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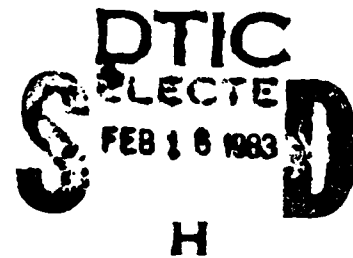
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A Comparison of
Forecasted and Actual Flying Programs
for
CY 1973-1979

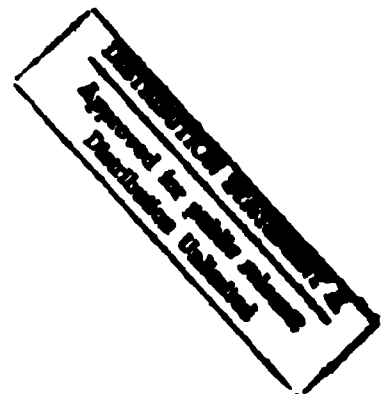


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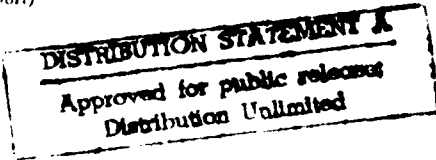
W. Steven Demmy

October 1980

WP-80-06
Decision Systems
2125 Crystal Marie Drive
Beavercreek, Ohio 45431
(513) 426-8515



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RESPONSIBLE INDIVIDUAL		<i>Decision Systems</i> <i>2125 Crystal Marie Drive</i> <i>Beavercreek, Ohio 45431</i>		
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18. ABSTRACT (UNCLASSIFIED) <i>This paper compares 12 month forecast of USAF flying activity with the corresponding actual flying programs, i.e., the programs that were eventually flown. The data covers the forecasts made in the interval CY 73-CY 79.</i>				
19. CONCLUSIONS (UNCLASSIFIED)				
20. RECOMMENDATIONS (UNCLASSIFIED)				
21. IMPLEMENTING ACTIONS (UNCLASSIFIED)				

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This paper compares 12-month forecast of USAF flying activity with the corresponding actual flying programs, i.e., the programs that were eventually flown. The data covers forecasts made in the interval CY 73--CY 79.			

Introduction

Predictions of future flying program activity are critical elements in the requirement computations for both reparable and consumable items. In both of these requirements computations, it is assumed that:

1. Demand is proportional to flying program activity, and
2. It is possible to accurately forecast the flying activity to be performed in future periods.

In this paper, we use historical data for calendar years 1973 through 1979 to test the second assumption. That is, we compare forecasts of flying program activity made during these years to the actual flying activity which was eventually performed. In the next section, we discuss the sources of data used in our computations more fully, and describe the calculations used in comparing predicted and actual flying programs. In the appendix, we present plots for 26 USAF aircraft describing both program activity and forecasting accuracy observed during this time interval.

Data Sources

We obtained the data documented in this report from two major sources. Observed aircraft flying program data was obtained from the G033J system from output product A-G033J-PAR-MI-MMO. This information was collected for the interval July 1970 through June 1979. Predictions of flying program activity which were made each quarter throughout the 1970s were obtained from the K004 data system, using report K004.1781A



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RCS: NR-LOG-LR(AR)7208. Appendix A of reference 1 presents the actual program activity data obtained in this process, while Appendix B of reference 1 presents the forecasts of 12 months flying activity obtained from the K004 system. Table I illustrates the data presented in Reference 1. The top of Table I presents the actual flying program activity for B-52 weapon systems by quarter for CY1971 through 1979. Similarly, the bottom portion of Table I presents the predicted one year B-52 flying programs in hundreds of hours. These predicted hours are the total flying hours predicted to be flown during the succeeding 12 month period. For example, at the beginning of the first quarter of CY 1973, Air Force planning documents were predicting a total of 230,800 hours of B-52 flying activity for the next 12 months, i.e., for quarters one through four of CY 1973. Each quarter the flying program forecasts are updated. At the beginning of quarter two of CY 1973, the revised 12 month forecast of B-52 flying activity (for quarters 2, 3, and 4 of CY 1973 and quarter 1 of CY 1974) was 211,900 hours. Other revised forecasts are presented in the table, with each forecast representing a prediction for the future 12-month interval.

We next computed the ratio of predicted to actual flying programs for the B-52 and a number of other USAF weapons. We refer to this number as the "forecast accuracy ratio." Table II illustrates this computation. For example, at the start of the first quarter of CY 1973 (Quarter No. 9), a total of 230,800 hours were forecast as the B-52 flying program for the next 12 month period. As it turned out, a total of 203,703 hours were actually flown by B-52 aircraft during this interval. The ratio of the predicted to actual hours is 1.133, the number shown in the right hand column of Table II. That is, the predicted program was 13.3% more than the hours that were actually flown. Similarly, when the 12-month forecast for the second quarter of CY 1973 was divided by the corresponding actual hours, a program ratio of 1.220 was obtained. The right hand column in Table II presents similar ratios associated with other forecasts of B-52 flying programs made throughout the 1970s.

Table I.

B52 Actual Flying Program, CY1971-79
(Hours)

YR	YR	GTR 1	GTR 2	GTR 3	GTR 4
852	71.	30195.00	43000.00	51442.00	45485.00
852	72.	57327.00	51077.00	92740.00	58258.00
852	73.	4076.00	11448.00	43547.00	28386.00
852	74.	12489.00	32375.00	19102.00	36402.00
852	75.	14171.00	32035.00	31586.00	22548.00
852	76.	14185.00	28553.00	31812.00	32448.00
852	77.	22407.00	14615.00	32847.00	33623.00
852	78.	22352.00	22710.00	32557.00	22099.00
852	79.	22485.00	23957.00	32062.00	31787.00

Predicted 1-Year B52 Flying Programs, CY1973-79
(100's Hours)

YR	YR	GTR 1	GTR 2	GTR 3	GTR 4
852	73.	2398.00	2110.00	2062.00	1949.00
852	74.	1868.00	1827.00	1740.00	826.00
852	75.	1518.00	1070.00	1406.00	1510.00
852	76.	1422.00	1422.00	1393.00	1364.00
852	77.	1359.00	1058.00	1356.00	1339.00
852	78.	1332.00	1332.00	1328.00	1340.00
852	79.	1338.00	1338.00	1321.00	1321.00

Table II.

Forecast Accuracy Ratio's

			ACT 4 QTR	QTR		
852	QTR	0	208700	80700	10000	10000
852	QTR	10	192700	80700	10000	10000
852	QTR	11	146800	40000	10000	10000
852	QTR	12	142750	30000	10000	10000
852	QTR	13	152200	30000	10000	10000
852	QTR	14	130875	30000	10000	10000
852	QTR	15	149700	30000	10000	10000
852	QTR	16	144200	30000	10000	10000
852	QTR	17	138400	30000	10000	10000
852	QTR	18	128700	30000	10000	10000
852	QTR	19	135100	30000	10000	10000
852	QTR	20	133200	30000	10000	10000
852	QTR	21	137000	30000	10000	10000
852	QTR	22	131675	30000	10000	10000
852	QTR	23	132100	30000	10000	10000
852	QTR	24	128000	30000	10000	10000
852	QTR	25	125150	30000	10000	10000
852	QTR	26	124000	30000	10000	10000
852	QTR	27	133000	30000	10000	10000
852	QTR	28	130000	30000	10000	10000
852	QTR	29	132050	30000	10000	10000
852	QTR	30	135100	30000	10000	10000
852	QTR	31	135075	30000	10000	10000
852	QTR	32	124100	30000	10000	10000
852	QTR	33	130000	30000	10000	10000
852	QTR	34	130000	30000	10000	10000

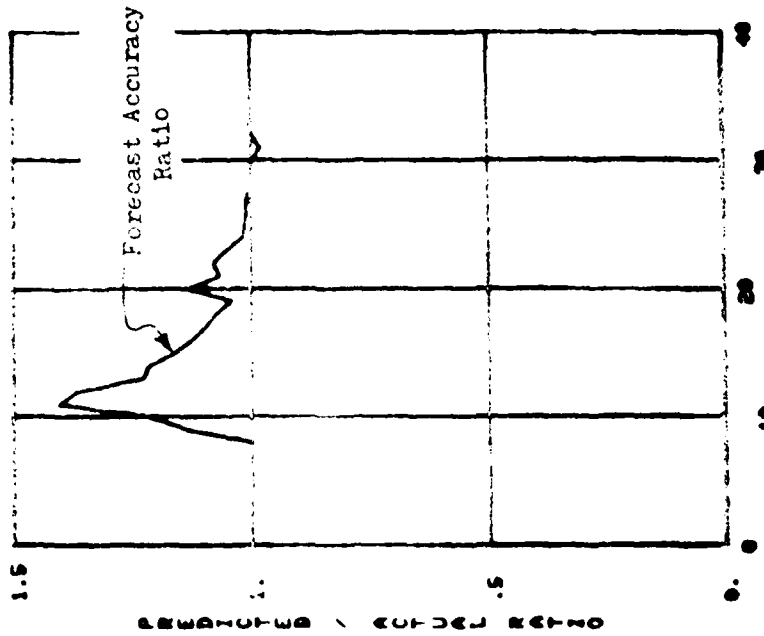
Figure 1 plots of the actual and predicted flying programs for the B-52 for CY71-79, as well as the forecast accuracy ratios presented in Table II. The solid line in Figure 1A represents actual quarterly B-52 flying activity, while the dashed line in this figure represents the corresponding predicted program normalized to a quarterly value. On the other hand, Figure 1B plots the forecast accuracy ratio associated with these observations. As seen in these figures, the predicted flying program was generally above the observed program, although the forecast error became much smaller during the latter years of the 1973-1979 interval.

We developed similar curves for the 26 USAF aircraft associated with the INSSIM D062 Data Bank. These curves are presented in Appendix A. As observed in Reference 1, almost all of these weapons show significantly declining programs throughout the 1970s. Some of the weapons completely phased out of the USAF inventory. In this case, the very small number of actual flying hours resulted in forecast accuracy ratios which were quite erratic.

Analysis of Variance

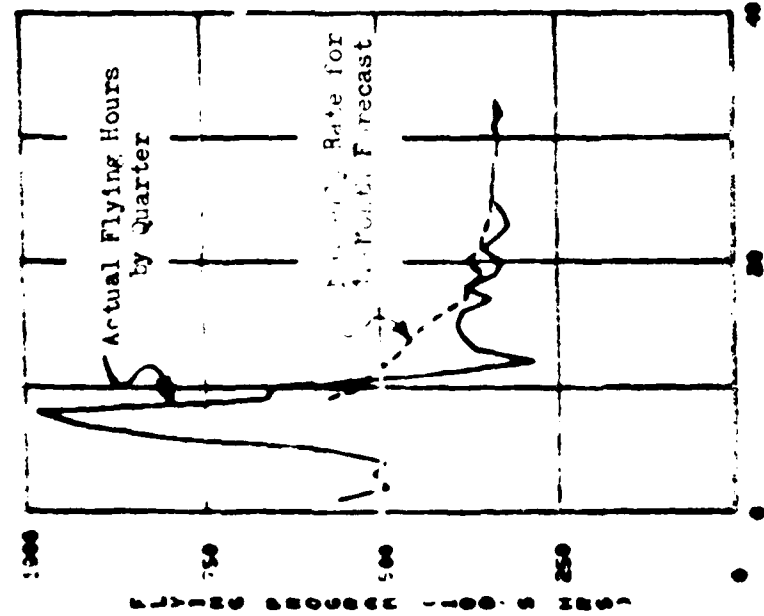
We were interested in testing the hypothesis that forecasting accuracy differed among weapon systems, and that forecasting performance changed as a function of time. To do this, we utilized the data presented in Appendix A to develop Table III. In this table, we have recorded the forecast accuracy ratio associated with the specific flying program forecast made at the beginning of each calendar year from 1973 through 1979 for each of the aircraft in our data file. We then used this data to compute the average forecast accuracy ratio and the coefficient of variation of these ratios for each weapon and for each calendar year. As shown in the figure, the grand average of all these forecast values was 1.12, i.e., for all of the forecasts made, the predicted program averaged 12% higher than the number of flying hours which were eventually flown.

Figure 1. Comparisons of Predicted and Actual B-52 Flying Programs.



QUARTER NUMBER, WEEKS 1 - JAN 71

(1B)



QUARTER NUMBER, WEEKS 1 - JAN 71

902

FLYING PROGRAM FOR CY 71 - 00

(1A)

Note: Quarter 1 = Jan-Mar. 1971.

Table III. Fore 1st Accuracy Ratios for CY73 - CY79.

	1973	1974	1975	1976	1977	1978	1979
1973	1.000						
1974	1.000	1.000					
1975	1.000	1.000	1.000				
1976	1.000	1.000	1.000	1.000			
1977	1.000	1.000	1.000	1.000	1.000		
1978	1.000	1.000	1.000	1.000	1.000	1.000	
1979	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1980	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1981	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1982	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1983	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1984	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1985	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1986	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1987	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1988	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1989	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1990	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1991	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1992	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1993	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1994	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1995	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1997	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1998	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2023	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2024	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2025	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2026	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2027	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2028	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2029	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2030	1.000	1.000	1.000	1.000	1.000	1.000	1.000
AVERAGE	1.194	1.053	1.214	1.157	1.116	1.059	1.026
S. OF V.	.140	.134	.155	.191	.190	.190	.097

*During these periods, actual flying hours were so low that the accuracy ratios are not meaningful. To prevent these points from biasing our results upward, the true values were replaced by 1.000.

