



BAV Circular

Heft 2 - 2019

Ephemeriden

Unterlagen für die Planung der Veränderlichenbeobachtungen, Informationen zu allen BAV-Programmen und Empfehlungen zur Beobachtung

Julianisches Datum 2019

	Jan	Feb	Mrz	Apl	Mai	Jun	Jul	Aug	Spt	Okt	Nov	Dez
2458 000 +	483	514	542	573	603	634	664	695	726	756	787	817

jeweils für den Nullten des Monats um 12 Uhr Weltzeit

Umwandlung von Julianischen Tagesbruchteilen in MEZ

JD	.00d	.10d	.20d	.30d	.40d	.50d	.60d	.70d	.80d	.90d
.00d	13 00	15 24	17 48	20 12	22 36	01 00	03 24	05 48	08 12	10 36
.01	13 14	15 38	18 02	20 26	22 50	01 14	03 38	06 02	08 26	10 50
.02	13 29	15 53	18 17	20 41	23 05	01 29	03 53	06 17	08 41	11 05
.03	13 43	16 07	18 31	20 55	23 19	01 43	04 07	06 31	08 55	11 19
.04	13 58	16 22	18 46	21 10	23 34	01 58	04 22	06 46	09 10	11 34
.05	14 12	16 36	19 00	21 24	23 48	02 12	04 36	07 00	09 24	11 48
.06	14 26	16 50	19 14	21 38	00 02	02 26	04 50	07 14	09 38	12 02
.07	14 41	17 05	19 29	21 53	00 17	02 41	05 05	07 29	09 53	12 17
.08	14 55	17 19	19 43	22 07	00 31	02 55	05 19	07 43	10 07	12 31
.09	15 10	17 34	19 58	22 22	00 46	03 10	05 34	07 58	10 22	12 46

Alle Vorhersagen (Ephemeriden) in Heft 2 sind in MEZ angegeben.

Während der Sommerzeit muss daher bei den Ephemeriden eine Stunde hinzugerechnet werden, um zur dazugehörigen Uhrzeit zu gelangen.

Inhaltsverzeichnis

- 1 **Julianisches Datum und Tagesbruchteile**
- 2 **Veränderungen gegenüber dem Vorjahr und Erläuterung der Ephemeriden-Tabelle**
- 4 **Ephemeriden für die BAV-Programme**

Bedeckungsveränderliche "Standardprogramm 2010"	S10
Bedeckungsveränderliche "Langperiodische 2010"	L10
Bedeckungsveränderliche "Erwünschte Beobachtungen"	
Selten beobachtete Sterne	E10S
Die Elemente sind unbekannt oder fraglich	E10U
Der Stern hat eine exzentrische Bahn mit Apsidendrehung	E10X
Das (B-R)-Diagramm zeigt sehr viel Dynamik	E10D
RR-Lyrae-Sterne Standardprogramm	RR
RR-Lyrae-Sterne Programm 1990	90

74 Ephemeriden für das BAV-Programm **Mirasterne**

Veränderungen gegenüber dem Vorjahr

die Prioritäten basieren auf dem Beobachtungsstand September 2018. Es wurde eine neu Rubrik für Mira-Sterne aufgenommen

Erläuterung der Ephemeriden-Tabelle

Ephemeriden für Bedeckungsveränderliche und RR-Lyrae-Sterne (ab Seite 4)

Die Tabelle ist nach Monaten gegliedert. In den Zeilen sind jeweils die Veränderlichen, in den Spalten die Tage des Monats dargestellt.
Für Bedeckungsveränderliche werden die Zeitpunkte der Minima und für RR-Lyrae-Sterne die Zeitpunkte der Maxima angegeben.

Nach dem Sternnamen wird der Kürzel für das BAV-Beobachtungsprogramm angegeben. Es folgt die Spalte "P" mit einer Beobachtungspriorität.
Vorhersagen werden angegeben, wenn die Minima bzw. Maxima nach Sonnenuntergang bzw. vor Sonnenaufgang eintreten und der Veränderliche dann eine Höhe von mindestens 20 Grad über dem Horizont hat. Die Vorhersagen wurden für einen mittleren Ort in Deutschland (10 Grad östliche Länge, 50 Grad nördliche Breite) berechnet .

In den letzten Zeilen jeder Seite wird für jeden Tag das Julianische Datum angegeben.

Priorität 1 = Der Stern wurde noch nie innerhalb der BAV beobachtet
 2 = Der Stern wurde seit über 2000 Tagen (rund 6 Jahre) nicht mehr innerhalb der BAV beobachtet
 3 = Der Stern wurde seit über 1000 Tagen (rund 3 Jahre) nicht mehr innerhalb der BAV beobachtet

Tagesbruchteile

In der Spalte des Tages sind Julianische Tagesbruchteile (TB) eingetragen, die zum Teil (bei einem Tagesbruchteil größer 46) für den folgenden bürgerlichen Tag gelten.
Damit aber alle Erscheinungen einer Nacht in einer Spalte stehen, wird so getan, als ob um Mitternacht kein bürgerlicher Datumswechsel stattfindet.
Eine Tabelle zur Umrechnung der Tagesbruchteile in MEZ befindet sich auf der Titelseite.

Impressum

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Erläuterung der Ephemeriden-Tabelle

zu Ephemeriden für Bedeckungsveränderliche und RR-Lyrae-Sterne (ab Seite 4)

Zusätzliche Kennzeichen

- +** Sind aufgrund der Kürze der Periode mehrere Erscheinungen pro Nacht sichtbar, wurde hinter die Vorhersage ein " + " gesetzt.
- s** Ein Nebenminimum wird durch "s" hinter dem Tagesbruchteil markiert.
- \ /** Bei Bedeckungsveränderlichen vom Typ Algol, bei denen die Bedeckung länger als 36 Stunden dauert, werden neben dem Zeitpunkt des Minimums weitere Angaben gemacht: Der Beginn des Abstiegs wird zeitlich angegeben, gekennzeichnet durch ein "\" hinter dem Tagesbruchteil. Während des weiteren Abstiegs wird das Zeichen "/" weiterhin angegeben. Beim Anstieg wird entsprechend mit dem Kennzeichen "/" verfahren.
- \ /** Bei Beta-Lyrae-Sternen mit einer Periode länger als 16 Tage, wird nach der Hälfte des Abstiegs zusätzlich während des gesamten weiteren Abstiegs das Zeichen "/" angegeben. Beim Anstieg wird entsprechend mit dem Kennzeichen "/" verfahren.

Beispiel an Hand eines Ausschnitt aus der Tabelle vom Januar

2010	Jan	1	2	3	4	5	15	16	17	18	19
Ari	X RR		30		25		32		27		23
Ari	RS L10				20						
Ari	AL E10				34						
Aur	TZ 90	20+	38+	55	34+	51	30+	48	26+	44	22+
Aur	CQ L10				6						00s
Aur	IY E10				50				47		
Boo	TW 90	57	63	70	76		57+	47	53	60	45+
Boo	AC E10	65	53+	59+	64s	52+	75	45+	51+	57+	
Cam	SS E10	28		70s			23+			16s	38+
Cnc	RZ L10						72\	\	34	97/	

Beispiele

Lösungen

Spalte	Angabe	Datum	MEZ	Bemerkungen
4	20	4.1.	17:48	Minimum von RS Ari
17	26+	17.1.	19:14	Maximum von TZ Aur, weitere sind in der Nacht sichtbar (+)
3	50	3.1.	01:00	Minimum von IY Aur in der Nacht vom 3. / 4.1.
4	64s	4.1.	04:22	Nebenminimum (s) von AC Boo in der Nacht vom 4. / 5.1.
15	72\	15.1.	06:17	Die Bedeckung dauert 77,9 Stunden (D = 77,9h). Der Abstieg beginnt am 15.1. um 6:17, am 16.1. dauert der Abstieg an, das Minimum ist am 17.1. um 21:10, der Anstieg endet am 18.1. um 10:50.
16	\			
17	34	17.1.	21:10	
18	97/	18.1.	10:50	

Ephemeriden für Mirasterne (auf den letzten beiden Seiten)

Kopfzeilen Unter der Abkürzung des Monatsnamens geben die Zahlen " 123 " die Dekaden des Monats an.

M Ein Maximum wird vorhergesagt

m Ein Minimum wird vorhergesagt

2019 Jan	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Cnc RZ L10	2																		47\	\	9	72/								29\	91s	
Cnc TT 90		36	49	61	74		43	56	69		38	50	63		32	45	57	70		39	52	64		34	46	59		28	41	53	66	
Cnc TU E10S	3						32					88							44					0					57			
Cnc TW L10	2																															
Cnc UU L10	2																															
Cnc ZZ L10	2																						60\	63	65/							
Cnc AQ 90	3	45	55	64	74		39	48	58	68		42	52	62	71		36	45	55	65		39	49	59	68		33	43	52	62		
CVn W 90			55	65	76		52	62	72		48	59	69		45	55	65	76						52	62	72		48	59	69		
CVn Z 90		44	75		71		67		63		59	56		52		48	44	75	40		71	36	67		63	60		56		52		
CVn RS S10	3							74					54												73s	53s						
CVn RZ 90		57	70		54		67		51	65	78	48	62	75		46	59	73					56	70			53	67		51	64	
CMa R S10	2		47				45s				43			40s				51						49s				47			44s	
CMi AM E10S		64	66	68																												
Cas RX L10	2											\	\	\	\		93	/	/	/	/								\	\		
Cas RZ S10	3	20	40	59	79			37	57	76				35	54	74				32	52	72				30	50	69				
Cas SX L10	2												3\	86	/	69/																
Cas TV S10							53	34					78	59		40	22										47	28				
Cas TW S10	3	55			41		26	69				55		40		26	69					55		40			26	69		54		
Cas TX E10S	3		24	70s			63s		56s			48s		41s		34s						27s	73		66			58		51		
Cas AQ L10	2						13\	18	24/			99\	\	4s	10/		85\	90	96/						71\	76s	82/		57\	62		
Cas BM L10	3												\																			
Cas DN E10S	3			30	46s	61	77s			24	39s	55	70s				33s	48	64s						26s	41	57s	72				
Cas GG E10S							53				29											56				32						
Cas GU E10U		46			55																					21		30				
Cas IL E10S	3						49					39							30						75					65		
Cas IT E10X					21s																			44					34			
Cas OX E10X				19s	49	68s				47	66s			45	63s				43	61s				41	59s			39	57s			
Cas PV E10X		52	44s	27	19s		77	69s	52	44s	27		77	69s	52	44s	27					77	69s	52	44s	27		69s	53	44s		
Cas V368 E10S	3		54	76s						22s		44	67s									35		57s					25			
Cas V375 E10D		56s	29	77	51s	24	72	45s	19	66	40s	61	35s	56	29s	77s	50	24s	71s	45		66s	40	61s	34	55s	29	76				
Cas V381 E10X	3			48s	42		23s				46s	40	21s		45s	38								43s	37							
Cas V459 L10	3		45				62s			91			8s											54s				83			99s	
Cep RZ 90		23+	47+	39+	32+	24+	48+	40+	33+	26+	49	42+	34+	27+	50	43+	36+	28+	21+	44+	37+	29+	22+	45+	38+	31+	23+	47+	39+	32+	24+	48
Cep VW S10		21+	32+	30+	27+	24+	22+	19+	31+	28+	25+	23+	20+	31+	29+	26+	24+	21+	32+	30+	27+	25+	22+	33+	31+	28+	26+	23+	34+	32+	29+	27+
Cep XX S10			48							49									50						51							52
Cep XY E10S							70			47		25								57			35							67		
Cep ZZ S10		50	64		78							20	35		49	63	77												34	48		
Cep AI E10S	3	26		38s		49				72													39			62		73s				
Cep CW E10X	3		57		30	58s			31s	76		49	77s		22	50s	22s	68						41	68s			41s				
JD 584 ..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																
JD 585 ..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

2019 Jan		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																													
Cep	EI	L10	3	49s				71				93s				15				37s				59				81s																																																		
Cep	EX	L10	2	1												44																88																																														
Cep	NN	E10S	35	38s	41	44s	47	50s	53	56s	58	61s	64	67s	70	73s	76																																																													
Cet	RR	RR	2	22	33					20	30					28	39					26	36					24	34					21	32																																											
Cet	RV	90	2	23	35				22	33				20	32				31				30				28																																																			
Cet	TU	E10S	2	34				73					12	51				90				29				68																																																				
Cet	TV	L10	2	67s				29	78s				39				88s				49				98s																																																					
Cet	XY	E10S	2	23s				41				19				36s				31				26s																																																						
Com	S	90	72	48	65					58	76	52	69	45	62					56	73	49	66	42	59	77	53	70	46	63																																																
Com	ST	90	3	77	57	76	56				76	56	75	55				75	55	74	54	74	53				73	53	73	52	72	52	72																																													
CrB	U	S10	67								58																																																																			
CrB	RV	90	3	68	67	67	66	66	65	65	64	64	63	63	62	62	61	61	60	60	59	59	58	58	57	57	56	56	55	55	54	54	53	53																																												
Crt	W	90	2	69					63	69					64				58				64				58				64																																															
Cyg	UY	RR	23+				28				20				25												22																																																			
Cyg	XZ	RR	35	28+	22+	62	35				28+	21+	61	35				28+	21+	61	35				28+	21+	61	55	28+	21+	61	55	28+	21+	61	28+	21+																																									
Cyg	BO	E10S	40s				27	79				30				32				20s	23s				74s																																																					
Cyg	BR	E10S	68	68s	68	68s				68	68s				68s	67	67s	67				67	67s	67	67s				67	67s	67	67s	67	67s	67	67s	67s																																									
Cyg	DM	RR	3	23				33	27				20				30	24				28				22				26																																																
Cyg	EM	K10	2	21+				24	74				19+	23				72				75	21	70				74	77	68				72																																												
Cyg	V367	L10	2	\				\	26				/	/	\				\	55s	/	/	\				\	55s	/	/	\				\																																											
Cyg	V463	E10S	22	79s				78				75s				22s				22s				21				69s				75																																														
Cyg	V477	E10X	91				94s				72s				62	33s				23	25				28s				26				77s	67																																												
Cyg	V541	L10	3	79	69s	30s				21	72s				62	33s				23	74s				65	74s				65	74\				70	65\																																										
Cyg	V548	E10S	3	82\	77	73\																																																																								
Cyg	V788	L10	3	82\				77	73\																																																																					
Cyg	V891	E10S	78	25s				37				71	75				75				75				69s																																																					
Cyg	V909	E10S	34+	79	20	23+	26+	30+	33+	78s	19s	22+	26+	29+	32+	77	59	21+	25+	28+	31+	76s	59s	20+	24+	27+	30+	75	58	61s	23+	26+	71																																													
Del	DX	90	3	23	25+				58	46	79	23+				56	45	78	22+	55	43	76	21+	53	42	75	64	52	41	74	62	51	39	72	61																																											
Dra	RW	RR	49	26+	59	48	46				79	43				75	41	73	39	71	37	69	35	67	33	65	32	64	30	62	28	60	26	58	24																																											
Dra	SU	RR	64	21+	35	49	63	20+	33	47	61	75	32	46	60	74	31	45	59	73	30	44	58	72	29	43	56	70	27	41	55	69	26																																													
Dra	SW	RR	77	20+	23+				26+				73s				59s	76	63	22+				69				72s				59s	75	62	65s																																											
Dra	TZ	E10D	72	68	64	28+	25+	21+	49	46+	42+	70	67	63	27+	24+	20+	48	45+	41+	69	66	62	58	22+	51	47	43+	40+	68	64	61	57																																													
Dra	WW	S10	2	62				25				51				77																																																														
Dra	XZ	RR	3	40	35	30+	26+	21+	64	59	54	50	45	40	36	31	26+	21+	64	60	55	50	46	41	36	31	27+	22+	65	60	56	51	46	41																																												
Dra	AI	S10	63				23				63				22				62				22				62																																																			
Dra	BF	L10	40								61								82												24s																																															
JD	584	..	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																																																													
JD	585	..													0				1				2				3				4				5				6				7				8				9				10				11				12				13				14				15			

2019 Jan			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Leo	SS	RR			76		64		52	77		65		53	78		66		54		67		55		68		56		44	69					
Leo	ST	RR				76	72		68	63	59	54	50	46			76		71	67	63	58	54	49	45		75	71	66	62	57	53			
Leo	WY	E10S			53					52					51					49				48				46							
Leo	AG	E10S				73s			42					51s					60				69s	38			47s								
Leo	AM	S10	52+	62s	53+	45+	55+		46+	56+	47+	57+	49+	58+	50+	59+	51+	42+	52+	44+	53+	45+	54+	46+	56+	47+	57+	48+	40+	49+	41+	51+	42+	52+	
Leo	FM	E10U	2		65s										74						47											57s			
Lyn	TY	E10S	3									47												46											
Lyn	CD	E10S	3	28		56s						38		66s					21s		48		76s				30s		58						
Lyr	RR	RR	3	28			68	25				22+			75				72				69	25		65	22			62		76			
Lyr	RZ	90																	67	69	72	74	76	78											
Lyr	UZ	S10		28s	22							79		73s	68														75s	70	65s				
Lyr	CN	90			75							75					68		74					68		74			67			73			
Lyr	EZ	RR		70	23+									68	21+	78							66	71	76							64			
Lyr	IO	90			19+						69				73				77			66				70			74				62		
Lyr	beta	S10	3				2							49s					96						43s						90				
Mon	UX	E10S	2			94			89s		84				79s		74			70s			65		60s		55		51s						
Mon	VV	E10S	2		59			62s		64				67s		69				72s		74			77s		79		82s					30s	
Mon	AQ	E10S	2				57				39s				48s						57s			39		48									
Mon	AR	L10	1																	27\	97\						88\	72s	57\						
Mon	AT	E10S	2	45		47		50		53		56		59																					
Mon	AV	E10S	2		20			67s			15				62s				9			57s			4		51s		99						
Mon	EZ	E10U	2	52		40s	53		41s	54		42s	55		43s	56	44s		57	32	45s	57	33	46s	34	46s	35	47s		36	48s				
Mon	IL	E10S	2				31				34				37				39				42		45		47								
Mon	V448	E10S	3		40s	51s			31	43	55			34s	46s	58s			38	50		29s		41s	53s		33	44	56		24s	36s	48s		
Mon	V530	E10U	2	55s	34+	39+	44	49	54	33+	38s	43s	48s	53s	32+	37	42	47	53	31+	36s	42s	47s	52s	31+	36	41	46	25+	30+	35s	40s	45s	24+	
Mon	V536	E10X	2				59s										33						46												
Mon	V634	E10U	3												36		47		59										27				38		
Oph	U	ST			79s															73				76											
Oph	RZ	L10	1																																
Oph	ST	90			78									79					75								75						71		
Ori	Z	E10S	2		54					74					95					15				35				56							
Ori	BM	E10S	3		37						84						31							78				26							
Ori	CP	E10S	2			6					38					71						3			35				67						
Ori	DN	L10	2				85													82												78			
Ori	EW	E10X	3	36s							29s				55		23s			49						42									
Ori	FO	L10	2														59																		
Ori	FT	E10X	3							22s	26			37s	41		52s	56													27s			31	
Ori	GG	E10X	2			29																39s													
Ori	V536	E10S	2								32			49													30						47		
JD	584	..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																	
JD	585	..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

2019 Jan			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Tri	UX	90	3	26	20			47	40	33	27	20		47	40	34	27		21		47	41		34	28	21			41	35	28	21		
UMa	W	S10		23+	23+	24+	24+	24+	24+	24+	24+	24+	24+	24+	24+	24+	25+	25+	25+	25+	25+	25+	25+	25+	25+	25+	25+	26+	26+	26+	26+	26+	26+	26+
UMa	RW	RR		60	53	47	40		74	68	62	55	49	42	36	77	70	64	57	51	45	38		72	66	59	53	47	40	34	74	68	62	55
UMa	RW	E10S		49												48s										47								
UMa	TU	RR		48	59	71			50	61	73		40	51	63	75		42	53	65	76		44	55	67	78		46	57	69		36	48	59
UMa	TX	S10																											31			38		
UMi	W	S10		70		40					50			20		61			31		71			41					51	22				62
Vir	ST	90	2		67	72			78		65			71	76				64	69				74		62			67	73				60
Vir	AG	E10D		60s	57	53s	50	78	74s	71	67s	64	60s	56	53s	49	46+	74s	71	67s	63	60s	56	53s	49	45+	74s	70	67s	63	59s	56	52s	49
Vir	AH	S10		55+	56+	58+	60	62s	64	66s	68	49+	51+	53+	55+	57+	59s	60	62s	64	46+	48+	50+	51+	53+	55+	57+	59s	61	63s	44+	46+	48+	50+
Vir	AT	90	2		60	65			70	76					59	64			69	74						58	63		68	73				
Vir	AV	90		57								77		74	71				68	65		62		59	56			53	50					
Vir	CG	E10S				77	70		64					78s	72s	65s					73	67		60				75s	68s	62s				
Vul	Z	S10	3		20																								75					
Vul	BN	90	3						23		20+			76		73																		
Vul	DR	E10X							24s												75s										75s			
Vul	EV	E10S	3				78																											
JD	584	..		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99																
JD	585	..																	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2019 Feb			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
And	SW	RR	3		27			36	25			35	23			33				31				29			27							
And	SY	L10	1																	68\	73	78/\												
And	TW	S10	3											25s		31																		
And	XX	90		34			23		40		29					35				24						30				36				
And	CD	L10	2	86/\																										32				
And	OV	90			38	32	26							38	32	26						32		26						32				
Aqr	CD	E10S	3																															
Aqr	LL	L10	2																															
Aql	V889	L10					40s							58		52s										70		64s						
Aql	V1353	E10S		71s											73					69s														
Aql	V1426	E10S		15+	33+	50s	9+	27+	44	3+	20+	38+	55s	14+	32+	49	8+	26+	43s	2+	19+	37+	54	13+	31+	48s	7+	24+	42	1+	18+			
Aql	V1430	E10S									71								70							69								
Ari	X	RR	2	35	30		26								37				33	28														
Ari	RS	L10	2			97									77											57								
Ari	AL	E10S	3									30															29							
Aur	TZ	90		47	26+	43	61	39	56	35	52	31	48	26+	44	61	40	57	36	53	31	49	27	45	62	41	58	36	54	32	50			
Aur	CQ	L10	2				90s							21					53s					84						15s				
JD	585	..		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

