^\circ} \left( \frac{C_{p1} + C_{p1+1}}{2} \right) \left( r_j \cos \phi_{1+1} - r_j \cos \phi_1 \right)
\]

\[
CM_{Yj} = CY' \left[ \frac{XMRP}{c} - \left( \frac{x}{c} \right)_j \right] \cdot \frac{c}{b}
\]

\[
CA' = c \sum_{\phi_1=0^\circ} \left( \frac{C_{p1} + C_{p1+1}}{2} \right) \left( r_j \phi_{1+1} - r_j \phi_1 \right) \tan \delta
\]

\[
CM_{Aj} = \frac{1}{S} \sum_{\phi_1=0^\circ} \left( \frac{C_{p1} r_j \cos \phi_1 + C_{p1+1} r_j \cos \phi_{1+1}}{2} \right) \left( r_j \phi_{1+1} - r_j \phi_1 \right) \tan \delta
\]
\[ C_{n'_{A_j}} = - \frac{\delta}{8b} \sum_{\phi_1=0}^{\phi_1=360^\circ} \left( \frac{C_{p1} r_j \sin \phi_1 + C_{p1+1} r_j \sin \phi_{1+1}}{2} \right) (r_j \phi_{1+1} - r_j \phi_1) \tan \delta \]

\[ \delta = \text{semi-vertex angle of nose cone} \]

For the external tank at zero sideslip, the integrations from 0 to 360° were evaluated as twice the integration value for 0 to 180°. For the external tank in the yawed condition, the pressures for the intermediate radial positions on the right side of the tank were obtained from the left side at the equal and opposite sideslip angle. The integrations for CN', CmN', CY', and CNy', were performed for all pressure tap stations on the afterbodies of the tank and SRB, and for selected tap stations on the nose cones of both components. Pressure data at \(x/c = 0.460\) and 0.682 on the external tank, and at \(x/c = 0.679\) on the SRB, was not used in the integrations for normal and side force because the number of taps at these stations was considered too few to accurately determine the net forces across the section.

Interpolation error was judged to have less effect on the integration for local axial force, and so all stations on the nose cone were used in the integration for \(C_{A'}\) and the resulting moments. At stations where no data was obtained for \(\phi = 0\) on the SRB, or \(\phi = 0\) and 180° on the tank, the radial distributions were extended to the limits of integration by assuming a constant \(C_p\) value for the first and final segments. The pressure data was also extended longitudinally by the same method to obtain the local force coefficients for stations at the center of the leading radius and at the base of both bodies. These added stations served as the limits of integration on the force coefficient distributions and are included in the force distribution plots. The plots of the pressure data show only acquired data.

The local force and moment coefficients were integrated using the following general equation:

\[ I = \sum_{j=1}^{j=n} \left[ I_j^{'} + I_{j+1}^{'} \right] \left[ \left( \frac{x_j}{\delta} \right)_{j+1} - \left( \frac{x_j}{\delta} \right)_j \right] \]

That is, if \(I_j^{'} = C_{n_j}^{'}\) (j = 1 to n), then \(I = I(C_{n}) = C_n\), the total integrated normal force coefficient for the model component (external tank or SRB).
The final component force and moment coefficients are obtained as follows:

\[ C_N = I (C'_N) \]
\[ C_{Af} = I (C'_A) \]
\[ C_Y = I (C'_Y) \]
\[ C_m = I (C'_m_N) + I (C'_m_A) - \left( \frac{\Delta Z}{c} \right) (C_{Af}) \]
\[ C_n = I (C'_n_N) + I (C'_n_A) - \left( \frac{\Delta Y}{c} \right) (C_{Af}) \]

where \( \Delta Z \) = vertical distance from the MRP to the component longitudinal C.L., positive for C.L. below MRP; inches.

\( \Delta Y \) = lateral distance from tank C.L. to the SRB C.L., positive for the left SRB.

These equations yield the total component force and moment coefficients in the body axis system.

The moment coefficients for both tank and SRB are referenced to an MRP located 4.226 inches aft of the tank nose and 0.248 inches above the centerline of the external tank in the model plane of symmetry. The reference area and lengths are as follows:

\[ S = S_{REF} = \text{reference area} = 7.880 \text{ in}^2 \]
\[ \bar{c} = L_{REF} = \text{longitudinal reference length} = 2.028 \text{ in.} \]
\[ b = B_{REF} = \text{reference span} = 4.460 \text{ in.} \]

REFERENCES

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<tr>
<th>MACH NUMBER</th>
<th>REYNOLDS NUMBER (per unit length)</th>
<th>DYNAMIC PRESSURE (pounds/sq. inch)</th>
<th>STAGNATION TEMPERATURE (degrees Fahrenheit)</th>
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<tr>
<td>0.60</td>
<td>(5.0 \times 10^6)</td>
<td>4.3</td>
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<tr>
<td>0.90</td>
<td>6.3</td>
<td>7.4</td>
<td>100</td>
</tr>
<tr>
<td>1.20</td>
<td>6.1</td>
<td>8.3</td>
<td>100</td>
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<tr>
<td>1.46</td>
<td>6.5</td>
<td>9.5</td>
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<tr>
<td>1.96</td>
<td>7.0</td>
<td>10.2</td>
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**Balance Utilized:** NONE (Pressure Test)

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<td>R70 000</td>
<td>Ti</td>
<td>A 0</td>
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<td>—</td>
<td>0.80 0.95 1.10 1.20 1.46 1.96</td>
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<td>TiO₁</td>
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<td></td>
<td>B 6</td>
<td>40- 34- 30- 26- 20- 18</td>
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</table>

**TABLE II.**

**TEST: MSFC 543**

**DATA SET/RUN NUMBER COLLATION SUMMARY**

**DATE: POST TEST**

**TEST RUN NUMBERS**

**1) 7 13 19 25 31 37 43 49 55 61 67 73 79**

**α OR β SCHEDULES**

- A) -10°, -4°, 0°, 4°, 10°
- B) 10°, -10°

**COEFFICIENTS**

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<thead>
<tr>
<th>IDVAR (1)</th>
<th>IDVAR (2)</th>
<th>NDV</th>
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<tr>
<td>DATA SET IDENTIFIER</td>
<td>CONFIGURATION</td>
<td>SCHED. POS.</td>
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<tr>
<td>---------------------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>R70300</td>
<td>T1S1.01 (WITHOUT ABORT SRB)</td>
<td>0</td>
</tr>
<tr>
<td>400</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>700</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>800</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>905</td>
<td>T1S1.02 (ABORT SRB)</td>
<td>A</td>
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<table>
<thead>
<tr>
<th>MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)</th>
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**TEST: MSFC 543**

**DATA SET/RUN NUMBER COLLABORATION SUMMARY**

**DATE: POST TEST**
### TABLE III. (CONTINUED)

**MODEL DIMENSIONAL DATA**

**MODEL COMPONENT:** BODY - B1

**GENERAL DESCRIPTION:** BASIC BODY

**DRAWING NUMBER:**

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>FULL SCALE</th>
<th>MODEL SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1315 in.</td>
<td>5.260 in.</td>
</tr>
<tr>
<td>Max Width (P.L. BAY/REAR END)</td>
<td>208/220 in.</td>
<td>0.832/0.880 in.</td>
</tr>
<tr>
<td>Max Depth</td>
<td>235 in.</td>
<td>0.940 in.</td>
</tr>
<tr>
<td>Fineness Ratio (LENGTH/P.L. BAY)</td>
<td>6.32</td>
<td>6.32</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Cross-Sectional Planform</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Wetted</td>
<td>6250 ft²</td>
<td>14.40 in²</td>
</tr>
<tr>
<td>Base (PROJECTED)</td>
<td>317.7 ft²</td>
<td>0.732 in²</td>
</tr>
</tbody>
</table>
TABLE III. (CONTINUED)

MODEL DIMENSIONAL DATA

MODEL COMPONENT: BODY - S1

GENERAL DESCRIPTION: SOLID ROCKET MOTOR (BASELINE DIA.)

DRAWING NUMBER:

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>FULL SCALE</th>
<th>MODEL SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1743 in.</td>
<td>6.972</td>
</tr>
<tr>
<td>Max Width</td>
<td>156 in.</td>
<td>0.624 in.</td>
</tr>
<tr>
<td>Max Depth</td>
<td>156 in.</td>
<td>0.624 in.</td>
</tr>
<tr>
<td>Fineness Ratio</td>
<td>11.17</td>
<td>11.17</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Cross-Sectional Max. Cross-Sectional</td>
<td>132.5 ft²</td>
<td>0.306 in²</td>
</tr>
<tr>
<td>Planform</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Wetted</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Base</td>
<td>132.5 ft²</td>
<td>0.306 in²</td>
</tr>
</tbody>
</table>
### TABLE III.
MODEL DIMENSIONAL DATA

**MODEL COMPONENT:** BODY - T1

**GENERAL DESCRIPTION:** HYDROGEN-OXYGEN TANK (BASELINE DIAMETER)

**DRAWING NUMBER:**

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>FULL SCALE</th>
<th>MODEL SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>1876.75 in.</td>
<td>7.507 in.</td>
</tr>
<tr>
<td>Max Width</td>
<td>346 in.</td>
<td>1.384 in.</td>
</tr>
<tr>
<td>Max Depth</td>
<td>346 in.</td>
<td>1.384 in.</td>
</tr>
<tr>
<td>Fineness Ratio</td>
<td>5.42</td>
<td>5.42</td>
</tr>
<tr>
<td>Area</td>
<td>652.95 ft(^2)</td>
<td>1.504 in(^2)</td>
</tr>
<tr>
<td>Max. Cross-Sectional Planform</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Wetted</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Base</td>
<td>652.95 ft(^2)</td>
<td>1.504 in(^2)</td>
</tr>
</tbody>
</table>
## TABLE III. (CONTINUED)

**MODEL COMPONENT:** "V" TAIL STABILIZER

**GENERAL DESCRIPTION:** ORBITER (THE FOLLOWING DIMENSIONS ARE REPRESENTATIVE OF THE TWO VERTICAL STABILIZERS i.e., PER SIDE)

---

**DRAWING NUMBER:**

**DIMENSIONS:**

<table>
<thead>
<tr>
<th></th>
<th>FULL-SCALE</th>
<th>MODEL SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL DATA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>525 ft²</td>
<td>1.21 in²</td>
</tr>
<tr>
<td>Planform Wetted</td>
<td>376</td>
<td></td>
</tr>
<tr>
<td>Span (equivalent)</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Rate of Taper</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Taper Ratio</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Dihedral Angle, degrees</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Incidence Angle, degrees</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Aerodynamic Twist, degrees</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Toe-In Angle</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Cant Angle</td>
<td>5° WEDGE (60/40)</td>
<td>5° WEDGE (60/40)</td>
</tr>
<tr>
<td>Sweep Back Angles, degrees</td>
<td>5° WEDGE (60/40)</td>
<td>5° WEDGE (60/40)</td>
</tr>
<tr>
<td>Leading Edge</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Trailing Edge</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>0.25 Element Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EXPOSED DATA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>250 ft²</td>
<td>0.576 in²</td>
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<tr>
<td>Span, (equivalent)</td>
<td>240 in.</td>
<td>0.96 in.</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Taper Ratio</td>
<td>0.35</td>
<td>0.35</td>
</tr>
<tr>
<td>Chords</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Root</td>
<td>230 in.</td>
<td>0.920 in.</td>
</tr>
<tr>
<td>Tip</td>
<td>80 in.</td>
<td>0.320 in.</td>
</tr>
<tr>
<td>MAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fus. Sta. of .25 MAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W.P. of .25 MAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.L. of .25 MAC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

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### TABLE III. (CONTINUED)

**MODEL COMPONENT:** Wing

**GENERAL DESCRIPTION:** Wing (including glove)

<table>
<thead>
<tr>
<th>DRAWING NUMBER:</th>
<th>FULL-SCALE</th>
<th>MODEL SCALE</th>
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</thead>
<tbody>
<tr>
<td>DIMENSIONS:</td>
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<td>(0.004)</td>
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</tbody>
</table>

#### TOTAL DATA

<table>
<thead>
<tr>
<th>Area</th>
<th>FULL-SCALE</th>
<th>MODEL SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planform BASIC/GLOVE</td>
<td>3420/1187 ft²</td>
<td>7.880/2.735 in²</td>
</tr>
<tr>
<td>Wetted BASIC/GLOVE</td>
<td>4925/819 ft²</td>
<td>11.347/1.887 in²</td>
</tr>
<tr>
<td>Span (equivalent)</td>
<td>1115 in.</td>
<td>4.460 in.</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>2.5/1.9</td>
<td>2.5/1.9</td>
</tr>
<tr>
<td>Rate of Taper</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Taper Ratio</td>
<td>0.20/0.10</td>
<td>0.20/0.10</td>
</tr>
<tr>
<td>Dihedral Angle, degrees</td>
<td>79°</td>
<td>78°</td>
</tr>
<tr>
<td>Incidence Angle, degrees</td>
<td>1.5°</td>
<td>1.5°</td>
</tr>
<tr>
<td>Aerodynamic Twist, degrees</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Toe-In Angle</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Cant Angle</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Sweep Back Angles, degrees</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Leading Edge BASIC/GLOVE</td>
<td>35°/78°</td>
<td>35°/78°</td>
</tr>
<tr>
<td>Trailing Edge</td>
<td>-19.6°</td>
<td>-19.6°</td>
</tr>
<tr>
<td>0.25 Element Line</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

#### Chords:

| FULL-SCALE | MODEL SCALE |
| Root (Wing Sta. 0.0) BASIC/GLOVE | 735/720 in. | 2.944/2.880 in. |
| Tip, (equivalent) | 147 in. | 0.588 in. |
| MAC (BASIC) | 507 in. | 2.028 in. |
| Fus. Sta. of .25 MAC | --- | --- |
| W.P. of .25 MAC | --- | --- |
| B.L. of .25 MAC | 217 in. | 0.868 in. |

#### Airfoil Section

| Root | Tip |
| 0008-64 | 0008-64 |

#### EXPOSED DATA

<table>
<thead>
<tr>
<th>Area</th>
<th>FULL-SCALE</th>
<th>MODEL SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC/GLOVE</td>
<td>1218.59/162.55 ft²</td>
<td>2.806/0.374 in²</td>
</tr>
<tr>
<td>Span, (equivalent)</td>
<td>453.5 in.</td>
<td>1.814 in.</td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Taper Ratio</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

#### Chords:

<p>| ROOT BASIC/GLOVE | FULL-SCALE | MODEL SCALE |
| Tip | 626.87/404.74 in. | 2.507/1.619 in. |
| MAC | 147 in. | 0.588 in. |
| Fus. Sta. of .25 MAC | --- | --- |
| W.P. of .25 MAC | --- | --- |
| B.L. of .25 MAC | --- | --- |</p>
<table>
<thead>
<tr>
<th>FIGURE</th>
<th>DESCRIPTION</th>
<th>PAGE</th>
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<tbody>
<tr>
<td>1</td>
<td>Axis System</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>Baseline Launch Vehicle</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>Bolt Pattern for Attaching SRB's to External Tank</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>External Tank Pressure Orifice Locations</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>SRB Pressure Orifice Locations</td>
<td>31</td>
</tr>
<tr>
<td>6</td>
<td>Composite of Radial Locations of Pressure Orifices on SRB for Various Bolt Patterns</td>
<td>32</td>
</tr>
<tr>
<td>TITLE</td>
<td>CONFIGURATION</td>
<td>PLOT TYPE</td>
</tr>
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<tr>
<td>Part A - Pressure Distributions</td>
<td></td>
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</tr>
<tr>
<td>Longitudinal Distributions of External Tank Pressures</td>
<td>T1</td>
<td>CP VS. X/LREF</td>
</tr>
<tr>
<td></td>
<td>T101</td>
<td>CP VS. X/LREF</td>
</tr>
<tr>
<td></td>
<td>T1S1</td>
<td>CP VS. X/LREF</td>
</tr>
<tr>
<td></td>
<td>T1S101</td>
<td>CP VS. X/LREF</td>
</tr>
<tr>
<td></td>
<td>T1S101</td>
<td>CP VS. X/LREF</td>
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<tr>
<td>Longitudinal Distribution of SRB Pressures</td>
<td>T1S1</td>
<td>CP VS. X/LREF</td>
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<tr>
<td></td>
<td>T1S101</td>
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</tr>
<tr>
<td></td>
<td>T1S101</td>
<td>CP VS. X/LREF</td>
</tr>
<tr>
<td>Radial Distribution of External Tank Pressures</td>
<td>T1</td>
<td>CP VS. PHI *</td>
</tr>
<tr>
<td></td>
<td>T101</td>
<td>CP VS. PHI *</td>
</tr>
<tr>
<td></td>
<td>T1S1</td>
<td>CP VS. PHI *</td>
</tr>
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</table>

* See note on page 23.
<table>
<thead>
<tr>
<th>TITLE</th>
<th>CONFIGURATION</th>
<th>PLOT TYPE</th>
<th>CONDITIONS VARYING</th>
<th>PAGES</th>
</tr>
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<tbody>
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<td>Radial Distribution of External Tank Pressures</td>
<td>T1S101</td>
<td>CP VS. PHI *</td>
<td>X/LREF, ALPHA, MACH, ORBINC</td>
<td>643-663</td>
</tr>
<tr>
<td></td>
<td>T1S101</td>
<td>CP VS. PHI *</td>
<td>X/LREF, BETA, ALPHA</td>
<td>664-672</td>
</tr>
<tr>
<td>Radial Distribution of SRB Pressures</td>
<td>T1S11</td>
<td>CP VS. PHI *</td>
<td>X/LREF, ALPHA</td>
<td>673-675</td>
</tr>
<tr>
<td></td>
<td>T1S101</td>
<td>CP VS. PHI *</td>
<td>X/LREF, ALPHA, MACH, ORBINC</td>
<td>676-696</td>
</tr>
<tr>
<td></td>
<td>T1S101</td>
<td>CP VS. PHI *</td>
<td>X/LREF, BETA, ALPHA</td>
<td>697-705</td>
</tr>
<tr>
<td>Effect of SRBGAP on External Tank Pressures</td>
<td>T1S101</td>
<td>CP VS. X/LREF</td>
<td>SRBGAP, PHI, MACH, ALPHA</td>
<td>706-729</td>
</tr>
<tr>
<td>Effect of SRBGAP on SRB Pressures</td>
<td>T1S101</td>
<td>CP VS. X/LREF</td>
<td>SRBGAP, PHI, MACH, ALPHA</td>
<td>730-759</td>
</tr>
<tr>
<td>Effect of Abort SRM on External Tank Pressures</td>
<td>T1S101</td>
<td>CP VS. X/LREF</td>
<td>Conf., PHI, MACH, ALPHA</td>
<td>760-774</td>
</tr>
<tr>
<td></td>
<td>T1S102</td>
<td>CP VS. X/LREF</td>
<td>Conf., PHI, MACH, ALPHA</td>
<td>775-789</td>
</tr>
<tr>
<td>Effect of Abort SRM on SRB Pressures</td>
<td>T1S101</td>
<td>CP VS. X/LREF</td>
<td>Conf., PHI, MACH, ALPHA</td>
<td>775-789</td>
</tr>
<tr>
<td></td>
<td>T1S102</td>
<td>CP VS. X/LREF</td>
<td>Conf., PHI, MACH, ALPHA</td>
<td>775-789</td>
</tr>
<tr>
<td>Part B - Force Derivative Distributions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Force Derivative Distributions for the</td>
<td>Varying</td>
<td>CNDXDA VS.</td>
<td>MACH, ORBINC, Configuration</td>
<td>790-797</td>
</tr>
<tr>
<td>External Tank</td>
<td></td>
<td>X/LREF</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Note: The radial distributions are plotted on side-by-side plot grids, two grids per page, corresponding to the two values of alpha or beta listed beside the symbol table at the bottom of each page. The first value listed applies to the left plot grid.
<table>
<thead>
<tr>
<th>TITLE</th>
<th>CONFIGURATION</th>
<th>PLOT TYPE</th>
<th>CONDITIONS VARYING</th>
<th>PAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side Force Derivative Distributions for the External Tank</td>
<td>TLS101</td>
<td>CYDXDB VS. X/LREF</td>
<td>MACH, ALPHA</td>
<td>798-799</td>
</tr>
<tr>
<td>Normal Force Derivative Distributions for the SRB</td>
<td>TLS1, TLS101</td>
<td>CNDXDA VS. X/LREF</td>
<td>MACH, ORBINC, Configuration</td>
<td>800-803</td>
</tr>
<tr>
<td>Side Force Derivative Distributions for the Left SRB</td>
<td>TLS101</td>
<td>CYDXDB VS. X/LREF</td>
<td>MACH, ALPHA</td>
<td>804-805</td>
</tr>
</tbody>
</table>