Table IV presents an Analysis of Variance (ANOVA) Table for testing for significant differences in predicting accuracy among weapons and among the different calendar years. This information indicates that there is no statistical basis for concluding that there is any significant differences in forecasting accuracy among weapons or among time periods. That is, it appears reasonable to assume that each forecast accuracy ratio may be considered as a random observation from the same probability distribution. Consequently, we developed a frequency distribution using all of the forecast accuracy ratios presented in Table IV. Our results are presented in Figure 2. As shown in the figure, the combination of all the forecast accuracy ratios have a mean of 1.123, and a standard deviation of .175. The minimum forecast accuracy ratio was .763, while the maximum observed value (after correcting for the outliers as described in the notes to Table III) was 1.812. As shown in the figure, most of the accuracy ratios are greater than one, indicating that the majority of forecasts exceed the corresponding actual flying programs.

Summary

This paper presents statistical data comparing predicted 12 month flying hour programs with the corresponding program hours that were eventually flown. The data covered the interval CY73-CY79 for 26 different USAF aircraft. Most of these aircraft experienced significant program reductions during the CY73-CY79 interval. In general, predictions of flying activity exceeded the number of hours eventually flown. These forecasts averaged 12% above the eventually observed program, though individual forecasts ranged from 76% to 181% of the eventually observed values. Further, a rather crude Analysis of Variance indicates there is no significant difference in forecasts accuracy among weapon systems or among the different fiscal years.

Table IV.
 Analysis of Variance Table
 for Differences Among Aircraft (Rows)
 and Among Calendar Years (Columns)

	SS	df	MS	F	Prob > F
Rows	1074	58	18.53	2.08	.100
Columns	1074	10	107.4	11.9	.000
Error	1074	522	2.06		
Total	3222	690			

F(R,E) = .100 -- Not Significant since F(7,148) = 2.08 with 95% confidence.
 F(C,E) = .018 -- Not Significant since F(26,148) = 1.60 with 95% confidence.

Figure 2.
 Frequency Distribution of
 Forecast Ratios, CY 73-79.

