X-545-64-388

NASA TMX-55241

DATA PROCESSING PLAN
EPE-D

VOLUME 2

DECEMBER 1964

GODDARD SPACE FLIGHT CENTER

GREENBELT, MARYLAND

EPE-D DATA PROCESSING PLAN

TECHNICAL DESCRIPTION

VOLUME II

Marc Jay Selig

December 1, 1964

EPE-D DATA PROCESSING PLAN

TECHNICAL DESCRIPTION

VOLUME II

EPE-D Data Processing Engineer — Marc Jay Selig

Head, Signal Processing Section — R. J. Pauly

Head, Plans & Evaluation Office — B. G. Narrow

Head, Data Processing Branch — A. C. Rosenberg

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EPE-D Data Processing Engineer

Marc Jay Selig

Head, Plans & Evaluation Office

B. G. Narrow

INTER GROUP OPERATIONS FOR EPE-D

Prior to launch, there are two people who will have input to the branch as to requirements or special requests. They are the Project Manager or the Tracking and Data Systems Manager.

Both of these are responsible to insure that all pre-launch information and requirements are made known to the Branch for appropriate action.

Following the launch the T & DS Manager gives way to the Ground Operations Manager (GOM). It is then the GOM's responsibility to insure that the Tracking & Data Systems Directorate operates correctly in support of the project.

It will also be the GOM's responsibility to insure that the following Data Processing requirements are adhered to. These are necessary to insure proper internal operation for this satellite.

A. The GOM must insure that the weekly "Telemetry Schedule" is forwarded to the Data Processing Monitor prior to the actual acquisitions.

B. He must insure that all stations send clear and concise reports of their actual daily and cumulative acquisitions.

C. He must insure that all stations record <u>one</u> and only one pass per station tape.

D. He must also instruct the stations to use only the FR600 and the NASA-GSFC standard for "One Prime Data Track" as outlined in the document dated September 1964 (X-537-64-266 STANDARDS FOR TAPE RECORDER TRACK ASSIGNMENTS AT THE SATELLITE TRACKING AND DATA ACQUISITION NETWORK FACILITIES).

To insure that all requests and responses will be correctly understood and carried out, no verbal communications will have the effect of binding any of the parties associated with this project. All incoming requests to Data Processing shall be signed by either the Project Office or the T & DS Manager (GOM after launch). All outgoing information or questions shall be countersigned by the Data Processing Engineer.

This setup of written communiques is instituted to insure that no confusion shall result from cross requests not having been properly funneled through the administrative routine.

DATA PROCESSING ENGINEER

The Data Processing Engineer is a member of the Plans & Evaluations Office of the Data Processing Branch. He is responsible for the smooth, orderly processing of the data within the branch. He is also the branch's liason with the Project Office, Experimenters, T & DS Manager and the GOM (Figure I-1).

The DPE by necessity must be able to determine the status of all of the data in the Data Processing System for relay to those interested parties external to the branch. To realize this requirement the DPE will receive copies of the outputs of all of the Phases of the processing programs. It will also be necessary to notify the DPE of all problems (tape delivery, line, computer, etc.) so as to insure that the events are included in any discussion concerning the satellite's progress through the processing system.

The DPE will be the Branch Heads representative at all meetings, and he will be accompanied, where necessary by the EPE-D Processing Specialist of the Signal Processing Section, to insure the immediate and proper transmission of all information into the Processing System.

For this satellite the DPE was also the Analyst, therefore all Quality Control problems that occur should be presented to the DPE for evaluation and action.

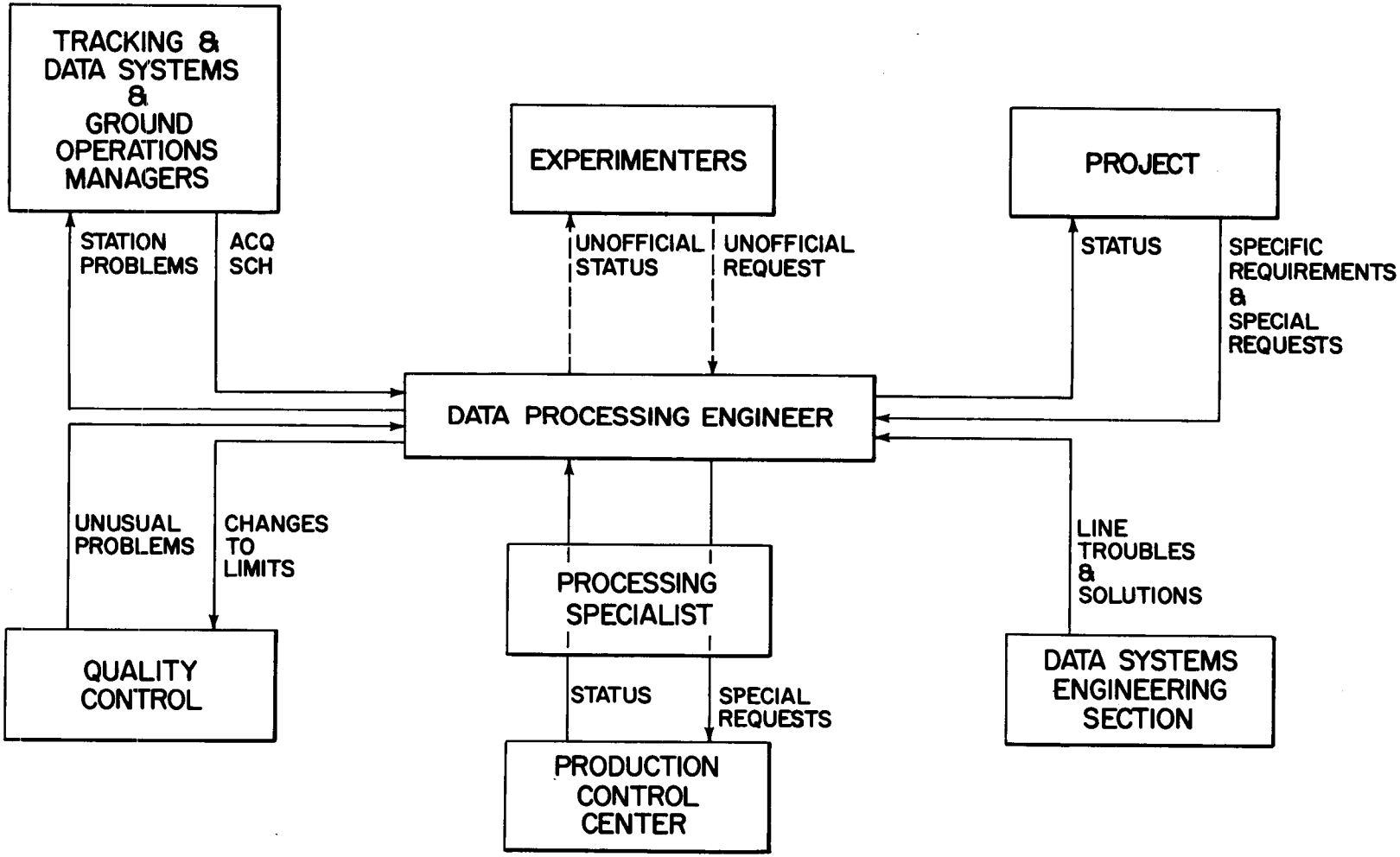

Figure I-1 – Data Processing Engineer Function Diagram

EPE-D DATA PROCESSING PLAN

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II – PRODUCTION CONTROL CENTER

EPE-D Data Processing Engineer — Marc Jay Selig

Head, Signal Processing Section — R. J. Pauly

EPE-D Processing Specialist — Hubert Hinton

Production Control Center — (1) Sidney I. Meyers; (2) Frank Greer

PRODUCTION CONTROL

It is the purpose of this group to initiate and maintain the overall processing system. The Production Control group will operate through the processing specialists connected with each of the production groups (i.e., A/D, computer, Q.C., etc.). By supplying schedules and obtaining production data this production control group will be able to schedule the work load throughout the Branch (Figures II-1 & II-2).

