

0.5  
44.1

703 1098

125 2834 619 1481 476 246 20 411 3.1 290 -4905 2' phe

008 162 1040 2.903 A15

4.77 +0.01 +0.04 C  
+0.032 +1.50 +4.99 2.900 Crawl(s)

476 +0.02 148 1063 2.906 3 110,410,3

9976.9956  
-0508.0940  
14.14  
0.0510  
+2.0  
141 246  
1040 419  
1353

new

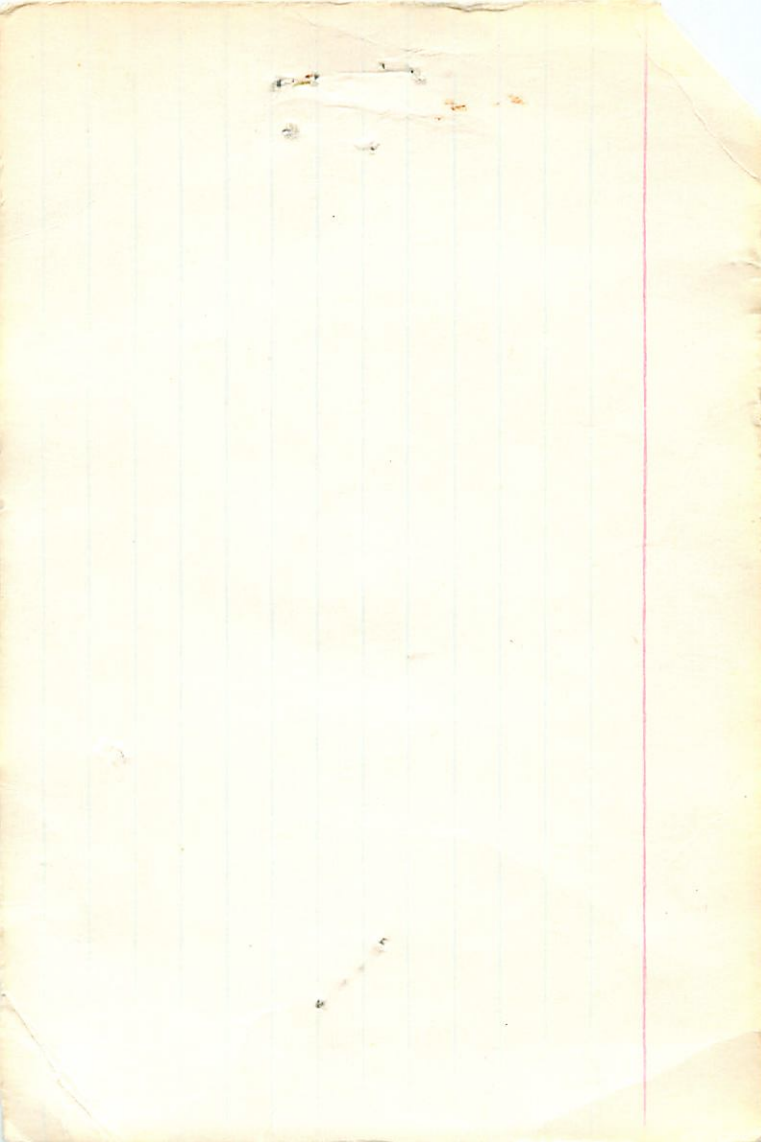
14 str var [m] 148 296 9 = +1002  
[c] 1063 2 = +0.31

-5 c. curve SO 1.359

9976.9956  
-0508.0940  
= 9468.9016

1494  
+143-1020 1.55  
+1438  
1095  
225  
3.50

401430/40241  
1353  
-1020  
+150  
+1020





$$126 \ 882 \ -256 \ 655 \ +140 \ +025 \ -5 \ -021 \ +4 \ +055$$

$$-018 \ 003 \ +138 \ -021 \ 014 \ 665 \ -3.2 \ -3 \ 0 \ 02$$

$$-2 \ +33 \ +8$$

$$\boxed{+33 \ -10 \ +1}$$

$$-2 \ +56 \ +11$$

$$-2 \ +45 \ +10$$

$$\boxed{+45 \ -13 \ 0}$$

218.

