D2

HOST INSTRUMENTATION R&D PROGRAM

OVERVIEW

D. R. Englund
National Aeronautics and Space Administration
Lewis Research Center
Cleveland, Ohio 44135

The HOST Instrumentation R&D program is focused on two categories of instrumentation. One category is that required to characterize the environment imposed on the hot section components of turbine engines. This category includes instruments for measuring gas flow, gas temperature, and heat flux. The second category is that for measuring the effect of the environment on the hot section components. This category includes strain measuring instruments and an optical system for viewing the interior of an operating combustor to detect cracks, buckling, carbon buildup, etc.

The HOST Instrumentation R&D program was formulated to concentrate on the critical measurements that could not be made with commercially available instruments or with instruments already under development via NASA- or DOD-funded efforts, or in IR&D programs. Over the past year we have not added any new measurements to the program.

The HOST Instrumentation R&D program schedule is included in the accompanying figures. The program schedule shows all HOST-funded efforts plus non-HOST-funded efforts that were initiated prior to HOST and which have HOST-related goals. Each line represents a separate effort, either contract, grant, or in-house. In two of these efforts, the turbine blade/vane static strain gage and the dynamic gas temperature measurement system, follow-on work is shown beyond the original contract.

The heaviest resources are concentrated on the measurements of strain and gas flow because these measurements are critical to the success of the HOST program and because the HOST requirements differ from the current state of the art by a considerable margin. Follow-up and complementary efforts not shown in the schedule are being planned for the strain measurement area.

HOST INSTRUMENTATION R&D PROGRAM

GENERAL GOALS:

- DEVELOP INSTRUMENTATION FOR CHARACTERIZING THE ENVIRONMENT AROUND TURBINE ENGINE COMPONENTS
- DEVELOP INSTRUMENTATION FOR CHARACTERIZING THE EFFECT OF THE ENVIRONMENT ON THE TURBINE ENGINE COMPONENTS

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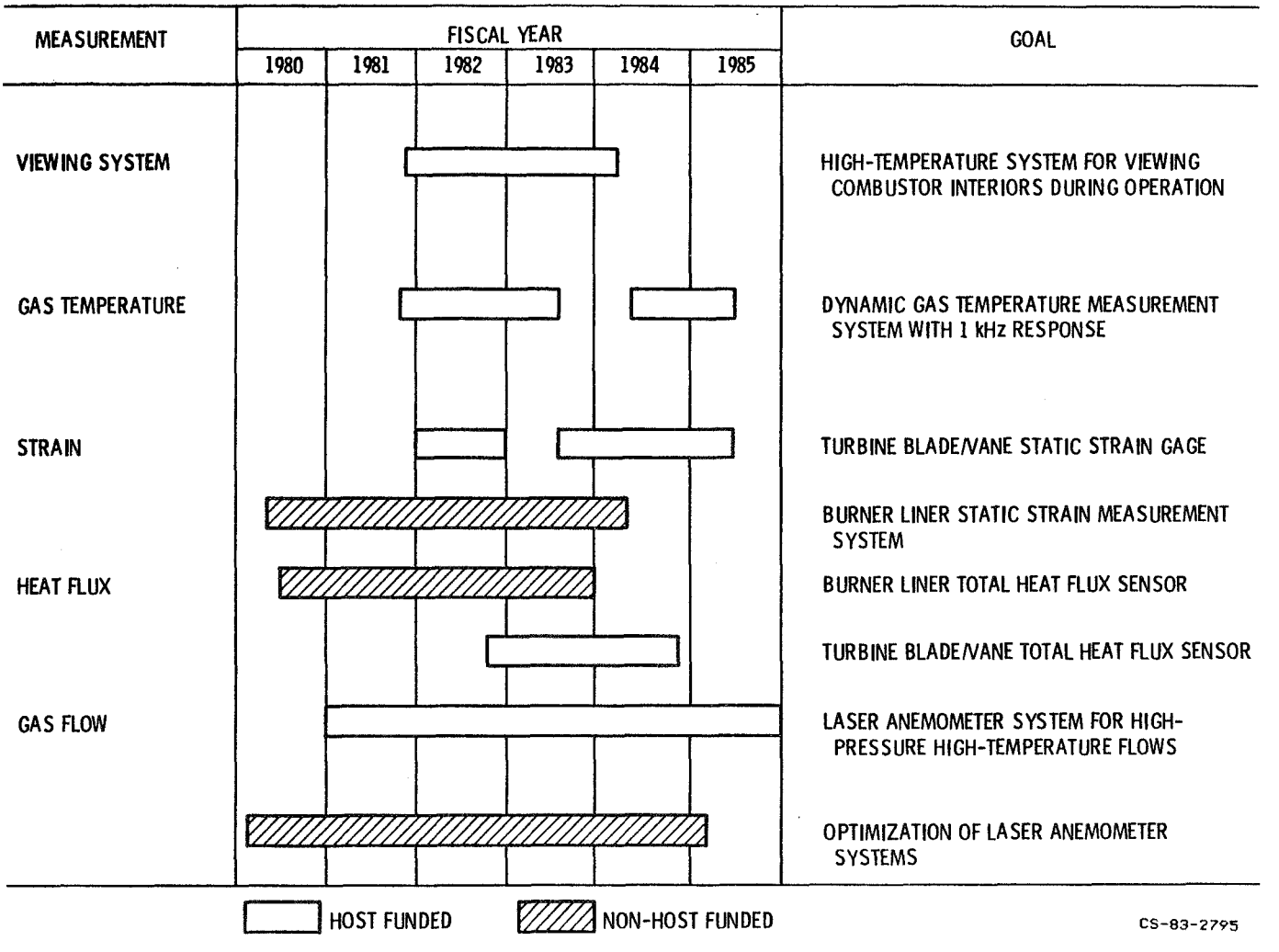
HOST INSTRUMENTATION R&D PROGRAM

SHOWING ACTIVE EFFORTS AS OF 10/83



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TURBINE ENGINE HOT SECTION TECHNOLOGY

INSTRUMENTATION SESSION AGENDA

OVERVIEW	D. ENGLUND, LeRC
COMBUSTOR VIEWING SYSTEM	W. MOREY, UTRC
DYNAMIC GAS TEMPERATURE PROBE	W. WATKINS, P&W GPD
TURBINE BLADE/VANE STATIC STRAIN GAGE	C. HULSE, UTRC
BURNER LINER STRAIN MEASUREMENTS	K. STETSON, UTRC
HEAT FLUX SENSORS FOR BURNER LINERS AND TURBINE BLADES AND VANES	W. ATKINSON, P&W CE
HOT SECTION LASER ANEMOMETRY	R. SEASHOLTZ, LeRC R. EDWARDS, CWRU

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