

# BBSAG Bulletin 18

1974 December 5

## 51<sup>th</sup> List of Minima of Eclipsing Binaries

The following table lists 145 minima obtained visually during 1974 October & November by the Observers

- RD Roger Diethelm, Wetzikon, Switzerland
- RG Robert Germann, Wald, Switzerland
- ZH Zoltàn Hevesi, Kaposvár, Hungary
- KL Kurt Locher, Grüt, Switzerland
- HP Hermann Peter, Otelfingen, Switzerland
- GZ György Zajàcz, Debrecen, Hungary

The O-C values refer to the linear elements of the GCVS 1969, disregarding improved elements in the 1971 first supplement to the GCVS. Reductions were made using the tracing paper method by RD, RG, ZH, KL, and HP.

cur- rent no.	star	minimum or- der	JD hel 244...	O-C	n	ob- ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	O-C	n	ob- ser- ver
6850	RT And	I	2339.367	-0.015	8	RG	6873	V346 Aql	I	2375.303	-0.018	8	RG
6851		I	2363.265	-0.016	10	RG	6874	SV Cam	I	2363.294	-0.031	7	RG
6852		I	2363.277	-0.004	10	HP	6875		I	2363.322	-0.003	7	KL
6853	AB And	II	2337.370	+0.018	6	RG	6876		I	2369.243	-0.012	8	RG
6854		II	2339.367	+0.025	6	RG	6877		I	2369.245	-0.011	6	KL
6855		II	2363.262	+0.023	8	RG	6878		I	2373.395	-0.012	6	KL
6856		II	2367.255	+0.034	8	RG	6879	TX CMa	I	2363.504	-0.063	7	KL
6857		II	2369.249	+0.037	6	RG	6880	RZ Cas	I	2337.340	+0.003	9	RG
6858	CN And	II	2369.352	-0.060	5	RD	6881		I	2337.341	+0.003	11	HP
6859	ADS 1693A	II	2337.389	*	6	KL	6882		I	2343.318	+0.004	10	ZH
6860	(And	I	2363.551	*	7	KL	6883		I	2343.322	+0.008	10	GZ
6861	RY Aqr	I	2366.237	-0.073	8	KL	6884		I	2355.272	+0.006	11	KL
6862	CX Aqr	I	2365.353	+0.006	6	RD	6885		I	2361.256	+0.014	7	KL
6863		I	2365.354	+0.007	6	KL	6886		I	2375.592	+0.006	7	KL
6864		I	2369.248	+0.010	10	KL	6887	TV Cas	I	2369.338	-0.011	7	RD
6865	CZ Aqr	I	2367.225	+0.015	7	KL	6888	AB Cas	I	2367.283	+0.011	7	KL
6866	DX Aqr	I	2351.268	+0.038	18	KL	6889	IV Cas	I	2365.367	+0.073	10	RD
6867	EE Aqr	I	2355.268	+0.015	13	KL	6890		I	2365.368	+0.074	10	KL
6868	XZ Aql	I	2361.242	+0.025	10	KL	6891		I	2369.356	+0.067	6	RD
6869	00 Aql	II	2337.341	-0.049	7	RG	6892		I	2369.362	+0.073	6	KL
6870		II	2339.376	-0.041	7	RG	6893	K3II 5867 Cas	II	2331.376	**	4	KL
6871		I	2354.330	-0.037	11	HP	6894		I	2334.300	**	10	KL
6872		II	2369.283	-0.035	8	RG	6895		II	2354.287	**	6	KL
							6896		I	2354.536	**	8	KL
							6897		I	2371.232	**	10	KL

\* not contained in the GCVS, O-C according to Walker's 'II' elements IDVS 855: +0.002 +0.023