$$756.8$$

$$218.6$$

$$171.6$$

$$38$$

$$-3.1$$

012

015





125 ✓ CB 28.0 49 0.54

2834

101457 10176 FCS

143.2 1017.6

5477 536 1442  
-0555 0541 0040

15.4

42.6

2



|      |   |         |
|------|---|---------|
| R.A. | : | 0.500   |
| EC.  | : | -49.050 |
| R.A. | : | 0.000   |
| EC.  | : | 0.000   |
| NCE  | : | 0.000   |
| LUS  | : | 10      |
| EL.  | : | 0.000   |

|     |   |        |
|-----|---|--------|
| (U) | : | 0.857  |
| (U) | : | 0.453  |
| (U) | : | -0.247 |
| dU  | : | 0.000  |
| U   | : | 0.000  |

|     |   |        |
|-----|---|--------|
| (V) | : | -0.511 |
| (V) | : | 0.813  |
| (V) | : | -0.281 |
| dV  | : | 0.000  |
| V   | : | 0.000  |

|     |   |        |
|-----|---|--------|
| (W) | : | -0.074 |
| (W) | : | -0.367 |
| (W) | : | -0.927 |
| dW  | : | 0.000  |
| W   | : | 0.000  |

2

238  
488  
182

156 1/2

20

482. + 51 14

158  
248  
154

112 1/2

202 247

164 211 280 2970

1555

38

124

128 078 113  
1692

1004 4410 +

140 001

224

9982 9999 1410  
1533 - 61024 0024

1418  
+ 223

3



R.A. : 0.800  
DEC. : 51.250  
R.A. : 224.000  
DEC. : 1.000  
ANCE : 4.180  
69  
2.300

V 526 car

4818

0 48.1 +51 154 g

HR238

+142 - 1 7 →  
+150 +20 1613

(6.4)

0149 +001

G41013

<sup>5</sup>  
+0150 - 4 7  
+01515 - 1 →

149 x1 .166 .216 .780 (2) SPC 2.770 (4) C+

[m<sub>1</sub>]

246 -22

140 +1 645

[C]