Due to the orbital period (452 minutes nominal) there will be approximately three (3) orbits per day. Each orbit being composed of a series of station tapes (aver. 60 minutes each) which will cover the satellite for better than 95% of the time, with overlap between tapes and between stations. This will produce an average of nine (9) tapes per orbit. Since the computer programs are most efficient with four (4) orbits to operate on, it will be necessary to schedule the line so that the necessary tapes arrive at the computer together. With a four times (4X) line processing the tapes, more than one group (4 orbits per group) of tapes will be queued up to the computer on any given day. This queuing effect will result in groups being located at various points in the computer processing scheme and will require close control to insure proper operation.

This scheduling of the queued groups will be the responsibility of the Digital Processing Specialist; however. the Production Control Group will have to keep close watch on the progress of the groups and insure that the rejected tapes are reprocessed and the group re-scheduled onto the computer.

As the groups move through the processing system all operations personnel will notify Production Control of the status and at the time of final O.K. by Quality Control, Production Control will release the tapes for shipment.

To insure the proper operation of the EPE-D processing scheme the following rules, operations, forms, etc. should be instituted:

1. Schedule all station tapes in chronological order, however all tapes from one station in a given orbit should be processed prior to any tapes from the next station.

2. All tapes will be scheduled onto the A/D line regardless of the quality determined by Tape Evaluation.

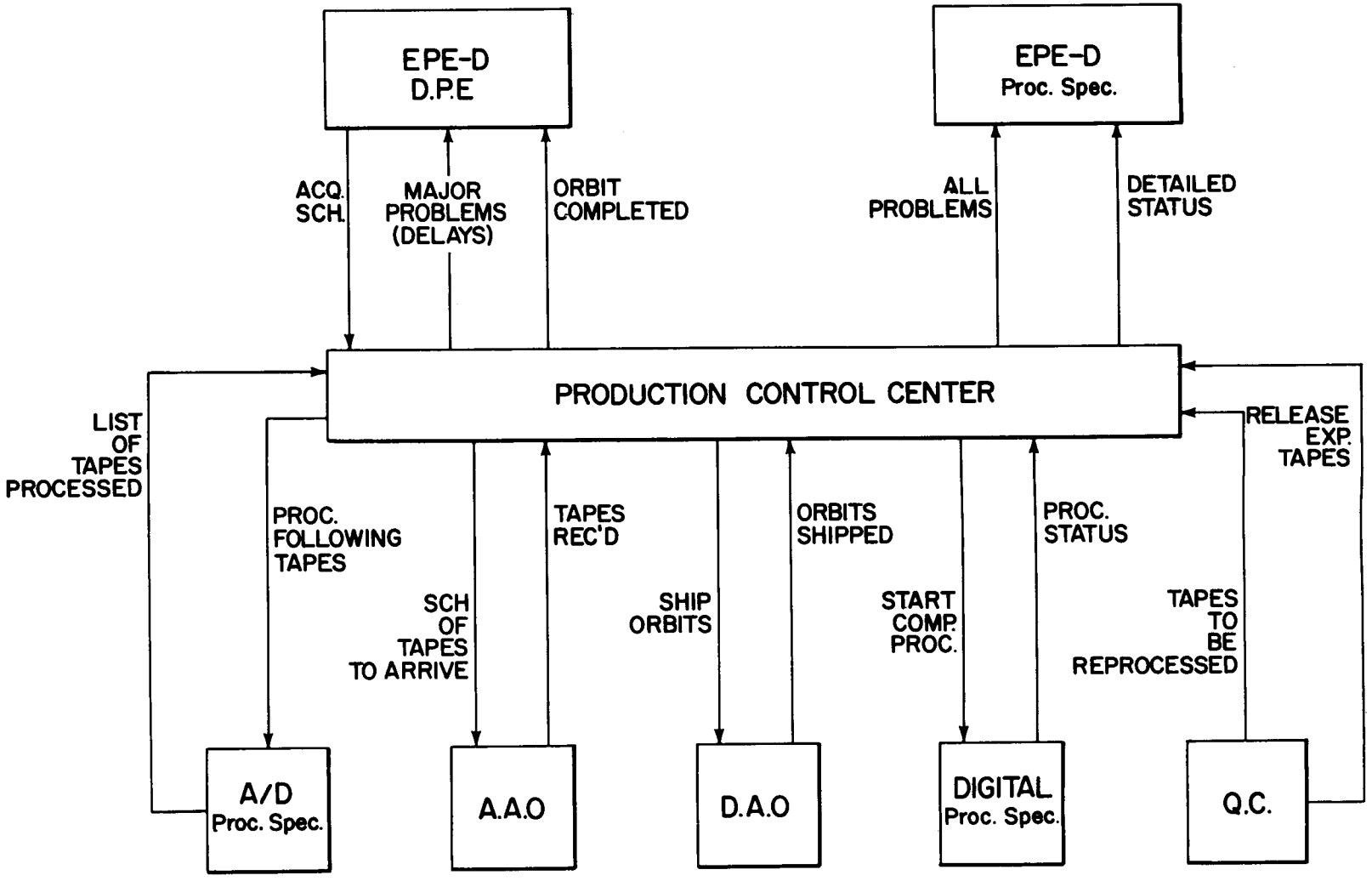

Figure II-1 – Production Control Functional Diagram

PRODUCTION CHART FOR SATELLITE_____ DIGITIZING LINE(S)_____

DATE ORD.	STA.	TAPE NO.	DATE REC.	DATE REC'D	ANALOG		DIGITAL		DATE EVAL &/OR STRIPCHT	DATE DIGITIZED	BUFFER TAPE & FILE NO.	DATE EDITED	EDIT & FILE NO.	PLOTTER ACTION	QUALITY CONTROL ACTION	DATE REORDER	DECOM RUN NO.	DATE DECOMMED	DATE DECOM SENT TO EXP.	REMARKS
					START	STOP	START	STOP												

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Figure II-2 – Production Status Chart

3. If less than 90% of the tapes necessary for a four (4) orbit group are found to be processable, the buffers should be inputted to Phase Zero of the Computer Processing program then held up while all of the rejected tapes are reprocessed.

4. Any orbit group which is held up while tapes are reprocessed shall be rescheduled following, but not interferring with, the next group. If there are still more than 10% of the tapes missing from the group after one reprocessing cycle, these tapes will be dropped from any further processing and the orbital group shall be processed without them.

5. As each group of four (4) orbits complete a phase of the computer program the copies of the on-line printout (in 4 part paper) should be checked by Production Control and comments noted, if any, then copies distributed to Q.C., EPE-D Processing Specialist, EPE-D Data Processing Engineer.

6. Written notice should be sent to the DPE as each group of orbits are shipped. Also as each new group is digitized and Phase Zero run this information should be relayed to the DPE along with a copy of the Phase Zero printouts.

7. A form (Figure II-2) will be available in Production Control where the status of each group's progress through the processing system will be kept for instant reference.