INPUT data

```

1.133 1.127 1.097 1.097 1.013 1.001 1.005 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.178 1.16 1.278 1.34 1.544 1.17 1.205 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.172 1.054 1.001 1.095 1.072 1.098 1.132 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.104 1.417 1.137 1.133 1.551 1.008 1.102 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.088 1.052 1.001 1.075 1.074 1.088 1.082 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.959 1.403 1.917 1.894 1.009 1.014 1.116 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.974 1.887 1.037 1.077 1.087 1.026 1.103 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.803 1.501 1.116 1.985 1.025 1.277 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.052 1.645 1.963 1.948 1.968 1.923 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.133 1.001 1.008 1.963 1.133 1.000 1.112 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.005 1.978 1.004 1.151 1.169 1.131 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.089 1.039 1.004 1.037 1.211 1.146 1.540 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
1.122 1.465 1.178 1.015 1.004 1.114 1.074 1.000 1.000 1.000 1.000 1.000 1.000 1.000 1.000
MEAN = 1.123 SUM = 204.249
    
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Variance = 3.0874917E-02

Std. Dev. = 1.757126 Coef. of Var. = 1.567126

Minimum = 1.000 Maximum = 1.985

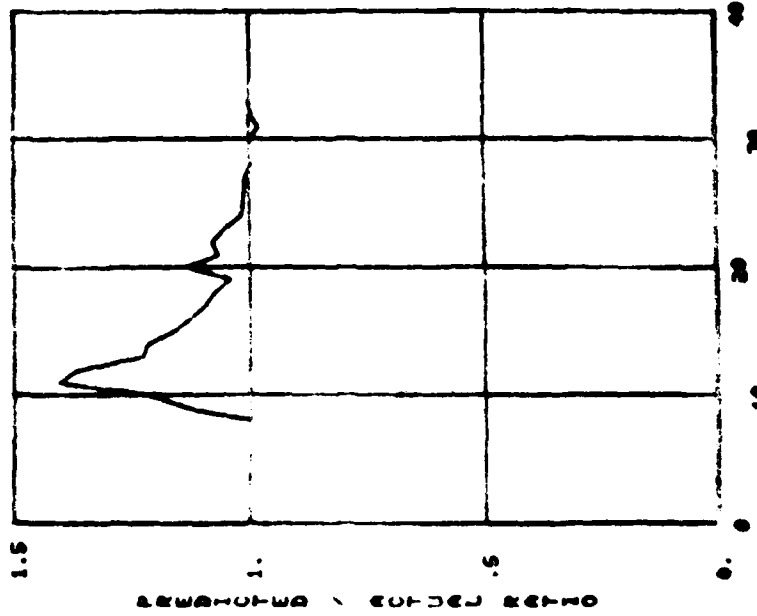
Frequency Distribution

Ratio	Count	Percentage
1.000	1	0.50
1.013	1	0.50
1.026	1	0.50
