

NTF MODEL PRESSURE MEASUREMENTS

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Pressure measurements on the NTF models will be made using electronically scanned pressure instrumentation. The system consists of pressure modules, a pressure calibration standard, and a system controller. The pressure modules, which must be operated above -18°C , will be housed in model-integrated designed thermally controlled containers. The Pathfinder I 192-channel pressure package is described. Recent and planned developments to reduce the pressure module's volume per channel ratio are discussed, including the 48-channel module and a proposed 32-channel module that would be 2.54 by 2.54 by 8.13 cm. Pressure transducers capable of operating at cryogenic temperatures for dynamic and static pressure measurements are discussed.

PRESSURE INSTRUMENTATION

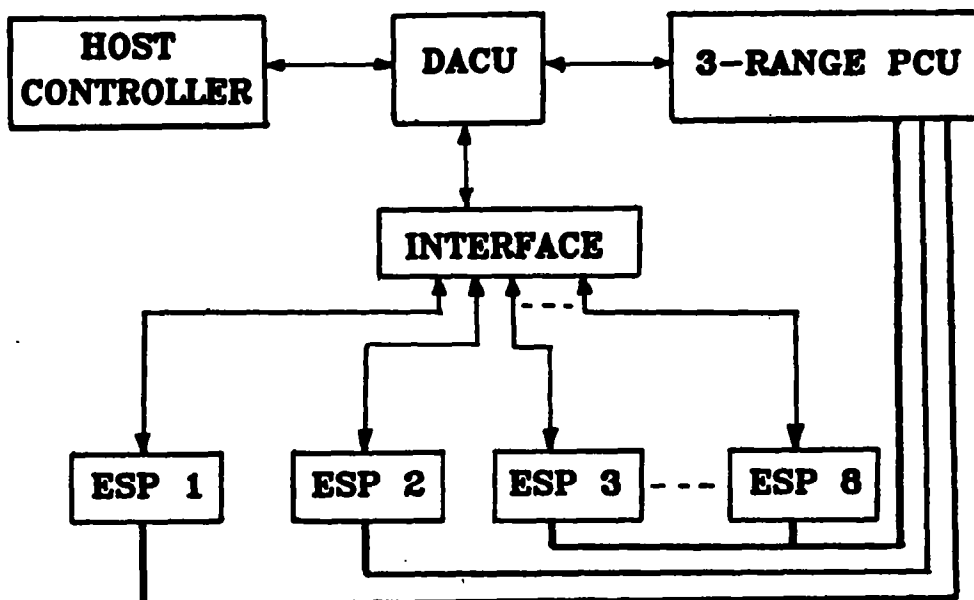
STEADY-STATE MEASUREMENTS

- ESP SYSTEMS
- PIEZORESISTIVE TRANSDUCERS

DYNAMIC MEASUREMENTS

- PIEZORESISTIVE TRANSDUCERS
- PIEZOELECTRIC TRANSDUCERS

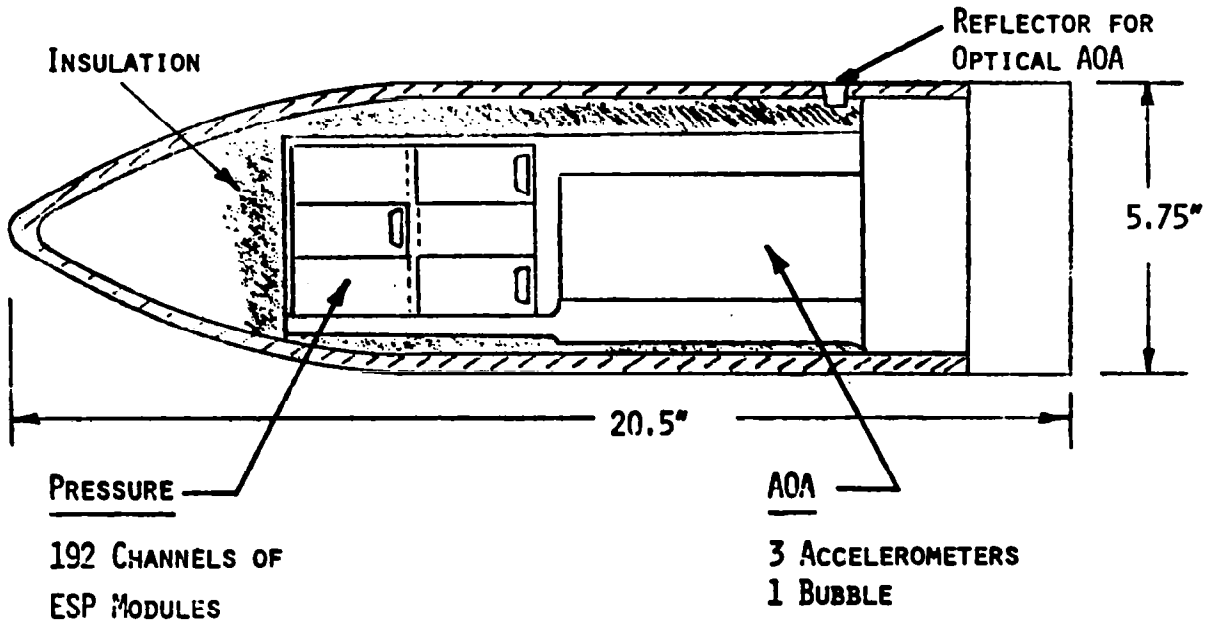
ESP MEASUREMENT SYSTEM



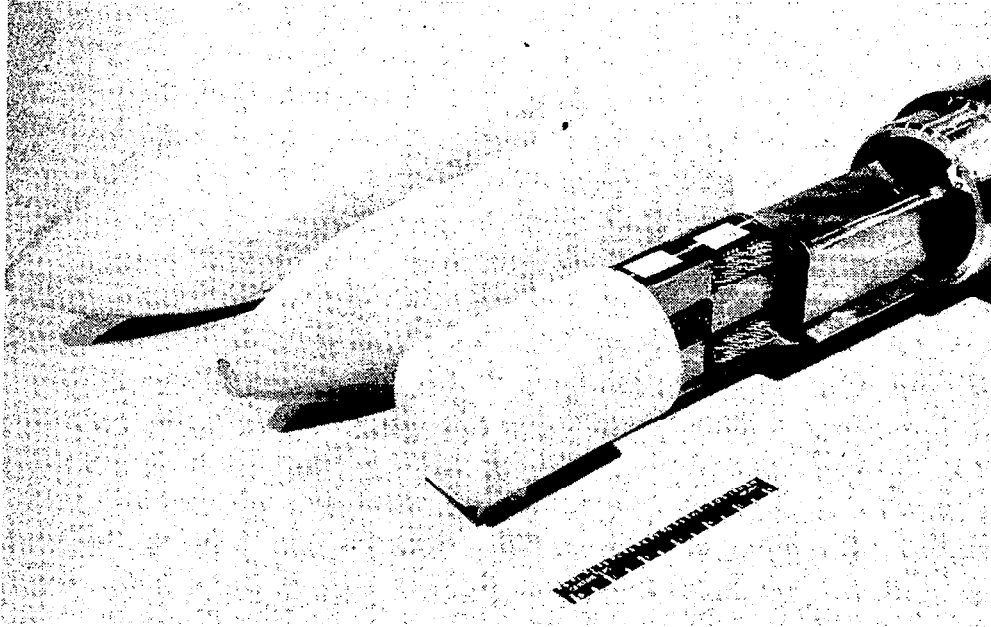
NEW PRESSURE MODULES

RANGE	5 TO 100 PSID	
UNCERTAINTY	0.15% FULL RANGE	
TEMP. RANGE	-17 TO 80 C	
THERMAL SENSITIVITY	0.09% / C	0.05% / C
THERMAL ZERO	0.09% FR / C	0.05% FR / C
SIZE	6.83 X 2.84 X 3.66 CM	8.13 X 2.54 X 2.54 CM
VOLUME/CHANNEL	1.48 CC	1.64 CC