2019 Feb	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Cas AQ	L10	2	68/			43\	49s	54/				29\	35	40/			15\	21s	26/			1\	7	12/			87\							
Cas BM	L10	3					80																		30s	46	61s							
Cas DN	E10S	3	35	50s	66					28	43s	59	75s				37s	52	68s															
Cas GG	E10S										36																							
Cas GU	E10U	3	39		49																													
Cas IL	E10S	3					56							46														27						
Cas IT	E10X		23		38s					28s												72												
Cas OX	E10X			37	55s				35	53s				32	51s			30	48s					28	46s			26						
Cas PV	E10X		28			70s		45s	28				70s	45s	28								45s	28			70s	45s						
Cas V368	E10S	3	47s		70						38s			60								51		73s										
Cas V375	E10D		50s	24	71	45s	66	39s		60	34s	55	29s		50		23s	71s	44		65s	39		60s	34		55s	29						
Cas V381	E10X	3	41s	35					40s	33					38s									37s	30									
Cas V459	L10	3			29					45s								91s						20			37s							
Cep RZ	90		40+	33+	26+	49	42+	34+	27+	50	43+	35+	28+	51	44+	37+	29+	53	45	38+	30+	54	46	39+	32+	55	48	40+	33+	25+				
Cep VW	S10		24+	35+	33+	30+	28+	25+	22+	34+	31+	28+	26+	23+	35+	32+	29+	27+	24+	36+	33+	30+	28+	25+	37+	34+	31+	29+	26+	37+				
Cep XX	S10							54							55							56						57						
Cep XY	E10S			44			22							54														41						
Cep ZZ	S10		62		76								33	47					62								32							
Cep AI	E10S	3							29					63s			74										31s							
Cep CW	E10X	3	60		32	60s			33s				51		24		52s		25s	70				43	70s		43s							
Cep EI	L10	3		3				25s				47			69s					91					13s			35						
Cep EX	L10	2												31														75						
Cep NN	E10S		23	25s	28	31s	34	37s	40	43s	46	49s	52	55s	58	60s	63	66s	69	72s														
Cet RR	RR	2		30					27					25						23														
Cet RV	90	2			27					26					25																			
Cet TU	E10S	2		7				47			86				25					64								42						
Cet TV	L10	2		60				9s				70					19s				80				29s									
Cet XY	E10S	2							38s						34									29s										
Com S	90		39	57	74		50	67		43	61		37	54	71		47	64		40	58			34	51	68	44	62						
Com ST	90	3	51	71		51	71	50	70			50	70	49	69		49	68		48		68		48	67		47	67						
CrB U	S10				74							65						55								46								
CrB RV	90	3																						74	73	72	72							
Crt W	90	2	59				53	59						54	60						54					49	55							
Cyg UY	RR					75								72											69									
Cyg XZ	RR		61	54			28+	68	61	54				28+	68	61	54	48			74	68	61	54	47		67							
Cyg BO	E10S			25s			76s			28s												69												
Cyg BR	E10S		66		66s		66	66s		66		66s	66				66s	66		65s		65		65s		65	65s		65	65s				
Cyg DM	RR	3					24	76									73								71									
Cyg EM	K10	2	75		66		70	74				64	68	72			75	63		66		70		61			64							
JD 585	..		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	

2019 Feb	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Cyg V367 L10 2		85	/	/								15s	/	/								45	/	/										
Cyg V463 E10S													63s	69	75s																			
Cyg V477 E10X													69s				68				73s			72										
Cyg V541 L10 3		59									62s							93						96s										
Cyg V548 E10S 3		58s		28							70	60s							73	63s	53			24s				65s						
Cyg V788 L10 3																				67	62	58/												
Cyg V891 E10S													71																					
Cyg V909 E10S		71							72s							73																		
Cyg V1061 E10S									22							26					61				65									
Cyg V1918 E10D		74s	57s	60	22+	25+	70s	73	56+	59s	62	24+	69	52+	55s	58	62s	24+	68s	51+	54	57s	61	64s	67	50+	53s	56	60s					
Dra RW RR		49	38	71	59	48	37	69	58	47	35	68	57	45	34	67	55	44	32	65	54	43	64	53	41		63	51						
Dra SU RR		56	22	54	52		50	58	49			47	45	43			75	41	73	39	71	37	69	36	68	34	66	32	64					
Dra SW RR		40	54	68	25	39	53	67	24	38	52	65	36	50	64			35	49	63		34	48	62	33		47	61						
Dra TZ E10D			68	54			71s	58s	74	61			64s	50s			67	54		70s	57s	73	60				63s	49s						
Dra VZ 90		21+	50	46	42+	38+	35+	63	60	56	52	48	45	41+	37+	34+	62	58	55	51	47	44	40+	36+	32+	29+	57	53	50					
Dra WW S10 2		40									66					29								55										
Dra XZ RR 3		37	32	27+	23+	66	61	56	51	47	42	37	33	28	23+	66	61	57	52	47	43	38	33	29	71	67	62	57	53					
Dra AI S10		60					60							59							59			38	58									
Dra BF L10							3					45s						25				66s						46						
Dra BK 90		29	47	66	25	44	62	40	58			36	54	72	32	50	68	28	46	65	24	42	61		38	57		34	53					
Dra BU E10S			76	68s			59	51s	42				33s												73		65s							
Dra DD 90		46	44	42+	40+	38+	37+	35+	33+	31+	29+	27+	25+	23+	54	52	50	48	46	44	42+	40+	38+	36+	34+	32+	30+	28+	26+					
Dra EX K10 3		39+	23+	28+	32+	37+	42+	26+	31+	36+	41+	25+	30+	35+	40+	24+	29+	34+	39+	44+	28+	33+	38+	43+	27+	32+	37+	42+	26+					
Dra GV L10 2																						88												
Equ S S10																												73						
Eri SV 90 2			23					23																										
Gem U K10		24+	30+	36+	25+	31+	37+	25+	31+	38+	26+	32+	38+	27+	33+	39+	27+	34+	40+	28+	34+	41+	29+	35+	41+	30+	36+	42+	30+					
Gem RR 90		44	24+	43	23+	42	61	40	60	39	58	38	57	36	56	35	54	34	53	32	51	31	50	30	49	28	47	27	46					
Gem RY L10 2				56					21s					86							51s			16				81s						
Gem SV E10S 1				39				40					40				41				42			42				43						
Gem SZ 90		48	49	49	49	49	49	50	50	50	50	51	51	51	51	51	52	52	52	52	53	53	53	53	54	54	54	54	54					
Gem WW E10S 3		48		33s	57s		43	29s	52s			38	24s	48s			33				43s		28	52		38s								
Gem YY S10		38	60s	42s	23+	45	27+	49s	30s	52	34	56s	37s	59	41	63s	44s	26s	48	29	52s	33s	55	37	59s	40s		44	25					
Gem OW L10 2																																		
Gem V339 E10U 2			29																		57			45		33								
Her TW RR 3		62		62	62		62		61			61		61	61			61		60		60		60		60		60						
Her TX S10																									47		50s	53	56s					
Her UX E10D					67s							64		74							61s		71s		58			67						
Her VX RR 3		75	66	57			76	67	58				68	59				69	60				70	61	52			70	62					
JD 585 ..		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		

2019 Feb	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Her VZ 90				72	60		69	57				65	53		73	61			69	57		66	54			62	50							
Her AK S10		66	72s		61	67s	72		62s	67	73s		62	68s	73	57	63s	68	73s	58s	63	69s	74	58	64s	69		59s	64					
Her AR 90		66	60	54	48			76	70	64	58	52	46		75		69	63	57	51	45	39	74	68	62	56	50	44						
Her AW L10 3						1								81								61												
Her DI L10 3						38s		81								93s		36								48s	91							
Her GU E10U											58s		75										61s											
Her LV L10 2		74s			28																	72												
Her MM E10S								76s				74				72s				70			68s				66							
Hya SZ 90 2		56					40	47	55					38	46	53						37	44	52				35	43					
Hya WZ 90 2					44	51	59					43	50	58							42	49	57				41	48						
Hya AI L10 2		63s					22		92s						50					21s			79				50s							
Hya ET 90 2						38		44	49			55					35	41		46		52					32							
Lac RW L10 3		72					83s						9					20s				45					57s							
Lac SW S10		23	31s	28s	24s			32	29	25			30s	26+			30	27+				28s	24+			28	25+							
Lac UW E10S 3				11					40						69				98						27									
Lac CO E10X		23s			32s		66	40s	74			29			37		65s			74s		28s	62	37s			71	25						
Lac CZ 90		25+			27+			29+		32+				34	64			23+			26+		28+				31							
Lac V345 E10X 2			47			12s				96				62s				46				11s				95		60s						
Lac V364 E10X 3						32																												
Leo RR RR		35	70	61	51	42	32	68	59	49	40	30	66	56	47	37	28	63	54	44	35	25+	61	51	42	32	68	59	49					
Leo SS RR		57	45	70			58	46	71			59	47				60	48				61	49	37			62	50						
Leo ST RR		49	44	40			74	70	66	61	57	52	48	44	39			74	69	65	61	56	52	47	43	39	34							
Leo WY E10S			45					44					42					41				39					38							
Leo AG E10S			56					65s	35						44s					53					61s		31							
Leo AM S10		43+	53+	44+	54+	46+	37+	47+	38+	48+	40+	49+	41+	50+	42+	33+	43+	35+	44+	36+	45+	37+	47+	38+	48+	39+	31+	40+	32+					
Leo FM E10U 2									66								39										48s							
Lyn TY E10S 3						46												45																
Lyn CD E10S 3					40s		68					23		50s								33	60s											
Lyr RR RR 3				72				69				66										60	73						67					
Lyr RZ 90						61	63	65	68	70	72	74															57	59	61					
Lyr UZ S10															72		67s	61																
Lyr CN 90						67		72					66		72			60		65		71			59		65	70						
Lyr EZ RR		69	74								62	67	72									60	65	70										
Lyr IO 90						66			70			59	74			63						67			55	71		59						
Lyr beta S10 3							37s						84								31s					78								
Mon UX E10S 2			46			41s			36			31s			27			22s		17					12s		8							
Mon VV E10S 2		84				87s		89			92s			94			97s			99					2s		4							
Mon AQ E10S 2						39s									30														30s					
Mon AR L10 1									48\	33	18\																							
JD 585 ..		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		

2019 Feb			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Psc	RU	90	3		26		22	39		34		29		24			37		32		27					30		25								
Psc	SS	90	3	30		31		33		34		35		37		23		25		26		28		29		30		32								
Sge	SY	E10S	3																			71														
Ser	VY	RR		64					64					64						64					64				64							
Ser	AN	90	3			59	63	68	72								55	60		64	69	73					52		56	61	65					
Ser	BH	90	3	61				65	52		69	56		73	60			65	51		69	56		73	60	47		64	51		68	55				
Ser	EG	L10	3			71				69s					66						63s				61					58s						
Ser	LX	K10	3	62	57+	68	63	58+	53+	64	59+	54+	65	60	55+	50+	61	56+		51+	62	57+	52+	63	58+	53+	48+	59	54+	49+	60	55+				
Sex	T	90		36+	66	63	60	58	55	53	50	47	45	42	40	37	35	32+		62	59	57	54	51	49	46	44	41	38	36	33	31				
Tau	RW	S10	3		46			23												30										38						
Tau	CD	S10	3					30					45s								32s				47											
Tau	EN	E10S					27	51s				22	46s				42s						37s				33s									
Tau	V1094	L10	2	34s			46						33s										32s		44					31s						
Tri	X	S10	3	44	41	38	35	32	30	27	24																									
Tri	RU	E10S	2					32				22s									40				30s											
Tri	UX	90	3		42	35	28	22	22				42	35	29							36	29					36	29							
UMa	W	S10		26+	26+	26+	26+	27+	27+	27+	27+	27+	27+	27+	27+	27+	27+	27+		28+	28+	28+	28+	28+	28+	28+	28+	28+	28+	28+	29+	29+	29+			
UMa	RV	RR		49	42	36	30+	70	64	57	51	44	38	32	72	66	59	53		47	40	34	27+	68	61	55	49	42	36	30	70	64				
UMa	RW	E10S						47s															46								45s					
UMa	TU	RR		71		38	49	61	72		40	51	63	74	30	42	53	65			32	44	55	67		34	45	57	69		36	47				
UMa	TX	S10		44			50			56			63				69		75																	
UMi	W	S10			32			72		42					53		23				63		33			73		43								
Vir	ST	90	2		66		71			59		64		70		75	57		62		68		73	55		61		66	48	72	54					
Vir	AG	E10D		45+	41+	70	66s	63	59s	56	52s	48	45s	41+	38+	66s	62	59s		55	52s	48	44s	41+	37+	66s	62	59s	55	51s	48	44s				
Vir	AH	S10		52+	54+	56+	57	59s	41+	43+	45+	46+	48+	50+	52+	54+	56s	58		39+	41+	43+	45+	47+	49+	51+	52+	54	36+	38+	40+	41+				
Vir	AT	90	2		52	57	62	67	72						51	56	61	66		71						50	55	60	65	70						
Vir	AV	90			76		73		70		67		64		61		58		55		52		49		47		44		41	72						
Vir	CG	E10S			76	70	63	57					71s	65s	58s						73	66	60	53				68s	61s	55s						
Vul	Z	S10	3																												66					
Vul	BN	90	3			75			72			69					66											73								
Vul	DR	E10X								75s											65								66							
JD	585	..		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		
2019 Mrz			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
And	SW	RR	3	25																																
And	SY	L10	1																																	
And	XX	90									31																									
JD	585	..		44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74		

2019 Mrz	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Gem RY L10	2				46						11s				76						41s				6					71s			
Gem SV E10S	1				43					44				45			45				46												
Gem SZ 90		55	55	55	55	56	56	56	56																								
Gem WW E10S	3	33s			42			28s			38			47s		33				42s	28			37s				32s		42			
Gem YY S10		47s	29s	51	32	54s	36s	58	39		43s		47	28	50s	32s	54	35			39s		42		46s		49	31	53s	34s	38		
Gem OW L10	2																											6					
Gem V339 E10U	2																49				37												
Her TW RR	3	59		59		59		59		59		58		58		58		58		58		57		57		57		57		57	56		
Her TX S10		59	62s	65	68s	71																							39s	42	45s		
Her UX E10D								64s							61								58s		68s			55			65		
Her VX RR	3	53			71	62	54				63	54				64	55	46			65	56	47			66	57	48		67	58		
Her VZ 90		70	58	46		66	55			63	51		71	59	47		67	55	43		64	52			60	48		68	56	44	64		
Her AK S10		69s	54s	59	65s	70	54	60s	65	70s	55s	60	65s	71	55	60s	66	50	56s	61	66s	51s	56	61s	67	51	56s	62	46+	51s	57	62s	
Her AR 90		38			67	61	55	49	43	37				66	60	54	48				65		59	53	47	41	35				46		
Her AW L10	3			41									21																		81		
Her DI L10	3										3s	46									58s			1							13s		
Her GU E10U							47		64s												50		67s										
Her LV L10	2										61s				16																	59	
Her MM E10S				64s						62		60s				58						56s			54			52s				50	
Hya SZ 90	2	50					34	41	48							39	46				38	45				37	44						
Hya WZ 90	2				40	47						39	46								38	45											
Hya AI L10	2			8			79s					37				8s					66				37s			95				66s	
Hya ET 90	2	37		43		49					29		34		40		46								31	37		42					
Lac RW L10	3				82						94s																				68s		
Lac SW S10			26s	70				71s						68			69s	65s					66			67s	63s		68	64			
Lac UW E10S	3	56					85						14								43				72			1					
Lac CO E10X				34		62s					70s			59	33s	67						30			58s		67s			55			
Lac CZ 90			63			65					67		27+								61			64		66		55			57		
Lac V345 E10X	2				44			9s				93				58s						42			7s			92		57s			
Leo RR RR		40	30	66	56	47	37	28	63	54	44	35		61	52	42	33		59	49	40	30		56	47	37		54	45	35			
Leo SS RR			38	63		51		39	64		52		40			53		41				54		42		30	56		43	31	57		
Leo ST RR		69	64	60	56	51	47	42	38	34			68	64	59	55	51	46	42	37	33	29			63	59	54	50	46	41	37	32	
Leo WY E10S					37						35					34						32				31							
Leo AG E10S					40s						49					58s											45					54s	
Leo AM S10		42+	33+	43+	34+	44+	35+	45+	37+	28+	38+	29+	39+	31+	40+	32+	41+	33+	43+	34+	44+	35+	45	36+	46s	38+	47	39+	30+	40+	31+	41+	
Leo FM E10U	2							57								30										40s							
Lyn TY E10S	3			45														44												44			
Lyn CD E10S	3	43									52							35s		62						45s							
Lyr RR RR	3				63					60			57	70				54	67			51	64			47	61				58		
JD 585 ..		44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	

2019 Mrz			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Per AG	E10X	3	34	30s	37	33s	40	36s	43	39s	42s																							
Per AR	90		48	33	46	31		43	29	41		39						37		35			48	33	46	31		44				41		
Per AY	L10	3				64												42											19					
Per IQ	E10X	3			52	30s	26					49	27s					46								44							45s	
Per KN	E10U	3	36s		39	26		43s	29s			33						39					29s		32			36s		39				
Per LX	L10			84s				86				88s		90										94				96s					98	
Per beta	S10	3			39			26										30s									33							
Psc RU	90	3					27																											
Psc SS	90	3						26		27		28																						
Sge SY	E10S	3					64s																								65			
Ser VY	RR			63				63				49	63					49	63				49	63				49	63				48	
Ser AN	90	3	69					48	53	57		61	66	70						44	49		53	58	62	67				41		45		
Ser BH	90	3		72	59	46		64	50	68	55	42		59	46			63	50		67	54	41		58	45		63	49		67	54	41	
Ser EG	L10	3			56					53s					50							48s				45					42s			
Ser LX	K10	3	50+	61	56+	51+	46+	57	52+	47+	58	53+	48+	43+	54+	49+	44+	55	50+	45+	56	51+	46+	41+	52+	47+	43+	53	48+	44+	39+	50+	45+	
Sex T	90		28+	58	55	53	50	48	45	42	40	37	35	32	30	27	57	54	52	49	46	44	41	39	36	33	31				53	50	48	
Tau RW	S10	3																								30								
Tau CD	S10	3	34												37s																			
Tau EN	E10S			29s					48						44					39					35				31					
Tau V1094	L10	2		43							30s				42				29s				41						27s			40		
Tri X	S10	3											33	30	27																			
Tri RU	E10S	2						37s					28																					
Tri UX	90	3				30							30								31													
UMa W	S10		29+	29+	29+	29+	29+	29+	29+	30+		30+	30+	30+	30+	30+		30+	30+	30+	30+	30+	31+	31+	31+	31+	31+	31+	31+	31+	31+	31+		
UMa RW	RR		57	51	44	38	32	72	66	59	53	47	40	34	27	68	61	55	49	42	36	29		63	57	51	44		38	32		66	59	53
UMa RW	E10S									44												44s												43
UMa TU	RR		59	70	26	38	49	61	72	28	40	51	63		30	42	53	65		32	43	55	66		34	45	57	68		36	47	59		
UMa TX	S10																	32			39			45		51			58				64	
UMi W	S10		54					64		34					45					55					65		35						46	
Vir ST	90	2		59		65	47	70	52		58		63	45	68	51		56		61	44	67	49		54		60	42	65	47		53		
Vir AH	E10D		41+	37+	33+	62	58s	55	51s	47	44s	40	37+	33+	29+	58s	54	51s	47	44s	40	36s	33+	29+	58s	54	50s	47	43s	40	36s	32+	61	
Vir AG	S10		43+	45+	47+	49+	51+	32+	34+	36+	38+	40+	42+	44+	46+	47+	49+	31+	33+	35+	36+	38+	40+	42+	44+	46+	48	50s	31+	33+	35+	37+	39+	
Vir AT	90	2			44	49	54	59	64						42	48	53	58	63							41	47	52	57	62				
Vir AV	90		69		66		63		60		57		55		52		49		46		43			40		37	68	34	65		62		60	
Vir CG	E10S					69	63	56	50				70s	64s	58s	51s	45s					65	59	53	46				67s	60s	54s	47s	41s	
Vul Z	S10	3																																67
Vul RR	E10S	3																																61
Vul BN	90	3			67			64			61		58											68			65			62				60
Vul DR	E10X							66										66																
JD 585	..		44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	

2019 Mrz			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Vul	EV	E10S	3											69																				62	
JD	585	..		44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	
2019 Apl			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	SW	RR	3																								64								
And	SY	L10	1																													50\	55		
And	CD	L10	2								62\	\	68	/	75/																				
And	OV	90				67																61									61				
Aqr	SW	RR	2					66																							63				
Aqr	SX	90	3															64																	
Aqr	CD	E10S	3											47						31					14				98						
Aqr	LL	L10	2																																
Aql	AA	RR																					63			61					59				
Aql	V341	90	3	64										62											60										
Aql	V889	L10		0s						18				12s					30					24s						42					
Aql	V1353	E10S				54s		67				62s				57					52s		64		47			60s							
Aql	V1426	E10S		50	9+	26+	44s	2+	20+	37+	55	14+	31+	49s	8+	25+	43	1+	19+	36+	54s	13+	30+	48	6+	24+	41s	59s	18+	35+	53	12+	29+		
Aql	V1430	E10S				57s			63			56s			62				55s		61			54s				60							
Ari	RS	L10	2																																
Aur	TZ	90			40		36	53	32	49		45		41	37							50	46		42		37			47	42				
Aur	CQ	L10	2										64s				95						26s					57							
Aur	IY	E10S							48																										
Aur	V432	E10S	3					31			39																		34s						
Aur	epsil	L10	2																																
Aur	zeta	L10	1																																
Boo	RS	RR		66	42	55		43	57	32	45	59	34	47	60	36	49	62	38	51	64	40	53		41	55		43	57		45	58			
Boo	TW	90			35	42	48	55	61				34	40	47	53	60								39	45	52	58	64		37	43	50	56	
Boo	UU	90			67	58	49	41	32		61	52	43	35		63	55	46	37								60	51	43	34		62	54		
Boo	UY	90			33	63		59		54		49		45	40		35	65		61		56		51		46	42		37						
Boo	AC	E10D		48+	36+	41+	47+	35+	41+	47+	35+	41+	46+	34+	40+	46+	34+	40+	45+	34+	39+	45+	51	39+	45+	50s	38+	44+	50	38+	44+	50s	38+		
Boo	CM	90		58		41	63		45			50		33	54		37	59			42	63		46		51			55		38	60			
Boo	CQ	90	3	42	55	39+	52	37+	49	34+	47	59	44	57	41	54	39	51	36+	49	33+	46	59	43	56	41	53	38	51	35+	48	61	45		
Boo	CS	90	3	39	49	60			37	48	58			35	46	56				33	44	54	65		42	52	63		40	50	61				
Cam	SS	E10S	3		70s			11		52s		94			35s		76			17s		58	99s			40		82s			23				
Cam	SV	S10		54	43s	32+	50	39s	58s	47	36+	54s	43	32+	51s	40	59	48s	37	55	44s	33+	52	41s	59s	48	37s	56s	45	34+	52s	41	60		
Cam	AK	E10S						40	51s	62							42s	53	64s							44	55s								
Cam	AN	L10	3													39s						5													
JD	585	..		75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99							
JD	586	..																											0	1	2	3	4	5	