**Part C - Force Distributions**

<table>
<thead>
<tr>
<th>TITLE</th>
<th>CONFIGURATION</th>
<th>PLOT TYPE</th>
<th>CONDITIONS VARYING</th>
<th>PAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Force Distributions for the External Tank</td>
<td>T1</td>
<td>DCN/DX VS. X/LREF</td>
<td>ALPHA, MACH</td>
<td>806-813</td>
</tr>
<tr>
<td>TLS101</td>
<td></td>
<td>DCN/DX VS. X/LREF</td>
<td>ALPHA, MACH</td>
<td>814-821</td>
</tr>
<tr>
<td>TLS1</td>
<td></td>
<td>DCN/DX VS. X/LREF</td>
<td>ALPHA</td>
<td>822-823</td>
</tr>
<tr>
<td>TLS101</td>
<td></td>
<td>DCN/DX VS. X/LREF</td>
<td>ALPHA, MACH, ORBINC</td>
<td>824-837</td>
</tr>
<tr>
<td>TLS101</td>
<td></td>
<td>DCN/DX VS. X/LREF</td>
<td>BETA, MACH, ALPHA</td>
<td>838-840</td>
</tr>
</tbody>
</table>

| Side Force Distributions for the External Tank                        | TLS101        | DCY/DX VS. X/LREF | BETA, MACH, ALPHA       | 841-843 |
| Normal Force Distributions for the SRB                                | TLS1          | DCN/DX VS. X/LREF | ALPHA                   | 844-845 |

<p>| Side Force Distributions for the External Tank                        | TLS101        | DCN/DX VS. X/LREF | ALPHA, MACH, ORBINC     | 846-859 |</p>
<table>
<thead>
<tr>
<th>TITLE</th>
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<th>CONDITIONS VARYING</th>
<th>PAGES</th>
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<td>Effect of Configuration Build-up and ORBINC on External Tank Force Coefficients</td>
<td>Varying</td>
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<td>Configuration, ORBINC, MACH</td>
<td>888-899</td>
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<td>Force Coefficients for the External Tank in the Launch Configuration</td>
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<td>A</td>
<td>MACH</td>
<td>900-902</td>
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<td>TLS101</td>
<td>B</td>
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<td>A</td>
<td>Configuration, ORBINC, MACH</td>
<td>907-912</td>
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<td>A</td>
<td>MACH</td>
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TABLE V. - Concluded.

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<td>Force Coefficients for the Tank Alone and the Tank + SRB's</td>
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PLOTTED FORCE COEFFICIENTS SCHEDULE:

(A) CN, CAF, CIM vs. ALPHA

(B) CY, CYN vs. BETA
NOTES:
1. POSITIVE DIRECTIONS OF FORCE COEFFICIENTS
   MOMENT COEFFICIENTS, AND ANGLES ARE
   INDICATED BY ARROWS.
2. FOR CLARITY, ORIGINS OF WIND AND STABILITY
   AXES HAVE BEEN DISPLACED FROM THE CENTER
   OF GRAVITY.

Figure 1. - Axis systems.
Fig. 2 - Baseline Launch Vehicle

Note: All dimensions in inches (model scale)
FIGURE 3. BOLT PATTERN FOR ATTACHING THE SRB's TO THE EXTERNAL TANK
NOTE:
All dimensions in inches (model scale).

Fig. 4 - HO Tank Pressure Orifice Location
<table>
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<tr>
<th>SYM</th>
<th>ORIFICE LOCATION</th>
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<td>BACK</td>
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<td></td>
<td>FRONT &amp; BACK</td>
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**Figure 5. Orifice Locations on SRB's**

---

**Diagram Details:**
- **LEFT SRB** (viewed left side):
  - Uneven spacing marked 0.963, 1.112, 0.334, 0.800, 0.034, 0.800, 0.112, 0.634, 0.034, 0.700, 1.200, 1.200, 1.200, 0.600.
- **RIGHT SRB** (viewed left side - after rolled 45°):
  - Uneven spacing marked 0.100.
AFT VIEW (REFERENCED TO LEFT SRB)

1 = SRB POSITION I (LEFT SRB)
2 = SRB POSITION II
3 = SRB POSITION III
4 = SRB POSITION I + 180
5 = SRB POSITION II + 180
6 = SRB POSITION III + 180

NOTE: CIRCLED NUMBER, 3, REPRESENTS ORIFICE LOCATED ON RIGHT SRB REFERRED TO THE LEFT SRB

FIGURE 6. COMPOSITE OF RADIAL LOCATIONS OF ORIFICES ON SRB FOR VARIOUS BOLT PATTERNS
Tabulations of the plotted data and corresponding source data are available from SADSAC Operations.
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1
(R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PSYMBOL PHX ALPHA MACH PARAMETRIC VALUES
O 120.000  - 10.000  0.000
A 144.000
X 162.000
D 180.000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 3
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

MACH 0.000 - 4.000
BETA 0,000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH

126,000 4,000 0.600

144,000

162,000

180,000

PARAMETRIC VALUES

BETA 0.000

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 6
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)

PARAMETRIC VALUES
PHI 60,000
ALPHA 0.000
MACH 0.600
BETA 0.000

SOLID 75,000
DIAMOND 20,000
DASHED 108,000
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | ALPHA | MACH | BETA | PARAMETRIC VALUES
--------|-----|-------|------|------|-------------------
\(\circ\) | 0.000 | 4.000 | 0.800 | 0.000 |
\(\triangle\) | 15.000 |
\(\diamond\) | 30.000 |
\(\square\) | 40.000 |

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL  PHI  ALPHA  MACH  PARAMETRIC VALUES
   △   60,000  4,000  0,800  BETA  0,000
   □   75,000
   □   90,000
   □  105,000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

(R70000)  PAGE 11
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

\[ \begin{array}{cccc}
\phi & \alpha & \text{MACH} & \beta \\
126.000 & 4.000 & 0.800 & 0.000 \\
144.000 & & & \\
162.000 & & & \\
180.000 & & & \\
\end{array} \]

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)

PAGE 12
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

SYMBOl PHI ALpHA MACH PARAMETRIC VALUES

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<td>□</td>
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REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE T1 (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL:
- 0.000 - 10.000 - 1.200
- 15.000
- 30.000
- 45.000

PARAMETRIC VALUES
- PHI: 0.000
- ALPHA: 0.000
- MACH: 1.200
- BETA: 0.000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES BETA
40,000 - 10,000 1.200
75,000
90,000
106,000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES

BETA 0.000

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 18
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI ALPHA MACH

△ 60,000  4,000  1.200

△ 75,000

△ 90,000

△ 100,000

PARAMETRIC VALUES

BETA 0.000

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, TI (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

[Graph with data points and symbols indicating pressure coefficient versus longitudinal position based on wing M.A.C.]

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 21
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1
(R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 23
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

Graph showing the longitudinal distribution of external tank pressures with symbols indicating different parametric values:

- Symbol: 
- Parameter Values:
  - $\Phi$: 126.000
  - $\alpha$: 0.000
  - $\beta$: 0.000
  - $\gamma$: 1.200

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 24
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PRESSURE COEFFICIENT \( CP \)

LONGITUDINAL POSITION BASED ON WING M.A.C., \( X/L_{REF} \)

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

\( \Delta \) 0,000 4,000 1,200
\( \bigcirc \) 15,000
\( \bigcirc \) 45,000
\( \bigdiamond \) 0,000

REFERENCE FILE

MSCC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 25
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

SYMBOL PH/ ALPMA MACH PARAMETRIC VALUES

β 0.000

60,000 4,000 1.200
75,000 80,000 100,000

(R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES
○ 126,000 4,000 1.200
△ 144,000
□ 162,000
△ 180,000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R700000) PAGE 27
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, $C_p$

LONGITUDINAL POSITION BASED ON WING M.A.C., $X/L_{REF}$

SYMBOLS:
- PH: 0.000
- ALPHA: 10.000
- MACH: 1.200
- BETA: 0.000

REFERENCE FILE:
MSFC 543-EXTERNAL TANK ALONE, T1

(R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

Pressure Coefficient, CP

Longitudinal Position Based on Wing M.A.C., X/LREF

Reference File
MSFC 543-EXTERNAL TANK ALONE, T1

Symbol | PHI | ALPHA | MACH | Parametric Values
-------|-----|-------|------|-------------------
     | 60.000 | 10.000 | 1.200 | Beta 0.000
     | 75.000 |
     | 90.000 |
     | 105.000 |
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES
O 128,000 10,000 1.200 BETA 0.000
O 144,000
O 162,000
O 180,000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 30
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL

PHI   ALPHA   MACH

60,000 - 10,000   1.460
75,000
90,000
105,000

PARAMETRIC VALUES

BETA   0.000

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

-- 60.000  4.000  1.400  0.000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

PARAMETRIC VALUES
SYMBOL PH1 ALPHA MACH

126,000  4,000  1.460
144,000
162,000
180,000

BETA 0.000
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

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PARAMETRIC VALUES

| BETA | 0.000 |

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1

(R70000)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL  PHI   ALPHA   MACH  PARAMETRIC VALUES
\( \triangle \)  \( 40,000 \)  4.000  1.460  BETA  0.000
\( \triangle \)  \( 75,000 \)
\( \square \)  \( 90,000 \)
\( \square \)  \( 100,000 \)

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1  (R70000)  PAGE 41
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL

PHI ALPHA MACH

PARAMETRIC VALUES

BETA 0,000

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 44
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP.

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL

\[
\begin{array}{ccc}
\phi & \alpha & MACH \\
0.000 & -10.000 & 1.600 \\
15.000 & 30.000 & 45.000 \\
30.000 & 45.000 & \\
45.000 & \\
\end{array}
\]

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 46
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | ALPHA | MACH | PARAMETRIC VALUES
-------|-----|-------|------|------------------
O      | 60.000 | 10.000 | 1.960 | BETA | 0.000
△      | 75.000 |
△      | 90.000 |
△      | 105.000 |

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 47
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

SYMBOL   PHI   ALPHA   MACH   PARAMETRIC VALUES
O  60,000   -4,000  1.960   BETA  0.000
O  75,000
O  90,000
O  105,000

(R70000)  PAGE  50
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PH1 ALPHA MACH
Δ 126,000 4,000 1.960
Δ 144,000
Δ 162,000
Δ 180,000

PARAMETRIC VALUES

BETA 0.000

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1 (R70000) PAGE 51
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

△ 60.000 0.000 1.860
▽ 75.000
△ 90.000
▽ 105.000

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 53
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES
126.000 0.000 1.960
144.000
162.000
180.000

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 54
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHA  ALPHA  MAC  BETA  PARAMETRIC VALUES
  (R70000)

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1   PAGE 56
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCES FILE

MSFC 543-EXTERNAL TANK ALONE. T1  (R70000)  PAGE 59
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOLS

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBO: PHI | ALPHA | MACH          | PARAMETRIC VALUES
           |        |              | BETA  | ORBINC  |
120,000 - 144,000 | 0,000  | 0,800 | 4,000 | 0,000  | 1,500 |
162,000          |        |       |       |        |       |
180,000          |        |       |       |        |       |

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600) PAGE 66
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHIA ALPHA MACH PARAMETRIC VALUES
○ 0.000 0.000 0.800
△ 0.000 0.500 0.800
□ 0.000 45.000 0.800

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH

PARAMETRIC VALUES

BETA 0.000 ORBINC - 1.500

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C. X/XREF

PRES,URE COEFFICIENT, CP

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101

(R70600)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBO/L PHI ALPHA MACH
126.000 4.000 0.800
144.000
162.000
180.000

PARAMETRIC VALUES
BETA 0.000 ORBINC - 1.500

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL: PHI, ALPHA, MACH

PARAMETRIC VALUES

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL  PHI  ALPHA  MACH  PARAMETRIC VALUES

-   126.000  10.000  0.800  BETA  0.000  ORBINC - 1.500

-   144.000

-   162.000

-   180.000

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI   ALPHA   MACH  PARAMETRIC VALUES
      0.000 - 10.000  1.200  BETA  0.000  ORBINC  - 1.500
      15.000
      20.000
      105.000

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

126,000 - 10,000 1.200 BETA 0.000 ORBINC - 1.500
144,000
162,000
180,000

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600) PAGE 78
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PLOT

SYMBOL

PHI | ALPHA | MACH | PARAMETRIC VALUES
---|-------|------|-------------------
60,000 | 4,000 | 1.200 | BETA 0.000 ORBITC - 1.500
70,000
90,000
100,000

REFERENCE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600) PAGE 80
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

BETA  0.000  ORBINC - 1.500

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101  (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

LONGITUDINAL POSITION BASED ON WING M.A.C.; X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

PHI

ALPHA

MACH

PARAMETRIC VALUES

BETA

0.000

ORBINC 

1.000

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

BETA 0.000 ORBINC 1.500

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600) PAGE 90
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PH1 ALPHA MACH

60.000 4.000 1.460
75.000
90.000
105.000

PARAMETRIC VALUES

BETA 0.000 ORBINC 1.500

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | ALPHA | MACH | PARAMETRIC VALUES
-------|-----|-------|------|---------------------
O      | 0.000 | 0.000 | 1.460 |
Δ      | 15.000 |
◊      | 30.000 |
□      | 45.000 |

BETA  | 0.000 | ORBINC | 1.500 |

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101  (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C. X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI ALPHA MACH
○ 90,000 0.000 1.460
○ 75,000 0.000 1.460
○ 60,000 0.000 1.460
○ 45,000 0.000 1.460

PARAMETRIC VALUES
BETA 0.000
ORBINC 1.500

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  ALPHA  MACH

△  126.000  0.000  1.460
△  144.000
△  162.000
△  180.000

PARAMETRIC VALUES

BETA  0.000  ORBINC  - 1.500

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL

Φ  ALPHA  MACH

0.000  4.000  1.160
15.000
30.000
45.000

PARAMETRIC VALUES

β  0.000  ORBINC - 1.500

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PARAMETRIC VALUES

PHI

0.000

BETA

0.000

ORBITC

1.500

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH
O 60,000 10,000 1.460
O 70,000
O 90,000
O 100,000

PARAMETRIC VALUES
BETA 0.000 ORBINC 1.500

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL PHI ALPHA MACH
126,000 - 10,000 1.960
144,000
162,000
180,000

PARAMETRIC VALUES
BETA 0.000 ORBINC - 1.500

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

BETA 0.000
ORBINC 1.000

REFERENCE FILE
MSFC 343-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | ALPHA | MACH | PARAMETRIC VALUES
-------|-----|-------|------|-------------------
•      | 0.000 | 4.000 | 1.060 | BETA 0.000 ORBINC 1.500
•      | 15.000 |
•      | 45.000 |

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES
D 60.000 4.000 1.960
D 75.000
D 80.000
D 105.000

BETA 0.000 ORBINC - 1.500

REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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REFERENCE FILE
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

\( \Phi \)

124.000

144.000

162.000

180.000

PARAMETRIC VALUES

\( \text{PHI} \)

\( \text{ALPHA} \)

\( \text{MACH} \)

10.000

1.960

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T151 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SWBOL PHA ALPHA MACH
\[80,000 \text{-} 10,000 \ 1.200\]
\[75,000\]
\[90,000\]
\[108,000\]

PARAMETRIC VALUES
BETA \[0,000\]
SRB GAP \[0.025\]

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TISI (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHIL ALPHA MACH PARAMETRIC VALUES
126.000 - 10.000 1.200 BETA 0.000 SRBGAZ 0.025
144.000
162.000
180.000

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES
\(\Phi\) 0.000 - 4.000 1.200 BETA 0.000 SRB GAP 0.025
\(\ominus\) 10,000
\(\oplus\) 30,000
\(\bigdiamond\) 45,000

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R70STK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/REF

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH

0.000 SRBGAP

PARAMETRIC VALUES

BETA 0.000 SRBGAP 0.025

REFERENCE FILE

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TIS1 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R70STK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES
BETA 0.000 SRB GAP 0.025

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705TK)

PAGE 130
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TIS1 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TIS1 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
BETA 0.000  SRBCAP 0.025

SYMBOL PHI ALPHA MACH
O 0.000 10.000 1.200
\^ 0.025 75.000
\& 0.000 90.000
\# 0.000 100.000

REFERENCE FILE
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R7051K)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOLS

△ 126.000 10.000 1.200
▼ 144.000
◆ 162.000
□ 180.000

PARAMETRIC VALUES

β 0.000
SRB GAP 0.025

REFERENCE FILE

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TIS1 (R705TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOLS:
- ○ PHIL 0.000 - 10.000°, 0.000 - 0.600°
- △ PHIL 15.000°
- □ PHIL 30.000°
- ◇ PHIL 45.000°

PARAMETRIC VALUES:
- BETA 0.000
- ORBINC 1.500
- SRB GAP 0.025

REFERENCE FILE:
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES
BETA 0.000
SRBGAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHII ALPHA MACH

120.000 - 10.000 0.000

PARAMETRIC VALUES

BETA 0.000
ORBINC 1.500
SRBGAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R70ITK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

-0.0 0.0 0.0
0.00 0.00 0.00
15.00 15.00 15.00
30.00 30.00 30.00
45.00 45.00 45.00

PARAMETRIC VALUES

BETA 0.000
ORBINC - 1.500
SRB6AP 0.325

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

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REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

BETA 0.000
ORBINC 1.500
SRBGAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

- PHIL
- ALPHA
- MACH
- BETA
- ORBINC
- SRB GAP

REFERENCES FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES
PHI 0.000 0.000
BETA 0.000 ORING - 1.000
SRB GAP 0.025

SYMBOLS

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSES COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
BETA 0.000
SRB GAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T101 (R701TK)

PARAMETRIC VALUES
- BETA = 0.0
- ORBINC = 1.5
- SRBGAP = 0.025
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

\[ \phi \]

\[ \alpha \]

\[ \text{MACH} \]

\[ \beta \]

PARAMETRIC VALUES

\[ \text{ORBINC} \]

\[ \text{SRBGAP} \]

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
- BETA: 0.000
- ORBINC: 1.500
- SRSCAP: 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING H.A.C., X/LREF

SYMBOL

- PHI - ALPHA - MACH

0.000 - 45.000
15.000
30.000
45.000

PARAMETRIC VALUES

- BETA - ORBINC - SRSGAP

0.000 - 1.500
0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | ALPHA | MACH
-------|-----|-------|-----
,      | 126.000 | -4.000 | 0.250
,      | 144.000 |
,      | 162.000 |
,      | 180.000 |

PARAMETRIC VALUES
BETA | 0.000
ORBITA | 1.500
SRBGAP | 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  ALPHA  MACH  PARAMETRIC VALUES
○  60,000  4,000  0.950  BETA  0.000
△  75,000
◇  90,000
□  105,000  ORBINC  1.500
△  0.025
SMBGAP