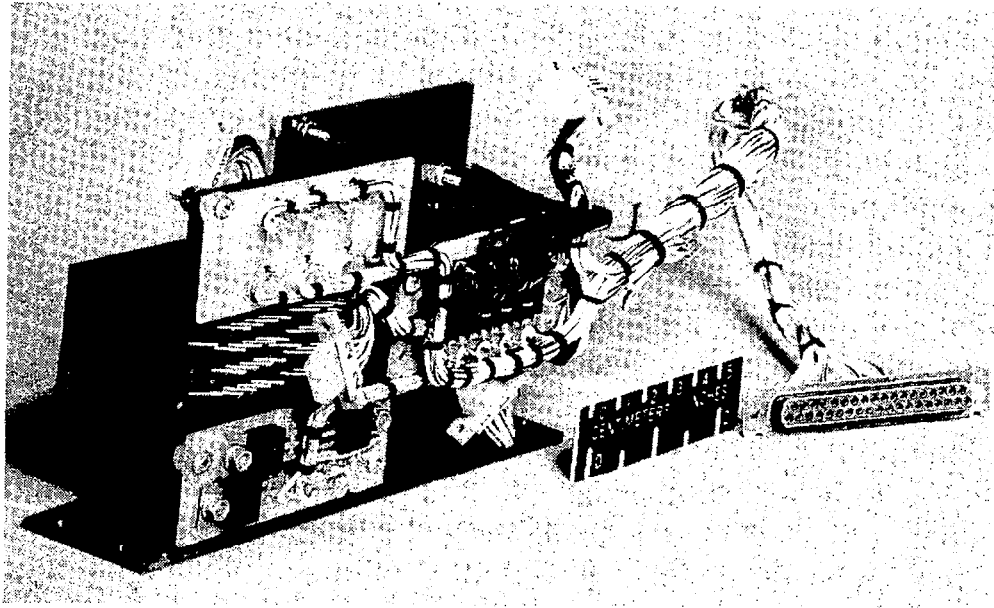
SCHEMATIC OF PATHFINDER I INSTRUMENTATION



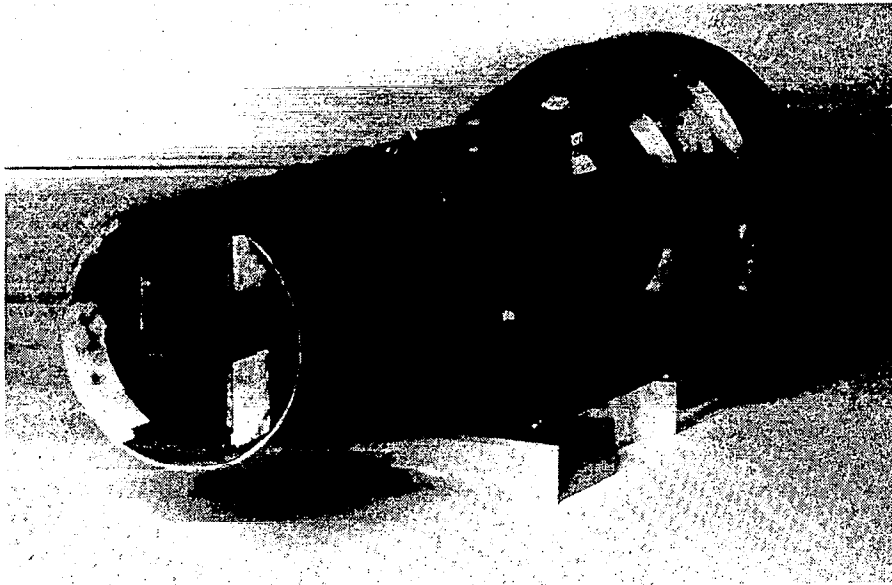
PATHFINDER I INSTRUMENTATION