2019	Apr	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Leo	FM	E10U	2			49																															
Lyn	TY	E10S	3										43											43													
Lyn	CD	E10S	3			55s							37									47			43												
Lyr	RR	RR	3	54				51	65		48	61			45	58						42	55			52				49	62						
Lyr	RZ	90						45	47	49	51	54	56	58	60	63	65												39	41	43	45					
Lyr	UZ	S10								62s		57	51s	46														64s	59	53s	48						
Lyr	CN	90		61		67	49		55	61			66	49	54			60	42		48		54	59	42		47		53		59						
Lyr	EZ	RR		52	57	62	67				45		50	55	60	65							43	48	53	58	63						41				
Lyr	IO	90		64			53			57			45	61		49	65				53			42	57		46	61				50					
Lyr	beta	S10	3				61						8s							55						2s											
Mon	UX	E10S	2	50			46s		41				36s		31			26s			22		17s														
Mon	VV	E10S	2		35			37s		40			42s		45																						
Mon	AR	L10	1	50\	35s	19\								10\	80\																						
Mon	AV	E10S	2	51			99s			46			93s				41			88s																	
Mon	EZ	E10U	2					31		32			33																								
Mon	IL	E10S	2	89				92			95				97				0					2				5									
Mon	V448	E10S	3	32				35s																													
Mon	V530	E10U	2				35				35s					34																					
Mon	V536	E10X	2															34																			
Oph	U	ST		53				56					59					63	46s				50s					53s									
Oph	RZ	L10	1																																		
Oph	ST	90			66	56				61	51			66	56				62	52				57	47		62	53									
Ori	Z	E10S	2					20					40					61					81														
Ori	BM	E10S	3	96																																	
Ori	CP	E10S	2		51				83						15						47				79												
Ori	DN	L10	2				62													58																	
Ori	FO	L10	2																																		
Ori	FT	E10X	3			32																															
Ori	V1016	L10	2																																		
Peg	VV	RR					67	64																					64	62	60	57					
Peg	VW	L10	3													40																					
Peg	AV	RR	3			67		63						65	60								63	58													
Peg	AW	L10	2	86s					18				49s					80						11s								42					
Peg	BH	90	3																		65												62				
Peg	CG	90	3				65						66	59								60						61	54								
Peg	DF	L10	3						73															42													
Peg	DH	RR	2										66																								
Peg	GH	E10S	3																											61							
Peg	IP	K10	3																					64													
JD	585	..		75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99									
JD	586	..																										0	1	2	3	4	5				

2019 Apl			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Per RW	L10	2											90												10												
Per RY	E10S	3								34																											
Per AR	90			39						37			35		33										39			37					35				
Per AY	L10	3											97											75													
Per IQ	E10X	3	41								42s	39						40s	36						37s	34								35s			
Per KN	E10U	3								32			35s																								
Per LX	L10					00s							1				3s			5				7s			9										
Sge SY	E10S	3																57s																	50		
Ser VY	RR			63				48		63			48		62			48		62				48			48		62						48		
Ser AN	90	3	50	54	58	63	67							42	46	50	55	59	64						38	42	47	51	56	60							
Ser BH	90	3		58	45		62		49	36	66	53	40		57	44		61		48	35			53	39		57	44	61		48	35		52	39		
Ser EG	L10	3			40													34																	27s		
Ser LX	K10	3	40+	51+	46+	41+	52+		47+	42+	37+	48+	43+	38+	49+	44+	39+	34+		45+	40+	35+	46+	41+	36+	47+	42+	37+	48+		43+	38+	49	44+	39+		
Sex T	90			45	43	40	37	35		32					49	47	44	41		39	36		34														
Tau EN	E10S																																				
Tau V1094	L10	2					26s					38																									
UMa W	S10		32+	32+	32+	32+	32+		32+	32+	32+	32+	32+	32+	32+	33+	33+	33+	33+	33+	33+	33+	50s		50s	50s	50s	34+	34+		34+	34+	51s	51s	51s		
UMa RV	RR		46	40	34				61	55	49	42	36				63	57	51	44	38					59	53	46	40	34			61	55	48		
UMa RW	E10S																	42s																			
UMa TU	RR			38	49	61				39	51	63			41	53	64			43	55					34	45	57				36	47	59			
UMi W	S10					56						66		36										47		57									38		
Vir ST	90	2	58	40	64	46			51		57	39	62	44		50		55		37	60	42		48			53	35	59	41		46		52			
Vir AG	E10D		57s	54	50s	47	43s		39	36s	32	61	57s	54	50s	46	43s	39		36s		60	57s	53		50s	46	42s	39	35s			57s	53	49s		
Vir AH	S10		41+	42+	44+	46s	48		50s	32+	33+	35+	37+	39+	41+	43s	45	47s		48	50s	52	34+	36+		38+	39+	41	43s	45		47s	49	51s	53	54s	
Vir AT	90	2	35	40	46	51	56							34	39	45	50	55									38	43	49	54							
Vir AV	90		57		54		51			48		45		42		39		36		33	65		62			59		56			53		50		47		
Vir CG	E10S				62	55	49		42				63s	57s	50s	44s	37s				65	58	52	45		39			60s		53s	47s	40s				
Vul Z	S10	3																																	58		
Vul RR	E10S	3		58																																	
Vul BN	90	3			57				54			51								64			61				58			55					52		
Vul DR	E10X				67								53s																						54s		
Vul EV	E10S	3																56																			
JD 585	..		75	76	77	78	79		80	81	82	83	84	85	86	87	88	89		90	91	92	93	94		95	96	97	98	99							
JD 586	..																																			5	
2019 Mai			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
And SW	RR	3																																			
And SY	L10	1	60/																																		
JD 586	..		5	6	7	8	9		10	11	12	13	14	15	16	17	18	19		20	21	22	23	24		25	26	27	28	29		30	31	32	33	34	35

2019	Mai	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
And	XX	90																			58															
And	CD	L10	2												6\	\	13s	/	19/															55		
And	OV	90						61							61	55								61	55											
Aqr	SW	RR	2				60					57											59						56							
Aqr	SX	90	3							60							57								60							57				
Aqr	CD	E10S	3	82					66					50						33				17					1					85		
Aqr	LL	L10	2													67s										76										
Aql	AA	RR				57								62				60				58				56				54						
Aql	V341	90	3				59										57				61				50			55				60				
Aql	V889	L10					36s						54			49s									66			61s								
Aql	V1353	E10S		55					50s	62				45		57s						53				48s		60			43			55s		
Aql	V1426	E10S		47s	5+	23+	40+	58	17+	34+	52s	10+	28+	45	4+	22+	39+	57s	16+	33+	51	9+	27+	44s	3+	21+	38+	56	14+	32+	49s	8+	26+	43		
Aql	V1430	E10S		53s				59					58				51s					57	44		50s		56	43				49s				
Ari	RS	L10	2																																	
Aur	TZ	90		38						43		39										40														
Aur	CQ	L10	2	88s						19																										
Aur	epsil	L10	2																																	
Aur	zeta	L10	1																																	
Boo	RS	RR		47	60	36	49	62	38	51		40	53		41	55		43	56		45	58		47	60		49		38	51		39	53			
Boo	TW	90		63				35	42	48	55	61					40	47	53	60					39	45	52	58							44	
Boo	UU	90		45	37			56	48	39		59		51	42								53	45			56	47	39							
Boo	UY	90		62		58		53		48		43		39									59		55		50		45		41				57	
Boo	AC	E10D		43+	49	37+	43+	49s	37+	43+	48	36+	42+	48s	36+	42+	47	53	41+	47s	53s	41+	47	52	40+	46s	52s	40+	46	52	40+	45s	51s	39+		
Boo	CM	90		43				47		52		56			39	61		43				48			52		57		40			44				
Boo	CQ	90	3	58	43	55	40	53	37	50		47	60	45	57	42	55	39	52	37	49		47	59	44	57	41	54	39	51		49		46		
Boo	CS	90		38	48	59			36	46	57				45	55							43	53			41	51			39	49	60			
Cam	SS	E10S	3	64s			5		46s		87			28s		70			11s		52		93s			34		75s			16		58s			
Cam	SV	S10		49s	38	56	45s		53	42s	61s	49	38s	57s	46		54s	43	61	50s	39	58	47s		54	43s		51	40s	58s	47		55s	44		
Cam	AK	E10S					35	46s	57								37s	48	59s								39	50s		61						
Cam	AN	L10	3					39s				5																39s							5	
Cam	AT	E10S	3	55					43s		52	62s			41s		50			60s		39s			48		58s				46			56s		
Cnc	S	L10						68									16											64								
Cnc	RU	L10	2							5													22							39						
Cnc	RW	90					37	47											41						43											
Cnc	RZ	L10	2						69\	\	31	93/									51\	\	13s	75/						33\	95	/		57/		
Cnc	TT	90		38								39																								
Cnc	TU	E10S	3			11				67							23						79													
Cnc	TW	L10	2																																	
Cnc	UU	L10	2										15s																/	/						
JD	586	..		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		

2019 Mai	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Cnc ZZ L10	2				98\ \		0	3/																											
Cnc AQ 90	3					42											39																		
CVn W 90				38	49	59					45	56				42	52				39	49	59			45	56				42	52			
CVn Z 90			42		38						61		58		54	50		46			42		38						58		54				
CVn RS S10	3	48s																								47s									
CVn RZ 90			43	56			40	53			37	51				48					45	59			42	56		39	53						
Cas RX L10	2						\ \				11s			/ /													28		/ /						
Cas RZ S10	3					51						48					46								44				41						
Cas SX L10	2		73\ \		56 /		38/																												
Cas TV S10			53									60	41												47								54		
Cas TW S10	3	53			39							53			38											53		38					52		
Cas TX E10S	3									56s				49s		41s														58			51		
Cas AQ L10	2			34\	39		45/				20\	25s	31/				6\	12	17/						92\	98s /	3/		78\	84	89/				
Cas BM L10	3																																		
Cas DN E10S	3			47	63s						41	56s									49s						43s	58							
Cas GG E10S												56																60							
Cas GU E10U															47						57													46	
Cas IL E10S	3																																		
Cas IT E10X																55					44		59s												
Cas OX E10X		50					47					45					43	61s					41	59s				39	57s						
Cas PV E10X		55	47s					55	47s							55	47s							56	47s					56	48s				
Cas V368 E10S	3										41s													54								44			
Cas V375 E10D			38s		59			54			48				43		38				59s			53s		48s		43s		38s					
Cas V381 E10X	3															62														58					
Cas V459 L10	3					4s					33					49s					79							24				41s			
Cep RZ 90		60	52	45	37	61	53	46	39	62	55	47	40		56	48	41		57	50	42			58	51	44	60	52	45				53		
Cep VW S10		44+	41+	39+	36+	47+	45+	42+	40+	37+	48+	46+	43+	40+	38+	49	47+	44+	41+	39+	50			48+	45+	42+	40+	37+	49s	46+	43+	41+	38+	49s	
Cep XX S10									36						37															39					
Cep XY E10S												55																							
Cep ZZ S10		44		58													43				57													42	
Cep AI E10S	3															36s		48			59s														
Cep CW E10X	3					39					39s				57						58s						49			49s					
Cep EI L10	3		64s				86					8s				30										74			96s						
Cep EX L10	2																																		
Cep NN E10S						92																						37	40s	43	46s	49	52s	55	58s
Cet TU E10S	2																																		
Cet TV L10	2																																		
Com S 90		38	55			49				42	59		53			46										50		43			54				
Com ST 90	3	56		35	55		54				54			53			53									52		51			51				50
JD 586 ..		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			

2019 Mai			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
CrB	U	S10						50							41																					
CrB	RV	90	3	40	40	39	39	38	38	37	37	36	36														61	61	60	60	59	59			58	
Crt	W	90	2													36																				
Cyg	UY	RR			54				46	59				51			44		56				48	60				53				45	58			
Cyg	XZ	RR			60	53	46		40				60	53	46	40			60	53	46	40				60	53	46	39					59		
Cyg	BO	E10S						58s	45						60s	48							50						53	41s						
Cyg	BR	E10S		61		61s		61		61s	61			61s	61		61s		60		60s		50	60	60s	60		60s		60				60s		
Cyg	DM	RR	3	63		57			51	61				55	41	57	44		58				52			46	56			50		60		44		
Cyg	EM	K10	2	48		52	55		43	59	46		50	54	41	57	44		61	48		52	39	55	43	59	46	50		54	41	57		44		
Cyg	V367	L10	2			\	\		84	/	/				\	\			14s	/	/					\	\	44	/	/						
Cyg	V463	E10S												45s	51	57s														39s	45	51s		57		
Cyg	V477	E10X			49s				48			53s				52			57s				56			61s			60							
Cyg	V541	L10	3					62						65s								95							99s							
Cyg	V548	E10S	3					55	45s						57	47s			38							60	50s	40								
Cyg	V788	L10	3	44\	40	35/																						36\	32	28/						
Cyg	V891	E10S							57	47									50							52s			53		43					
Cyg	V909	E10S		48						49s																										
Cyg	V1061	E10S								40							44									48				52						
Cyg	V1918	E10D		37+	40+	43	47s	50	53s	36+	39+	42s	46	49s	52	56s	38+	42	45s	48	51s	55	37+	41+	44	47s	51	54s	57	40+	43s	46	50s	53		
Del	DX	90	3					58	53					62	56	51								60	54	49						58		52		
Dra	RW	RR		52	41	62	51		39	61	49	38		59	48	37			58	47			57	45			55	44		54	42					
Dra	SU	RR			38		36							62		61	59			57		55		53		51	49		47		46			44		
Dra	SW	RR			41	55			40	54			38	52		37	51					50				49			47					46		
Dra	TZ	E10D			58s	45s	61		48		51s	37s		54	41	57s			44s		60	47				50s	37s	53	40		56s	43s		59		
Dra	VZ	90		45	42	38	63		59	55	51	48	44	40	37	61	58		54	50	47	43	39			60	56	53	49	45	42	38				
Dra	WW	S10	2																								52									
Dra	XZ	RR	3	47	42	37				61	57	52		47	43	38						57	53	48	43	39					58	53		49		
Dra	AI	S10			52					51																			49							
Dra	BF	L10							72											93											14					
Dra	BK	90			47				43	62	39	58				54			50			46				42	60	38	56		52					
Dra	BU	E10S								56s	47			39s																			53s			
Dra	DD	90		35		62	60		58	56	54	52	50	48	46	44	42	40	38						61	59	57	55	53	51	49	47	46	44	42	
Dra	EX	K10	3	40+	45	50	55	39+	44	49	54	38+	43	48	53	37+	42	47	51	56	40+	45	50	55	39+	44	49	54	38+	43	48	53	58	42		
Dra	GV	L10	2				44																								29					
Equ	S	S10			58																															
Gem	U	K10		40		41					36				37		37																			
Gem	RR	90				42	41		40		38			37		36																				
Gem	RY	L10	2			91s					56																									
Gem	YY	S10			36s	39			43s							39s																				
JD	586	..		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		

2019 Mai		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Gem	OW	L10	2																																	
Her	TW	RR	3		53		53		53		53		52		52		52		52		51		51		51		51		51		50					
Her	TX	S10		35s	38	41s	44	47s	50	53s	56	59s	62																							
Her	UX	E10D		63	40s		50s				60s	37		47			57				44s		54s				41			51						
Her	VX	RR	3	54	46	37			55	46	37			56	47	38		57	48	39			58	49	40		59	50	41				60			
Her	VZ	90		47	35		55	43			51	39		60	48	36		56			44		52	40		60	48			57	45		53	41		
Her	AK	S10		39+	45	50s	56	40+	45s	51	56s	40+	46	51s	56	41+	46s	51	57s	41s	47	52s	57		42	47s	52	37+	42s		47	53s	58	42	48s	53
Her	AR	90		48	42	36				59	53	47	41				58		52	46	40					57	51	45		39					56	
Her	AW	L10	3				1							81									61											42		
Her	DI	L10	3			21								33s		76							88s		31											
Her	GU	E10U									44s	62											47s													
Her	LV	L10	2							46																90										
Hya	SZ	90	2			36																														
Hya	AI	L10	2			81s																														
Lac	RW	L10	3					4						16s				41					53s				78							90s		
Lac	SW	S10		55s		60	56		52	61s	57s	53s		62	58	54	50		59s	55s	51s	47s	60	56	52	48	61s	57s	53s	49s	45s	58		54		
Lac	UW	E10S	3			5					34					63						92			21								50			
Lac	CO	E10X			48		57				39s				48s		56s					45		53						44s						
Lac	CZ	90			55		57		43	59	46			62	48		51					53	40		56	42		58	45		47				49	
Lac	V345	E10X	2			37			3s			87				52s						36		1s		85			50s							
Lac	V364	E10X	3			54										62s															59					
Leo	RR	RR		47	38				45					42				40				47	38			45								42		
Leo	SS	RR				39				40					41					42						43										
Leo	ST	RR		39	35						52	47		43	39									47	42	38										
Leo	AG	E10S				47s																	43s													
Leo	AM	S10		50s	42		43s	35	44	36s	46s	37	47	38s	48s	39	41s		42		43s		44		45s	37	38s		39		40s					
Leo	FM	E10U	2	40																																
Lyn	TY	E10S	3																							42										
Lyn	CD	E10S	3						39s																										41	
Lyr	RR	RR	3	45	59			42	56		39	52			36	49							46	59		43	56	40	53						50	
Lyr	RZ	90		47	50	52	54	56	59	61													37	39		41	44	46	48	50		53	55	57	59	
Lyr	UZ	S10														61		56s	50	45s	39															
Lyr	CN	90		41		47		52		58	40		46		52		57	40	45		51		57	39		45		50		56	38				44	
Lyr	EZ	RR		46	51	56	61					39		44	49	54	59						37		42	47	52	57							40	
Lyr	IO	90			39	54				43	58			47	62		50						39	54			43	58							51	
Lyr	beta	S10	3	49						96s						43							90s						37							
Mon	UX	E10S	2																																	
Mon	VV	E10S	2																																	
Mon	AR	L10	1																																	
JD	586	..		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35		

2019	Mai	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Mon	AV	E10S	2																																
Mon	IL	E10S	2																																
Oph	U	ST			56s				59s	43			46					50						53	37s				56	40s					
Oph	RZ	L10	1																																
Oph	ST	90		58	48				53	43			59	49				54	44			59	49	39		55	45		60	50	40				
Ori	Z	E10S	2																																
Ori	BM	E10S	3																																
Ori	CP	E10S	2																																
Ori	DN	L10	2																																
Ori	FO	L10	2																																
Ori	V1016	L10	2																																
Peg	U	S10	3															60				59			59			59					59		
Peg	VV	RR																	60				58	55	53	51			55						
Peg	VW	L10	3					48																											
Peg	AV	RR	3	61		56						59		54								57				52		59		55		50			
Peg	AW	L10	2			73s					4						35s					67				98s							29		
Peg	BH	90	3						59									57								54									
Peg	CG	90	3			62	55						62	56	49													57	51						
Peg	DF	L10	3						12																										
Peg	DH	RR	2		62																							57	59	61					
Peg	GH	E10S	3					56s																										56s	
Peg	IP	K10	3		61			62		62								58			59				59		60	55					56		
Per	RW	L10	2																																
Per	AY	L10	3			52											30															8			
Per	LX	L10											17			19s																24		26s	
Psc	RU	90	3																														60		
Sge	SY	E10S	3						58																	50s								58s	
Ser	VY	RR		62			48		62			47		62			47									61		47						47	
Ser	AN	90	3				39	43	47	52	56	61						39	44	48	53	57									40	45	49	53	
Ser	BH	90	3		56	43		60	47			52	38				60	47								55	42		59	46			51		
Ser	EG	L10	3			24				21s						19												13					11s		
Ser	LX	K10	3	50	45+	40+	35+	46+	41+	36+	47	42+	37+	48	43+	38+	49	44+	39+	50	45+	40+	51	46	41+	52	47	42+	37+	48	43+	38+	49	44+	
Sex	T	90										42		39	36																				
Tau	V1094	L10	2																																
Tri	UX	90	3																																
UMa	W	S10		51s	51s	51s	51s	35+	51s	51s	52s	52s	52s	52s	52s	52s	52s	52s	52s	52s	52s	53s	53s	53s	53s	53s	53s	53s	53s	53s	54s	54s			
UMa	RV	RR		42	36			63	57	51	44	38					46	40							61	55	48	42				57	50	44	38
UMa	RW	E10S				40s											40																		39s
UMa	TU	RR		37	49				39	51				41	53				43	55								45						47	
JD	586	..		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	

2019 Mai		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
UMa	TX	S10						40				46			53			59																
UMi	W	S10		48					58						39					49					59									
Vir	ST	90	2	57	39	45		50	55	38			43	48	54					41	47		52			40		45	51					
Vir	AG	E10D		46	42s	39	35s		53	49s	45		42s	38						52	49s	45	42s	38					48s	45	41s	38		
Vir	AH	S10		36+	38	40s	42	43s	45	47s	49	51s	53		36s	38	40s	42	44s	46	48s	49	51s		37s	39	40s		42	44s	46	48s		
Vir	AT	90	2	37	42	48	53						36	41	47								40	45										
Vir	AV	90		44	41			38										55	52				49	46	43			40						
Vir	CG	E10S		61	55	48	42				56s		50s	43s	37s				58	51	45	38			59s	53s		46s	40s					
Vul	Z	S10	3	49																					59							50		
Vul	BN	90	3	49		46			43	62			59		56				53		50			47				44		41	60			
Vul	DR	E10X						54s							54s			43							55s	44								
Vul	EV	E10S	3	49											60				42															
JD	586	..	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
2019 Jun																																		
And	SW	RR	3	56				54				52	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	SY	L10	1	41\	46	51/																												
And	TW	S10	3	57s																														
And	XX	90		59						54					60			49					55									50		
And	CD	L10	2															50\	\	57	/	64/												
And	OV	90		49						55	49							55	49					55	49			43						
Aqr	SW	RR	2	53					58	50				56	47					53					58	50						55		
Aqr	SX	90	3					53	60					49	56						46		53	60					49	56				
Aqr	CD	E10S	3			68						52				36						20			4							87		
Aqr	HH	90	2									57				59																53		
Aqr	LL	L10	2			85s										94									2s									
Aql	AA	RR		52	60		50	58		48	56			46	54					52				50	59			48	57			46		
Aql	V341	90	3	49				53			58			47					52				56		45				50					
Aql	V889	L10		79				73s							91				85s						3							97s		
Aql	V1353	E10S			38s	50					45s		58		41				53s					48	60s				43s	55				
Aql	V1426	E10S		2+	19+	37+	55s	13+	31+	48	7+	25+	42s	1+	18+	36+	53	12+	30+	47s	6+	23+	41+	58	17+	35+	52s	11+	29+	46	5+	22+	40+	
Aql	V1430	E10S		55	42		48s		54	41			60s	47s		53		40		59s	46s			52	39		58s	45s		51	38			
Ari	RS	L10	2															1							82									
Aur	CQ	L10	2																															
Aur	epsil	L10	2																															
Aur	zeta	L10	1																															
Boo	RS	RR		41	54	43	56	45	58	47			60	49				51	39	53			41	54	43	56		45				47		
JD	586	..	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	