747

+034 +002

+146 +010

+0144 +002

134 -002

+0125

+01455 +004 →

988

9144

1.000 1340

0.1374

1533

-0103

-0103 0004

-20

0.11

4.254

+146 +006

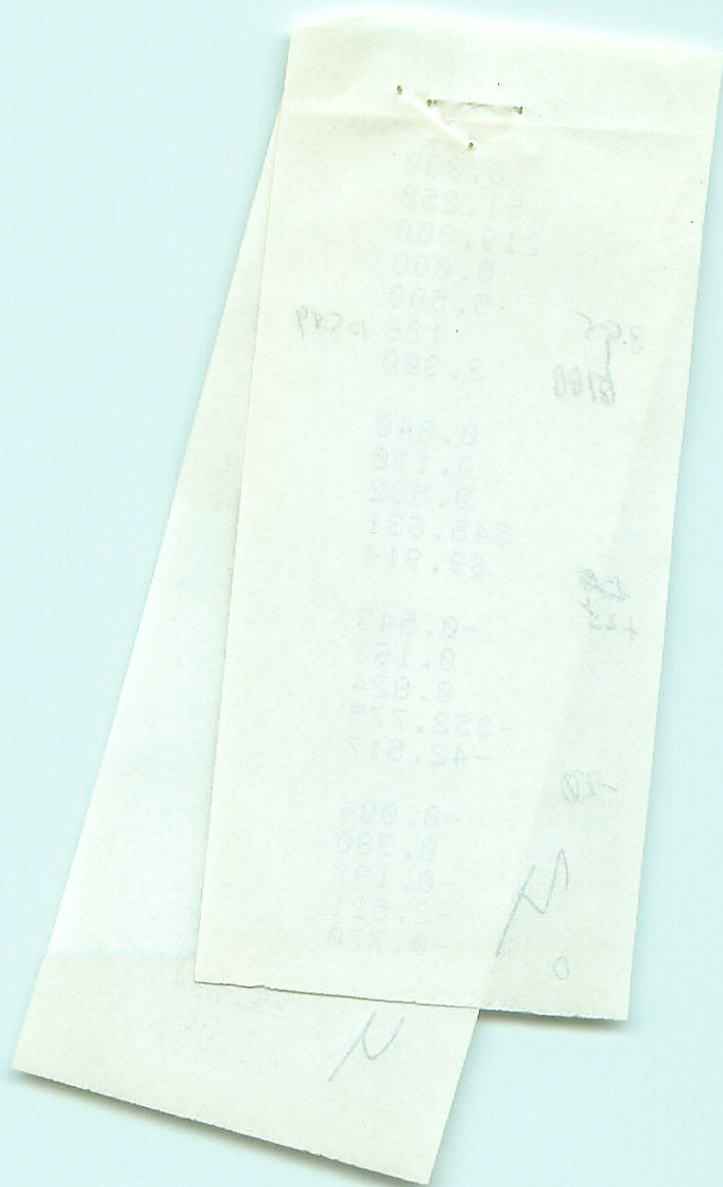
232

+137 000

+2.3

4

7



0.800  
51.200  
233.000  
6.000  
3.950  
62  
2.300

0.840  
0.111  
0.532  
584.285  
37.249

-0.543  
0.164  
0.824  
-371.073  
-20.986

-0.004  
0.980  
-0.198  
25.194  
1.000

12  
130

-10

4  
0

4

4818

0 48.1 751 14 60.5 gFL +2.36

474

+014123.2

-5012.8

089

6C1013

+0144

000

667

48 4.956 18953 +51 14 9.97 1893.0

$$\begin{array}{r} -771 \\ \hline 185 \end{array}$$

0145 on

46 39.29

1 25.190

48

4 4.81

1.51

.636

-1.25

$$\begin{array}{r} 5 \quad 59.5 \\ 8 \quad 10.78 \\ 14 \quad 10.34 \\ \hline 9.97 \end{array}$$

+23

10.1

(10.3)

1926.2

189

$$\begin{array}{r} 4.952 - 7.87 \\ \hline 2 \\ + 1.02 \\ \hline 950 \end{array}$$

1946.96 grade

10.20

-23

9.97

35.6

(113.6)

10.07

.04

4818 956 0.146 216 780 2.770  
00 481 181 +81 14

103 48 4041 ± 32 - 1001 ± 24

4.956 953 4042 9.47 930 110  
271 4046 00 100  
4.185 1003

110

5109 6023 10.46 800 1005  
110 36 0144 100

982 9959 1361 5.378 100.69  
1533 1012 28 100 1352  
0144 422 159

950 9783 100  
303 2071

100-009  
136-009

10264-028

087 213 997284

8600

1 08.0 +54 53 A5 +2.48

HR343

Kyodor

043

W680

4.32 +0.17 +0.11 A7E +225 -019 C-  
+225 -020 G(12)

1510 25.9  
15045 25.9  
15045 25.9

0.87 x 13 9972845

x137

4400  
4443

7.34-03 1354

4.24 +0.005 35

7A(20)  
48A(6)

233 14.4 301 20.2  
2298

(E=00)

+0257 -018 G-+  
+0267 -0165

4104  
108

9957 248226 +2302  
9957 248226 +2302  
9957 248226 +2302

4.4

3.04

2.9

2.9

226-020  
226-020

4151  
4151  
4151

28.65/207

28.65/207

28.65/207

28.65/207

3432.545 0120 434400

292 556 818 575 +228 -019 +8.4 -016 +8 -052  
-067 005 218 -015 -246 1.057 45.4 +5 +2 04

$$\begin{array}{r} -1 + 28 + 7 \\ \boxed{+28 - 8 - 1} \end{array}$$

44

$$-1 + 26 + 7$$

$$\boxed{+26 - 7 \ 0}$$

$$-2 + 31 + 7$$

36

$$\boxed{+30 - 10 \ 0}$$

$$-5 + 74 + 6$$

025

$$+42 \ 77 \ 0$$

$$6961 \quad / \quad 8.0 \quad +54 \quad 53 \quad 4.5 \quad A5 \quad +9.48$$

680

$$\underline{0250}$$

$$-019$$

$$1424 \quad 8 \quad 2.560 \quad 1986.7 \quad +54 \quad 53^{4.24} \quad 1881.1$$

$$\begin{array}{r} 1.671 \\ \hline 0.989 \end{array}$$

$$\begin{array}{r} 1.31 \\ \hline 5.55 \end{array}$$

$$\begin{array}{r} 631.42 \\ 130.350 \\ \hline \end{array}$$

$$\begin{array}{r} 2567 \quad 0404 \quad 45 \quad 4.9 \\ +2 \quad 6610 \quad -9 \quad 0.115 \\ \hline \end{array}$$

