

27/2/87

Jean Bastien:

Greetings:

Just a note to tell you I arrived on Wednesday 25th in a rather exhausted condition. After some rest, I am much livelier now. Apparently the past summer was quite wet. My bushes and trees show marked growth. I am well pleased. Nearly three bushells of mail will receive my eventual attention. What is another month or two after nine months away?

I stopped two days at Boulder. Ball Aerospace has constructed a huge device for injecting chemicals into the ionosphere. These are to sweep up electrons and make artificial holes. The device is eight sided, $9\frac{1}{2}$ feet diameter. Four sides each have sixteen canisters of assorted chemicals to be used over a period of three years. At the center, the device has its own rocket four feet diameter. The whole thing weighs several tons and needs the shuttle to hoist it up. Its orbit is to be $\pm 25^\circ$ from equator of earth.

I tried to tell my friend that they built the wrong thing. What is needed is a mass production very cheap sounding rocket with paper container which will burn up. On nose should be a 10 gallon can of chemicals. These devices could be used anywhere on short notice and be of some value. The present contraption is useless. My friend agreed. However, he pointed out that NASA is customer and Ball has to build what customer wants. I'm not surprised the shuttle blew up.

Please remember me to Ken and the fellows. I am,

Cordially yours,

Grote
Grote Reber
General Delivery
Bothwell, Tasmania
Australia 7030

*Jean Bastien room 45
National Research Council
100 Sussex Drive
Ottawa, Canada, K1A 0R6*

The Stratospheric Aerosol and Gas Experiment 2 (SAGE 2) also completed its second full year in orbit aboard the Earth Radiation Budget Satellite. Built for NASA/Langley Research Center, SAGE 2 is a seven-channel radiometer that maps concentration and distributions of stratospheric aerosols and constituents in the earth's atmosphere.

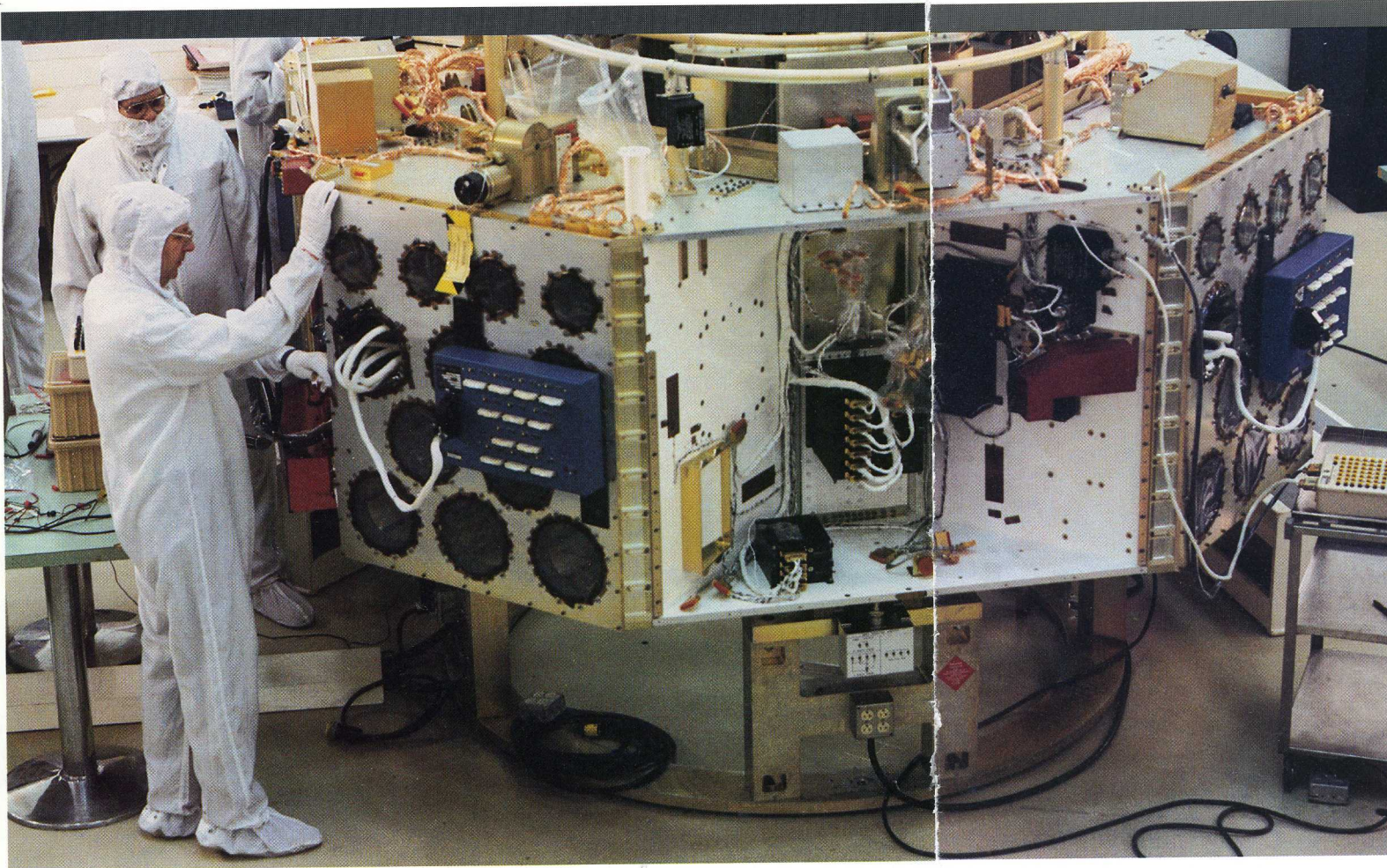
SPACECRAFT SYSTEMS

In 1986 Ball completed the spacecraft systems integration and science instrument integration for the Combined Release and Radiation Effects Satellite (CRRES). Built for the NASA/Marshall

Space Flight Center and U.S. Air Force, CRRES will carry and release 48 canisters of tracer chemicals to aid in the study of the dynamics and structure of the upper atmosphere, ionosphere and deep space. Instruments at ground observatories and aboard CRRES will monitor the tracer chemical interaction in the atmosphere. The spacecraft will also carry the latest generation of micro-electronic components to evaluate their performance in the earth's radiation belts. In addition, it carries numerous instruments that will monitor the radiation belts themselves. The spacecraft will be launched from the space shuttle.

The Earth Radiation Budget Satellite (ERBS), built by Ball for NASA/Goddard Space Flight Center, completed its second full year in orbit in 1986. Launched from the space shuttle in October 1984, ERBS carries three scientific instruments to study the characteristics of earth's thermal equilibrium and the structure and dynamics of stratospheric aerosols in the atmosphere. The spacecraft has exceeded science data retrieval requirements of 95 percent, sometimes returning as much as 99.7 percent of the data.

*Ball Highlights for 1986
p 12 & 13*



The Combined Release and Radiation Effects Satellite being built for the U.S. Air Force and NASA's Marshall Space Flight Center.