

24.4

59392

7 27 25 -37 57

POB

-37¹3596

5.70

+47

~~Ancturus~~

(X) (X)

~~Raptnu~~

9.64 -367 804 -555 2.142 85 ^{24.26}

9.71 -377 806 -551 2.131 252118

~~323~~ 085 313 21610

1110

5 (188) (284)

245

107

8.507852-112

6880 RT 67

✓

59374 24 7 29 02 +19 01.5

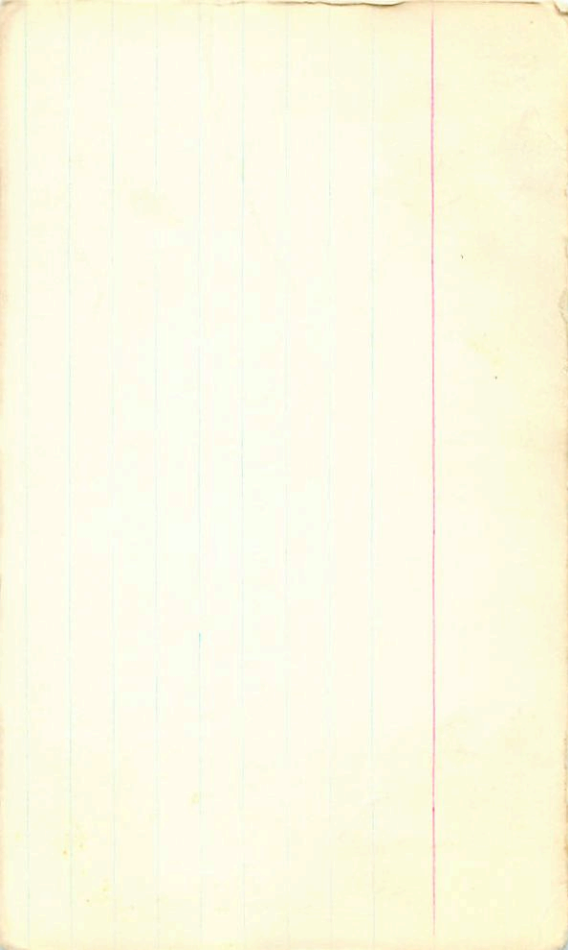
688-B) 341
 9.47 -341
 9.35 -357
 8.48 -367
 9.44 -358
 8.44 -354

829 -471 18 Jan 76
 838 -508 3 Jan 76
 848 -525 12 Jan 75
 852 -524 30 Jan 75

850
 842 -850

5
 352 120 356
 227 286

9.40 10.21 29 Oct 75
 8.24 10.215 30 Nov 75
 9.35 10.215



Arithmetic.

60605

9

8

2

44

35

535

8.59+89+89 November

8.18

+0.37

²³¹⁶⁴
71

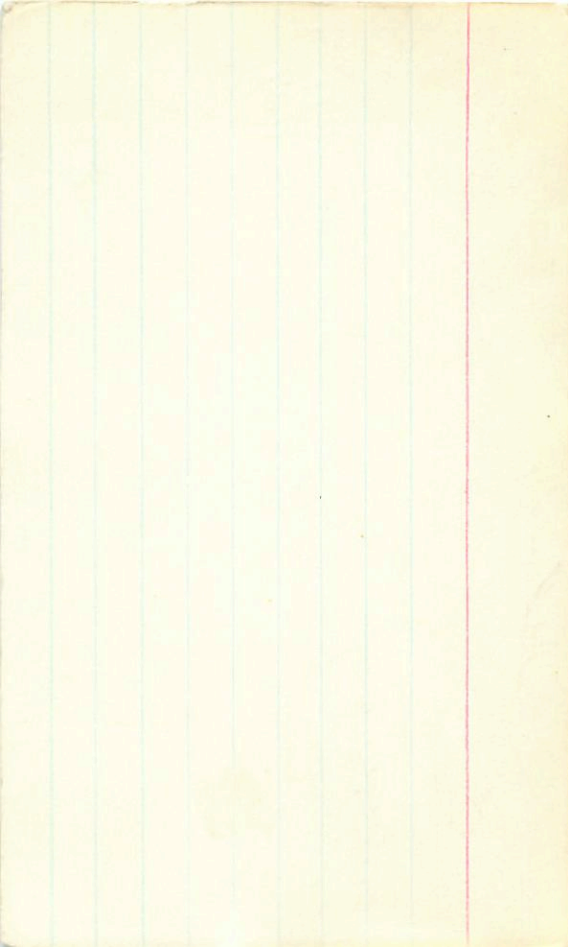
8.28

+0.37

²¹⁵⁰⁴
71

8.23

+0.37



4061606 7 38 20 -3 31 { 7.13 + 89

6.71 +0.32 12⁴ 41 Jan 58 " 8.93 + 130

6.68 +0.34 15 Dec 63

6.72 +0.37 19 Dec 68

A 6.70 +0.325 30 "