$$1926.7$$

$$\begin{array}{r} 8 \quad 1.774 \\ 1.234 \\ \hline \end{array}$$

$$\begin{array}{r} 2923 \\ 0395 \quad 53 \quad 5.49 \\ \hline \end{array}$$

$$188$$

$$\begin{array}{r} 2.007 \\ 1.997 \\ \hline \end{array}$$

$$\begin{array}{r} 4.50 \\ 4.30 \\ \hline 4.80 \end{array}$$

$$4.56$$

$$4.56$$

$$9.4$$

$$\begin{array}{r} 2.455 \\ 1.0 \\ \hline \end{array}$$

$$\begin{array}{r} 2.224 \\ \hline \end{array}$$

$$4.44$$

$$1945.50$$

$$\begin{array}{r} 2.440 \\ \hline \end{array}$$

$$+1.335$$

$$-24$$

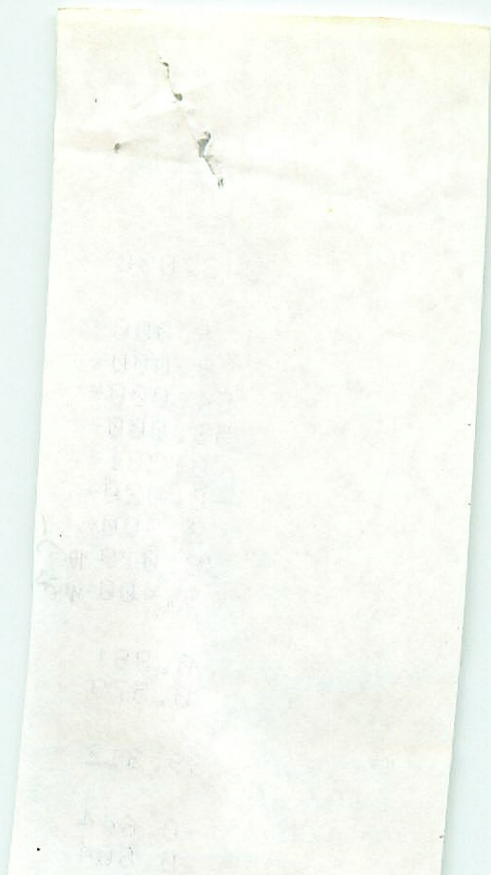
$$\underline{36.1}$$

$$49.4$$

$$\underline{55.0}$$



B



343.000\*

1.000\*

8.000\*

54.000\*

53.000\*

0.231\*

-0.020\*

2.900\*

38.019

9.400

405

4023

0.891

0.579

39.312

-0.644

0.804

|         |   |      |
|---------|---|------|
| 1.1.8   | : | R.A. |
| 84.988  | : | DEC. |
| 889.898 | : | R.A. |
| 1.536   | : | DEC. |
| 881.100 | : | ANCE |
| 4       | : | PLUS |
| 888.888 | : | REL. |

|         |   |     |
|---------|---|-----|
| 818.8   | : | (U) |
| 818.8   | : | (U) |
| 182.8   | : | (U) |
| 854.758 | : | BU  |
| 888.14  | : | U   |

|          |   |     |
|----------|---|-----|
| 878.0-   | : | (U) |
| 881.0-   | : | (U) |
| 888.8    | : | (U) |
| 888.846- | : | U   |
| 478.81-  | : | U   |

|         |   |     |
|---------|---|-----|
| 858.8   | : | (M) |
| 888.8   | : | (M) |
| 881.0-  | : | (M) |
| 848.74- | : | MB  |
| 851.8-  | : | M   |

R.A. : 1.150  
 DEC. : 54.900  
 R.A. : 396.500  
 DEC. : -28.000  
 ANCE : 3.100  
 ULUS : 42  
 VEL. : 9.000

(U) : 0.814  
 (U) : 0.014  
 (U) : 0.581  
 dU : 877.423  
 U : 41.808

(V) : -0.576  
 (V) : 0.152  
 (V) : 0.803  
 dV : -642.909  
 V : -19.574

(W) : 0.077  
 (W) : 0.988  
 (W) : -0.132  
 dW : -47.542  
 W : -3.170

6

8341 Sump/Van

1 20.2 -43 52

+0120 +035  
combing

+0.05

9952

9676

1300

2730

~~0103 033~~

130 +35

0977

2524

~~0110~~ -W1

229

0114 +040 stay

25

(237) (666) (0.70)

+30

626

0117 +0436

7.04 207125 (0.70)

014

4.54

1264

+4.2 (5)

3.728

129 040

+2.2

130

702 213 165 679

1.33

-435

174

+0120 +035 and long

+4.2

40

425

130 +35

444

-3.25 28.05  
-3.3 28.05  
-3.20

6



1.330  
-43.900  
179.000  
40.000  
4.250  
71  
4.400

0.798  
0.599  
-0.075  
601.064  
42.221

-0.591  
0.751  
-0.293  
-219.165  
-16.806

8391

1

20.2

-43

52

FOTV +4.2 ± 1.4 (15)