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  ALPHA  MACH
           126,000  4,000  0.930
           144,000
           162,000
           180,000

PARAMETRIC VALUES
BETA  0.000  ORBINC  1.500
SRBAP  0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

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REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LE

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
BETA 0.000
ORBINC 1.500
SRB GAP 0.025

SYMBOL PHI ALPHA MACH
126,000 - 10,000 1.200
144,000
148,000
150,000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

SYMBOL

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REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)

PAGE 170
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

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REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

Pressure Coefficient, CP

Longitudinal Position based on Wing M.A.C., X/LREF

Reference File
MSFC 543-049 Launch Config W/O Abort SRM, T1S101 (R701T1K)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

- ALPHA
- BETA
- Mach
- ORBINC
- SRB GAP

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

**PARAMETRIC VALUES**
- \( \beta = 0.000 \)
- \( \text{ORBINC} = 1.500 \)
- \( \text{SRBCAP} = 0.025 \)

**SYMBOLS**
- \( \bigcirc \) 126,000 0,000 1.200
- \( \bigtriangleup \) 144,000
- \( \bigtriangledown \) 162,000
- \( \Box \) 180,000

**REFERENCE FILE**
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 1.000
- SRRGAP 0.025
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
- \( \beta = 0.000 \)
- \( \text{ORBINC} = 1.500 \)
- \( \text{SRBGP} = 0.025 \)

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

SYMBOL  PHI  ALPHA  MACH

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL          PHI   ALPHA  MACH

△  126,000  10,000  1.200
△  144,000  
△  162,000  
△  180,000  

PARAMETRIC VALUES

BETA  0.000  ORBINC  1.000
SRGAP  0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C. X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R701TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK pressures

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701TK)

PARAMETRIC VALUES
BETA 0.000
SRB GAP 0.025

SYMBOLS
\(\Phi\) 126,000 - 10,000 1.460
\(\Delta\) 144,000
\(\diamondsuit\) 162,000
\(\Box\) 160,000

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI    ALPHA   MACH     PARAMETRIC VALUES
        60,000  4,000   1.440  BETA = 0.000  ORBINC = 1.500
        75,000
        90,000
        105,000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)

PAGE 185
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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PARAMETRIC VALUES

- BETA  0.000
- ORBINC - 1.500
- SRB GAP  0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)

PAGE 186
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL  PHI   ALPHA  MACH  PARAMETRIC VALUES
Q  0.000  0.000  1.460  BETA   0.000  ORBINC  1.500
0.000  0.000  1.460  3RBGAP  0.025
15.000
30.000
45.000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- BETA 0.000
- ORBINC -1.500
- SRBGAP 0.025

REFERENCE FILE
- MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOLO PH1 ALPHA MACH

128,000 4.000 1.460

144,000

162,000

160,000

PARAMETRIC VALUES

BETA 0.000 ORBINC - 1.500

SRB GAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

- BETA 0.000
- ORBINC 1.000
- SRBGAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES

SYMBOI. PHI ALPHA MACH

- 128.000 10.000 1.460

- 144.000

- 160.000

- 172.000

- 180.000

BETA

0.000

ORBINC

1.500

SRB GAP

0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL: PHI ALPHA MACH

PARAEMETRIC VALUES

BETA 0.000 ORBINC - 1.500
SRB6AP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL   PHI     ALPHA    MACH
126,000   4.000    1.960
144,000
162,000
180,000

PARAMETRIC VALUES
BETA     0.000
ORBINC   1.500
SRB GAP  0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  ALPHA  MACH
△  0.000  0.000  1.960
▲  15.000
▼  30.000
▼  45.000

PARAMETRIC VALUES
BETA  0.000
ORBINC  1.500
SRB GAP  0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | ALPHA | MACH |
--------|-----|-------|------|
       |     |       | 1.960|

PARAMETRIC VALUES

BETA   | 0.000|
ORBINC | 1.500|
SRSGAP | 0.025|

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

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ORBINC 1.000
SRB GAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

PARAMETRIC VALUES
BETA 0.000
ORBINC -1.900
SRB6AP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
NASA 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)

PARAMETRIC VALUES
BETA 0.000
SRB GAP 0.025

SYMBOLS
Φ 126.000 - 10,000
   144.000
   162.000
   180.000

ALPHA 1.200

MACH
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

- BETA 0.000
- ORBLNC 0.000
- SRB GAP 0.023

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

SYMBOL PHII ALPHA MACH

PARAMETRIC VALUES

MACH 0.000 ORBINC 0.000

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SAPMBOL | PHI | ALPH A | MACH | PARAMETRIC VALUES
------- | --- | ------ | ---- | -------------------
O       | 126.000 | 4.000 | 1.200 | BETA 0.000
D       | 144.000 |
D       | 162.000 |
D       | 180.000 |

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PARAMETRIC VALUES

0.000 1.200

ISFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

MACH 1.200

PHI

60.000

75.000

90.000

105.000

ALPHA 0.000

0.000

0.000

BETA 0.000

ORBINC 0.000

SRBGAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

BETA 0.000
ORBINC 0.000
SRSGAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PARAMETRIC VALUES

PHI  ALPHA  MACH
60.000 4.000 1.200
75.000
90.000
105.000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C. X/LREF

PRESSURE COEFFICIENT, CP

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

BETA 0.000
ORIINC 0.000
SRB GAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

REFENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES
☑ 60,000 - 10,000 1.460
☐ 75,000
☐ 90,000
☐ 105,000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES

SYMBOL PHA ALPHA MACH

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH
○ 60,000 4,000 1.460
△ 76,000
□ 90,000
△ 108,000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PH1 ALPHA MACH PARAMETRIC VALUES

- 126.000 4.000 1.460 BETA 0.000
- 144.000
- 162.000 ORBINC 0.000
- 180.000 SRBGAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PARAMETRIC VALUES
- \( \alpha = 10.000 \)
- \( \beta = 0.000 \)
- \( \text{ORIGIN} = 0.025 \)

REFERENCE FILE
- MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL | PHI  | ALPHA | MACH
-------|------|-------|------
     O | 126,000 | 10,000 | 1.460
     △ | 144,000 |
     □ | 142,000 |
     ❁ | 180,000 |

PARAMETRIC VALUES

BETA 0.000
ORBINC 0.000
SRBGAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R703TK)

PARAMETRIC VALUES
ALPHA 0.000, ORGINC - 1.300
SRB GAP 0.025

SYMBOLS:
- 0.000 - 1.000 1.200
- 15.000
- 30.000
- 45.000
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL

60,000  -  10,000  1.200
75,000
90,000
108,000

PARAMETRIC VALUES

ALPHA  0.000
SRBINC  1.500
SRBGAP  0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R703TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

LONGITUDINAL POSITION BASED ON WING M.A.C., \(X/L_{REF}\)

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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PARAMETRIC VALUES
- ALPHA 0.000
- ORBINC 1.500
- SRBGAP 0.025

REFERENCE FILE
- MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
- ALPHA 0.000
- ORBINC 1.500
- SRBSEP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T15101 (R703TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

O 0.000 4.000 1.000

O 15.000

O 30.000

O 45.000

PARAMETRIC VALUES

ALPHA 0.000
ORBINC 1.000
SRB&AP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R703TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R703TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI BETA MACH

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE

MCFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703TK)  PAGE 253
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | DELTA | MACH | PARAMETRIC VALUES
--- | --- | --- | --- | ---
0.000 | 4.000 | 0.950 |
15.000 |
30.000 |
45.000 |
ALPHA 6.000 ORBINC 1.500
SRBAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHII BETA MACH
@ 60.000 - 4.000 0.950
@ 75.000
@ 90.000
@ 108.000

PARAMETRIC VALUES
ALPHA 6.000
SRB GAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
M5FC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOLS:
- △: PHI 0.000
- ★: BETA 0.000
- □: MACH 0.950

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C.: X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES
ALPHA 6.000
ORBINC 1.500
SRBGAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI BETA MACH
△ 0.000 4.000 0.950
X 15.000
O 30.000
□ 45.000

PARAMETRIC VALUES

ALPHA 6.000
ORBINC -1.503
SRB GAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PARAMETRIC VALUES
- ALPHA = 6.000
- ORBINC = 1.500
- SRBGAP = 0.025

SYMBOLS
- □ 126.000
- ▲ 144.000
- ◇ 162.000
- □ 180.000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA 6.000
- ORBINC 1.200
- SRBGAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

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REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI BETA MACH PARAMETRIC VALUES
O 0.000 - 4.000 1.200 ALPHA 6.000 ORBINC - 1.500
A 10.000
A 20.000
A 30.000
A 40.000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)

PARAMETRIC VALUES
- ALPHA 4.000
- ORBINC - 1.000
- SRB6AP 0.025

SYMBOL
- PHI 0.000 0.000 1.200
- BETA 15.000 30.000 45.000
- MACH 4.000

PARABOLIC COEFFICIENTS

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LONGITUDDINAL DISTRIBUTION OF EXTERNAL TANK Pressures

PARAMETRIC VALUES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

PARAMETRIC VALUES

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL  PHI  BETA  MACH  PARAMETRIC VALUES
   ▲  60,000  4,000  1.200  ALPHA  6.000  ORBINC  1.500
   ▲  75,000
   ▲  90,000
   ▲ 105,000  SRBGAP  0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI BETA MACH PARAMETRIC VALUES
\[ \square 120.000 \ 4.000 \ 1.200 \]
\[ \blacktriangle 144.000 \]
\[ \blacklozenge 162.000 \]
\[ \blackdiamond 180.000 \]

ALPHA 6.000 ORBINC - 1.300
SRBGAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)

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LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PressURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA 6.000
- ORBINC 1.500
- SRBGAP 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | ALPHA | MACH | PARAMETRIC VALUES
---------|------|-------|------|-------------------
O      | 0.000 | 10.000 | 1.200 | BETA 0.000 SRB6AP 0.025
A      | 15.000 |
A      | 20.000 |
A      | 45.000 |

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

 PRESSURE COEFFICIENT, CP

SYMBOL	PHI	ALPHA	MACH
○ 120,000 - 10,000 1.200
△ 150,000
□ 165,000

PARAMETRIC VALUES
BETA 0.000
SRB GAP 0.025

NOTE – SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB’S ATTACHED, T1S1 (R705SM)

PAGE 288
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

BETA 0.000 SRB GAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T151 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T151 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T1S1 (R705SM)  PAGE 293
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE- SRB NOSE LOCATED AT X/LREF = .5369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

\[ \phi \]

\[ \alpha \]

\[ \text{MACH} \]

\[ \beta \]

\[ \text{SRB GAP} \]

PARAMETRIC VALUES

\[ \text{SRBAP} \]

\[ \text{TISI} (R705SM) \]

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TIS1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING H.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES

SYMBOL PHI ALPHA MACH

O 0.000 0.000 1.20U

Q 15.000

T 30.000

O 40.000

NOTE: SRB NOSE LOCATED AT X/LREF = .569

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T151 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6

0.0 0.2 0.4 0.6 0.8 1.0

-0.2 -0.4 -0.6 -0.8

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

SYMBOL

PHI  ALPHA  MACH  PARAMETRIC VALUES

120,000  0,000  1.200  BETA  0.000  SRBGAP  0.025
135,000
150,000
165,000

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T151 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL DISTRIBUTION OF SRB Pressures

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)

PAGE 307
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

PHI
40,000 10,000 1.200
75,000
90,000
105,000

PARAMETRIC VALUES

ALPHA
MACH
BETA
SRB GAP
0.000
0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T151 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T151 (R705SM)
LONGITUDBAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R7055M)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

Pressure Coefficient, CP

Longitudinal Position Based on Wing M.A.C., X/LREF

Symbol: PHI | Alpha | Mach | Parametric Values
--- | --- | --- | ---
| 300,000 | 10,000 | 1.200 | Beta 0.000 | SRBAP 0.025
| 315,000 |
| 330,000 |
| 345,000 |

Note: SRB Nose Located at X/LREF = 0.369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES
BETA 0.000
ORBINC 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL
Φ
60.000 - 10.000
50.000 - 75.000
90.000
105.000

PARAMETRIC VALUES
BETA
0.000
ORBINC
0.025
SRBGAP
1.500

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL

POINT

PARAMETRIC VALUES

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O Aabort SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOLED PHI ALPHA MACH PARAMETRIC VALUES
○ ○ α α α α 0.000 - 4.000 0.000 BETA 0.000 ORBINC - 1.500
□ □ □ □ 50.000
△△△△ 30.000
□ □ □ □ 45.000

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA  0.000
ORBINC  1.500
SRBGAP  0.025

SYMBOL

NOTE- SRB NOSE LOCATED AT X/LREF= .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

0.0
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
-1.4
-1.6
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL
O 180.000 - 4.000 0.800
A 195.000
O 210.000
O 225.000

PARAMETRIC VALUES
BETA 0.000
ORBiNC 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

240,000 - 4,000 0.000
255,000
270,000
285,000

PARAMETRIC VALUES

BETA 0.000
ORBINC - 1.500
SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL

300,000 - 4,000
315,000
320,000
345,000

PHI

ALPHA

MACH

BETA

ORBINC

SRBGAP

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL

\[ \begin{array}{ccc}
\bullet & 0.000 & 0.000 & 0.800 \\
\cdot & 0.000 & 0.000 & 1.500 \\
\cdot & 0.025 & 0.025 & 0.025 \\
\cdot & 0.000 & 0.000 & 0.000 \\
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PARAMETRIC VALUES

\[ \begin{array}{ccc}
\text{BETA} & 0.000 & 0.000 & 0.000 \\
\text{ORBINC} & 1.500 & 1.500 & 1.500 \\
\text{SRBGAP} & 0.025 & 0.025 & 0.025 \\
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NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

- BETA 0.000
- ORBINC - 1.500
- SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C. X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI ALPHA MACH

△ 120.000 0.000 0.000
△ 135.000
△ 150.000
△ 165.000

PARAMETRIC VALUES

BETA 0.000
SRBGAP 0.025
ORBINC - 1.500

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R70ISM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES

BETA 0.000
SRBINC 1.000
SRBGAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITIONS BASED ON WING M.A.C., X/LREF

SYMBOL

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NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF= .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI ALPHA MACH
240,000 4,000 0,800
255,000
270,000
285,000

PARAMETRIC VALUES
BETA 0,000
SRBGAP 0,025
ORIGIN - 1,500

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM) PAGE 338
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE- SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

PHI

ALPHA

MACH

0.000

10.000

0.800

PARAMETRIC VALUES

BETA

0.000

ORBINC

-1.500

SRB6AP

0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA 0.000

SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

Pressure Coefficient, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

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NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREF=.369

PARAMETRIC VALUES
BETA 0.000  ORBINC 1.500
SRBGAP 0.025

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PLOTTED PRESSURE COEFFICIENT, CP, VS. LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 1.000
- SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF= .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL: PHI ALPHAGA MACH PARAMETRIC VALUES
120,000 - 10,000 0.950 BETA 0.000 ORBINC - 1.500
135,000 BETA 0.000 ORBINC - 1.500
150,000 SRBGAP 0.025
165,000

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI | ALPHA | MACH | PARAMETRIC VALUES
-------|-----|-------|------|---------------------
\( \diamond \) 240,000 - 10,000 0.950 | BETA 0.000 | ORBINC - 1.500
\( \triangle \) 255,000 | SRBGAP 0.025
\( \triangleleft \) 270,000
\( \square \) 285,000

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

PHI  ALPHA  MACH  PARAMETRIC VALUES

0.000  -  4.000  0.950

BETA  0.000  ORBINC  -  1.500

SRBGAP  0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 1.500
- SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES

β 0.000 ORBINC 1.300
SRB GAP 0.025

300,000 - 4,000 0.950
315,000
330,000
345,000

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

Pressure Coefficient, CP

Longitudinal Position Based on Wing M.A.C., X/LREF

NOTE - SRB Nose Located at X/LREF = 0.369

MSFC 543-049 Launch Config W/O Abort SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SIGNAL: PHII   ALPHA   MACH

PARAMETRIC VALUES

BETA   0.000
ORBINC  1.500
SRBGAP  0.025

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C. X/LREF

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 1.500
- SRB GAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .359

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH  PARAMETRIC VALUES
□ 240,000 4,000 0.930  BETA  0.000 ORBINC - 1.500
□ 255,000
□ 270,000
□ 285,000

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PHI
300.000
315.000
330.000
345.000

ALPHA
4.000
0.950

MACH
0.000
ORBINC
SRBGAP
0.023

PARAMETRIC VALUES

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA 0.000 ORBINC 1.500
SRBGAP 0.025

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

SYMBOL | PHI | ALPHA | MACH | BETA | ORBINC | SRBGAP
-------|-----|-------|------|------|--------|--------
△      | 60,000 | 10,000 | 0.930 | 0.000 | 1.300   | 0.025
△      | 75,000                  |
△      | 90,000                  |
△      | 105,000                 |

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC S43-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

Pressure Coefficient, Cp

Longitudinal Position Based on Wing M.A.C., X/LREF

NOTE - SRB Nose Located at X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 [R701SM]
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- φ  = 0.000
- ORBINC  = 1.500
- BETA  = 0.000
- SRB6AP  = 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHI ALPHA MACH PARAMETRIC VALUES
\( \Diamond \) 120,000 - 185,000 1.200
\( \triangle \) 135,000
\( \boxdot \) 150,000
\( \square \) 165,000

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA  0.000
ORBINC  1.500
SRBGAP  0.025

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES
- BETA 0.000
- OORBINC 1.500
- SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- BETA
- ORBINC
- SRBGAP

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

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NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- BETA 0.000
- ORBINC - 1.500
- SRB6AP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHII ALPHA MACH
120,000 0.000 1.200
135,000
150,000
165,000

PARAMETRIC VALUES
BETA 0.000
ORBITC 1.200
SRB GAP 0.025

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 3.69

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

SYMBOL | PHI | ALPHA | MACH
---------|-----|-------|-------
O       | 0.000 | 0.000 | 1.200
O       | 315.000 | 0.000 | 1.200
O       | 330.000 | 0.000 | 1.200
O       | 345.000 | 0.000 | 1.200

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PHIL ALPHA MACH PARAMETRIC VALUES

\[ \begin{array}{ccc}
\Delta & 0.000 & 4.000 & 1.200 \\
\circ & 15.000 & 30.000 & 45.000 \\
\end{array} \]

\[ \begin{array}{cc}
\text{BETA} & 0.000 \\
\text{ORBINC} & 1.500 \\
\text{SRBGAP} & 0.025 \\
\end{array} \]

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/0 ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL PH\(I\) ALPHA MACH
\(\bigcirc\) 160,000 4,000 1.200
\(\square\) 195,000
\(\triangle\) 210,000
\(\diamondsuit\) 225,000

PARAMETRIC VALUES
BETA 0.000 ORBINC - 1.300
SRB GAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

压力系数，CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

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NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL

PHI  ALPHA  MACH

PARAMETRIC VALUES

BETA
SRBGAP

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)

PAGE 400
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOl PH1 ALPHA MACH

60,000 10,000 1.200

75,000

90,000

105,000

PARAMETRIC VALUES

BETA 0.000

ORBINC - 1.500

SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)

PAGE 401
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSES COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C. X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

- BETA 0.000
- ORBINC 1.000
- SRB&AP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
BETA 0.000
ORBINC - 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOLS
- PHII
- ALPHAI
- MACH