6.70 +3.4~~4~~ 41 Jan

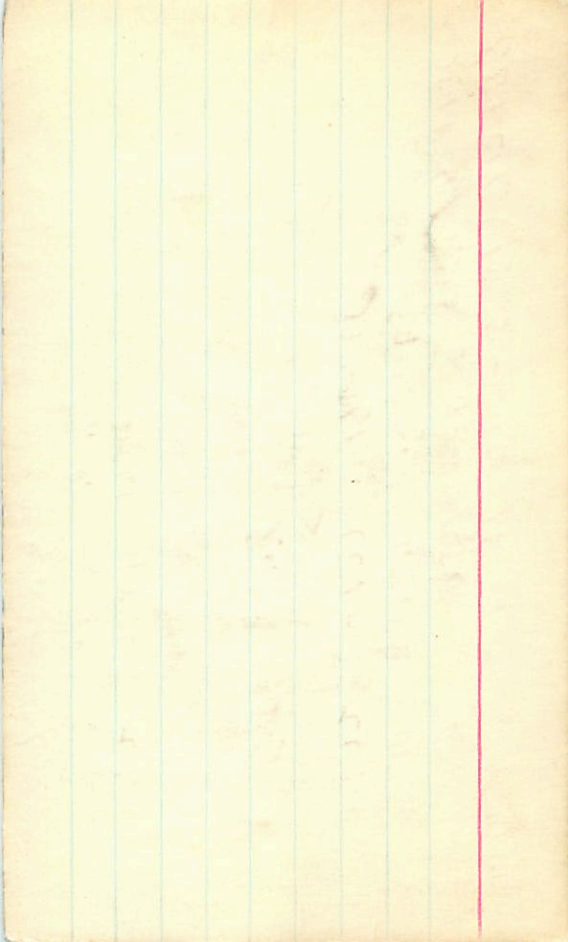
8.05 +0.56

8.11 +0.60 15 Dec 63 -

B 8.12 +0.61 19 Dec 68 ~

7.98 +0.58 30 "

8.07
+0.59~~6~~



226²⁵
X 62950 (1950) 07 41 44.0 -59 10 46.5

X 63581 AB 8.3 07 45 24.1 -59 41 32.2

X 64185 5-8 07 48 23.4 -60 04 30.6

7.44 789 244 -068 13 20 88
7.44 791 227 -067 5 min

1.0160619 033

8.53 847 416 -063 13 20 88
8.58 845 424 -069 5 min 87 1.030 806 027

X 5 8.44 843 395 -066 5 " 1.068 777 030
8.44 857 404 -075 13 20 88

5.96 698 056 -023 5 min
5.97 689 060 -049 13 20 88 929 438 077

16.4 ✓

CR

(RT)

68165

8

10

30

+14

37

22d62

737 289 929 -446 2130 1920
736 287 928 -429 2124 2920

737 -280 (911) -422 25000

737 280 925 580 580
736 280 925 580 580

736 -286 926 926 -440 2127

422

1 more 22d62
709 +0.15 22d62

(1 more)

(RT)

709 +0.224 15mg

709 +0.187 17mg
709 +0.158 2.

71334

8 25 00

- 20 51.5

649

W630

(+) (+)

9.80 + 68

* 782 - 686 1219 - 535 2264 9 Jun 83

782 - 693 1224 - 548 2266 10

782 - 690 1222 - 541 2265 (+)

782 - 300 922 - 506 2129 (+)

409 193 402 2121

V257 A 8 40.6 +9 43 1963 9.6 M2

9.82 +1.37 +1.27 14 Apr 64 1000^h

9.67 8.70 +0.74 12.7.64¹⁰⁰⁰

0.75 11 " " "