2019 Jun			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Boo	TW	90		50	56						42	48	55						40	47	53	60				39	45	52	58							
Boo	UY	90		52	44				55	46	38			58	49	40			60	52	43				54	46				57	48	40				
Boo	UY	90			52		47		42		38								49		44		40													
Boo	AC	E10D		45	51	39+	45s	50s	38+	44	50	38+	44s	49s	38+	43	49	55	43+	49s	54s	42+	48	54	42+	48s	53s	42+	47	53	41+	47s	53s			
Boo	CM	90		49			53			58		41			45			50			54					41		46				50				
Boo	CQ	90	3	59	43	56	41	53	38	51		48		45	58	43	55	40	53		50	47			45		42	39	52			49				
Boo	CS	90				47	58				45	56				43	54				42	52				40	50				38	48				
Cam	SS	E10S	3	99			40s		81			22s		63			4s		46		87s		28		69s			10		51s		92				
Cam	SV	S10			51s	40	59	48s		56	45s		52	41s	60s	49	38s	56s	45		53s	42	60	49s	38	57	46s		53	42s		50	39s			
Cam	AK	E10S				41s	52									43	54s									45s	56									
Cam	AN	L10	3																39s					5												
Cam	AT	E10S	3					44		54s					42		52s				40			50s		59			38		47s		57			
Cnc	S	L10																																		
Cnc	RU	L10	2																																	
Cnc	RW	90			38						40																									
Cnc	RZ	L10	2								15\	77s	/	40/																						
Cnc	TU	E10S	3																																	
Cnc	TW	L10	2																																	
Cnc	UU	L10	2																																	
Cnc	ZZ	L10	2																																	
CVn	W	90					39	49	59			46		56			42		52			39		49	59				46	56						
CVn	Z	90		50		46		43		39							58		54		50	47			43		39									
CVn	RS	S10	3						47												46s												46			
CVn	RZ	90		50				47				44	58			42	55				39	52			50				47				44			
Cas	PX	L10	2							\	\			45s		/	/								\	\				62						
Cas	RZ	S10	3				39	58						56							54					51							49			
Cas	SX	L10	2							29\	\	12		95/																						
Cas	TV	S10									60			41								47											54			
Cas	TW	S10	3			38						52				38						52				38								52		
Cas	TX	E10S	3				44														53s				46s		39s									
Cas	AQ	L10	2		64\	70s	75/			50\	56	61/			36\	42s			47/			22\		28	33/				8\	14s	19/					
Cas	BM	L10	3																																	
Cas	DN	E10S	3		52						45	60s							38	54s						47s										
Cas	GG	E10S														39																	43			
Cas	GU	E10U														41				50		59														
Cas	IT	E10X																							51				41		56s					
Cas	OX	E10X		55s					52s					50s					48s					46s					44s							
Cas	PV	E10X					56		48s						56	48s						56	48s						57	48s						
Cas	V368	E10S	3										57s									48s									38s		60			
JD	586	..		36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66		

2019 Jun			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Dra	TZ	E10D		46			49s		52	39		55s	42s	58	45				48s		51	38		54s	41s		57	44		60s	47s					
Dra	VZ	90		59	55	52	48	44	41				58	54	50	47	43	39		60	57	53	49	46	42	38			59	55	52	48				
Dra	WW	S10	2						41																						56					
Dra	XZ	RR	3	44	39					59	54	49	44	40						59	54	50	45	40						60	55	50				
Dra	AI	S10		49						48											47															
Dra	BF	L10				56s					36											57														
Dra	BK	90		48			44		40	59			55		51				47						39	57			53				49			
Dra	BU	E10S		44																				50s	41											
Dra	DD	90		40	38					59	57	55	53	51	49	47	45		43	41	39				60	58	56	54	52	50	48					
Dra	EX	K10	3	47	52	57	41	46	51	56	40	45	50	55	39+	44	49	54	38+	43	48	52	57	41	46	51	56	40	45	50	55	39+	44			
Dra	GV	L10	2																					15												
Equ	S	S10		50																						55										
Gem	RY	L10	2																																	
Gem	OW	L10	2																																	
Her	TW	RR	3	50		50		50		50	49			49	49	49				49	48			48	48	48			48	48		47				
Her	TX	S10							40	43s	46	49s	52	55s	58																					
Her	UX	E10D			38s			48s			58s				45		55					42s				52s			39				49			
Her	VX	RR	3	51	42				52	43				53	44				54	45					54	46			55	46	38					
Her	VZ	90			49				57	46		54	42			50	38			58	46				55	43		51	39		59	47				
Her	AK	S10		38+	43s	48	54s	38+	43	49s	54	38+	44s	49	55s	39+	44	50s	55	39+	45s	50	55s	40s	45	51s	56	40	46s	51	56s	41s	46			
Her	AR	90		50	44	38					55	49	43				60		54	48	42					59	53	47	41							
Her	AW	L10	3							22																			82							
Her	DI	L10	3	43s		86								98s		41										53s	96									
Her	GU	E10U				50s														53s									39		56s					
Her	LV	L10	2												33																					
Hya	AI	L10	2																																	
Lac	RW	L10	3						15					27s											64s				89							
Lac	SW	S10		50	46	59s	55s	51s	47s	44+	56	52	48	44+	57s	53s	49s	45s	42+	42+	54	50	46	42+	39+	51s	47s	43+	40+	52	48	44+	40+	53s		
Lac	UW	E10S	3			79						8																		95						
Lac	CO	E10X		52s			41			50				58											57s	38				54						
Lac	CZ	90			52	38			54	41		57	43		59	46			48			50				53	39	55	42		58	44				
Lac	V345	E10X	2		34		99s				83				49s					33		98s						82		47s						
Leo	RR	RR				40					38																									
Leo	ST	RR			42										41																					
Leo	AG	E10S							39s																											
Leo	AM	S10		41		43s						38s			39																					
Lyn	TY	E10S	3		41												41																			
Lyr	RR	RR	3			47	60				43	57			40	54					50					47		44	57				41	54		
Lyr	RZ	90													40	42	44	46			51	53	55	58	60											
JD	586	..		36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66		

2019 Jun			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Lyr	UZ	S10		58s	52	47s	41													60s	54				49s	44	38s									
Lyr	CN	90		50	55	38			43	49				55				43		48	54	60			42	48	54			59	41	47				
Lyr	EZ	RR	45	50	55								38	43	48	53	59								41	46	51	57								
Lyr	IO	90		40	55				44	59			48					52			40	56			44	59	48					52				
Lyr	beta	S10	3	84s						31									78s							25					72s					
Mon	UX	E10S	2																																	
Mon	VV	E10S	2																																	
Mon	AR	L10	1																																	
Mon	AV	E10S	2																																	
Mon	IL	E10S	2																																	
Oph	U	ST			59	43s				46s						49s					53s					56s	40							43		
Oph	RZ	L10	1																																	
Oph	ST	90			55	45				51	41					56	46				51	42				57	47			52	42			58		
Ori	Z	E10S	2																																	
Ori	BM	E10S	3																																	
Ori	CP	E10S	2																																	
Ori	DN	L10	2																																	
Ori	FO	L10	2																																	
Ori	V1016	L10	2																																	
Peg	U	S10	3		59				59		58				58		58				58	52s			58	51s	57	51s		57	51s			57		
Peg	VV	RR								60	58	55	53	51	48	46	44																			
Peg	VW	L10	3														62																			
Peg	AV	RR	3			57			53	48		43	60	55	50	46	41	58							53	48			43	39	56					
Peg	AW	L10	2			60s				91					22s												84s									
Peg	BH	90	3	59	52					57			49								54				46				59	51	44					
Peg	CG	90	3	58	51	45				59	52	45								59	53	46	39			60	53	47		40						
Peg	DF	L10	3			52																	22													
Peg	DH	RR	2	53	55	58	60						50	52	54	56	59									46	48	51	53	55	57	59				
Peg	GH	E10S	3						51								45s								57s										51	
Peg	IP	K10	3	56		57			57	52		58	53	58	53	59	54	49	60	55	50	60	55	50	50	60	55	50		56	51	46	56	51		
Per	RW	L10	2											89																				9		
Per	RY	E10S	3										55s																							
Per	AR	90												59																						
Per	AY	L10	3						85													63														
Per	IQ	E10X	3																												59					
Per	KN	E10U	3																						57		60s									
Per	LX	L10			28					30s			32			34s								36			38s				40					
Psc	RU	90	3						58				60			56											58	53								
Psc	RY	90	2																								60									
JD	586	..		36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60		61	62	63	64	65	66	

2019 Jun			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Psc	SS	90	3																		57	59				60											
Sge	SY	E10S	3							43				51												59											
Ser	VY	RR				47					47						46				46						46										
Ser	AN	90	3	58							41	45			50	54	59									42	46	51	55								
Ser	BH	90	3	55	42		59	46			50				54	41		58	45			49				54	41			45			49				
Ser	EG	L10	3		8					5s						3					0s					98					95s						
Ser	LX	K10	3	39+	50	45	40+	51	46	41+	52	47	42+		53	48	43+	38+	49	44+	39+	50	45	40+		51	46	41+	52	47	43+	38+	48	44	39+		
Tau	V1094	L10	2																																		
Tri	X	S10	3												59																						
Tri	RU	E10S	2																												52s						
Tri	UX	90	3																56							56								56			
UMa	W	S10		54s	54s	54s	54s	54s	54s	38+	38+	38+	38+	38+	38+	38+	38	38	38	38	39	39	39		39	39	39	39	39	39	39	39	40	40			
UMa	RV	RR					59	53	46	40					55	48	42					57	50		44	38				59	52	46	40				
UMa	RW	E10S																																			
UMa	TU	RR				39	51				41						43					45															
UMa	TX	S10																										41					48				
UMi	W	S10		40					50												41						51										
Vir	ST	90	2	38		44	49					42			47						40	46					39			44							
Vir	AG	E10D							45	41s									44	41s								40s									
Vir	AH	S10				39	41s		43	45s	46								39	41s	43							38s		40	41s						
Vir	AT	90	2		39	44									38																						
Vir	AV	90														48	45				42	40															
Vir	CG	E10S		54	48	41					56s	49s	43s							51	44	38					52s	46s	39s								
Vul	Z	S10	3				41																			59				50							
Vul	RR	E10S	3																		42						47			52							
Vul	BN	90	3	39	57			54		51					49		46			43		40				59		56		53		50					
Vul	DR	E10X			55s	44									55s	44								56s		45				56s	45						
Vul	EV	E10S	3	53																	46																
JD	586	..		36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55		56	57	58	59	60	61	62	63	64	65	66		
2019 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
And	SW	RR	3			52				50			60	48		58	46				56	44				54	42			52	40	62	50	38			
And	SY	L10	1							32\	37	41\																									
And	TW	S10	3		43s	49			55s																												
And	XX	90					56			45						51						57				46				52		41				58	
And	CD	L10	2																				95\			\	1s	/	8\								
And	OV	90			55	49	43				55				49	43					61	55	49	43		37		61		55	49	43	37				
JD	586	..		66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85		86	87	88	89	90	91	92	93	94	95	96		

2019 Jul		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Aqr	SW	RR	2	47			60	52	44				57	49	41			54	46	38			60	52	43				57	49	40			
Aqr	SX	90	3				46	53	60					42	49	56				39	46	53	60				42	49	56					
Aqr	CD	E10S	3			71					55				39					22				6				90						
Aqr	HH	90	2			55				57			59			61				48			50				52			55				
Aqr	LL	L10	2				11									20s									29									
Aql	AA	RR	2	55			44	52		42	50	59		40	48	57		38	46	55			44	53	61	42	51	59	40	49	57			
Aql	V341	90	3		54		43	59		48				37	53			42	57		46				51		40	56			45			
Aql	V889	L10						15			9s						58s			27			21s					39						
Aql	V1353	E10S			38		51s			46						41s		53					48s	61			44	56s			39s			
Aql	V1426	E10S		57s	16+	34+	51	10+	27+	45s	4+	21+	39+	56	15+	33+	50s	9+	26+	44	3+	20+	38+	55s	14+	31+	49	8+	25+	43s	1+	19+	37+	54
Aql	V1430	E10S			57s	44s		50			56s	43s		61	49			55s	42s		60	48			54s	41s	59	47			53s	40s		
Ari	X	RR	2																				61											
Ari	RS	L10	2				62							42									23										3	
Aur	CQ	L10	2																							86s							18	
Aur	epsilon	L10	2																															
Aur	zeta	L10	1																															
Boo	RS	RR				49		51		39	52		41			43		45			47			49		37			39			41		
Boo	TW	90				44	50	57					42	49	55							40	47	53				39	45	52				
Boo	UU	90				60	51	42			54	45					56	48	39						53	44	36			47	38			
Boo	UY	90				46	41											43			38													
Boo	AC	E10D		41+	47	52	40+	46s	52s	40+	46	51	40+	45s	51s	39+	45	51	39+	44s	50s	38+	44	50	38+	44s	49s	37+	43	49	37+	43s	48s	37+
Boo	CM	90					38			42		47									39			43										
Boo	CQ	90	3	47		44	41		39			49		46	43			41		38					45	43		40		37				
Boo	CS	90					46				44					42					40				39				37					
Cam	SS	E10S	3			34s	75			16s	57			98s		39		80s			22			63s		4		45s		86				
Cam	SV	S10		57s	46		54s	43		51s	40	58	47s		55	44s	51		40s	59s	48	37s	55s	44		52s	41	59	48s	37	56	45s	52	
Cam	AK	E10S				47	58s							38	49s	60									40s	51	62s							
Cam	AN	L10	3						39s					4															39s					
Cam	AT	E10S	3				45s		55					43s		53					41s		51		60s		39s		49		58s			
Cnc	S	L10																																
Cnc	RU	L10	2																															
Cnc	RZ	L10	2																															
Cnc	TU	E10S	3																															
Cnc	TW	L10	2																															
Cnc	UU	L10	2																															
Cnc	ZZ	L10	2																															
CVn	W	90		42	53			39	49					46								42	53			39	49			46				
CVn	Z	90					51		47		43		39													47		43	40		36			
CVn	RS	S10	3											45s												44								
JD	586	..		66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96

2019 Jul	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
CVn RZ 90					41			38				49					46					43			41				38					
Cas RX L10 2	/											79s					/	/							\	\		96						
Cas RZ S10 3					46							44					42	61					39	59					37	57				
Cas SX L10 2														86\	\		69	/	52/															
Cas TV S10								60		41										48								54						
Cas TW S10 3			38								52		37									52		37							51			
Cas TX E10S 3								56				49		41													58s			51s				
Cas AQ L10 2	95\ 0 / 5/						81\ 86s 91/						67\ 72 77/								53\ 58s	64/			39\	44	50/				25\			
Cas BM L10 3																													\					
Cas DN E10S 3	40s 56									49							42	58s						36	51s							45s		
Cas GG E10S														46															50					
Cas GU E10U																		43				53		62										
Cas IL E10S 3	53								43																									
Cas IT E10X	45s																											58				48		
Cas OX E10X	42s						40s					38s																62						
Cas PV E10X			57	49s						57	49s						57	49s						57	49s							57		
Cas V368 E10S 3									51									41											54s					
Cas V375 E10D		53			47			42				37	58s				52s			47s			42s		37s		58			52				
Cas V381 E10X 3	56s 50							55s 49								53s	47						52s 45						50s 44					
Cas V459 L10 3			24s				53					70s				99					16s				45			62s						
Cep RZ 90	40	56	48	41			57	49	42			58	51	43	59		52	44	37	61	53	46	38	62	54	47	40	56	48	41				
Cep VW S10	39+	50s	47	45+	42+	40+	51s	48	46+	43+	41+	38+	49	47+	44+		42+	39+	50	48s	45+	43+	40+	37+	49s	46+	43+	41+	38+	36+	47+	44+		
Cep XX S10		45							46															49						50				
Cep XY E10S												59														46								
Cep ZZ S10		55													40			54													39			
Cep AI E10S 3										40				52s															42s			53		
Cep CW E10X 3				43				43s							38									53			53s							
Cep EI L10 3				94				16s															82				4s			26				
Cep EX L10 2												9						60s								53								
Cep NN E10S	48	51s	54	57s	60																													
Cet RR RR 2						59						57																61						
Cet TU E10S 2															55									33				73						
Cet TV L10 2																	46									56				5s				
Cet XY E10S 2																										62								
Com S 90	39							43												40										37				
Com ST 90 3			44				44		43			43			42							42		41		41		40			39			
CrB U S10															55													36						
CrB RV 90 3	43	42	42	41	41		40	40	39	39	38	38	37	37																				
Cyg UY RR	54				46		58			39	51																			45	57			
JD 586 ..		66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96		

2019 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Her	AR	90		58	52	46	40					57	51	45	39				56	50	44	38				61	55	49	43	37					
Her	AW	L10	3				62								42									22										2	
Her	DI	L10	3			8s		51							63s				6							18s			61						
Her	GU	E10U										42		59s											45										
Her	LV	L10	2	77																	21														
Hya	AI	L10	2												37s					63					74s				99						
Lac	RW	L10	3		1s				26																										
Lac	SW	S10		49s	45s	41+	38+	50	46	42+	38+	51s	47s	43+	39+	52	48	44+	40+	37+	49s	45+	41+	37+	50	46+	42+	38+	51s	47s	43+	39+	51	48	
Lac	UW	E10S	3	24					53					82					11					40				69							
Lac	CO	E10X						45s			54s			42		51					59			42s		50s				59s	39				
Lac	CZ	90		60	47			49		51	38			54	40	56	43		59	45		61	48			50	37		53	39		55	41		
Lac	V345	E10X	2		31			96s			80				45s				29		95s				79		44s								
Lac	V364	E10X	3												43s										41										
Lyr	RR	RR	3			38	51				48				45	58		41	55			38	52				48	62			45	59			
Lyr	RZ	90					38	40	43	45	47	49	52	54	56	58	61											36	39	41	43	45	48		
Lyr	UZ	S10							57	51s	46	40s													59	53s	48	42s	37						
Lyr	CN	90			53		59	41		47		52		58	40	46		52		57	40		45	51	57	39	62	45		50					
Lyr	EZ	RR		39	44	50	55	60						37	42	48	53	58							40	46	51	56	61						
Lyr	IO	90			41	56			45	60		49			37	53			41	57				45	61				38	53					
Lyr	beta	S10	3					19						66s						13					60s								7		
Mon	UX	E10S	2																																
Mon	VV	E10S	2																																
Mon	AR	L10	1																																
Mon	AV	E10S	2																																
Mon	IL	E10S	2																																
Oph	U	ST					46					49				53							40s				43s						46s		
Oph	RZ	L10	1																																
Oph	ST	90		48	38			53	43			48	38		54	44					49	39			44			50	40						
Ori	Z	E10S	2																																
Ori	BM	E10S	3																																
Ori	CP	E10S	2																																
Ori	DN	L10	2																																
Ori	FO	L10	2																																
Ori	V1016	L10	2																																
Peg	U	S10	3	51s		57	51s		57	50s		57	50s		56	50s	56		50s	44	56	50s	43	56	50s	43+	56	49s	43+	56	49s	43+	55	49s	
Peg	VV	RR		60	58	55	53	51	48	46	44	41	39											60	58	55	53	51	48	46	44	42	39		
Peg	VW	L10	3								69					41s															76				
Peg	AV	RR	3	51		46		41	58		54		49		44	61	39	56		52		47		42	59	37	54	49		45	62	40	57		
Peg	AW	L10	2	16					47s					78					9s					40					71s						
JD	586	..		66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	

2019 Jul	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					
Peg BH 90 3						57		49							54		46					59		51		44						56					
Peg BK E10S 3						59s									57s												55s										
Peg CG 90 3	54	47	41						55	48	42				55		49	42						56	50	43	36				57	50	44				
Peg DF L10 3						92															62																
Peg DH RR 2				45	47	49	52	54	56	58	60			41	44	46	48	50	52	55	57	59	61	38	40	42	45	47	49	51	53		56				
Peg GH E10S 3											46s				57s					41					52												
Peg IP K10 3	46	57	52	47	58		52	47	58	53	48	43+	54	49	44+	54	49	44+	55	50	45+	40+	50	45+	40+	51	46+	41+	52	46+	41+		52				
Per RW L10 2													29																								
Per RY E10S 3						57																										59s					
Per AR 90					59			57				55			53			50					61			59				57				55			
Per AY L10 3	40													18												96											
Per IQ E10X 3				60s	57						58s	54						55s	51							52s	49							50s			
Per KN E10U 3	54s				57			60s										57			60s					50				53s			56				
Per LX L10				42s			43				45s										47																
Per beta S10 3											56																								49		
Psc RU 90 3		56			51						59	54			49							57				52		47				59		55	50	45	
Psc RY 90 2					60							55	61													55	61										
Psc SS 90 3	52				54		55		57		58	59			61		49					50		52				53		54		56		57	59	45	
Sge SY E10S 3	44s										52s																									52	
Ser VY RR						46					46					46																					
Ser AN 90 3		38	42	47	51										39	43	48																				
Ser BH 90 3	53	40				44					48	53	40			44												39			43			47			
Ser EG L10 3	92						90s					87										84s					82						79s			76	
Ser LX K10 3	49	45	40+	51	46		41	52	47	42	53	48	43	38+	49	44	39	50	45	40	51	46	41	36	47	42	37	48	43	38	49				44		
Tau RW S10 3																																					
Tau V1094 L10 2																																					
Tri X S10 3																																					
Tri RU E10S 2											59s																										
Tri UX 90 3							57	50																													
UMa W S10	40	40	40	40	40	40	40	40	40	40	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	42	42	42	42	42	42	42	42	42	
UMa RV RR					55	48	42					57	50	44	37																						
UMa TU RR					39						41																										
UMi W S10						42																															
Vir ST 90 2					42																																
Vir AH S10							38s																														
Vir AV 90											42					39																					
Vir CG E10S	47	40									42s						43	37																			40
Vul Z S10 3	41																																				
Vul RR E10S 3					57																																
JD 586 ..		66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96					

2019 Jul			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Vul	BN	90	3			47			44				41	60	38	57				54			51		48				45			42	61		39
Vul	DR	E10X									56s	45									57s	46					57s	46							
Vul	EV	E10S	3		57			40															51												
JD	586	..		66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	
2019 Aug			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	SW	RR	3		60	48	36		58	46			56	44				54	42			63	52	40	61	50	38		59	48	36		57	46	34
And	SY	L10	1												23\	28	32\																		
And	TW	S10	3		35		41s		47		53s		59																						
And	XX	90				47			36		53			42		59					48		65	37	54			43						66	
And	CD	L10	2																							39\	\		46	/	52\				
And	OV	90			61	55	49	43	37				61	55	49	43	37				61	55	49	43	37				61	55	49	43	37	31	
Aqr	SW	RR	2		62	54	46	38			59	51	43	35			56	48			40			53	45	37			58	50	42	34			56
Aqr	SX	90	3			39	46	53	60				35	42	49	56	64					39	46	53	60				35	42	49	56			
Aqr	CD	E10S	3		74					58					41					25						9									77
Aqr	HH	90	2			57			44	59			46	61			48	63			50				37	52			40	54			42	57	
Aqr	LL	L10	2				38s										47										56s								
Aql	AA	RR		38	47	55			36	45	53		34	43	51			41	49			39	47	56		37	45	54		35	43	52		33	
Aql	V341	90	3	60			49			38	54			43	58			47			36	52			41	57			46			35	50		
Aql	V889	L10		33s							51				45s							63				57s							75		
Aql	V1353	E10S			51					46s	58				41	54s				37s	49						44s		56			39		51s	
Aql	V1426	E10S		13+	30+	48s	7+	24+	42	59s	18+	35+	53s	12+	29+	47	5+	23+	40+	58s	17+	34+	52	11+	28+	46s	4+	22+	39+	57	16+	33+	51s	9+	
Aql	V1430	E10S		58	46				52s	39s			45		51s	38s				44			49s	37s			43	39+	48s	36s			42		
Ari	X	RR	2			63			58		54									65	61			56		51									
Ari	RS	L10	2								83									64									44						
Ari	AL	E10S	3																														67		
Aur	TZ	90												61									62			58					63		59		
Aur	CQ	L10	2				49s					80								11s						42			73s						
Aur	IY	E10S				60															57														
Aur	V432	E10S	3						58																	53s			61s						
Aur	epsil	L10	2																																
Aur	zeta	L10	1																																
Boo	RS	RR			43				45					35		37					39		41								33		35		
Boo	TW	90				37	44		50						36	42	49						34	41	47						32	39			
Boo	UU	90				50	41					44		35			46		38					40					43	34					
Boo	UY	90				36																33													
Boo	AC	E10D		42	48	36+	42s	48s	36+	42	47	35+	41s	47s	35+	41	46	35+	40s	46s	34	40	46	34s	39s	45s	33	39	45	33s	39s	44s	32	38	
JD	586	..		97	98	99																													
JD	587	..			0	1			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

