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13. ABSTRACT (Maximum 200 words)

The expansion of our turbulence laboratory facility funded by this DoD-URI award is complete. Two new test sections and a translator have been acquired for our wind tunnel. The new translator is specially designed to permit measurement of three-dimensional wakes with a minimum of blockage.

Further, our MASSCOMP 500 series laboratory computer was PRP upgraded to a 32-bit machine.

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Final Report

Grant No. AFOSR-87-0004

EXPAND TURBULENCE LABORATORY FACILITIES
TO MEET NEW
DoD RESEARCH INTEREST

Submitted to

Air Force Office of Scientific Research
AFOSR/NA
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JULY 1989

**EXPAND TURBULENCE LABORATORY FACILITIES
TO MEET NEW DOD RESEARCH INTERESTS**

The funded expansion of our turbulence laboratory facilities is complete. We upgraded our CONCURRENT/MASSCOMP 500 series laboratory computer from a 16-bit machine to a 32-bit MC68020 based machine, which enhanced the performance level (speed) by 2.5 times. The upgrade was achieved through a MASSCOMP Performance Package (PEP) at a cost of approximately \$24,000. This computer supported research on my now expired grant AFOSR-88-0146, and supports research on grant AFOSR-88-0176 and grant AFOSR-86-0324.

We were granted several no-cost extensions as we encountered some difficulties with a vendor, PTC Corporation, who contracted to design and build two new test sections and a general purpose translator for these test sections. The two new test sections were finally successfully designed, built, and delivered. The translator/traversing mechanism was also built and delivered but we refused to pay for the unit as it did not meet the design specifications.

For several months we negotiated with PTC Corp. to correct the problems with the translator. It finally became evident they were unwilling to do so and we then attempted to settle the matter by offering partial payment. Our plan was to keep possession of the device and utilize the remaining funds to complete the work required in our own machine shop. Before any final settlement could be negotiated, PTC Corp. filed for bankruptcy. The IRS took possession of PTC's assets, including all receiveables, apparently to cover unpaid back taxes. We attempted to connect with the proper IRS authorities to determine the status/ situation on the translator unit. We received no information so last summer we decided to start over and build the entire translator in our own shop. All necessary materials have been purchased for this construction and our shop is currently working on completing the unit. The finished translator will have the proper specifications required for high quality flow measurements.

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