EPE-D DATA PROCESSING PLAN

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III – HIGH RESOLUTION PROCESSING LINE (F-7)

EPE-D Data Processing Engineer — Marc Jay Selig

Head, Signal Processing Section — R. J. Pauly

EPE-D Processing Specialist — Hubert Hinton

A/D Processing Specialist — Nathan Heifetz

PROCESSING LINE (F-7)

It is the purpose of the processing line to convert the station telemetry tape from an analog tape to a computer compatible tape. This output tape will have a record size of 3264 bits (Mode III). Each record will be made up of frames, each including Time (12 characters - including 13 flags) and 16 data channels (each data channel is composed of 12 characters including a flag) with 16 frames composing a record.

The output tape is 2400 feet long and will be able to contain approximately five (5) hours of digital information, (Mode III).

In order to insure compatible operation of this part of the processing scheme the following details must be adhered to. (Figure III-1)

1. All processing will be controlled by the Government Processing Specialist (GPS) assigned. Only the work submitted through him shall be run on the line during production.

2. Production Control (PC) will supply the GPS with the tapes to be processed and the order to be followed. This order will be upheld under all contingencies.

3. Unprocessable tapes will be mounted on the processing line and their ID inserted on the output tape (Buffer Tape). Their problem noted on the appropriate logs.

4. In order to insure the proper operation of the line the following logs will be kept at all times.

   A. Tape Request - Lists analog tapes and order of processing.

   B. A/D Utilization Log - Lists all tapes and status per shift. (Figure III-2)

   C. A/D Processing Log - Lists characteristics of each analog tape done per analog tape. (Figure III-3)

   D. A/D Summary Log - Lists analog tape found on each buffer tape including start and stop times. (Figure III-4)

   E. Line Log Book - This log will keep track of all problems and their solutions. Also the Buffer and Quick Look Tape Nos. will be recorded here as they are used.

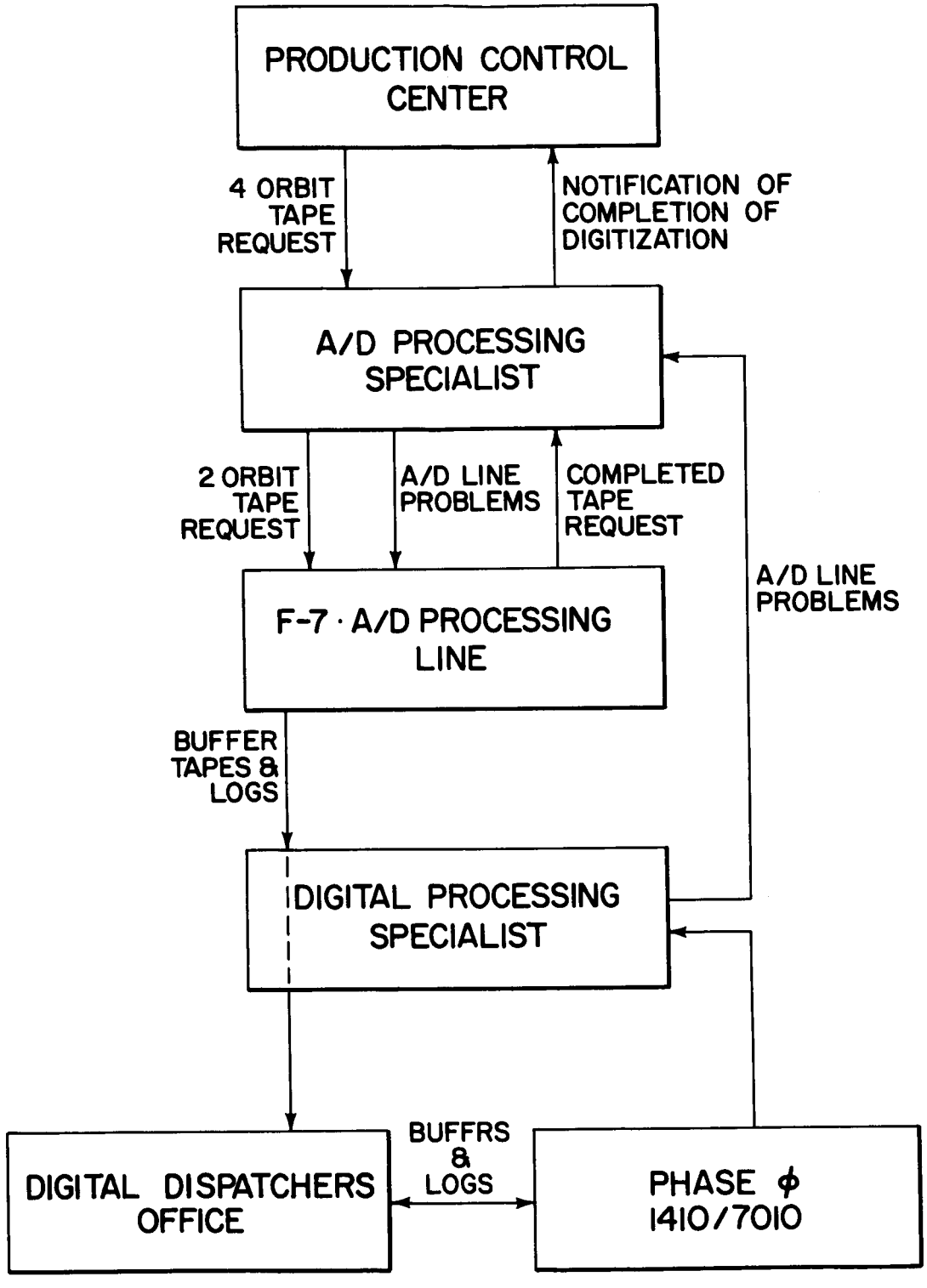

Figure III-1 – F-7, A/D Processing Line Functional Diagram

ANALOG-TO-DIGITAL UTILIZATION LOG

Line F-7 Date 12-11-64 Shift 8:00 4:30 Tech Nitt.

					Successfully Processed Tapes								Unprocessable Tapes			
Operation	Started	Stopped	Line Speed	Buffer No.	Station	No. Tape	No. Files	Digital Time	Station	No. Tape	No. Files	Digital Time	Station	No. Tape	No. Passes	Dot Code
WARM UP	0800	0815			ROS	044	1	65					ROS	033	1	JD20
TEST TAPE	0815	0822	4X		JOB	018	1	32					BPO	023	1	JD23
EPE-D PROD.	0822	0935	4X	0011	OOM	027	1	64								
LINE DOWN	0935				ROS	045	1	62								
(POWER FAILURE)		1215			JOB	019	1	58								
EPE-D PROD.	1215	1340	4X	0012	BPO	024	1	47								
EPE-D PROD.	1340	1500	4X	013	ROS	046	1	61								
EPE-D PROD.	1500	1630	4X	014	JOB	020	1	60								
					OOM	028	1	62								
					FTM	016	1	31								
					JOB	021	1	28								
					OOM	029	1	54								
					QUI	024	1	37								
					ROS	047	1	61								
					FTM	017	1	53								
					BPO	025	1	27								
					OOM	030	1	56								
					JOB	022	1	48								
					QUI	025	1	61								
					ROS	048	1	53								

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Figure III-2 – Analog to Digital Utilization Log

ANALOG TO DIGITAL PROCESSING LOG

SATELLITE S-3C

Station: JOB Tape # 018 Date 12/01/64

A/D Line # F-7 Buffer Tape # 001-1 File # 2

Date Processed: 12/11/64 Orbit # 001

Elect. Tech. in Charge: MJS

TAPE SPEED	1 7/8	3 3/4	7 1/2	15	30	60	120
FR-600			X				
FR-100							

Recorder					Sync.			Servo			Telemetry Signal				HF-3 Sw. Pos.			Frame Sync.			
Track	Direct	F. M.	P. D. M.		Recorder	Comb Filter AGC	Voltage Level	Line	Channel No. 2	Voltage Level	Good	Questionable	Poor	Voltage Level	10 K.C.	100 K.C.	Voltage Level	Stable	Unusable	Change of Servo	
1	X										X										
2		X							X		X				X						
3	X										X										
4	X				X						X							X			
5	X										X										
6		X									X										
7	X										X										

