

GENERAL ELECTRIC

NUCLEAR ENERGY
PROJECTS DIVISION

GENERAL ELECTRIC COMPANY, 175 CURTNER AVE., SAN JOSE, CALIFORNIA 95125

MFN-088-78

MC 681, (408) 925-3495

February 28, 1978



U. S. Nuclear Regulatory Commission
Division of Operating Reactors
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Attention: Mr. V. Stello, Director Division of Operating Reactors

Gentlemen:

SUBJECT: GENERAL ELECTRIC REPORT "NEDE-23749-P, ANALYTICAL MODEL
FOR COMPUTING TRANSIENT PRESSURES AND FORCES IN THE
SAFETY/RELIEF VALVE DISCHARGE LINE"

Seventy copies of the report "NEDE-23749-P, Analytical Model for Computing Transient Pressures and Forces in the Safety/Relief Valve Discharge Line" are being provided by the General Electric Company on behalf of the Mark I Owners Group as part of Task 7.1.2 of the Mark I Program. This report describes an analytical model for computing the transient pressures, velocities and forces in the safety/relief valve discharge line immediately after safety/relief valve opening.

Separate utility correspondence will reference this General Electric transmittal for use on their docket.

The report, NEDE-23749-P, contains information which General Electric Company customarily maintains in confidence and withholds from public disclosure. The information has been handled and classified proprietary by General Electric as indicated in the attached affidavit. The affidavit also contains proprietary commercial financial information. Accordingly, we hereby request that NEDE-23749-P in the affidavit accompanying this letter be withheld from public disclosure in accordance with the provisions of 10CFR2.790.

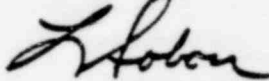
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V. Stello
Page 2
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A non-proprietary version of the report NEDE-23749-P will be provided on or before March 31, 1978.

Very truly yours,



L. J. Sobon, Manager
BWR Containment Licensing
Containment Improvement Program

LJS:lw/45-46

Enclosures

cc: L. S. Gifford (GE - Bethesda)
J. C. Guibert (NRC)
C. I. Grimes
File: 2/10/2.3.7.2

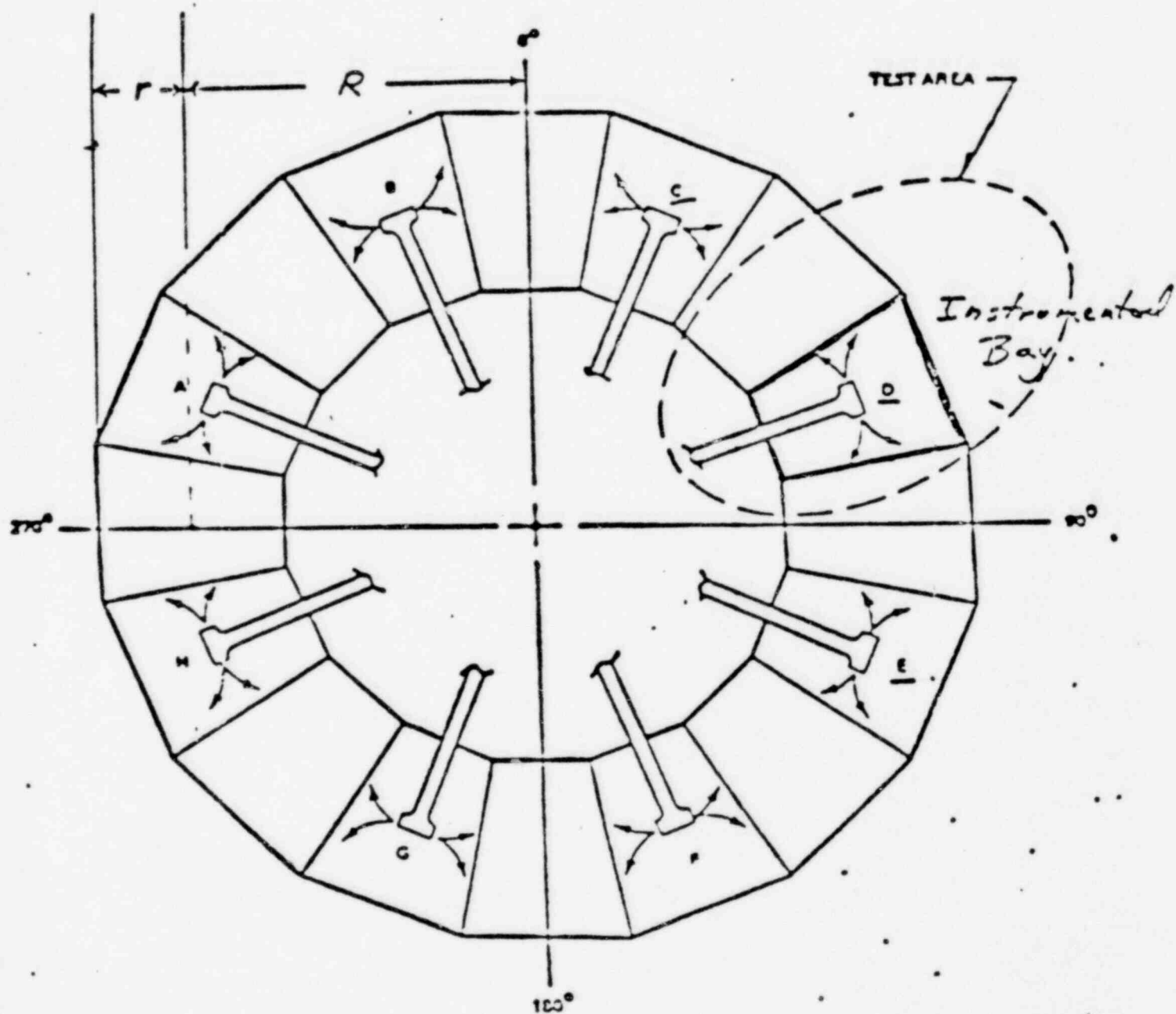
MONTICELLO SRV FSI

- BACKGROUND AND GENERAL
MODEL DESCRIPTION
- COMPARISON TO LLL STUDY
- EXTENSIONS OF LLL STUDY
 - AXISYMMETRIC
 - 3-D
- ANALYTICAL-EXPERIMENTAL
COMPARISONS
 - DATA
 - MULTIPLE PULSE RESPONSE
- SUMMARY

