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COLOSSUS Memo #206

TO: Distribution
FROM: Stephen L. Copps *SK 8/12/69*
DATE: August 11, 1969
SUBJECT: Optics Calibration for P23

It has been the practice for all lunar flights to date to use stars for optics calibration. The CMC does not presently aid the astronaut in acquiring his chosen star in the LLOS field of view.

For Colossus 3 a PCR has been written to provide automatic acquisition. In the meantime it may be helpful to acquire stars by use of the Auto Optics routine shaft and trunnion DSKY display.

If the astronaut achieves a desired trunnion angle of zero degrees in Auto Optics he has in fact placed the star along LLOS. A fairly straightforward procedure for accomplishing this is described below.

1. Key V37E 52E.
2. at V04N06 set R2 = 3 and PRO.
3. at V50N25 00015 ENTR.
4. at V01N70 load the star code of the specified calibration star.
5. observe non-flashing V06N92 or, if FLV51, key V16N92E.

The objective here is to achieve a desired trunnion angle of zero degrees in two predictable maneuvers. In order to visualize the polarity involved picture the LLOS to be colinear with the $+Z_{SC}$ axis and the shaft rotation to be positive starting from the $+X_{SC}$.

The first maneuver is performed to place the star in the XZ plane by applying pure roll. If R1 lies between 0 and 180 degrees then apply left roll and if it lies between 180 and 360 degrees apply right roll stopping when R1 is either 0 or 180 degrees.

The second maneuver is a pure pitch maneuver to change R2 to 0 degrees. If shaft reads 0 degrees then pitch up and if it reads 180 degrees then pitch down.

6. Key V37E23E.