\*\* not contained in the GCVS, O-C according to Häussler's elements IDVS 887: +0.005: +0.015 +0.014 +0.012 +0.017

cur- rent no.	star	minimum			ob- ser- ver
		or- der	JD hel 244...	O - C	
6898	VW Cep	II	2324.312	-0.063	6 KL
6899		II	2337.384	-0.052	7 KL
6900		II	2351.281	-0.091	12 KL
6901		II	2354.647	-0.065	5 KL
6902	EG Cep	I	2331.328	+0.010	12 KL
6903		I	2355.298	+0.018	15 KL
6904		I	2361.283	+0.012	5 KL
6905		I	2363.467	+0.018	6 KL
6906	TW Cet	I	2337.415	-0.017	9 KL
6907		II	2339.467	-0.026	10 RG
6908		I	2365.288	-0.028	6 RD
6909		I	2365.294	-0.023	10 KL
6910		II	2365.459	-0.016	6 KL
6911		II	2367.352	-0.024	11 KL
6912		II	2373.374	-0.022	10 KL
6913		I	2377.337	-0.019	6 KL
6914	VY Cet	II	2337.411	*	8 KL
6915		I	2361.432	*	11 KL
6916		II	2363.308	*	10 KL
6917		I	2363.478	*	10 KL
6918		II	2365.349	*	6 RD
6919		II	2365.358	*	9 KL
6920		I	2365.527	*	10 KL
6921		II	2367.403	*	10 KL
6922		I	2373.359	*	10 KL
6923	AA Cet	I	2361.402	**	10 KL
6924		II	2365.420	**	9 KL
6925	CC Com	I	2361.684	+0.087	10 KL
6926		I	2374.706	+0.089	14 KL
6927	K3II 725 Crb	I	2337.292	***	6 KL
6928	UW Cyg	I	2337.333	-0.018	7 KL
6929		I	2337.338	-0.013	12 HP
6930	ZZ Cyg	I	2363.309	-0.032	10 HP
6931		I	2375.253	-0.032	7 KL
6932	KR Cyg	I	2337.241	-0.032	7 KL
6933	V 456 Cyg	II	2369.226	+0.015	10 KL
6934		II	2377.246	+0.014	12 KL
6935	V 477 Cyg	I	2363.290	-0.030	7 RG
6936	TY Del	I	2354.340	-0.009	13 HP
6937	YY Del	I	2331.378	+0.012	6 KL
6938	FZ Del	I	2354.305	-0.006	9 HP
6939		I	2365.268	-0.009	6 RD
6940		I	2365.270	-0.007	6 KL
6941	RZ Dra	I	2377.315	+0.004	8 KL

cur- rent no.	star	minimum			ob- ser- ver
		or- der	JD hel 244...	O - C	
6942	AI Dra	I	2331.396	+0.024	7 KL
6943		I	2361.344	+0.001	4 KL
6944	WX Eri	I	2360.440	+0.015	9 KL
6945		I	2365.381	+0.016	10 KL
6946	YY Eri	I	2363.492	-0.011	6 KL
6947	W For	I	2363.440	+0.206	10 KL
6948	RX Hya	I	2361.653	+0.030	9 KL
6949	VZ Hya	I	2354.668	+0.009	8 KL
6950	WY Hya	II	2375.668	+0.005	6 KL
6951	SW Lac	I	2326.339	-0.065	5 KL
6952		I	2351.351	-0.070	10 KL
6953		I	2369.325	-0.057	6 RD
6954		I	2369.325	-0.057	5 KL
6955		II	2375.245	-0.071	10 RG
6956	UV Leo	I	2361.680	-0.006	10 KL
6957	AM Leo	I	2375.607	-0.025	8 KL
6958	TV Mon	I	2365.503	+0.001	10 KL
6959	DO Mon	I	2361.618	+0.132	8 KL
6960	U Oph	II	2337.285	-0.028	7 RG
6961	V 508 Oph	I	2337.311	+0.010	11 HP
6962	ER Ori	I	2354.661	-0.020	8 KL
6963	U Peg	II	2363.318	-0.008	9 HP
6964		II	2369.313	-0.010	6 RD
6965	BN Peg	I	2365.356	-0.293	10 RD
6966		I	2365.361	-0.289	10 KL
6967	RT Per	I	2376.309	-0.051	5 KL
6968	XZ Per	I	2337.417	+0.007	14 HP
6969	UV Psc	I	2365.517	+0.017	7 KL
6970	RW PsA	I	2337.298	-0.059	5 KL
6971		II	2365.242	-0.051	12 KL
6972	AY Pup	I	2367.693	+0.065	11 KL
6973		I	2375.651	+0.051	10 KL
6974	RZ Pyx	II	2374.693	+0.192	14 KL
6975		I	2375.664	+0.179	10 KL
6976	RW Tau	I	2339.466	-0.069	13 RG
6977		I	2361.616	-0.069	12 KL
6978	AM Tau	I	2365.361	-0.103	5 RD
6979		I	2365.364	-0.100	7 KL
6980		I	2367.391	-0.118	10 KL
6981	CT Tau	I	2375.615	+0.020	7 KL