9.64 8.75 +0.72 15 Apr 64 1000^h

9.65 8.66 +0.76 25 Mar 60^h

E 11.81 +1.56 +1.33 14 Apr 64 1000^h

11.95 +1.54 +1.26 K

71597 08 27 00 +00 20 7.30 +1.16

136 107

7.28 +004 +1229 -391 15 months

7.32 -022 +1266 -395 16 months

7.29 +8 +1209 -385 11 months

7.25 -016 +1232 -383 13 months

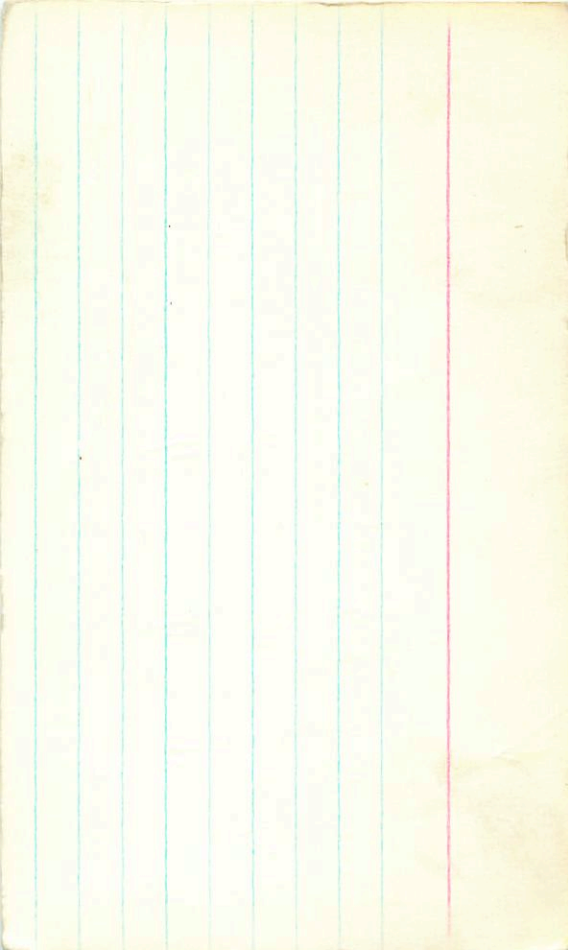
7.28 -006 +1234 -389 (5)

6.65 +0.42 ^{27 months} (1)

6.69 +0.44 17 months

6.67 +0.43

718 450 523



8 44 30 + 9 37 12.1 12.6
m

2044/3/2

10.14576

Rock

96.115" km

9

9.73

8.70
74

10.54 4.5.01 + 10.28 9.40.01

10.51
8.79 + 10.36

7.5
7.5

9.32 + 81-16
 9.32 + 24 53
 9.32 + 11.9 + 6.115
 9.32 + 0.14 13.87
 9.32 + 0.15 17.97
 9.32 + 0.135

9.30 - 465 - 370
 9.25 - 427 - 344
 9.23 - 474 - 376
 9.31 - 466 - 817
 9.40 - 848 - 309
 9.35 - 474 - 838 - 356
 9.30 - 465 - 370
 9.25 - 427 - 344
 9.23 - 474 - 376
 9.31 - 466 - 817
 9.40 - 848 - 309
 9.35 - 474 - 838 - 356

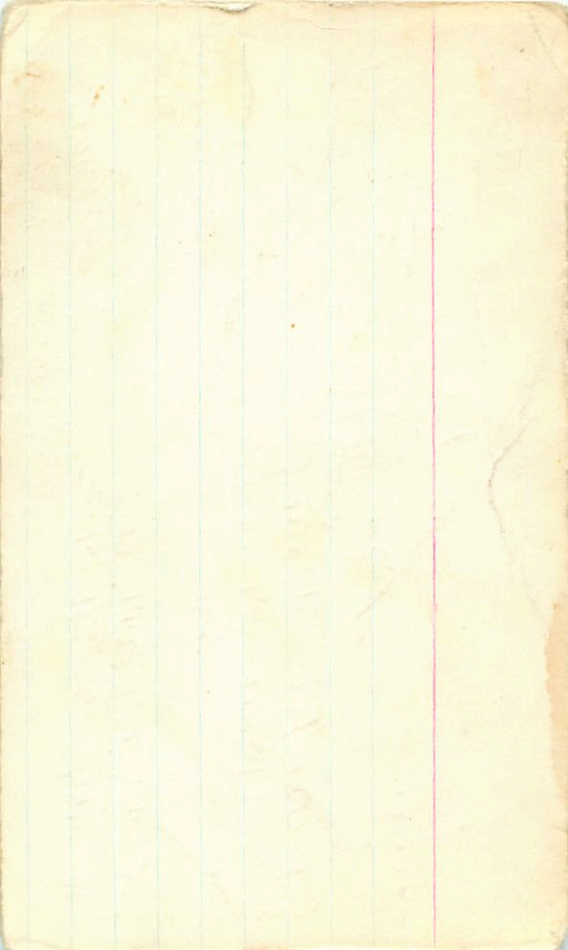
9.32 + 81-16

9.32 + 24 53

9.32 + 81-16

9.32 + 81-16

9.32 + 81-16
 9.32 + 24 53
 9.32 + 11.9 + 6.115
 9.32 + 0.14 13.87
 9.32 + 0.15 17.97
 9.32 + 0.135