1.037	1	0.50
1.052	1	0.50
1.072	1	0.50
1.074	1	0.50
1.075	1	0.50
1.082	1	0.50
1.087	1	0.50
1.088	1	0.50
1.095	1	0.50
1.097	1	0.50
1.102	1	0.50
1.103	1	0.50
1.112	1	0.50
1.114	1	0.50
1.116	1	0.50
1.131	1	0.50
1.132	1	0.50
1.133	1	0.50
1.146	1	0.50
1.151	1	0.50
1.169	1	0.50
1.17	1	0.50
1.172	1	0.50
1.178	1	0.50
1.277	1	0.50
1.34	1	0.50
1.37	1	0.50
1.403	1	0.50
1.417	1	0.50
1.465	1	0.50
1.544	1	0.50
1.551	1	0.50
1.58	1	0.50
1.587	1	0.50
1.598	1	0.50
1.894	1	0.50
1.917	1	0.50
1.948	1	0.50
1.963	1	0.50
1.968	1	0.50
1.974	1	0.50
1.985	1	0.50

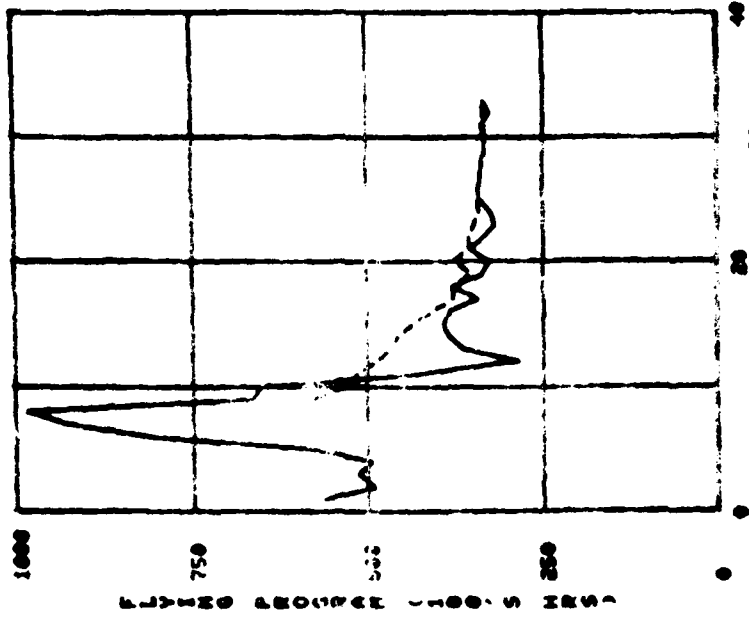
REFERENCE

Demmy, W. Steven, Actual and Predicted Flying Program for Selected USAF Aircraft for the Period July 1972 - June 1979. Working Paper 80-01, Decision Systems, 2125 Crystal Marie Drive, Beavercreek, Ohio 45431, June 1980, 54 pp.

Appendix A
Plots of
Flying Program Forecast Accuracy Ratios
for CY 73-79

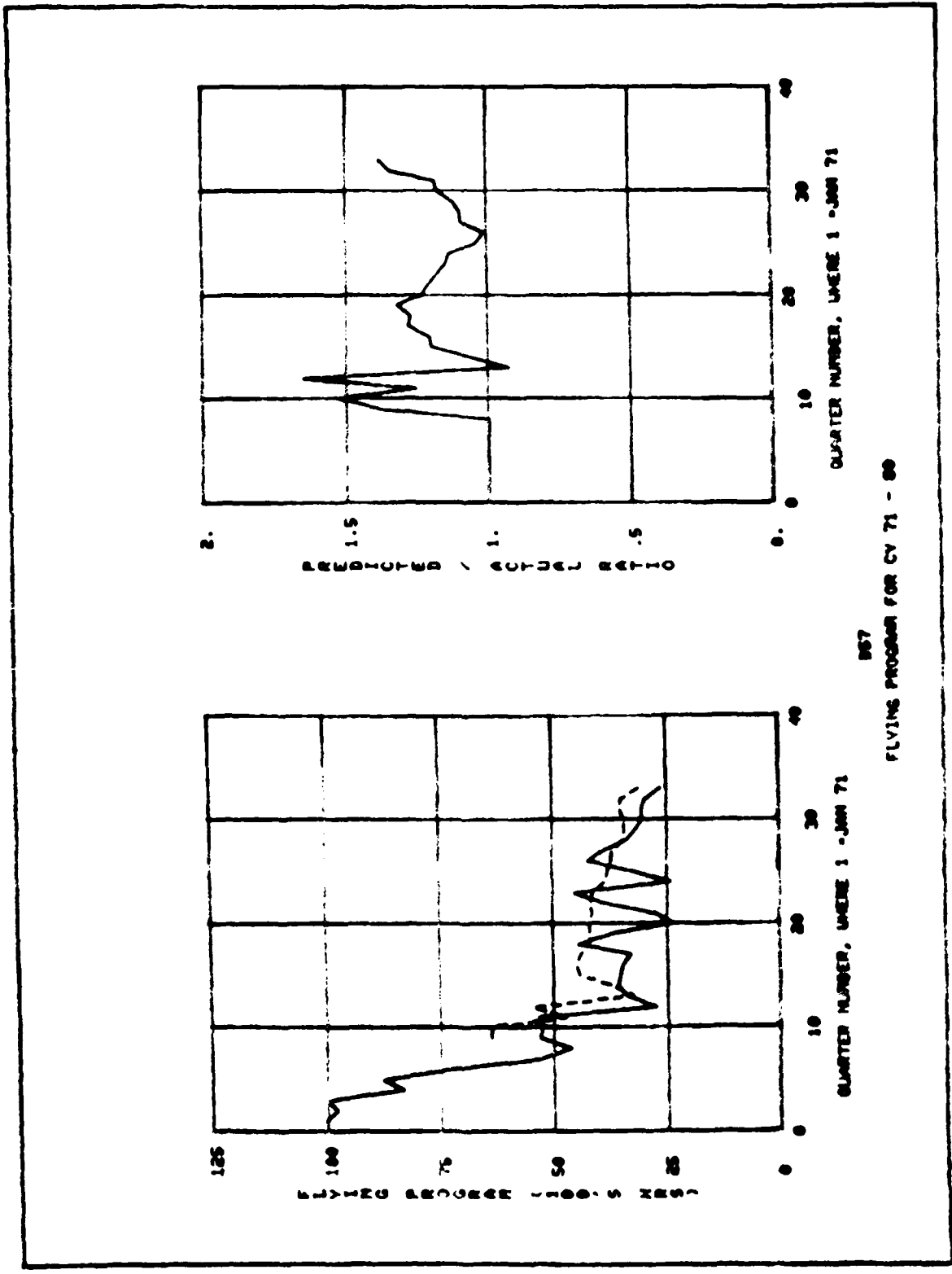


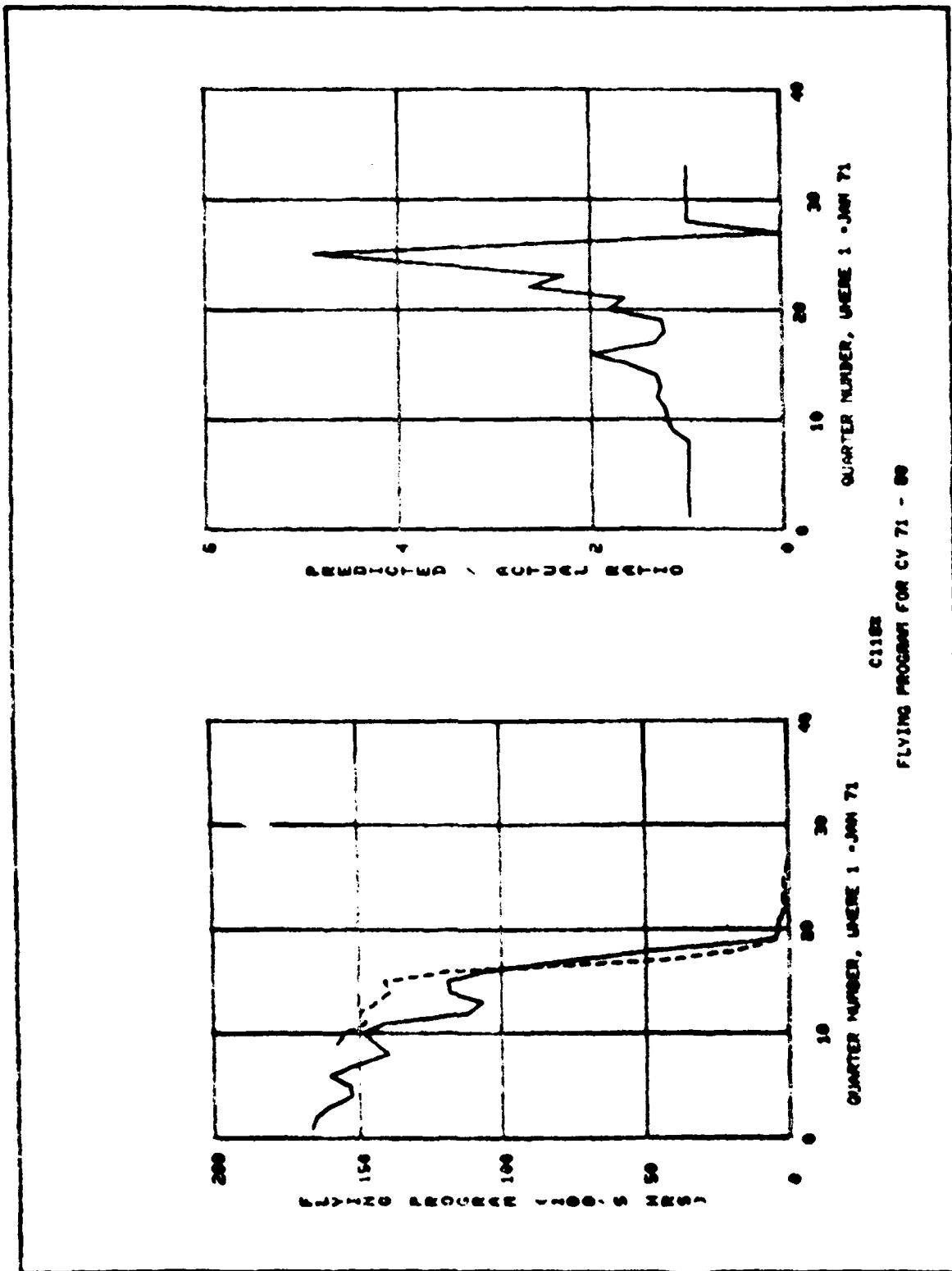
QUARTER NUMBER, JUNE 1 - JAN 71

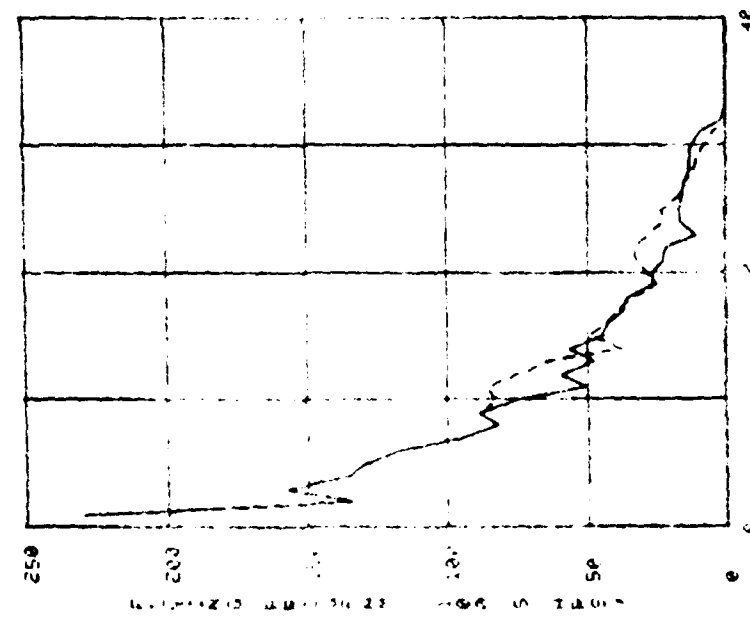
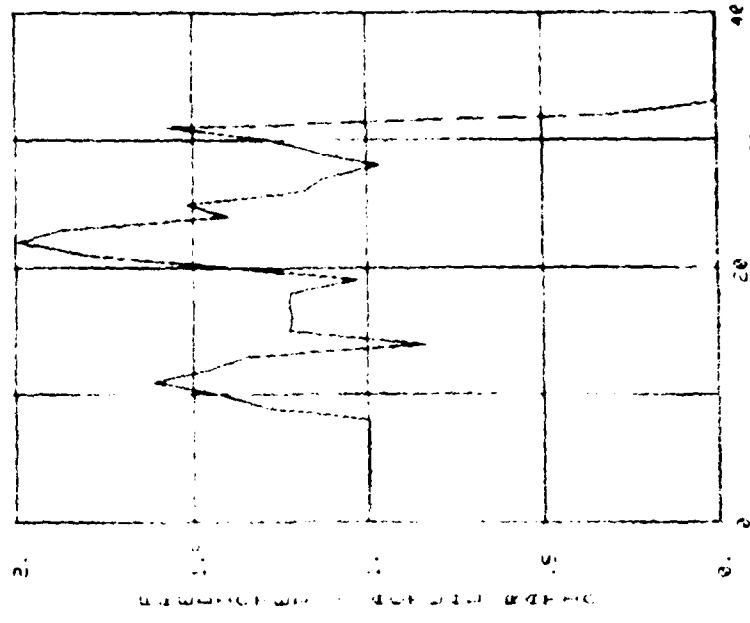


QUARTER NUMBER, JUNE 1 - JAN 71

1962
FLYING PROGRAM FOR CY 71 - 80



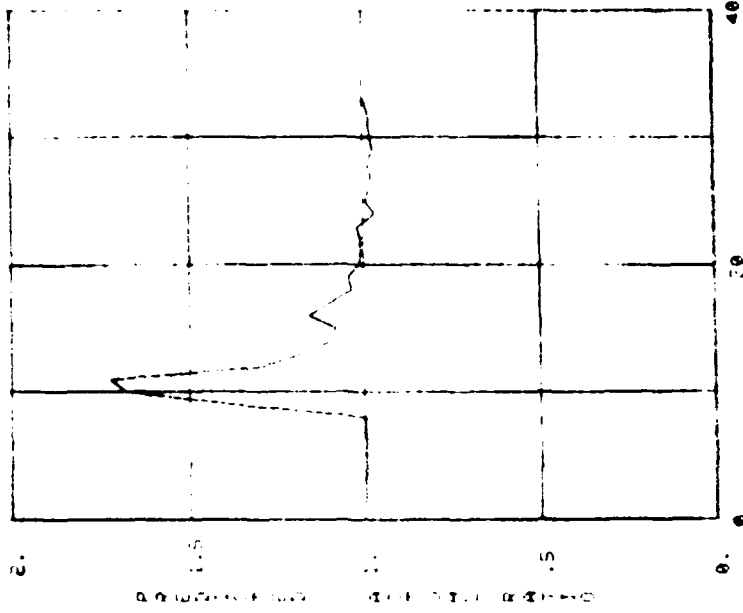




QUARTER NUMBER, LINE 1 - JAN 71

01218

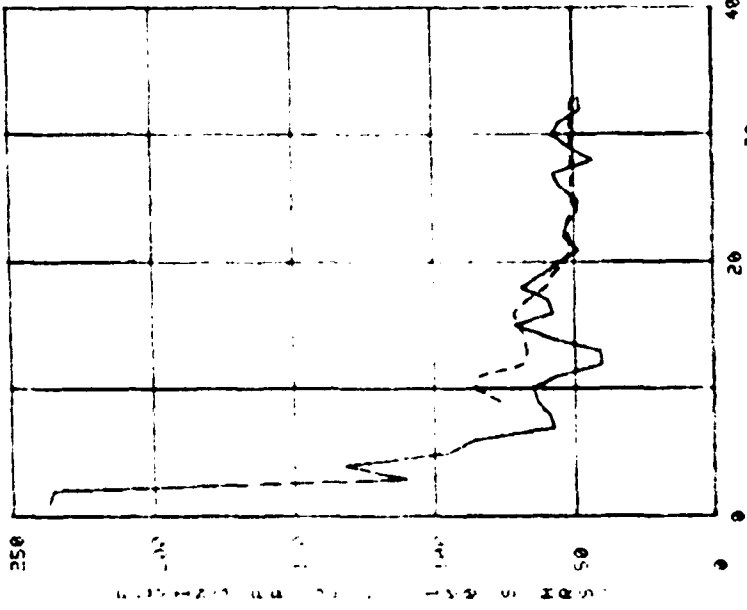
FLYING PROGRAM FOR CV 71 - 80



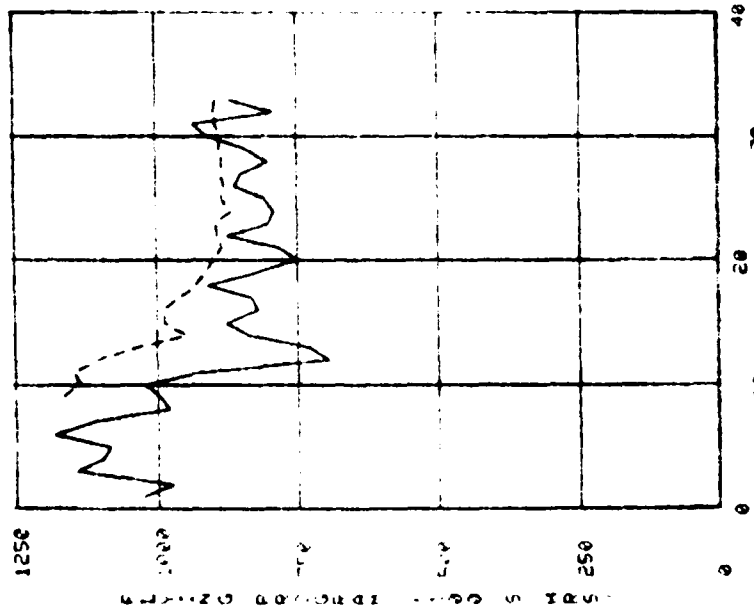
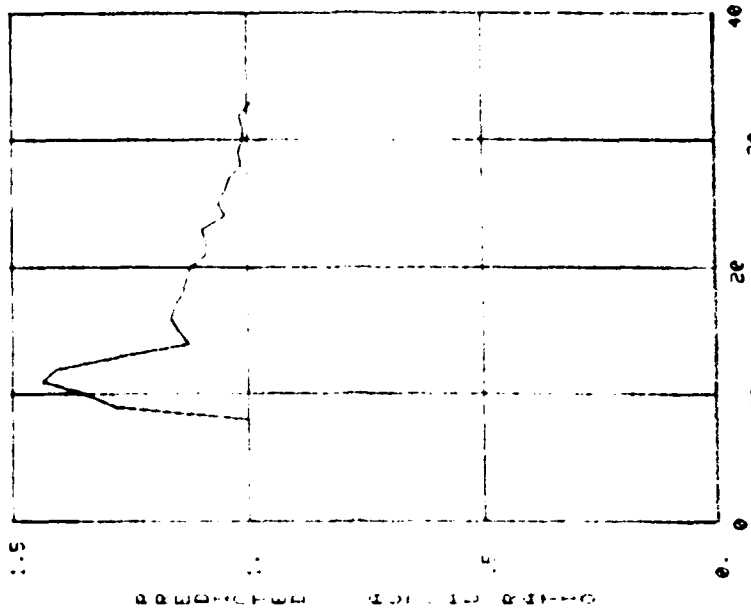
QUARTER NUMBER, WERE 1 - JAN 71

1231

FLYING PROGRAM FOR QY 71 - 80



QUARTER NUMBER, WERE 1 - JAN 71

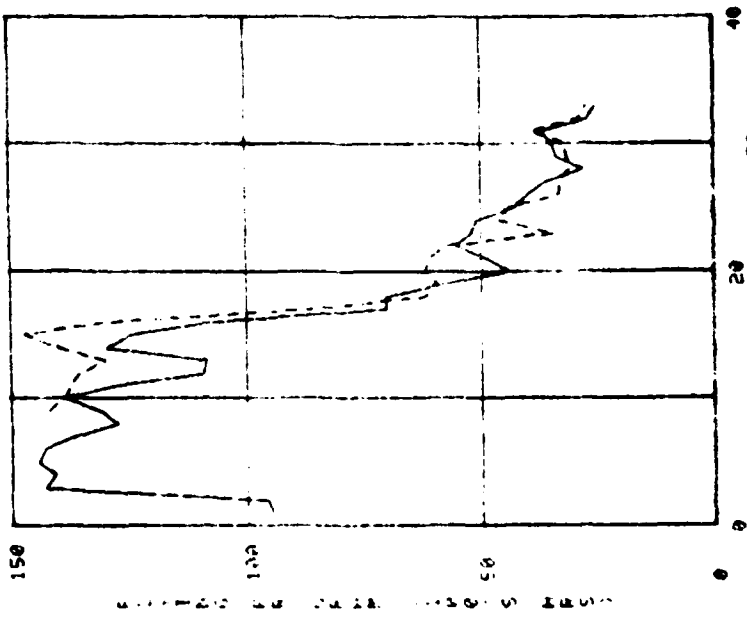
