

BBSAG Bulletin 73

1984 September 4

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106th List of Minima of Eclipsing Binaries

The following table lists 10 photoelectric and 320 visual minima obtained mainly during 1984 July and August by the observers

MA	Maria Andrakakou, Athens, Greece
GB	Guy Boistel, Sautron, France
JBu	Jaime Busquets, Valencia, Spain
RD	Roger Diethelm, Rodersdorf, Switzerland, photoelectric B
DE	Demetrius P. Elias, Penteli, Greece
SFe	Stéphane Ferrand, Bougival, France
RG	Robert Germann, Wald, Switzerland
MKo	Michael Kohl, Uster, Switzerland
BK	Bruce Krobusek, Mayfield, Ohio USA
KL	Kurt Locher, Grüt, Switzerland
GM	George Mavrofridis, Nikea, Greece
HP	Hermann Peter, Otelfingen, Switzerland
PR	Philippe Ralincourt, Nantes, France
PRo	Philippe Rousselot, Besançon, France
GSc	Gabrielle Schneider, Gockhausen, Switzerland
NS	Nikolaos Stoikidis, Larisa, Greece
PWi	Patrick Wils, Niel, Belgium

The O-C values refer to the linear elements of the GCVS 1969, disregarding improved elements in the 1971, 1974, and 1976 supplements to the GCVS. Reductions were made mainly using the tracing paper method.

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(footnotes to page 2 :)

- * GCVS 1969 period erroneous, O-C according to the GCVS 1976 :
+.012 +.028
- ** O-C according to the GCVS would amount to one whole period, O-
according to the elements of BBSAG Bulletin 57, page 6 : -.001
.000
- *** not contained in the GCVS 1969, O-C according to the GCVS 1976
+.108 +.099
- **** not contained in the GCVS, O-C according the elements in GEOS
EB 11 : -.005
- ***** O-C according to the GCVS exceeds one period, O-C according to
Faulkner's elements IBVS 2439 : +.003
- ***** O-C according to the GCVS exceeds one period, O-C according to
the elements in BBSAG Bulletin 38, page 6 : +.004 +.006 +.014
- § § § ambiguous minimum orders due to the lack of pre-recent obser-
vations: Judged from the O-C, § should be secondary and § § § pri-
mary, but judged from the observed brightness, reversely.
- § § § not contained in the GCVS 1969, O-C according to the GCVS 1976
+.011 +.014 +.005 +.004 +.004 +.013
- (n) not disturbed according to the criteria of Crawford and Olson
PASP 91, page 413, 1979