2019 Aug			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Boo	CM	90		39											36											32												
Boo	CQ	90	3					42		39		37		34						39	36			33												35		
Boo	CS	90					35																			38						36						
Cam	SS	E10S	3	27s		68			10s		51		92s		33		74s			15	56s			98			39s		80			21s						
Cam	SV	S10		41s	60s	49	38s	57s	46	35s	53s	42	61	50s	39	57	46s	35	54	43s	61s	50	39s	58s	47	36+	54s	43	32+	51s	40	59	48s	36+				
Cam	AK	E10S		42	53s									44s	55							35s	46	57s									37	48s				
Cam	AN	L10	3																	39s					4													
Cam	AT	E10S	3		37s		47		56s		35s			45	54s		63			42	52s			61			40		50s		59							
Cnc	S	L10																																				
Cnc	RU	L10	2																										95									
Cnc	RW	90																																		67		
Cnc	RZ	L10	2																					90\	\	52	/		15/									
Cnc	TU	E10S	3																																			
Cnc	TW	L10	2																																			
Cnc	UU	L10	2																																			
Cnc	ZZ	L10	2																																			
CVn	W	90			42					39					36					42						39				36								
CVn	Z	90														40			36																			
CVn	RZ	90			35												40				37				34				32									
Cas	FX	L10	2			/								\	\			13s			/	/							\	\						30		
Cas	RZ	S10	3				35	54						52						49						47						45	64					
Cas	SX	L10	2																						\	25	/	8/										
Cas	TV	S10							60		41									48								54		35								
Cas	TW	S10	3			37						51		37							51				37			65		51								
Cas	TX	E10S	3		44s			36s									61				54			46			39		32									
Cas	AQ	L10	2	30s	36/				11\	16	22/			97\	\	2s	8/			83\	88	94/				69\	74s	80/			55\	61			66/			
Cas	BM	L10	3																								11											
Cas	DN	E10S	3	60						38s	53						47		62s							40	56s				33	49s				64		
Cas	GG	E10S													53															56								
Cas	GU	E10U																																				
Cas	IL	E10S	3	59							50						40																					
Cas	IT	E10X			63s		38			52s			42s																									65
Cas	OX	E10X		60						58																												47
Cas	PV	E10X		49s							58	50s					58	50s							58	50s	33				58	50s	33					
Cas	V368	E10S	3							44s														35s	57													
Cas	V375	E10D			47			42		63s	36		57s		52s				47s		41s				62	36s	57		52							46		
Cas	V381	E10X	3					48s	42						47s	41												63	43s	37						67s		
Cas	V459	L10	3	91						8s			37			53s					83					99s				28					45s			
Cep	RZ	90		57	49	42	35	58	51	43	36	59	52	44	37	60	53	46	38	62	54	47	39	63	55	48	41	33+	57	49	42	34+	58			50		
JD	586	...		97	98	99																																
JD	587	...				0	1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26			27		

2019 Aug	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Cep VV	S10	42+	39+	37+	48+	45+	43+	40+	38+	35+	46+	44+	41+	39+	36+	47+	45+	42+	40+	37+	34+	46+	43+	40+	38+	35+	33+	44+	41+	39+	36+	34+	
Cep XX	S10						51							52													55						
Cep XY	E10S					56															43										53		
Cep ZZ	S10	53													38		53												38			52	
Cep AI	E10S 3																	43			55s												
Cep CW	E10X 3			45				45s				64			37	64s				37s			55				55s						
Cep EI	L10 3			48s				70				92s					14							58				80s					
Cep EX	L10 2							96														39											
Cep NN	E10S	36	39s	41	44s	47	50s	53	56s	59	62s																						
Cet RR	RR 2	58					56					54	64				52	62				49	60				47	58				45	
Cet RV	90 2																		65				63					62					
Cet TU	E10S 2	12				51			90						29					68			7				47					86	
Cet TV	L10 2			66					15s					76					26s			87				36s				97			
Cet XY	E10S 2			57s																							59s						
Com ST	90 3		39			38																											
CrB U	S10																											43					
CrB RV	90 3																						49	49	48		48	47	47	46	46	45	
Cyg UY	RR	37	50	62			42	54			35	47	59			39	51	63				44	56			36	48	61			41	53	65
Cyg XZ	RR		59	52	45	38					58	52	45	38			58	52	45	38			65	58	52	45	38	38	32	65	58	51	
Cyg BO	E10S	39s						53	41s						56	44s						58	46s	34				61	49s	37			
Cyg BR	E10S	56	56s	56				56s	56			56s	55	55s			55	55s	55			55	55s	55			55s	54				54s	
Cyg DM	RR 3	58	42		52	36	62	46		56	40		50	34	59	43				53	37	63	47		57	41	51	35	61	45	55	39	
Cyg EM	K10 2	41	57	44	61	48	35	52	39	55	43	59	46	34+	50	37	54	41	57	44	61	48	35	52	39	55	43	59	46	34	50	37	
Cyg V367	L10 2			\	\	83		/	/					\	\				13s	/	/			\	\	43	/	/					
Cyg V463	E10S							39s	45	51s		56	62s													33s	39	45s	51	56s			
Cyg V477	E10X					37s			36					41s			40			45s						44	49s					48	
Cyg V541	L10 3					64								67s															1s				
Cyg V548	E10S 3					61	52s	42							64	54s	44	35s								57s	47	37s					
Cyg V788	L10 3						14\	9	5/																								97/
Cyg V891	E10S																57		48		38												
Cyg V909	E10S				46s							47																					
Cyg V1061	E10S					57																											
Cyg V1918	E10D	51	54s	37+	40+	43s	46	50s	53	36+	39+	42+	46s	49	52s	35+	38+	41+	45+	48s	51	34+	37+	40+	44+	47	50s	33+	36+	40+	43+	46+	
Del DX	90 3	44	38					58	53	47	42	36					56	51	45	40	34					60	54	49	43	38	32		
Dra RW	RR		53	42	63		52	41	62	51	39	59	61	49	38		59	48	37			58	47	35	57		45	34	55	44	32		
Dra SU	RR	52		50	48			46	44			42		41	39				37	35		33	65		63		61	59				58	
Dra SW	RR	56			40	54			39	53				38	52		37	51	65		36	49	63		34	48	62	33	47	61			
Dra TZ	E10D	51s	38s		54	41		58s	44s		61	47	34	64s	50s	37s		54	40		57s	43s		60	46	33	63s	49s	36s		53	39	
Dra VZ	90	58	54	51	47	43	40	36	61	57		53	50	46	42	39	35	63	60	56	52					48	45	41	37	34+			
JD 586	...	97	98	99																													
JD 587	...				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

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Dra WW	S10	2				60														49														
Dra XZ	RR	3	43	38					62	57	53	48	43	39	34			63	58	53	49	44	39	34				63	59	54	49	44		
Dra AI	S10		63				42	62					41	61						41	61				40	60				40	60			
Dra BF	L10					41																					83							
Dra BK	90		47			43	61		39	57		35	53					45	64		41	60			37	56	33	52		48	66			
Dra BU	E10S				61s	53			44s		35																		50		41s			
Dra DD	90		51	49	47	45	43	41	39	37	35		64	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34	32+	63	61	59	57	
Dra EX	K10	3	35+	40+	45	50	55	39+	44	49	54	38+	43+	48	53	37+	42+	47	52	36+	41+	46	51	35+	40+	45+	49	33+	38+	43+	48	32+	37+	
Dra GV	L10	2							86																								71	
Equ S	S10				35																53							40						
Gem U	K10																																64	
Gem RR	90																									65		64		63		61		
Gem RY	L10	2																		87						52s				17				
Gem WW	E10S	3								63																	63s		58s					
Gem YY	S10																												62s		65			
Gem OW	L10	2																																
Her TW	RR	3		44		44		44		43		43		43		43		43		42		42				42		42		41		41		
Her TX	S10												34s	37	40s	43		46s	49	52s	55	58s												
Her UX	E10D			56				43s			53s					40		50								47s			34			44		
Her VX	RR	3		44	35				45	36						46	37				46	38					38							
Her VZ	90		50	38	58	46			54	42			50	39				47	35		55	43			51	39		48	36			44		
Her AK	S10		50		39s	45	50s		40	45s	51	35	40s	46	51s	35s	41	46s		36	41s	46			36s	42	47s	37	42s		32	37s	42	
Her AR	90		60	54	48	42	36				53		47	41	35						52	46	40	34				51	45	39	33			
Her AW	L10	3								82											62								42					
Her DI	L10	3				73s		16								28s		71								83s			26					
Her GU	E10U					48												34s		51													37s	
Her LV	L10	2							64																				8					
Hya AI	L10	2																																
Lac RW	L10	3				11s				36						48s					73					85s				10				
Lac SW	S10		44+	40+	36+	49s	45+	41+	37+	50	46+	42+	38+	34+	47+	43+	39+	35+	48+	44+	40+	36+	48+	45+	41+	37+	33+	46+	42+	38+	34+	46+	43+	
Lac UW	E10S	3	98							27						56					85				14					43				
Lac CO	E10X		47			56					38s		47s			55s	35				63s	44			52			61	35s				51s	
Lac CZ	90			57	44		60	46		62	49	35		51	38		54	40		56	42			58	45		61	47	34	63	50	36	66	52
Lac V345	E10X	2	28			93s					77		42s					26			91s					75		40s					24	
Lac V364	E10X	3				48s										46																		
Lyn OD	E10S	3																								58s								
Lyr RR	RR	3		42	55			39	52			36	49	62			46	59				43	56				39	53	66		36	50	63	33
Lyr RZ	90		50	52	54	57	59	61	63												35	37	39	41	44	46	48	50	53	55	57			
Lyr UZ	S10										61		55s	50	45s	39	34s													63	58s	52	47s	41
JD 586	..		97	98	99																													
JD 587	..					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

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Lyr CN	90	56	38	62	44		50	55	38	61		43	49	55		37	43	48				54	36	42		48	53	36					
Lyr EZ	RR	38	44	49	54	59						36	42	47	52	57	62					34	40	45	50	55	60					32	
Lyr IO	90	42	57			46	61		50			38	54				42	58			46		35	50		39	54				43		
Lyr beta	S10	3					54s					1							48s					95									
Mon UX	E10S	2																															
Mon VV	E10S	2																															
Mon AR	L10	1																															
Mon AV	E10S	2																															
Mon IL	E10S	2																															
Mon V530	E10U	2																														66s	
Oph U	ST											36					39					43											
Oph RZ	L10	1			32\	\			56				/	80/																			
Oph ST	90		45	35			41					46	36				41					37			42	32					37		
Ori Z	E10S	2						8						28							49				69					89			
Ori BM	E10S	3																						31						78			
Ori CP	E10S	2		88					20					52						84					17						49		
Ori DN	L10	2												28													25						
Ori FO	L10	2						40																				20					
Ori FT	E10X	3												64																			
Ori V1016	L10	2																				68											
Peg U	S10	3	43+	55	49s	43+	55	49s	42+	55	48s	42+	55	48s	42+	54	48s	42+	36+	48s	42+	35+	48s	41+	35+	48+	41+	35+	47+	41+	35+	47+	41+
Peg VV	RR		37	35								63	60	58	56	53	51	49	46	44	42	39	37	35	32					67	65		
Peg VW	L10	3			48s																				55s								
Peg AV	RR	3	35	52	47		42	60	38	55		50	45	62	40		57	36	53	48		65	43	60	38	55	33	51	46	63	41		
Peg AW	L10	2	2				34s					65					96s							27				58s					
Peg BH	90	3	49	41			61	54	46			38		59			51	43				36	64	56		49	41	33				61	
Peg BK	E10S	3					53s										51s											49s					
Peg CG	90	3	37			58	51	44	38				58	52	45	39					59	52	46	39	33	66	60	53	47	40	33		
Peg DF	L10	3		32															2														
Peg DH	RR	2	58	60	37+	39	41	43	45	48	50	52	54	56	59	35+	38+	40	42	44	46	49	51	53	55	32+	34+	36+	38+	41	43	45	47
Peg GH	E10S	3	47s				58s			41					52						36s	64			47s				58s				
Peg IP	K10	3	47+	42+	37+	48+	43+	37+	48	43+	38+	49	44+	39+	34+	44+	39+	34+	45+	40+	35+	46+	40+	35+	46+	41+	36+	47+	42+	37+	47+	42+	37+
Per RW	L10	2					69																		89								
Per RY	E10S	3				46s																	62							48			
Per AG	E10X	3	53	55	51s		58	54s	61	57s	64	60s	63s																				
Per AR	90		53				51	63	48			61	46	59	44		57	42	55			40	53	66		51	63	49				61	
Per AY	L10	3			73												51													29			
Per IQ	E10X	3	46				47s	44						45s	41						64	42s	39				65s	62	40s				
Per KN	E10U	3		60s	46s	63	50			53s			56	43	59s		46s	63	49				53s	39s	56		42	59s	46s				62
JD 586	..		97	98	99																												
JD 587	..				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	

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Aqr HH 90 2			44	59			46			33	48			35	50		37	52				39	54			42			29	44				
Aqr LL L10 2				65										74s									83											
Aql AA RR 41 50 31 39			41	50	31	39	48			37	46			35	44		33	42				31	39		29	37	46		27	35				
Aql V341 90 3				39			44			33	48			38			42			31		47		36					40					
Aql V889 L10				69s							87			81s								99				93s								
Aql V1353 E10S				34s	47						42s				37		49s			32s		44			27			39s						
Aql V1426 E10S		27+	44	3+	21+	38+	56s	15+	32+	50	8+	26+	43s	2+	20+	37+	55	13+	31+	48s	7+	25+	42	1+	19+	36+	54s	12+	30+	47	6+			
Aql V1430 E10S				47s	35s			41			46s	34s		40			45s	33s				39		44s	32s			38						
Ari X RR 2	63		58		54		49		44					65		61	56		51			47		42			68		63					
Ari RS L10 2				24										5								85										65		
Ari AL E10S 3																66			40													65		
Aur TZ 90			54			68	64		59			55	51	69			64	60		56			52	69	48	65		61		57				
Aur CQ L10 2	4						35s					67					98s						29				60s							
Aur IY E10S	53															50											67		47					
Aur V432 E10S 3									48				56		64												43s		51s					
Aur epsil L10 2																																		
Aur zeta L10 1																																		
Boo RS RR				37								29			31		33											27						
Boo TW 90						31	37							29	36							28	34						26	33				
Boo UU 90	37						40	31					34				36	28					30					33						
Boo AC E10D	44	32s	38s	43s	32		37	43	31s	37s	43s	31	37	42	30s	36s	42s	30	36	41	30s	35s	41s	29	35	41	29s	34s	40s	28	34			
Boo CM 90							33										29											26						
Boo CQ 90 3			33											32	29												29	26						
Boo CS 90				34					32					30					28															
Cam SS E10S 3	62				3s		44		86s			27		68s			9		50s	91			32s		74			15s	56					
Cam SV S10	55	44s	33+	52	41s		30+	48	37+	56s	45	34+	52s	41	30+	49s	38+	56	45s	34+	53	42s	31+	49	38+	27+	46	35+	54s	43+	31+			
Cam AK E10S	59									39s	50	61s							29s	41	52s	63						32	43s	54				
Cam AN L10 3									38s					4															38s					
Cam AT E10S 3	38		48s		57		67s	36		46s		55		64s	34		44s		53			62s	32		42s		51	60s	30	70				
Cnc S L10						97										46										94								
Cnc RU L10 2							12										30											47						
Cnc RW 90							68										63						65						67					
Cnc RZ L10 2		72\	\	35s	97/									54\	\	17	79/							37\	99s	/	61/							
Cnc TT 90										66									68				62					69						
Cnc TU E10S 3								2						59					15					71										
Cnc TW L10 2														58\		64	70/																	
Cnc UU L10 2																							\											
Cnc ZZ L10 2																																		
Cnc AQ 90 3																												68						
JD 587 ..		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58		

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CVn	W	90		32											36				32					29											
CVn	Z	90		36		33																		29											
CVn	RZ	90																	31					28											
CMa	R	S10	2																													70			
CMi	AM	E10S																							63	65	67	69	71						
Cas	RX	L10	2		/									\	\				47s		/	/										\			
Cas	RZ	S10	3		42	62					40	59							38	57				35	55						33	52	72		
Cas	SX	L10	2																							99\	\	82	/	65/					
Cas	TV	S10			60		42								67	48			29						54		35								
Cas	TW	S10	3	37		65				51			36				65			51			36			65					50				
Cas	TX	E10S	3		63s		56s		49s				41s		34s									66		58						51			
Cas	AQ	L10	2		41\	47s	52/		27\		33	38/						13\	19s	24/			99\	\	5	10/			85\	91s	96/				
Cas	BM	L10	3																/																
Cas	DN	E10S	3				42s	58							35s	51	66s								44	60s					37	53s	69		
Cas	GG	E10S		32										60					36													63			
Cas	GU	E10U																	30				39		49					58			67		
Cas	IL	E10S	3	66					56								47							37								27			
Cas	IT	E10X				55			45	59s			34		49s							39s			28s										
Cas	OX	E10X		65s			45	63s			43	61s				41		59s				39	57s			37	54s						35		
Cas	PV	E10X				58	50s	33				59	50s	34								59	51s	34			59	51s	34	26s					
Cas	V368	E10S	3				38		60s										51s								41s					64			
Cas	V375	E10D		67s	41		62s	36						46s	67			41s		62	36s		57	30s		51			46		67s	41			
Cas	V381	E10X	3	61	42s	36			66s	60	40s	34			64s	58		38s	33					62s	56	37s	31			61s	55	35s			
Cas	V459	L10	3				74			91s					20												83s						12		
Cep	RZ	90	43	36+	59	52	44	37+	60	53	45	38	31+	54	47	39	32+	55	48	40	33+	57	49	42	34+	27+	50	43	35+	28+	52	44			
Cep	VW	S10		31+	42+	40+	37+	35+	32+	43+	41+	38+	36+	33+	30+	42+	39+	37+	34+	31+	29+	40+	37+	35+	32+	30+	27+	38+	36+	33+	31+	28+	39+		
Cep	XX	S10				56						57														60							27		
Cep	XY	E10S				31						63							40							50				28					
Cep	ZZ	S10				66									37				65													36		50	
Cep	AI	E10S	3			33	45s		56		67s														35s	46		57s		69					
Cep	CW	E10X	3		47				47s			66		39	66s								57		30	57s				30s					
Cep	EI	L10	3		1				23s			45														11s			33						
Cep	EX	L10	2			83																		26										70	
Cep	NN	E10S					32s	35	38s	41	43s	46	49s	52	55s	58	61s	64					67s	70											
Cet	RR	RR	2	55	66		42		53	64		40	51	61										48	59	70		46	57	67		44	55	65	
Cet	RV	90	2		61				59															57						54					
Cet	TU	E10S	2				25				64					3									81				20						
Cet	TV	L10	2				46s				7					57s									18		67s		28						
Cet	XY	E10S	2			55						50s													62s					57					
JD	587	..		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	

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Com S 90																																		72
CrB U S10					33																													
CrB RV 90 3	45	44	43	43	42		42	41	41	40	40	39	39	38	38	37	37	36	36	35	35	34	34	33	33	32	32	31	31	30	30	30		
Cyg UY RR				33	46	58			38	50	62	31	43	55			35	47	60		28	40	52			32	45	57				37		
Cyg XZ RR	45	38	31			65	58	51	45	38	31			65	58	51	45	38	31		65	58	51	44	38	31	64	58	51	44	38	31		
Cyg BO E10S					63	51s	39					66	54s	42	29s					68	56s	44	32s				59s	47	34s					
Cyg BR E10S			54			54s	54		54s	54				54s	54		53s		53		53s		53		53s		53		53s		53			
Cyg DM RR 3	65	49	33	59	43			53	37	63	47	31	57	41		50	34	60	44	28	54	38		48	32	58	42		52	36				
Cyg EM K10 2	54	41	57	44	32		48	35	52	39	55	43	30	46	34	50	37	54	41	28	44	32	48	35	52	39		43	30	46	34			
Cyg V367 L10 2		\	\		73s		/	/				\	\		3	/	/	/	/				\	\	33s	/	/							
Cyg V463 E10S												33	39s	45	50s		56																27	33s
Cyg V477 E10X		53s					52		57s					56								31s				30				35s				
Cyg V541 L10 3						32								35s												66				69s				
Cyg V548 E10S 3		59s	50	40s	30							62s	52	43s	33								55	45s	35								58	
Cyg V788 L10 3																							99\	94	90/\									
Cyg V891 E10S							54		44		35																			50		41		
Cyg V909 E10S	51s					32s			53			33				54s				34s						36								
Cyg V1061 E10S								42							46								50								54			
Cyg V1918 E10D	49	32+	35+	39+	42+		45+	49s	31+	34+	38+	41+	44+	48	30+	34+	37+	40+	43+	47s	29+	33+	36+	39+	43+	46	28+	32+	35+	38+	42+			
Del DX 90 3		58	52	47	41		36	30				55	50	45	39	34	28				53	48	43	37	32						51	46		
Dra RW RR		54	42	31			53	41	30	51		40		50	38		40		60	48	37		58	47	36	57	46	34		56	44			
Dra SU RR	56		54		52		50		48			46		44		43		41		39		37	69	35	67	33	65	31	63	30	62			
Dra SW RR	32	46	60		31		45	58		43		57			42	56	70		41	55	69		40	54	67		38	52	66		37			
Dra TZ E10D		56s	42s		59		45	32		48s	35s		52	38		55s	41s	28s	58	44	31		48s	34s		51	37		54s	40s	27s			
Dra VZ 90	40	36	32	61	57		53	50	46	42	39	35	31	60	56	52	49	45	41	37	34	30	59	55	51	47	44	40	36	33	29			
Dra WW S10 2			38									64														53								
Dra XZ RR 3	40	35					64	59	54	50	45	40	36	31		69	64	60	55	50	46	41	36	31	27	70	65	60	56	51	46			
Dra AI S10						39						39						38															37	
Dra BF L10								4						46s					25						67s								47	
Dra BK 90		44	62		40		58		36	54		32	50	69		47	65		43	61		39	57		35	53	71	31	49	68	27			
Dra BU E10S	32																				47		38s		29									
Dra DD 90	55	53	51	49	47		45	43	41	40	38	36+	34+	32+	30+	60	58	57	55	53	51	49	47	45	43	41	39	37+	35+	33+	31+			
Dra EX K10 3	42+	47	31+	36+	41+		46+	30+	35+	40+	45+	29+	34+	39+	44+	49	33+	38+	43+	48+	32+	37+	42+	47+	31+	36+	41+	45+	29+	34+	39+			
Dra GV L10 2																										57								
Equ S S10																										46		33						
Eri SV 90 2									68			53		67			53		67			53		67			52		66					
Gem U K10				65			66		60	66		61	67		62	68	70		62	69		63	69	58	64	70	58	65	71	59	65	71		
Gem RR 90		60	58		57		56										70		68		67		65		64		63		61		60			
Gem RY L10 2		82s					47					12s				77																72s		
JD 587 ..		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57		58	