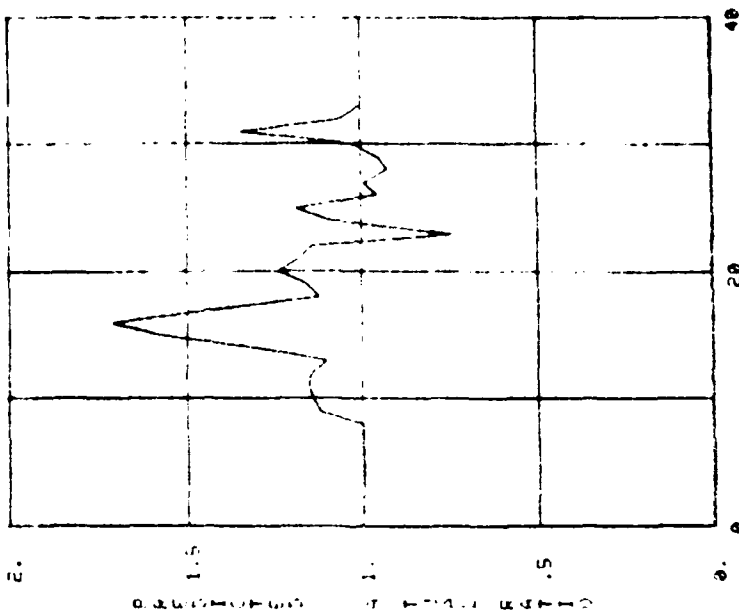


QUARTER NUMBER, WHERE 1 - JAN 71

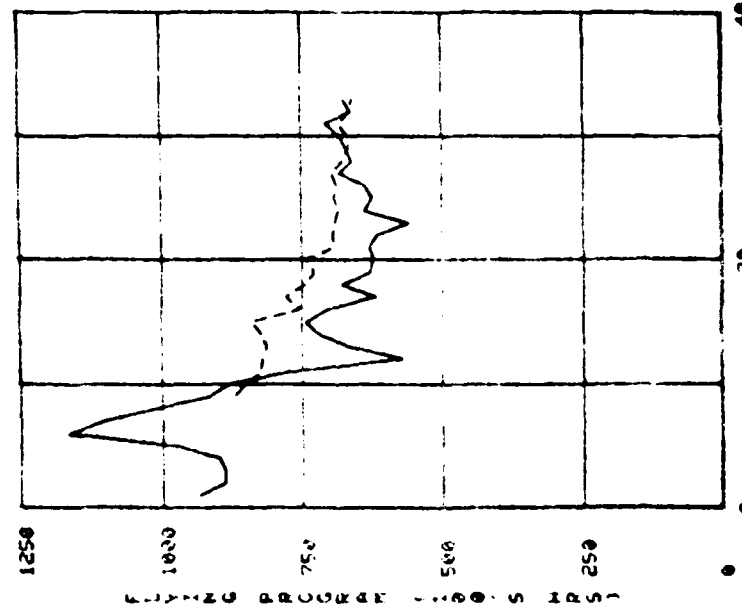
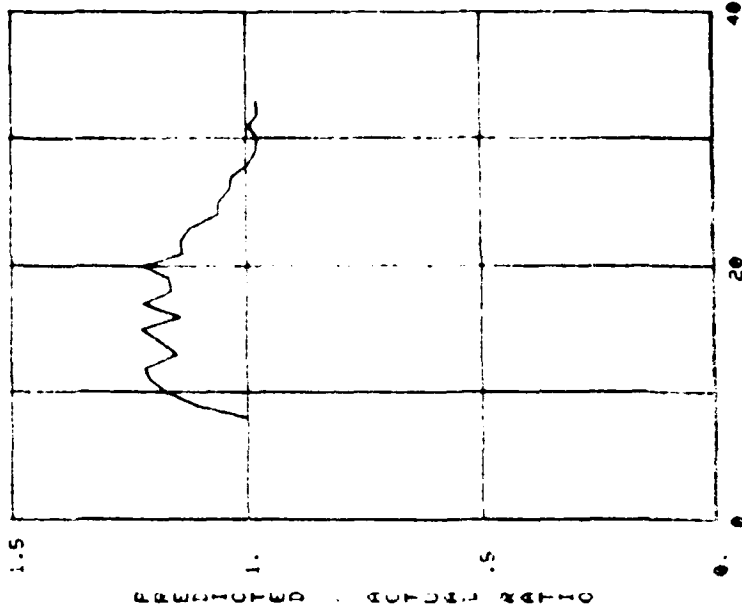
QUARTER NUMBER, WHERE 1 - JAN 71

C1302

FLYING PROGRAM FOR CY 71 - 80

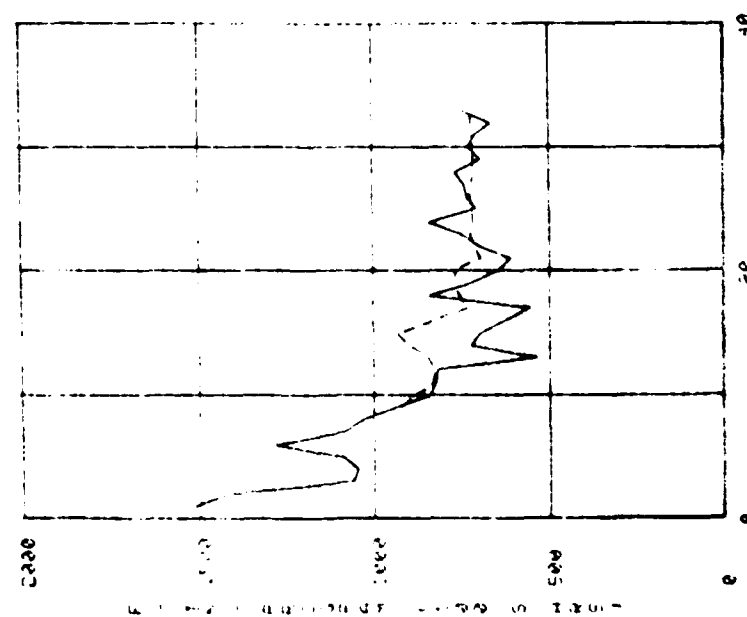
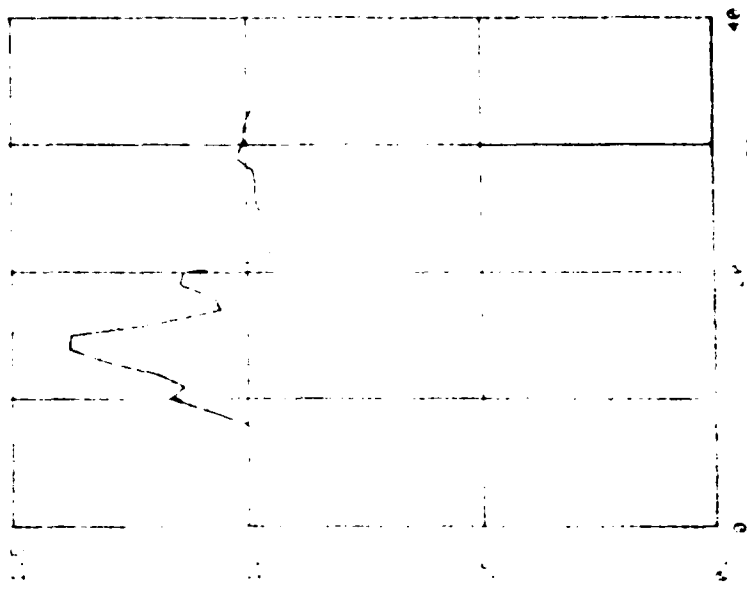
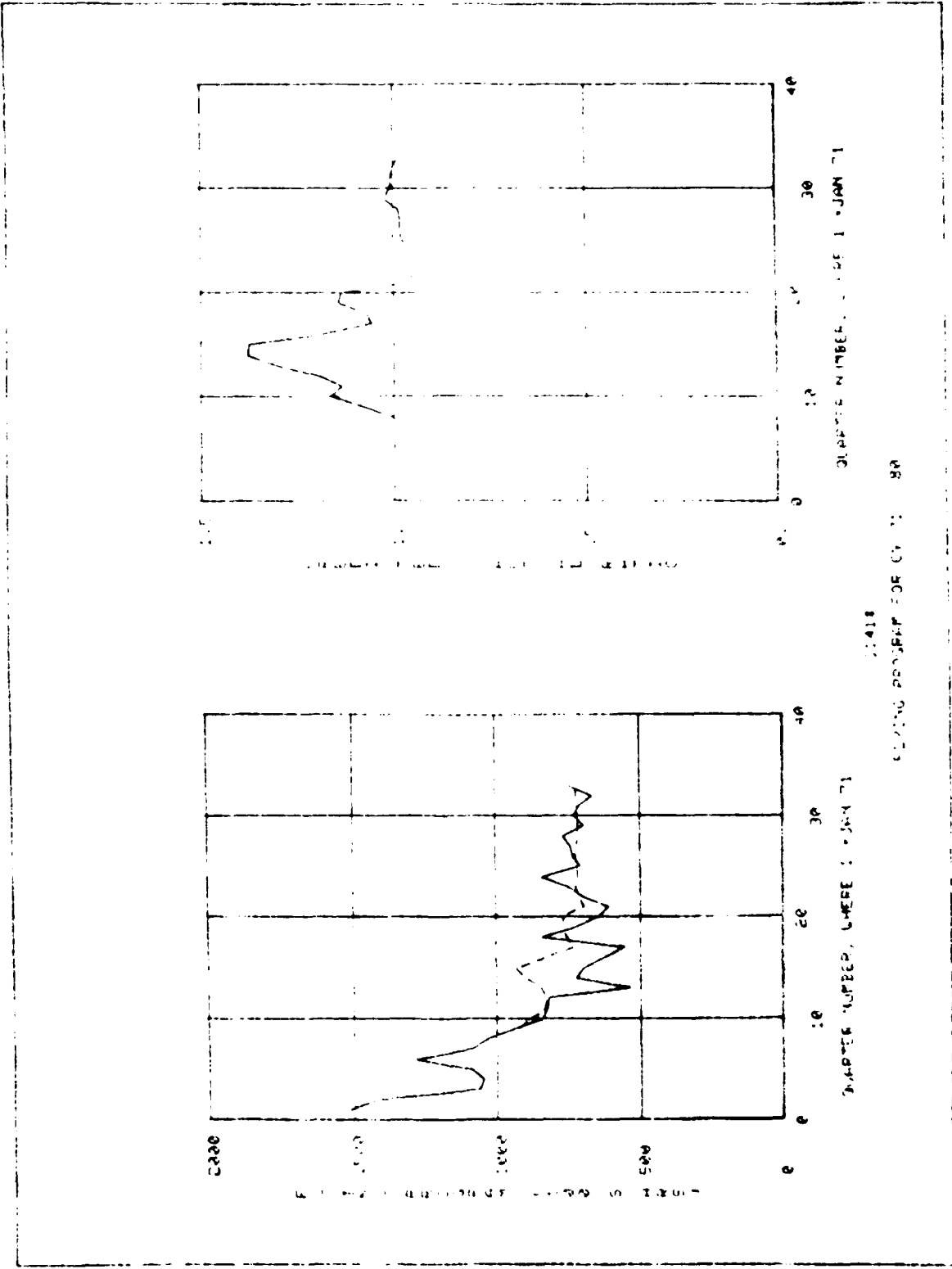


C1311
FLYING PROGRAM FOR CY 71 - 80



QUARTER NUMBER, WHERE 1 = JAN 71

C1358
FLYING PROGRAM FOR CY 71 - 80

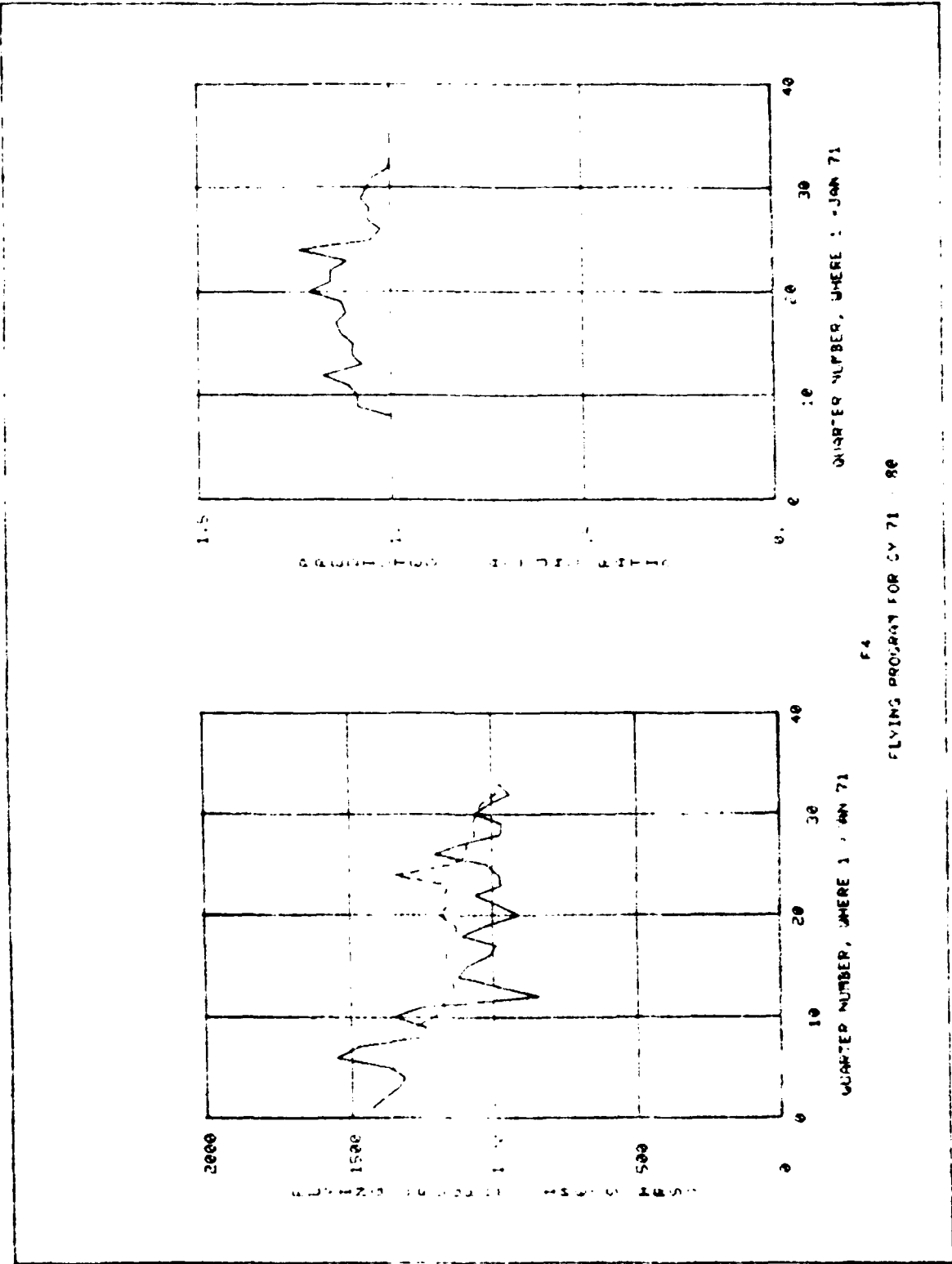


SAMPLE NUMBER, WERE : 1 JAN 71

SAMPLE NUMBER, WERE : 1 JAN 71

11418

COUNTING PROBLEM FOR CY : 80

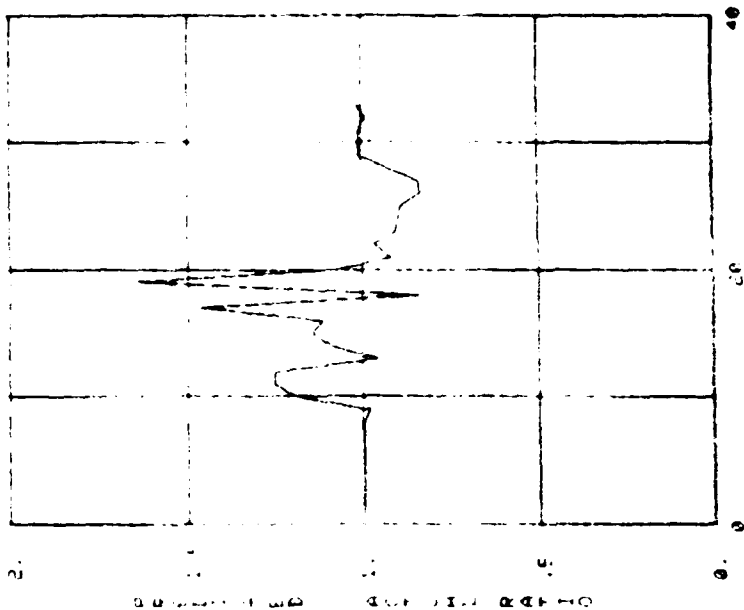


QUARTER NUMBER, WHERE 1 = JAN 71

QUARTER NUMBER, WHERE 1 = JAN 71

F4

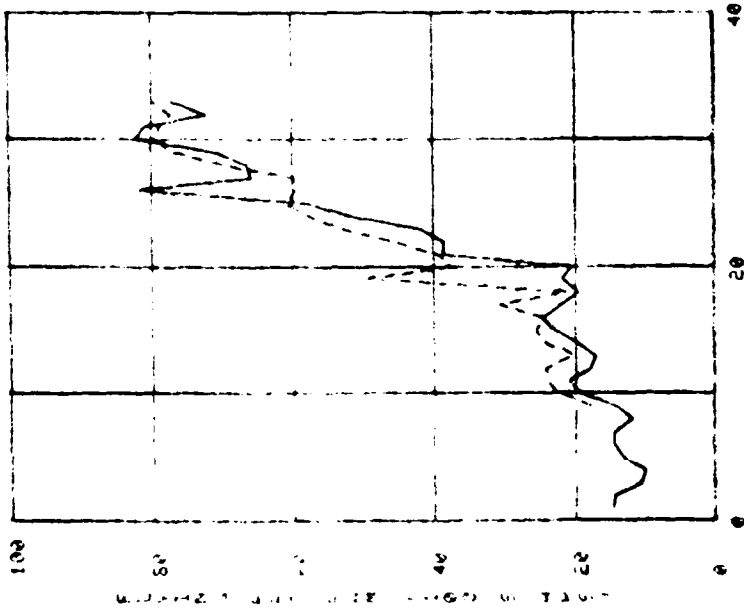
FLYING PROGRAM FOR CY 71 - 80



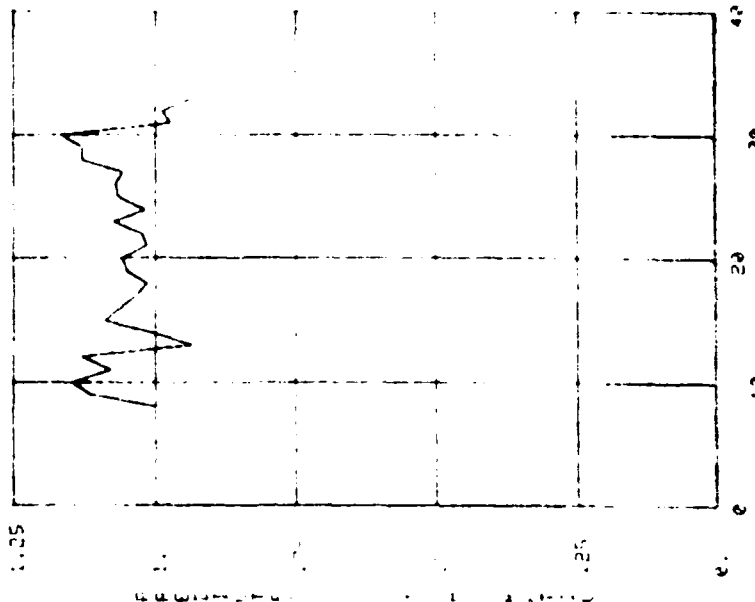
QUARTER NUMBER, WHERE 1 = JAN 71

FS

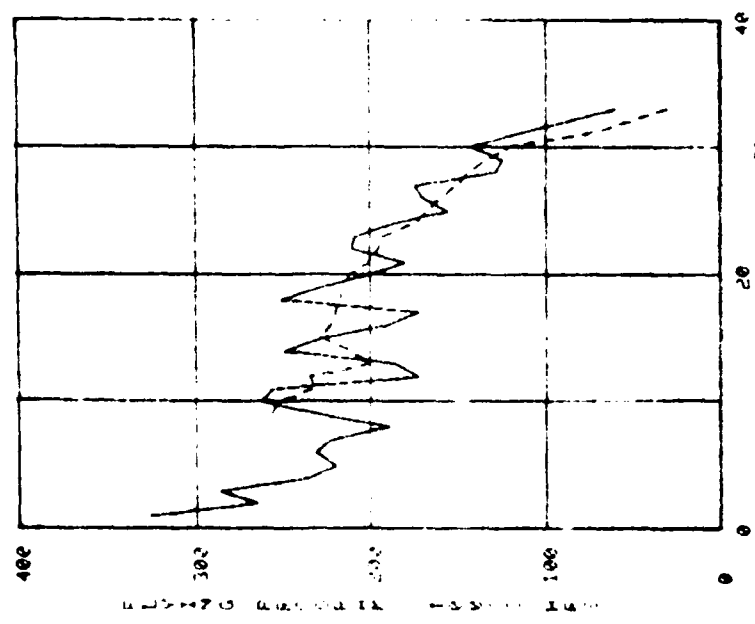
FLYING PROGRAM FOR CY 71 - 80



QUARTER NUMBER, WHERE 1 = JAN 71



QUARTER NUMBER, WHERE 1 - JAN 71



QUARTER NUMBER, WHERE 1 - JAN 71

FIG 03

FLYING PROGRAM FOR CV 71 - 80

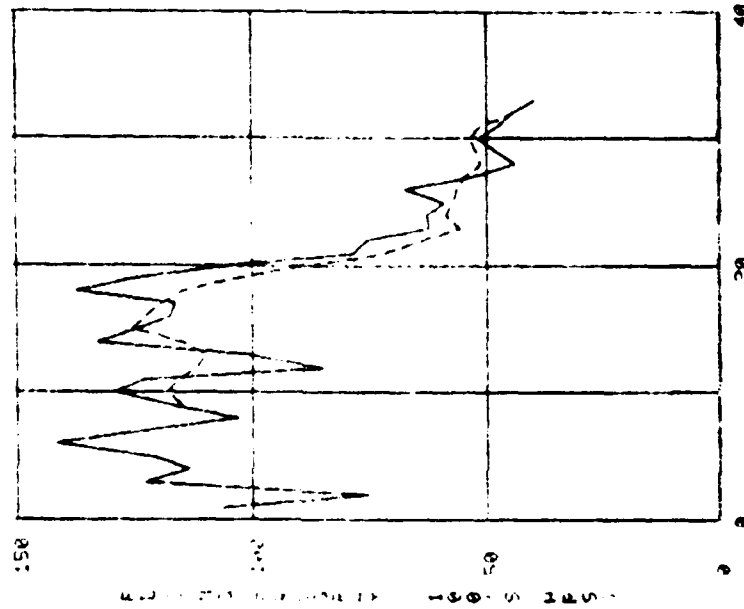
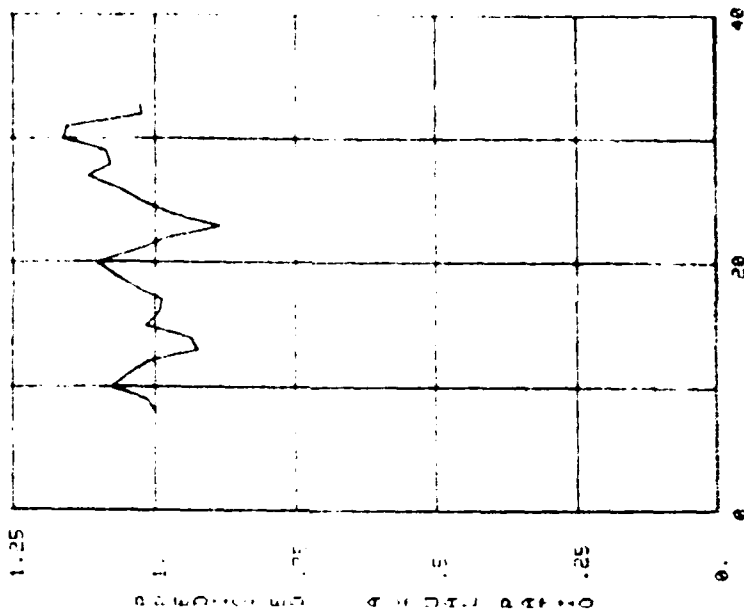


FIG 13

FLYING PROGRAM FOR CV 71 - 80

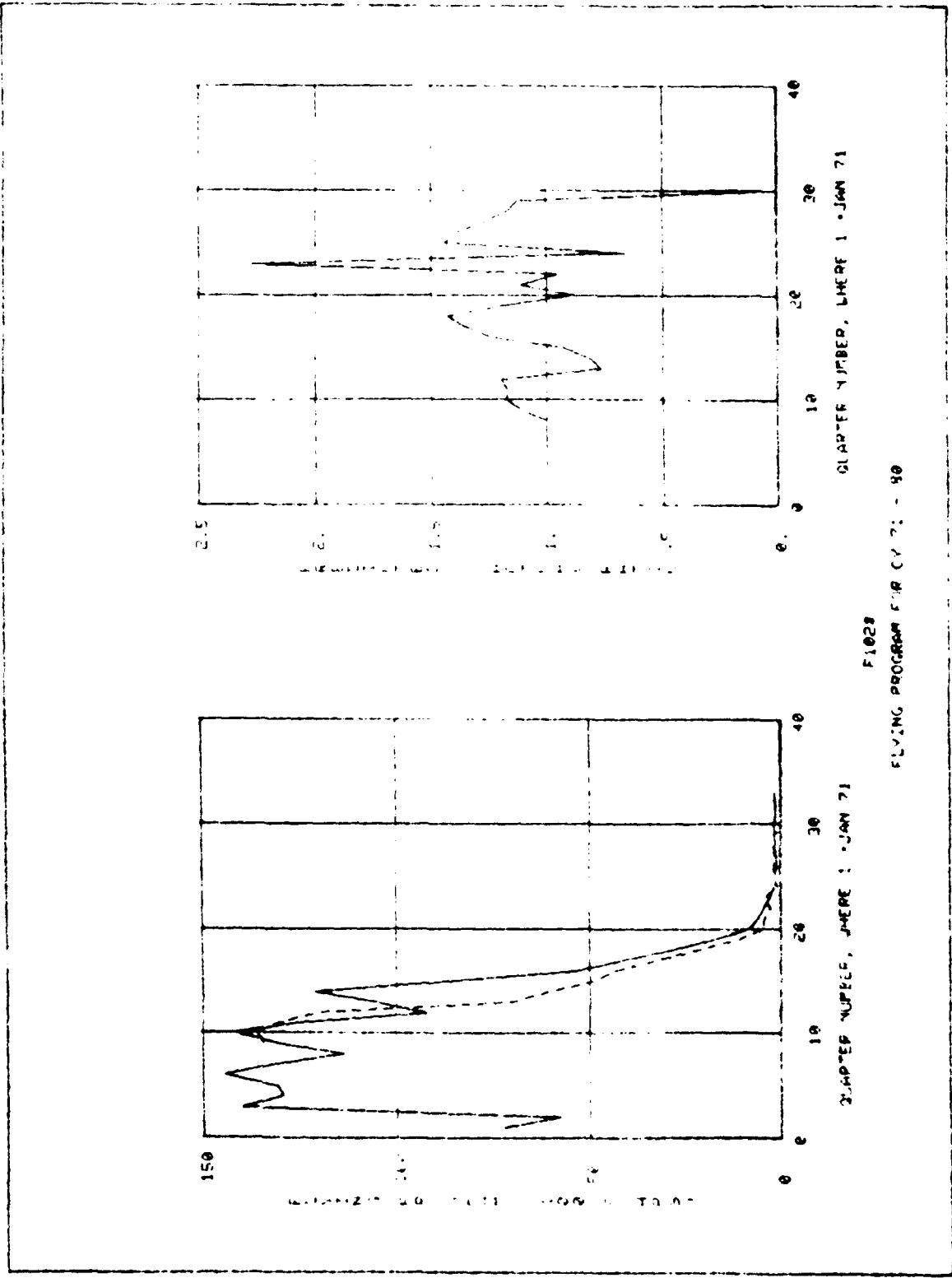
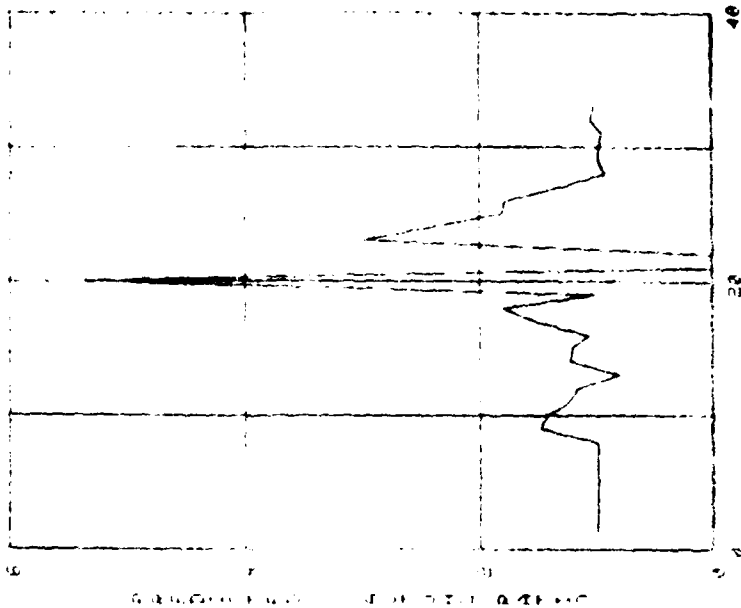
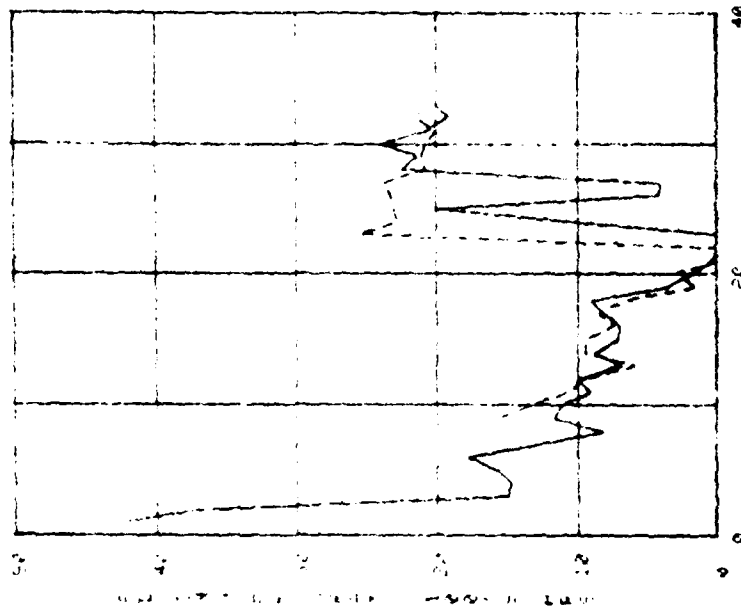


FIG 28
FLYING PROGRAM FOR CY 71 - 80

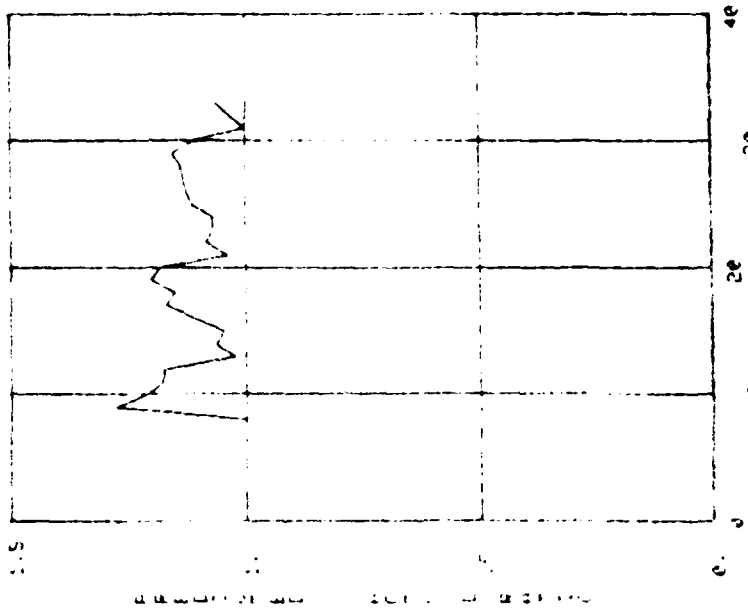


QUARTER NUMBER, JAN 71



QUARTER NUMBER, JAN 71

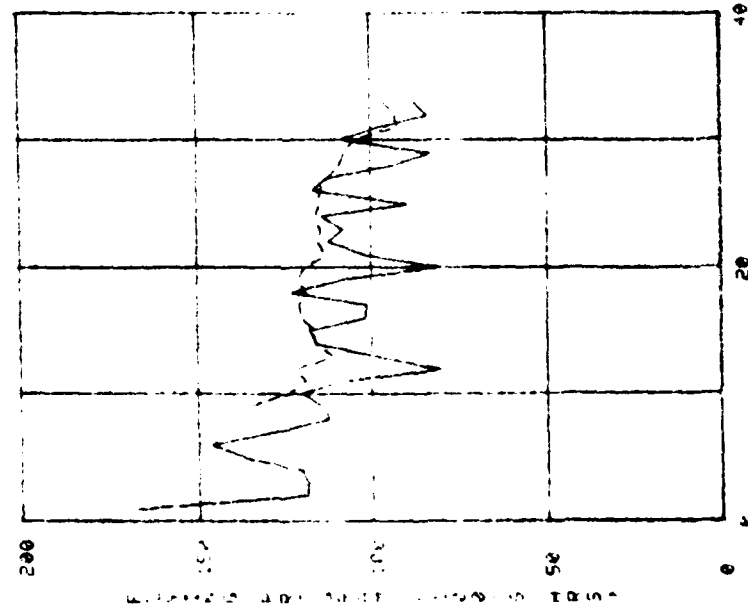
FIG 11