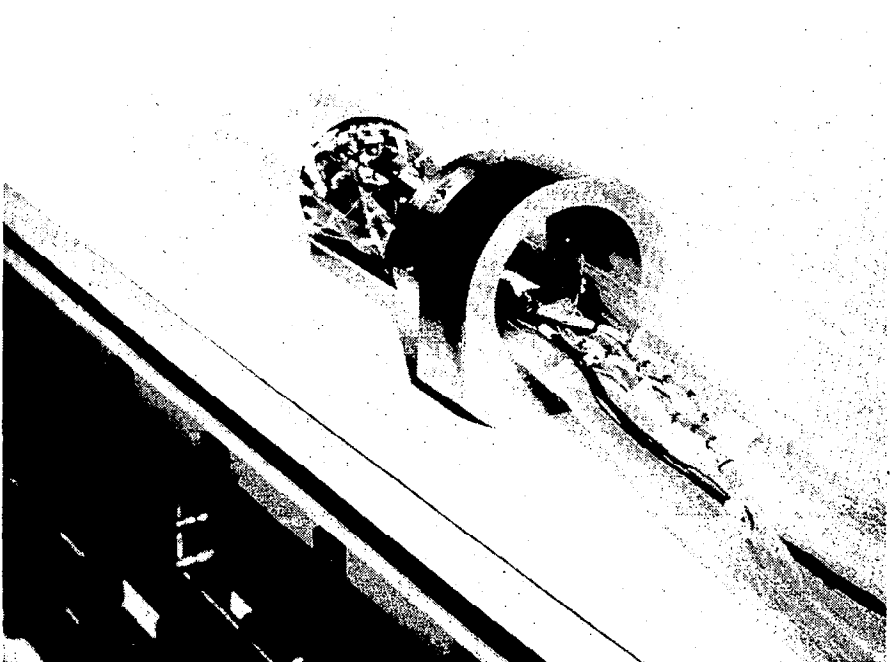
PATHFINDER I ESP INSTALLATION



PATHFINDER I ESP HEATING SYSTEM

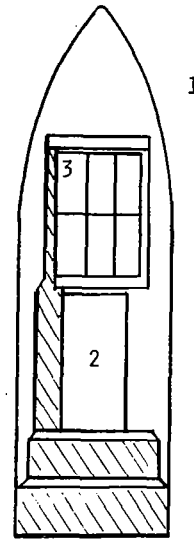
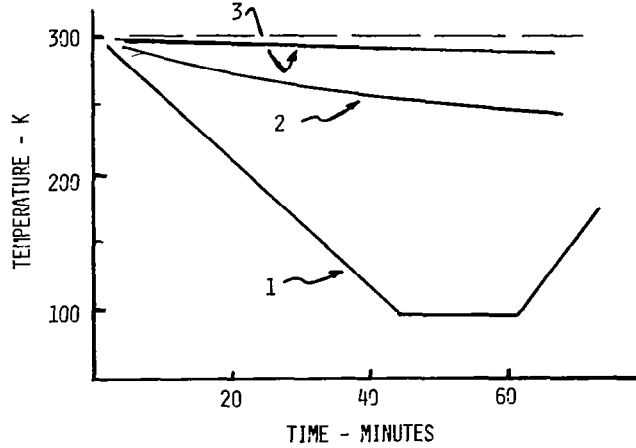