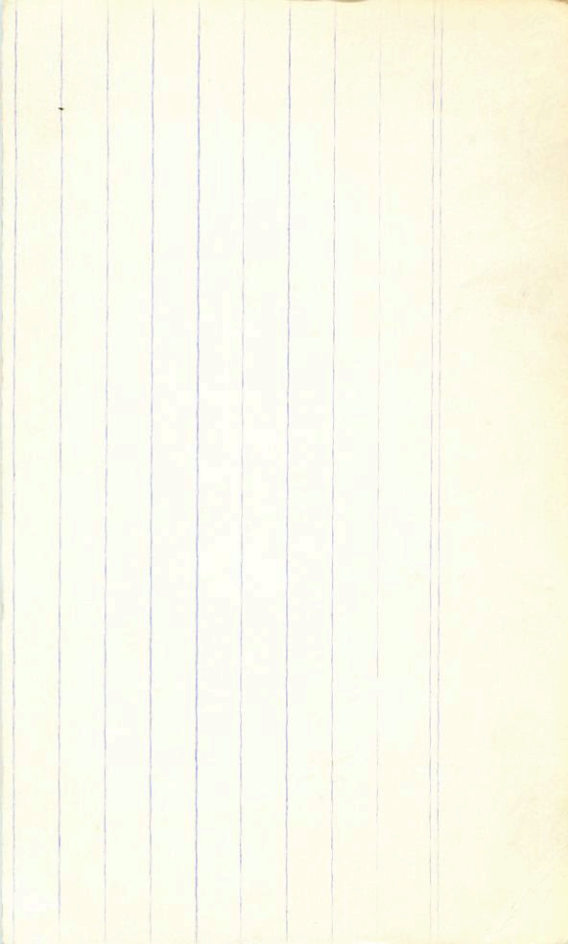
76095 + R 6.75 + 67 + 13
8 6.3 1.5 + 26 1.8

6.68 - 299 918 - 490 10 Apr 77
6.73 - 310 931 - 481 " Apr 77
6.69 - 292 924 - 500 9.00 "
6.70 - 300 924 - 490 (3)

409 ¹²⁰ 195 498
3 15

6.7
7.0
80
+ 8.5 3
2.18
8.8
1.3

2.05



7-22 +102 +0.18 35

7-22 +102 +0.18 35

7-22 +102 +0.18 35

7-22 +102 +0.18 35

Ment W630

79969 orbit + $\frac{1}{2}$ 9 16 24 41

724 -1377 1221 -532 12181 ³⁻²⁰⁵

717 -~~1976~~ 1258 -530 1114m77

714 -146 1205 -494 1014m77

713 -163 1253 -564 9 "

718 -156 1218 -504 2014m77

718 -150 1230 -526 5

718 -150 1230 -526 5

[9.07 +0.373] 7_{du}⁸⁰

6.85 +0.375 -12 Apr 71

6.75 +0.37

RV

7954

163
164
165

important ✓

nov

RT ✓

+405 WRS

6.54 + 45 + 57

81152

9

23 18

+19

53.5

$$6.50 - 127 + 991 - 404 \quad 11 \text{ months}$$

$$\frac{6.51 - 131}{+1008} - 408 \quad 16 \text{ months}$$

$$6.50 - 129 + 1000 = \frac{419}{-412} \quad (2)$$

+405 WRS

$$6.10 + 0.37 \quad 17 \text{ months}$$

$$6.16 + 0.355 \quad 20 \text{ months}$$

$$\frac{6.13}{+0.36} \quad (2)$$

231

584 205

9 02.1 +39

255

18h

1767

✓ ✓ Phir P.I. ✓

Debtors

82309 9 30 19 +20 07 246 +128

1053 81
3

737 +076 +1355 -410 11 mar 76

737 +065 +1358 -461 16 Feb 76
-453

735 +068 +1400 -415 17 mar 76

736 +070 +1384 -427 (3)

