

## FINAL REPORT

### NGST/XRCF Design & Build Wavescope System Pallet Contract No. NAS8-97095 Task No. H-30198D

(Dr. Joe Geary/ CAO/UAH)

Based on the successful Wavescope demonstration at MSFC at the end of March, the decision was made by the optical testing team to purchase an upgraded Wavescope from AOA. The MSFC version would include: a higher resolution camera (1000 x 1000 pixels); a higher density lenslet array (150 x 150); updated software; and longer cables (to accommodate the remote operation of the Wavescope optical head which was resident in the Beam Guide Tube). The AOA proposal for the new instrument was received in mid-April, and delivered to MSFC in mid-July.

A considerable amount of effort was expended to provide the infrastructure needed for Wavescope operation, and to incorporate it into the overall test system. This was provided by the Wavescope System Pallet (WSP) built by UAH. The WSP is illustrated in **Figure 1**. Several instruments are incorporated on this pallet. These include the: Wavescope optical head; a PDI wavefront sensor; a point spread function sensor; a Leica light-based distance measuring sensor. In addition there is a single mode fiber point source (fed from a separate source pallet) which serves both as a reference for the Wavescope and as a source point for the test mirror. There is a dual function lens which both collimates the beam from the test image point, and images the test mirror onto the lenslet array. There is a high quality Collimator which can provide a flat input wavefront directly into the Wavescope. There are also various aids such as an alignment laser, an alignment telescope, alignment sticks and apertures.

The WSP was delivered to MSFC on 7/28/99. **Figure 2** shows the WSP installed in the Guide Tube at the XRCF.