180,000 - 10,000
195,000
210,000
225,000

PARAMETRIC VALUES
- BETA
- ORBINC
- SRB GAP

0.000
1.500
0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)  PAGE 411
LONGITUDINAL DISTRIBUTION OF SRB PressURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHIL ALPHA MACH PARAMEETRIC VALUES

\[ \begin{array}{ccc}
\text{PHI} & \text{ALPHA} & \text{MACH} \\
0.000 & 4.000 & 1.460 \\
15.000 & 30.000 & 45.000 \\
\end{array} \]

\[ \begin{array}{ll}
\text{BETA} & 0.000 \\
\text{ORBINC} & 1.500 \\
\text{SRBCAP} & 0.025 \\
\end{array} \]

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C. X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .569

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL  PHI  ALPHA  MACH  PARAMETRIC VALUES
\(\bigcirc\)  120,000  4,000  1.460  BETA  0.000
\(\Delta\)  125,000
\(\ast\)  130,000  1.500
\(\bigtriangledown\)  145,000  SRB GAP  0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)  PAGE 414
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C. X/LREF

PARAMETRIC VALUES
BETA 0.000
ORBINC 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH
□ □ □ 240.000 4.000 1.460
□ □ □ 255.000
□ □ □ 270.000
□ □ □ 285.000

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
Note: SRB nose located at X/LREF = 0.369

MSFC 543-049 Launch Config w/o Abort SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
BETA 0.000  ORBINC - 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)

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LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

- BETA = 0.000
- ORBINC = 1.500
- SRBcap = 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES
- BETA  0.000
- ORBINC  1.500
- SRBGAP  0.025

SYMBOL

- PHI  ALPHA  MACH
- 0.000  4.000  1.460
- 15.000
- 30.000
- 45.000

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL   PHI  ALPHA  MACH
160,000   4.000  1.460
195,000
210,000
225,000

PARAMETRIC VALUES
BETA  0.000  ORBINC  -1.500
SRB GAP  0.023

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH
O 240.000 4.000 1.460
O 235.000
O 270.000
O 285.000

PARAMETRIC VALUES
BETA 0.000
ORBINC 1.300
SRB6AP 0.025

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHII ALPHA MACH

- 500,000  4,000  1.460
- 315,000
- 230,000
- 245,000

PARAMETRIC VALUES

BETA 0.000
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

PARAMETRIC VALUES

NOTE - SRB NOSE LOCATED AT X/LREF = 3.69

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES
- ORBINC: 0.000
- ORBINC: 1.500
- SRB GAP: 0.025
- Beta: 0.000

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES
BETA 0.000
ORBINC 1.000
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHIL ALPHA MACH
190,000 - 10,000 1.860
195,000
210,000
225,000

PARAMETRIC VALUES
BETA 0.000
SRB GAP 0.025
ORBINC 1.500

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA 0.000
SRB GAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

M5FC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

Note - SRB nose located at X/LREF = 0.369

MSFC 543-049 Launch Config W/O Abort SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA 0.000
ORBIN C - 1.500
SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOS£ LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- \( \beta = 0.000 \)
- \( \text{ORBINC} = 1.500 \)
- \( \text{SRB GAP} = 0.025 \)

NOTES:
- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA 0.000
SRBGAP 0.025
ORBINC 1.500

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)  PAGE 453
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUODINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 1.900
- SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA 0.000  ORBINC 1.800
SRBGAP 0.025

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

\[ \phi \]

\[ \alpha \]

\[ M \]

PARAMETRIC VALUES

\[ \beta \]

\[ \text{ORBINC} \]

\[ \text{SRBGAP} \]

\[ 0.000 \]

\[ 1.000 \]

\[ 0.025 \]

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL

○ 0.000
△ 0.000
◇ 0.000

PARAMETRIC VALUES

BETA 0.000
SRB GAP 0.025
ORB INC 1.300

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA 0.000

ORBINC 1.500

SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSER LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R701SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES

BETA  0.000
SRB GAP  0.025

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL
\[ \phi \]
\[ \alpha \]
\[ \text{MACH} \]

PARAMETRIC VALUES
\[ \text{BETA} \]
\[ \text{ORBINC} \]
\[ \text{SRB GAP} \]

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP.

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PH  ALPHA  MACH

- - 0.000  - 4.000  1.200
- - 15.000
- - 20.000
- - 45.000

PARAMETRIC VALUES

BETA  0.000 ORBINC  0.000
SRBGAP  0.025

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL | PHI | ALPHA | MACH | PARAMETRIC VALUES
--- | --- | --- | --- | ---
| 60,000 | -4,000 | 1.200 | BETA | 0.000
| 78,000 | 90,000 | 108,000 | ORIGINC | 0.000
| SRBGAP | 0.025

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., $X/L_{REF}$

PRESSURE COEFFICIENT, $CP$

SYMBOL Phi, Alpha, Mach

- $\Phi = 120,000, \alpha = 4,000, M = 1,200$
- $\Phi = 135,000$
- $\Phi = 150,000$
- $\Phi = 165,000$

PARAMETRIC VALUES

- Beta: 0.000
- ORBINC: 0.000
- SRBGAP: 0.025

NOTE - SRB NOSE LOCATED AT $X/L_{REF} = 0.369$

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 0.000
- SRBGAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES

BETA  0,000  ORBINC  0,000
SRBGAP  0,025

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

BETA 0.000
SRBGAP 0.025

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 0.000
- SRB6AP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

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NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES

BETA  0.000
SRBGAP  0.025

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

Note: SRB nose located at X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 0.000
- SRBGAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.569

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF= .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

SYMBOL PHI ALPHA MACH PARANETRIC VALUES

△ 500.000 10.000 1.200 Beta 0.000

○ 250.000 0.000

☑ 200.000 0.025 SRB GAP 0.025

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

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| SRBAP | 0.025 |

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHII ALPHA MACH PARAMETRIC VALUES
  350,000 - 10,000 1.460
  315,000
  230,000
  245,000

BETA 0.000
SRBGAP 0.025
ORBINC 0.000

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

PARAMETRIC VALUES
- BETA = 0.000
- ORBINC = 0.000
- SRBGAP = 0.025

SYMBOL: PH: ALPHA: MACH
- 0.000 - 4.000 - 1.460
- 15.000
- 30.000
- 45.000

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES

- BETA 0.000
- ORBINC 0.000
- SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

 MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

SYMBOL PHIA MACH
120.000 0.000 1.460
135.000
180.000
225.000

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

LONGITUDINAL POSITION BASED ON MING M.A.C. X/LREF

PARAMETRIC VALUES:
- SRB CAP 0.025
- BETA
- X/lcap

LONGITUDINAL POSITION BASED ON WING M.A.C.

PARAMETRIC VALUES:
- ALPH
- MACH

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

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MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES
- $\alpha = 0.000$
- $\beta = 1.460$
- $\beta_r = 0.000$
- $\beta_a = 0.000$
- $\beta_n = 0.025$

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

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NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES

- MACH
- PHIVEL
- PHI
- T1S101 (R702SM)

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTICE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  ALPHA  MACH  PARAMETRIC VALUES
----------  ----  ----  -----  ------------------------
          60,000  10,000  1.460  BETA  0.000  ORBINC  0.000
          75,000
          90,000
         105,000  SRB GAP  0.025

NOTE- SRB NOSE LOCATED AT X/LREF ≈ 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL

\[ \Phi \]

PHI

120.000
10.000
1.460
130.000
150.000
165.000

PARAMETRIC VALUES

BETA
0.000
ORBINC
0.000
SRBGAP
0.025

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI ALPHA MACH

△ 180.000 10.000 1.460
△ 195.000
△ 210.000
△ 225.000

PARAMETRIC VALUES

BETA 0.000
ORIGIN 0.000
SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- BETA = 0.000
- ORBINC = 0.000
- SRB GAP = 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRES SURE COEFFICIENT, CP

LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

ALPHA 0.000
ORBINC 1.500
R66GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.399

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES

- ALPHA
- ORBINC = 1.200
- SRBGAP = 0.025

NOTE- SRB HOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

- ALPHA 0.000
- ORBINC - 1.500
- SRBGAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  BETA  MACH  PARAMETRIC VALUES
☐  240,000 - 10,000  1.200  ALPHA  0.000  ORBINC  1.500
☐  255,000
☐  270,000
☐  285,000  SRBGAP  0.025

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R703SM)  PAGE 530
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA 0.000
- ORBINC 1.500
- SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.399

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  BETA  MACH  PARAMETRIC VALUES

Ω  240,000  -  4,000  1.200
Δ  255,000
□  270,000
■  285,000

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI BETA MACH

PARAMETRIC VALUES

NOTE- SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

SYMBOL PHI BETA MACH

\[ \Delta \quad \begin{array}{c} 0.000 \\ 0.025 \\ 0.000 \\ 0.025 \\ 0.000 \\ 0.000 \end{array} \]

\[ \begin{array}{c} 0.000 \\ 0.000 \\ 0.000 \end{array} \]

\[ \begin{array}{c} 1.200 \\ 1.300 \\ 1.300 \end{array} \]

\[ \begin{array}{c} \text{ALPHA} \\ \text{ORBINC} \\ \text{SROGAP} \end{array} \]

\[ \begin{array}{c} 0.000 \\ 0.000 \\ 0.000 \end{array} \]

\[ \begin{array}{c} 1.300 \\ 1.300 \\ 1.300 \end{array} \]

\[ \begin{array}{c} 0.025 \\ 0.025 \\ 0.025 \end{array} \]

NOTE - SRB NOSE LOCATED AT X/LREF = 3.69

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

ALPHA 0.000  ORBINC 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI BETA MACH

\[ \Delta \] 180.000 0.000 1.200
\[ \text{O} \] 195.000
\[ \text{X} \] 210.000
\[ \text{D} \] 225.000

PARAMETRIC VALUES

ALPHA 0.000 ORBINC 1.000
SRB GAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PH1 BETA MACH

PARAMETRIC VALUES

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7035M)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

SYMBOL PHI BETA MACH

- 10.000 10.000 10.000

△ 120.000 120.000 120.000

□ 150.000 150.000 150.000

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

ALPHA 0.000 OR SINC
SRB CAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | PHI  | BETA | MACH | PARAMETRIC VALUES
⊙       | 0.000 | 10.000 | 1.200 | ALPHA 0.000 ORBINC - 1.500
□       | 10.000 | 30.000 | 41.000 | SRBSAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI BETA MACH

\[ \diamond \quad 120.000 \quad 10.000 \quad 1.200 \]
\[ \circ \quad 180.000 \]
\[ \square \quad 130.000 \]
\[ \triangle \quad 185.000 \]

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NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-043 LAUNCH CONFIG W/O ABORT SRM, T15101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA 6.000
- ORBINC 1.500
- SRB GAP 0.025

SYMBOL PHI BETA MACH
- 0.000 - 10.000 0.950
- 15.000
- 30.000
- 45.000

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA 6.000
- ORBINC - 1.500
- SRB GAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOS E LOCATED AT X/LREF = 369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

SYMBOLS

- △ - 180,000 - 0,000 0.950
- □ - 193,000
- ○ - 210,000
- ♂ - 225,000

PARAMETRIC VALUES

- ALPHA 9.000
- ORBINC 1.000
- SR6CAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 AUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES

ALPHA 6.000
ORBINC 1.500
SRBGAP 0.025

SYMBOL

PHI BETA MACH

300,000 - 4,000 0.950
315,000
330,000
345,000

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

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NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

ALPHA 6.000
SRB GAP 0.025

SYMBOL PHI BETA MACH
O 90.000 0.000 0.950
0 90.000
X 90.000

NOTE- SRB NOSE LOCATED AT X/LREF= .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES

- SYMBOL
- PH: 120.000
- BETA: 0.000
- MACH: 0.950
- ALPHA: 6.000
- ORBINC: 1.300
- SRB GAP: 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C.. X/LREF

SYMBOL PHI BETA MACH PARAMETRIC VALUES
□ 90.000 0.000 0.950 ALPHA 6.000 ORBINC - 1.500
 △ 180.000
 □ 270.000 SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES

ALPHA  6.000
ORBINC  1.500
SRBGAP  0.025

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA 0.000
- ORBINC 1.500
- SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

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SRB GAP: 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA
- ORBINC
- SRB Gap

SRB NOSE LOCATED AT X/LREF=.369

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.359

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES
- ALPHA 6.000
- ORBINC 1.1500
- SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
ALPHA 6.000
ORBINC 1.500
SRBGAP 0.025

SYMBOL
PHI BETA MACH
0.000 10.000 0.950
15.000
30.000
45.000

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOl PH1 BETa MACH PARAMETERv VALUES
0 60.000 10.000 0.950 ALPHA 6.000 ORBINC 1.500
75.000
90.000
105.000
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704SM)

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PARAMETRIC VALUES
- ALPHA 0.000 ORBINC 1.500
- SRBGAP 0.025

SYMBOL PHI BETA MACH
- 300.000 10.000 0.950
- 315.000
- 330.000
- 345.000

NOTE- SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)

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LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

MACH

0.000 - 10,000 1.200
10,000
30,000
45,000

PARAMETRIC VALUES

ALPHA 6.000 ORBINC 1.500
SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES
- \( \alpha = 6.000 \)
- \( \text{ORBINC} = 1.500 \)
- \( \text{SRBGAP} = 0.025 \)

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA 6.000
- ORBINC 1.500
- SRB GAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

SYMBOL PH1 BETA MACH

PARAMETRIC VALUES

ALPHA 6.000 ORBINC 1.500
SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

\[ \alpha \times 10^{-6} \]

PARAMETRIC VALUES

\[ \alpha = 6.000 \]
\[ \theta = 1.500 \]
\[ \delta = 0.025 \]

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

- ALPHA 6.000
- ORBINC 1.000
- SRB GAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R7045M)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

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NOTE - SRB NOSE LOCATED AT X/LREF = 0.469

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES

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NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

ALPHA 6.000
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHI BETA MACH PARAMETRIC VALUES

Slash 240,000 0.000 1.200
\triangle 255,000
\square 270,000
\diamond 285,000

ALPHA 6.000 ORBINC 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

Pressure Coefficient, CP

Longitudinal Position Based on Wing M.A.C., X/LREF

Note: SRB Nose Located at X/LREF = .369

MSFC 543-049 Launch Config W/O Abort SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL

0.000 4.000 1.200
15.000
30.000
45.000

PARAMETRIC VALUES

ALPHA 6.000 ORBINC - 1.000
SRB6AP 0.000

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)

PAGE 606
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

Pressure Coefficient, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABOART SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES:
- ALPHA: 6.000
- ORBINC: 1.500
- SRBGAP: 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

SYMBOLS: PHI BETA MACH
- 300,000
- 315,000
- 330,000
- 345,000

MSFC S43-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

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NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL  PHI  BETA  MACH  ALPHA  ORBINC  SRBGAP
   60,000  10,000  1.200  6.000  1.500  0.025
   75,000  90,000  105,000

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- ALPHA 6.000
- ORBINC - 1.500
- SRBGAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHII BETA MACH
160,000 10,000 1.200
195,000
230,000
250,000

PARAMETRIC VALUES
ALPHA 6.000 ORBINC - 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF=3.69

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
LONGITUDINAL DISTRIBUTION OF SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

PHI 300.000 315.000 330.000 345.000
BETA 10.000 11.000 12.000
MACH 1.200

PARAMETRIC VALUES

ALPHA 6.000
ORBINC - 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL       Z/REF   ALPHA   MACH
            0.164   10.000   0.800
            0.361   4.000
            0.780
            1.068
            2.162
            3.140
REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1

PARAMETRIC VALUES
BETA         0.000

(R70000)     PAGE 616
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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MSFC 543-EXTERNAL TANK ALONE, T1

(R70000) PAGE 617
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

 SYMBOL   X/REF   ALPHA   MACH
 0.164   -   10.000   1.200
 0.361   -   4.000
 0.790
 1.060
 2.142
 3.148

REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE, T1
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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MSFC 543-EXTERNAL TANK ALONE, T1

PARAMETRIC VALUES

BETA

0.000

(R70000)
RADIAL DISTRIBUTION OF EXTERNAL TANK Pressures

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MSFC 543-EXTERNAL TANK ALONE, T1
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL  X/LREF  ALPHA  MACH

0.164  10.000  1.460
0.381
0.790
1.088
2.162
3.148  REFERENCE FILE

PARAMETRIC VALUES

BETA  0.000

MSFC 543-EXTERNAL TANK ALONE, T1
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

BETA PARAMETRIC VALUES

REFERENCE FILE MSFC 543-EXTERNAL TANK ALONE. T1

PHI

PHI

SYMBOL X/LREF ALPHA MACH
0.164 - 1.960
0.361 - 4.000
0.780 - 1.068
1.162 - 3.148
REFERENCE FILE

MSFC 543-EXTERNAL TANK ALONE. T1

(R70000) PAGE 625
RADIAL DISTRIBUTION OF EXTERNAL TANK Pressures

SYMBOL
0.184 10.000 1.060
0.361
0.780
1.088
1.172
1.148

REFERENCE FILE
MSFC 543-EXTERNAL TANK ALONE, T1 (R70000)

PAGE 627
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

0.000 ORBINC - 1.500

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101  (R70600)

PAGE 629
RADIAl DISTRIBUTION OF EXTERNAL TANK PRESSURES
RADIAL DISTRIBUTION OF EXTERNAL TANK Pressures

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MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (R70600)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOLED  X/REFERENCE  ALPHA  MACH
    0.104  -  10,000  1.060
    0.301  -  4,000
    0.780
    1.088
    2.182
    3.148  REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101  (R70600)  PAGE 637
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101
OF EXTERNAL TANK PRESSURES

RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL       X/LREF  ALPHA   MACH

O  0.164     10.000   1.960

0.361

0.790

1.088

2.182

REFERENCE FILE

MSFC 543-049 ORBITER WITH EXTERNAL TANK. T101 (R70600)

PARAMETRIC VALUES

BETA    0.000
ORBINC  1.500
RADIAL DISTRIBUTION OF EXTERNAL TANK Pressures

PARAMETRIC VALUES
BETA 0.000 SRB GAP 0.025

 SYMBOL K/L REF ALPHA MACH
0.104 - 10,000 1.200
0.303 - 4,000
0.710
1.048
2.162
3.148 REFERENCE FILE

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TIS1 (R705TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T1S1 (R705TK)

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RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T1S1 (R705TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSES

PARAMETRIC VALUES

- BETA 0.000
- ORBINC 1.500
- SRBGAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)

PAGE 643
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PRESSURES

PHI

YMSOL

X/LREF

ALPHA

MACH

0.164

10.000

0.000

b

0.561

O.000

I.060

j

I32.148

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R701TK)

PARAMETRIC VALUES

BETA 0.000

ORBINC - 1.500

SRSGAP 0.025
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL  X/LREF  ALPHA  MACH
0.164  10.000  0.950
0.251  0.790
1.068  0.025
3.148

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)

PARAMETRIC VALUES
BETA  0.000
ORBINC  1.300
SRBGAP  0.025

PAGE 648
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

SYM: 0.184 0.561 0.750 1.058 2.142 3.148
X/LREF 0.000 4.000
ALPHA 1.200
MACH

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R701TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

BETA 0.000
ORBINC 1.500
SRB GAP 0.025

SYMBOL X/LREF ALPHA MACH
★ 0.164 10,000 1.200
★ 0.361
★ 0.790
★ 1.000
★ 2.142
★ 3.142 REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
DISTRIBUTION OF EXTERNAL TANK PRESSURES

RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
- $10.000 \quad 1.460\ BETA \quad 0.000 \quad ORBINC$
- $4.000 \quad SRBCAP \quad 0.025$

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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SYMBOL X/REF ALPHA MACH

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- 0.561 4.000
- 0.760
- 1.060
- 2.562
- 3.140

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701TK)

PAGE 653
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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PARAMETRIC VALUES
BETA 0.000 ORBINC - 1.500
SRBGAP 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
ZIBUTION OF EXTERNAL TANK PRESSURES

RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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- BETA: 0.000
- ORBINC: 1.5U0
- SRB GAP: 0.025

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

1.200

8ETA 0.000

ORBINC 0.025

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

0.0  0.4  0.8  1.2  1.6

0  20  40  60  80  100  120  140  160  180

PHI

CP

SYMBOL  X/LREF  ALPHA  MACH
D       0.144   0.000  1.200
D       0.331   4.000
O       0.780
O       1.088
O       2.182
O       3.148

REFERENCE FILE

PARAMETRIC VALUES
BETA  0.000  ORBINC  0.000
SRB GAP  0.025

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)  PAGE 659
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

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MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

SYMBOL  X/REF  BETA  MACH
O   0.164   10.000  1.200
△  0.341   4.000
0.799
△  1.000
2.162
△  2.144  REFERENCE FILE

PARAMETRIC VALUES
ALPHA  0.000  ORBINC  1.500
SRB6AP  0.025

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703TK)

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RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

SYMBOL X/REF BETA MACH

\[
\begin{align*}
0.164 & \quad 0.000 \quad 1.200 \\
0.341 & \quad 4.000 \\
0.790 & \quad 1.088 \\
2.192 & \quad 3.140
\end{align*}
\]

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R703TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK Pressures

PARAMETRIC VALUES

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<th>MACH</th>
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REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R703TK)

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MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R704TK)
DISTRIBUTION OF EXTERNAL TANK PRESSURES

RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

SYMBOL X/REF BETA MACH
0.184 10,000 0.93D
0.261
0.750
1.266
2.142
3.148 REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
RADIAL DISTRIBUTION OF EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

\begin{align*}
\alpha &= 6.000 \\
\Omega &= 1.500 \\
\text{SRB Gap} &= 0.025
\end{align*}

SYMBOL \( x/L_{\text{Ref}} \) \( \beta \) \( \text{Mach} \)
\begin{align*}
0.164 & - 10.000 & 1.200 \\
0.341 & - 4.000 \\
0.720 & \\
1.068 & \\
2.162 & \\
3.148 & 
\end{align*}

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704TK)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE - ORB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (R705SM)
RAdial Distribution of SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)

PARAMETRIC VALUES

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<td>SRB GAP</td>
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SYMBOL | X/LREF | ALPHA | MACH |
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<td>▲</td>
<td>2.329</td>
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RADIAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES

NOTE: SRB NOSE LOCATED AT X/LREF = .349

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

SYMBOL  K/LREF  ALPHA  MACH
Q  0.998  10.000  0.600
A  2.329
O  3.912

NOTE: SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
Radial distribution of SRB pressures

Parametric values:
- Beta 0.000
- Orbinc 1.500
- Srbgap 0.025

Note: SRB nose located at X/LRef = .369

MSFC 543-049 Launch config w/o abort SRM, T1S101 (R701SM)
RADIAL DISTRIBUTION OF SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREF = 0.49

SYMBOL X/LREF ALPHA MACH

⊙ 0.995 0.000 0.950
△ 2.329 4.000
◆ 3.912

PARAMETRIC VALUES

BETA 0.000
ORBINC 1.500
SRBGAP 0.025

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

PARAMETRIC VALUES:
BETA 0.000
OMBINC 1.500
SRB GAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
PARAMETRIC VALUES

- \( \beta = 0.000 \)
- \( \text{ORBINC} = 1.500 \)
- \( \text{SRBGAP} = 0.023 \)

NOTE: SRB NOSE LOCATED AT \( x/L_{\text{REF}} = 0.369 \)

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T13101 (R701SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
RADIAL DISTRIBUTION OF SRB Pressures

PARAMETRIC VALUES

BETA  0.000  ORBINC  1.500
SRBGAP  0.025

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1SI01 (R701SM)
RADIAL DISTRIBUTION OF SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

PARAMETRIC VALUES
BETA 0.000
ORBINC - 1.500
SRBGAP 0.025

SYMBOL X/LREF ALPHA MACH
\( \Diamond \) 0.999 0.000 1.460
\( \triangle \) 0.329 4.000
\( \bullet \) 3.512

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
RADIAL DISTRIBUTION OF SRB Pressures

NOTE: SRB NOS E LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
RADIAL DISTRIBUTION OF SRB Pressures

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R701SM)
NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R701SM)
PHI PARAMETRIC VALUES
BETA 0.000 ORBINC 0.000
SRB6AP 0.023

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
DISTRIBUTION OF SRB PRESSURES

SYMBOL X/LREF 0

PHI 0.998 0.52

ALPHA 10.000 1.200

HACH 1.000 1.200

PARAMETRIC VALUES

BETA 0.000 ORBINC 0.000

SRBGAP 0.025

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

Symbol X/LREF ALPHA MACH
Ο 0.990 10.000 1.460
△ 2.329 4.000
◊ 3.512

Note: SRB nose located at X/LREF = 369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R702SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R702SM)
NOTE- SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R703SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R703SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE:
- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (RS0SM)

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RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R704SM)
NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
PHI PHI
SYBO
L X/LREE
BETA MACH PARAMETRIC VALUES
0.000
1.200
ALPHA 6.000 ORBINC 1.500
-2.329 4.000 SR8GAP 0.002

NOTC- SRO NOSE LOCATED AT X/LREF=.369

RADIAL DISTRIBUTION OF SRB PRESSURES

CP

CP

PHI

PHI

SYMBOL  X/LREF  BETA  MACH
 groundwater
 0.998  0.000  1.200

0.998  0.000  1.200

2.329  4.000

5.512

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
RADIAL DISTRIBUTION OF SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R704SM)
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
- MACH 0.800
- BETA 0.000
- ORBINC 1.300

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R7081T)
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
MACH 0.800  BETA 0.000
ORBINC - 1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R7081T)
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL     SRB GAP     PHI     ALPHA
           0.025        0.0      1.0
           0.050        0.0      1.0
           0.100        0.0      1.0

PARAMETRIC VALUES
MACH       0.800
BETA       0.000
ORBINC     1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081T)
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

SYMBOL SRBGAP PHI ALPHA
\(\bigcirc\) 0.025 45.000 10.000
\(\triangle\) 0.050
\(\diamond\) 0.100

PARAMETRIC VALUES
MACH 0.800
BETA 0.000
ORBINC -1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081T)

PAGE 710
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | SRBGAP | PHI | ALPHA
---|---|---|---
○ | 0.025 | 75.000 | 10.000
△ | 0.050 | 0.000 | 0.000
◊ | 0.100 | 0.000 | 0.000

PARAMETRIC VALUES
MACH 0.600
BETA 0.000
ORBINC 1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081T)
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL  SRBGAP  PHI  ALPHA
O  0.025  10.00  10.000
O  0.050  
O  0.100

PARAMETRIC VALUES
MACH  0.800
BETA  0.000
ORBINC - 1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/G ABORT SRM, T1S101 (R7081T)
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LEF

PRESSURE COEFFICIENT, CP

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081T)
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
- MACH 1.200
- BETA 0.000
- ORBINC 1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R7084T)

PAGE 714
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL | SRB GAP | PHI | ALPHA
-------|--------|-----|-----
  □   | 0.025  | 75.000 - 10.000
  △   | 0.050  |
  ◇   | 0.100  |

PARAMETRIC VALUES
MACH   1.200
BETA   0.000
ORBINC 1.000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/0 ABORT SRM, T1S101 (R7084T)

PAGE 715
EFFECT OF SRGBAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

MACH 1.200
BETA 0.000

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7084T)
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- MACH 1.200
- BETA 0.000
- ORBINC 1.500

REFERENCE FILE
- MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7084T)
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

MACH 1.200
BETA 0.000
ORBINC 1.500

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R7084T)

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EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL   SRBGAP   PHI     ALPHA
         0.025    75.000   10.000
         0.050
         0.100

PARAMETRIC VALUES
MACH   1.200   BETA   0.000
ORBINC  1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7084T)
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL SRBGAP PHI ALPHA
O 0.025 100.000 10.000
O 0.050
O 0.100

PARAMETRIC VALUES
MACH 1.200
BETA 0.000
ORBINC - 1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/OABORT SRM. TIS101 (R7084T)
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/REF

SYMBOL SRB GAP PHI ALPHA

\[ \text{PARAMETRIC VALUES} \]

MACH 1.200 BETA 0.000

ORBINC - 1.500

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7084T)
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

SYMBOL: SRB GAP, PHI, ALPHA

PARAMETRIC VALUES
MACH = 1.960
BETA = 0.000
ORBINC = 1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R7086T)

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EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL SRB GAP PHI ALPHA

PARAMETRIC VALUES

MACH 1.000 BETA 0.000
ORBINC 1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7086T)
Effect of SRB gap on external tank pressures.

-1.4 -1.2 -1.0 -0.8 -0.6 -0.4 -0.2 0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4

Pressure coefficient, CP

-1.4 -1.2 -1.0 -0.8 -0.6 -0.4 -0.2 0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4

Longitudinal position based on wing M.A.C., X/LREF

Reference File

MSFC 543-049 Launch Config W/O Abort SRM, T1S101 (R706T)
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

SYMBOL SRBGAP PHI ALPHA
\( \Delta \) 0.025 126,000 - 10,000
\( \nabla \) 0.100

PARAMETRIC VALUES
MACH : 1.960
BETA : 0.000
ORBINC : 1.000

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R7086T)

PAGE 725
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

- MACH: 1.000
- BETA: 0.000
- ORBINC: 1.000

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7086T)
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7086T)
EFFECT OF SRB GAP ON EXTERNAL TANK PRESSURES

SYMBOL: Φ
SRB GAP: 0.025, 0.100
PARAMETRIC VALUES
MACH: 1.960
BETA: 0.100
ORBINC: 1.500

REFERENCE FILE
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7086T)

PAGE 728
EFFECT OF SRBGAP ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., \( \frac{X}{L_{REF}} \)

\( \text{SYMBOL} \quad \text{SRBGAP} \quad \text{PHI} \quad \text{ALPHA} \)

\( \emptyset \quad 0.025 \quad 126.000 \quad 10.000 \)

\( \Delta \quad 0.100 \)

\( \text{PARAMETRIC VALUES} \)

MACH \quad 1.960 \quad \text{SETA} \quad 0.000

ORBINC \quad 1.800

REFERENCE FILE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R7086T)

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EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

0.0 1.0 2.0 3.0 4.0

0.0 0.4 0.8 1.2 1.6

PARAMETRIC VALUES

MACH 0.800
BETA 0.000
ORBINC 1.500

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7081S)
EFFECT OF SRB GAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

SYMBOL SRB GAP PHI ALPHA

### PARAMETRIC VALUES

- MACH 0.800
- BETA 0.000
- ORBINC 1.000

NOTE - SRB NOSE LOCATED AT X/LREF = 0.569

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081S)
EFFECT OF SRBGAP ON SRB PRESSURES

SYMBOLS:
- SRBGAP
- PHI
- ALPHA

PARAMETRIC VALUES:
- MACH 0.800
- BETA 0.000
- ORBINC 1.500

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R7081S)
EFFECT OF SRBGAP ON SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081S)
LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PHI

PARAMETRIC VALUES

MACH 0.800
BETA 0.000
ORBINC 1.500

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES

MACH 0.000
BETA 0.000

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R70819)
EFFECT OF SRB GAP ON SRB PRESSURES

SYMBOL | SRB GAP | PHI | ALPHA
--- | --- | --- | ---
O | 0.025 | 180° | 10,000
O | 0.050 | 90° | 10,000
O | 0.100 |

PARAMETRIC VALUES
- MACH: 0.600
- BETA: 0.000
- ORBINC: 1.500

Note: SRB nose located at x/LREF = 0.369

MSFC 543-049 Launch Config W/O Abort SRM, TIS101 (R7081S)
EFFECT OF SRB GAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081S)
EFFECT OF SRB GAP ON SRB pressUres

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL SRB GAP PHI ALPHA
0.025 270,000 10,000
0.000
0.100

PARAMETRIC VALUES

MACH 0.800
BETA 0.000
ORBINC -1.500

NOTE- SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081S)
EFFECT OF SRBGAP ON SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7081S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

SYMBOL SRBGAP PHI ALPHA
☐ 0.025 0.000 - 10.000
☐ 0.050
☐ 0.100

PARAMETRIC VALUES
MACH 1.200 BETA 0.000
ORBINC - 1.500

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7084S)
EFFECT OF SRB GAP ON SRB PRESSURES

PARAMETRIC VALUES

MACH 1.200
BETA 0.000
ORBINC 1.500

NOTE: SRB NOSE LOCATED AT X/LREF=0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R7084S)
EFFECT OF SRB GAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7084S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  SRBGAP  PHI  ALPHA
\( \Delta \)  0.025  270,000  -10,000
\( \triangle \)  0.050  
\( \diamond \)  0.100

PARAMETRIC VALUES
MACH  1.200
BETA  0.000
GRBINC - 1.500

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R70845)

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EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7084S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R7084S)
EFFECT OF SRB GAP ON SRB PRESSURES

PARAMETRIC VALUES

MACH 1.200
BETA 0.000
ORBINC 1.500

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7084S)
EFFECT OF SRB GAP ON SRB Pressures

NOTE: SRB NOSE LOCATED AT X/LREFF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7084S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL SRBGAP PHI ALPHA

0.025 270,000 10,000
0.050
0.100

PARAMETRIC VALUES

MACH 1.200
BETA 0.000
ORBINC - 1.500

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (R7084S)

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EFFECT OF SRB GAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL SRB GAP PHI ALPHA
○ 0.025 315.000 10.000
△ 0.050
× 0.100

PARAMETRIC VALUES
MACH 1.200 BETA 0.000
ORBINC - 1.500

NOTE - SRB NOSE LOCATED AT X/LREF = 0.360

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (R7084S)
EFFECT OF SRB GAP ON SRB PRESSURES

PARAMETRIC VALUES
MACH 1.960
BETA 0.000
ORBINC 1.500

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7086S)

PAGE 750
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDBAL POSITION BASED ON WING M.A.C., X/LREF

NOTE- SRB NOSE LOCATED AT X/LREF=.369
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7086S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL SRBGAP PHI ALPHA
Q 0.025 225,000 - 10,000
1.00

PARAMETRIC VALUES

MACH 1.960
BETA 0.000
ORBINC 1.500

NOTE- SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/0 ABORT SRM, T1S101 (R7086S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
MACH  1.960
BETA  0.000
ORBINC  1.500

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7086S)
EFFECT OF SRB GAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
-1.4

0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

SYMBOL SRB GAP PH1 ALPHA
0.025 315.000 - 10.000
0.100

PARAMETRIC VALUES
MACH 1.960 BETA 0.000
ORBINC 1.000

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7086S)

PAGE 754
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7086S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7086S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = .369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (R7086S)
EFFECT OF SRB GAP ON SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = 0.36

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. TIS101 (R7086S)
EFFECT OF SRBGAP ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF=.369

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (R7086S)
EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

PARAMETRIC VALUES
BETA = 0.000
ORBINC = -1.500
SRBGAP = 0.025

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(OPEN) O 60,000 - 10,000 LAUNCH CONFIG W/O ABORT SRM, T15101
(FLAGGED) ○ 943-048 LAUNCH CONFIGURATION, T15102

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EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHJ ALPHA MACH PARAMETRIC VALUES
Q 45,000 - 10,000 0.800 BETA 0.000 ORBINC - 1.000

SRBGAP 0.025

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P709TK) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIO1
(R709TK) FLARED MSFC 543-049 LAUNCH CONFIGURATION, TISIOE

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EFFECT OF ABORT SRM ON EXTERNAL TANK Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PHA ALPHA MACH

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P70ITK) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101
(R709TK) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, T15102

PARAMETRIC VALUES
BETA 0.000 ORBINC 1.500
SRB GAP 0.023

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EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  ALPHA  MACH  PARAME TRIC VALUES
Q  60.000 - 4.000  0.000  BETA  0.000  ORBINC - 1.500
SRBGAP  0.025

DATA SET  SYMBOL  CONFIGURATION DESCRIPTION
(PIDRTK)  OPEN  MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIO1
(R709TK)  FLAGGED  MSFC 543-049 LAUNCH CONFIGURATION, TISIO2

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EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P70ITK) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
(R70ITK) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102

PARAMETRIC VALUES
BETA 0.000 ORBINC - 1.500
SRBGAP 0.025

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EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

SYMBOL PHI

ALPH.

Q

MACH

PARAMETRIC VALUES

BETA 0.000 ORBINC 1.500

SRB GAP 0.025

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(P79PTK) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101

(R79PTK) PLACED MSFC 543-049 LAUNCH CONFIGURATION, TIS102
EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- PHALPHA: 0.000 0.600
- BETA: 0.000
- SRBGAP: 0.025

DATA SET SYMBOL CONFIGURATION DESCRIPTION
- (P7J06K) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIO1
- (R706K) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TISIO2
EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

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DATA SET  

| (P701TK) OPEN  | MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 |
| (R709TK) FLAGGED | MSFC 543-049 LAUNCH CONFIGURATION, T1S102 |

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EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

DATA SET | SYMBOL PHA MACH | PARAMETRIC VALUES
---|---|---
(P701TK) | OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 | BETA 0.000 ORBINC 1.500
(R701TK) | FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, T1S102 | SRBGAP 0.025
EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOI PHI ALPHA MACH

BETA 0.000 ORBINC - 1.500
SRBGAP 0.025

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P701TK) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
(R709TK) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102

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EFFECT OF ABDORT SRM ON EXTERNAL TANK PRESSURES

PARAMETRIC VALUES

BETA 0.000 ORBINC - 1.500
SRBAP 0.025

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P701TK) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABDORT SRM, T15101
(R709TK) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, T15102

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EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

DATA SET | SYMBOL | CONFIGURATION DESCRIPTION
----------|--------|------------------------------------------
(R/0)     | OPEN   | MSFC 543-048 LAUNCH CONFIG W/O ABORT SRM, TIS101
(R/0)     | FLAGGED| MSFC 543-048 LAUNCH CONFIGURATION, TIS102
EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL  PHI  ALPHA  MACH
O  60,000  10,000  0.800

PARAMETRIC VALUES
BETA  0.000
ORBINC  -1.500
SRBGAP  0.025

DATA SET  SYMBOL  CONFIGURATION DESCRIPTION
(P706TK) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T13101
(R706TK) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, T13102
EFFECT OF ABORT SRM ON EXTERNAL TANK Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

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DATA SET SYMBOL CONFIGURATION DESCRIPTION
(FY010K) OPEN MSFC S43-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
(RY091K) FLAGGED MSFC S43-049 LAUNCH CONFIGURATION, TIS102

PARAMETRIC VALUES
BETA 0.000 ORBINC - 1.500
SRB6AP 0.025

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EFFECT OF ABORT SRM ON EXTERNAL TANK PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL

Q 30.000 10.000 0.800

PARAMETRIC VALUES

Q 30.000 10.000 0.800

SRB6AP 0.025

DATA SET SYMBOL, CONFIGURATION DESCRIPTION

(R709TX) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101

(R709TX) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102

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EFFECT OF ABORT SRM ON SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF=.369
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(PRISM) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
(R7095M) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102
EFFECT OF ABOIT SRM ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(PTDISH) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABOIT SRH, TIS101
(R709SH) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102

PARAMETRIC VALUES
BETA 0.000
SRBGAP 0.025

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EFFECT OF ABORT SRM ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369
DATA SET: SYMBOL CONFIGURATION DESCRIPTION
(P7018M) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
(R7008M) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102

SYMBOL PHI ALPHA MACH
Q 270.000 4.000 0.800

PARAMETRIC VALUES
BETA 0.000
SRB GAP 0.023
EFFECT OF ABORT SRM ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PH" ALPHA MACH

