Brainstorming Help

REPAIR OF THE HUBBLE SPACE TELESCOPE

Brainstorming Outline--3 most important things I learned

I. Description of Original lens defect

II. Possible solutions

A. A new telescope

B. Computer enhancement

C. A corrective lens

III. Method of repair

A. Description of the corrective lens

B. Installation of the corrective lens

IV. Results

SUMMARY

Several years ago, the Hubble Space Telescope was launched from a space shuttle flight. Astronomers had hoped that with the Hubble Space Telescope orbiting high above Earth's cloudy atmosphere, several questions about how the universe works and

was formed could be answered. Unfortunately, after the telescope was in orbit, technicians discovered that the telescope lens had a flaw that made the pictures it sent to earth fuzzy. This was a major disappointment to those hoping to peer deeper into space. Fortunately, in December 1993, astronauts aboard another space shuttle mission were able to install a lens that corrected the problem.

For several months after first discovering the problem, scientists considered three possible solutions. One was to build and launch a new telescope. This would cost millions of dollars and delay any deep space study for several years. Another solution was to build a super computer that could clear up the pictures the current Hubble sent to Earth. However, even a super computer would have to "guess" several parts of an enhanced picture because of the flaw in the original lens. A third solution was to build and install a corrective "contact lens" for the Hubble, much as doctors make for humans with vision problems.

Scientists decided to build and install a corrective lens, with construction beginning in June of 1992. The lens was designed to bring into focus the flawed part of the original telescope lens. The plan called for astronauts on a space shuttle mission to install the corrective lens and make fine adjustments. If this worked, the original Hubble Space Telescope would be saved along with millions of dollars and several years of work.

In December 1993, a space shuttle mission was launched with the corrective lens on board. No one including the most informed mission specialist or astronaut knew what to expect since an installation and repair of this magnitude hundreds of miles above

earth had never been attempted. However, after many hours of aggravating effort astronauts finally succeeded in putting the corrective lens in place.

A few stressful weeks of "tuning" the lens followed. Scientists now report that the Hubble's vision is perfect. The corrective lens installed by the astronauts exceeds all expectations in repairing the flaw. Because of the success of the repair effort, big questions such as how our universe began and its eventual fate may be answered.

Working Sources Page

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