\* GCVS period erroneous, O - C according to the elements of BBSAG Bulletin 11, page 5: -0.003 -0.009 -0.008 -0.008 -0.012 -0.003 -0.004 -0.002 -0.011

\*\* not contained in the GCVS, O - C according to Bloomer's (new) elements IDVS 745: -0.007 -0.010

\*\*\* not contained in the GCVS, O - C according to the elements of Цесевич and

current no.	star	minimum order	JD hel 244...	O-C	n	server	current no.	star	minimum order	JD hel 244...	O-C	n	server
6982	V Tri	I	2369.304	+0.009	6	RD	6989	UX UMA	I	2367.696	0.000	7	KL
6983		I	2369.318	+0.023	9	KL	6990	VV UMA	I	2362.635	+0.067	9	KL
6984		I	2373.408	+0.017	5	KL	6991	AH Vir	II	2374.674	+0.036	15	KL
6985	X Tri	I	2339.504	-0.033	11	RC	6992		I	2375.675	+0.019	7	KL
6986	RW Tri	I	2361.355	-0.008	6	KL	6993	BU Vul	I	2363.317	+0.006	10	HP
6987		I	2365.307	+0.002	8	KL	6994	CD Vul	I	2377.224	-0.017	10	KL
6988		I	2367.389	-0.003	4	KL							

Minimum Brightness and Duration of TV Mon

As it has formerly been shown to be the case for CU And (BDSAG Bulletin 17 page 5) V 391 Oph , photographic magnitudes of large amplitude EA binaries at minimum are often overestimated, possibly because the investigators do not cover the very minima with their exposure times distributed at random. Similar arguments as in the stated cases give for TV Mon

$$m_v \text{ min} = 14.9 \pm .2 \quad m_{pg} \text{ min} \approx 16$$

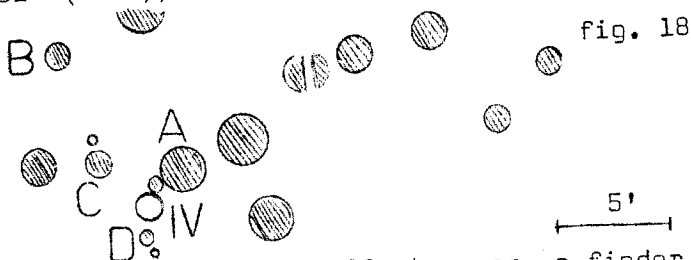
from my survey of the minimum of 1974 November 14, when I also obtained

$$d = 0$$

whereas the 1969 and 1971 issues of the GCVS give  $m_{pg} \text{ min} = 13.9$  and  $d$  unknown. K. Locher

Observations of IV Cas needed

The EA variable IV Cas ( $23^h 47^m 0^s +52^{\circ} 51'$  (1950)) has been neglected for many years, although its position as well as its amplitude make it a very suitable object for visual observing in a medium-size telescope. Since its period is only slightly less than a day (0.9985056), IV Cas is now observable nightly, especially in eastern Europe, its O-C being about +0.07 compared to the GCVS 1969 elements. Figure 18 shows as a finder chart the variable as well as the comparison stars used by the writer. We will henceforth publish more of these charts in order to complement Tsesevich's and Kazanasmas' 'Atlas of Finding Charts of Variable Stars (Moscow 1972, Izdatelstvo Nauka). R. Diethelm



An A.P.L. Computer Program for Compact Output of Ephemerides

In BDSAG Bulletin 2 (1972) p.3 a program was presented that prints out all data needed for the reduction of an observed minimum, eliminating in advance all minima unobservable because of insufficient darkness or elevation from horizon.