1664

+0117 +044  
1264

7.01 +30

Sting 1965  
+0114 +040

12.183

1898.8

-43

5-1

50.67

1889.1

+7 +3  
+0121 +043

- 614

11.569

6.057

5.908

11.963

533

5321

612

12.259

-41  
218

129

+0127

43.4

4130  
12065+496  
+0023

-0041

+0116 +043 P104

+1253

179 +128 +039

426

- 2.74

53.41

4296

51.55

57.38

-48

81

51.74

50.74

-12  
50.56

1428.15

260  
51.80  
+ 2.11

8436

42.2

53.1

1956.21

H09391

1 20.2 -43 52

+4.2 ± 14 (15)

7.01 +0.30 F012

$$\begin{array}{r}
 1099 + 0.25 \text{ (44)} \\
 + 130 + 0.45 - 1 \\
 \hline
 + 115 + 0.35 -
 \end{array}$$

2.705 2.05 +2.5

Ryd

b  
240° - 73°

$$\begin{array}{r}
 9452 \quad 9676 \quad 1349 \\
 8977 \quad 2824 \quad 0061 \\
 \hline
 + 2.05 \\
 0741 \\
 4.25
 \end{array}$$

[129 040]

343 539 -443 721 <sup>115</sup> +044 +035 +4.2 -025 -3 055  
-039 006 104 -024 -075 030 +3 +3 +1 644

~~-57 +49 +5~~  
~~446 -15 -1~~

-2 +43 +4 0B

+40 -15 -3

4



1.330

-43.900

179.000

39.000

4.260

71.41

4.200

0.798

0.599

0.25



352 936

866 500 + 257 - 047 H.7 - 071 + 6 - 114 ✓

-105 014 278 - 038 - 817 1.353 + 3.3 + 3 + 1 077

$$\begin{array}{r} -1 + 19 + 4 \\ \boxed{+19 - 6 \quad 0} \end{array}$$

07

$$-2 + 21 + 4$$

$$\boxed{+20 - 7 + 1}$$

$$-6 + 148 + 3$$

035

$$\boxed{+35 - 20 - 1}$$

Slurs

403

P125

03964 0500

7978-0500

951 9823 3020  
1541 1000  
2203

1 22-5

+59

58

49 90

18.0 443

18.3 443

18.3 443

240

403 / 22.5 + 59 59

Scas

8259

1715-

$$2.68 + 0.13 + 0.13 = 3$$

str<sup>?</sup> oblong - used for

Bnd 51

2473-0500 FNS

415-5

8442

08-1

230

75

5061-0656  
96770 07596  
126986  
2013

6809

50461 065E  
4986 0795

2061

8

R.A. : 1.400  
DEC. : 60.000  
M. R.A. : 594.600  
M. DEC. : -50.000  
DISTANCE : 2.350  
MODULUS : 30  
D. VEL. : ~~6.000~~

9.

q1 (U) : 0.791  
q2 (U) : -0.083  
q3 (U) : 0.606  
dU : 1134.107  
U : ~~37.100~~ 39.41

q1 (V) : -0.597  
q2 (V) : 0.114  
q3 (V) : 0.794  
dV : -868.248  
V : ~~-20.859~~ -21.26

-17.817

-18.3

q1 (W) : 0.135  
q2 (W) : 0.990  
q3 (W) : -0.040  
8 dW : -44.320  
W : -1.549 1.40

403

8408

8436

1 225 594 55

868964-0500 P06

757-650

h58

1100 5885 3011  
226-704 100

9



R.A.

DEC.

1.400  
60.000  
594.000  
-50.000  
250

PH07,1

+0042 = 2.3 -002 = 2.4  
+0040 -003

97Pm

DD01,71

1

27.2

+18 06 +4.