HTT

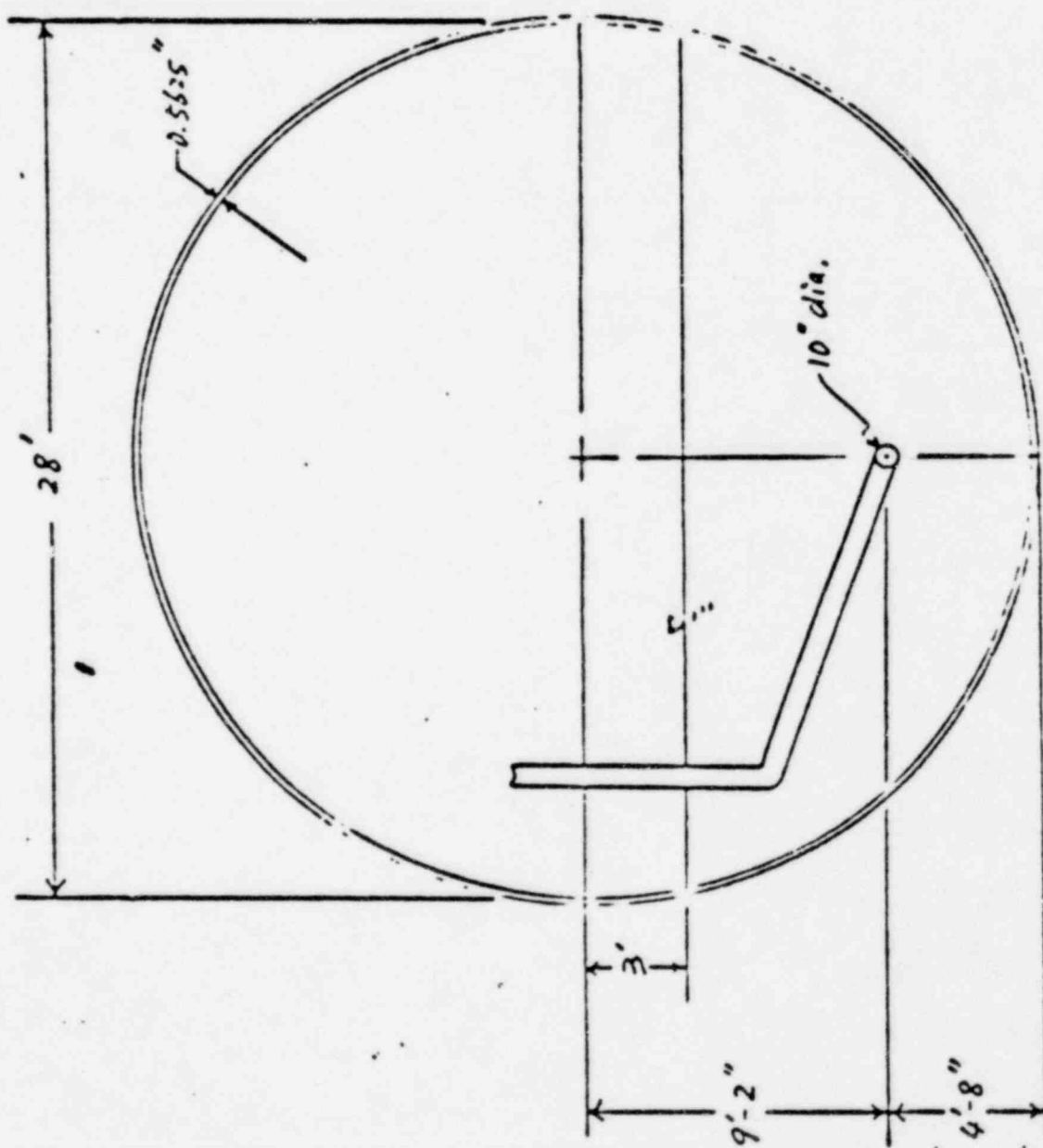
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R , TORUS RADIUS (MAJOR RADIUS) = 49' .
 r , TORUS CROSS-SECTION RADIUS (MINOR RADIUS) = 14'

