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PRIORITY [REDACTED]

INFO [REDACTED]

CITE [REDACTED]

REF MISSION 9062

SUBJ SUMMARY OF DIFFICULTIES ENCOUNTERED IN DETERMINING ATTITUDE FROM STELLAR PHOTOGRAPHY ATTRIBUTABLE TO SYSTEM PERFORMANCE

✓ 1. FIDUCIAL RESEAU INTERSECTIONS WERE NOT USABLE THROUGHOUT MOST OF MISSION. THE LOSS OF FIDUCIAL INTERSECTIONS WAS CAUSED BY INSUFFICIENT EXPOSURE GIVEN TO THE RESEAU IN THE FIDUCIAL AREA. THE INTERSECTION OF THE CROSSES COULD NOT BE SEEN WHEN VIEWED IN THE COMPARATOR. AS A SUBSTITUTE FOR FIDUCIAL MARKS, RESEAU INTERSECTIONS WITHIN THE IMAGE AREA WERE USED AS FIDUCIALS. THIS ALSO PROVED TROUBLESOME BECAUSE ON VARIOUS FRAMES THE SELECTED INTERSECTIONS WERE ALSO NOT VISIBLE.

2. TOTAL STELLAR FRAMES IN MISSION WERE 412; OF THESE 276 WERE COMPUTED AND 136 REJECTED. REASONS FOR REJECTION WERE EITHER NO IMAGES, POOR IMAGES (I.E., COULD NOT BE MEASURED), OR BAD GEOMETRY. AT THE BEGINNING OF MISSION FIVE STARS IN ARIES WERE IDENTIFIED WITHIN THE IMAGE AREA, OF WHICH THE BRIGHTEST THREE WERE IN A CLUSTER. THE CLUSTER OF THREE CONTRIBUTED NO MORE TO THE SOLUTION THAN A SINGLE STAR. IT WAS FOUND THAT THE THRESHOLD

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In Accordance with E. O. 12958

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CONDITIONS FOR STELLAR IMAGERY FLUCTUATED THROUGHOUT THIS MISSION AND AT BEST YIELDED NO BETTER THAN 5.5 MAGNITUDE. FOR AVERAGE CONDITIONS THE MAXIMUM DISCERNIBLE MAGNITUDE WAS APPROXIMATELY 4.5. THE STAR WHOSE POSITION PROVED TO BE PIVOTAL FOR APPROXIMATELY THE FIRST THIRD OF THE MISSION WAS 4.6 MAGNITUDE. THE RELIABILITY OF FRAMES IN THIS REGION WAS TOTALLY DEPENDENT UPON THE APPEARANCE OF A MEASURABLE IMAGE FOR THIS STAR.

3. THE POLE OF THE ORBIT GRADUALLY SHIFTED SOUTH AND EAST IN THE DIRECTION OF THE CONSTELLATION PISCES. IN THE INTERIM BETWEEN THE TIME THAT THE CENTER OF ARIES HAD EITHER WANED OR MOVED OUT OF THE FIELD AND THE TIME OF THE APPEARANCE OF THE NEXT SET OF STARS, NO FIX WHATEVER WAS POSSIBLE. THEREFORE, THE FIX WAS SHIFTED TO ALPHA ARIES, BETA ARIES, AND ALPHA TRIANGULUM. THESE STARS, FOR THE MOST PART, REMAINED IN VIEW THROUGHOUT THE BALANCE OF THE MISSION AND CARRIED THE BURDEN OF CONTROL. SEVERAL STARS OF LESS BRILLIANCY WERE ALSO IDENTIFIED IN THIS REGION AND WERE SOMETIMES USED TO SUPPLEMENT THE PRIMARY CONTROL STARS.

4. THERE WERE CONSIDERABLE VARIATIONS IN THE GROSS FOG THROUGHOUT PORTIONS OF THE MISSION.

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END OF MESSAGE

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