

COMBUSTION RESEARCH LAB

CELL 11 FACILITY OUTLINE

DESCRIPTION :

CRL Cell 11 is designed for long duration operation of gaseous hydrogen/gaseous oxygen rocket engines of the 25 lbf class, as well as short duration performance characterizations. The facility incorporates laser based diagnostics for flow properties measurements in order to improve the predictive technology for low thrust chemical rockets. The test facility consists of the test cell, adjacent control room, and combustion air driven ejectors for altitude capability, as well as gaseous hydrogen, gaseous oxygen and gaseous nitrogen services. A programmable controller is used to sequence thruster startup and shutdown transients, while a data acquisition system signals run duration and number of cycles, as well as the collection of data. Performance data is displayed on-line and is stored on floppy disks for further post run analysis.

CAPABILITIES :

- * LONG DURATION TESTS (hours)
- * SHORT DURATION TESTS (seconds)
- * CYCLIC TESTS
- * LASER RAYLEIGH FLOW PROPERTY MEASUREMENTS

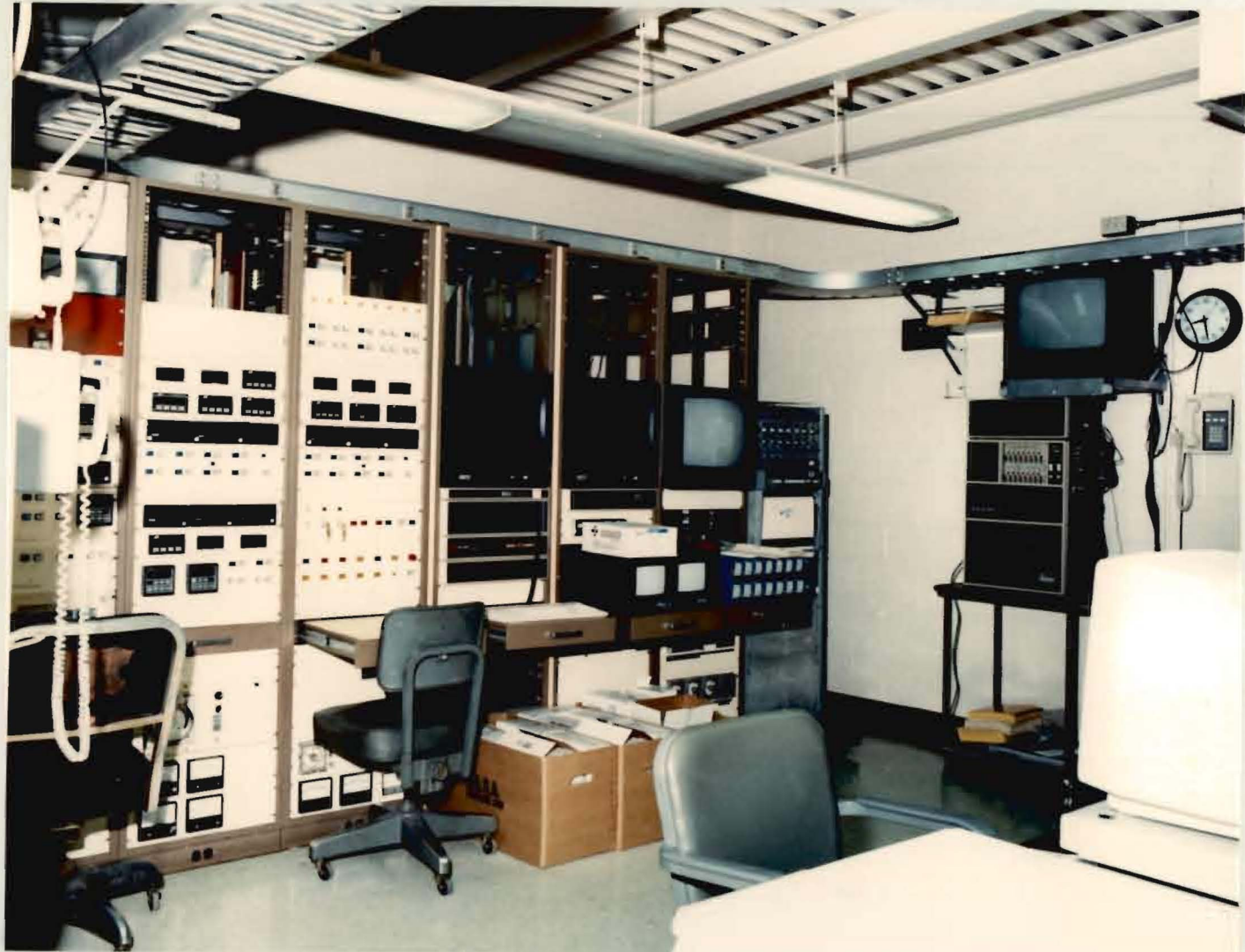
DATA ACQUISITION SYSTEM :

