COMBUSTION RESEARCH LAB

CELL 24A FACILITY OUTLINE

DESCRIPTION :

A capability to test large size rolling-element bearings exists in CRL Cell 24A. This facility has the capability of testing bearings under conditions similar to the conditions found in large thrust rocket engine turbopumps. Because turbopump bearings are cooled with the pumped fluid, the facility has the capability of supplying the test bearings with non-cryogenic propellants used in rocket engines. The test rig can apply large thrust and radial loads on the bearings in addition to operating the bearings at high speeds. The rig is fully instrumented to determine the operating characteristics of the bearing and the lubricity and cooling capability of the propellant. Data reduction and recovery is accomplished through an Escort II system.

CAPABILITIES :

* HIGH SPEED SHAFT - 25000 rpm
* LARGE SIZE BEARINGS - 100 - 120 mm base
* NON-CRYOGENIC FLUIDS
* LARGE THRUST AND RADIAL LOADS - Up to 10000 lb

DATA ACQUISITION SYSTEMS :

* ESCORT II MINICOMPUTER
  156 DATA CHANNELS AT 1 SAMPLE/SEC./CHANNEL
* MAINFRAME

SERVICES :

* GN2 VIA CENTRAL SUPPLY - 2200 PSIG MAX
* STEAM VIA CENTRAL SUPPLY - 85 PSIG, 385 F
* AIR VIA CENTRAL SUPPLY - 125 PSIG MAX
* CITY WATER SUPPLY - 40 PSIG

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COMBUSTION RESEARCH LAB
CELL 24A&C CONTROL ROOM

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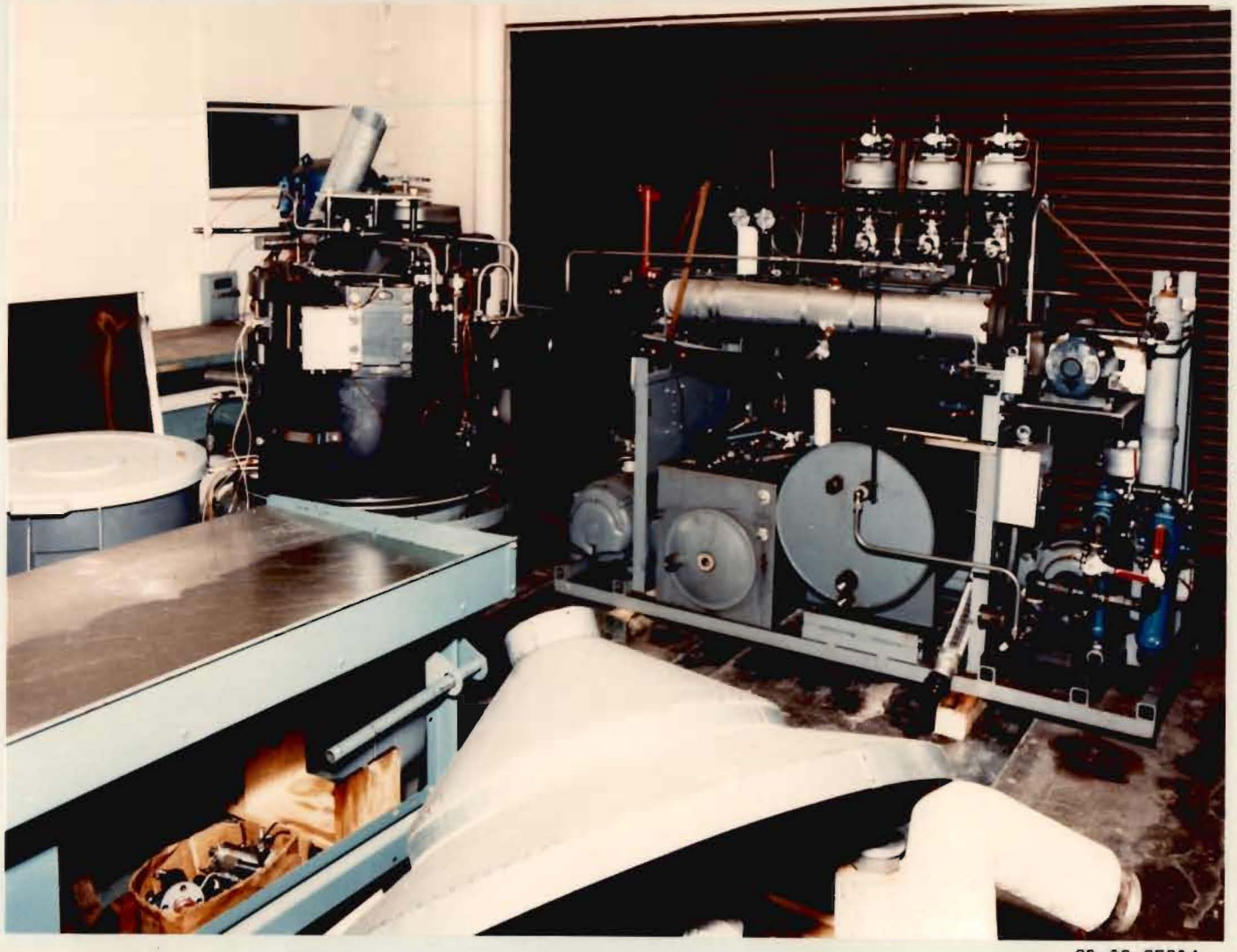
COMBUSTION RESEARCH LAB
CELL 24A



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COMBUSTION RESEARCH LAB

CELL 24C FACILITY OUTLINE

DESCRIPTION :

CRL Cell 24C is an optical instrumentation laboratory utilized for the research and development of optical type measurement technologies. The facility consists of a 9′ x 13′ test cell with an adjacent control room That is shared with Cell 24A), and an Escort data acquisition system. The present occupant is using a Hewlett Packard Model 330C for control and data analysis, and a model HP 3852 for data acquisition.

EXPERIMENTAL EQUIPMENT :

* 20 WATT COPPER-VAPOR LASER
* 1 mW HELIUM-NEON LASER
* INTERNALLY HEATED PRESSURE VESSEL (6000 psi, 1000 C) WITH OPTICAL ACCESS
* 4′ x 6′ PNEUMATICALLY SUSPENDED OPTIC TABLE
* 2′ x 3′ OPTIC TABLE
* 1200 C INFRARED CALIBRATION SOURCE
* 0.5 METER SCANNING MONOCHROMETER
* AIR CONDITIONED TEST CELL

COMPUTER SUPPORT :

* HEWLETT-PACKARD MODEL 330C

DATA ACQUISITION SYSTEMS :

* ESCORT II MINICOMPUTER
  156 data channels at 1 sample/sec./channel
* HEWLETT-PACKARD MODEL 3852

SERVICES :

* GN2 VIA CRL CENTRAL SUPPLY - 2200 PSIG MAX
* GH2 VIA K-BOTTLE
* AIR VIA CENTRAL SUPPLY - 125 PSIG MAX
* CITY WATER SUPPLY - 40 PSIG

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COMBUSTION RESEARCH LAB
CELL 24C

CD-88-35803

COMBUSTION RESEARCH LABORATORY

FACILITIES CATALOG

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Aerospace Engineering Branch

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