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IMPROVED EPHEMERIS, V502 OPHIUCHI

V502 Ophiuchi (BD+0°3562) is a contact binary system which undergoes partial eclipses. From his period study of the system, Kwee (B.A.N. 14, 131, 1958) noted a variability in the period and calculated the following light elements: JD Hel. Min. I = 2435257.4459 + 0^d.45339630 E. A more recent study by Binnendijk (A.J. 74, 218, 1969), indicated a decrease had occurred in the period after 1958. Binnendijk gave the ephemeris JD Hel. Min. I = 2439639.9431 + 0^d.45339304 E.

The present observations were made during the interval 4-12 June 1978 with the 0.5 meter Cassegrain telescope at Palomar Observatory. The photometer housed standard B,V filters and a 1P21 photomultiplier refrigerated with dry ice. A digital counter was used for the intensity measurements, and the time of each observation was obtained from a strip chart tracing. A WWV receiver was used to calibrate the chart. BD+0°3566 was used as the comparison star, and BD+0°3569 and BD+0°3574 were used as check stars.

The measurements yielded 587 observations with the B filter and 625 with the V filter, with each observation being the average of two consecutive ten-second integrations. Differential extinction corrections were not made to the observations. Epochs of minimum light were determined from the observations defining one primary and three secondary eclipse curves. The method of bisecting the chords connecting points of equal magnitude on the opposing branches of an eclipse curve was used to find the temporal mean. The epochs of minimum light are listed in Table I. The O-C's were determined from the ephemeris given by Binnendijk, shown above.

Table I

Hel. JD 2443600+	Min.	O-C
65.8463	II	-0 ^d .0003
66.7545	II	+0.0011
68.7951	I	+0.0015
71.7469	II	+0.0062

A least squares straight line fit to the observations between
JD 2437000 and JD 2443671 yielded the ephemeris:

$$\text{JD Hel. Min. I} = 2439639.9474 + 0^{\text{d}}.45339293 \text{ E.}$$

This period differs only slightly from that determined by Binnendijk.

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