HR432

5.9

+0041

-006  
AY II

+060 -00

W845

1043 2817

+060 -00515

K01

27

10.612

1906.7

+18

5-

52.10

1903.5

6025026 154, 52  
430

+001

+0041 -0065

52.20

+0044 -005  
+0043 -005

VX Pm

10.534

+0042 -0005

51.84

1934.0

+5

+0.0006 -0006

+7

539

553

51.91

62 66

9565

9497

0609

1055

10.559

+123

30.3

+0061 -0006

+4

52.11

1939.93

2915

0249

355

+8

65.24

+19

37.0

581

5000

0066

567

10.652

52.07

52.30

33.5

+375-6

589

11

-23

52.10

-1.10

671

51.84

542

365 195

377 928 311 951 +040-005+4.1-0024.3-022

-022 006056-002-095 270+4.0+3.7+1.5

-6.8+31.5-1.1 009

-15.3 005

9

.A. : 1.450  
 EC. : 18.100  
 .A. : 66.000  
 EC. : -5.000  
 ANCE : 5.810  
 ULUS : 145  
 VEL. : ~~14~~ 4.200

(U) : 0.786  
 (U) : 0.340  
 (U) : 0.517  
 dU : 225.613  
 U : 25.423

(V) : -0.601  
 (V) : 0.617  
 (V) : 0.508  
 dV : -193.305  
 V : -35.280

1 (W) : 0.147  
 2 (W) : 0.709  
 3 (W) : -0.689  
 dW : 26.757  
 W : 13.674

10

432 4004-006 27.2 +18 06 063-007  
+0044-007 0000

9100

807

0100 194 1.073  
+050 166 1.093 2817 JPC

0001 004

10.112  
182  
420  
10.682  
11  
671

0042-223  
6.7 +0043  
+0039

10.682  
11  
671

10.682  
11  
671

10.682  
11  
671

0001 004

2915 5557  
5005 0249

10.682  
11  
671

10.682  
11  
671

10.682  
11  
671

0607  
063-007

10.682  
11  
671

431

1 26.5

-34 02

9065

1796

6.58 + 81 - 696

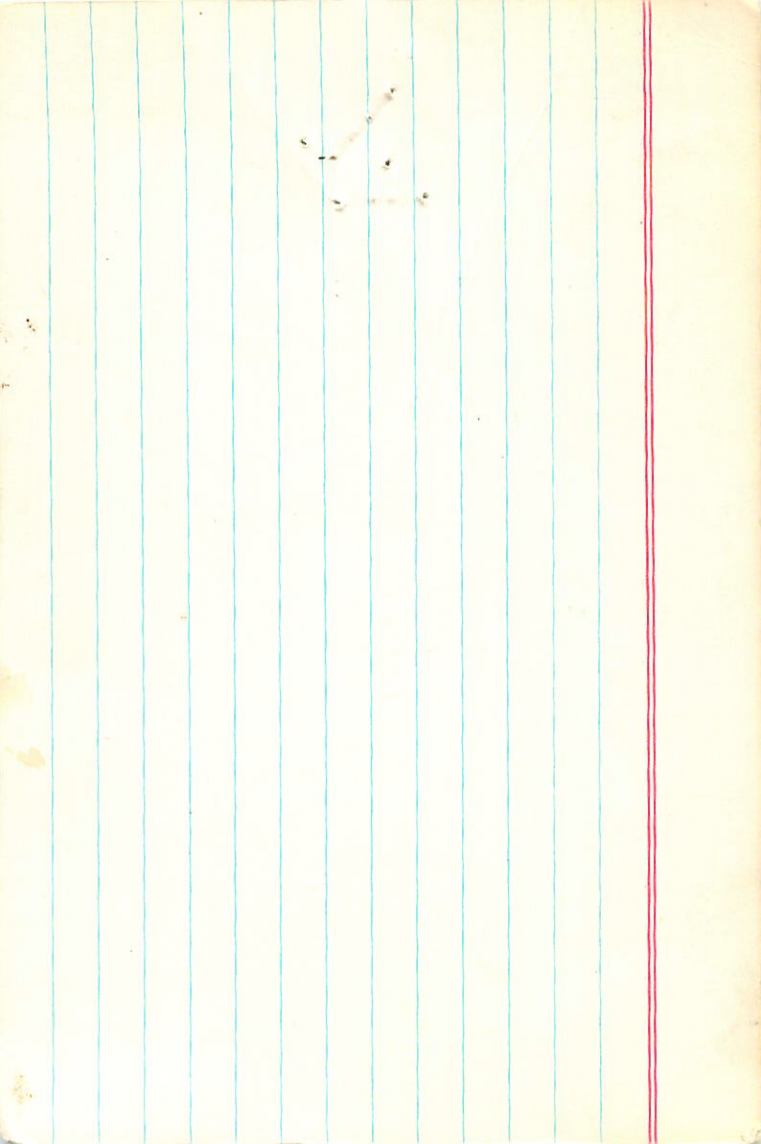
+195 +157 +804 - 299m (4)

new

-4

Handwritten notes and calculations on lined paper, including:

- Top left:  $13.00$ ,  $13.00$ ,  $13.00$
- Top right:  $13.00$ ,  $13.00$ ,  $13.00$
- Middle left:  $13.00$ ,  $13.00$ ,  $13.00$
- Middle right:  $13.00$ ,  $13.00$ ,  $13.00$
- Bottom left:  $13.00$ ,  $13.00$ ,  $13.00$
- Bottom right:  $13.00$ ,  $13.00$ ,  $13.00$