PATHFINDER I ESP PRESSURE AND ELECTRICAL CONNECTORS

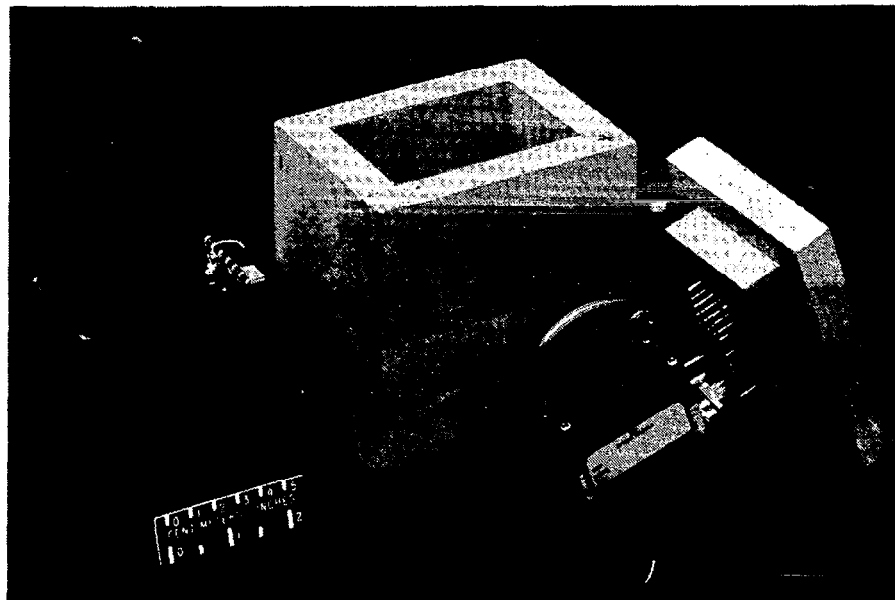


PATHFINDER THERMAL TEST

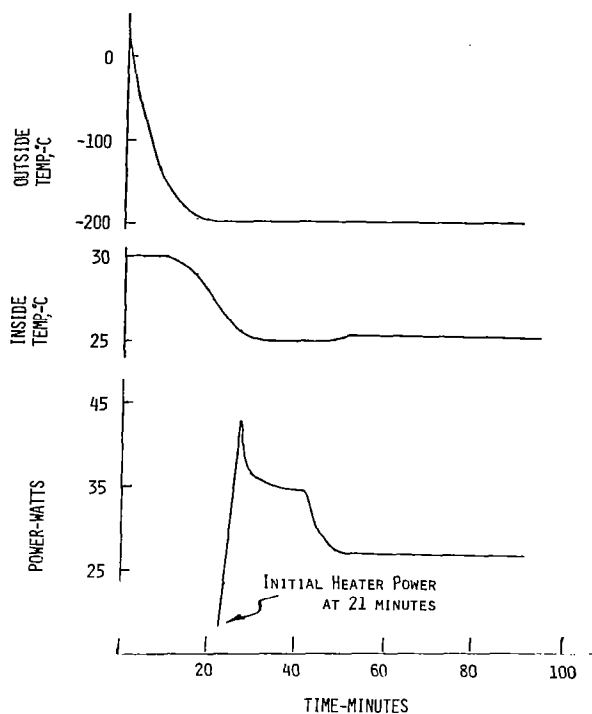
- 1. ENVIRONMENT TEMP
- 2. AOA EXTERNAL TEMP
- 3. ESP MODULE TEMP



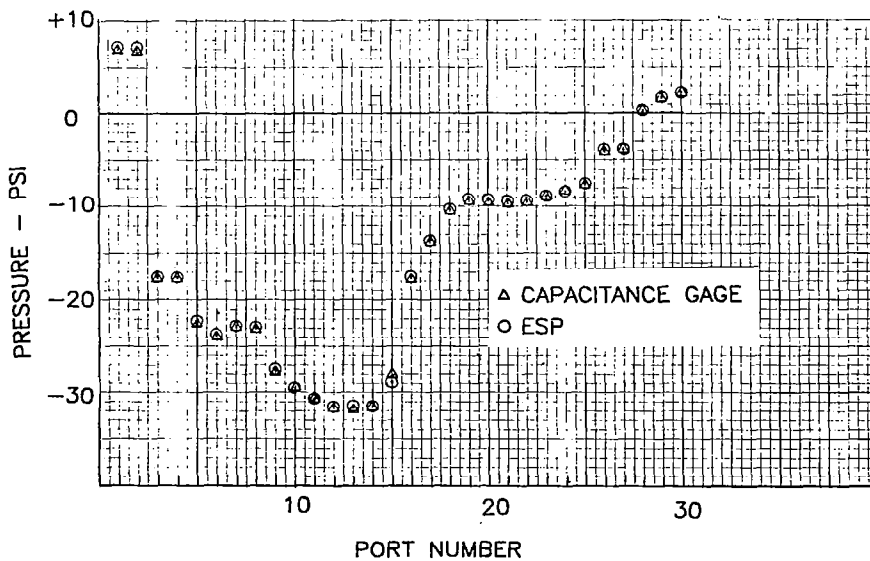
ESP PACKAGE FOR 0.3-m TCT TEST



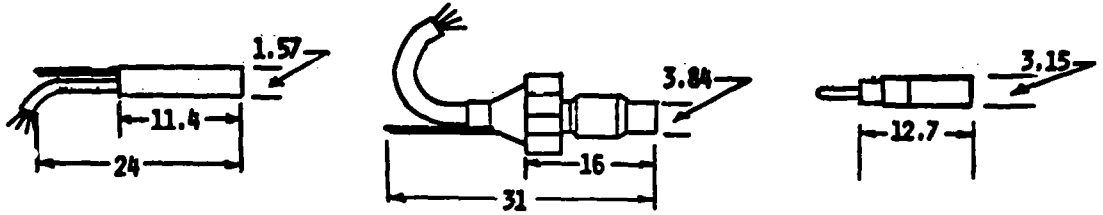
HEATING SYSTEM PERFORMANCE DURING 0.3-M TCT TEST