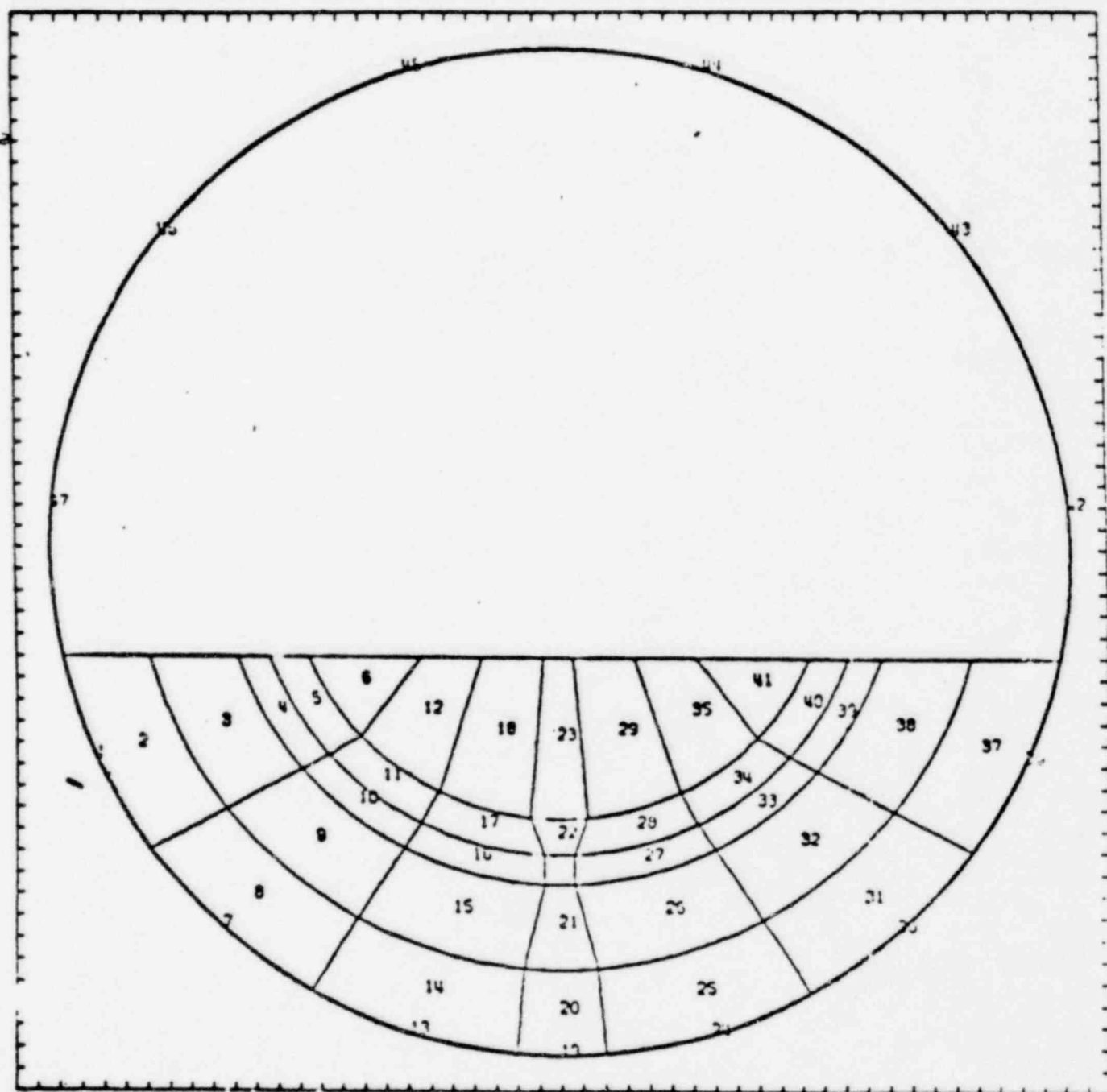


TOP VIEW OF MONTICELLO TORUS

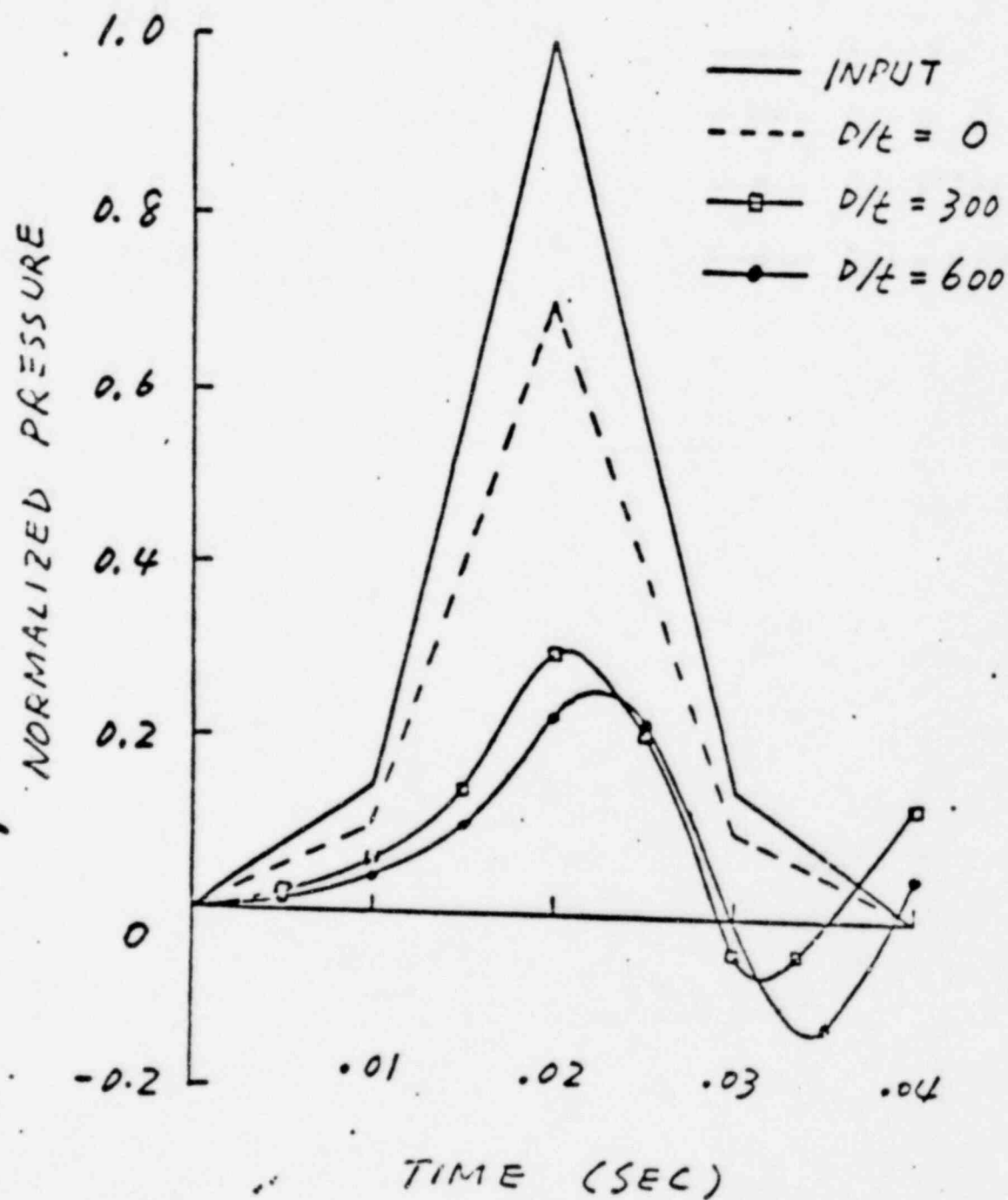
CROSS-SECTIONAL DIMENSIONS OF MONITEELLO TORUS



ELEMENTS

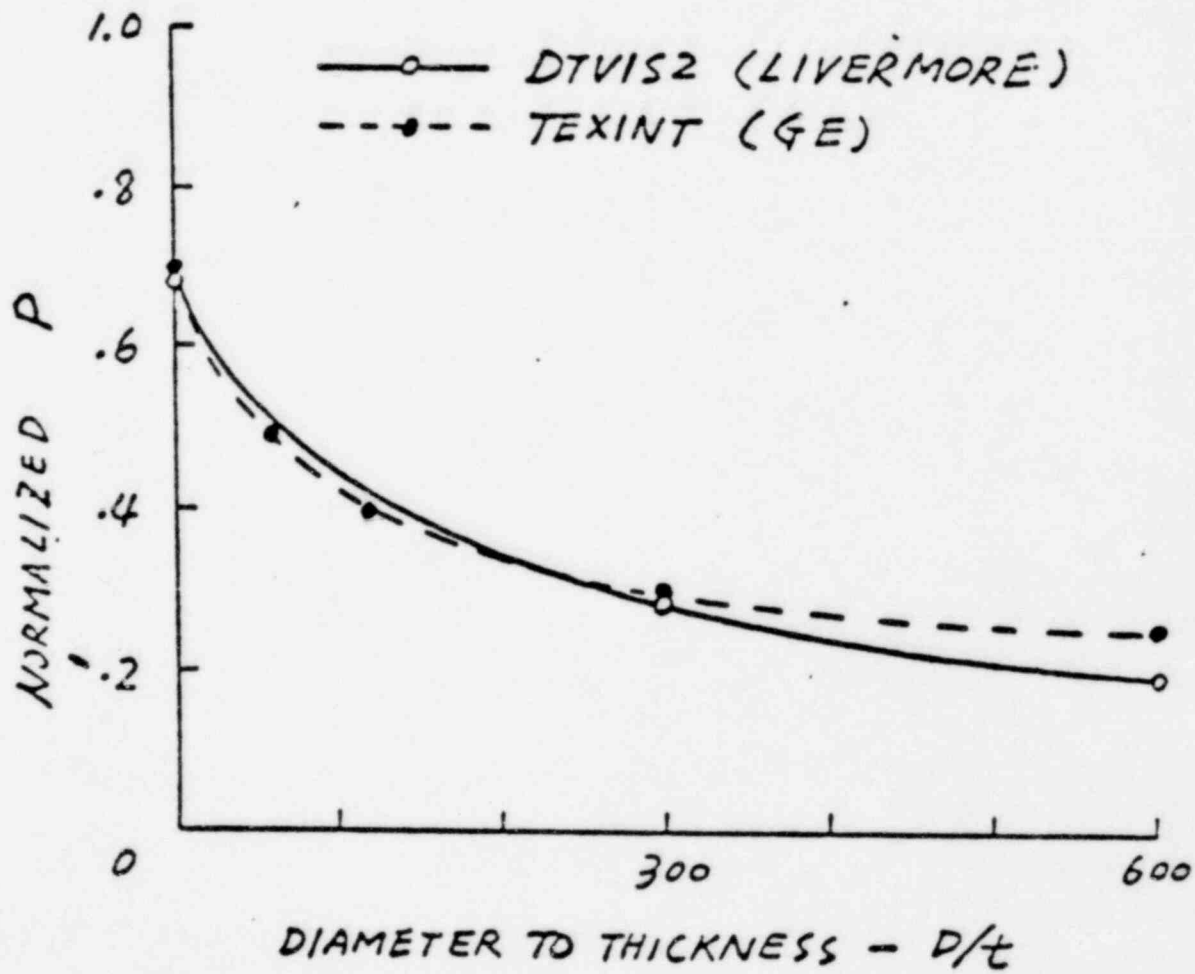


FINITE ELEMENT MESH OF THE
TORUS CROSS-SECTION

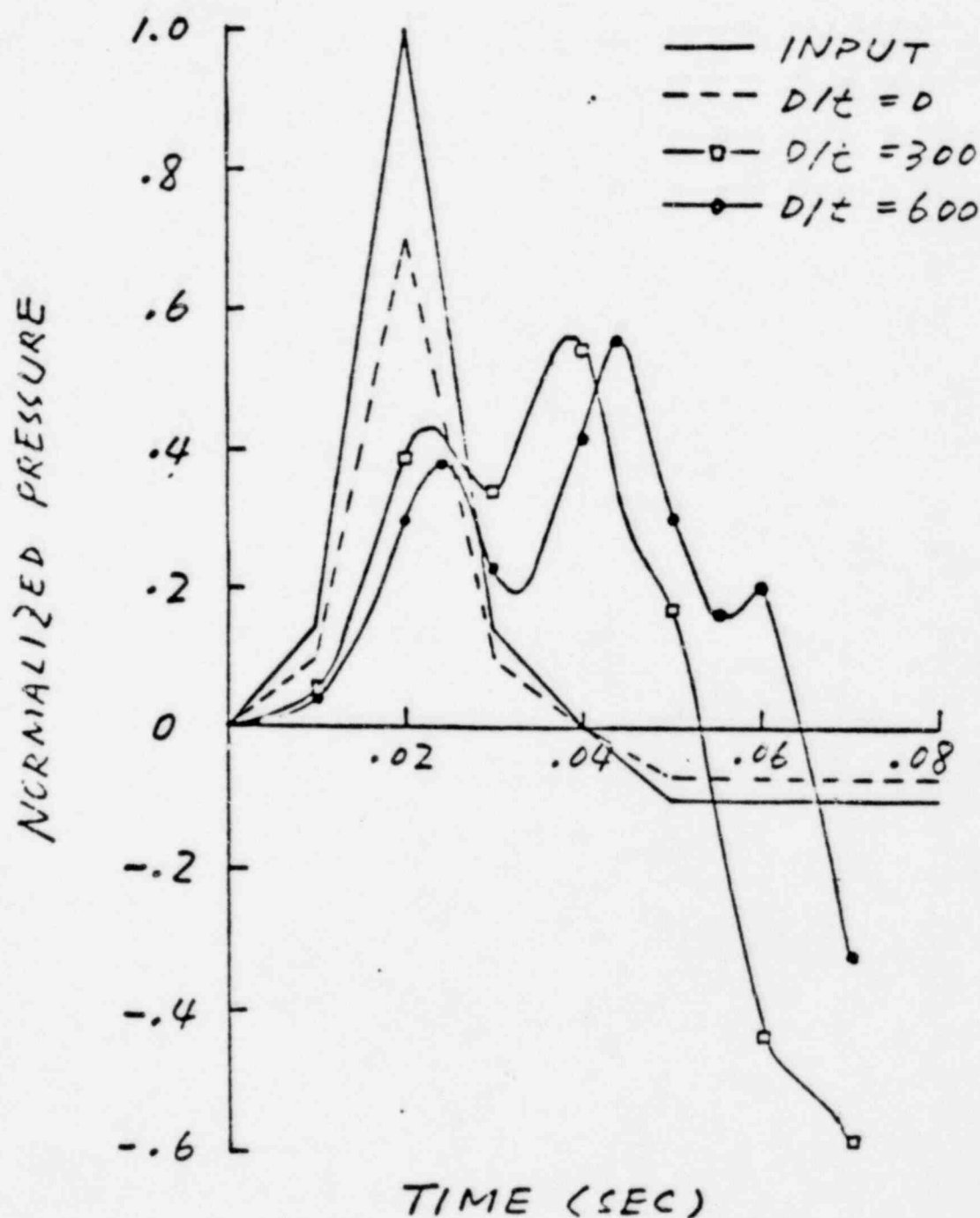