FLYING PROGRAM FOR CV 71 - 80



QUARTER NUMBER, HERE 1 - JAN 71

F1053

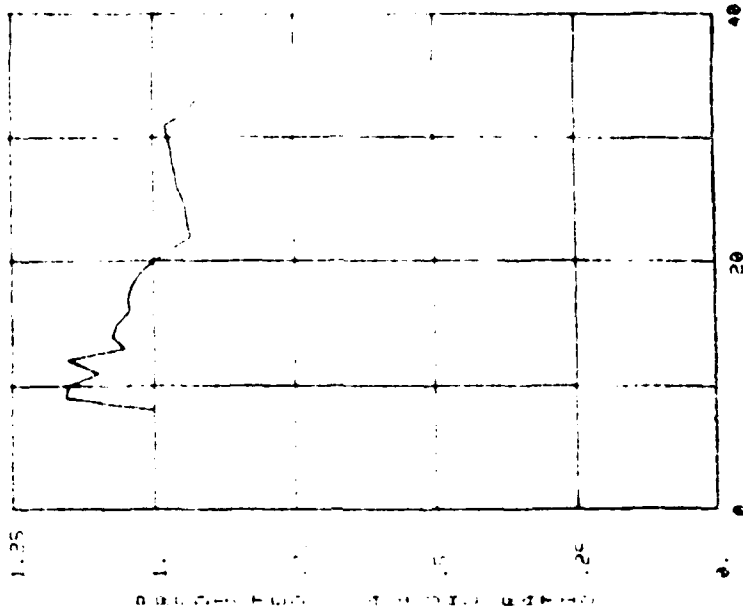
FLYING PROGRAM FOR CY 71 90



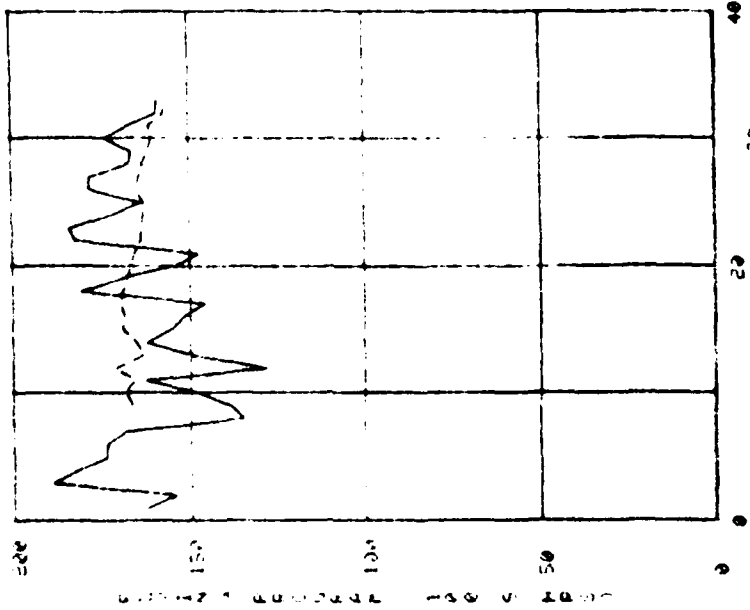
QUARTER NUMBER, HERE 1 - JAN 71

F1053

FLYING PROGRAM FOR CY 71 90



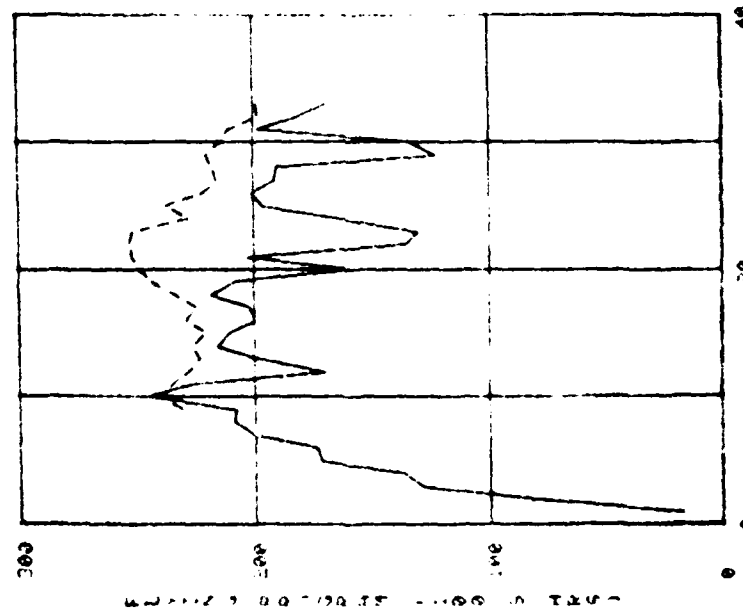
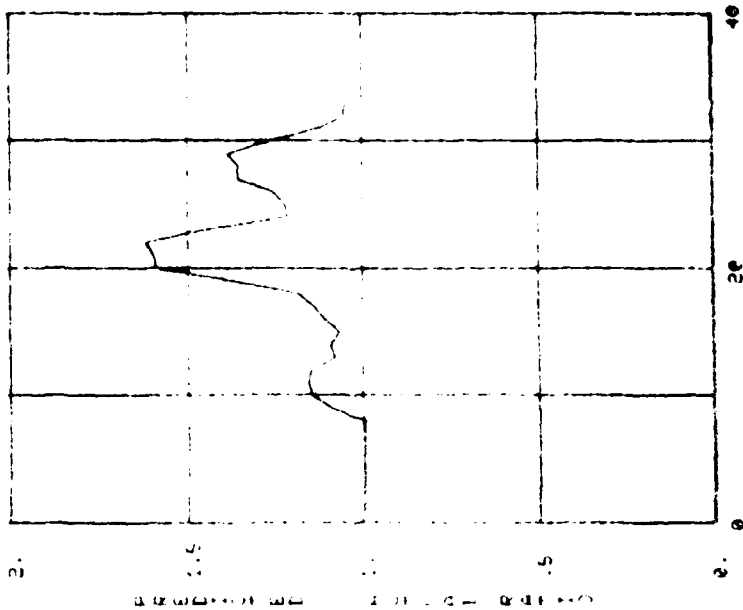
QUARTER NUMBER, JHERE 1 - JAN 71



QUARTER NUMBER, JHERE 1 - JAN 71

FIGURE

FLYING PROGRAM SEP 70 - 71 - 8P

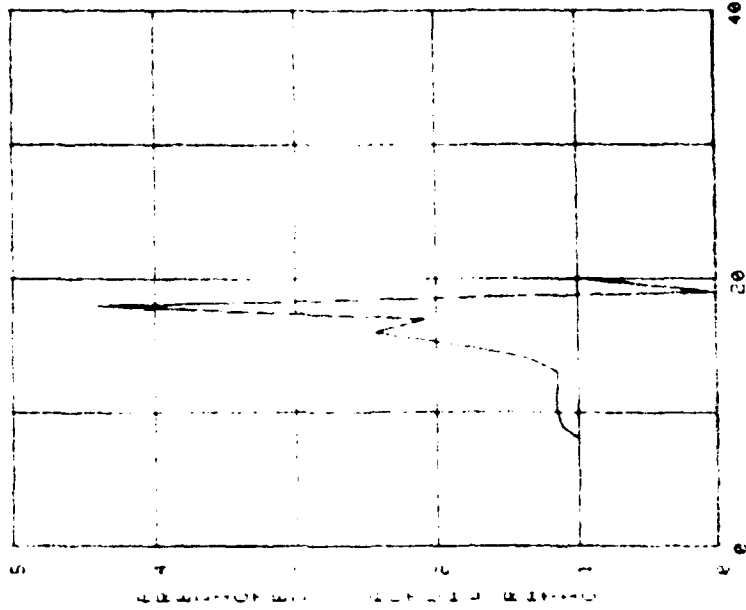


QUARTER NUMBER, WHERE 1 = JAN 71

QUARTER NUMBER, WHERE 1 = JAN 71

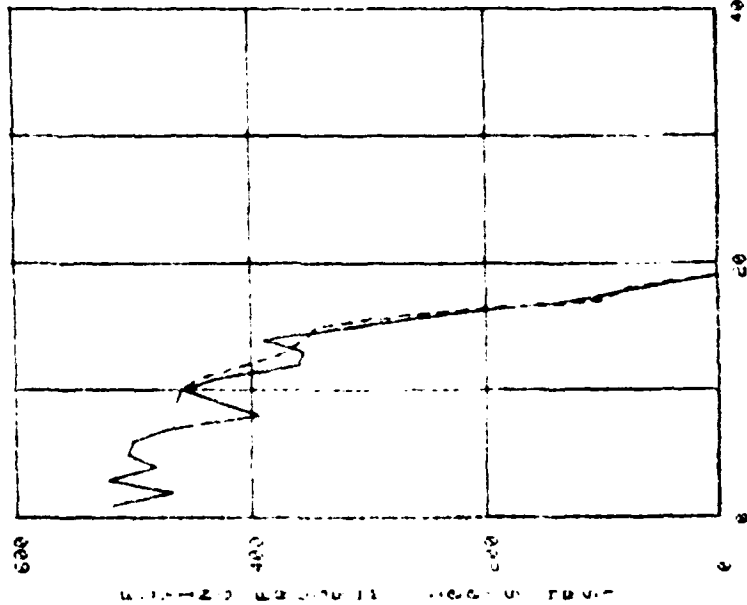
FILE

FLYING PROGRAM FOR CY 71 - 80



PROGRAM NUMBER 1

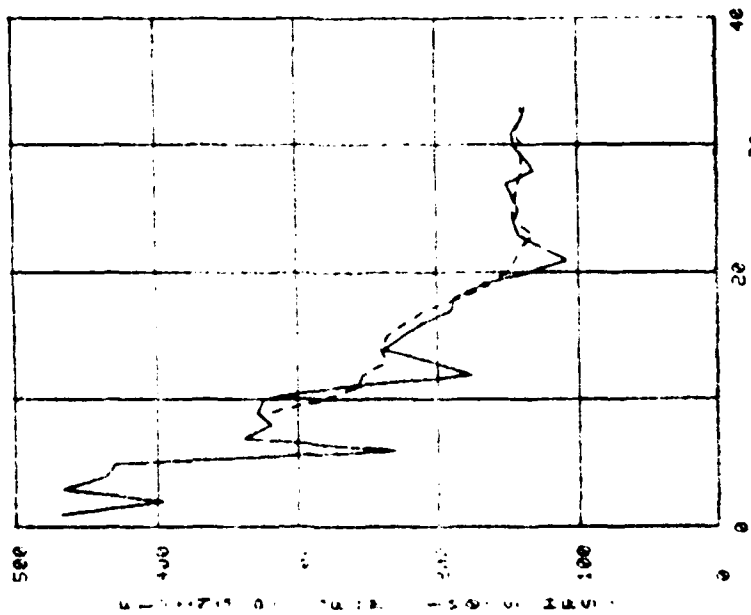
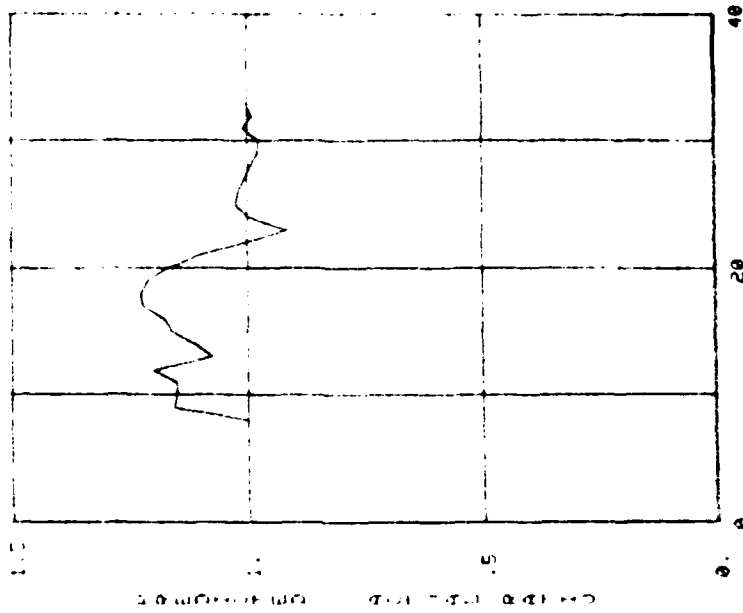
CHAPTER NUMBER, WHERE 1 - JAN 71



PROGRAM NUMBER 1

CHAPTER NUMBER, WHERE 1 - JAN 71

-29
FLIGHT PROGRAM OF 1971 90

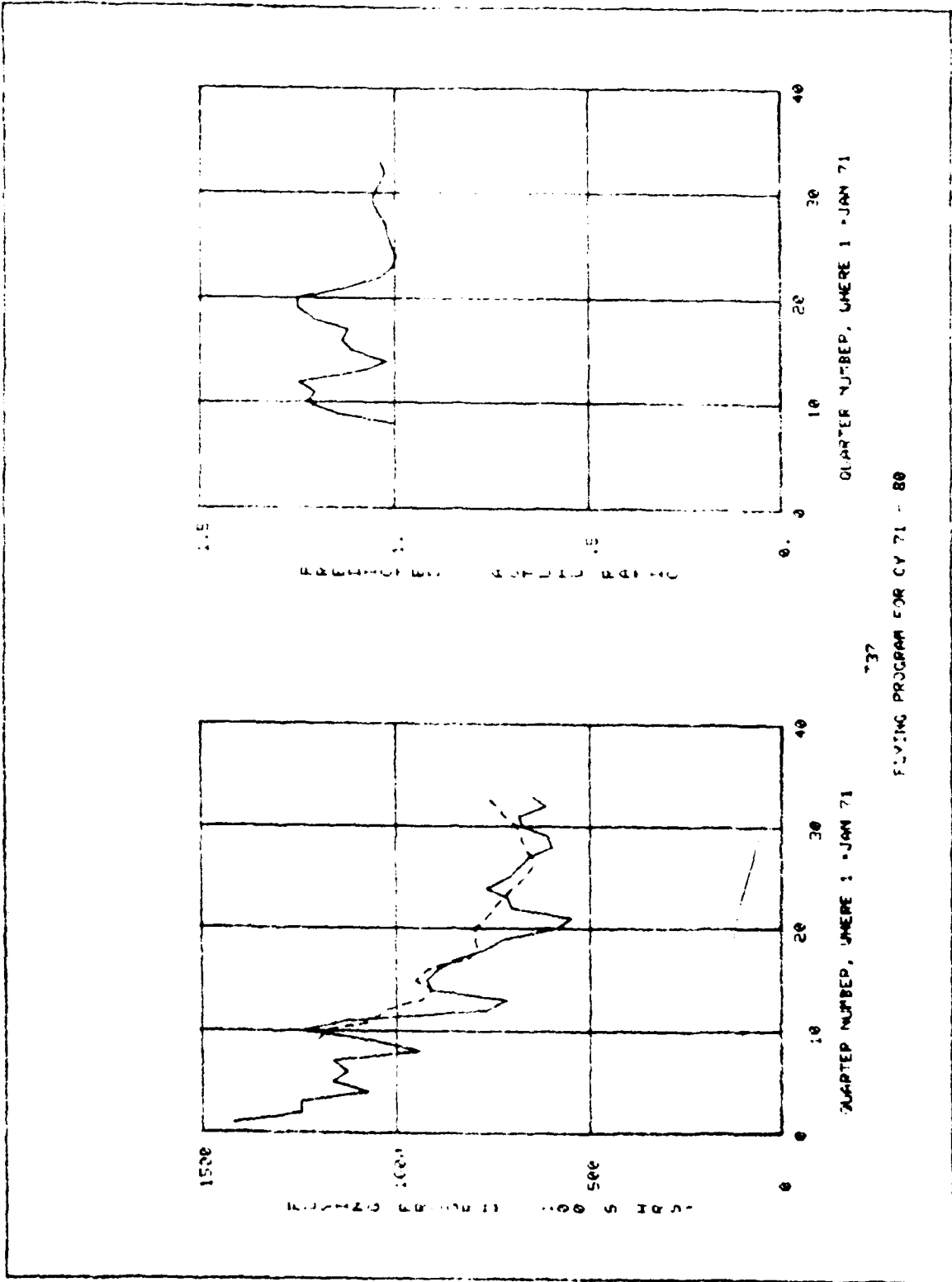


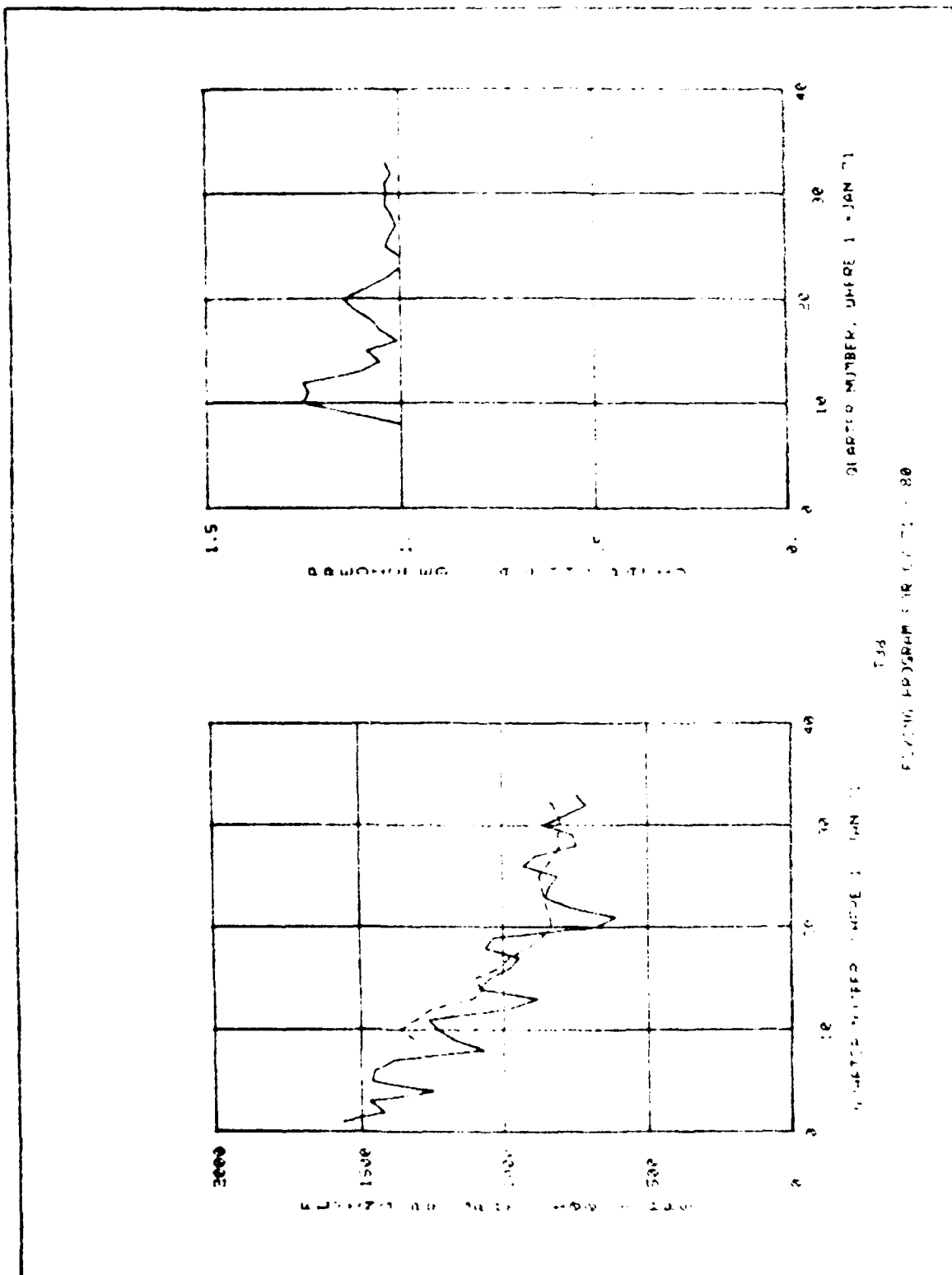
QUARTER NUMBER, WHERE 1 - JAN 71

QUARTER NUMBER, WHERE 1 - JAN 71

T33

FLYING PROGRAM FOR CY 71 - 80





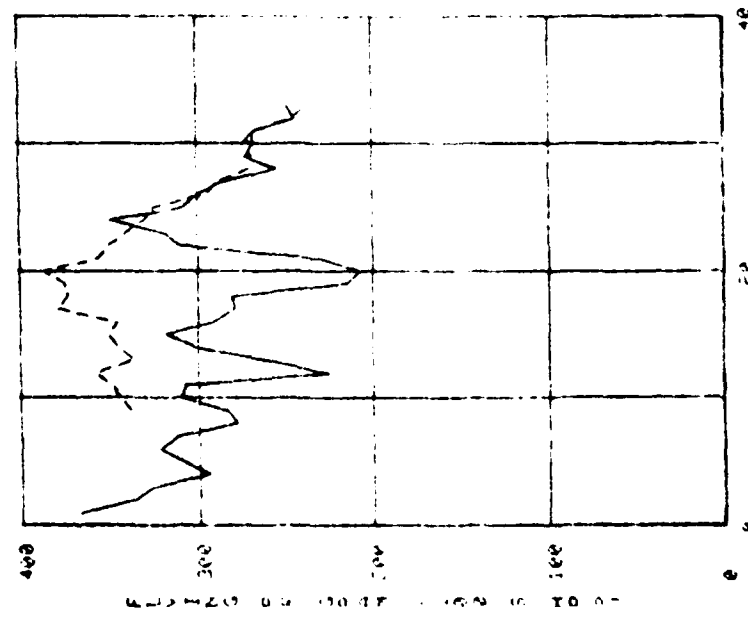
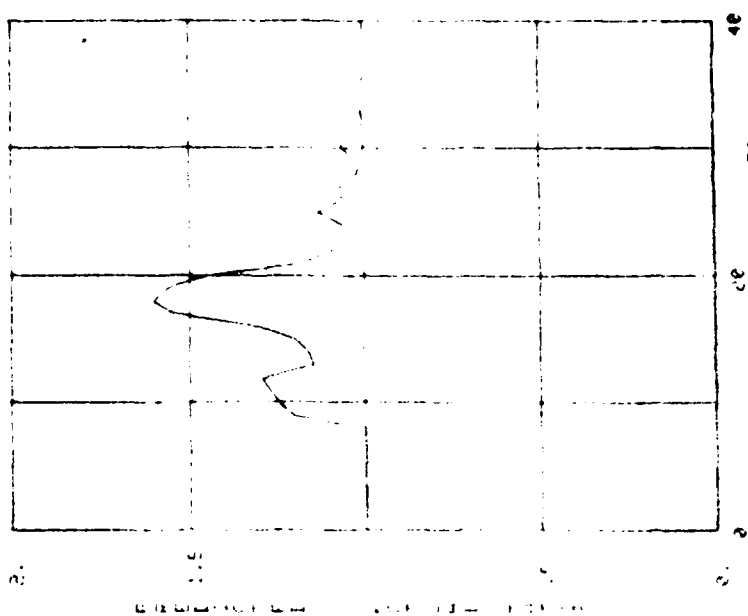
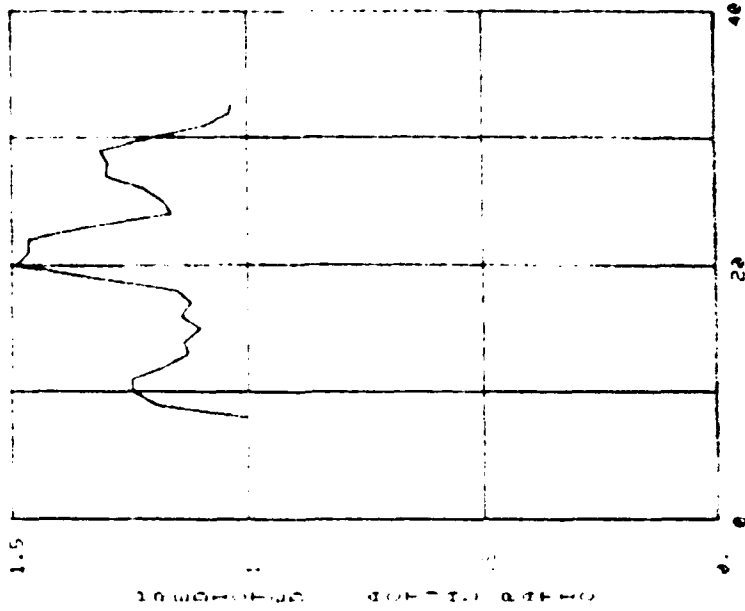


PLATE NUMBER, WERE 1 JAN 71

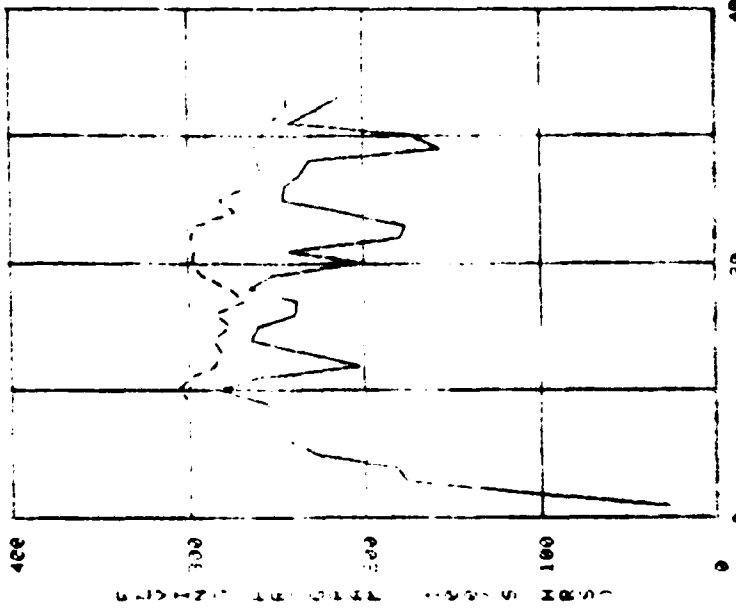
PLATE NUMBER, WERE 1 JAN 71

139

PLATE PROGRAM SOP 17 71 80



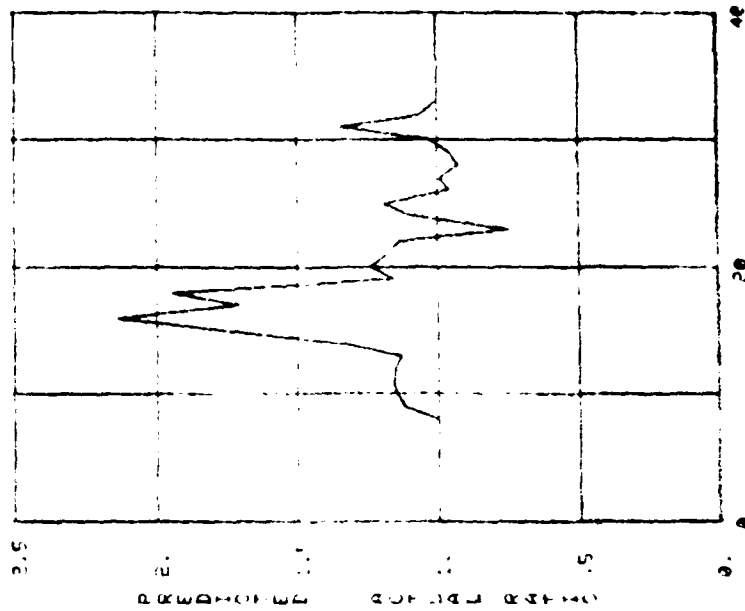
QUARTER NUMBER, WHERE 1 = JAN 71



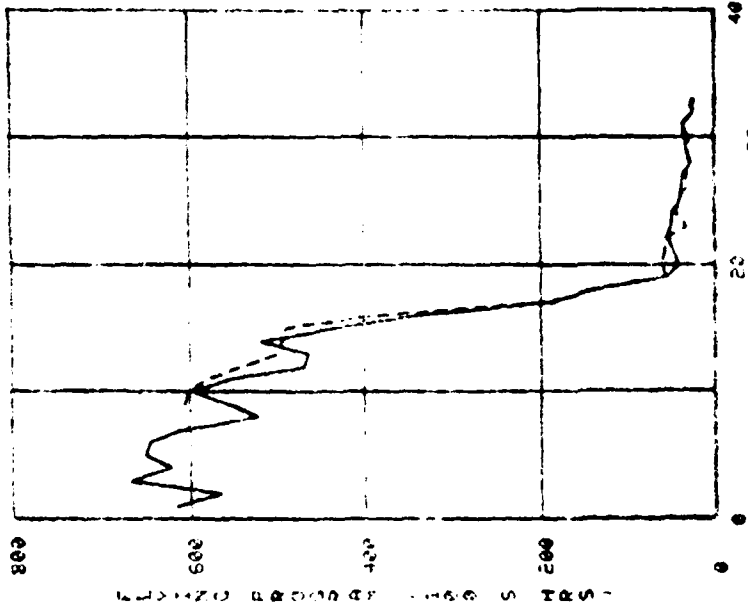
QUARTER NUMBER, WHERE 1 = JAN 71

TF118

FLYING PROGRAM FOR CY 71 - 80



QUARTER NUMBER, WARE 1 - JAN 71