cur- rent no.	star	or- der	minimum JD hel 244...	0-C	n	ob- ser- ver	cur- rent no.	star	or- der	minimum JD hel 244...	0-C	n	ob- ser- ver
21502	UU And	I	5911.556	+.132	11	HP	21549		I	5912.491	-.040	6	KL
21503		I	5920.472	+.130	10	KL	21550		I	5912.507	-.024	7	GM
21504	WZ And	I	5932.515	-.024	8	MKo	21551	V 417 Aql	I	5892.447	*****	7	(RD)
21505	XZ And	I	5909.449	-.060	6	KL	21552	V 479 Aql	I	5882.420	+.018	11	GM
21506		I	5913.519	-.062	7	KL	21553		I	5932.431	+.012	7	KL
21507		I	5932.524	-.059	7	MKo	21554	V 760 Aql	I	5944.340	+.019	4	KL
21508	EP And	II	5903.509	*	7	MKo	21555	V 803 Aql	II	5897.348	*****	9	KL
21509		I	5932.420	*	8	MKo	21556		II	5897.350	*****	11	MA
21510	EX And	I	5893.519	**	6	KL	21557		I	5907.477	*****	12	DE
21511		I	5906.584	**	6	KL	21558	TU Boo	I	5884.486	-.003	7	HP
21512	GZ And	I	5896.487	***	7	KL	21559		I	5885.457	-.004	8	HP
21513		II	5935.366	***	6	KL	21560		I	5886.429	-.005	7	HP
21514	LO And ^{mu}	II	5915.435	****	18	PRO	21561	ZZ Boo	II	5821.449	+.015	28	SFe
21515	AT Aqr	§	5905.417	+.053	7	KL	21562		II	5851.414	+.029	8	SFe
21516		§	5905.420	+.056	6	DE	21563	SV Cam	I	5876.674	-.009	10	BK
21517	AU Aqr	I	5892.497	-.038	6	KL	21564	XZ Cam	I	5928.425	+.081	7	KL
21518	AY Aqr	§	5919.524	-.004	5	KL	21565	RS CVn	I	5908.331	-.329	4	NS
21519	BW Aqr	I	5889.522	+.028	5	(RD)	21566	TY Cap	I	5902.327	-.108	6	KL
21520	CX Aqr	I	5902.542	+.017	6	KL	21567		I	5909.442	-.111	6	KL
21521		I	5911.437	+.012	5	MKo	21568	RZ Cas	I	5741.404	+.003	17	GB
21522		I	5916.448	+.023	6	KL	21569		I	5815.506	-.001	19	SFe
21523		I	5917.556	+.019	6	KL	21570		I	5821.483	.000	11	SFe
21524		I	5932.560	+.012	5	MKo	21571		I	5888.414	-.003	14	PRc
21525		I	5941.466	+.022	9	HP	21572		I	5888.414	-.003	7	SFe
21526		I	5945.350	+.014	7	RG	21573		I	5913.515	-.002	24	PR
21527	CZ Aqr	I	5904.508	+.006	7	KL	21574		I	5919.492	-.002	24	PR
21528		I	5904.514	+.013	7	GSc	21575	TV Cas	I	5938.342	-.037	9	DE
21529		I	5916.588	+.008	9	KL	21576	AB Cas	I	5892.452	+.007	13	HP
21530	DV Aqr	I	5914.514	+.006	12	PRO	21577		I	5903.380	.000	6	KL
21531	XZ Aql	I	5899.472	+.065	6	KL	21578		I	5933.460	+.008	9	HP
21532		I	5914.454	+.072	7	KL	21579	IR Cas	II	5941.391	-.111	6	RG
21533	FK Aql	I	5884.494	-.069	13	HP	21580	V 355 Cas	I	5898.455	-.039	6	DE
21534		I	5892.450	-.067	6	KL	21581		I	5898.458	-.036	7	KL
21535		I	5900.399	-.070	6	KL	21582	V 523 Cas	II	5882.557	§§§§	5	PW:
21536	KP Aql	I	5890.536	+.075	6	(RD)	21583		II	5887.467	§§§§	9	PW:
21537	OO Aql	II	5904.637	-.074	11	BK	21584		I	5889.445	§§§§	10	PW:
21538	V 342 Aql	I	5944.360	-.144	6	KL	21585		I	5891.547	§§§§	9	MKc
21539		I	5944.376	-.129	8	HP	21586		I	5903.465	§§§§	7	MKc
21540	V 343 Aql	I	5891.492	-.025	12	MKo	21587		I	5932.452	§§§§	6	MKc
21541		I	5915.478	-.019	7	KL	21588	U Cep (n)	I	5900.334	+.071	7	KL
21542		I	5915.485	-.012	13	HP	21589	SU Cep	I	5889.458	-.016	6	RC
21543	V 346 Aql	I	5892.435	-.020	9	HP	21590		I	5889.477	+.002	11	PW
21544		I	5933.378	-.013	6	HP	21591	WW Cep	I	5932.434	-.029	6	HF
21545	V 407 Aql	I	5897.461	+.068	10	KL	21592	WY Cep	I	5932.402	+.049	8	HF
21546		I	5942.380	+.070	6	KL	21593	BR Cep	I	5935.442	-.202	4	KL
21547	V 416 Aql	I	5896.412	-.063	7	KL	21594	EG Cep	I	5911.677	+.027	15	BK
21548		I	5912.487	-.044	6	DE	21595	GK Cep	II	5890.536	-.050	6	(RD)