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(FLGSRM) OPEN NSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101
(FLGSRM) FLAGGED NSFC 543-049 LAUNCH CONFIGURATION, T15102
EFFECT OF ABORT SRM ON SRB PRESSURES

NOTE: SRB NOSE LOCATED AT X/LREF = .308

PARAMETRIC VALUES
BETA 0.000
SRB GAP 0.025

SYMBOL PHASE HATCH MACH
0.000 - 4.000 0.800

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P7096SN) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIS1
(R7096SN) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TISIS2

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EFFECT OF ABOBT SRM ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF=.369
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(FYD88H) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABOBT SRM, TIS101
(FYD88H) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102
EFFECT OF ABORT SRM ON SRB PRESSURES

PARAMETRIC VALUES

BETA  0.000
ORBINC - 1.500
SRB GAP  0.025

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE: SRB NOSE LOCATED AT X/LREF = 0.369

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(PYDISM) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101
(R/YDISM) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, T1S102

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EFFECT OF ABOBT SRM ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(PYD81K) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABOBT SRM, TISIO1
(R709SN) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TISIO2

PARAMETRIC VALUES
BETA 0.000 ORBINC = 1.300
SRBGAP 0.025

SYMBOL PHI ALPHA MACH
O 0.000 0.000 0.000

PRESSURE COEFFICIENT, CP

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

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EFFECT OF ABORT SRM ON SRB PRESSURES

PARAMETRIC VALUES

BETA 0.000
ORBINC 1.500
SRBGAP 0.025

NOTE: SRB NOSE LOCATED AT X/LREF = .369
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(OPEN) 270.000 4.000 0.600
(R709SM) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
(RE709SM) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102

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EFFECT OF ABORT SRM ON SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P709SM) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
(R709SM) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102

SYMBOL PHIL ALPHA MACH PARAMETRIC VALUES
O 315.000 4.000 0.800 BETA 0.000 ORBINC - 1.500
SRB GAP 0.025
EFFECT OF ABORT SRM ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

SYMBOL PH: 0.000 4.000 0.000
PARMETRIC VALUES

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(PYDISH) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
(RYDISH) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TIS102

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EFFECT OF ABOBT SRM ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
- BETA 0.000
- ORBINC 1.500
- SRB GAP 0.025

SYMBOL PHIA ALPHA MACH
- 270.000 10.000 0.800

NOTE: SRB NOSE LOCATED AT X/LREF = 0.399
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P706M) OPEN NSFC 543-049 LAUNCH CONFIG W/O ABOBT SRM, TISIOI
(P708M) FLAGGED NSFC 543-049 LAUNCH CONFIGURATION, TISIOI

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EFFECT OF ABORT SRM ON SRB Pressures

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PRESSURE COEFFICIENT, CP

NOTE: SRB NOSE LOCATED AT X/LREF=.36P
DATA SET SYMBOL CONFIGURATION DESCRIPTION
(P700HM) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIOI
(R700HM) FLAGGED MSFC 543-049 LAUNCH CONFIGURATION, TISIO2

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EFFECT OF ABORT SRM ON SRB PRESSURES

LONGITUDINAL POSITION BASED ON WING M.A.C., X/LREF

PARAMETRIC VALUES
BETA 0.000 ORIGIN - 1.500
SRBGAP 0.025

NOTE - SRB NOSE LOCATED AT X/LREF = 0.369
DATA SET SYMBOI, CONFIGURATION DESCRIPTION
(PYO3M) OPEN MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIO1
(ROY3M) FLANGED MSFC 543-049 LAUNCH CONFIGURATION, TISIO2

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NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE EXTERNAL TANK

REFERENCE INFORMATION

| REF  | 7.0000 SQ. IN. |
| LREF | 5.0200 INCHES  |
| LREF | 4.4600 INCHES  |
| MHRP| 4.2260 INCHES  |
| THRP| 0.0000 INCHES  |
| ZHRP| 0.2460 INCHES  |
| SCALE| 0.0040 SCALE   |

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MSFC 543-EXTERNAL TANK ALONE, T1
NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE EXTERNAL TANK

PARAMETRIC VALUES

REFERENCE INFORMATION

MSFC S43-EXTERNAL TANK ALONE, T1
NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE EXTERNAL TANK

PARAMETRIC VALUES

REFERENCE INFORMATION

SCALE 0.0040 SCALE

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (A70600) 07 FEB 73 PAGE 793
NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE EXTERNAL TANK

PARAMETRIC VALUES
0.000 ORIGIN - 1.500
0.025 SDRGAP

REFERENCE INFORMATION
SREF 7.8800 SQ. IN.
LREF 2.0280 INCHES
BREF 4.4000 INCHES
XMRP 4.2260 INCHES
YMRP 0.0000 INCHES
ZMRP 0.2480 INCHES
SCALE 0.0040 SCALE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T15101 (A701TK) 07 FEB 73 PAGE 795
NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE EXTERNAL TANK

SYMBOL MACH PARAMETRIC VALUES
1.460 BETA 0.000 ORBINC - 1.500
1.960 SRGAP 0.025

REFERENCE INFORMATION
SREF 7.8800 SQ. IN.
LREF 2.0280 INCHES
BREF 4.4600 INCHES
XMRP 4.2260 INCHES
YMRP 0.0000 INCHES
ZMRP 0.2480 INCHES
SCALE 0.0040 SCALE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701TK) 07 FEB 73 PAGE 796
NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE EXTERNAL TANK

PARAMETRIC VALUES

0.000 ORBINC
0.025 X/LREF
1.8 I
2.0 X/LREF
2.5 I
3.0 X/LREF
3.5 I
4.0 X/LREF

REFERENCE INFORMATION

SREF 7.0000 SQ. IN.
LREF 2.0280 INCHES
BREF 4.4600 INCHES
XMRP 4.2260 INCHES
YMRP 0.0000 INCHES
ZMRP 0.2460 INCHES
SCALE 0.0040 SCALE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A702TK) 07 FEB 73 PAGE 797
SIDE FORCE DERIVATIVE DISTRIBUTIONS FOR THE EXTERNAL TANK

PARAMETRIC VALUES

\[ \text{MACH} \quad 1.200 \quad \text{ALPHA} \quad 0.000 \quad \text{ORBINC} \quad -1.000 \]
\[ \text{SR Auch} \quad 0.025 \]

REFERENCE INFORMATION

\[ \text{SREF} \quad 7.6600 \quad \text{INCHES} \]
\[ \text{LREF} \quad 2.0280 \quad \text{INCHES} \]
\[ \text{XMRP} \quad 4.4000 \quad \text{INCHES} \]
\[ \text{YMRP} \quad 0.0000 \quad \text{INCHES} \]
\[ \text{ZMRP} \quad 0.2480 \quad \text{INCHES} \]
\[ \text{SCALE} \quad 0.0040 \quad \text{SCALE} \]

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A703TK) 07 FEB 73 PAGE 798
NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE SRB

PARAMETRIC VALUES

SRBGAP 0.000
SRB 0.8800
IN.

REFERENCE INFORMATION

BREF 4.2260
IN.

XMRP 0.4600
IN.

ZMRP 0.0000
IN.

SCALE 0.6400
SCALE

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (A705SM) 07 FEB 73 PAGE 800
NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE SRB

PARAMETRIC VALUES
- Mach
  - 0.600
  - 0.950
- Beta
  - 0.000
  - 0.025
- Orbinc
  - 1.000
- Xref
  - 2.8600
  - 2.0280
  - 4.4600
  - 4.2260
  - 0.0440
- Scale
  - 0.0004

REFERENCE INFORMATION
- Sref
  - 7.8600
  - 50.0
- Lref
  - 2.0280
  - INCHES
- Bref
  - 4.4600
  - INCHES
- Zmrp
  - 0.2480
  - INCHES
- Zref
  - 0.2460
  - INCHES
- Scale
  - 0.0044
  - SCALE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (A701SM) 07 FEB 73 PAGE 801
NORMAL FORCE DERIVATIVE DISTRIBUTIONS FOR THE SRB

PARAMETRIC VALUES

MACH 1.460
1.960

BETA 0.000
SRBGAP 0.025

REFERENCE INFORMATION

SREF 7.6800 SQ. IN.
LREF 2.0280 INCHES
BREF 4.4600 INCHES
YMRP 0.2480 INCHES
ZHRP 0.2480 INCHES
SCALE 0.0040 SCALE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (A701SM) 07 FEB 73 PAGE 802
SIDEx FORCE DERIVATIVE DISTRIBUTIONS FOR THE LEFT SRB

SYMBOLS

MACH 1.200
ALPHA 0.000
SREGAP 0.025

PARAMETRIC VALUES

SREF 7.000 SQ. IN.
LREF 5.3560 INCHES
BREF 4.4660 INCHES
XHMR 4.2240 INCHES
YHMR 0.0000 INCHES
ZMRP 0.2480 INCHES
SCALE 0.0040 SCALE

REFERENCE INFORMATION

07 FEB 73
PAGE 804
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL ALPH A PARAMETRIC VALUES
• 0.000 0.000
△ - 4.000
☐ - 10.000

REFERENCE INFORMATION
SREF 7.0000 90 IN.
LREF 2.0000 INCHES
XREF 4.1000 INCHES
YREF 0.0000 INCHES
ZREF 0.2480 INCHES
SCALE 0.0040 SCALE

MACH .80
MSFC 543-EXTERNAL TANK ALONE, T1

(A70000) 17 FEB 73 PAGE 806
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

X/LREF

SYMBOL  ALPHA  BETA  PARAMETRIC VALUES
O  0.000  0.000
O  4.000
O  10.000

MACH  1.20

MSFC 543-EXTERNAL TANK ALONE, T1.

REFERENCE INFORMATION
SREF  7.8900  SQ. IN.
LREF  2.0280  INCHES
BREF  4.4400  INCHES
XHRP  4.2260  INCHES
YHRP  0.0000  INCHES
SCALE  0.0040  SCALE
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL  \( \alpha \)  \( \beta \)  PARAMETRIC VALUES

\( \alpha \)  0.000  0.000

MACH  1.20

MSFC 543-EXTERNAL TANK ALONE, T1

REFERENCE INFORMATION

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(A70000)  17 FEB 73  PAGE 809
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL  ALPHA  PARAMETRIC VALUES
\( \Delta \)  0.000  0.000
\( \bigcirc \)  4.000
\( \bigcirc \)  10.000

REFERENCE INFORMATION
- MACH 1.46
- MSFC 543-EXTERNAL TANK ALONE, T1

(A70000) 17 FEB 73 PAGE 810
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DN/DX

PARAMETRIC VALUES

REFERENCE INFORMATION

SYMBOL  ALPHA  BETA

MACH  1.46
MSFC 543-EXTERNAL TANK ALONE, T1

(A70000) 17 FEB 73  PAGE 811
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL  ALPHA  PARAMETRIC VALUES
         0.000  BETA  0.000
         4.000
         10.000

MACH  1.96
MSFC 543-EXTERNAL TANK ALONE, T1

REFERENCE INFORMATION
BREF  7.6600  60.1 IN.
LREF  2.0280  INCHES
XREF  4.2260  INCHES
YMRP  0.0000  INCHES
ZMRP  0.2480  INCHES
SCALE  0.0040  SCALE

(A70000)  17 FEB 73  PAGE  812
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

X/LREF

SYMBOL

D^

DO

PARAMETRIC VALUES

ALPHA 0.000  BETA 0.000  ORBINC - 1.500

REFERENCE INFORMATION

SREF 7.8800  60. IN.

LREF 5.0280  INCHES

BREF 4.4600  INCHES

XMRP 4.2250  INCHES

ZMRP 0.0000  INCHES

SCALE 0.0040  SCALE

MACH 0.80

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (A70500) 17 FEB 73 PAGE 814
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

MACH .80
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (A70600) 17 FEB 73 PAGE 815
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

PARAMETRIC VALUES
- ALPHA 0.000
- BETA 0.000
- ORBINC 1.500

REFERENCE INFORMATION
- SREF 78000 INCHES
- LREF 2.0580 INCHES
- BREF 4.4600 INCHES
- XMRP 4.9260 INCHES
- YMRP 0.0000 INCHES
- ZMRP 0.2480 INCHES
- SCALE 0.0040 SCALE

MACH 1.20

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101

(A70600) 17 FEB 73 PAGE 816
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, $\frac{DCN}{DX}$

SYMBOL

- $\alpha = 0.000$
- $\beta = 0.000$
- $\alpha = 4.000$
- $\beta = 10.000$

PARAMETRIC VALUES

$\alpha = 0.000$, $\beta = 0.000$, $\text{ORIGIN} = 1.500$

REFERENCE INFORMATION

- $SREF = 7.6800$ IN.
- $LREF = 2.0280$ INCHES
- $BREF = 4.4600$ INCHES
- $ZREF = 0.0000$ INCHES
- $SCALE = 0.0040$

MACH

1.20

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101

(A70600) 17 FEB 73 PAGE 817
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCM/DOX

SYMBOL: □ ALPHA = 0.000 BETA = 0.000 ORBINC = 1.500
☐ 4.000
△ 10.000

REFERENCE INFORMATION
BREF 7.8800 88. IN.
LREF 2.0200 INCHES
BREF 4.4800 INCHES
XHAP 4.1100 INCHES
YHAP 0.0000 INCHES
ZHAP 0.2400 INCHES
SCALE 0.0040 SCALE

MACH 1.46
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101  (A70600) 17 FEB 73 PAGE 819
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DOX

SYMBOL  ALPHA  PARAMETRIC VALUES
O       0.000  BETA  0.000  ORBINC - 1.500
O       4.000
O       10.000

REFERENCE INFORMATION
BREF  7.8800  SQ. IN.
LREF  2.0280  INCHES
XREF  4.1600  INCHES
VMAP  0.0000  INCHES
ZMAP  0.4480  INCHES
SCALE 0.0040  SCALE

MACH  1.96
MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (A70600) 17 FEB 73 PAGE 820
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

PARAMETRIC VALUES

X/LREF

SYMBOL

ALPHA

0.000

4.000

10.000

BETA

0.000

ORBINC - 1.500

REFERENCE INFORMATION

LREF 7.0000

LEF 2.0000 INCHES

 SCALE 0.0040 SCALE

MACH 1.96

MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 (A70600) 17 FEB 73 PAGE 821
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

SYMBOL | ALPHA | PARAMETRIC VALUES | REFERENCE INFORMATION
0.000 | 0.000 | SRBGAP 0.025 | BREF 7.0000 INCHES
-4.000 | 0.000 | | LREF 2.0000 INCHES
-10.000 | 0.000 | | BREF 4.4800 INCHES
| | XNYRP 4.2200 INCHES
| | YNYRP 0.0000 INCHES
| | ZNYRP 0.2480 INCHES
| | SCALE 0.0040 SCALE

MACH 1.20
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (A705TK) 17 FEB 73 PAGE 822
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

SYMBOL  ALPHA  BETA  PARAMETRIC VALUES
O  0.000  0.000  SRBGAP  0.025
Δ  4.000  0.000
◊  10.000

REFERENCE INFORMATION
BRF  LREF  SRBGAP  YHAP  ZHAP  SCALE
1.000  2.020  4.460  0.000  0.248  0.004
2.000  5.020  4.226  0.000  0.248  0.004
3.000  8.020  4.090  0.000  0.248  0.004
4.000 11.020 4.060  0.000  0.248  0.004

MACH  1.20
MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TISI (A705TK) 17 FEB 73
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

X/LREF

SYMBOL | ALPHA | PARAMETRIC VALUES
--------|-------|---------------------
O       | 0.000 | BETA 0.000 ORBINC 1.500
\Delta   | 4.000 | BRBGAP 0.025
\Diamond | 10.000 |

REFERENCE INFORMATION

SREF 7.0000 50.0000 INCHES
LREF 2.0000 INCHES
BREF 4.4600 INCHES
XRFB 4.2260 INCHES
YNRP 0.0000 INCHES
ZHRF 0.0400 INCHES
SCALE 0.0040 SCALE

MACH .80

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701TK) 17 FEB 73 PAGE 824
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

PARAMETRIC VALUES

REFERENCE INFORMATION

MACH .80

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701TK) 17 FEB 73 PAGE 825
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

SYMBOL

ALPHA          PARAMETRIC VALUES

0.000          BETA          0.000 ORBINC = 1.000

4.000          SRBGAP 0.025

10.000

REFERENCE INFORMATION

SREF  7.6800  66.0 IN.
LREF  8.0200  INCHES
SREF  4.4100  INCHES
XREF  4.2200  INCHES
YHPE  0.0000  INCHES
ZHPE  0.2400  INCHES
SCALE 0.0040  SCALE

MACH  .95

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (A701TK) 17 FEB 73 PAGE 827
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, D\text{CV}/D\text{X}

\begin{array}{c|c|c|c}
\text{SYMBOL} & \text{ALPHA} & \text{PARAMETRIC VALUES} & \text{REFERENCE INFORMATION} \\
\hline
\odot & 0.000 & \text{BETA} & 0.000 & \text{ORBINC} & \text{1.500} \\
\odot & 4.000 & \text{SRB GAP} & 0.025 & & \\
\odot & 10.000 & & & \\
\end{array}

\text{MACH} 1.20

\text{MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701TK) 17 FEB 73 PAGE 829}
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

PARAMETRIC VALUES

\[ \text{X/LREF} \]

SYMBOLS

- \( \alpha = 0.000 \)
- \( \beta = 0.000 \)
- \( \text{ORBINC} = 1.500 \)
- \( \text{SRBGAP} = 0.025 \)

REFERENCE INFORMATION

- SREF = 7.8600
- LREF = 5.0250
- XREF = 4.4600
- YMRP = 0.0000
- ZMRP = 0.2480
- SCALE = 0.0040

MACH 1.46

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701TK) 17 FEB 73 PAGE 830
NORMA L FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT: DCN/DX

MACH 1.46

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (A701TK) 17 FEB 73 PAGE 831

REFERENCE INFORMATION
SRER 7.8600 INCHES
LREF 2.0250 INCHES
XMRH 4.4550 INCHES
XMRP 4.2250 INCHES
ZMRH 0.0000 INCHES
ZMRP 0.2480 INCHES
SCALE 0.0040 SCALE

PARAMETRIC VALUES
- ALPHA
- BETA
- ORBINC - 1.500
- SRBRAP 0.025
- BREF 4.4000 INCHES
- HRP 4.2600 INCHES
- VHRP 0.0000 INCHES
- TTRP 0.1800 INCHES
- SCALE 0.0040 SCALE

SYMBOLS
- ○ 0.000
- △ 4.000
- ▲ 10.000

NORMA L FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

X/LREF
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

X/LREF

SYMBOL

ALPHA  0.000  BETA  0.000  ORBINC  1.500
- 4.000  SRBGAP  0.025
- 10.000

REFERENCE INFORMATION

SRBF  7.6800  SCALE  1.96
LREF  2.0280  INCHES
BREF  4.6500  INCHES
XHRR  4.2260  INCHES
YHRR  0.0000  INCHES
ZHRR  0.2480  SCALE
SCALE  0.0040  SCALE

MACH  1.96

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (A701TK) 17 FEB 73 PAGE 832
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

SYMBOL: Alpha 0.000, Beta 0.000, SRSGAP 0.025

PARAMETRIC VALUES:
- Alpha 0.000
- Beta 0.000
- SRSGAP 0.025

REFERENCE INFORMATION:
- BREF 5.0000 SQ. IN.
- LREF 2.0000 INCHES
- BREF 4.4600 INCHES
- XHRP 4.2260 INCHES
- YHRP 0.0000 INCHES
- PMAP 0.0400 INCHES
- SCALE 0.0040 SCALE