QUARTER NUMBER, WARE 1 - JAN 71

CT293
FLYING PROGRAM FOR CY 71 - 80

Appendix B
Fortran Source Listings
of Tektronics Plot Programs

PRESERRS: P /
19/18/80
.82

1842(8.13 LNO, VP, ACT) :

LIAR
COMMAND UNKNOWN
ELIST PRGRP.S

1088R:INACTFLY.D'08'.R:PREFLY.D'09'.R

23PRGRP.S-- COMPUTES ERRORS IN FORECASTS OF 1-YR FLYING PROSPERS

30C
40C-----NOTE---PRAC.D IS IN-SIM PROGRAM FACTOR INPUT FILE.

50C
60C DIMENSION ACT(50),PRED(50),RATIO(50)

70C CHARACTER ATR(145),AIRPCESS,FNAME#40

80C CHARACTER U(1000#)

90C DATA P(0#),S(0#)

100C DATA P(100#),S(100#)

110C

120C

130C

140C

150C

160C

170C

180C

190C

200C

210C

220C

230C

240C

250C

260C

270C

280C

290C

300C

310C

320C

330C

340C

350C

360C

370C

380C

390C

400C

410C

420C

430C

440C

450C

460C

470C

480C

490C

500C

510C

520C

530C

540C

CHARACTER ATR(145),AIRPCESS,FNAME#40

CHARACTER U(1000#)

DATA P(0#),S(0#)

DATA P(100#),S(100#)

ACTFLY ACTUAL FLYING HOURS IN QUARTER I

PRED PREDICTED FLYING HOURS FOR

QUARTERS 1 TO 4

RATIO I PROGRAM RATIO FOR QUARTER I

WHERE I=1 REPRESENTS 1ST QUARTER P(0#) TO

P(100#) REPRESENTS 4TH QUARTER THROUGHOUT ERRORS ARE PRINTED IN FILE 001

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

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POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

POINT TO THE FILE 001 FOR THE ERRORS TO FILE 01P 100#

290C

300C

310C

320C

330C

340C

350C

360C

370C

380C

390C

400C

410C

420C

430C

440C

450C

460C

470C

480C

490C

500C

510C

520C

530C

540C