During the recent increase in BDSAG's activity, need arose for an additional compact and clear ephemeris quickly consultable in the frequent cases of unexpected weather clearing. In order to accelerate the execution and to make compact the output arrays, elimination of unobservable minima was omitted here.

Compactness is also guaranteed by processing together only stars, the reciprocal period of which, expressed in days, have the same integer, e.g. 5 for periods in the interval 4..4,8 hours. Being usually stopped at the end of a month-order, the program was given no internal loop exits

DEFINITION OF THE PROGRAM

▽ COMPACTOBBSAG

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[1] T←EPOCHS+RESIDUALS+PERIODS×[(STARTJD-EPOCHS+RESIDUALS)÷PERIODS
[2] JD←STARTJD
[3] CRUX←0
[4] DIGITS1←[10×1|T
[5] DIGITS2←[100×.1|T
[6] SPACE←10+0×LENGTH
[7] V←,Q(3,LENGTH)ρDIGITS1,DIGITS2,SPACE
[8] →9+4×CRUX>0
[9] JD;' '; '0123456789 '[V]
[10] T←T+PERIODS
[11] CRUX←1
[12] →4
[13] ' '; '0123456789 '[V]
[14] CRUX←CRUX+1
[15] →16+2×CRUX>([÷PERIODS[0])-1
[16] T←T+PERIODS
[17] →4
[18] TT←T+PERIODS×JD>T+PERIODS-1
[19] DIGITS3←(10×JD≤T+PERIODS-1)+(JD>T+PERIODS-1)×[10×1|TT
[20] DIGITS4←(100×JD≤T+PERIODS-1)+(JD>T+PERIODS-1)×[100×.1|TT
[21] VV←,Q(3,LENGTH)ρDIGITS3,DIGITS4,SPACE
[22] ' '; '0123456789 '[VV]
[23] T←TT+PERIODS
[24] JD←JD+1
[25] →3
[26] ▽
```

DESCRIPTION OF THE INPUT VARIABLES

and numerical example for 1974 December 1 to 3 concerning 8 short period binaries

STARTJD←42383 the Julian date to be started with  
 LENGTH←8 the number n of stars to be processed as a sample  
 EPOCHS←41645.391 27861.364 37638.82704 35593.7168 28415.339  
 24745.75 34328.452 37428.8872 the n epochs of their elements,  
 arrayed to an n-dimensional APL vector  
 PERIODS←(.340814÷2),(.3880809÷2),.17690591,(.36579912÷2),  
 (.34479163÷2),(.34193403÷2),(.360453÷2),.19667128  
 the n effective periods of their elements, similarly arrayed  
 RESIDUALS←0 0 .01 0 0 0 .06 0 their n empirical recent O-C values,  
 similarly arrayed

OUTPUT EXAMPLE corresponding

	VY Cot	AM Leo	RW PsA	UX Uma
	W Crv	V508 Gph	BY Peg	
COMPACTOBBSAG	U Gem			
42383	07 14 10 11 16 16 07 03			
	24 34 28 29 34 33 25 23			
	41 53 46 47 51 51 43 43			
	53 72 64 66 68 68 61 62			
	73 92 81 84 85 85 79 82			
	92 99 97			
42384	39 11 17 02 03 02 15 02			
	26 31 34 20 20 19 33 21			
	43 50 52 39 37 30 51 41			
	60 69 70 57 54 53 60 61			
	77 89 87 75 71 70 87 80			
	94 94 89 87			
42385	11 08 05 12 06 04 05 00			

