TIMES OF MINIMUM OF ECLIPSING BINARIES FROM ROTSE1 CCD DATA, II: SUSPECTED AND RECENTLY NAMED VARIABLES

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In the first part of a series of papers (Diethelm, 2001), we have reported the timings of minimum light of known eclipsing binaries extracted from ROTSE-1 (Robotic Optical Transient Search Experiment 1) survey data, as reported in Akerlof et al. (2000). The original measurements are publicly available through the internet (http://www.umich.edu/~rotse).

In Table 1 of this second paper in the series, the derived timings are presented for the suspected and recently named variables according to the New Catalogue of Suspected Variable Stars (NSV). In each case, the data have been folded into a seasonal light curve using the ROTSE1 period value or the recently published elements of variation (see remarks on individual stars below). The time of minimum was then found with the help of the Kwee–Van Woerden algorithm (Kwee and Van Woerden, 1956).

Table 1: Times of minimum of eclipsing binaries

Star	Type of min.	JD(hel,min) (days)	est. error
ROTSE1 J124337.15+384415.1 = GSC 3021.2642	p	2451305.7378	0.0007
	s	2451306.8821	0.0004
ROTSE1 J125241.77+261637.4 = GSC 1995.2249	p	2451277.8543	0.0014
	s	2451288.8720	0.0015
ROTSE1 J131759.92+300801.0 = GSC 2535.670	s	2451260.8492	0.0001
	p	2451275.7062	0.0004
ROTSE1 J134651.80+225714.7 = GSC 1999.518	p	2451260.7047	0.0007
	s	2451286.8695	0.0007
ROTSE1 J181210.81+305512.9 = GSC 2622.1151	p	2451259.8761	0.0017
ROTSE1 J184241.47+452902.9 = GSC 3527.1195	s	2451304.860	0.002
	p	2451312.864	0.002

Remarks on individual variables:

ROTSE1 J124337.15+384415.1 = NSV 5904 = GSC 3021.2642 = WR 125: Very recently, Vandenbroere et al. (2001) have reported a complete CCD light curve of this EW

type eclipsing binary. Our minima fit their elements of variation well ($O - C = -0.0030$ and -0.0028 days).

ROTSE1 J125241.77+261637.4 = NSV 19516 = GSC 1995.2249: This eclipsing binary is of the EB type ($m_\mathrm{p} = 10.74$; $m_\mathrm{s} = 10.68$). The maximum following the primary minimum is slightly brighter (10.53 mag) than the one following the secondary ($10^\mathrm{m}55$).

ROTSE1 J131759.92+300801.0 = NSV 6177 = SVS 1257 = GSC 2535.670 = LL Com: During the course of this work, we became aware of the fact, that this EB type variable has already been investigated (Frank et al., 1996) and given a official name (LL Com). The minima reported in Table 1 yield $O - C$ values of $+0.0439$ and $+0.0386$ days in respect to the elements of variation given by Frank et al. (1996), indicating the necessity of a slight correction to their period (new value: 0.4069125 days), in good agreement with the period reported by the ROTSE team. We have also used the photographic data from the paper in which the variability of SVS 1257 was announced (Kurochkin, 1959) to deduce times of minimum light. These turn out to be: JDH2434127.370(2), JDH2435540.545(2) and JDH2435929.531(5), all of which are timing of primary minima. Since we have no additional timings in the large time gap between these measurements and our current data, no refinement of the period value is possible.

ROTSE1 J134651.80+225714.7 = GSC 1999.518 = S 8090: This variable is of the EW type with deep minima ($13^\mathrm{m}1$–$13^\mathrm{m}8$) and a rather short period ($0^\mathrm{d}241168$ days)

ROTSE1 J181210.81+305512.9 = NSV 10369 = GSC 2622.1151 = S 8606: A close inspection of the ROTSE light curve made it plausible, that the value of the period has to be doubled to 1.123874 days. Although no observations around the phase of the secondary minimum are available, we are confident that this interpretation is correct. We find this variable to be an Algol type eclipsing binary with a primary minimum lasting for $D = 0^\mathrm{p}18 = 0^\mathrm{d}19$ with an amplitude of $0^\mathrm{m}65$ (12.65–13.3).

ROTSE1 J184241.47+452902.9 = NSV 11259 = GSC 3527.1195 = S 9326: This is another close binary of the EW type.

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