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COMPARISON STARS FOR SOME ECLIPSING BINARIES

As part of a continuing photometric program of mostly long-period interacting eclipsing binaries, comparison and check stars have been observed for constancy. Observations were made with u,v,b,y, and I intermediate-band filters, and transformed to the standard Strömgen-Crawford and Kron systems. Most observations were made with the 1-m Prairie reflector located at the Mount Laguna Observatory. All were made with a pulse-counting photometer with refrigerated RCA 31034A-02 photomultiplier.

TABLE I

Constant Comparison and Check Stars

Binary	Comparison Star	Check Star	n
AQ Cas	+ 61° 223	+62° 229	6
RS Cep	+ 80° 156	+79° 159	12
RZ Cnc	+ 31° 1848	+31° 1857	7
KU Cyg	+ 46° 2879	1	26
RX Gem	+ 33° 1417	+33° 1421	6
AU Mon	- 01° 1413	-01° 1446	7
RZ Oph	+ 06° 3917	+06° 3918	24
DN Ori	+ 10° 973	+09° 1016	3
RW Per	+ 42° 938	+41° 844	21
RZ Sct	- 08° 4606	-08° 4605	10
RW Tau	+ 27° 628	+27° 618	3

¹ Star 'd', Popper (1964)

TABLE II

Non-Constant Stars	
Binary	Star
AQ Cas	+61° 240
RS Cep	+80° 159
RZ Cnc	+32° 1776

TABLE III

Comparison Star Colors					
Comparison to:	(V-I)	(b-y)	(v-y)	(u-b)	n
AQ Cas	0.294±0.005	0.279±0.004	0.688±0.004	1.313±0.005	1
RS Cep	-0.130±0.007	0.047±0.003	0.242±0.005	1.462±0.014	4
RZ Cnc	1.052±0.013	0.777±0.003	2.149±0.006	3.206±0.009	6
KU Cyg	1.008±0.017	0.729±0.005	1.823±0.016	2.730±0.020	5
RX Gem	-0.234± .023	0.000±0.002	0.123±0.003	0.964±0.005	3
AU Mon	-0.143±0.005	0.027±0.008	0.181±0.008	1.269±0.008	2
RZ Oph	0.520±0.006	0.415±0.004	1.034±0.005	1.700±0.008	11
DN Ori	0.014±0.010	0.095±0.017	0.396±0.012	1.629± .012	1
RW Per	0.348±0.005	0.315±0.006	0.773±0.009	1.437±0.012	3
RZ Sct	(:)	0.184±0.004	0.442±0.011	1.678±0.005	2
RW Tau	-0.067(:)	0.088±0.026	0.310±0.024	1.484±0.027	3

Those binaries whose comparison and check stars were constant at all observed wavelengths to better than 0.01 mag. are listed in Table I. The last column gives the number of nights on which comparison/check star observations were made. Table II lists other stars, close to three binaries, which are variable with amplitude > 0.01 mag.

Colors of the constant comparison stars of Table I were found for those nights on which more than a dozen standard stars were observed. These results are given in Table III. Transformation equations for (v-y) and (u-b) are (Olson, 1981):

$$(v-y) = P + I' C (cl) + RC (vy)$$

$$(u-b) = L' + J'' C (cl) + M' C (ub).$$

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