MACH 1.96

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (A701TK) 17 FEB 73 PAGE 833
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL | ALPHA | BETA | PARAMETRIC VALUES | ORIGIN | SCALE
--- | --- | --- | --- | --- | ---
0.000 | 0.000 | 0.025 | 0.000 | 0.000 | 0.20
4.000 | 4.000 | SRB GAP | 4.250 | INCHES
10.000 | 10.000 | | 4.250 | INCHES

REFERENCE INFORMATION
SREF | F.6800 | 50. INCHES
LREF | 2.0200 | INCHES
XREF | 4.0000 | INCHES
YREF | 0.0000 | INCHES
ZREF | 0.2480 | INCHES
SCALE | 0.0040 | SCALE

MACH | 1.20
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A702TK) 17 FEB 73 PAGE 834
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

Symbol | Alpha | Beta | Orbinc | X/Lref
---|---|---|---|---
O | 0.000 | 0.000 | 0.000 | 0.000
O | -4.000 | 0.025 | 0.000 | 0.000
O | -10.000 | 0.025 | 0.000 | 0.000

Reference Information
- Sref: 7.8600 sq-in.
- Lref: 8.0280 inches
- Bref: 4.4900 inches
- Xmp: 4.2250 inches
- Ymp: 0.0000 inches
- Zmp: 0.8480 inches
- Scale: 0.0040 scale

Mach 1.46
MSFC 543-049 Launch Config W/O Abort SRM, TIS101 (A702TK) 17 Feb 73 Page 836
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

X/LREF

SYMBOL  ALPHA  BETA  ORBINC  SRBGAP  REFERENCE INFORMATION
-DO  0.000  0.000  0.000  0.025  BREF  7.8000  60.1 IN.
-AB  4.000  0.000  0.000  0.025  LRFB  2.0200  INCHES
-AT  10.000  0.000  0.000  0.025  SRFB  4.4600  INCHES
-8T  4.000  0.000  0.000  0.025  MRFB  4.2260  INCHES
-10T  0.000  0.000  0.000  0.025  ZNRP  0.2480  INCHES
-SCAL  0.000  0.000  0.000  0.0040  SCALE  0.0040  SCALE

MACH  1.46
MSFC 543-049 LAUNCH CONFIG W/O ABQRT SRM. T1S101 (A702TK) 17 FEB 73  PAGE 837
NORMAL FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

SYMBOLS
- BETA: 0.000
- ALPHA: 0.000
- ORBINC = 1.500
- SRB GAP: 0.025
- SCALE: 0.0040

PARAMETRIC VALUES
- BREF: 7.0800 inches
- LREF: 2.0280 inches
- BREF: 4.4600 inches
- XNRP: 4.2260 inches
- XNRP: 0.0000 inches
- ZNRP: 0.2480 inches

REFERENCE INFORMATION
- MACH: 1.20

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A703TK) 17 FEB 73 PAGE 838
SIDE FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

X/LREF

SYMBOL BETA ALPHAD.txt

PARAMETRIC VALUES

0.000 ORBINC - 1.500

REFERENCE INFORMATION

SREF 1.8800 INCHES
LREF 1.0280 INCHES
XREF 4.4600 INCHES
YNRP 0.0000 INCHES
THRP 0.2400 INCHES
SCALE 0.0040 SCALE

MACH 1.20

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A703TG) 17 FEB 73 PAGE 841
SIDE FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

X/LREF

SYMBOL    PARAMETRIC VALUES
O          4.000   ALPHA 6.000   ORBINC - 1.500
10.000     SRB GAP 0.025

REFERENCE INFORMATION
SREF 7.8800  98.1 IN
LREF 2.0280  INCHES
BREF 4.4600  INCHES
XHRP 4.2260  INCHES
YNRP 0.0000  INCHES
ZNRP 0.2480  INCHES
SCALE 0.0040  SCALE

MACH .95
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A704TK) 17 FEB 73 PAGE 842
SIDE FORCE DISTRIBUTIONS FOR THE EXTERNAL TANK

SYMBOL BETA PARAMETRIC VALUES

\( \alpha \)
\( 4.000 \)
\( \beta \)
\( 10.000 \)
\( \text{SRB GAP} \)
\( 0.025 \)

MACH 1.20

REFERENCE INFORMATION

\( \text{BREF} \)
\( f.8800 \) INCHES

\( \text{LREF} \)
\( 5.2960 \) INCHES

\( \text{XMPB} \)
\( 4.4900 \) INCHES

\( \text{MMPB} \)
\( 0.0000 \) INCHES

\( \text{SCALE} \)
\( 0.0040 \) SCALE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T15101 (A704TK) 17 FEB 73 PAGE 843
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

PARAMETRIC VALUES

MACH 1.20

REFERENCE INFORMATION

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED. T1S1 (A705SM) 17 FEB 73 PAGE 845
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

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MACH .80

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (A701SM) 17 FEB 73 PAGE 846
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

X/LREF

SYMBOL | ALPHA  | BETA  | ORBITC - 1.500
--------|--------|-------|-----------------
  O     | 0.000  | 0.000 | 1.500
  △    | 4.000  | 0.025 |
  O     | 10.000 |

PARAMETRIC VALUES

REFERENCE INFORMATION

MACH .80

MSFC 543-049 LAUNCH CONFIG W/O. ABORT SRM. T15101 (A701SM) 17 FEB 73 PAGE 847
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL  ALPHA  BETA  PARAMETRIC VALUES
        0.000  0.000  ORINC - 1.500
- 4.000  SRB GAP  0.025
- 10.000

REFERENCE INFORMATION
BREF  4.0600  INCHES
LREF  2.0560  INCHES
XHOP  4.2260  INCHES
YHOP  0.0000  INCHES
ZHOP  0.2480  INCHES
SCALE  0.0040  SCALE

MACH  .95

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73  PAGE 848
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL  ALPHA  BETA  SRBGAP  ORBINC  X/LREF

0.000   0.000   0.025  1.000  1.000
4.000   4.000   0.000
10.000  10.000  0.000

MACH  .95

REFERENCE INFORMATION
SREF  7.8000  39.1IN.
LREF  2.0280  INCHES
XREF  4.6960  INCHES
YHAP  0.0000  INCHES
ZHAP  0.0000  INCHES
SCALE 0.0040 SCALE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73  PAGE 849
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

PARAMETRIC VALUES

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MACH 1.20

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (A701SM) 17 FEB 73 PAGE 851
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DOX

X/LREF

SYMBOL

ALPHA

0.000

- 4.000 SRBGAP 0.025

- 10.000

BETA

0.000

ORBINC - 1.500

0.000

PARAMETRIC VALUES

SRBGAP 0.025

MACH 1.46

REFERENCE INFORMATION

XREF 4.2260 INCHES

YHRP 0.0000 INCHES

ZHPR 0.2480 INCHES

SCALE 0.0040 SCALE

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL ALPHABETA ORBIT - 1.000
O 0.000 0.000
A 4.000 0.025
O 10.000

REFERENCE INFORMATION
SREF 7.6000 88-1N.
LREF 0.0280 INCHES
SRBP 4.4600 INCHES
CRM 4.2200 INCHES
VMRP 0.0000 INCHES
SCALE 0.0040 SCALE

MACH 1.46
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T15101 (A701$M) 17 FEB 73
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL

\( \alpha \)  \\
0.000
-4.000
-10.000

\( \beta \)  \\
0.000
0.025

\( \text{SRBGAP} \)  \\
0.000
0.025

PARAMETRIC VALUES

X/LREF

REFERENCE INFORMATION

MACH 1.96

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

PARAMETRIC VALUES
0.000 ORBINC - 1.500
0.025

REFERENCE INFORMATION
BREF 7.6000 80. IN.
LREF 0.0250 INCHES
XRDP 4.4600 INCHES
VMRP 0.0000 INCHES
ZMRP 0.8400 INCHES
SCALE 0.0040 SCALE

MACH 1.96

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (A701SM) 17 FEB 73 PAGE 855
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

\[ \frac{\text{X/LREF}}{0.000} \]

PARAMETRIC VALUES

- \( 0.000 \) ORBINC 0.000
- 0.025 SRB GAP

REFERENCE INFORMATION

- SREF 7.8800
- LREF 2.0280 INCHES
- BREF 4.1800 INCHES
- XMRP 4.2260 INCHES
- YHRP 0.0000 INCHES
- tMRP 0.2480 INCHES
- SCALE 0.0040

MACH 1.46

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A702SM) 17 FEB 73  PAGE 858
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL ALPHA PARAMETRIC VALUES
0.000 BETA ORBINC 0.000

4.000 SRBGAP 0.025
10.000

REFERENCE INFORMATION
SREF 7.000 80.0 INCHES
LREF 1.000 80.0 INCHES
XNRP 4.000 80.0 INCHES
YNRP 5.000 80.0 INCHES
SCALE 0.0040 SCALE

MACH 1.46
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A702SM) 17 FEB 73 PAGE 859
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

PARAMETRIC VALUES
0.000 ORBINC
0.025 ORBINC - 1.000

REFERENCE INFORMATION
SREF 5.000 INCHES
LREF 2.0280 INCHES
BREF 4.4600 INCHES
HRP 4.2260 INCHES
YRP 0.0000 INCHES
ZHRP 0.2400 INCHES
SCALE 0.0040 SCALE

SYMBOL
- 0.000
- 4.000 SRB GAP
- 10.000

MACH 1.20
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (A703SM) 17 FEB 73
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

SYMBOL BETA PARAMETRIC VALUES
0.000 ALPHA 0.000 ORBINC - 1.500
4.000 SRB GAP 0.025
10.000

REFERENCE INFORMATION
BREF 7.6800 INCHES
LREF 3.0200 INCHES
XREF 4.4000 INCHES
YREF 0.0000 INCHES
ZREF 0.2480 INCHES
SCALE 0.0040 SCALE

MACH 1.20
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A703SM) 17 FEB 73 PAGE 861
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

LOCAL NORMAL FORCE COEFFICIENT, DCN/DX

SYMBOL  BETA  ALPHA  PARAMETRIC VALUES

0.000    0.000    0.000 ORBINC = 1.500
4.000    0.025    SRBAP
10.000    0.000

REFERENCE INFORMATION

SREF  7.8800  80.0 IN.
LREF  2.0280  INCHES
BREF  4.4600  INCHES
XNRP  4.2220  INCHES
YNRP  0.0000  INCHES
ZNRP  0.2480  INCHES
SCALE 0.0040  SCALE

MACH .95

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (A704SM) 17 FEB 73  PAGE 863
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

PARAMETRIC VALUES
- \( \alpha = 0.000 \), \( \beta = 0.000 \), \( \text{SRBGAP} = 0.025 \)
- \( \alpha = 0.000 \), \( \beta = 0.000 \), \( \text{SRBGAP} = 0.025 \)

REFERENCE INFORMATION
- \( L_{\text{REF}} = 0.0280 \) INCHES
- \( X_{\text{NRP}} = 4.4600 \) INCHES
- \( Y_{\text{HRP}} = 0.0000 \) INCHES
- \( Z_{\text{HRP}} = 0.2480 \) INCHES
- SCALE = 0.0040 SCALE

MACH 1.20

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15101 (A704SM) 17 FEB 73 PAGE 864
NORMAL FORCE DISTRIBUTIONS FOR THE SRB

PARAMETRIC VALUES

- ORBINC = 0.023
- T[HE] SRB
- X/LREF

REFERENCE INFORMATION

- SREF = 7.6600 INCHES
- LREF = 2.0100 INCHES
- XRFP = 4.2800 INCHES
- YRFP = 0.0000 INCHES
- ZRFP = 0.5460 INCHES
- SCALE = 0.0040 SCALE

MACH 1.20

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A704SM) 17 FEB 73 PAGE 865
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

SVALUES

PARAMETRIC

VALUES

0.000

\( \alpha \)

\( \beta \)

SRB GAP

0.025

MACH 1.20

MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1 (A705SM) 17 FEB 73 PAGE 867
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

PARAMETRIC VALUES

X/LREF

REFERENCE INFORMATION

XHRP 4.2200 INCHES
YHRP 0.0000 INCHES
NZRP 0.2480 INCHES
SCALE 0.0040

SYMBOL ALPHA PARAMETRIC VALUES

MACH .80

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73 PAGE 868
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

SYMBOL  ALPHA  PARAMETRIC VALUES

0.000  BETA  0.000 ORBINC - 1.500
4.000  SRGAP  0.025
10.000

REFERENCE INFORMATION

MACH .80
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73 PAGE 869
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

PARAMETRIC VALUES

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| BREF    | 7.0600 | 0.00 IN.  |
| LREF    | 4.4600 | INCHES   |
| SRBGAP  | 4.2260 | INCHES   |
| BSRMGAP | 0.0000 | INCHES   |
| ZMRP    | 0.0040 | SCALE    |
| SCALE   | 0.0040 | SCALE    |

MACH     0.95

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73 PAGE 871
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

LOCAL SIDE FORCE COEFFICIENT * DCY/DX

SYMBOL | ALPHA   | BETA  | ORDRINC | SRGAP |
--------|---------|-------|---------|-------|
☐       | 0.000   | 4.000 | 1.000   | 0.025 |
☐       | 0.000   | 10.000| 1.500   | 0.025 |

REFERENCE INFORMATION
SREF   | 7.8800  | 90.0 IN.
LREF   | 2.0260  | INCHES
XREF   | 4.4600  | INCHES
YREF   | 4.2000  | INCHES
ZREF   | 0.0000  | INCHES
SCALE  | 0.0040  | SCALE

MACH 1.20
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

PARAMETRIC VALUES

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MACH 1.46

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (A701SM) 17 FEB 73 PAGE 874
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

PARAMETRIC VALUES:
- ALPHA = 0.000
- BETA = 0.000
- ORBINC = 1.000
- SRDFAP = 0.025

REFERENCE INFORMATION:
- BREF = 7.8800 IN.
- LREF = 2.0280 IN.
- XHRP = 4.2280 IN.
- YHRP = 0.0000 IN.
- ZHRP = 0.2480 IN.
- SCALE = 0.0040

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73 PAGE 875
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

SYMBOL

ALPHA

0.000

- 4.000

- 10.000

PARAMETRIC VALUES

BETA

0.000

SRBCAF

0.025

ORBINC - 1.500

REFERENCE INFORMATION

SREF 7.0000  SQ. IN.

LREF 2.0000  INCHES

BREF 4.4000  INCHES

XHRR 4.2200  INCHES

YHRR 0.0000  INCHES

ZHRR 0.2400  INCHES

SCALE 0.0040  SCALE

MACH 1.96

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73 PAGE 876
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

PARAMETRIC VALUES

SYMBOL | ALPHA | BETA | ORBINC | X/LREF |
--- | --- | --- | --- | --- |
0.000 | 0.000 | 0.000 | 1.500 |
4.000 | 0.000 | 0.025 |
10.000 | 0.000 | 0.025 |

REFERENCE INFORMATION

BREF | 7.8000 | 99.1IN.
LREF | 2.0000 | INCHES
QREF | 4.4600 | INCHES
XREF | 4.2200 | INCHES
YREF | 0.0000 | INCHES
ZREF | 0.0000 | INCHES
SCALE | 0.0040 | SCALE

MACH | 1.96 |
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A701SM) 17 FEB 73 PAGE 877
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

**PARAMETRIC VALUES**
- \( \alpha = 0.000 \), \( \beta = 0.000 \), \( \text{ORBINC} = 0.000 \)
- \( \alpha = 0.025 \), \( \beta = 0.000 \), \( \text{ORBINC} = 0.000 \)
- \( \alpha = 0.050 \), \( \beta = 0.000 \), \( \text{ORBINC} = 0.000 \)

**REFERENCE INFORMATION**
- \( \text{SREF} = 7.8800 \) in.
- \( \text{LREF} = 2.0280 \) in.
- \( \text{BREF} = 4.4600 \) in.
- \( \text{XHRP} = 4.2260 \) in.
- \( \text{YHRP} = 0.0000 \) in.
- \( \text{ZHRP} = 0.2480 \) in.
- \( \text{SCALE} = 0.0040 \) scale

**MACH** 1.46

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A702SM) 17 FEB 73 PAGE 881
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

X/LREF

SYMBOL

- 

- 4,000 SRBMP 0.025

- 10,000

PARAMETRIC VALUES

ALPHA 0.000 ORBINC - 1.500

REFERENCE INFORMATION

LREF 2.0280 INCHES

SRBF 2.8600 INCHES

XPRP 4.2260 INCHES

YPRP 0.0000 INCHES

SCALE 0.0040 SCALE

MACH 1.20

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A703SM) 17 FEB 73 PAGE 882
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

X/LREF

SYMBOL | BET A | PARAMETRIC VALUES
O | 0.000 | ALPHA 0.000 ORBINC = 1.500
- | 4.000 | SGGAP 0.025
- | 10.000 |

REFERENCE INFORMATION
SREF 7.8800 50. IN.
LREF 2.0280 INCHES
SRGAP 4.2250 INCHES
YRHP 0.0000 INCHES
ZHRP 0.2480 INCHES
SCALE 0.0040 SCALE

MACH .95

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (A704SM) 17 FEB 73 PAGE 884
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

PARAMETRIC VALUES

ORB INC - 1.500

REFERENCE INFORMATION

SREF 7.8000 99 INCHES
LREF 2.0000 INCHES
MBEF 4.4000 INCHES
XNRP 4.2260 INCHES
YMNP 0.0000 INCHES
ZNRP 0.2480 INCHES
SCALE 0.0040 SCALE

MACH .95

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 (A704SM) 17 FEB 73 PAGE 885
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

LOCAL SIDE FORCE COEFFICIENT, DCY/DX

SYMBOL BE Ta
- 0.000
- 4.000
- 10.000

PARAMETRIC VALUES
- BETA
- 0.000
- 4.000
- 10.000

- ALPHA
- 0.000

- SRBGAP
- 0.025

- ORBINC
- 1.500

REFERENCE INFORMATION
- SREF
- 7.8800
- SQ. IN.
- LREF
- 2.0280
- INCHES
- XREF
- 4.4600
- INCHES
- YHRP
- 0.0000
- INCHES
- ZHRP
- 0.0040
- SCALE
- 0.0040

MACH 1.20
MSFC 543-049 LAUNCH CONFIG W/0 ABORT SRM, T1S101 (A704SM) 17 FEB 73 PAGE 886
SIDE FORCE DISTRIBUTIONS FOR THE LEFT SRB

PARAMETRIC VALUES
ALPHA 0.000
ORBINC 1.500

REFERENCE INFORMATION

SYMBOL  BETA  ALPHA  ORBINC
D  0.000  0.000  1.500
O  4.000  0.029
O  10.000

MACH  1.20

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (A704SM) 17 FEB 73 PAGE 887
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

ANGLE OF ATTACK, ALPHA, DEGREES

NORMAL FORCE COEFFICIENT, CN

DATA SET SYMBOL   CONFIGURATION DESCRIPTION   BETA ORBINC SRBFAP   REFERENCE INFORMATION
(070000)          MSFC 545-EXTERNAL TANK ALONE, TI      0.000 0.000 0.025   SREF 7.6600  98.1 IN.
(070800)          DATA NOT AVAILABLE FOR ALL CONDITIONS
(070800)          MSFC 545-049 ORBITER WITH EXTERNAL TANK, TIO1 0.000 -1.500 0.025   LREF 2.0280 INCHES
(070800)          DATA NOT AVAILABLE FOR ALL CONDITIONS
(070800)          MSFC 545-049 LAUNCH CONFIG W/O ABORT SRM, TIS101 0.000 0.000 0.025   XHRP 4.4800 INCHES
(070800)          DATA NOT AVAILABLE FOR ALL CONDITIONS
(070800)          IMHRP 0.0000 INCHES
(070800)          SCALE 0.0040 SCALE

