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PHOTOMETRIC BEHAVIOR OF HR 8752 = V 509 Cas II.

The highly luminous supergiant V509 Cas is known to be moderately variable in both spectrum and magnitude. Observed spectral types have ranged from late F to K2-5 Ia (Lambert and Luck, 1978). The V magnitude range has been observed to be approximately +4.6 to +5.4 while (B-V) colors have ranged from +1.3 to +1.7 (Walker, 1983 and Luck, 1975). The star is probably binary with a B1V companion but the suggested period of 4 years (Stickland and Harmer, 1978) does not correlate with the photometric behavior which remains non-periodic and of unknown type.

V 509 Cas was observed in B and V magnitudes on 23 nights from September, 1985 to January, 1986 with the 0.6-m telescope of the Corralitos Observatory and its automated single channel photon-counting photometer and uncooled EMI 9924A photomultiplier tube. The observations utilized the same comparison stars as the previous season (reported in Paper I, Halbedel, 1985): HR 8761 (V = 6.20 ; B-V = +1.50) and HR 8778 (V = 6.43 ; B-V = +0.90). Extinction and transformations to BV magnitudes were accomplished by observations of standard stars. No changes larger than ± 0.01 magnitudes were evident in the measurements of the standard stars either night-to-night or season-to-season.

Table I

JD (2440000+)	V	(B-V)	JD (2440000+)	V	(B-V)
6329.7520	4.79	+1.24	6377.7006	4.83	+1.28
6331.7743	4.82	----	6391.6520	4.87	1.29
6333.7076	4.79	1.23	6392.6479	4.87	1.29
6334.7784	4.79	1.24	6409.6618	4.87	1.31
6335.7500	4.78	1.25	6410.5604	4.86	1.29
6347.7437	4.78	1.25	6427.5666	4.94	1.33
6350.7854	4.79	1.24	6428.5715	4.94	1.32
6351.8020	4.79	1.26	6432.5694	4.94	1.31
6352.7944	4.80	1.25	6449.5736	4.99	1.36
6353.7458	4.79	1.27	6450.5749	4.96	1.35
6357.6881	4.81	1.27	6455.5687	4.97	1.38
6376.7076	4.87	1.26			

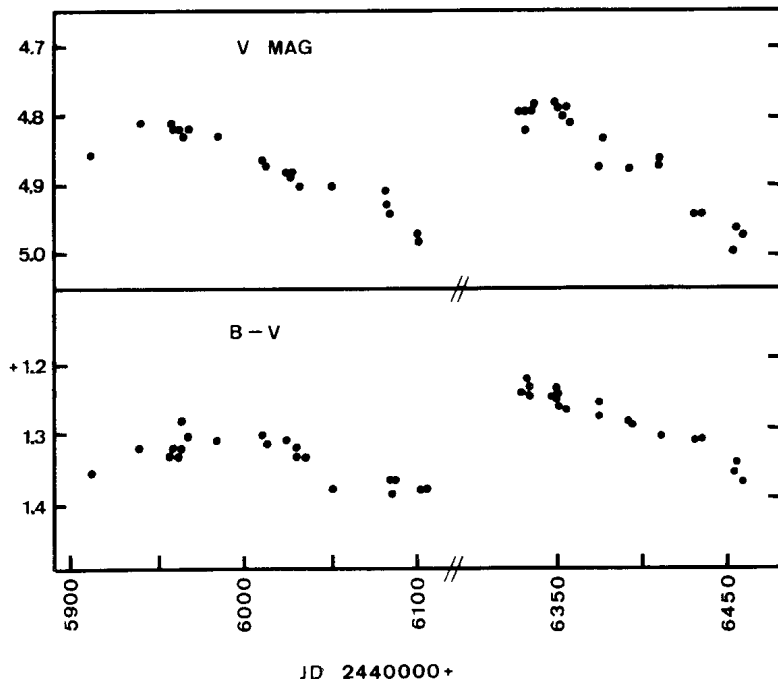


Figure 1. Variations in V and B-V magnitudes for HR 8752 = V 509 Cas

Table I shows the magnitudes obtained and Figure 1 the variations as compared to those from Paper I. It may be seen that V 509 Cas became slightly brighter and bluer in the second observing season and declined in magnitude rather more rapidly. A period of approximately a year is suggested although past photometric behavior indicates that this will not persist for very long.

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