COMBUSTION RESEARCH LAB

CELL 14 FACILITY OUTLINE

DESCRIPTION :

CRL Cell 14 contains multiple test rigs collectively known as the Metallized Rocket Propellant Flow Analysis Facility. The cold flow experimental investigations are conducted with the following bench scale test rigs: High Pressure Reciprocating Flow Rig including the Single Element Injector Spray Rig; Low Pressure Positive Expulsion Flow Rig and the Pump Evaluation Test Rig. The testing facility consists of the test cell, an adjacent control room and nitrogen gas services. A Escort II minicomputer, as well as manual pushbuttons, is used for sequential control of test rig valves. Test data recording is accomplished via digital data transmission lines to the TSS 370 data collector located at the RAC Building. Data reduction and recovery can be performed by batch processing programs provided through the Computer Services Division.

CAPABILITIES :

* COLD FLOW TESTING OF HIGH ENERGY-DENSITY PROPELLANTS IN PRESSURE-FED AND PUMP-FED MODES
* PROPELLANT FEED SYSTEM COMPONENT TESTING FROM 10 TO 1500 PSIG
* INJECTOR COLD FLOW TESTING FROM 10 TO 1000 PSIG
* PROPELLANT TANK EXPULSION TESTING FROM 10 TO 100 PSIG
* PUMP TESTING FROM 250 TO 950 PSIG PUMP DISCHARGE PRESSURES AT 5 TO 0.5 GPM OF AL/RP-1

COMPUTER SUPPORT :

* ACCESS TO MIANFRAME VIA MODEM

DATA ACQUISITION SYSTEMS :

* PRIMARY DATA ACQUISITION USING ESCORT II MINICOMPUTER 40 channels at 2 samples/sec./channel

* HIGH SPEED MOVIE CAMERAS - 16 mm, 4000 fps

* VIDEO CAMERA AND VCR - Monitored from Control Room

SERVICES :

GASES :

* GN2 VIA CRL CENTRAL SUPPLY - 2200 PSIG MAX

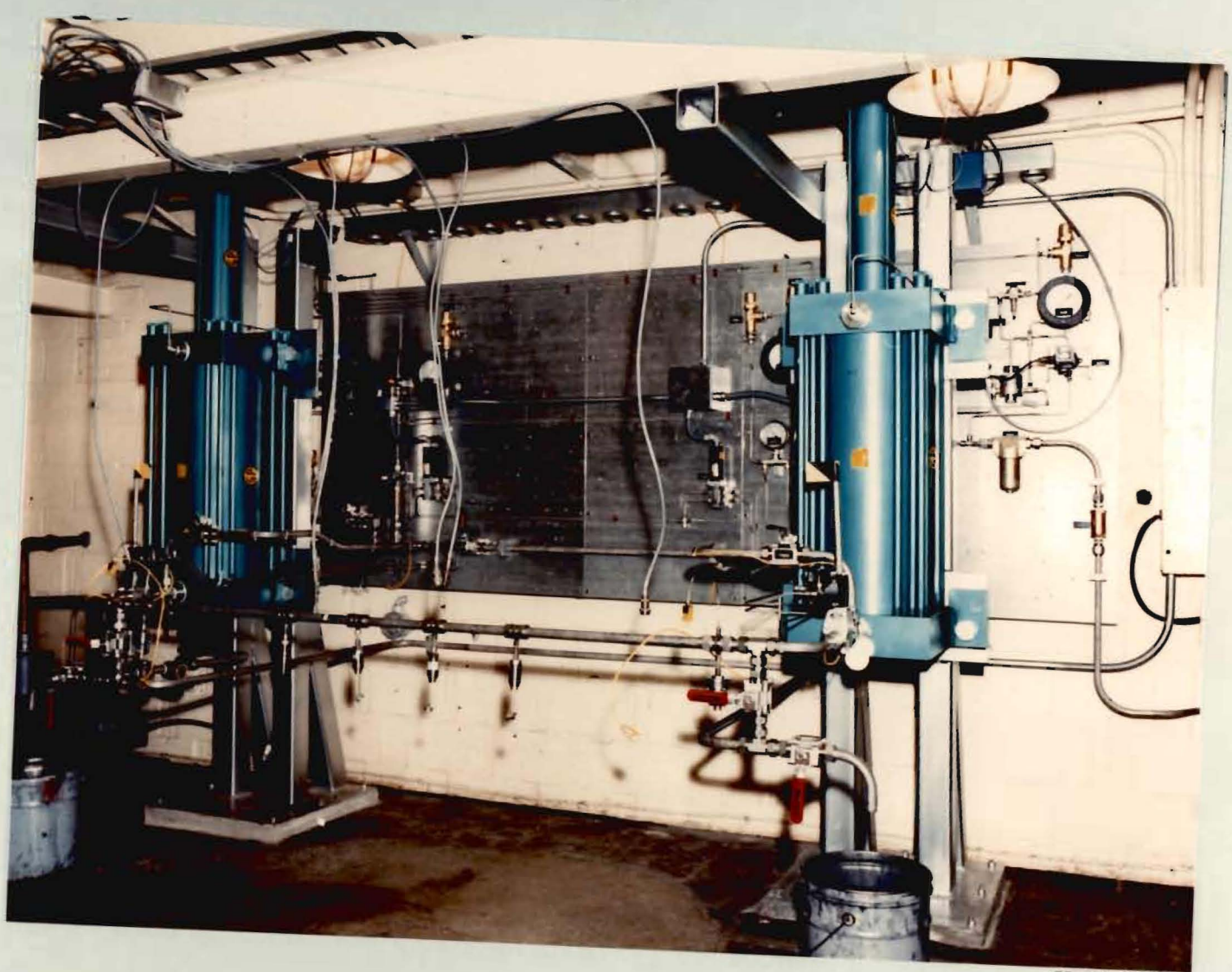
* AIR VIA CENTRAL SUPPLY - 125 PSIG MAX

WATER :

* CITY WATER SUPPLY - 40 PSIG

NASA
C-88-08830

COMBUSTION RESEARCH LAB
CELL 14



CD-88-35800

COMBUSTION RESEARCH LABORATORY

FACILITIES CATALOG

Prepared for

NASA Lewis Research Center
Space Propulsion Technology Division
Aerospace Engineering Branch

by

James Roncace
Sverdrup Technology, Inc.
Cleveland, Ohio

December 1988