* * * * * § § § § § (n) see preceding page

cur- rent no.	star	minimum or- der	JD hel 244...	0-C	n	ob- ser- ver	cur- rent no.	star	minimum or- der	JD hel 244...	0-C	n	ob- ser- ver
21596	NSV 817 Cep	I	5797.514	*	9	GM	21640	<u>neu</u> V 442 Cyg	I	5889.4547	-.0208	12	(RD)
21597		I	5798.460	*	7	GM	21641	<u>neu</u> V 453 Cyg	I	5890.563	+.019	6	(RD)
21598		I	5825.407	*	9	GM	21642	V 456 Cyg	I	5934.446	+.027	9	HP
21599		II	5888.522	*	7	KL	21643	V 616 Cyg	I	5921.317	-.195	6	KL
21600		II	5889.504	*	7	KL	21644	V 687 Cyg	I	5915.431	+.018	9	HP
21601		I	5894.443	*	10	DE	21645	V 698 Cyg	I	5944.3	.0	6	KL
21602		I	5894.448	*	10	KL	21646	V 728 Cyg	I	5900.343	+.080	6	KL
21603		II	5896.567	*	6	KL	21647		I	5935.388	+.103	11	HP
21604		I	5921.354	*	4	KL	21648	SVS 2194 Cyg	I	5883.461	****	17	DE
21605		II	5930.610	*	6	KL	21649		I	5912.498	****	10	KL
21606		II	5931.553	*	6	KL	21650		I	5912.503	****	10	DE
21607		II	5940.543	*	6	KL	21651		I	5912.507	****	7	GM
21608	TW Cet	I	5916.564	-.035	10	KL	21652		I	5941.540	****	5	KL
21609	VY Cet	II	5915.548	**	7	KL	21653	NSV 13198 Cyg	I	5892.515	*****	8	KL
21610		II	5916.558	**	10	KL	21654		I	5893.309	*****	7	KL
21611		II	5917.591	**	7	KL	21655		I	5895.546	*****	6	KL
21612	AA Cet	II	5903.592	***	12	KL	21656		I	5918.472	*****	6	KL
21613		I	5913.542	***	6	KL	21657		I	5932.497	*****	5	KL
21614		I	5914.602	***	10	KL	21658	NSV 13250 Cyg		5883.4	*****	5	KL
21615		II	5917.551	***	6	KL	21659			5897.0	*****	9	KL
21616		I	5921.577	***	7	KL	21660			5925.4	*****	6	KL
21617	RZ Com	II	5884.399	+.004	10	HP	21661			5939.9	*****	7	KL
21618	SW Cyg	I	5919.587	+.262	7	KL	21662	W Del	I	5933.432	+.151	11	HP
21619	<u>SY Cyg</u> <u>neu</u>	I	5921.370	-.188	6	KL	21663	TT Del	I	5921.484	+.076	6	KL
21620	<u>VV Cyg</u>	I	5941.532	-.004	7	KL	21664	TY Del	I	5888.444	+.038	12	HP
21621	<u>neu</u>	I	5944.479	-.011	5	KL	21665		I	5932.510	+.034	9	MKc
21622	ZZ Cyg	I	5898.637	-.050	9	BK	21666	FZ Del	I	5915.520	-.011	7	KL
21623		I	5941.396	-.037	7	HP	21667		I	5934.367	-.011	7	HP
21624	AE Cyg	I	5867.495	+.009	13	PWi	21668		I	5941.415	-.012	7	HP
21625		I	5932.440	+.019	9	HP	21669	Z Dra	I	5879.344	+.018	5	NS
21626		I	5934.378	+.018	7	RG	21670		I	5940.435	+.025	12	HP
21627	CG Cyg	I	5892.433	-.028	9	RG	21671	RR Dra	I	5893.402	+.232	7	KL
21628		I	5892.436	-.025	10	HP	21672		I	5893.405	+.235	7	DE
21629		I	5935.361	-.019	7	HP	21673		I	5944.366	+.234	11	HP
21630		I	5940.401	-.027	6	HP	21674	RZ Dra	I	5856.622	-.027	10	BK
21631	KR Cyg	I	5889.433	-.021	9	HP	21675		I	5892.429	-.027	9	RG
21632		I	5911.398	-.030	7	RG	21676		I	5892.431	-.025	6	MKc
21633		I	5933.384	-.019	8	HP	21677		I	5892.432	-.024	9	HP
21634	MR Cyg	I	5930.5551	-.0060	8	(RD)							
21635	V 370 Cyg	I	5890.550	+.051	6	KL							
21636	V 387 Cyg	I	5889.492	+.069	5	KL							
21637		I	5930.498	+.077	6	KL							
21638		I	5932.424	+.079	7	HP							
21639		I	5941.372	+.061	6	RG							