473 / 36.5 -21 32

10148

1445

$5.56 + 0.37$  (10.035) L

558 210 172 828 2.718 um

5.58 217 170 811 2.726 2,13,1,4,62

new

$\frac{3}{220}$

+18

209 + 7

NO

769 201 +1.2

+10 7 Strands Van

1972

2023  
167  
1

11



R.A. : 1.600  
DEC. : -21.550  
R.A. : 139.000  
00.000

1059 00 1059  
1059 44.2 -53 4

10939 1 504 +0.09  
4R520 40.9 3.7

10939 +0155 +060  
+0153 ± 3.5 - +070 ± 3.9 6.2 6.0 6.00

10154 +065  
+0149 +067  
+1322 024  
+1334 017  
+1334 174  
+1334 1054

(3)

12.8.4056.5

10154 +065  
+0149 +067  
+1322 024  
+1334 017  
+1334 174  
+1334 1054

225

439 898

807 591

+131 +064 +8.5 052 +8 150

-058-023 118 047 -457 453 +576 45 +2

-28 +35 +20 015

(+38 -14 +27)

-20 +27 +17 02

+31 -9 +21

025

520

1 442 83 46

10935

101434 +0569 12105 (12)

[127.2 +0569]

5437 5387 1345  
1121 3465 6093

-9

4310

406

-8

4315

12



|      |   |         |
|------|---|---------|
| R.A. | : | 1.750   |
| DEC. | : | -53.750 |
| R.A. | : | 0.000   |
| DEC. | : | 0.000   |
| ANCE | : | 0.000   |
| JLUS | : | 10      |
| JEL. | : | 0.000   |

|     |   |        |
|-----|---|--------|
| (U) | : | 0.753  |
| (U) | : | 0.646  |
| (U) | : | -0.126 |
| DU  | : | 0.000  |
| U   | : | 0.000  |

|     |   |        |
|-----|---|--------|
| (V) | : | -0.622 |
| (V) | : | 0.636  |
| (V) | : | -0.457 |
| VP  | : | 0.000  |
| V   | : | 0.000  |

|     |   |        |
|-----|---|--------|
| (M) | : | 0.215  |
| (M) | : | -0.423 |
| (M) | : | -0.881 |
| MP  | : | 0.000  |
| M   | : | 0.000  |

\$ 85.00

5.04

007

174

2057

2899

011 167 054 2400

+0.91

520 1 44.2 -53 46

10939

2965 1.25 8502

5.03 +04 -C

9953

340

12.1.2-1054

Str

-5.30 27.45 3.12

9953

1440

1047 +050

5.02

624

174

1064

2905

015040

101530 10605 27

7.8

74

294

1359

1406

But 51

+1357

192

[m] 181 [138+0515] a = 032

+1.7

+142

+126 +065

[C] 1.059

a = +031

+1.7

+142

+126 +065

1361 1.405

1.405

3.85

+1.15

3160

-8.22

4311

-82 4318

406

152 62

$$\begin{array}{r} 11.0974 \\ - 6.09 \\ \hline 11.302 \end{array}$$

$$\begin{array}{r} 02. \\ + 0.4223.5 \\ + 0.143 \\ + 15.76 \\ \hline \end{array}$$

$$\begin{array}{r} 4053 \\ + 0.56 \\ - 3.14 \\ \hline 23.97 \end{array}$$

035.

$$\begin{array}{r} 11.5777 \\ - 495 \\ \hline \end{array}$$

(69.47)

$$\begin{array}{r} 21.92 \\ - 0.7 \\ \hline \end{array}$$

3902

$$\begin{array}{r} 12.302 \\ - 30 \\ \hline \end{array}$$

$$\begin{array}{r} 20.32 \\ - 15 \\ \hline \end{array}$$

$$\begin{array}{r} 21.94 \\ - 19.5 \\ \hline \end{array}$$

$$\begin{array}{r} 12.272 \\ - 12.272 \\ \hline \end{array}$$

$$\begin{array}{r} 20.47 \\ - 15 \\ \hline \end{array}$$

5



520.000\*

1.000\*

44.200\*

-53.000\*

-46.000\*

0.126\*

0.065\*

4.27 3.85 3.600\*

71.5 65 52.481

9.500

0.649

-0.128 -8

37 32.844

378  
-0.174

-0.456 -30

~~475~~ -13.484.