Recorder & Time Mode

Analog Tape Time
Stop 001500
Start 012000 65:00 ELAPSE

Digital Time 65:28 ELAPSE

Start Time:

Stop	Start
001537	001623
012105	

Playback Quality of Tape

Loss of Signal	Fading of Signal	Poor Signal	Noisy	Loss of Sync.	Interference
			X		

Equipment Failure

Tracking Filter	A. D Converter	Buffer	Transports and associated electronics	Comb Filter	Sync. Equipment	Phase Lock Osc.	Time Decoder	Minitrack Station		Time Difference	Remarks

Remarks from Analog Tape Log: DATA QUAL. GOOD

Remarks from Evaluation Tape Log: NONE

Remarks from A D Operation: RUN 4X SPEED

Remarks from D/D Editing:

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Figure III-3 – Analog to Digital Processing Log

ANALOG TO DIGITAL SUMMARY

BUFFER TAPE # 001-1 **LINE #** F-7 **SATELLITE #** S-3C

FILE NUMBER	ANALOG TAPE NUMBER	STATION NAME	DATE DIGITIZED	DATE RECORDED	TIME STARTED	TIME STOPPED	ELAPSED TIME	DATA QUAL.	SHIFT	TECH IN CHARGE
1	044	ROS	12-11-64	12-01-64	001535	012105	65	GOOD	1	MJS
2	018	JOB	12-11-64	12-01-64	012045	015315	32	GOOD	1	MJS
3	027	OOM	12-11-64	12-01-64	015250	025645	64	GOOD	1	MJS
4	028	OOM	12-11-64	12-01-64	025440	035640	62	GOOD	1	MJS
5	023	BPO	12-11-64	12-01-64	035042	DELETE		UD 23	1	MJS
6	024	QUI	12-11-64	12-01-64	035912	043608	37	QUEST.	1	MJS

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Figure III-4 – Analog to Digital Summary

5. Unless otherwise notified, the processing line will always be run at four times (4X) speedup. Therefore, the tape will be run at 30 ips and the HRP set at (4X-10KC). Also, Mode III will always be used; therefore set Mode selector switch to 0.1% & 1% position.

6. Following the last analog tape to be processed on any Buffer Tape a special ID is to be inserted. This ID is made up of 18 - 9's followed by an EOF. This is done following the normal sequence at the end of a digitizing sequence (i.e. depressing stop button and placing Data Present Switch in Out position). To insert this end of tape notification, the following steps should be followed:

    1. Set in 18 - 9's in ID area.

    2. Push MASTER RESET button on buffer unit.

    3. Push START button on buffer unit.

    4. Push STOP button on buffer unit.

    5. Push REWIND button on buffer unit.

    6. Demount newly created Buffer tape.

7. All files on the Buffer tape will be followed by one EOF. This includes the end-of-tape ID file.

8. All errors, such as multiple EOF, or if the Buffer tape should record past the reflector spot, should be noted on the A/D Summary Log.

9. Any error or environmental happening which will compromise the data (this includes a file that runs off the tape) shall be called a delete file and the analog tape reprocessed immediately. This action will also be noted on the A/D Summary Log.

10. During normal processing a number of special conditions will arise which will require special handling. To enable the system to remain in a fluid condition the following priorities are heretofor established.

A. Highest priority - Under no circumstance is a Buffer to be stopped to do any other processing.

B. Priority #2 - Quick Looks are expected once a week on Mondays. These Quick Looks shall be processed immediately following the Buffer in process at the time of receipt of the Q. L. request. (Use special Q. L. ID, Figure III-5)

C. Priority #3 - Reruns of previously digitized analog tapes are expected, however these reruns shall be placed on the line only on completion of all the tapes in the group of Orbits being processed when the rerun request is received.

If requests for tapes of more than one type of priority are received at the same time the priority of each request shall be noted and the tapes qued up accordingly. No group of tapes will be bumped by later requests unless they are Q. L. requests.

11. Reruns should be checked to be sure that they don't require a change from the normal processing mode. They could require a Mode change and a buffer record size change.

12. All preventive maintenance will be scheduled so that the same time period is used each week.

13. The ID to be used for this satellite will utilize all 18 characters in the ID locations. (See Figures III-5 and III-6)