* not contained in the GCVS, 0-C according to the elements BBSAG Bulletin 63, p.6: +.144 +.144 +.147 +.156 +.193 +.169 +.175 +.166 +.136 +.175 +.172 +.181

** GCVS 1969 period erroneous, 0-C according to the GCVS 1976: -.023 -.036 -.025

*** not contained in the GCVS 1969, 0-C according to the GCVS 1974: -.047 -.017 -.029 -.029 -.023

**** not contained in the GCVS, 0-C according to Шырарсв 's elements Астрономический Циркуляр 949, 1977: +.109 +.117 +.122 +.126 +.129

***** not contained in the GCVS, 0-C according to the elements of BBSAG Bulletin 68, p.7: -.046 -.051 -.033 -.035 -.062

***** not contained in the GCVS, 0-C according to the elements of BBSAG

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	O-C	n	ob- ser- ver
21678		I	5899.581	-.037	6	RG	21714		I	5888.457	+.056	8	RC
21679		I	5903.457	-.016	6	MKo	21715		I	5888.459	+.058	7	KL
21680		II	5913.639	-.026	10	BK	21716		I	5888.468	+.067	14	HF
21681		I	5935.403	-.022	7	HP	21717	DQ Her	I	5905.560	+.009	7	KL
21682	SX Dra	I	5894.433	+.315	10	KL	21718		I	5906.528	+.009	9	KL
21683		I	5894.440	+.322	8	DE	21719		I	5906.528	+.010	21	DE
21684	TW Dra	I	5893.398	-.037	9	KL	21720	ES Her	I	5933.395	-.137	6	KL
21685		I	5893.400	-.035	10	DE	21721		I	5940.415	-.155	6	KL
21686	AI Dra	I	5919.429	+.008	31	PR	21722	GL Her	I	5887.486	+.098	6	KL
21687	NSV 11987 Dra	I	5887.472	*	10	KL	21723		I	5934.390	+.103	10	HP
21688		I	5892.370	*	11	DE	21724	MT Her	I	5897.547	+.047	6	KL
21689		I	5892.375	*	11	KL	21725	V 338 Her	I	5934.387	+.114	7	RG
21690		I	5898.505	*	8	DE	21726	V 342 Her	I	5889.495	-.005	12	PWj
21691		I	5898.505	*	9	KL	21727	VX Lac	I	5878.469	-.067	7	MKc
21692		I	5914.442	*	17	DE	21728		I	5935.400	-.085	8	HP
21693		I	5919.352	*	10	KL	21729	DG Lac	I	5888.442	+.260	11	HP
21694		I	5920.576	*	16	KL	21730		I	5941.417	+.281	8	HP
21695		I	5931.606	*	5	KL	21731	EO Lac <u>new</u>	I	5942.602	-.161	11	KL
21696		I	5941.428	*	14	KL	21732	MO Lac	I	5912.454	**	5	DE
21697	RX Her	II	5907.650	+.006	15	BK	21733	<u>new</u>	I	5912.472	**	6	KL
21698	SZ Her	I	5856.618	+.038	8	BK	21734	OO Lac	I	5934.619	***	9	KL
21699		I	5880.345	+.040	6	NS	21735	<u>new</u>	I	5936.395	***	5	KL
21700		I	5884.435	+.039	9	HP	21736	SX Lyn	I	5878.309	-.402	4	NS
21701		I	5907.341	+.039	7	NS	21737		I	5880.327	-.408	5	NS
21702		I	5911.428	+.035	7	RG	21738	RV Lyr	I	5911.519	+.065	8	HP
21703		I	5911.436	+.043	7	HP	21739	TZ Lyr	I	5885.434	+.049	12	HP
21704		I	5915.517	+.034	6	KL	21740		I	5886.482	+.039	8	HP
21705		I	5934.333	+.034	8	RG	21741		I	5898.652	+.046	10	BK
21706		I	5934.336	+.037	7	HP	21742		I	5907.640	+.044	8	BK
21707	TU Her	I	5920.404	-.059	7	KL	21743		I	5940.431	+.048	13	HP
21708	UX Her	I	5889.456	-.064	10	HP	21744	EW Lyr	I	5940.376	+.096	7	KL
21709		I	5934.369	-.068	7	HP	21745	GZ Lyr	I	5911.526	****	9	KL
21710	AK Her	I	5911.638	-.070	11	BK	21746		I	5911.528	****	10	DE
21711	CC Her	I	5848.354	+.129	6	NS	21747	U Oph	I	5892.456	+.009	7	RD
21712		I	5886.493	+.121	14	HP							
21713	CT Her	I	5856.338	+.091	6	NS							