- * DAYTRONIC SYSTEM 10 MODULAR DATA ACQUISITION SYSTEM
Up to 1000 channels at 2.5 samples/sec/channel
- * FM TAPE RECORDER
14 data channels
- * VISICORDER CHART RECORDER
8 data channels
- * INFRARED CAMERA AND VCR

SERVICES :

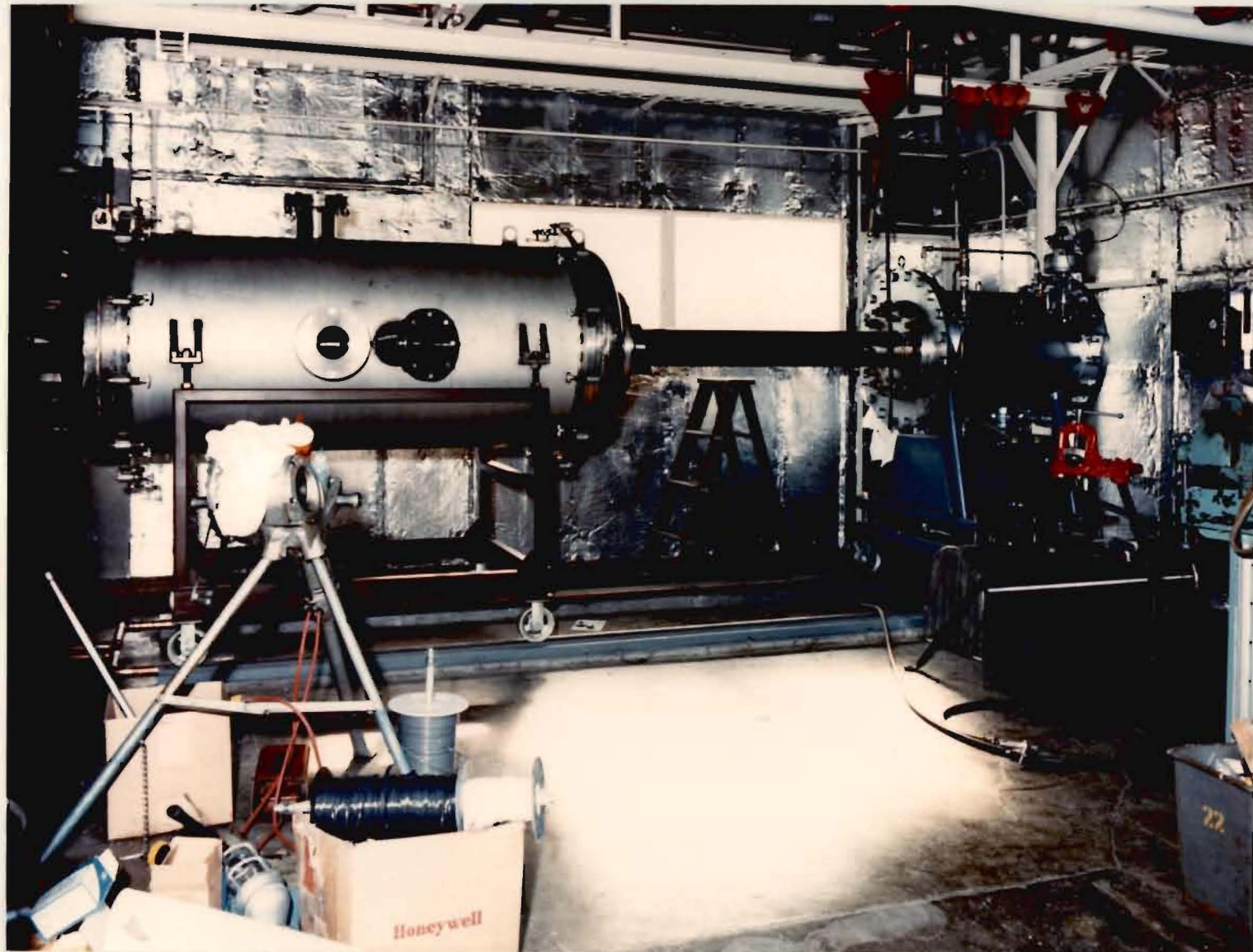
- * GOX VIA TUBE TRAILER
1 TRAILER AT 2400 PSIG MAX, 50000 CUBIC FOOT CAPACITY
- * GH2 VIA TUBE TRAILER
1 TRAILER AT 2400 PSIG MAX, 70000 CUBIC FOOT CAPACITY
- * GN2 VIA CRL CENTRAL SUPPLY - 2200 PSIG MAX
- * AIR VIA CENTRAL SUPPLY - 125 PSIG MAX
- * COMBUSTION AIR - 120 PSIG MAX
- * CITY WATER SUPPLY - 40 PSIG
- * WATER PUMP - 50 gpm at 125 psig

COMBUSTION RESEARCH LAB CELL 11 CONTROL ROOM



COMBUSTION RESEARCH LAB

CELL 11



COMBUSTION RESEARCH LABORATORY
FACILITIES CATALOG

Prepared for
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Space Propulsion Technology Division
Aerospace Engineering Branch

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