14. The ID Locations for "Date of Recording" means the date recorded at station.

15. The following are the record sizes for the various Modes:

Mode I — 1216 bits
Mode II — 2496 bits
Mode III — 3264 bits

QUICKLOOK BUFFER ID

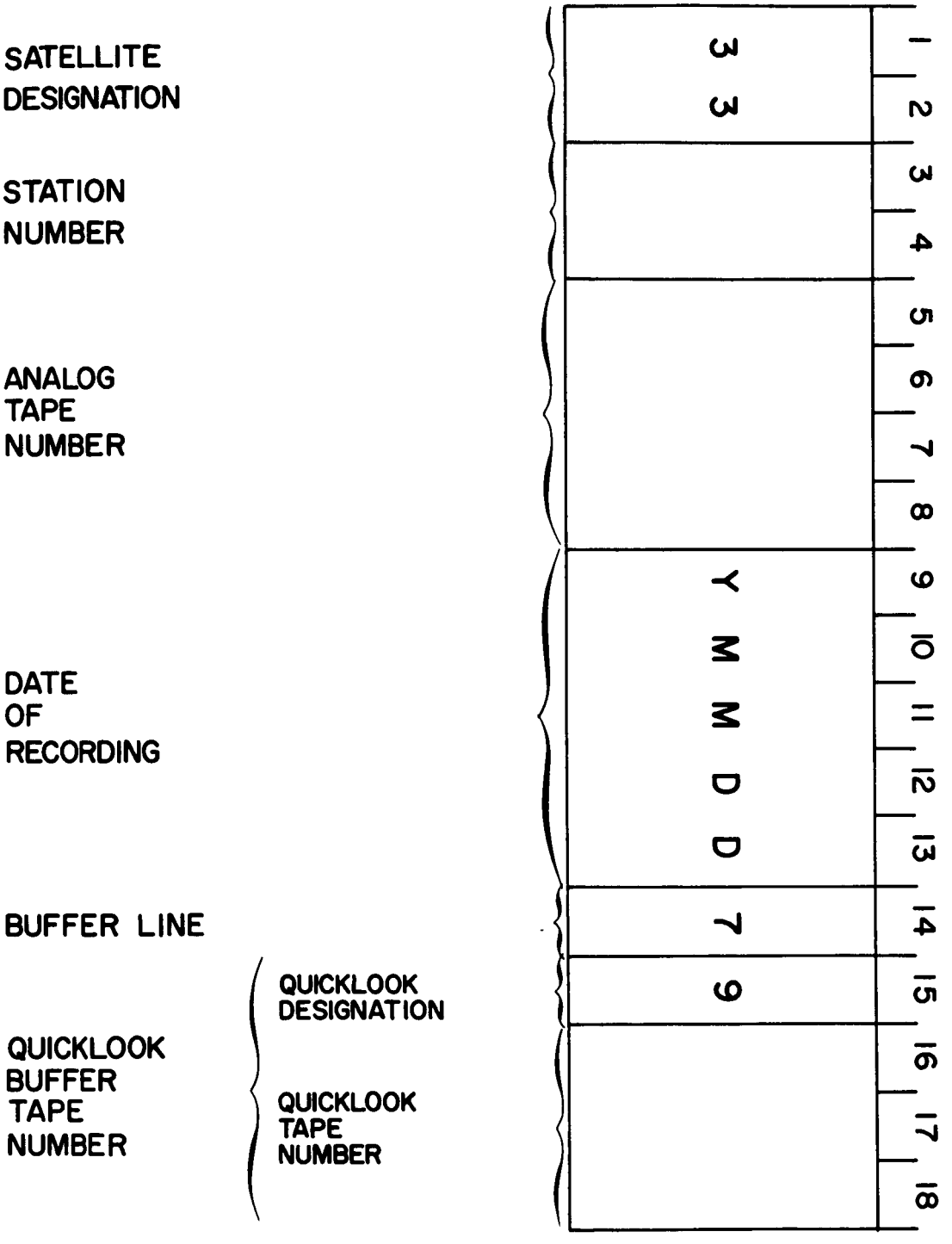

Figure III-5 – Quicklook Buffer ID

EPE-D BUFFER ID

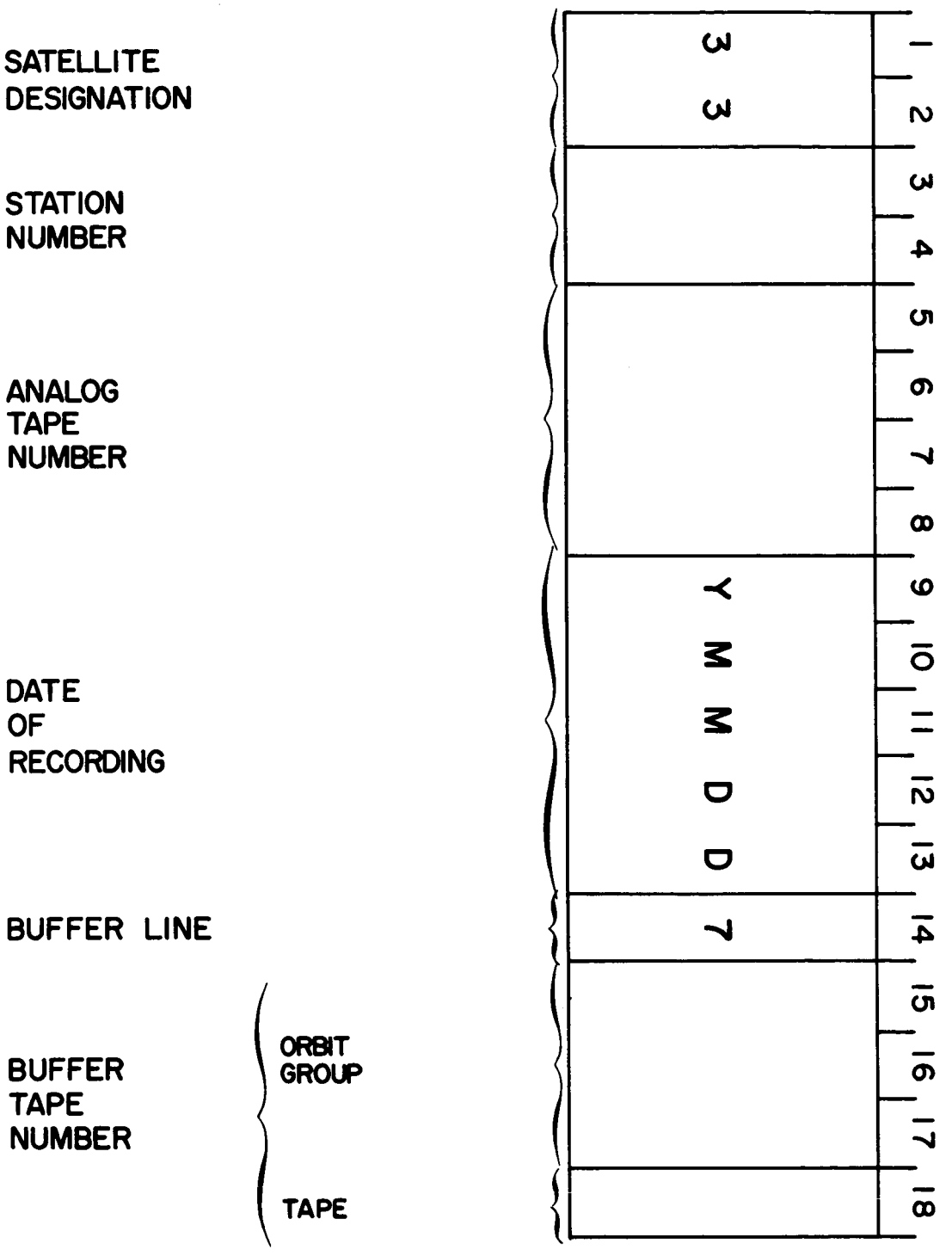

Figure III-6 – EPE-D Buffer ID

EPE-D DATA PROCESSING PLAN

TECHNICAL DESCRIPTION

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IV – ANALOG AND DIGITAL ACCOUNTING OFFICES

EPE-D Data Processing Engineer — Marc Jay Selig

Head, Signal Processing Section — R. J. Pauly

EPE-D Processing Specialist — Hubert Hinton

Analog & Digital Accounting Office, P.S. — T. Rosenberg

ANALOG ACCOUNTING OFFICE

The primary job and responsibility of this office is to control the use of the station tapes so that they are available for use by the processing line personnel as they are needed. (Figure IV-1) It is also necessary that detailed records be kept as to the date the tapes are received and the location of the tapes at all times following receipt.

For this office to support this satellite the following functions should be performed, this however is not to be construed to outline the office's job completely for it should also carry on its normal procedure

1. Be sure that the date received that is placed on the accounting card is that of the day on which the tapes are received and not that of the day the card is punched.

2. Be sure that <u>all</u> the tapes requested by the A/D Processing Specialist are sent to fill the request. No blanks are to be allowed, that is, all tapes will be delivered per request.

3. Any time a tape is received from a station which leaves a blank in the numbering system for that station, Production Control shall be notified, and any teletype information available on that tape also passed on to Production Control.

4. Copies of any listings generated by this office concerning this satellite should be forwarded to the DPE.

5. Storage for this satellite must include enough space to include one month of backlog and one month of storage for the processed tapes. This will necessitate storage room for approximately 2000 tapes. "If space is at a premium, then processed tapes could be sent to permanent storage 5 days after their group is processed."

6. (ALTERNATE) This satellite will require an active storage which can accommodate 32 orbits of station tapes. This will entail having space available for 1000 tapes. These orbits will consist of 24 orbits of unprocessed tapes and 8 orbits of processed tapes.