619 B.L. + 48 = 020

736 798 618 483^v

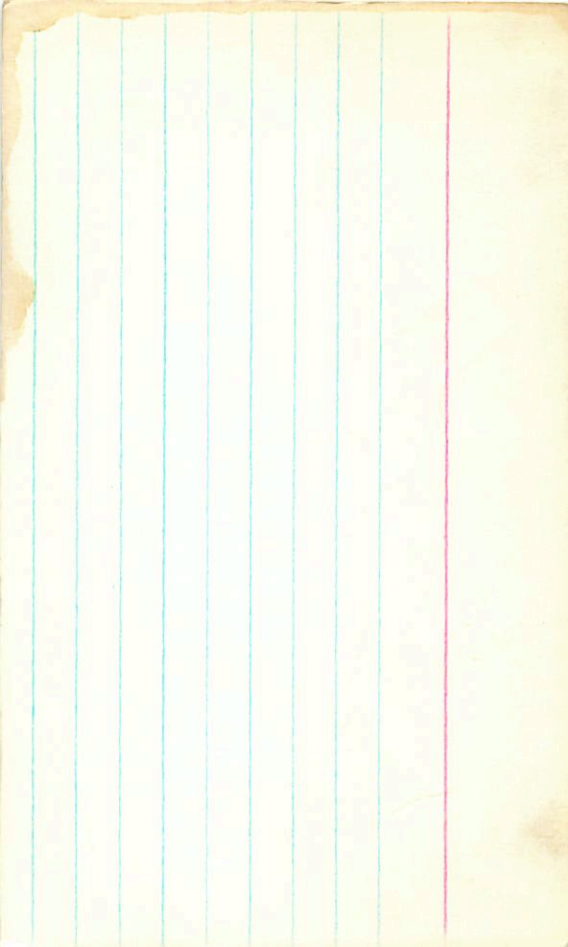
6.76 10.48 12 mar 71

6.74 10.47 21 Feb 71

~~6.81 10.44 21 Feb 71~~

6.78 10.48 17 Feb 70

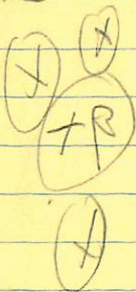
6.78 10.48 (3)



83273

9 36 40 +24 45.5 ^{60th}
6hr

H₀



664-354	870-329	2.172	
660-357	866-315	2.163	25
664-357	889-380	2.157	14 Jan 55
661-356	897-398	2.163	15 Jan 58
662-358	888-389	2.164	
	885		

2

Var:

Again ✓
83632

(218V) (21V)

8.10 + 1.35

122H

9 39 08 + 26 07

98

56

1248

8.04 + 11.5 + 1374 - 421 11 March

9.03 + 13.5 + 1355 - 370 17 March

8.08 + 14.8 + 1312 - 357 22 March

805 + 133 - 1350 - 393 (3)

7.37 + 0.50 21 March

(2) 7.39 + 0.52 17 March

7.38 + 0.51 (2)

587

✓✓

① R abro

7.39 + 0.515 ①

8.3632

9 39 08 +26 07 8.10 + 1.35

8.05 +133⁰⁰ 1350 -383 ③ 1976

7.99 +126 1345 -423 10 Apr 77

7.98 +144 1321 -414 28 Apr 76

8.05 +120 1350 -465 7 Jan 77

7.39 + 0.52¹⁷⁷⁰₇₆

8.06 +164 1325 -345 13 Mar 76

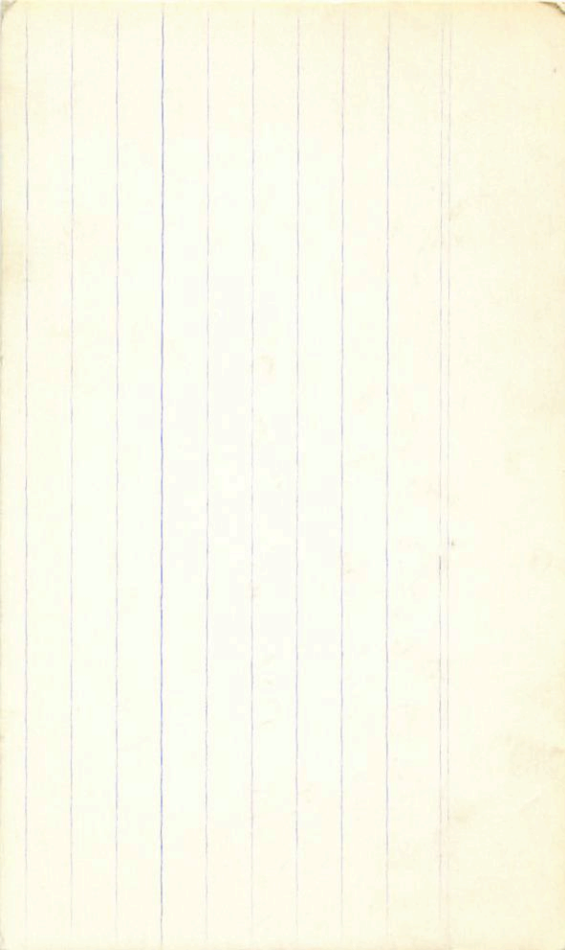
7.37 + 0.50⁷⁴_{24 Mar}7.99 +118 1374 -456 9 Apr 77