2019 Spt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Gem WW E10S 3			62					57				67s	53				62s					57s		67			52s		62					
Gem YY S10						57s		61		64s		68					57	60s	64			67s	71	52			56s	59						
Gem OW L10 2																																		
Gem V339 E10U 2																							59											
Her TW RR 3	41		41		41			40		40		40	40		40		39		39			39	39	39			38		38					
Her TX S10													30s	33			36s	39	42s	45	48s													
Her UX E10D				31s			41s						38														32							
Her VX RR 3		40	31					41	32				33						34				35					36	27					
Her VZ 90	32			40				48	36			45	33		41		29			37			46	34			42	30		38				
Her AK S10			32s	38	43s		33	38s	43	33s		38			33	39s		29	34s	39			29s	34	40s	29	35s			30s	35			
Her AR 90			50	44	38		32					49	43	37	31							42						41	35	29				
Her AW L10 3					22								3										83								63			
Her DI L10 3					38s		81							93s			36							49s			91							
Her GU E10U												40s																						
Her LV L10 2														51																40s				
Hya AI L10 2									75				45s					4				74s					33			3s				
Lac RW L10 3			22s					47					59s					84					96s					21						
Lac SW S10	39+	35+	31+	44+	40+		36+	32+	44+	41+	37+	33+	29+	42+	38+	34+	30+	43+	39+	35+	31+	43+	40+	36+	32+	28+	41+	37+	33+	29+	41+			
Lac UW E10S 3			72					1					30										88							17				
Lac CO E10X	32		60s	40			68s	49		57		31s	65	39s			48s	28		56s		37	65s	45			53	27s		62				
Lac CZ 90	39	55	41				57	43	30	59	46	32	62	48	35	64	51	37	67	53	40	69	56	42	28	58	45	31	61	47	33			
Lac V345 E10X 2			90s					74			39s					23		88s					72			37s					21			
Lac V364 E10X 3					52												59s											57						
Leo RR RR																							69					67						
Lyn TY E10S 3																		70																
Lyn CD E10S 3								50									60										70							
Lyr RR RR 3	46	60			43		57			40	53			37	50			34	47			30	44	57	27		41	54			37			
Lyr RZ 90								31	33	35	38	40	42	44	47	49	51	53											27	29	31			
Lyr UZ S10	36s															54	49s	43	38s	33														
Lyr CN 90	41		47		53		35		41	46		29	52	34		40	46	28		34		39		45	27		33		39					
Lyr EZ RR	38	43	48	53	58					30		36	41	46	51							28					34	39	44	49			26	
Lyr IO 90			31	47				35	51							43						32	47				36				44			
Lyr beta S10 3	42s							89							37s													31s						
Mon UX E10S 2															83			78s							69s		64			59s				
Mon VV E10S 2					63s			66		68s						71		73s		76							78s		81			83s		
Mon AQ E10S 2																			67															
Mon AR L10 1								56\	41	25\												16\	86\							77\	61			
Mon AV E10S 2					83s				30				78s				25														14			
Mon EZ E10U 2								67s				68s			69s							70s							61					
JD 587 ..		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58		

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Mon	IL	E10S	2										94					97			0				2				5						
Mon	V448	E10S	3	66															65s					68				59s	71s				63		
Mon	V530	E10U	2	66							65s				64	69					63s	69s			63	68			62s	67s	72s				
Mon	V536	E10X	2																		69														
Oph	U	ST		33s						36s														30				33							
Oph	RZ	L10	1																																
Oph	ST	90				33					38				33						29				34				30						
Ori	Z	E10S	2			10						30					50					71					91						11		
Ori	BM	E10S	3					25						72							19						66								
Ori	CP	E10S	2				81						13				45						77						9						
Ori	DN	L10	2								21																								
Ori	FO	L10	2																		0														
Ori	FT	E10X	3				65s																			55s	60			70s					
Ori	GG	E10X	2					65																				55							
Ori	V536	E10S	2																					55			71								
Ori	V1016	L10	2																																
Ori	V1031	E10S	2															68											60s						
Peg	U	S10	3	35+	47+	41+	34+	47+	41+	34+	47+	40+	34+	47+	40+	34+	46+	40+	34+	46+	40+	34+	46+	40+	33+	27+	40+	33+	27+	39+	33+	27+	39+		
Peg	VV	RR		63	60	58	56	53	51	49	46	44	42	39	37	35	32	30	28							60	58	56	53	51	49	46	44		
Peg	VW	L10	3									91						62s																98	
Peg	AV	RR	3	58	36	53	31	48	66	44	61	39	56	34	51	29	46	63	41	59	37	54	32	49	27	44		39	56	35	52	30	47		
Peg	AW	L10	2			89					20s					51					83s						14						45s		
Peg	BH	90	3		54		46		38	66	30	59		51		43	36			64	28	56	48		41		33	61		53		46			
Peg	BK	E10S	3								47s										70		45s							68				42s	
Peg	CG	90	3	67	60	54	47	41	34		61	55	48	41	35					62	55	49	42	35	29			56	49	43	36	30			
Peg	DF	L10	3	71																	41														
Peg	DH	RR	2	49	52	54	56	33+	35+	37	39	42	44	46	48	50	53	29+		31+	34+	36	38	40	42	45	47	49	51	28+	30+	32	34	37	
Peg	GH	E10S	3			42				53								36s			48s							31					26s	53	
Peg	IP	K10	3	32+	43+	38+	33+	43+	38+	33+	44+	39+	34+	29+	40+	34+	29+	40+			35+	30+	41+	36+	31+	41+	36+	31+	42+	37+	32+	27+	32+	27+	
Per	RW	L10	2			9															29														49
Per	RY	E10S	3				34											64s									50s						37s		
Per	AG	E10X	3																																36
Per	AR	90		46		59	44		57	42		55	40	68	53	38	66	51		36	64	49	34	61	46	32	59	44		57	42	70	55	40	
Per	AY	L10	3																							84									
Per	IQ	E10X	3		63s	59	37s					60s	56	34s							58s	54	32s					55s	51	29s				52s	
Per	KN	E10U	3	49	66s	52s	39s		56	42		59s		45s	62	49	35			65s	52s	39s	69	55	42	59s	45s	32s	62	48	35	65s	52s		
Per	LX	L10				72s				74								76s			78							82					84s		
Per	beta	S10	3			47s						64				50							37					67s					71		
Psc	RU	90	3	46	63	41	58	37	54		49	66	44	61	39	56	34	52		30+	47	64	42	59	37	54	32+	49	27+	45	62	40	57	35	
JD	587	..		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58

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Psc	RY	90	2	46	52	58	64				41	47	53	59	65			35	41	47	53	59					36	42	48	54	60			
Psc	SS	90	3	40	55	41	56	43	58	44	59	45	61	47	33+	48	35+	50	36+	51	38+	53	39+	54	40+	56	42+	28+	43	30+	45	31+	46	
Sge	SY	E10S	3	37							45								30s							38s								
Ser	VY	RR					30					30																						
Ser	AN	90	3									34												30										
Ser	BH	90	3						32									32								27		31						
Ser	EG	L10	3				58s				55					53s					50				47s					45				
Ser	LX	K10	3	39	34			35	30		36	31			32			33	29		34	30			31		32	27			28			
Sex	T	90																									71							
Tau	RW	S10	3			66													50										58					
Tau	CD	S10	3				56s											58												60s				
Tau	EN	E10S		66s					62s				58s					53s					49s				68							
Tau	V1094	L10	2				7s			19					6s			18							5s	17		49	46	43	41	38		
Tri	X	S10	3																		69	66	63	60	58	55	52							
Tri	RU	E10S	2	53					43s				33		60						51s				41		68			31s				
Tri	UX	90	3	53	47	40	33		67	60	54	47	40	34		67	61	54	47	41	34		68	61	54	48	41	35	28	68	61	55	48	
UMa	W	S10		62s	62s	62s	62s	62s	62s	63s	63s	63s	63s	30+	30+	30+	63s	63s	63s	63s	64s	64s	64s	64s	64s	64s	47+	47+	47+	48+	48+	48+	48+	
UMa	RV	RR			46	39	33					42		35	29	69				37	31				39		33	27	67					
UMa	RW	E10S		32						65					31s							64s				30							63	
UMa	TU	RR																						69			71							
UMi	W	S10				66		36					47					57					67	37					48					
Vir	CG	E10S													29																			
Vul	Z	S10	3													51							42				33							
Vul	RR	E10S	3																					39			44							
Vul	BN	90	3	48			45		42			39			36			33	52		30	49				27	46				43		40	
Vul	DR	E10X		47					34s		59s	47							34s			48				34s			48					
Vul	EV	E10S	3				48			30																42								
JD	587	..		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
2019 Okt		P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	SW	RR	3	30	63	51	40	28	61	49	38	26	59	47	36	24+	57	45	34	66	55	43	32	64	53	41	30	62	51	39	28	61	49	37
And	SY	L10	1																						5\	9	14/							
And	TW	S10	3				25s		31		37s		43		49s		56		62s															
And	XX	90		46		63	35		52		69	41		58	30		47		64	36		53	25	70	42		59	31		48		65	37	
And	CD	L10	2	97/																														
And	OV	90		37	31		67	61	55	49	43	37	31	25+	67	61	55	49	43	37	31	25	67	61	55	49	43	37	31	25	67	61	55	49
Aqr	SW	RR	2	33			46		38	30				43	35	27				40	32	24				38	29				35	27		
JD	587	..		58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88

2019 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
Aqr SX 90 3	31	39	46					28	35	42					24		31	39	46					28	35	42				24	31				
Aqr CD E10S 3				63						47			31						14				98				82								
Aqr HH 90 2		31	46				33	48		35								24	39			26	41		29		43		31						
Aqr LL L10 2				92s										1											9s										
Aql AA RR 44				33	42			31	40				29	38			27	36			25	34			23	32			30						
Aql V341 90 3	29	45			34				39				28				32				37			26			30				35				
Aql V889 L10			11					5s							23				17s						35				29s						
Aql V1353 E10S		35						30s	42				25	37s							32				28s	40		23			35s				
Aql V1426 E10S	24+	41+	59s	17+	35+		52	11+	29+	46s	5+	22+	40+	58	16+	34+	51s	10+	28+	45	4+	21+	39+	56s	15+	33+	50	9+	26+	44s	3+	20+			
Aql V1430 E10S		31s			37				30s				35				29s			34				28s		33			27s						
Ari X RR 2 58		54	49				44	40	70			35	65		61		56	51		47			42	38	68		33	63	58		54				
Ari RS L10 2									46										26								6								
Ari AL E10S 3			39												64					38										63					
Aur TZ 90 53	70	49	66	44			62	58	54			71	49	67	45	63	41	59	54	72			50	68	46	64	42	59	38	55	73	51	69		
Aur CQ L10 2		91						22s						53					85s						16					47s					
Aur IY E10S									64					43										61			40								
Aur V432 E10S 3		59s			67s									38			46		54				62		70						32s				
Aur epsil L10 2																																			
Aur zeta L10 1																									4\										
Boo RS RR 29													24		25															22	73				
Boo TW 90								25	31								29							75	28								73		
Boo UU 90			35	27					29						32											29+							23		
Boo AC E10D		28s	34s		27		33		27s	33s		27	32	73	26s	32s	73s	26	32	72	25s	31s	72s	25	31	72	25s	30s	71s	24	30		71		
Boo CM 90																																		75	
Boo CQ 90 3									25																										
Cam SS E10S 3		97s			38			79s		20			62s		3		44s		85				26s		67		9s		50				91s		
Cam SV S10	50s	39+	28+	47s	36+		25+	43+	32+	51	40+	29+	47	36+	25+	44+	33+	51s	40+	29+	48s	37+	26+	44+	33+	22+	41+	30+	49	38+	26+	45+			
Cam AK E10S	66s								34s	45	56s	68					24s	36	47s	58			70s				26	38s	49	60s			72		
Cam AN L10 3			4																							38s				4					
Cam AT E10S 3	40s	49		58s			28	68	37s	47		56s	26	66	35s		45	54s	24			64	33s	73s	43		52s	22	62	31s	71s		41		
Cnc S L10			43										91											40											
Cnc RU L10 2								64											82								99								
Cnc RW 90			59	69						61	71				54		63	72					55	65	74			57	67	76					
Cnc RZ L10 2				19\			81	/	43/								1\	63s	/	25/							83\	/	45	/	8/				
Cnc TT 90	64						71			65					60	72				67				61	74			55	68						
Cnc TU E10S 3					83						39						95						52						8						
Cnc TW L10 2																																			
Cnc UU L10 2			15												/	/																			
Cnc ZZ L10 2					55\		57	60/																											
JD 587 ..	58	59	60	61	62		63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87		88		

2019 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Cnc AQ	90	3	71				65					68					62	71						65	75					59	68			
CVn W	90									29			26											74						70				
CVn Z	90					72		68	64				26										72		68		64		60					
CVn RZ	90																												73					
CMa R	S10	2														73									69			66s				64		
Cas RX	L10	2	63	/	/													80s				/	/											
Cas RZ	S10	3			30	50	69			28	48	67					26	45	65				23	43	62					40	60			
Cas SX	L10	2																																
Cas TV	S10			60	42							67	48				29						73	54	36									
Cas TW	S10	3	36		65			50				36		64				50					36		64			50					36	
Cas TX	E10S	3	44		37		29		58\	63s	68\		61s	44\			49	54\					30\	35s	40\		32s		24s	71				
Cas AQ	L10	2		71\	77	82\						68\					49	54\					30\	35s	40\		16\	21	27\					
Cas BM	L10	3																																
Cas DN	E10S	3			31		46s	62				24	40s	55	71s								48	64s				26s	42	57s	73			
Cas GG	E10S	3	39									67					43											70						46
Cas GU	E10U																	23				33		42			51						61	
Cas IL	E10S	3	72					63									53							44						34				
Cas IT	E10X				72			62					51	66s			41		56s			31		46s			35s						25s	
Cas OX	E10X		52s			33	50s			31	48s			28			46s			26		44s	75		24	42s	73			22	39s			
Cas PV	E10X		59	51s	34	26s			59	51s	34	26s					60	51s	35	26s				60	52s	35	27s			60	52s			
Cas V368	E10S	3			31s		54								44									35			57s							
Cas V375	E10D		62s	35	56s	30	51s	25	72		46s	67	40s				61	35s	56	30s		51	24s	72s	46		67s	40	61s			35		
Cas V381	E10X	3	29		59s	53	34s	28				57s	51	32s	26				75	56s	50	30s	24		74	54s	48	29s	23					
Cas V459	L10	3			28s			58																					66s					
Cep RZ	90		37+	29+	53	45	38+	31+	54	47	39+	32+	24+	48	40+	33+	26+	49	42+	34+	27+	50	43+	35+	28+	51	44+	37+	29+	22+	45+	38+	30+	
Cep VW	S10		37+	34+	32+	29+	26+	38+	35+	33+	30+	27+	25+	36+	34+	31+	28+	26+	23+	34+	32+	29+	27+	24+	35+	33+	30+	28+	25+	22+	34+	31+	29+	
Cep XX	S10		61				28	62					30	63										64				32	66					
Cep XY	E10S					60		37									70		47					25									57	
Cep ZZ	S10		65										35	50				64										35	49					
Cep AI	E10S	3						25s			36	47s	59				70s											26	38s					
Cep CW	E10X	3	49				49s		68			41	68s				41s					59		32	59s			32s						
Cep EI	L10	3	55s		77			99s					21						43s					65			87s							9
Cep EX	L10	2											13															57						
Cep NN	E10S						25s	28	31s	34	37s	40	43s	45	48s	51	54s	57	60s	63	66s	69	72s	75										
Cet RR	RR	2	42	52	63		39	50	61			37	48	58			35	45	56			33	43	54			30	41	51				28	
Cet RV	90	2	53				52					51					49						48					47						
Cet TU	E10S	2	60		99					38			77						16					55			94							
Cet TV	L10	2	77s				38		88s				49						98s					59					8s					
Cet XY	E10S	2			52s			70				48					65s		43s					60			38						55s	
JD 587	..		58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	

2019 Okt	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Gem SZ 90						54	54	54	55	55	55	55	56	56	56	56	56	57	57	57	57	57	58	58	58	58	59	59	59	59	60	60		
Gem WW E10S 3		47s	71s		57			66s		52			62s	47	71		57s	42	66			52s		61			47s	71s		56				
Gem YY S10		63s		67		70s	52s		55		59s		62		66s	47s	69	51	73s	54s		58		62s	43s	65	47	69s	50s	72	54	76s		
Gem OW L10 2																																		
Gem V339 E10U 2																	64			52														
Her TW RR 3		38		38		38		37		37		37		37		37		36		36		36		36		36		35		35		35		
Her TX S10																		26s	29	32s	34		37s	40										
Her UX E10D					29s			39s				26		36					23s			33s						30						
Her VX RR 3					28					29				30												22						23		
Her VZ 90		26		34			43	31				39	27			35											28	36	24			32		
Her AK S10			30	36s			25	31s		26s		31		26	32s			27s	32				27		22	28s			23s	28				
Her AR 90							40	34	28					39	33		27+						38	32	26+							31		
Her AW L10 3										43									23								3							
Her DI L10 3							4s	46									59s			1							14s		56					
Her GU E10U						29													32															
Her LV L10 2		95																			39													
Hya SZ 90 2																						73						64	71					
Hya WZ 90 2																															76			
Hya AI L10 2					61				32s			90					61s					19		90s						48				
Hya ET 90 2					69											65		71								62		68		74				
Lac RW L10 3				33s				58											95						7s					32				
Lac SW S10		38+	34+	30+	26+	39+	35+	31+	27+	39+	36+	32+	28+	24+	37+	33+	29+	25+	37+	34+	30+	26+	38+	35+	31+	27+	23+	36+	32+	28+	24+	36+		
Lac UW E10S 3				46						75					4										62						91			
Lac CO E10X		36s		70	44s	25		53s	33		61s	41		70s	50	24s		58	32s		67	41s		49s	29		58s	38		66s		46		
Lac CZ 90		63	49	36	65	52	38	25+	54	41	27+	57	43	30	59	46	32	62	48	34	64	50	37	23+	53	39	26	55	42	28	58	44		
Lac V345 E10X 2			86s					70			36s					20		85s					69		34s						18			
Lac V364 E10X 3		29s							65s				27											35s			72	62				69		
Leo RR RR			65					72	62				69	60					67			74	65				72	62						
Leo SS RR															74											76								
Leo ST RR															73											72	68							
Leo WY E10S													73						71						70					69				
Leo AG E10S												61						70s												58				
Leo AM S10					70s		71		72s							67s		69		70s		71		72s	73	65s	75s	66	76	67s				
Leo FM E10U 2																														71s				
Lyn TY E10S 3		70														69														69				
Lyn CD E10S 3				52s																45			72s							55				
Lyr RR RR 3		51			34	48			31	44			28	41			25	38	51				35	48			32	45			28	42		
Lyr RZ 90		34	36	38	40	43	45	47												23	25		27	30	32	34	36	39	41					
Lyr UZ S10				51s	46	40s	35	29s															48	42s	37	31s	26							
JD 587 ..		58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88		

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Lyr	CN	90		44	27		32		38		44	26		32	37		43		25	31		37		25		25		30	36				24		
Lyr	EZ	RR		32	37	42	47						25	30	35	40	45					23		28	33	38	43							26	
Lyr	IO	90				32			36				25	40			29	44			33			37			25	41			29				
Lyr	beta	S10	3			78							25s						72							19s						66			
Mon	UX	E10S	2		54			49s			45			40s			35			30s		26				21s		16			11s				
Mon	VV	E10S	2	86				89s	91				94s				96		99s			1				4s		6				9s			
Mon	AQ	E10S	2			67s													67								58s						67s		
Mon	AR	L10	1	46/									37\	22s	7/								97\	82	67/								58\		
Mon	AT	E10S	2																	60		62		65		68		71		74					
Mon	AV	E10S	2			62s			9				56s			4				51s		99				46s			93				41s		
Mon	EZ	E10U	2	62			63		64				65				65		66		67			55s	68		56s	69	57s	70		58s	71		
Mon	IL	E10S	2	8				10					13				16			18				21				23				26			
Mon	V448	E10S	3					66s					57	69				61s	73s			52	64				56s	67s		59	71				
Mon	V530	E10U	2		61	66	71		55s	60s	66s	71s		55	60	65	70		54s	59s	64s	69s	74s	53	58	63	68	73	52s	57s	63s	68s	73s	52	
Mon	V536	E10X	2								62s																						63		
Mon	V634	E10U	3			62		73																	65										
Oph	U	ST															26s																		
Oph	RZ	L10	1																																
Oph	ST	90							30					26									26					22							
Ori	Z	E10S	2					32					52				72						93					13					33		
Ori	BM	E10S	3	14					61							8							55					2							
Ori	CP	E10S	2	41					73					5					37					69					1						
Ori	DN	L10	2				15													11												8			
Ori	EW	E10X	3																		70s							64s							
Ori	FO	L10	2				80																		60										
Ori	FT	E10X	3											45s	50		60s		65		75s														
Ori	GG	E10X	2											65s															71						
Ori	V536	E10S	2										53				69															51			
Ori	V1016	L10	2																									11							
Ori	V1031	E10S	2		71												63s					74						55					66s		
Peg	U	S10	3	33+	27+	39+	33+	26+	39+	32+	26+	39+	32+	26+	38+	32+	26+	38+	32+	26+	38+	32+	25+	38+	32+	25+	38+	31+	25+	38+	31+	25+	37+	31+	
Peg	VV	RR		42	39	37	35	32	30	28	26								53	51	49	46		44	42	40	37	35	33	30	28	26	23		
Peg	VW	L10	3																					5											
Peg	AV	RR	3		42		37	54	32	50	28	45		40	35	52	30		47	26	43		38		33	50	28	45	23	41		36		31	
Peg	AW	L10	2				76						7s				38						69s					0					32s		
Peg	BH	90	3	38		30	59		51		43		35		28	56		48		41		33		25	53		46		38		30		22	51	
Peg	BK	E10S	3								66			40s											38s										
Peg	CG	90	3	57	50	43	37	30				51	44	38	31	24			51	45	38	32	25			52	46	39	32	26				46	
Peg	DF	L10	3	11													81															51			
JD	587	..		58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	