0.3-M TCT TEST



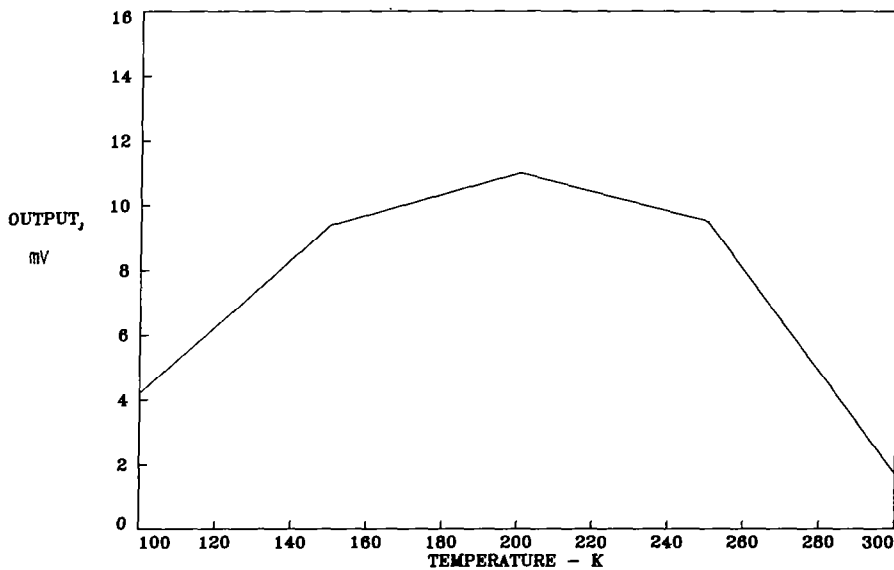
DYNAMIC PRESSURE TRANSDUCERS



ALL DIMENSIONS IN MM

	1% FULL RANGE		2% FULL RANGE
ERROR BAND	10 PSI MIN	2 PSI MIN	100 PSI
RANGE	300 MV		2 V
OUTPUT	0.07%/K		0.06%/K
THERMAL SENS	0.06% FS/K		
THERMAL ZERO	100K INCREMENTS		90 TO 330K
TEMP RANGE	PROBLEM	THREADED	THREADED
MOUNTING			

THERMAL ZERO - ENDEVCO 8510-5



THERMAL SENSITIVITY - ENDEVCO 8510-5