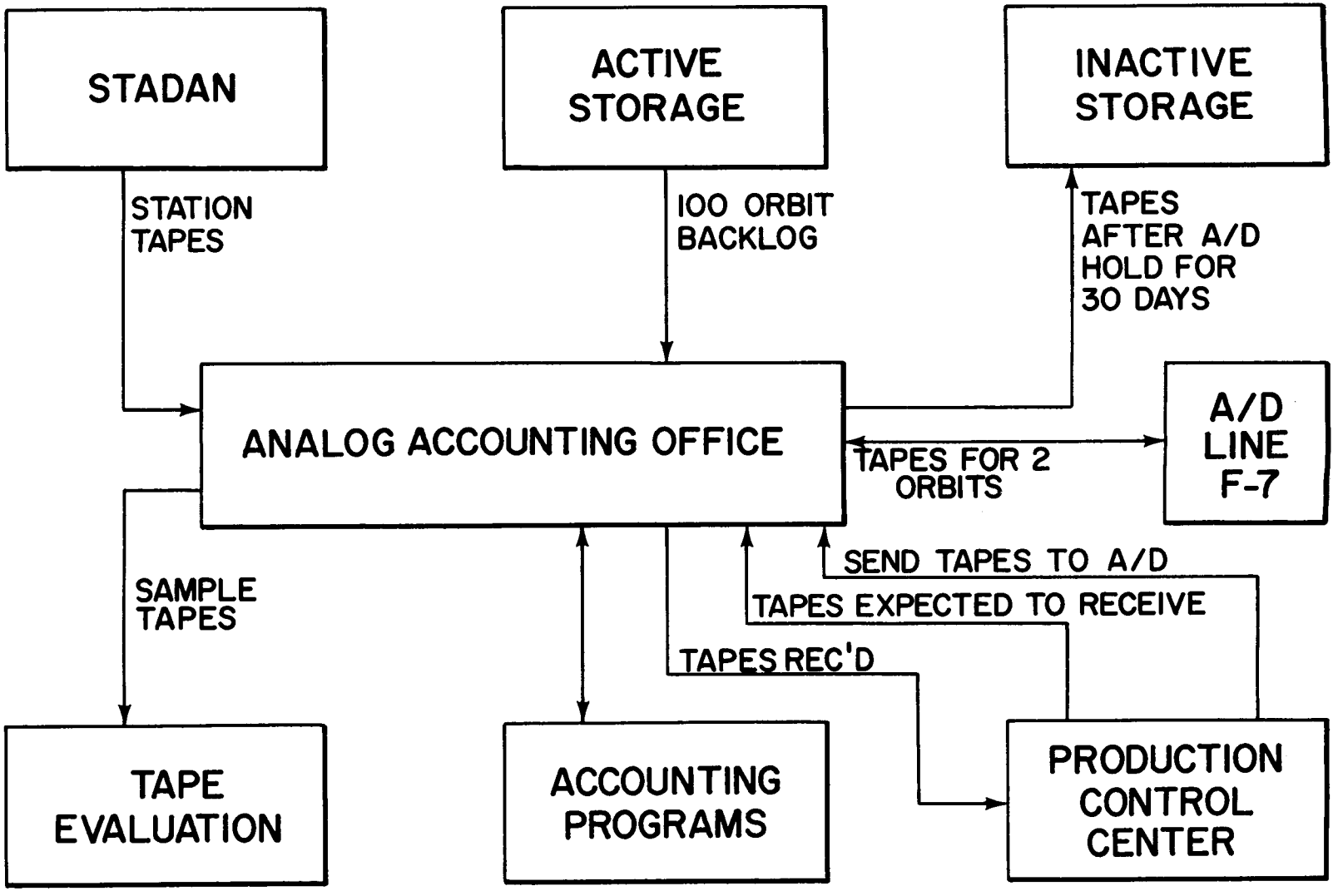


Figure IV-1 – Analog Accounting Office Functional Diagram

DIGITAL ACCOUNTING OFFICE

The primary function of this office is to account for the Master Data Tapes and to record their location and contents. It is also this office's responsibility to record what data goes on each experimenter's tape and to insure that these tapes get to the proper channels for delivery to the experimenter. (Figure IV-2)

1. Phase III & IV of the processing program generates accounting cards for use by this office.

2. There are four (4) experimenters in the main computer processing program, with one (1) of the experimenters being processed along with the special purpose data.

3. The Project Office will receive an output consisting of a tabulation of the performance parameters.

4. Quick Look processing will have an output for five (5) experimenters and the project office at the same time.

5. The mailing addresses for this satellite are as follows:

   a. G. Longanecker
      EPE-D Project Manager
      Systems Integration Branch
      Code 672 (B11R E141)

   b. Mr. Leo Davis
      EPE-D Project Scientist
      Energetic Particles Branch
      Code 532 (B2R 49)

   c. Dr. L. Cahill
      University of New Hampshire
      Physics Department
      Durham, New Hampshire

   d. Dr. C. McIlwain
      University of California, San Diego
      School of Science & Engineering
      Department of Physics
      La Jolla, California

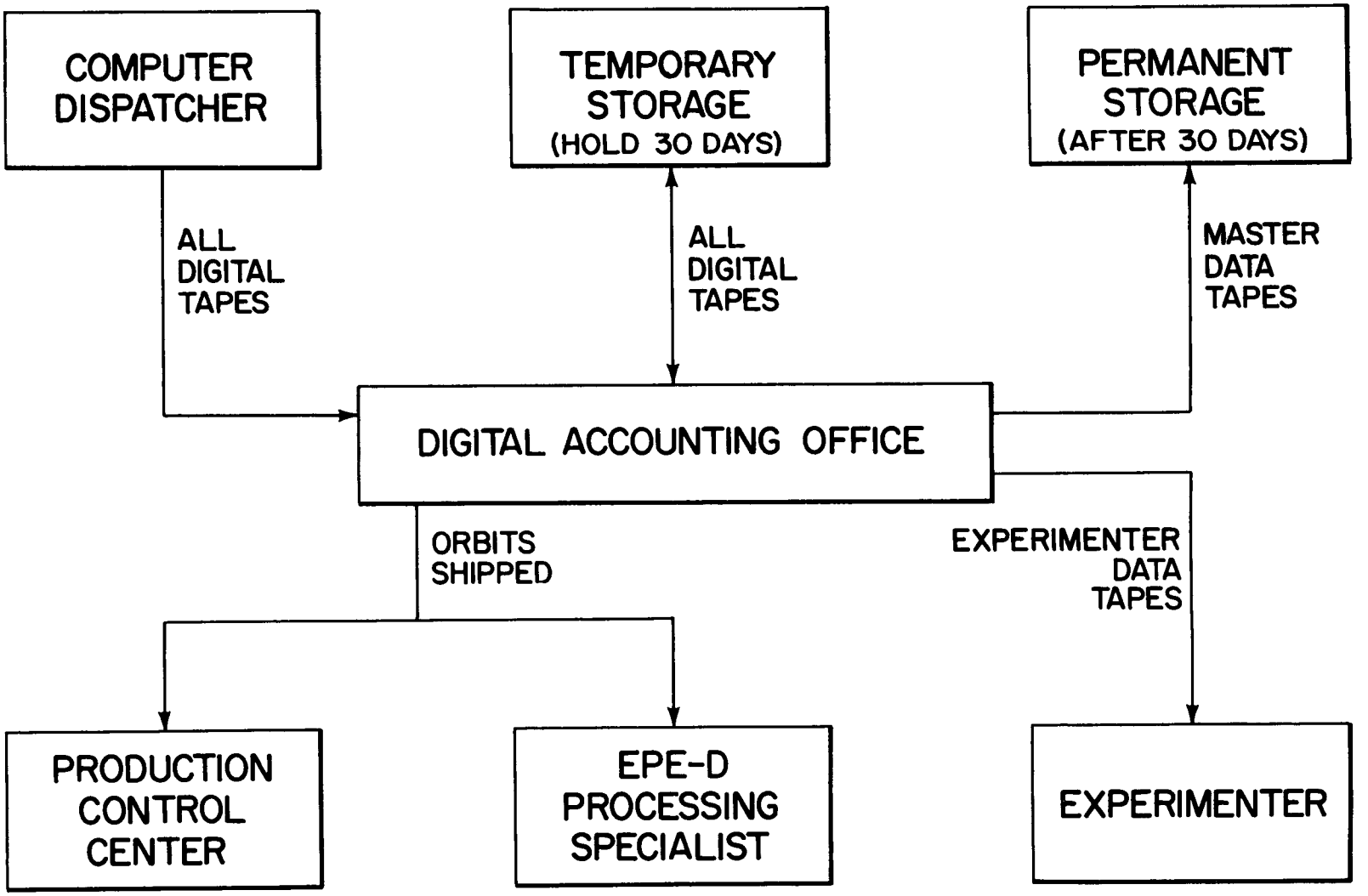


Figure IV-2 – Digital Accounting Office Functional Diagram

e. Data Processing Supervisor
Bell Telephone Laboratories, Inc.
Murray Hill, New Jersey 07971
Attn: Mr. Ray F. Corbin, Room 3A-234A

f. Mr. L. Slifer
Space Power Technology Branch
Code 636 (B11R E10)

6. Close watch should be kept on the date on which the tapes are sent to shipping to insure that there is no delay in final shipment to the experimenters.