* not contained in the GCVS, O-C according to the elements in BBSAG Bulletin 72, page 4: .000 -.014 -.009 -.019 -.019 -.046 -.048 -.052 -.074 -.076

** not contained in the GCVS 1969, O-C according to the GCVS 1974 : -.086 -.068

*** not contained in the GCVS 1969, O-C according to the GCVS 1974 : +.059 +.079

**** GEVS 1969 elements incomplete, O-C according to the GCVS 1976 : +.002 +.004

V 4 4 2 Cygni

The Duration of Totality

The 1969 edition of the GCVS gives an uncertain value for the duration of the total phase in the lightcurve of this EA binary, namely $d/p = 0.02$: $\Rightarrow d = 0.024$: . My photoelectric observations in the B band on JD 2445889 yield the following improved value:

$$d_I/p = 0.064 \pm 0.006 \quad d_I = 0.076 \pm 0.007$$

R. Diethelm

V 4 5 6 Ophiuchi

Improved Period

The period of V 456 Oph as given in the GCVS 1969, 1.015986 , has proven to be quite inaccurate. Three photoelectric minima of this star lead to the following improved elements

$$JD_{hel \ min} = 2428422.341 + 1.0159988 E \\ \pm .0000002$$

The O - C values of my observations against these elements are given as follows:

from BBSAG Bulletin 56	I	2444814.468	+.002
56	II	4842.444	.000
73	I	5892.440	.000

R. Diethelm

10th Report on Visual Survey of N S V Stars Suspected to be Eclipsing

Improvements with respect to previous reports are underlined.

N S V	Con- stel- la- tion	catalogued am- pli- tude	* type	resulting am- pli- tude	* type	number nights sur- veyed	remarks
752	Cas	1.5p	S:	0.6v	IS:	5	
817	Cep	1.0p	EA	1.1v	EB	96	see BBSAG Bulletin 63,p.5
4029	UMa	1.1p	E	1.0v	S	17	
11241	Oph	1.3p	S	0.4v	<u>DSCT:</u>	25	
11365	Lyr	1.5p	E	0.0v	<u>CST:</u>	26	
11441	Aql	1.4p	S	0.2v	<u>CST:</u>	17	
11987	Dra	1.5p	EA	<u>2.7v</u>	EA	20	see BBSAG Bulletin 72,p.4
12877	Cyg	>1	EA:	0.2v	<u>CST:</u>	6	
13198	Cyg	1.2p	S	1.0v	EA	38	see BBSAG Bulletin 68,p.7
13250	Cyg	1.5p	S	1.1v	EBor <u>DCEP</u>	85	see BBSAG Bulletin 68,p.6
13501	Aqr	0.6p	S	0.1v	S:	4	
13616	Equ	0.9p	S	0.0v	<u>CST:</u>	5	The M2 spectrum given by the NSV is probably erroneous. My visual impression is always $B-V < 1$.
14174	PsA	1.0p	EA	0.2v	<u>CST:</u>	5	
14231	Aqr	0.8p	EA	0.3v	<u>DSCT:</u>	10	

* nomenclature as NSV page 6