```

85* PRGR.F
1088RUNSMEDC-RATIO.D:11.P
200PRGR.F
300
400 THIS PROGRAM READS FLYING PROGRAM DATA FROM FILE 11, 650
500 AND THEN GIVES COMMANDS TO PLOT THE DATA USING
600 THE ELECTRONICS PLOT TERMINAL.
700
80 CHARACTER LABEL140,VLABEL140
90 CHARACTER LABEL140
100 DATA LABEL QUARTER NUMBER, WHERE 1 = JAN 71**
110 DATA LABEL FLYING PROGRAM 100'S REP.
120 DATA LABEL FLYING PROGRAM FOR 00 01 - 80**
1300
140 CHARACTER JMS85
150 DIMENSION I(100),ACT(50),PRED(50),RATIO(50)
160 I=1
170 DO WHILE I=100
180 CHARACTER OPTS4
190 CHARACTER OPTS4
200 DIMENSION PT(3)
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
3100
3200
3300
3400
3500
3600
3700
3800
3900
4000
4100
4200
4300
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
5400
5500
5600

```

```

570 50 FORMAT (F10.0,F10.3)
5800 CONVERT PROGRAM TO 100 S OF HOURS
5900
6000 ACT(I)=ACT(I)*100.
6100 PRED(I)=PRED(I)*400.
6200
6300 SET UP PLOT ARRAYS X AND Y
6400
6500
6600
6700
6800
6900
7000
7100
7200
7300
7400
7500
7600
7700
7800
7900
8000
8100
8200
8300
8400
8500
8600
8700
8800
8900
9000
9100
9200
9300
9400
9500
9600
9700
9800
9900
10000
10100
10200
10300
10400
10500
10600
10700
10800
10900
11000
11100
11200
11300
11400

```

PRG-ERR.P. 1
12/18/90

PRG:R-1 P
10/1/50

```
LIST 1130  
1130 CALL UAIN(CHAR)  
1140  
1150C PLOT PROGRAM RATIOS  
1160C  
1170C#####END OF AIRCRAFT LOOP  
1180C  
1190 GO TO 10  
1200 300 CONTINUE  
1210C  
1220 CALL UEND  
1230 STOP  
1240 END  
  
Ready  
*
```

DATE
ILME