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Peg DH RR	2	39	41	43	46	48	50	27+	29	31	33	35	38	40	42	44	46	23+	25+	27	30	32	34	36	39	41	43	45	22+	24	26	28	
Peg GH E10S	3				37s						48s			32					43				26s				37s						
Peg IP K10	3	38+	33+	28+	39+	33+	28+	39+	34+	29+	40+	35+	30+	25+	35+	30+	25+	36+	31+	26+	36+	31+	26+	37+	32+	27+	22+	33+	27+	22+	33+	28+	
Per RW L10	2													68													88						
Per RY E10S	3										66						52							39							25		
Per AG E10X	3		39	35s	42	38s	45	40s	47	43s	50	46s	53	49s	56	52s	59	55s	62	58s	65	61s	68	63s	70	66s	73	69s	76	72s		75s	
Per AR 90		68	53	38	66	51	36	64	49	34	61	47	32+	59	44	30+	57	42	27+	55	40	25+	53	38	23+	51	36	64	49	34+	62	47	
Per AY L10	3				62											39												17					
Per IQ E10X	3	49					72	50s	46					73s	69	47s	44				70s	67	45s	41			68s	64	42s	38			
Per KN E10U	3	38s	68	55	42	28+	58s	45s	32s	62	48	35	65s	51s	38s	25+	55	41	28+	58s	45s	31+	61	48	35	64s	51s	38s	24+	54	41	28+	
Per LX L10			85				87s				89					91s				93			95s				97					99s	
Per beta S10	3		58			44				31				61s		48s				35s			65			51			38			25	
Psc RU 90	3	52	30+	47	25+	42	60	38	55	33	50	28+	45	62	40	57	36	53	31	48	26+	43	60	38	55	33	51	29	46	24+	41	58	
Psc RY 90	2				31	37	43	48	54					31	37	43	49	55					26	32	38	44	50					26	32
Psc SS 90	3	33+	48	34+	49	36+	51	37+	52	38+	25+	40+	26+	41	28+	43	29+	44	31+	46	32+	47	33+	49	35+	50	36+	23+	38	24+	39	26+	
Sge SY E10S	3	46s									31																23s						
Ser AN 90	3		27																							24							
Ser BH 90	3				27																												
Ser EG L10	3				42s					40						37s				34					32s					29			
Ser LX K10	3		29				30	25			26				27		28	23						25								22	
Sex T 90								73	70	67											74	71	69	66	64								
Tau RW S10	3									65				42										49									
Tau CD S10	3					47s					63												65s							52s			
Tau EN E10S			64						59							55								46	70s			42	66s				
Tau V1094 L10	2		3s			16						2s			14							1s			13						0s		
Tri X S10	3	35	32	29																			72	69	66	64	61	58	55	52	49	47	
Tri RU E10S	2		58s					48						39s		66s			29					46s					73s		37		
Tri UX 90	3	42	35	28	69	62	55	49	42	35	29	69	62	56	49	42	36	29	23+	63	56	49	43	36	30	23+	63	56	50	43	37	30	
UMa W S10		48+	48+	48+	48+	48+	48+	49+	49+	49+	49+	49+	49+	49+	49+	49+	49+	49+	50+	50+	50+	50+	50+	50+	50+	50+	50+	50+	50+	51+	51+	51+	
UMa RV RR				35	29	69	63							31	24+	65											61	29+	22+	63	56		
UMa RW E10S														63s										62									
UMa TU RR											65					67														61	73		
UMa TX S10								56			63				69																		
UMi W S10			58		28				69		39					49											29		70		40		
Vir AG E10D											73s																			76	72s	68	
Vir AH S10																			71s	73	75s								69	71s	73	75s	
Vir AV 90																																75	
Vul Z S10	3																																
Vul RR E10S	3	49					54															43			34				25				
JD 587 ..		58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	

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Vul	BN	90	3			37			34			31			28			25	44			41			38			35			32			29	
Vul	DR	E10X						35s			48						35s	24		49						35s	24								36s
Vul	EV	E10S	3										35																	28					
JD	587	..		58	59	60	61	62		63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
2019 Nov				P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
And	SW	RR	3	26	59	47	35	24		57	45	33	22	55	43	32	20	53	41	30		51	39	28		49	37	26			47	35	24	45	
And	SY	L10	1																									95\	\	0	5/				
And	TW	S10	3							23s		29			35s		41		48s		54														
And	XX	90			54	26		43		60	32		49		21	66	38		55	27		44		61	33		50	22		39		56	28		
And	CD	L10	2	28\	\	34	/	41/																											
And	OV	90		43	37	31	25			61	55	49	43	37	31	25	20	61	55	49	43	37	31	25		61	55	49	43	37	31	25	19		
Aqr	SW	RR	2			40	32	24					37	29	21				34	26					31	23					28	20			
Aqr	SX	90	3	39						21	28	35						24	31	38					21	28	35					24	31		
Aqr	CD	E10S	3		66						49					33					17					1				85					
Aqr	HH	90	2		33					35			22	37			24	39			26				28			31				33			
Aqr	LL	L10	2			18											27s											36							
Aql	AA	RR		28	36					26	34			24	32			22	30			20	28					26			24				
Aql	V341	90	3		24					29					33		22				27				32			21				25			
Aql	V889	L10						47					42s							60				54s							72				
Aql	V1353	E10S						30						25s					21		33s					28					23s				
Aql	V1426	E10S		38+	55	14+	32+	49s		8+	25+	43	2+	19+	37+	54s	13+	30+	48	7+	24+	42s	1+	18+	36+	53	12+	29+	47s	6+	23+	41+	58	17+	
Aql	V1430	E10S			32					26s			31				25s							24s							23s				
Ari	X	RR	2	49		44				40	35	65	31		61	56		51		47	42				38	33		28		58	24	54		49	
Ari	RS	L10	2			86										67										47									
Ari	AL	E10S	3			37											62					36													
Aur	TZ	90		47	64	43	60	39		56	34+	52	69	48	65	44	61	40	57	35+	53	31+	49	66	45	62	40	58	36+	54	32+	50	67	45	
Aur	CQ	L10	2			78						9s					40					71s						2						34s	
Aur	IY	E10S								57			37								75				54		33								
Aur	V432	E10S	3	41s				49s				57s			65s		73s			27		36				44		52			60				
Aur	epsil	L10	2																																
Aur	zeta	L10	1													48																			
Boo	RS	RR		74				76								69				71		72				74		76		65	78		67		
Boo	TW	90		26							71	25						63		70	23+					62	68	75							
Boo	UU	90						25+					74					76		22+					70					73	19+				
Boo	UY	90						74														76		71											
Boo	AC	E10D		24s	29s	70s	23+	29+		70	23+	29+	70s	22+	28+	69	22+	63s	69s	22+	63	68	21+	62s	68s	21+	62+	67	20+	61+	67s	20+	61+	67	
JD	587	..		89	90	91	92	93		94	95	96	97	98	99																				
JD	588	..													0	1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

2019 Nov	P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
Cas V368	E10S	3	25	48s			70						38s	61			28s	51			73s															
Cas V375	E10D		56s	30	77	51s	24	72	45s	66	40s	61	35s			56	29s	77s	50	24s	71s	45	19s	66s	40		61s	34		55s						
Cas V381	E10X	3	72	52s	47	27s	21		70	51s	45	25s	20	69		49s	43	24s					48s	42	22s						46s					
Cas V459	L10	3		95			12s				41			58s				87					3s				32									
Cep RZ	90		23+	46+	39+	32+	24+	48	40+	33+	25+	49	41+	34+	27+	50	43+	35+	28+	20+	44+	36+	29+	22+	45+	38+	30+	23+	46+	39+	31+	24+				
Cep VW	S10		26+	23+	21+	32+	30+	27+	24+	22+	33+	31+	28+	25+	23+	20+	31+	29+	26+	24+	21+	32+	30+	27+	25+	22+	19+	31+	28+	26+	23+	20+				
Cep XX	S10			33	67						34		68			36	69											37								
Cep XY	E10S		35								67		44			22						77		54				32								
Cep ZZ	S10		63	77								34	48			62	77								19		33	47								
Cep AI	E10S	3	49	60s												28s	39	50s				62														
Cep CW	E10X	3	51		24	51s		24s	70			43	70s			43s					62		34	61s			34s									
Cep EI	L10	3		31s				53				75s				97						19s			41					63s						
Cep EX	L10	2									0												44													
Cep NN	E10S									21		24s	27	30s	33	36s	39	42s	45	48s	50	53s	56	59s	62	65s	68	71s	74	77s						
Cet RR	RR	2	39	49		26	36	47			23	34	45	55			32	42	53			30	40	51			27	38	48							
Cet RV	90	2	45				44					43					42					40					39									
Cet TU	E10S	2	33		73					12			51														68									
Cet TV	L10	2		69			19s					80					29s			90				39s								0				
Cet XY	E10S	2		33s			50						45s							41				58s			36s									
Com S	90		74		68							72		65				75				69		62	79			73								
Com ST	90	3																				73		78			78				77					
CrB U	S10																																			
CrB RV	90	3					77	77	76	76	75																									
Crt W	90	2												76																						
Cyg UY	RR		33	45		26	38			30	42		23	35					27	39				20	32			24	37							
Cyg XZ	RR		57	51	44	37	30+	24		50	44	37	30+	24		50	44	37	30+	24			50	44	37		30+	24+								
Cyg BO	E10S			47s	35	22s				49s	37	25s				52s	40	27s						42	30s											
Cyg BR	E10S		51																																	
Cyg DM	RR	3		37	21	47	31	41	25	35		45	29	39		22	32	42			26		36	20			30	40	24							
Cyg EM	K10	2	34	21	37	24	41	28	32	35		23	39	26	30		34	21	37	24			28	32	19		35	23	26							
Cyg V367	L10	2	/				\ / 82 / /				/ / \ /						\ / 12s / /										\ / 42 / /									
Cyg V463	E10S			21s	27	33s	39															21	27s	33												
Cyg V477	E10X						25s				24		29s					28				33s		32				37s								
Cyg V541	L10	3			67							70s										1						4s								
Cyg V548	E10S	3					49	39s	29							51	41s	32	22s								44s	34	25s							
Cyg V788	L10	3						83\ 79			75/																									
Cyg V891	E10S									33		24																								
Cyg V909	E10S		23s						24							26s								27									28s			
Cyg V1061	E10S						44						48									52					21									
JD 587	..		89	90	91	92	93	94	95	96	97	98	99																							
JD 588	..												0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19				

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Cyg V1918 E10D		23+	26+	30+	33s	36	40s	22+	26+	29+	32	35s	39	21+	25+	28+	31s	35+	38s	20+	24+	27+	30	34+	37+	20+	23+	26	29s	33+	36+	
Del DX 90 3						38	32	27	21						36	30	25						34	28	23							
Dra RW RR		33	22+		43	32+	21+		42	31+	63		41	29+	62		39	28+	61		38	26+	59		37	25+	58		35+	24+	57	
Dra SU RR		32	64	30	62	28	60	26	58	24	56	22	54	20	52		51		49		47		45	77	43	75	41	73	39	71	38	
Dra SW RR		27	41	55	69	26	40	54	68	25	39	53	67	24	38	52	65	22	36	50	64	21+	35	49	63	20+	34	48	62	19+	33	
Dra TZ E10D		31s			34	21		37s	24s		41	27		30s			33+	20		37s	23s		40	26			29+			32+		
Dra VZ 90		39+	35+	32+	28+	24	21		45+	42+	38+	34+	30+	27+	23		76	40+	37+	33+	29+	26+	22		79	75	39+	35+	32+	28+		
Dra WW S10 2		56													45									71						34		
Dra XZ RR 3		38	34	29+	24+	67	63	58	53	48	44	39	34	30+	25+	20+	63	58	54	49	44	40	35	30+	26+	21+	64	59	54	50	45	
Dra AI S10				33			73			33		72					32		72			31		71				31		71		
Dra BF L10		10						51s					31					73s						52								
Dra BK 90		24	42	61		38	57	75	34	53	71	31	49	67	27	45	63	23	41	59	78	37	55	74	33	51	70	29	48	66	25	
Dra BU E10S		58						32s		23											72		63s		55						29s	
Dra DD 90		34+	32+	30+	28+	26+	24+	22+	53	51	49	47	45+	43+	41+	39+	37+	35+	33+	31+	29+	27+	25+	23+	21+	19+	50	48	46+	44+	42+	
Dra EX K10 3		30+	35+	40+	24+	29+	34+	39+	23+	28+	33+	38+	22+	27+	32+	37+	21+	26+	31+	36+	20+	25+	30+	35+	19+	24+	29+	34+	39+	23+	28+	
Dra GV L10 2												27																				
Equ S S10																					31											
Eri SV 90 2		50					50					50		35			49			35		49		35			49			34		
Gem U K10		56+	62	50+	57+	45+	51+	57+	46+	52+	58+	46+	53+	59+	47+	53+	42+	48+	54+	43+	49+	55+	43+	49+	56+	44+	50+	39+	45+	51+	39+	
Gem RR 90		58	77	56	75		55	74	54	73	52	71	51	70	49	69	48	67	47	66	45	65	44	63	43	62	41	61	40	59	39+	
Gem RY L10 2		27				92s					57					22s										52s					17	
Gem SZ 90		60	60	61	61	61	61	61	62	62	62	62	63	63	63	63	63	63	64	64	64	64	65	65	65	65	66	66	66	66	67	
Gem WW E10S 3		42s	66s		52	75	37s	61s		47	70		56s		42	66		51s	75s	37	61		46s	70s	32	56		42s	65s		51	
Gem YY S10		57s		61	42	64s	46s	68	49	71s	53s	75	56	38	60s	41s	64	45	67s	49s	71	52	74s	56s	37+	59	41	63s	44s	66	48	
Gem OW L10 2																																
Gem V339 E10U 2								68				56		44																		
Her TW RR 3		35		35			34		34		34		34																			
Her TX S10																					21s	24				27s	30					
Her UX E10D						27s						24									21s											
Her VX RR 3					24																								19			
Her VZ 90			29				25				33+	21		29							26		78	22		74					27	
Her AK S10			23	29s			24s			24				24s							20s		20			20s			79	21		
Her AR 90		25+							30+	24+							29+	23+							28+	22+	63					
Her AW L10 3					83									63									43									
Her DI L10 3							69s		11									24s		66								79s		21		
Her GU E10U												21s													24s						75	
Her LV L10 2						27s		82																			26					
Hya SZ 90 2			62	70	77					61		68	76						59	67	74				57	65	72					
Hya WZ 90 2							75					66	74												65	73		64	72	79		
JD 587 ..		89	90	91	92	93	94	95	96	97	98	99																				
JD 588 ..													0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

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Hya AI L10 2			19s				77				48s					6					77s			35				6s					
Hya ET 90 2							59		65		70			76				56		62		67		73				53		58			
Lac RW L10 3				44s					69						81s						6				18s				43				
Lac SW S10		33+	29+	25+	21+	34+	30+	26+	22+	34+	31+	27+	23+	35+	32+	28+	24+	20+	32+	29+	25+	21+	33+	30+	26+	22+	34+	31+	27+	23+	19+		
Lac UW E10S 3						20					49											7						36					
Lac CO E10X			55	29s			63	37s			46s	26		54s	34		62s	43			51	25s		60	34s			42s	22		50s		
Lac CZ 90	31	60	47	33	63		49	35	22	51	38	24	54	40	27	56	43	29	59	45	32		48	34	20	50	36	23	52	39	25		
Lac V345 E10X 2	83s						67				32s					16	82s					66			31s					15			
Lac V364 E10X 3			33													40s									38								
Leo RR RR	60			77	67		58			74	65	55			72	62	53			70	60	51		77	67	58	48		74	65	55		
Leo SS RR												67					68					69						70					
Leo ST RR				76	72		67		63							76	71	67	62							79	75	70	66	62	57		
Leo WY E10S			67						66						64						63				61				60				
Leo AG E10S			66s						75						54						63s				72								
Leo AM S10	68		70s		71		62s	72s	63	73	65s	74s	66	76	67s	58+	68	60+	69s	61	71	62s	72s	63	73	64s	56+	66	57+	67s	58+		
Leo FM E10U 2																								63s									
Lyn TY E10S 3										68									35					68									
Lyn CD E10S 3				37s			65							47s	74								57s						39				
Lyr RR RR 3		25	39				22	35				32				29	42			26	39				23	36		19	33				
Lyr RZ 90											21	24	26	28	30	33	35																
Lyr UZ S10									39	34s		28	23s															36s	30	25s	19		
Lyr CN 90	30		35				23		29	35				23	29		34						28					22		27			
Lyr EZ RR	31	36	41							24		29	34	39								27	32								20		
Lyr IO 90		33			22		37		26					30			34								26				30				
Lyr beta S10 3					13s							60							7s						54								
Mon UX E10S 2	6		2s				97			92s				87		83s				78		73s		68				63s		59			
Mon VV E10S 2	11		14s					16		19s				21			24s			26			29s		31				34s				
Mon AQ E10S 2			76s					58						67			49s						58s						67s				
Mon AR L10 1	42s	27/										18\	88/									78\	63s	48/									
Mon AV E10S 2			88					35s		83					30s				77			25s		72				20s					
Mon EZ E10U 2		59s	72	60s			73	61s	74	49		62s	75	50	63s		51	64s		52	65s		53	66s	54		67s	55	68s				
Mon IL E10S 2			29				31			34					37				39				42				44			47			
Mon V448 E10S 3	50s	62s	74s				54	66	77	45s		57s	69s		48		60	72			52s	64s			43	55	67		47s	58s			
Mon V530 E10U 2	57	62	67	72	51+		56s	61s	66s	71s	50+	55	60	65	71	49+	54s	60s	65s	43+	49+	54	59	64	43+	48+	53s	58s	63s	42+	47+		
Mon V536 E10X 2				76																	56s						69s						
Mon V634 E10U 3								56		67															47			59		70			
Oph U ST			23																														
Oph RZ L10 1																																	
Oph ST 90			22																														
JD 587 ..	89	90	91	92	93		94	95	96	97	98	99																					
JD 588 ..													0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	

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Ori Z	E10S	2				53					74					94						14					35						
Ori BM	E10S	3	49						96							43						90							37				
Ori CP	E10S	2	33					65					97					29					61						93				
Ori DN	L10	2										4													1								
Ori EW	E10X	3	58s							52s							45s							39s			64						
Ori FO	L10	2										40																			20		
Ori FT	E10X	3	40	50s	55		65s	70															40s	45		56s	60		71s	75			
Ori GG	E10X	2	55s														60						44s										
Ori V536	E10S	2	67														49				65												
Ori V1016	L10	2																															
Ori V1031	E10S	2										58													50s					60			
Peg U	S10	3	25+	37+	31+	25+	37+	31+	24+	37	31+	24+	37	30+	24+	36	30+	24+	36	30+	24+	36	30+	23+	36	30+	23+	36	29+	36	29+		
Peg VV	RR										47	44	42	40	37	35	33	30	28	26	23		21										
Peg VW	L10	3										12																					
Peg AV	RR	3	48	26	43	21	38		34		29	46	24	41		36	31		27	44	22	39		34		29		25	42	20	37		
Peg AW	L10	2				63						94s					25						56s				87						
Peg BH	90	3		43		35	28			48		40		33		25						45			38		30		43		35		
Peg BK	E10S	3		36s											34s										32s								
Peg CG	90	3	40	33	27			47	40	34	27	21				41	35	28	21					42	35	29	22			43	36		
Peg DF	L10	3													21															91			
Peg DH	RR	2	31	33	35	37	39	42	44		23	25	27	29	31	34	36	38	40			21	24	26	28	30	32	35	37	39			
Peg GH	E10S	3				32						43																		33			
Peg IP	K10	3	23+	34+	29+	24+	34+	29+	24+	35+	30+	25+	20+	30+	25+	20+	31+	26+	21+	32+	27+	21+		32+	27+	22+	33+	28+	23+	33	28+	34	
Per RW	L10	2								8																							
Per RY	E10S	3		68s							55s						41s											71					
Per AG	E10X	3																												19	22		
Per AR	90		32+	59	45	30+	57	42	28+	55	40	25+	53	38	23+	51	36	21+	49	34+	62	47	32+	60	45	30+	57	43	28+	55	40	26+	
Per AY	L10	3						95																									
Per IQ	E10X	3		65s	62	39s	36				63s	59	37s	33				60s	56	34s	31				57s	54	32s	28		77	55s		
Per KN	E10U	3	58s	44s	31+	61	48	34	21+	51s	38s	24+	54	41	27+	57s	44s	31+	61	47	34	21+	51s	37s	24+	54	41	27+	57s	44s	30s	60	
Per LX	L10				1				3s				5				6s					8				10s				12			
Per beta	S10	3	68s		55s			42s			29s	72			59			45						19	62s			49s		36s			
Psc RU	90	3	36	53	31	48	27	44	22+	39	56	34	51	29	46	24	42	20+	37	54	32	49	27	44	22	39	57	35	52	30	47	25	
Psc RY	90	2	38	44	50			21	27	33	39	45						22	28	33	39	45				22	28	34	40				
Psc SS	90	3	41	27+	42	29+	44	30+	45	31+	47	33+	48	34	21+	36	22+	37	24+	39	25+	40	26+	42	28+	43	29+	44	31	46	32	19+	
Sge SY	E10S	3		31s							39s											24				32							
Ser AN	90	3																												74	78		
Ser BH	90	3									77																72			76			
Ser EG	L10	3		26s						24																				13			
JD 587	..		89	90	91	92	93	94	95	96	97	98	99																				
JD 588	..													0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

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Ser	LX	K10	3		23															76		77			78	73		79	74				75		
Sex	T	90		75	73	70	68	65	62	60					77	74	72			69	66	64	61	59	56			78		76	73	70	68	65	
Tau	RW	S10	3		57				34						65					41									49						
Tau	CD	S10	3		67			39s					54							41					57s			72			44s				
Tau	EN	E10S		38	61s					57s					53s	77				48s	72				44s	68		39s	63						
Tau	V1094	L10	2	12					99s				11								10					97s			9						
Tri	X	S10	3	44	41	38	35	32	29	27	24	21																			61	58			
Tri	RU	E10S	2		64		27s			54s					44					35s			61s		25			52					42s		
Tri	UX	90	3	23	63	57	50	44	37	30	24	64	57	51	44	37	31	24		64	58	51	44	38	31	25		58	51	45	38	32	25		
UMa	W	S10		51+	51+	51+	51+	51+	51+	51+	35+	35+	35+	35+	35+	35+	35+	35+	35+	35+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+	36+	37+	37+	37+	
UMa	RV	RR		77	24+	65	58					26+		20+	60	54				75	22+	63	56		50			77	71		65	58	52		
UMa	RW	E10S			61s											60												59s							
UMa	TU	RR			63	75				65	77			55	67					57	69				59	71			61	73					
UMa	TX	S10																				45		51				58		64					
UMi	W	S10		50					60	31				71	41					51		21				62	32		72	42					
Vir	ST	90	2																														78		
Vir	AG	E10D					75		72s	68	65s					75	71s			68	64s	61				78s	75	71s	68	64s	60				
Vir	AH	S10							66	68s	70	71s	73	75s	77					64s	66	68s	70	72s	74	76s	77	79s	61s	63	65s	67	68s	70	
Vir	AT	90	2								75											74										73	78		
Vir	AV	90																						77		74	71		68	65					
Vir	CG	E10S																										78s							
Vul	Z	S10	3																		34					25									
Vul	BN	90	3		27			24			21				37			34			31				28		25		22				19		
Vul	DR	E10X		24																										37s	25				
Vul	EV	E10S	3												21														32						
JD	587	..		89	90	91	92	93	94	95	96	97	98	99																					
JD	588	..												0	1	2	3			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
2019 Dez			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
And	SW	RR	3	33	22	54	43	31	20	52	41	29		50	39	27		48		37	25		47	35	23		45	33	21		43	31	19		41
And	SY	L10	1																													86	91		96/
And	TW	S10	3									21s			27		34s			40		46s													
And	XX	90		45			34					40		57	29	46										41		30		47	19		36		
And	CD	L10	2				72\			\	79s	/	85/																						
And	OV	90		55	49	43	37	31	25	19			49	43	37	31	25	19		55	49	43	37	31	25	19		49	43	37	31	25		19	
Aqr	SW	RR	2			25					22						28	20					25					22							
Aqr	SX	90	3						21	28							24									21	28				24				
Aqr	CD	E10S	3	68					52					36						20					4			87					71		
JD	588	..		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	