7.39 + 0.515 ①

8.03 +127 1343 -439 ⑤7.43 + 0.495^{27.00}₇₆

8.03 +130 1346 -410

7.40 + 0.515 ④



975-40

10

03

35

-4820

689

1004

683-087

1116

-414

Jan

688-104

1131

-402

12

Jan 83

684-108

1150

-412

13

Jan 83

686-106

1140

-407

13

Jan 83

683-480 1411-435 11 Jan 86

11/11/10

8.07 + 595 - 025

+ ✓
88261

10 08 44 - 36 38

n=268
n-5=1055

8.07 376 148 245 10km

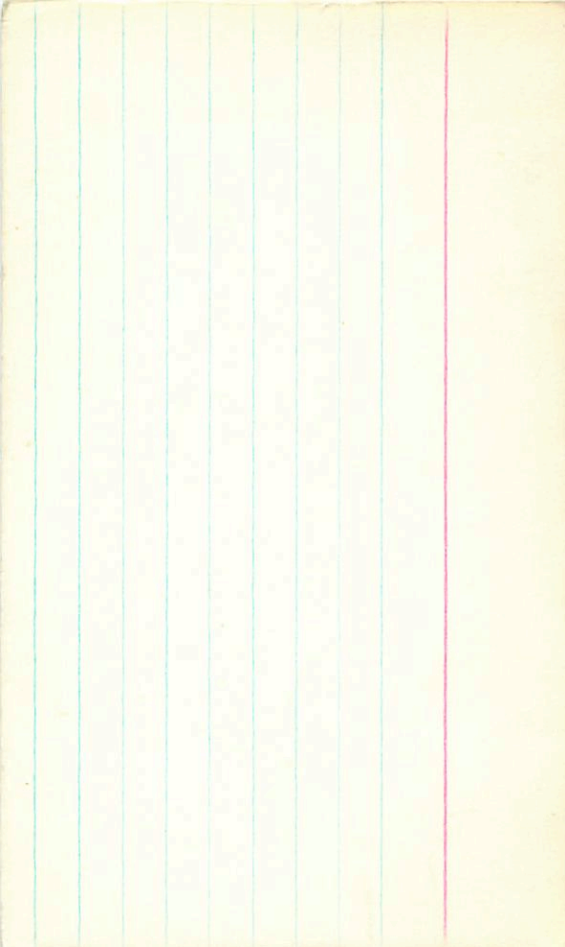
227km

8.23 - 303	854 - 487	14 2876
8.11 - 328	885 - 553	16 2176
8.10 - 328	867 - 539	10 2076

8.10 378 150 305

8.10 - 328	876 - 545	(2)
------------	-----------	-----

390	151	362
374	148	385



100 (RT)

W note

halo

98419

10

10

12

-18

49.5

7.10 28" "

88359

10

09

48

-16

49.5

7.2 NOgr*

5m

2.12

0.402 26 Dec 03:30

6.715*

0.398 27" 03:45

6.732

0.399 29" 03:40

6.729

0.394: 30 " 03:50

0.412 2 Jan 17 03:35

6.679

0.406 6 " " 03:50

6.714

0.408 7 " " 03:30

6.712

88359 V=3.01 4 Jan 77
2.12 6.712 76

7.10 28" "
7.13 29" 76
7.14 29" 76

49.5 6.8 Van;

LBS 1513 FBI

90452 ✓ 10 24 25 -56 58 FBI 7.81

(X) 7.92 +116 791 +434.55 2.210 28 Mar 84

(X) 7.92 +109 789 +454 2.226 8 Mar 84

(X) 7.93 +110 797 +439 2.203 28 21 80

~~7.89 +120 799 +428~~ 2.211 24 "