PRESSURE HISTORIES FOR
VARIOUS D/t - PLANE STRAIN

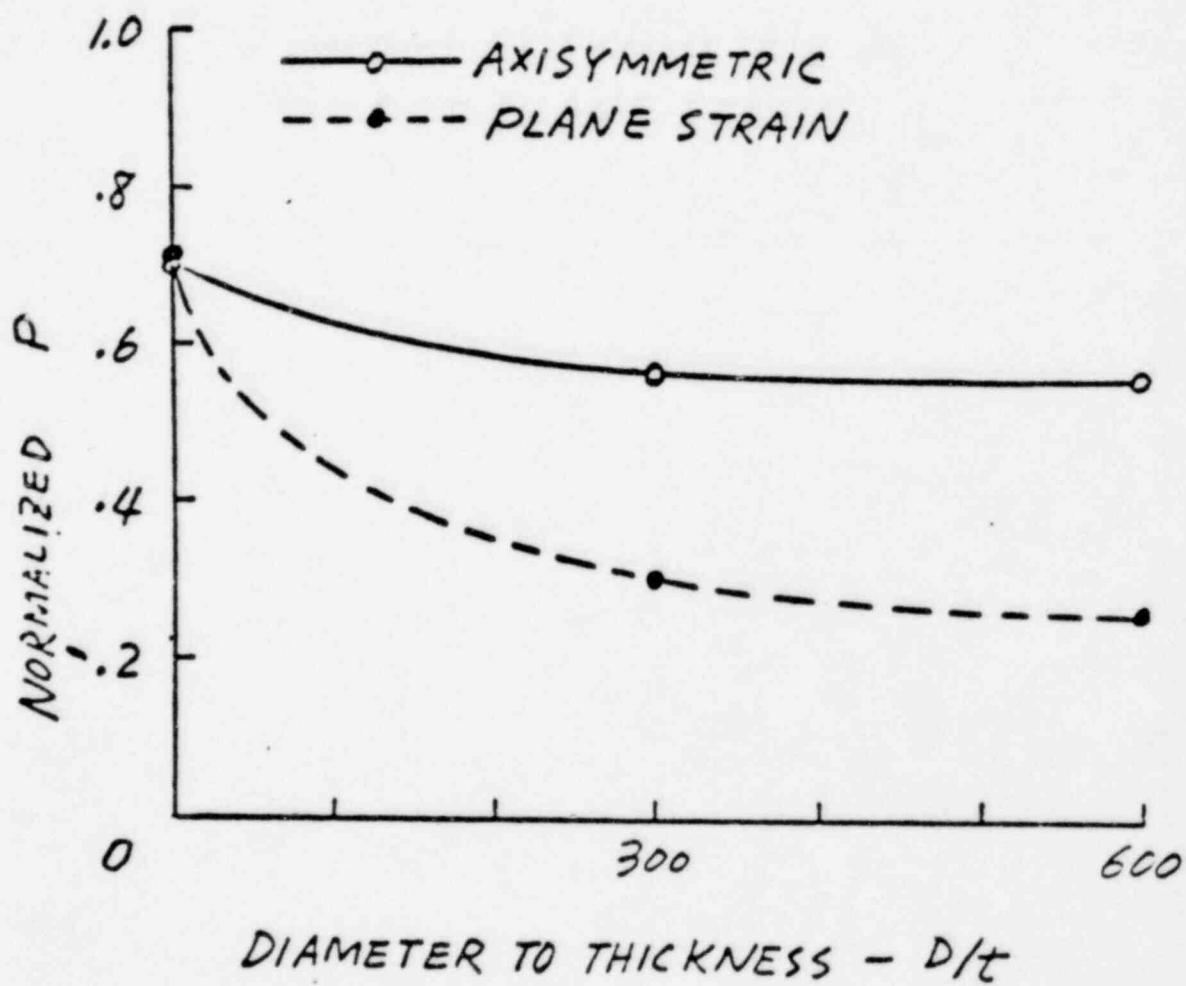
PLANE STRAIN



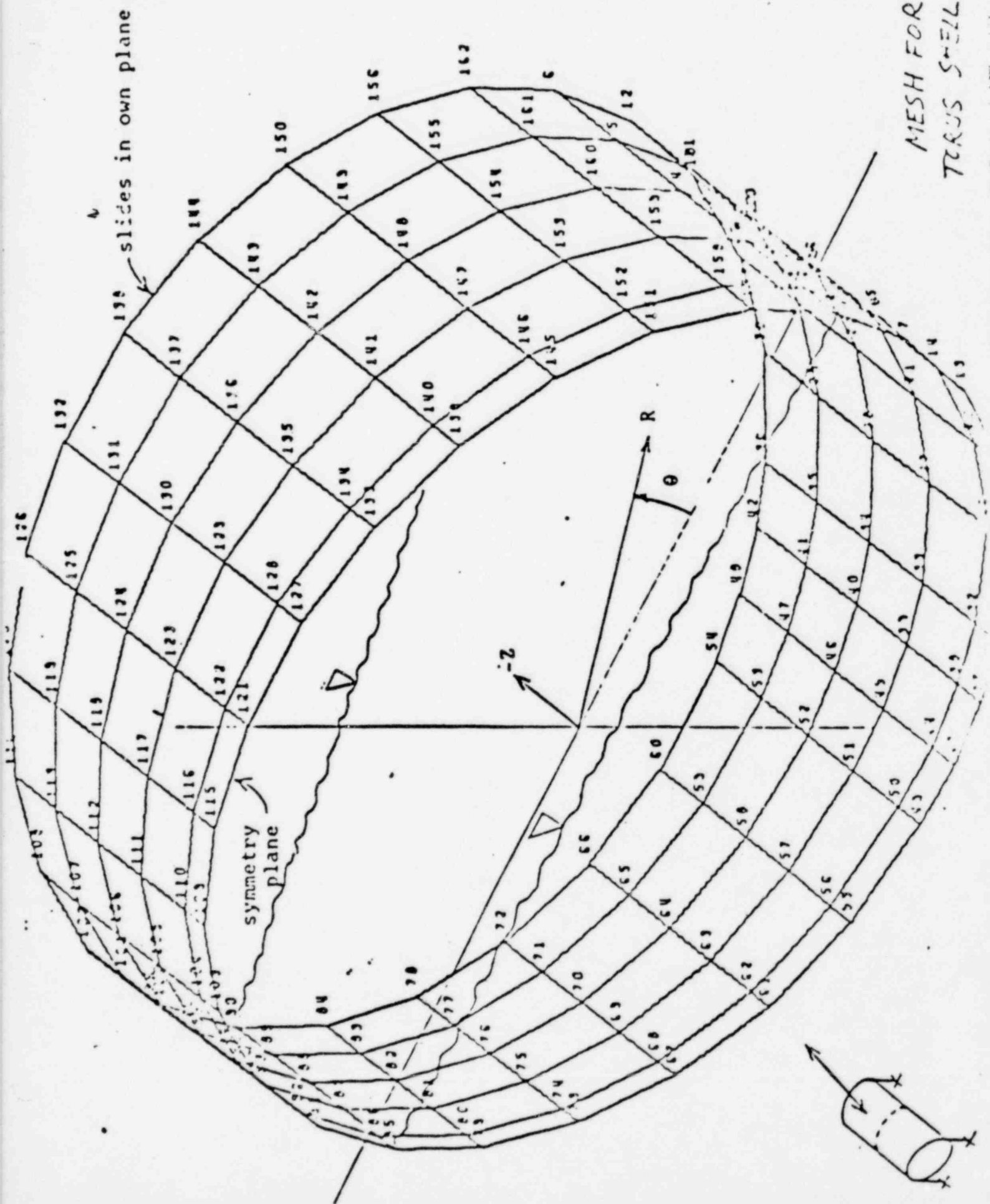
NORMALIZED PEAK BOTTOM
PRESSURE VARIATIONS VS D/t
— INITIAL PULSE RESPONSE

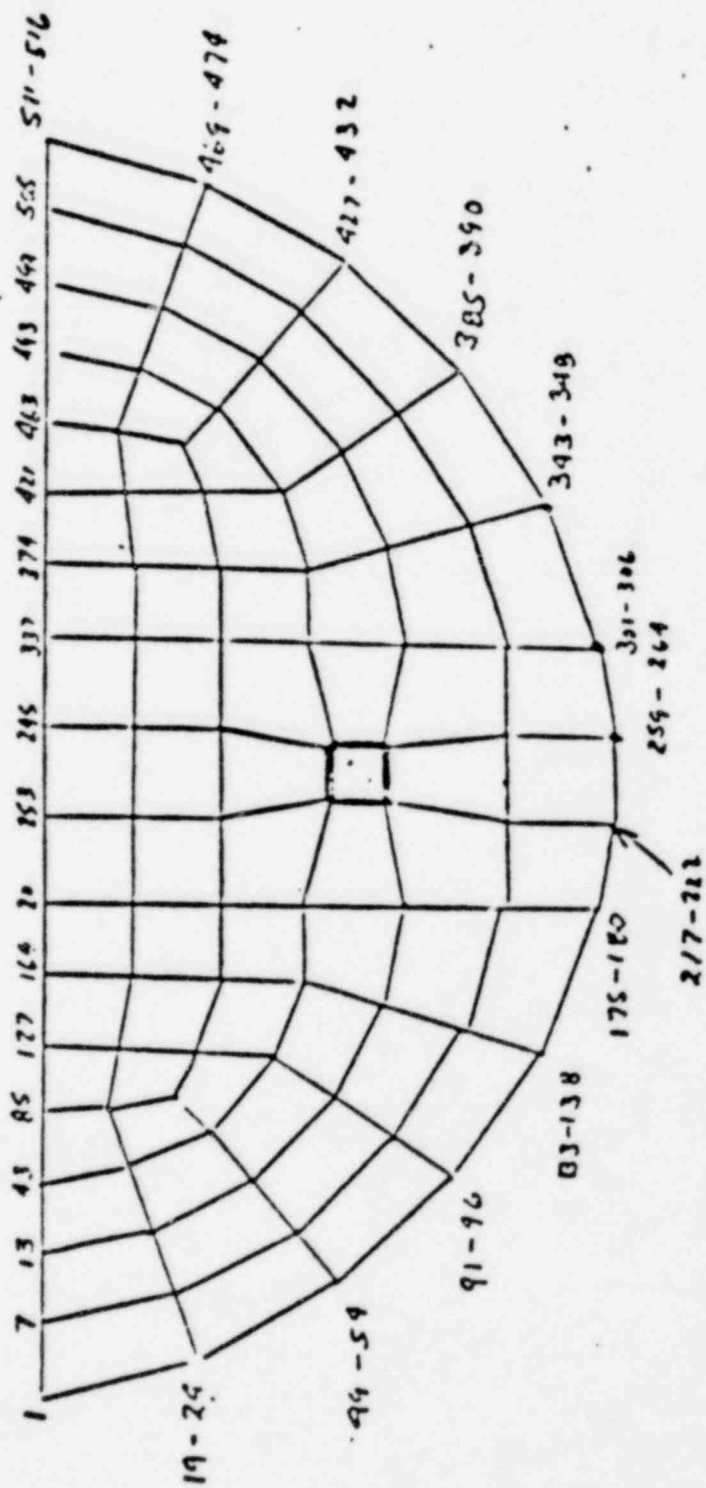


PRESSURE HISTORIES FOR
FOR VARIOUS D/t - AXISYMMETRIC