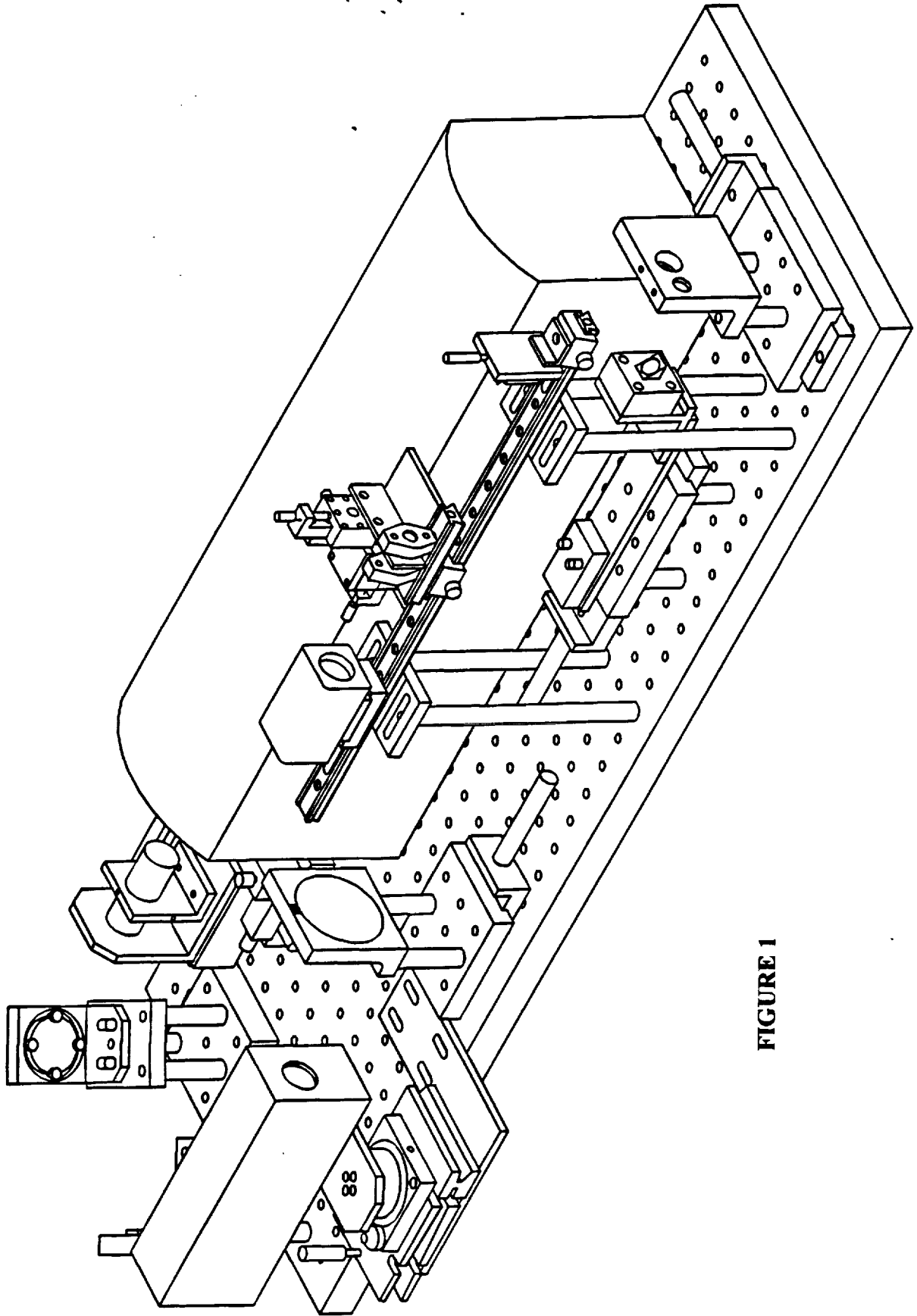


FIGURE 1

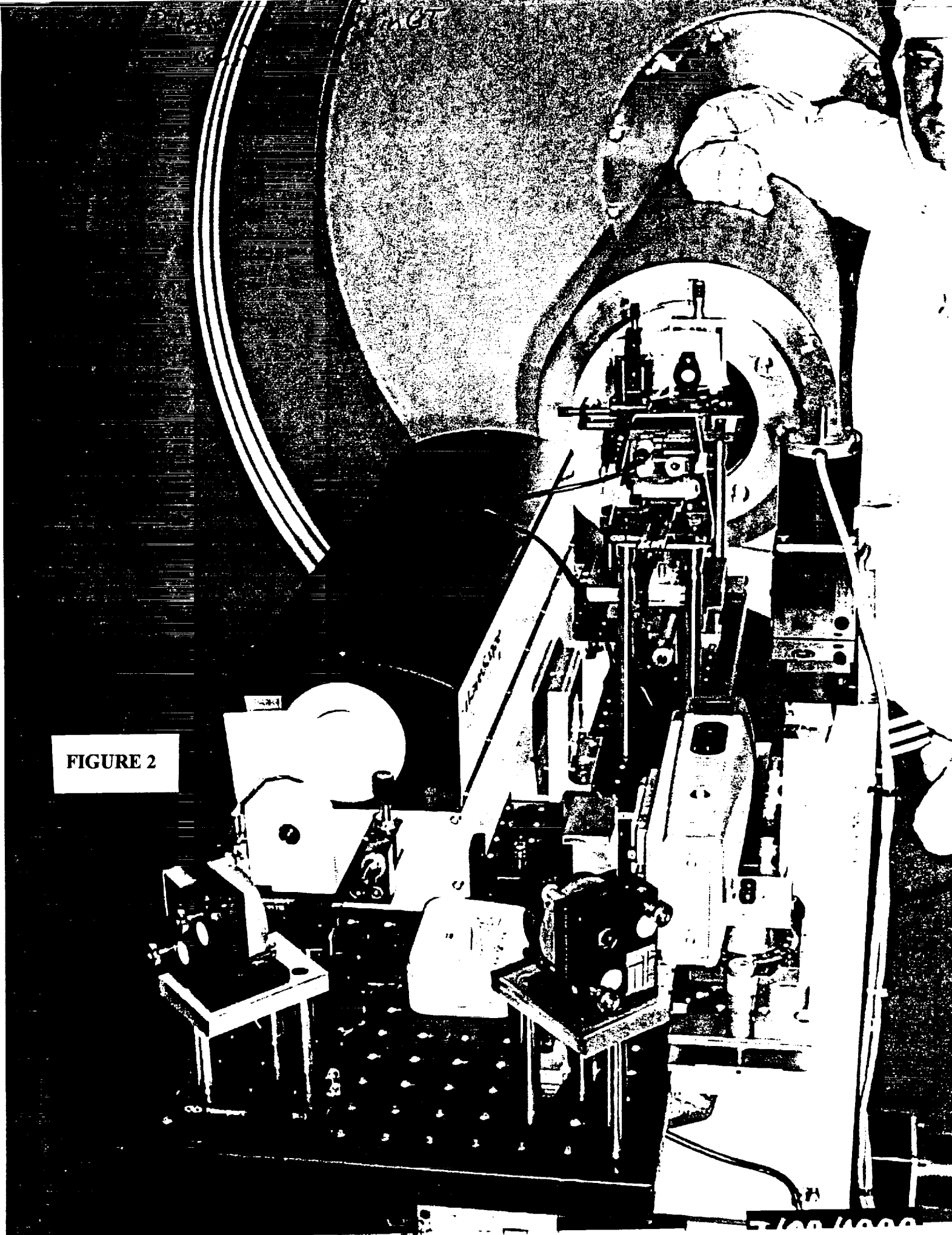


FIGURE 2

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