7.92 +114 794 +436 2.212 (4)

127

92323 (X)

10 38 40 408 56. 7.48 + 45 dFL

$\sigma_m = 0.73$ (N)

Myaluo
1.88 2871

2.48 - 404	860 - 333	2.191	8 Jan 83
2.50 - 404	881 - 381	2.190	14 Jan 86

1019 A 120
0.55 1.510

656-116

X X X

96692

11 07

15

+15 55

966914

96691

854

965 -074 1272 -603

22 April

967 -083 1286 (-540)

23 " "

976 -81 1300 -607

24 April

970 -81 1296 -615

965

9.77 + 112 + 1.01
918 + 465

✓ RI cho

9.22+42-113

97916

11 17 31

+0 2 14

○

cap

77

9.86 +0.165^{10 min}

9.26 -421 435-441 11/11/77

9.17 +0.17 12/11/77

9.22 -401 821-448 10/11/77

9.25 +0.17 ②

9.24 -411 828-444 ②

103100

11 51 10 -32 54 832

229022

-164 -43 730 -122 +16

1037420

11 58 40 -32 04 832

21936415

570 832

-164 -43 730 -115 +6

102902

11 49 40 -33 02 730 832

229861

-124 +1 730 -125 +20

103052

11 47 05 -35 06 730 832

2298052

-116 -12 730 -117 -51

HPY 503

570 340 460

104090 11 58 10 +00 09 8.9 F2

offhand

104484 12 00 46 +00 14 8.3 A2

104559 12 01 20 +00 10 8.2 A0 R R

→ +0.442 15 my 75

9.28 -426 878 -336 9 my 75 9.24 281 M1 543 2671

9.20 -410 849 -306 2.187 12 June 74

+0.430 10 June 74
-0.443 10 June 74

8.25 -442 1070 -442

8.26 571 340 460

8.26 -449 1095 -457 9 my 75

8.26 -465 1082 -450 [1000] 2.234

7.81 -504 896 -247 2.240 9 my 75

7.77 201 164 672 2.452 M_v = 2.95

7.74 -491 883 -241 2.251 12 June 74

(4.5)

13h51e02h

793 761

793 761

0141 ~ 020
-030

12 5.5. 21

581 45 742

0129 - 922
-1153

U 43-29 8.50 + 0.665 + 0.205
R=8.31 R-I= +205

AMP
Mr. McLean

430

471 412 267
461 874 155
169 258 951

430
443
450
451
452
453

430
431
432
433
434
435

+3.0743
761 122
761 122

614h17
X X X
X X X

45404 464
-53 + 0.159
-12 + 0.55

125m
5.5
5.5

68894
45254
-997

11. 11

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

0. 00

XX (also 280) (PI) ✓

1000 + 41 - 21

-403208 [12 06 10 -05 37]

N

(AIR)

613-4

339

174

1002 - 396 738 - 457 21 Apr 76

1009 - 387 791^{1/2} - 528 23 Apr 76

1005 - 378 744 25 Apr 76

1000 - 408 796 - 452 153 3 May 80

996 - 388 768 - 454 2161 1 July 80

1002 - 390 768 - 480 2153 (5)

052 429 2620

986 + 0.168 25 Jun 80

997 + 0.17 16 Apr 76

10.01 + 0.16 15 Apr 76

998

9.98

9.98 (3)