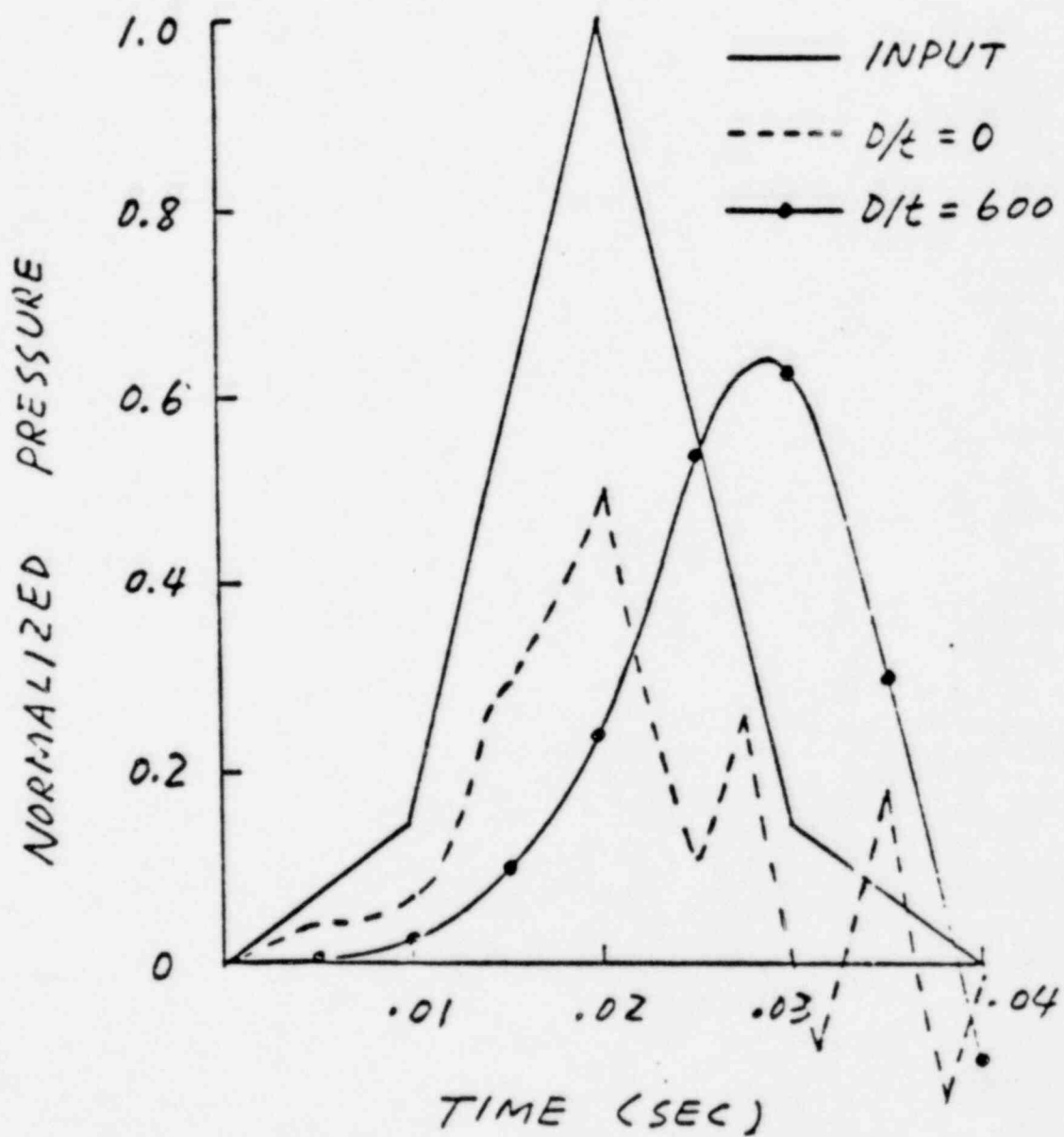
NORMALIZED PEAK BOTTOM
PRESSURE VARIATIONS VS D/t
- INITIAL PULSE RESPONSE



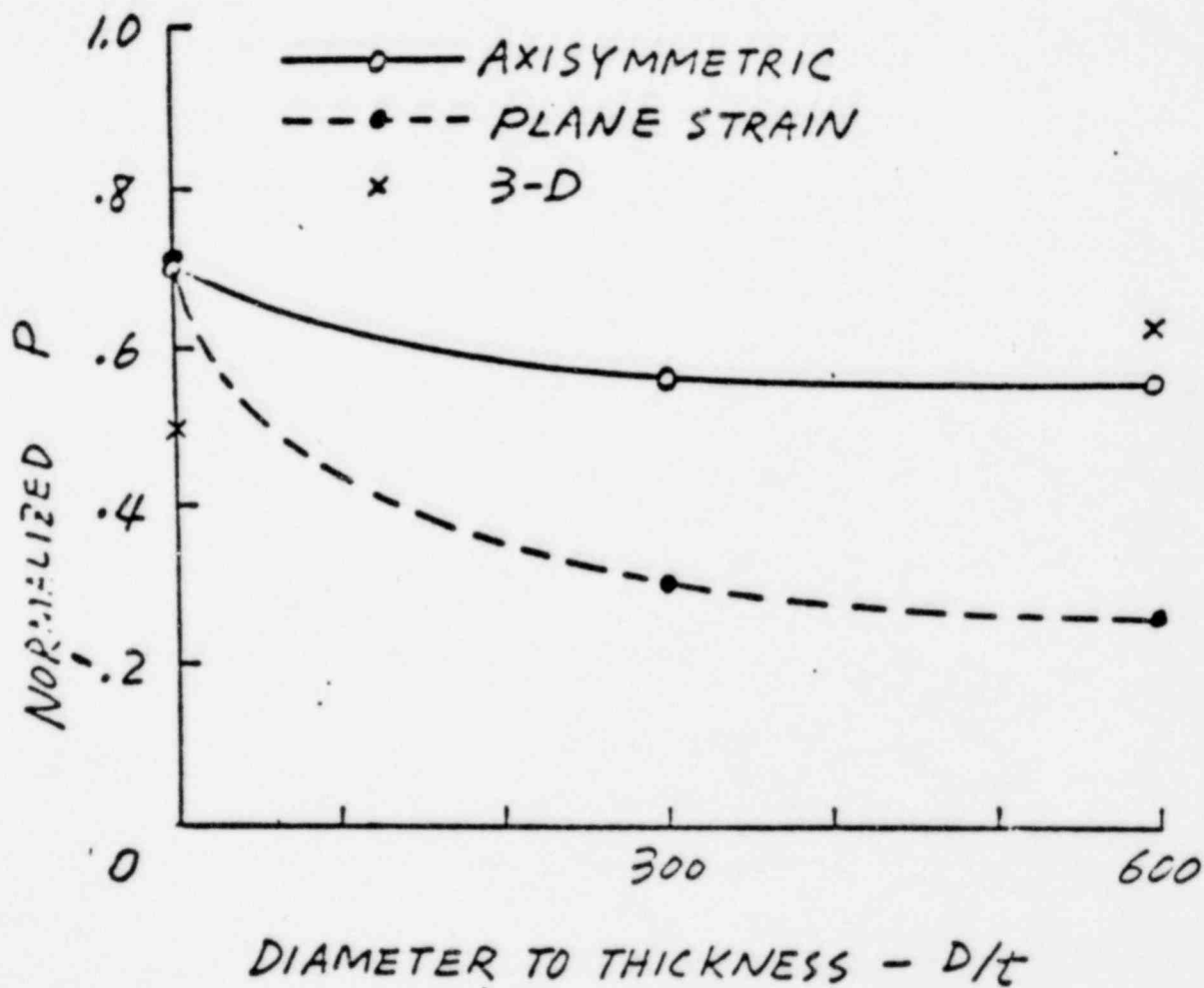


MESH FOR THE FLUID

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PRESSURE HISTORY FOR
3-D MODEL UNDER FIRST PULSE



NORMALIZED PEAK BOTTOM
