

COMBUSTION RESEARCH LAB

CELL 22 FACILITY OUTLINE

DESCRIPTION :

CRL Cell 22 contains a Hydrogen/Oxygen rocket engine designed and constructed as a High Temperature Thermal Shock Test Rig. The testing facility consists of the test cell, an adjacent control room, an exhaust gas scrubber (currently inoperative) located just behind the cell, and oxygen, hydrogen, and nitrogen gas services. A programmable controller is used to tailor each test run to desired duration and number of cycles. Transient data recording is available via analog data transmission lines to the TRADAR 2.0 computer located at the RAC building. Data reduction and recovery can be performed immediately after the conclusion of each test using a mainframe computer system, with data reduction programs being provided through the Computer Services Division.

CAPABILITIES :

- * THERMAL SHOCK TESTING OF MATERIALS IN HYDROGEN/OXYGEN ROCKET ENGINE EXHAUST
- * ENGINE CHAMBER PRESSURE FROM 100 TO 600 PSIA
- * ENGINE DESIGN O/F RANGE FROM 1 TO 22
Test proven O/F range from 1 to 6
- * CYCLE TESTS - Up to 30 cycles of 1 second duration
at O/F = 1
- * LONG DURATION TESTS - Up to 30 seconds at O/F = 1

COMPUTER SUPPORT :

- * ACCESS TO MAINFRAME VIA MODEM
- * IBM COMPATIBLE PERSONAL COMPUTER

DATA ACQUISITION SYSTEMS :

- * HIGH SPEED DATA ACQUISITION USING TRADAR 2.0 COMPUTER
100 channels at 100 samples/sec./channel
- * ESCORT DATA ACQUISITION SYSTEM
32 data channels at 1 sample/sec./channel
- * VISICORDER CHART RECORDER
12 channels of data logging capability
- * HIGH SPEED MOVIE CAMERAS - 16 mm, 128 or 400 fps
- * VIDEO CAMERA AND VCR - Monitored from Control Room
- * 35mm CAMERA

SERVICES :

GASES :

- * GOX VIA TUBE TRAILER
1 TRAILER AT 50000 CUBIC FOOT CAPACITY, 2400 PSIG MAX
- * GH2 VIA TUBE TRAILER
2 TRAILERS AT 70000 CUBIC FOOT CAPACITY, 2400 PSIG
MAX
- * GN2 VIA CRL CENTRAL SUPPLY - 2200 PSIG MAX
- * AIR VIA CENTRAL SUPPLY - 125 PSIG MAX
- * HYDROGEN COOLING SYSTEM FOR TEST SPECIMENS
Up to 0.15 pps at 1000 psig

WATER :

- * CITY WATER SUPPLY - 40 PSIG
- * WATER COOLING SYSTEM FOR TEST SPECIMENS
UP TO 70 GPM AT 1300 PSIG MAX

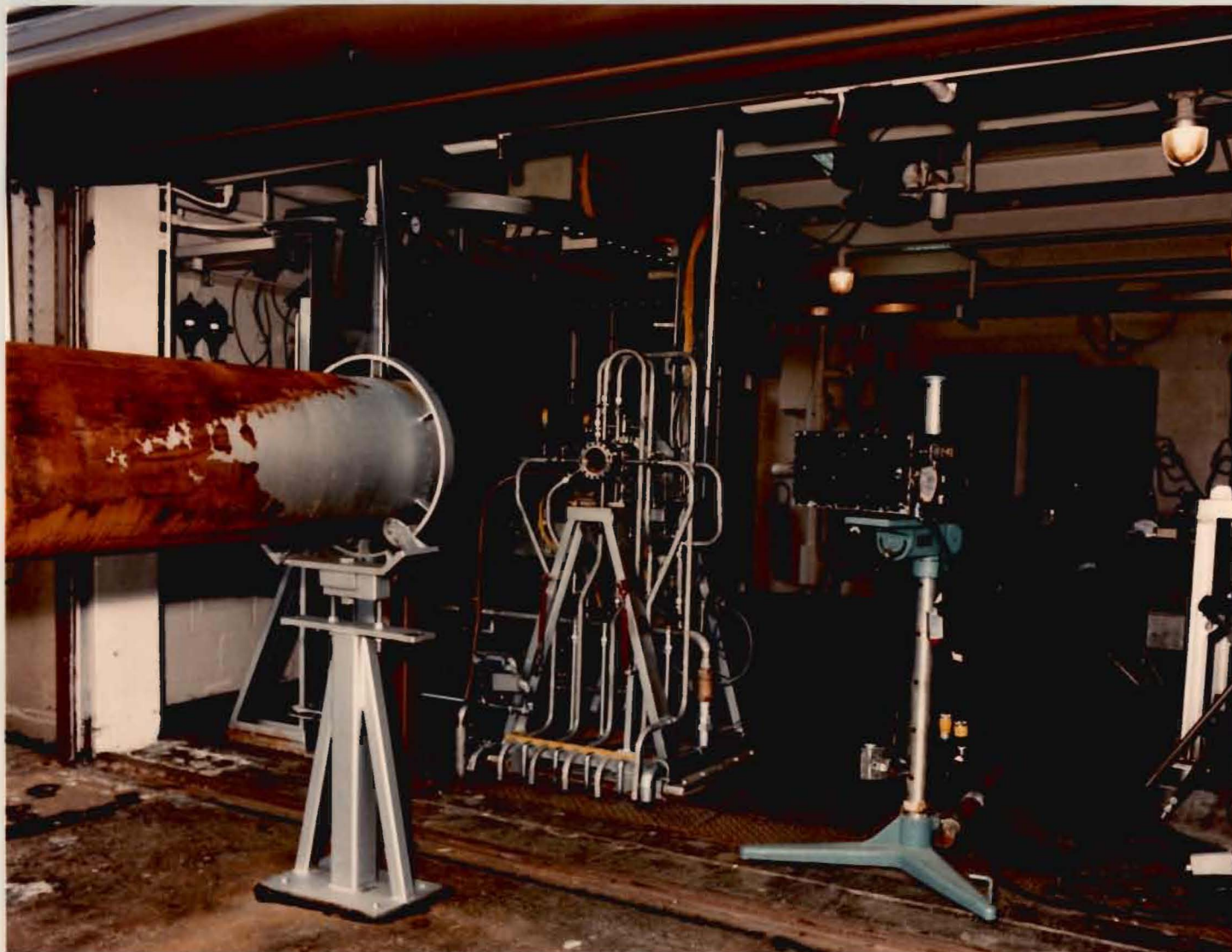
COMBUSTION RESEARCH LAB CELL 22 CONTROL ROOM



CD-88-35807

COMBUSTION RESEARCH LAB

CELL 22



CD-88-35810

COMBUSTION RESEARCH LABORATORY
FACILITIES CATALOG

Prepared for
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