15 APR ✓

10.18 + 48 - 15

106639 X 12 10 45 +13 24.5

G12-21 R R-I ✓
9.91 + 0.145 ✓ 2AP + RT ✓

Asst 14

10.17 - 362 800 - 570 17 Mar 76

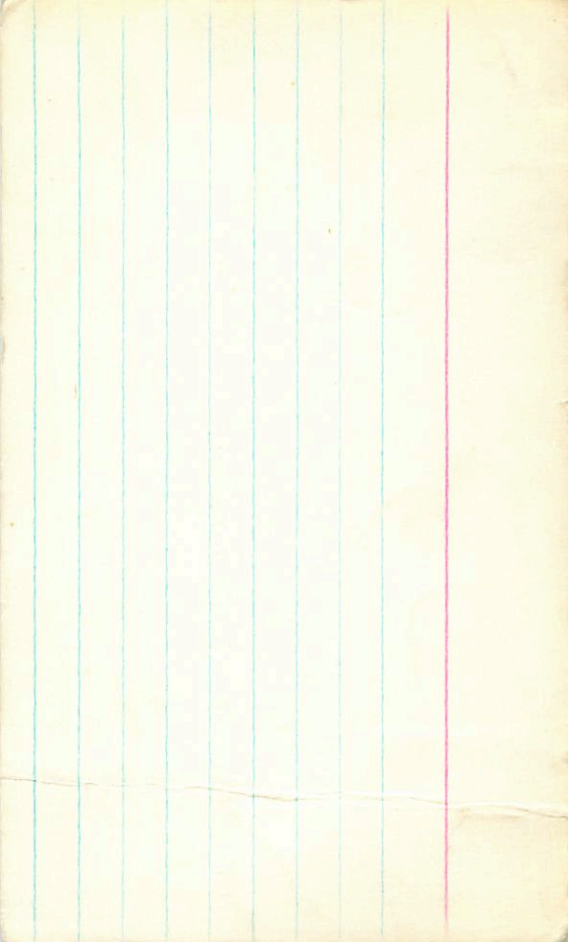
10.16 - 366 800 - 556 21 Apr 76

10.16 - 352 754 - 502 22 Apr 76

10.21 - 360 800 - 561 21 Mar 80

10.20 - 380 (841) - 572 21 Mar 80

10.18 - 365 800 - 565 21 Mar 80 (4)



13 June 82
R. A. S. I.

106742 A

#6.99-715 1184-462-2.307

106743 B
#9.58-1168 1224-481-2.281

12.14!

RR

107146 ✓✓ 12 17 50 -16 41 7.04 +61 +08

203 -328 907 532 -2.127 1924R3

202 -328 920 504 7 May 75

204 -324 906 509 8 " 75

2.04 -322 906 520 (2)

↓
(13) X
(2) X

350 198 402

201

~~Pendulum unit~~

6.79 +0.208 5 May 75

6.77 +0.209 17 May 75

6.75 +0.204 (2)

2.127 1924R3
2.132 18 May 75
2.130 (2)

(41)

1 more of each

602

106742

12 15 35 -63 05

6.94

1020161 (X)

12 16 59 22 3 07

6.94 -715 1184 462 2807 10 June

106840 - 142
1020169

6.97 332 886 -385 2016 013 July 16

6.98 334 910 -364 2.164 15 March

6.99 330 896 -336 2.171 14 March

7.00 336 984 -350 2.182 16 March

6.98 334 893 -360 2.164

(X) (X)

7.06 271 975 -426 2.146

7.99 285 947 -427 2.153 14 March 5

7.99 286 954 -445 2.147 15 March

9.00 286 939 -454 2.133 16 March

9.88 286 947 -442 2.146 (3)

12.8
26.0
-47.00
-38.000
7.500
316
84.000

-0.865
0.494
0.990
84.284
29.781

0.488
0.869
-0.083
-254.174
-83.218

0.120
0.828
0.992
-29.015
24.567

A

(11)

S

b

9.70 250
+250 2511

12 24 41
12 29 41

225 00 5 R-5
+24 318 +002

N

9.82 + 1.10 + 0.79

0810 - 017

✓
R-5

9.70 225 972 - 543 02:40 4 May 79

9.71 235 986 - 525 01:10 30 May 79

9.71 239 1005 - 523 00:40 31 May 79

9.72 237 992 - 532 00:55 1 June 79

9.69 239 983 - 522 00:35 2 June 79

9.68 236 979 - 510

9.36 + 0.268 15 June 79

-6004070

108773

F II

68

12 29 10 -60 53 F017

12 29 40.6 -60 54 52 (1986.5)

(+)

671 -411 874 +357 2237 3045

670 -419 883 +372 2227 711

670 -415 878 +362 2232

670 -466 870 +364 2238 (2)

670 -410 874 363 2237 (4)

+

666 -790 1134 +362 2234



0.074
0.005
0.997
-4.169
-18.516

0.511
0.859
-0.042
-199.677
-78.735

0.857
0.512
0.061
-118.631
-48.325

12.500
27.200
-9.000
-49.000
8.000
-18.100
398

1871/1872

100. 61
486. 21
266. 0
500. 0
420. 0

202. 34 -1
818. 18 -2
042. 0 -1
859. 0
511. 0

22. 22 -1
333. 33 -1
0. 0
512. 0
337. 0 -1

100. 100 -1
251. 251
000. 0
000. 0 -49
000. 0 -9
200. 200
000. 0

Not 1614