-0.004

-0.001 -54

29  
-8.577

13

Out

1.750  
-53.750  
257.000  
62.000  
4.100  
66  
9.500

0.753  
0.646  
-0.126  
732.243  
47.180

-0.622  
0.636  
-0.457  
-260.997  
-21.585

0.215  
-0.423  
-0.881  
30.518  
-6.348

B

1.750  
-53.750  
257.000  
62.000  
4.100  
66  
9.500  
0.753  
0.646  
-0.126  
732.243  
47.180

3.9  
4.2  
60.2

#4



0.800  
51.250  
219.000  
0.000  
5.500  
126  
2.300

105.89

3.95  
8/16

0.840  
0.110  
0.502  
545.631  
69.914

109  
135

-0.543  
0.163  
0.824  
-352.775  
-42.517

-20

4  
0

-0.004  
0.900  
-0.197  
-2.521  
-0.770

14±9

01171059 2500

2605

10939

1

44.2 -53

46

40

+8.58

HR520

1091

5.04 + 0.04

62

+126

+0686

32

+137

+060

10939

1000

+0155 +060N30

+131

+064

+0153±3.5 - +070 ±296.2 con 4430

PRE Supp

10MS + 0.56

+0154 +065

12.8 + 0.56.5

+0149 +067

144

✓

4 1270569

401

✓

+1322 024

9937 9381

1340

+1334

405

1120 3764

00930

017

1385

11052

174

0088

4.07

3

225

439 898 807 591 +131 +064 +8.5 052 +8 150

-058 -023 118 047 -487 487 +5.6 +5 +2

-28 +35 +20 015

+38 -14 +27

-20 +27 +17 02

+31 -9 +21

025



1-1-1

11

1.600  
 -21.500  
 139.000  
 39.000  
 4.200  
 69  
 11.300

0.770  
 0.602  
 0.210  
 503.422  
 42.736

-0.612  
 0.791  
 -0.025  
 -228.899  
 -16.113

0.181  
 0.110  
 -0.977  
 131.090  
 -1.975

715  
 7  
 108

11

F.A. : 1.200  
 DEC. : -21.200  
 R.A. : 139.000  
 DEC. : 30.000  
 STANCE : 4.200  
 ODULUS : 89  
 VEL. : 11.200

P1 (U) : 0.70  
 P2 (U) : 0.800  
 P3 (U) : 0.300  
 Q1 : 200.000  
 U : 45.000

P1 (V) : -0.215  
 P2 (V) : 0.201  
 P3 (U) : -200.000  
 U : -10.000

P1 (M) : 0.181  
 P2 (M) : 0.100  
 P3 (M) : -0.025  
 Q1 : 130.000  
 M : -1.000

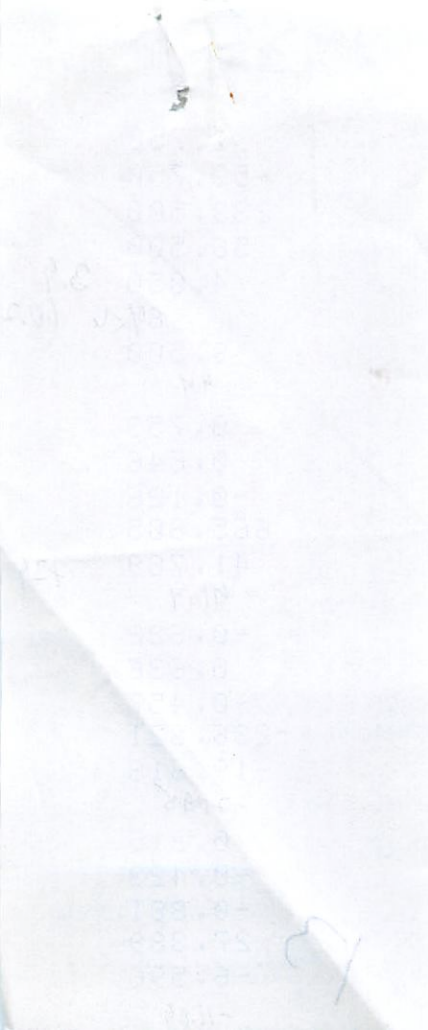
R.A. : 1.600  
DEC. : -21.550  
R.A. : 139.000  
DEC. : 38.000  
DISTANCE : 4.200  
MODULUS : 69  
VEL. : 11.200

q1 (U) : 0.770  
q2 (U) : 0.603  
q3 (U) : 0.209  
dU : 580.437  
U : 42.503

q1 (V) : -0.612  
q2 (V) : 0.791  
q3 (V) : -252.925  
V : -16.369

q1 (W) : 0.181  
q2 (W) : 0.109  
q3 (W) : -0.977  
dW : 130.379  
W : -1.928

//



1.750

-53.750

233.500

56.500

4.050

64.50

9.500

4.4

0.753

0.646

-0.126

665.805

41.789

41.14

-0.622

0.636

-0.457

-236.621

-19.618

-21.95

0.215

-0.423

-0.881

27.389

-6.596

-11.04

3.9

60.2

435

13