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Aqr HH 90	2		20	35			22				24						26			28															
Aqr LL L10	2			45s										54									63s												
Aql AA RR						20											24			22															
Aql V341 90	3											19											20												
Aql V889 L10		66s								84							78s								90s									8	
Aql V1353 E10S											26																							19s	
Aql V1426 E10S		34+	52s	11+	28+	46	4+	22+	40+	57s	16+	33+	51	10+	27+	45s	3+	21+	38+	56	15+	32+	50s	8+	26+										
Aql V1430 E10S					22s									20s																					
Ari X RR	2		45		40		35		31		26	56	21	52		47				42		38	33		28		24			19	49		45		
Ari RS L10	2	27									8																							68	
Ari AL E10S	3			35																															
Aur TZ 90		63	41	59	37+	55	33+	50	29+	46	64	42	60	38+	55	34+	51	30+	47	25+	43	60	39+	56	35+	52	30+	48	26+	44	22+		40+		
Aur CQ L10	2					65					96s																								
Aur IY E10S				71		51				30																									65
Aur V432 E10S	3	68		22s	76		31s			39s							47s				55s														
Aur epsil L10	2																																		
Aur zeta L10	1		92/																																
Boo RS RR				69			71			72		61	74		63	76								69		57	70		59	72				61	
Boo TW 90		60	67	73	79						59	65	71	78													55	62	68	75					
Boo UU 90		76	67				78	70									72	64																	
Boo UY 90		78		73		68											75		70		65				60									72	
Boo AC E10D		20+	60+	66s	19+	60+	66	19+	60+	65s	71s	59+	65	71	59+	65s	70s	58+	64	52+	58+	64s	52+	58+	63	51+	57+	63s	51+	57+	62		51+		
Boo CM 90				64			69			74																		79		62					66
Boo CQ 90	3			78		76			73		70	68		65	78		75		72		70			67		64	77	62	74		72			69	
Boo CS 90				64	75					63	73																								
Cam SS E10S	3		26		67s			8		49s		90					73			14s				55		96s	37		78s					19	
Cam SV S10		29+	48+	37+	26+	44+	33+	22+	41+	30+	19+	37+	26+	45+	34+	23+	41+	30+	19+	38+	27+	46+	34+	23+	42+	31+	20+	39+	28+	46+	35+		24+		
Cam AK E10S						23s					35	46s	57	69s		25	37s	48	59s	71							27s	39	50s	61	73s				
Cam AN L10	3	38s					3																												
Cam AT E10S	3		51	21s	61s	30	70	40s	79s	49	19s	59s	28	68	38s	77s	47			57s	26	66	36s	75s	45		55s	24	64	34s	73s	43			
Cnc S L10											82																								79
Cnc RU L10	2							68																											3
Cnc RW 90		60	69	78		43	52	61	71			44	54	63	73		37	46	56	65	75					39	48	58	67	77		41	50	60	69
Cnc RZ L10	2	54/									12\	74	/	36/													94\	\	56s	/	18/				
Cnc TT 90		49	62	74		43	56	69			50	63	76	45	58		70		39	52	65					77	46	59	72					35	
Cnc TU E10S	3						1																												25
Cnc TW L10	2																																		
Cnc UU L10	2		/																																
Cnc ZZ L10	2																																		
JD 588 ..		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49			

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Cnc AQ 90 3		50	59	69	79		53	63	72			47	56	66	76			50	60	70	79	44	53	63		73			47	57	67	
CVn W 90					57	67	78				64	74			60		71			57	67	78		53		64	74			50	60	
CVn Z 90		61		57		53		50			77		73		69		65		61		58		54		50		46	77	42	73	69	
CVn RS S10 3						78					58							77s					57s							77		
CVn RZ 90		78			61	75			59	72			56	69				66				64	77		61		74			58	72	
CMa R S10 2				58				56s				53				51s				48				46s					57			
CMi AM E10S																								38		40	42	44	46	48	49	
Cas RX L10 2			\	\			31			/	/							\	\				48s		/	/						
Cas RZ S10 3					26	46	65				24	43	63				21	41	60				19	39	58	78			36	56	75	
Cas SX L10 2								12\	95	/	78/																					
Cas TV S10			42	23						67		48	30								55		36							61	42	
Cas TW S10 3		78		21	64			49		35		78	21	63			49			35	78		20	63			49			35	77	
Cas TX E10S 3					37s		29s	76		22s	68		61				54			46			39		32		78s		24	71s		
Cas AQ L10 2		32\	37	43/				18\	24s	29/			4\	10	15/			90\	96s	/		1/		76\	82	87/				62\	68s	
Cas BM L10 3																																
Cas DN E10S 3			24s	39	55s		70					33	48s	64	79s			26	41s	57		72s		19		35s	50	66s				
Cas GG E10S					29										57															60		
Cas GU E10U		54			63																		19				28			38		
Cas IL E10S 3							31			76				21			66							57							47	
Cas IT E10X		42s			32s					22s																	55			45		
Cas OX E10X		58	76s		24s		56	73s		22s		54	71s		20s		52	69s				50	67s				48	65s			45	
Cas PV E10X				61	53s		36	28s		78s		61	53s	36	28s			78s	61	53s	36	28s		78s	61	53s	36	28s			78s	
Cas V368 E10S 3		19s	41		64s								32	54s			77					22	44s	67								
Cas V375 E10D		29	76	50s	24	71	45s	66	39s			61	34s	55	29s		76s	50	24s	71s	45		66s	39	60s		34	55s	29	76	50s	
Cas V381 E10X 3		40	21s					44s	39	19s				43s	37							41s	35						39s	34		
Cas V459 L10 3			49s				78			95s				24					41s				70				87s					
Cep RZ 90		48+	40+	33+	25+	49	41+	34+	26+	19+	43+	35+	28+	20+	44+	36+	29+	22+	45+	38+	30+	23+	46+	39+	31+	24+	47+	40+	33+	25+	49+	41+
Cep VW S10		32+	29+	27+	24+	21+	19+	30+	28+	25+	22+	20+	31+	28+	26+	23+	21+	32+	29+	27+	24+	22+	19+	30+	28+	25+	23+	20+	31+	29+	26+	24+
Cep XX S10		38	72							73				40				74					42	75						43		77
Cep XY E10S					64				41			19					74			51			29								61	
Cep ZZ S10		62		76								32	47				61		75								32	46			60	
Cep AI E10S 3					29			40s		52			74									19		31s			42					
Cep CW E10X 3		53		26	53s				26s	72			45	72s			45s			64			37	64s			36s					55
Cep EI L10 3				85					7s				29				51s							73	95s					17		
Cep EX L10 2							87																									
Cep NN E10S													20				23s	26	29s	32	35s	38	41s	44	47s	50	52s	55	58s	61	64s	67
Cet RR RR 2		25	36	46			23	33	44			20	31	42				29	39				26	37			24	35				
Cet RV 90 2		38						37				35					34										31				30	
Cet TU E10S 2			7					46			86				25					64				3					42			
JD 588 ..		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49

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Cet TV L10	2				50s					11				60s				21					70s				31					81s		
Cet XY E10S	2	53			31				48s			26s			43			21					38s						34					
Com S 90			66			59		77		70			63		56		74		67				60	78		54		71		64				
Com ST 90	3			77				76		76			75		75			74				74		73			73			72				
CrB U S10																													71					
Crt W 90	2				71		77					72					66	72					67	73							67			
Cyg UY RR				29				22	34			26					19	31				23	35				28			20		33		
Cyg XZ RR		43	37	30+	23+				43	37	30+	23+			43		37	30+	23+				43	36	30+	23+	63			36		30+		
Cyg BO E10S		45	32s	20						35s	23						37s	25						40s	28								30	
Cyg DM RR	3	34			28		38	22		32			26		36	20						23		33				21		31				
Cyg EM K10	2	30	34	21			24	28		32		19	23		26		30				21+		24	28			19+		23			26		
Cyg V367 L10	2				\	\	72s		/	/					\	\	2	/	/				\	\	31s	/	/							
Cyg V463 E10S										21s	27	33s															21	27s						
Cyg V477 E10X			36																					19s									23s	
Cyg V541 L10	3						35							38s								69						72s						
Cyg V548 E10S	3		76			47s	37	27s				78			40		30s	20				71s			42	32s	23			74s		64		
Cyg V788 L10	3			76\	72	67\																					68\	64	60\					
Cyg V891 E10S		30		20																			26										79	
Cyg V909 E10S								30						31s																				
Cyg V1061 E10S				25						29								33							37								41	
Cyg V1918 E10D		19+	22+	25s	29	32+	35+	38s	21+	24	28s	31+	34+	38+	20+	23s	27+	30+	33+	37+	19+	23	26+	29+	32+	36+	22s	25+	28+	32+	35+			
Del DX 90	3		32	26	21							30	24	19								28	22						26	20				
Dra RW RR			34+	22+	55		32+	21+	54		31+	20+	53		30+	63	51		28+	61	50		27+	60	48		26+	58	47	24+	57			
Dra SU RR		70	36	68	34	66	32	64	30	62	28	60	26	58	24	56	23	55	21	53	19	51	49		47		79	45	77	43	75	42		
Dra SW RR		47	61	74	31	45	59	73	30	44	58	72	29	43	57	71	28	42	56	70	27	40	54	68	25	39	53	67	24	38	52	66		
Dra TZ E10D		19		36+	22s			25		28+				31+			78	21s			24+			27+			31+		77	20+				
Dra VZ 90		24+	21+		77	74	38+	34+	31+	27+	23+	20+		76	73	69	33+	29+	26+	22+	50	47+	75	71	68	32+	28+	25+	21+	49	46+		74	
Dra WW S10	2								60					23									49											75
Dra XZ RR	3	40	36	31+	26+	21+	64	60	55	50	46	41	36	31+	27+	22+	65	60	56	51	46	41	37	32	27+	23+	66	61	56	51	47	42		
Dra AI S10					30		70			30				69			29		69				28		68			28		68				
Dra BF L10						73											94						36s					15						
Dra BK 90		44	62	21	40	58	76	36	54	72	32	50	69	28	46	65	24	42	61	20+	38	57	75	34	53	71	30	49	67	26	45		63	
Dra BU E10S			20									78s		69	60s			52																
Dra DD 90		40+	38+	36+	34+	32+	30+	28+	26+	24+	22+	20+	51	49	47	45+	43+	41+	39+	37+	35+	34+	32+	30+	28+	26+	24+	22+	20+	51	49	47+		
Dra EX K10	3	33+	38+	22+	26+	31+	36+	20+	25+	30+	35+	19+	24+	29+	34+	39+	23+	28+	33+	38+	22+	27+	32+	37+	21+	26+	31+	36+	20+	25+	30+	35+		
Dra GV L10	2					13																											98	
Equ S S10																						23												
Eri SV 90	2	48			34					34		48			33						33				33					33				
Gem U K10		46+	52+	40+	46+	52+	41+	47+	35+	42+	48+	36+	42+	48+	37+	43+	49+	38+	44+	32+	38+	45+	33+	39+	45+	34+	40+	46+	34+	41+	47+		35+	
JD 588 ..		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49		

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Gem RR	90	58	37+	56	36+	55	35+	54	33+	52	32+	51	31+	50	29+	48	28+	47	66	46	65	44	63	43	62	42	61	40	59	39	58	38																																																																																
Gem RY	L10	2	82s				47					12s					77					42s					7					72s																																																																																
Gem SZ	90	67	67	67	68	68	68	68	68	69	69	69	69	70	70	70	70	70	71	71	71	71	71	72	72	72	72	73	73	73	73	74																																																																																
Gem WW	E10S	3	75	37s	60s	46	70	32s	56s	41	65	27s	51s	36	60	46s	70s	32	55	41s	65s	27	50	36s	60s	22	46	36s	60s	22	46																																																																																	
Gem YY	S10	70s	51s	33+	55	36+	59s	40s	62	44	66s	47s	69	51	32+	54s	36+	58	39	61s	43s	65	46	28+	50s	31+	54	35+	57s	39s	61	42																																																																																
Gem OW	L10	2	60				48										76					64					53																																																																																					
Gem V339	E10U	2	72				72					75s					20					23s					69					69																																																																																
Her TW	RR	3	69s				72					75s					19s																																																																																															
Her TX	S10	70s	69s				72					75s					19s																																																																																															
Her UX	E10D	70s	69s				72					75s					19s																																																																																															
Her VX	RR	3	75				76					77					78					79					70					71																																																																																
Her VZ	90	79	23	75			19	71				24+					76					20					72					69					77					65																																																																						
Her AK	S10	79s	79s				79					73					20+					61					76					76s					76					72					77s																																																																	
Her AR	90	27+	21+	62	79				73	20+				61					78					72					19+					60					77					65					59																																																															
Her AW	L10	3	23				3										83															63																																																																																
Her DI	L10	3					34s					76					78					89s					31					64s					44s					86																																																																						
Her GU	E10U	78										78																																																																																																				
Her LV	L10	2										69																																																																																																				
Her MM	E10S	23										23					21s					19																																																																																										
Hya SZ	90	2	56	63	71	54				62	69	70				53					60					68					51					58					66					49					57	64																																																												
Hya WZ	90	2	63				71	78	62				70					61					69					93s					60					68					51					22s					59																																																											
Hya AI	L10	2	64	35s				93					64s					22					93s					51					22s																																																																															
Hya ET	90	2	64	70				50					55					61					67					46					52					58					63					53					43																																																											
Lac RW	L10	3	54s				80					91s					16																																																																																															
Lac SW	S10	31+	28+	24+	20+	32+	29+	25+	21+	33+	29+	26+	22+	34s	30+	27+	23+	19+	31+	27+	24+	20+	32s	28+	25+	21+	33	29	25+	22+	34s	30s																																																																																
Lac UW	E10S	3	65				94					23					52					81					10																																																																																					
Lac CO	E10X	31	59s				48					21s					56					30s					38s					19					47s					27					55s					36					44					53					26s					35s																																								
Lac CZ	90	55	41	28	44			30	46				33	19	49				35	21	51	37			24	40				26			42					29					45					31					47					34					20					36+																																												
Lac V345	E10X	2	80s				64					29s					13					78s					62					28s					11					77s																																																																						
Lac V364	E10X	3	46s				44																																																																																																									
Leo RR	RR	46	72				79					70					60					51					77					67					58					48					75					65					55					46					72					63					53					44					79					70					60					51					41					77
Leo SS	RR	71	59				73					60					74					62					75					63					76					64					77					65					53					78																																																		
Leo ST	RR	79	74				70					65					61					57					78					74					69					65					60					56					52					77					73					69					64																																			
Leo WY	E10S	59	59				57					56					77s					46					54					53					52					64																																																																						
Leo AG	E10S	50	59s				68					77s					46					62s					53+					63					54+					64s					55+					65					57+					48+					58+					49+																																								
Leo AM	S10	68	59+	69s	61+	70	62s	53+	63	54+	64s	56+	65	57+	67s	58+	68	59+	51+	60+	52+	62s	53+	63	54+	64s	55+	65	57+	48+	58+	49+																																																																																
Leo FM	E10U	2	72																																																																																																													
Lyn TY	E10S	3	34	67				34					67					59					41s					69					33					66																																																																										
Lyn CD	E10S	3	67s	49				77s					32s					59					41s					69					24																																																																															
JD 588	..	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49																																																																																

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Lyr RR	RR	3		30			26				23	37			20+	33		73		30				27				24				21+		
Lyr RZ	90		20	22	24	26+	29	31																	20	23+	25+	78						
Lyr UZ	S10												32	27s	22										78	73s								
Lyr CN	90				21		27				79	20	26				78	20		25				78	19							77		
Lyr EZ	RR	25	30									23+	28									21+	26+									19+		
Lyr IO	90	19				23			27								19+							23				74				20+		
Lyr beta	S10	3	1s					48							95s										42		89s							
Mon UX	E10S	2		54s			49			44s		40			35s			30				25s		20			16s			11				
Mon VV	E10S	2	36		39s			41			44s		47				49s		52				54s		57			59s				62		
Mon AQ	E10S	2	49				58					67			49s									40				49						
Mon AR	L10	1	39\	24	8/							99\	84s	69/										60\	44	29/								
Mon AT	E10S	2															44	47		50			52		55		58		61					
Mon AV	E10S	2	67			14s			62				9s		56					4s			51		98s				46					
Mon EZ	E10U	2	56	69s	44s	57	69s	45s	58	46s	58	47s	59	47s			60	48s	61			49s	62	37	50s	63	38	51s		39	52s			
Mon IL	E10S	2			50				52				55				58								63			66						
Mon V448	E10S	3	70s		50	62		41s	53s	65s			45	56	68		36s	48s	60s			39	51	63			43s	55s				34		
Mon V530	E10U	2	52	57	62	41+	46+	51s	57s	62s	41+	46	51	56	61	40+	45s	50s	55s	60s	39+	44	49	54	59	38+	43s	48s	54s	32+	38+	43	48	
Mon V536	E10X	2					43						56														36s							
Mon V634	E10U	3												50			61																41	
Oph RZ	L10	1																																
Oph ST	90																																	77
Ori Z	E10S	2	55				75					96					16						36				57							
Ori BM	E10S	3			84							31					78							25								72		
Ori CP	E10S	2			25					57					90						22												86	
Ori DN	L10	2						98																										
Ori EW	E10X	3		58							52						45							39										33
Ori FO	L10	2																		0														
Ori FT	E10X	3										31s	36	46s	51		61s	66																26
Ori GG	E10X	2					49					34s													60s		39							
Ori V536	E10S	2					47			63													28			45								
Ori V1016	L10	2																															54	
Ori V1031	E10S	2					42					52s												44				55s						
Peg U	S10	3	23+	35	29+	23+	35	29+	23+	35	29s	22+	35	29s	22+	35	28s	22+	35	28s	22+	34	28s	22+	34	28s	22+	34	28s	21+	34	27s	21+	
Peg VV	RR			42	40	37	35	33	30	28	26	23	21	19														35	33	30	28			26
Peg VW	L10	3		19																					27									
Peg AV	RR	3	32		27		22	40		35		30	25	20			37	33		28			23		35		30		26				21	
Peg AW	L10	2		18s				50					81s							12				43s					74					
Peg BH	90	3	27		20		40		33	25						38		30		22					35		27		20					
Peg BK	E10S	3				30s											28s												26s					
JD 588	..		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	

2019 Dez			P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
Peg	CG	90	3	29	23					37	30	24					37	31	24						31	25					32	26		19		
Peg	DF	L10	3													61															30					
Peg	DH	RR	2	20	22	24	27	29	31	33	35				19	21	23	25	28	30	32						20	22	24	26	28	31				
Peg	GH	E10S	3							27s									22						33									28s		
Peg	IP	K10	3	29+	24+	19+	29+	24+	19+	30	25+	20+	31	26+	21+	31	26+	21+	32	27+	22+	32	27	22+	33	28	23+	34	29	23+	34	29	24	19+		
Per	RW	L10	2				48												68															88		
Per	RY	E10S	3			57						43							30										59s							
Per	AG	E10X	3		25	21s	28	24s	31	27s	34	30s	37	32s	39	35s	42	38s	45	41s	48	44s	51	47s	54	50s	57	52s	60	55s	62	58s		61s		
Per	AR	90		53	38	23+	51	36	21+	49	34+	19+	47	32+	60	45	30+	58	43	28+	55	41	26+	53	38	24+	51	36	21+	49	34	19+	47		32	
Per	AY	L10	3	50												28																				
Per	IQ	E10X	3	51	29s	26			74	52s	49	27s	23			72	50s	46	24s	20		73s	69	47s	44	21s			70s	67	44s	41	19s			
Per	KN	E10U	3	47	34	20+	50s	37s	24+	54	40	27	57s	44s	30s	60	47	33	20+	50s	37s	23+	53	40	27	57s	43s	30s	60	47	33	20+	50s		36s	
Per	LX	L10			14s				16			18s					20						22s		24			26s							27	
Per	beta	S10	3			22s	66			52		39				26					56s		43s				30s			60				46		
Psc	RU	90	3	42	20	37	54	32	50	28	45	23	40		35	52	30	47	26	43	21	38		33	50	28	45	23	41	19	36		31	48		
Psc	RY	90	2			23	29		35	41							23	29	35					24	30	36									24	
Psc	SS	90	3	34	20+	35	22+	37	23+	38	24+	40	26	41	27	42	29	44	30	45	32	47	33	19+	35	21+	36	22	37	24	39	25	40		27	
Sge	SY	E10S	3											24s																						
Ser	VY	RR																									70								70	
Ser	AN	90	3											74	79											71	75									
Ser	BH	90	3						71		75					66			71		75				79	66			70			74	61			
Ser	EG	L10	3			11s																														
Ser	LX	K10	3			76	71		77	72		78	73	68	79	74	69		75	70		76	71	66	77	72	67	78	73	68	63+	74	69		64	
Sex	T	90		63	60	57	55	52			77	74	72	69	67	64	61	59	56	54	51	48	78	76	73	71	68	65	63	60	58	55	52		50	
Tau	RW	S10	3	26								56				33																				
Tau	CD	S10	3			59			31s					46					61s		33					48s				64				35s		
Tau	EN	E10S		35s	59					31s	55					26s	50										41	65s				37	61s			
Tau	V1094	L10	2			95s				8						94s			6						93s		5							92s		
Tri	X	S10	3	55	53	50	47	44	41	38	36	33	30	27	24	21																				
Tri	RU	E10S	2							59		23s																30s				21			48	
Tri	UX	90	3	58	52	45	39	32	25	19	59	52	46	39	32	26	19		53	46	39	33	26	20		53	46	40	33	27	20		53	47		
UMa	W	S10		37+	37+	37+	37+	37+	37+	37+	37+	38+	38+	38+	38+	38+	38+		38+	38+	38+	38+	39+	39+	39+	39+	22+	22+	22+	22+	22+	23+	23+	23+	23+	
UMa	RV	RR		79	73	20+	60	54	48			75	69	62	56	50	43		77	71	65	58	52	45		79	73	67	60	54	47	41		75		
UMa	RW	E10S						59											58s																	
UMa	TU	RR		52	63	75			53	65	76			55	67	78	46		57	69			48	59	71			49	61	73				51	63	
UMa	TX	S10		70			76																													
UMi	W	S10						52		22		63			33		73			43					54		24		64		34					
Vir	ST	90	2					71		77					70		75							73		79		66		72		77				
Vir	AG	E10D		78s	74	71s	67	64s	60	56s		78s		74	71s	67	63s	60	56s					70s	67	63s	59	56s	52		77s	74	70s		66	
JD	588	..		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49		

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