7. All inhouse deliveries should be hand carried to the recipients.

8. Once each month the EPE-D Combined Accounting Listing will be sent out with the following minimum number of copies; one copy to each experimenter (5), two copies to the Project Office (2), and one copy to the EPE-D Data Processing Engineer.

EPE-D DATA PROCESSING PLAN

TECHNICAL DESCRIPTION

VOLUME II

V – EPE-D DATA PROCESSING PROGRAMS

EPE-D Data Processing Engineer

Marc Jay Selig

Data Analysis & Computing Section

Joseph B. Bourne

INTRODUCTION

Figures V-1 and V-2 are pictorial representations of the EPE-D Data Reduction System.

They are followed by a simplified explanation of each of the five (5) phases and the Special Purpose Analysis Program.

More detailed writeups are available for examining the intricacies of the various programs as developed for the 1410/7010.

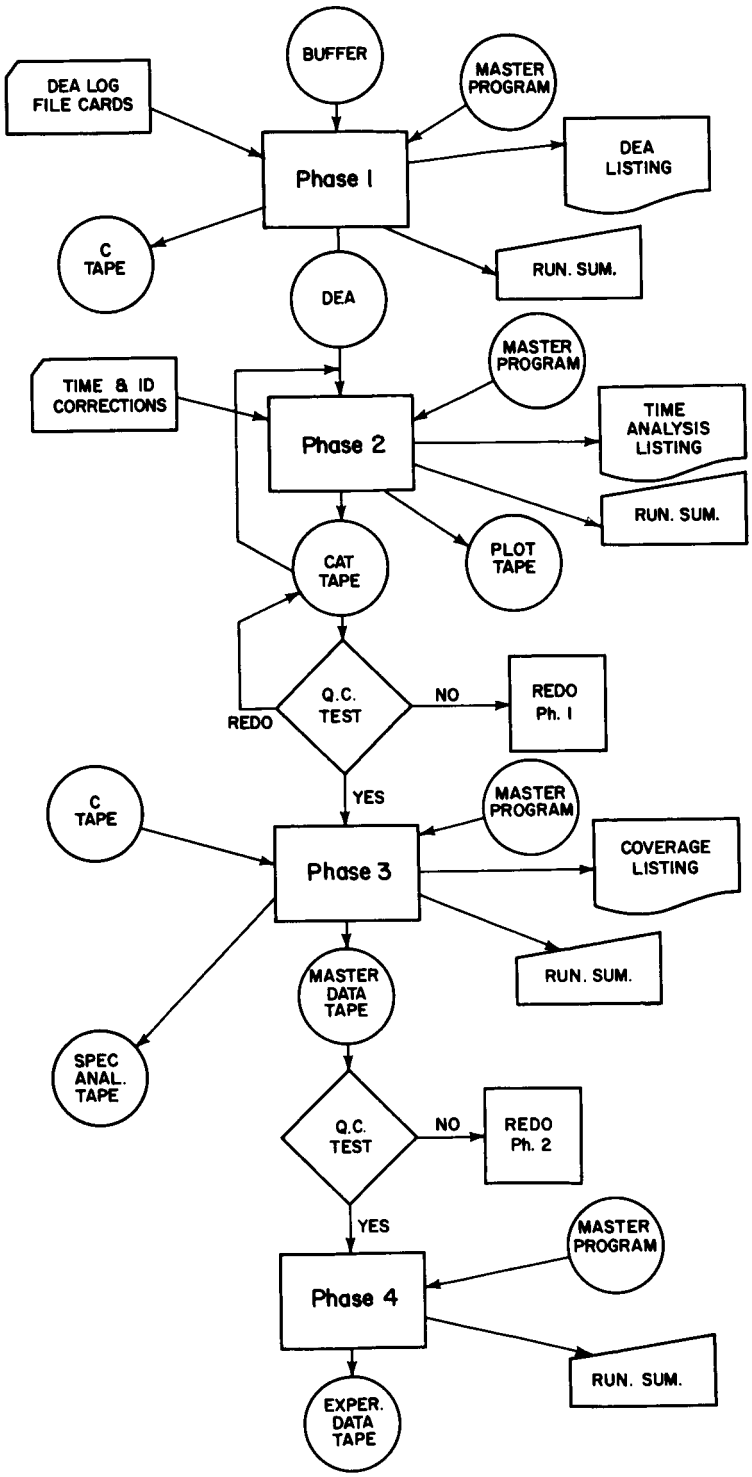
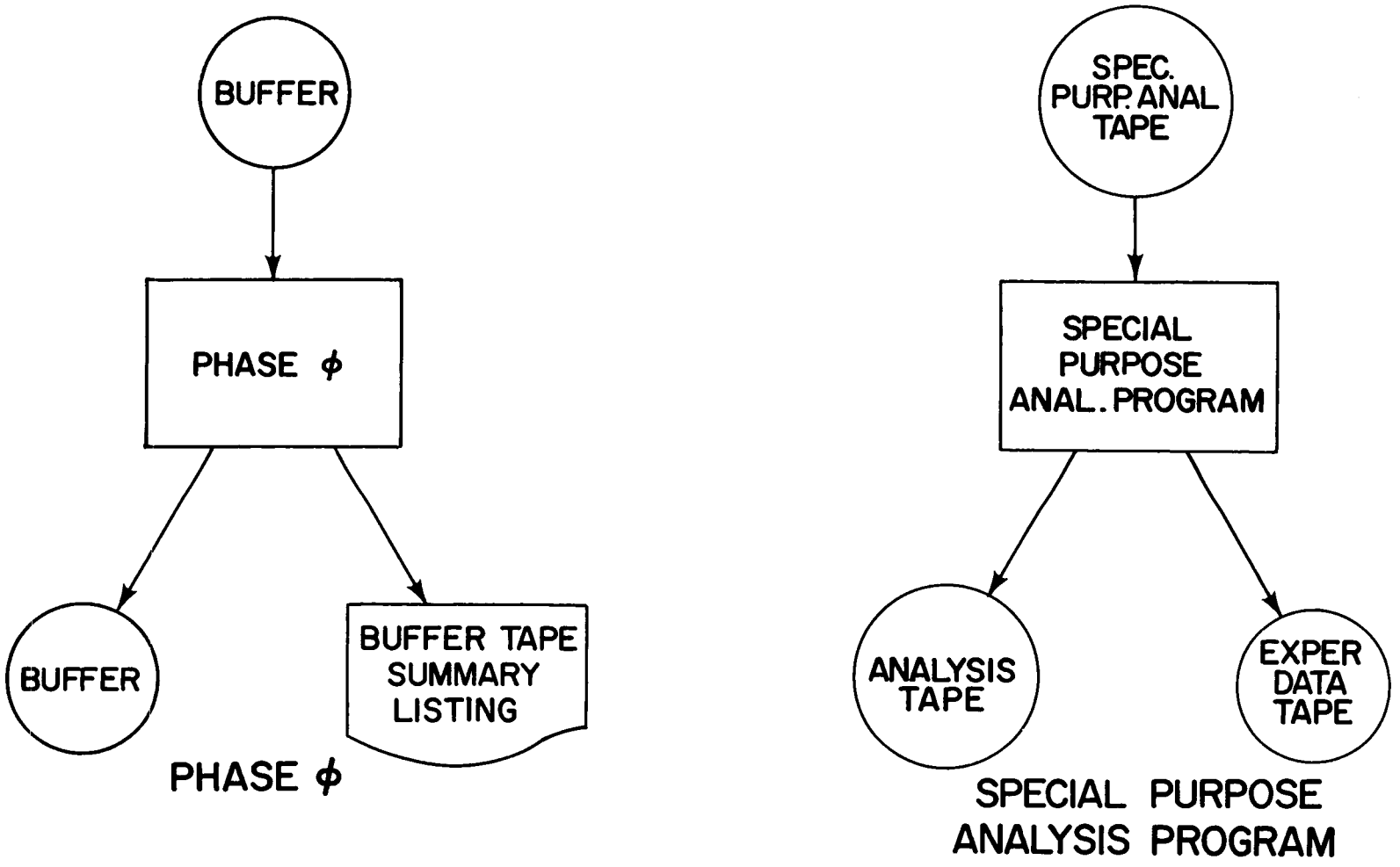