PRESSURE VARIATIONS VS D/t
- INITIAL PULSE RESPONSE

NEDC-21465-P
GE COMPANY PROPRIETARY
Class III

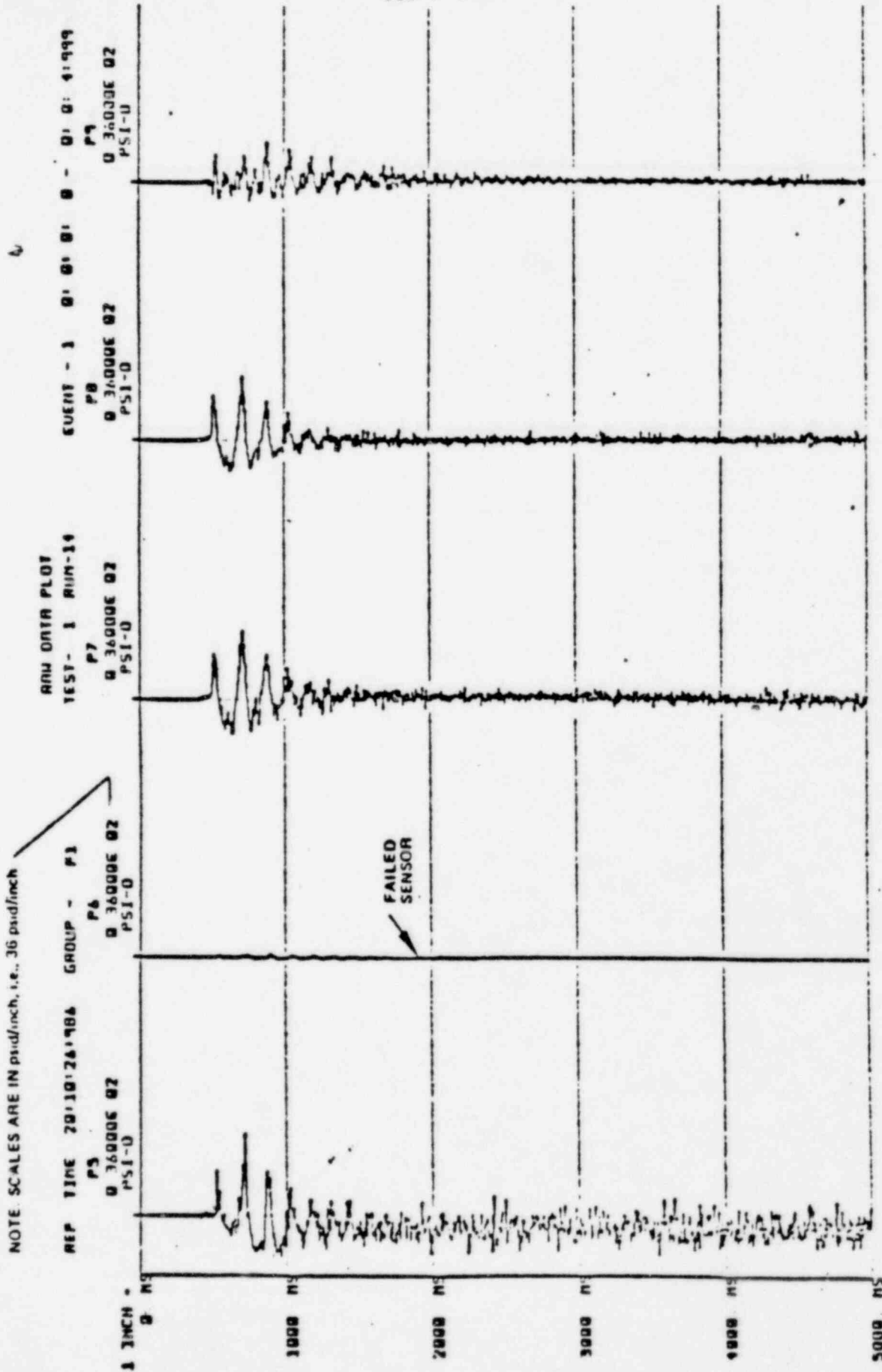
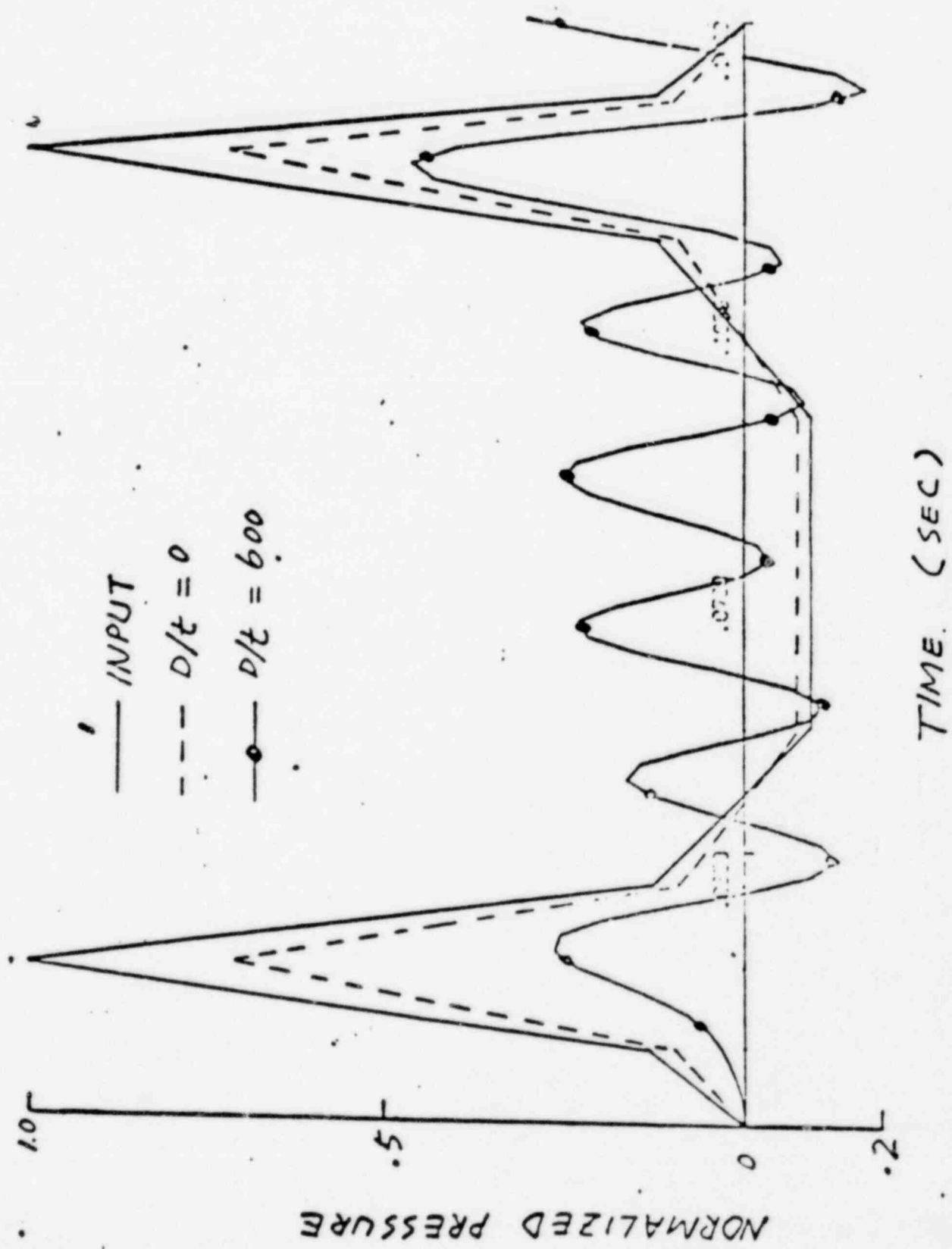
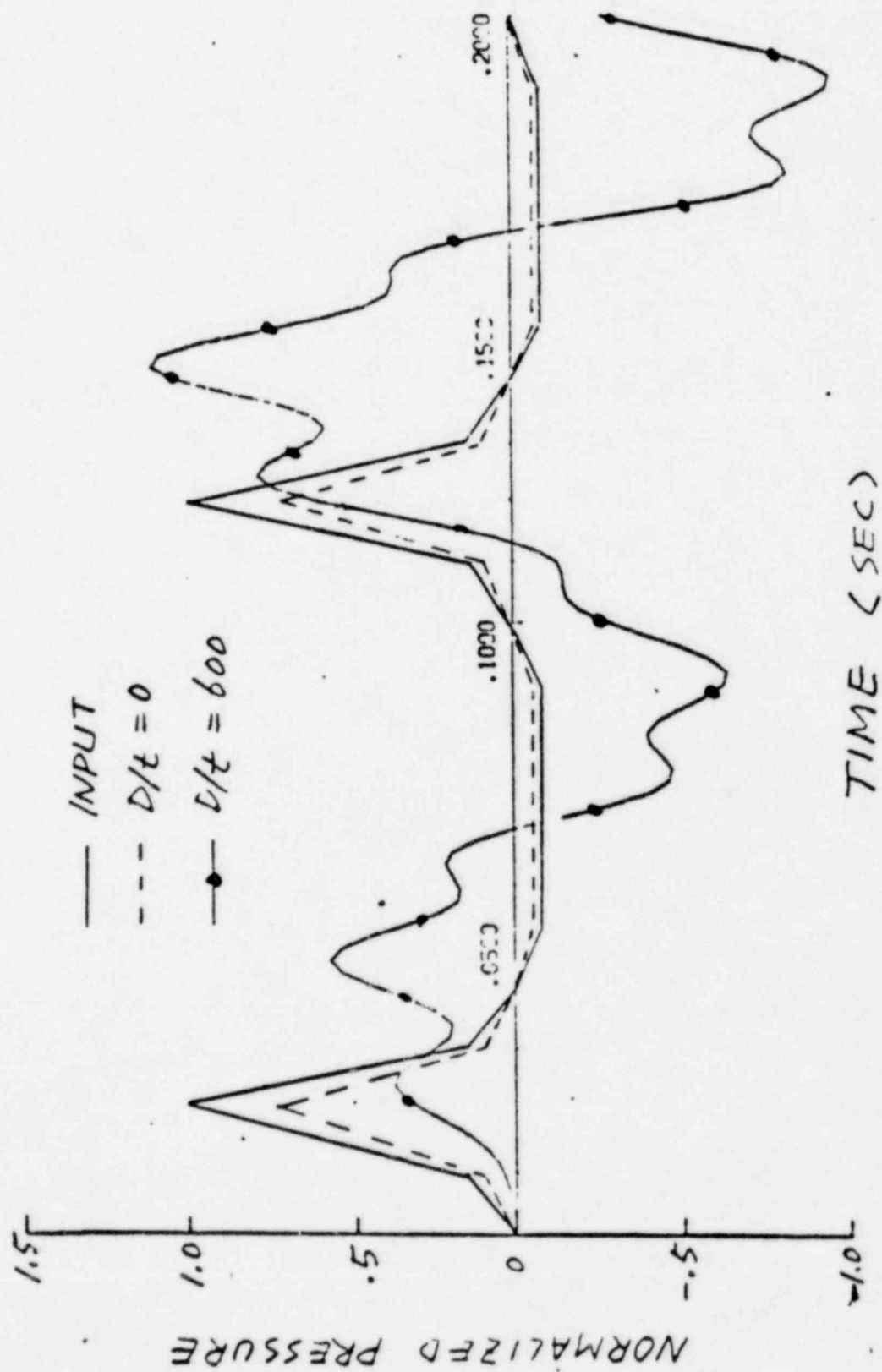


Figure 4-5. Data Plots TSN-1 (GE Company Proprietary)

UPLOT COMPLETED
DATE: 0929/76 TIME: 1519.0



PRESSURE HISTORY AT BOTTOM CENTER
FOR PLAN STRAIN CASE



PRESSURE HISTORY AT BOTTOM CENTER
FOR AXISYMMETRIC CASE

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0.1.1.1

SUMMARY

- COMPARISON TO LLL RESULTS IS GOOD. HOWEVER, NOT QUANTITATIVELY REPRESENTATIVE
- MORE REALISTIC EXTENSIONS SHOW DECREASING / CONSERVATIVE EFFECT OF FSI
- ANALYTICAL - EXPERIMENTAL COMPARISONS SHOW
 - TIME PHASE BEHAVIOR SIMILAR TO RIGID CASE
 - AMPLITUDE ADJUSTMENT BETTER PREDICTED IN FLEXIBLE MULTI-PULSE EVALUATION

(TO CONT.)

SUMMARY (CONTD.)

- ALL THE EXTENDED ANALYSES
AND COMPARISONS TO DATA
INDICATE THAT THE MONTICELLO
BENCHMARK IS VALID .