MACH 0.80

PAGE 888
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

ANGLE OF ATTACK, ALPHA, DEGREES

NORMAL FORCE COEFFICIENT, CN

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(D705000) MSFC 943-EXTERNAL TANK ALONE, TI
(D705000) DATA NOT AVAILABLE FOR ALL CONDITIONS
(D705000) MSFC 943-049 ORBITER WITH EXTERNAL TANK, TISOI
(D705000) MSFC 943-049 LAUNCH CONFIG W/O ABORT SRM, TISOI
(D705000) MSFC 943-049 LAUNCH CONFIG W/O ABORT SRM, TISOI

DATA SET SYMBOL CONFIGURATION DESCRIPTION

BETA ORBINC SRB GAP

REFERENCE INFORMATION
SREF 7.8000 SQ. IN.
LREF 2.0280 INCHES
BREF 4.4600 INCHES
XHRI 0.2480 INCHES
YHRI 0.0000 INCHES
SCALE 0.0040 SCALE

MACH. 1.46

PAGE 890
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

ANGLE OF ATTACK, ALPHA, DEGREES

REFERENCE INFORMATION

MACH 1.96
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

ANGLE OF ATTACK, ALPHAD, DEGREES

FOREBODY AXIAL FORCE COEFFICIENT, CAF

DATA SET SYMBO CONFIGURATION DESCRIPTION
D070000 NSFC 543-EXTERNAL TANK ALONE, T1
(070000) DATA NOT AVAILABLE FOR ALL CONDITIONS
D070100 MSFC 443-ORBITER WITH EXTERNAL TANK, T1OS1
(070100) DATA NOT AVAILABLE FOR ALL CONDITIONS
D070200 NSFC 543-ORBITER LAUNCH CONFIG W/O ABORT SHM, T1S1OS1
(070200) DATA NOT AVAILABLE FOR ALL CONDITIONS

BETA
0.000
0.000
0.000
0.000

ORBINC
0.000
0.000
-1.500
0.000

SRBGAP
0.000
0.025
0.025
0.000

REFERENCE INFORMATION
BREF 7.8800 INCHES
LREF 2.0280 INCHES
XHAP 4.4800 INCHES
YNAP 0.0000 INCHES
ZNAP 0.2400 INCHES
SCALE 0.0040 SCALE

MACH .80

PAGE 892
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(D7000D) MSFC 543-EXTERNAL TANK ALONE, T1
(D7001D) MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1
(D7002D) MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101
(ET01TK) MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101
(ET02TK) MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101

REFERENCE INFORMATION
SREF 7.8800 58.1 IN.
LREF 2.0280 INCHES
XHNP 4.2260 INCHES
YNRP 0.0000 INCHES
TNP 0.2480 INCHES
SCALE 0.0040 SCALE

MACH 1.20

PAGE 893
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

DATA SET SYMBOL  CONFIGURATION DESCRIPTION  BETA  ORBINC  SRBPAP  REFERENCE INFORMATION
(ODDDO)  MSFC 543-EXTERNAL TANK ALONE, T1  0.000  0.000  0.025  SREF  7.8800  80.0 INCHES
(ODDDO)  DATA NOT AVAILABLE FOR ALL CONDITIONS  0.000  0.000  0.025  LREF  2.0280  INCHES
(ODDDO)  MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101  0.000  -1.500  0.025  XMRP  4.2200  INCHES
(ODDDO)  MSFC 543-049 LAUNCH CONFIG W/O ABORT SRH, T101  0.000  -1.500  0.025  YMRP  0.0000  INCHES
(ODDDO)  MSFC 543-049 LAUNCH CONFIG W/O ABORT SRH, T101  0.000  0.000  0.025  ZMRP  0.0400  INCHES
SCALE  0.0040  SCALE

MACH  1.46

PAGE 894
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

DATA SET SYMBOL  CONFIGURATION DESCRIPTION  DATA NOT AVAILABLE FOR ALL CONDITIONS
(000000)  MSFC 545-EXTERNAL TANK ALONE, T1  0.000  0.000  0.000
(000010)  MSFC 545-ORBITER WITH EXTERNAL TANK, T01  0.000  -1.500  0.000
(000020)  MSFC 545-ORBITER W/O ABORT SRM, T010  0.000  -1.500  0.000
(000030)  MSFC 545-OREA A ORBITER W/O ABORT SRM, T012  0.000  -1.500  0.000

REFERENCE INFORMATION
SREF  7.8800  80. IN.
LREF  2.0240  INCHES
BREF  4.4900  INCHES
XHP  4.2240  INCHES
YHP  0.0000  INCHES
ZHP  0.0240  INCHES
SCALE  0.0040  SCALE

MACH  1.96

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EFFECT OF CONFIGURATION BUILD-UP AND ORBINc ON EXTERNAL TANK FORCE COEFFICIENTS

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MACH .80

PAGE 896
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL CONFIGURATION DESCRIPTION BETA ORBINC SRBGAP REFERENCE INFORMATION
(010000) MSFC 543-EXTERNAL TANK ALONE, T1 0.000 0.000 0.000 0.000 SREF 7.8600 80.1 IN.
(010000) MSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, T100 0.000 0.000 0.025 LREF 2.0000 INCHES
(010000) MSFC 543-049 ORBITER WITH EXTERNAL TANK, T101 0.000 -1.500 0.000 BREF 4.4600 INCHES
(010000) MSFC 543-049 LAUNCH CONFIG W/O ABORT SRH, T1010 0.000 -1.500 0.025 KNAP 4.2000 INCHES
(010000) MSFC 543-049 LAUNCH CONFIG W/O ABORT SRH, T10101 0.000 0.000 0.025 YHAP 0.0000 INCHES
SCALE 0.0040 SCALE

MACH 1.20

PAGE 897
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

ANGLE OF ATTACK, ALPHA, DEGREES

PITCHING MOMENT COEFFICIENT, CLM

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(D70000) NSFC 543-EXTERNAL TANK ALONE, T1
(D70500) DATA NOT AVAILABLE FOR ALL CONDITIONS
(D70600) NSFC 543-049 ORBITER WITH EXTERNAL TANK, T101
(F70100) NSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1101
(F70200) NSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1101

BETA ORBINC SRB GAP
0.000 0.000 0.000
0.000 -1.500 0.025
0.070 -1.500 0.025
0.000 0.000 0.025

REFERENCE INFORMATION
SREF 7.6800 IN.
LREF 2.0250 INCHES
BREF 4.4600 INCHES
YMRP 4.2260 INCHES
ZMRP 0.2460 INCHES
SCALE 0.0040 SCALE

MACH 1.46

PAGE 898
EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON EXTERNAL TANK FORCE COEFFICIENTS

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SREF 7.8800 INCHES
LREF 2.0260 INCHES
XREF 4.4500 INCHES
YREF 0.0000 INCHES
ZREF 0.6480 INCHES
SCALE 0.0040 SCALE

MACH 1.96

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FORCE COEFFICIENTS FOR THE EXTERNAL TANK IN THE LAUNCH CONFIGURATION

ANGLE OF ATTACK, ALPHA, DEGREES

REFERENCE INFORMATION
SREF 7.8800  80.0 IN.
LREF 5.0200  INCHES
BREF 4.4000  INCHES
XREF 4.8200  INCHES
YREF 0.0000  INCHES
ZREF 0.2400  INCHES
SCALE 0.0040  SCALE

DATA HIST. CODE  INEC
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM. T1S101 (D701TK) 17 FEB 73
FORCE COEFFICIENTS FOR THE EXTERNAL TANK IN THE LAUNCH CONFIGURATION

**Data Set Symbol**
- (E041TK) MRF C-0449 LAUNCH CONFIG W/O ABDT ARM, TSIOI
- (E031TK) DATA NOT AVAILABLE FOR ALL CONDITIONS

**Configuration Description**
- MRF C-0449 LAUNCH CONFIG W/O ABDT ARM, TSIOI
- DATA NOT AVAILABLE FOR ALL CONDITIONS

**Reference Information**
- SREF: 6.460D 96.1 IN
- LREF: 2.0280 INCHES
- BREF: 4.4000 INCHES
- XHREF: 4.2500 INCHES
- YHREF: 0.0000 INCHES
- ZHREF: 0.2000 INCHES
- SCALE: 0.0040 SCALE

**Mach**
- 0.95

**Page**
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FORCE COEFFICIENTS FOR THE EXTERNAL TANK IN THE LAUNCH CONFIGURATION

DATA SET SYMBOL CONFIGURATION DESCRIPTION
ET04TK Δ MSFC 943-049 LAUNCH CONFIG W/O ABORT SRM, TIS101
ET05TK Δ MSFC 943-049 LAUNCH CONFIG W/O ABORT SRM, TIS101

ALPHA ORBINC SRBGP
6.000 -1.500 0.025
0.000 -1.500 0.025

REFERENCE INFORMATION:
SREF 7.8800 SQ. IN.
LREF 2.0280 INCHES
XHNP 4.4600 INCHES
YNHP 0.2480 INCHES
ZHNP 0.0000 INCHES
SCALE 0.0040 SCALE

MACH 1.20
FORCE COEFFICIENTS FOR THE EXTERNAL TANK IN THE LAUNCH CONFIGURATION

SIDE SLIP ANGLE, \beta, DEGREES

YAWING MOMENT COEFFICIENT, \gamma (BODY AXIS)

DATA SET SYMBOL  CONFIGURATION DESCRIPTION
(ETD4TK)  \( \nabla \)  MSFC 843-049 LAUNCH CONFIG W/O ABRORT SRH, TITOSI
(ETD3TK)  \( \Delta \)  DATA NOT AVAILABLE FOR ALL CONDITIONS

\begin{align*}
\text{ALPHA} & \quad \text{ORBIT} & \quad \text{SRBGAP} \\
0.000 & \quad -1.500 & \quad 0.025 \\
0.000 & \quad -1.000 & \quad 0.025
\end{align*}

REFERENCE INFORMATION

\begin{align*}
\text{SRF} & \quad 7.2800 \quad \text{INCHES} \\
\text{BELF} & \quad 2.0240 \quad \text{INCHES} \\
\text{GIN} & \quad 4.4900 \quad \text{INCHES} \\
\text{YBP} & \quad 0.3900 \quad \text{INCHES} \\
\text{ZBRP} & \quad 0.6460 \quad \text{INCHES} \\
\text{SCALE} & \quad 0.004 \quad \text{SCALE}
\end{align*}

MACH \quad .95

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EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON SRB FORCE COEFFICIENTS

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(DFD3SH) C MSFC 943-EXTERNAL TANK WITH SRB'S ATTACHED, T181 0.000 0.025
(DFD1SH) C MSFC 943-049 LAUNCH CONFIG W/O ABORT SRH, T18101 0.000 -1.000 0.025
(DFD2SH) C MSFC 943-049 LAUNCH CONFIG W/O ABORT SRH, T18101 0.000 0.000 0.025

REFERENCE INFORMATION
SREF 7.8800 IN.
LREF 2.0280 INCHES
BREF 4.4600 INCHES
XMP 4.8560 INCHES
YNMP 0.0000 INCHES
ZMP 0.0000 INCHES
SCALE 0.0040 SCALE

MACH 1.20

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EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON SRB FORCE COEFFICIENTS

DATA SET SYMBOL  CONFIGURATION DESCRIPTION  BETA  ORBINC  SRBGAP

(OF05HM)  DATA NOT AVAILABLE FOR ALL CONDITIONS  0.000  0.025  0.025
(OF02HM)  MSFC 543-049 LAUNCH CONFIG W/O ABO1T SRM, T18101  0.000  -1.500  0.025
(OF02HM)  MSFC 543-049 LAUNCH CONFIG W/O ABO1T SRM, T18101  0.000  0.000  0.025

REFERENCE INFORMATION
BREF  7.8800  50.1 IN.
LREF  2.0300  INCHES
YREF  4.4600  INCHES
YMAP  4.2260  INCHES
XMAP  0.0000  INCHES
ZMAP  0.2480  INCHES
SCALE  0.0040  SCALE

MACH  1.46

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EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON SRB FORCE COEFFICIENTS

ANGLE OF ATTACK, ALPHA, DEGREES

FOREBODY AXIAL FORCE COEFFICIENT, CAF

DATA SET SYMBOL CONFIGURATION DESCRIPTION BETA ORBINC SRBGAP
(DFOR8M) M543-EXTERNAL TANK WITH SRB'S ATTACHED, TISI 0.000 0.025
(DFOR8M) M543-049 LAUNCH CONFIG W/O ABORT SRM, TISI01 0.000 1.500 0.025
(DFOR8M) M543-049 LAUNCH CONFIG W/O ABORT SRM, TISI01 0.000 0.000 0.025

REFERENCE INFORMATION
SREF 7.8600 80. IN.
LREF 2.0860 INCHES
BREF 4.4600 INCHES
XREF 4.2260 INCHES
YREF 0.0000 INCHES
ZREF 0.2400 INCHES
SCALE 0.0040 8C

MACH 1.20

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EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON SRB FORCE COEFFICIENTS

DATA SET SYMBOL  CONFIGURATION DESCRIPTION
(□□□□□)  DATA NOT AVAILABLE FOR ALL CONDITIONS
(□□□□□)  MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIOS
(□□□□□)  MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIOS

MACH  1.46

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EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON SRB FORCE COEFFICIENTS

DATA SET SYMBOL  CONFIGURATION DESCRIPTION  BETA  ORBINC  SRBGAP  REFERENCE INFORMATION
(DE05HM)  NSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TIS1  0.000  0.025  REF  7.6800  86.1 IN.
(ET05HM)  NSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101  0.000  -1.000  0.025  LREF  5.0300  INCHES
(ET025M)  NSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TIS101  0.000  0.000  0.025  XREF  4.4600  INCHES
YREF  4.5200  INCHES
ZREF  0.0000  INCHES
SCALE  0.0040  SCALE

MACH  1.20

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EFFECT OF CONFIGURATION BUILD-UP AND ORBINC ON SRB FORCE COEFFICIENTS

DATA SET SYMBOL | CONFIGURATION DESCRIPTION | BETA | ORBINC | SRB GAP | REFERENCE INFORMATION
---|---|---|---|---|---
(Q) | DATA NOT AVAILABLE FOR ALL CONDITIONS | 0.000 | 0.025 | | MACH 1.46
(Q) | MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15103 | 0.000 | -1.500 | 0.025 | SREF 7.8800 INCHES
(Q) | MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T15103 | 0.000 | 0.000 | 0.025 | LREF 5.0280 INCHES
| | | | | BREF 4.4500 INCHES
| | | | | XHREF 4.2260 INCHES
| | | | | YHREF 0.0000 INCHES
| | | | | ZHREF 0.2480 INCHES
| | | | | SCALE 0.0040 SCALE

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FORCE COEFFICIENTS FOR THE SRB IN THE LAUNCH CONFIGURATION

ANGLE OF ATTACK, ALPHA, DEGREES

NORMAL FORCE COEFFICIENT, CN

REFERENCE INFORMATION

SYMBOL MACH PARAMETRIC VALUES
0.800 BETA 0.000 ORBINC - 1.500
0.950 SRBAP 0.025
1.200
1.400
1.600
1.800

DATA MIST. CODE ISFC

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (0701SM) 17 FEB 73 PAGE 913
FORCE COEFFICIENTS FOR THE SRB IN THE LAUNCH CONFIGURATION

ANGLE OF ATTACK, ALPHA, DEGREES

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DATA HIST. CODE 14EC

MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (D701SM) 17 FEB 73 PAGE 914
FORCE COEFFICIENTS FOR THE SRB IN THE LAUNCH CONFIGURATION

SYMBOL  MACH  PARAMETRIC VALUES
         0.800  BETA  0.000  ORBINC  - 1.500
         0.850  SRBCAF  0.025
      1.200
      1.460
      1.680

REFERENCE INFORMATION
SREF  1.8800  80. IN.
LREF  2.0280  INCHES
BREF  4.2260  INCHES
XHNP  4.2260  INCHES
YNRP  0.0000  INCHES
ZHNP  0.2480  INCHES
SCALE  0.0040  SCALE

DATA HIST. CODE  14EC
MSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, T1S101 (D701SM) 17 FEB 73 PAGE 915
FORCE COEFFICIENTS FOR THE SRB IN THE LAUNCH CONFIGURATION

SIDESLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(D701Sm) RSFC 543-049 LAUNCH CONFIG W/O ABDT SRM, TISIOI DATA NOT AVAILABLE FOR ALL CONDITIONS
(D701Sm) RSFC 543-049 LAUNCH CONFIG W/O ABDT SRM, TISIOI

REFERENCE INFORMATION
SREF 7.8800 80 IN.
LREF 2.0280 INCHES
XREF 4.4600 INCHES
YREF 0.0000 INCHES
ZREF 0.2480 INCHES
SCALE 0.0040 SCALE

MACH .95

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FORCE COEFFICIENTS FOR THE SRB IN THE LAUNCH CONFIGURATION

SIDE FORCE COEFFICIENT, C_Y

SIDESLIP ANGLE, BETA, DEGREES

DATA SET SYMBOL CONFIGURATION DESCRIPTION
(5D04SH) O HSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIO1
(5D05SH) Q HSFC 543-049 LAUNCH CONFIG W/O ABORT SRM, TISIO1

MACH 1.20

REFERENCE INFORMATION
SREF 7.8900 96.1 IN.
LREF 2.0980 INCHES
BREF 4.4600 INCHES
YRHP 0.2400 INCHES
SCALE 0.0040 SCALE
FORCE COEFFICIENTS FOR THE SRB IN THE LAUNCH CONFIGURATION

SIDESLIP ANGLE, $\beta$, DEGREES

DATA SET SYMBOL  CONFIGURATION DESCRIPTION  ALPHA  ORIGIN  SRB GAP
(D703H)  MSC S-43-049 LAUNCH CONFIG W/O ABORT SRH, TLOS  6.000  -1.500  0.025
(D703H)  DATA NOT AVAILABLE FOR ALL CONDITIONS  0.000  -1.500  0.025

REFERENCE INFORMATION
SREF  7.0000  50. IN.
LREF  2.0280  INCHES
BREF  4.4600  INCHES
XMRP  4.2260  INCHES
ZMRP  0.0000  INCHES
SCALE  0.0040  SCALE

MACH  .95
FORCE COEFFICIENTS FOR THE EXTERNAL TANK ALONE AND THE TANK + SRB'S

ANGLE OF ATTACK, ALPHA, DEGREES

DATA SET SYMBOL CONFIGURATION DESCRIPTION BETA ORBINC SRBGAP
(E70000) ᵇ RSFC 543-EXTERNAL TANK ALONE, T1 0.000
(E70000) ᵇ RSFC 543-EXTERNAL TANK WITH SRB'S ATTACHED, TIS1 0.000 0.025

REFERENCE INFORMATION
SREF 7.6800 SQ. IN.
LREF 2.0240 INCHES
BREF 4.4600 INCHES
XMRP 4.2260 INCHES
YMRP 0.0000 INCHES
ZMRP 0.2480 INCHES
SCALE 0.0040 SCALE

MACH 1.20

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FORCE COEFFICIENTS FOR THE EXTERNAL TANK ALONE AND THE TANK + SRB'S

DATA SET SYMBOL  CONFIGURATION DESCRIPTION  REFERENCE INFORMATION
EF0500D  MSFC 943-EXTERNAL TANK ALONE, T1  REF  2.0000 INCHES
EF0500D  MSFC 943-EXTERNAL TANK WITH SRB'S ATTACHED, T1S1  SRF  4.2260 INCHES

ANGLE OF ATTACK, ALPHA, DEGREES

PITCHING MOMENT COEFFICIENT, CLM

REFERENCE INFORMATION
SREF  7.8800 IN
LREF  2.0000 IN
XREF  2.0000 IN
YREF  0.0000 IN
ZREF  0.2480 IN
SCALE  0.0040 SCALE

MACH  1.20

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