Figure V-1 – EPE-D Reduction System (Normal Production)



EPE-D DATA REDUCTION SYSTEM
(SPECIAL PROGRAMS)

Figure V-2 – EPE-D Reduction System (Special Production)

PHASE 0

PURPOSE: To check on the logical makeup of the buffer tapes.

METHOD: Each buffer is inputted to Phase 0 on the 7010 where the program will inspect the tape and produce a printout, which gives the ID information, numbers the files and counts the data records. (See Figure V-3)

USE: From this printout, the computer monitor can determine which files on each buffer tape are to be used to generate the "C" tapes and eventually the Master Digital Tapes.

From this phase, the EPE-D Processing Specialist will generate the DEA File Log Cards (Figure V-4) necessary for Phase 1.

```
                                EPED BUFFER TAPE SUMMARY LISTING     B-TAPE 90001   DATE  641208

 LOGICAL FILES
01  ID RECORD  STATION=00  ANALOG=0002  DATE=40922  B-TAPE NO.=90001
    DATA RECORD
    840 DATA RECORDS HAVE FOLLOWED LAST DATA RECORD
    EOF
02  ID RECORD  STATION=00  ANALOG=0003  DATE=40922  B-TAPE NO.=90001
    DATA RECORD
    839 DATA RECORDS HAVE FOLLOWED LAST DATA RECORD
    EOF
03  ID RECORD  STATION=00  ANALOG=0004  DATE=40922  B-TAPE NO.=90001
    DATA RECORD
    850 DATA RECORDS HAVE FOLLOWED LAST DATA RECORD
    EOF
04  ID RECORD  STATION=00  ANALOG=0005  DATE=40922  B-TAPE NO.=90001
    DATA RECORD
    855 DATA RECORDS HAVE FOLLOWED LAST DATA RECORD
    EOF
05  ID RECORD  STATION=00  ANALOG=0006  DATE=40922  B-TAPE NO.=90001
    DATA RECORD
    851 DATA RECORDS HAVE FOLLOWED LAST DATA RECORD
    EOF
```

Figure V-3 – EPE-D Buffer Tape Summary Listing (Phase 0)

FORMAT

DEA FILE LOG CARD

CONTENTS	COLUMN	SAMPLE
Satellite Number	1-4	EPED
Station Number	5-7	OOM
Analog Tape Number	9-12	0012
Date Recorded	14-19	641219
Orbit Number	21-24	0001
A/D Line and Buffer Number	26-30	70013
File Number	31-32	02
Analog Start	34-39	123221
Analog Stop	41-46	133737
Date Received	48-53	641228
Status	55	P
Date Evaluated	57-61	41228
Date Digitized	63-67	41228
Shift	69	2
Card Type	80	1

Sample – DEA File Log Card

One card is needed for every file to be processed in Phase 1

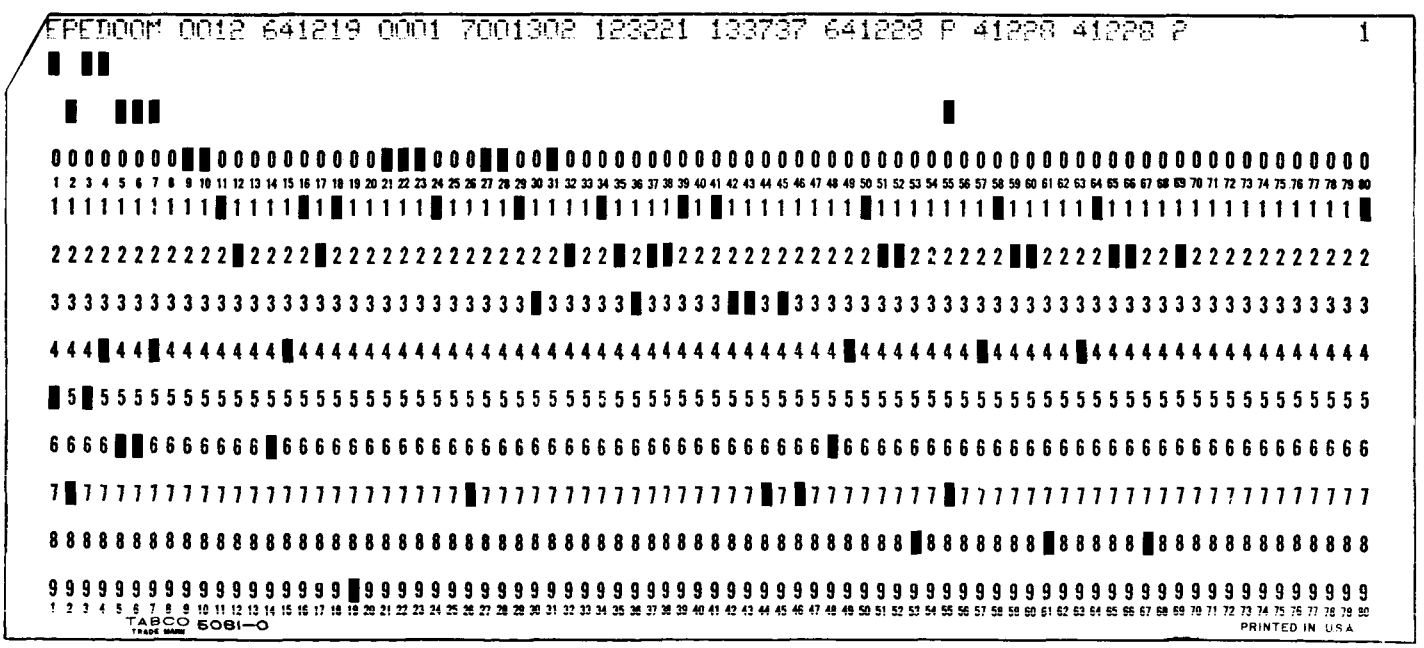


Figure V-4 – DEA File Log Card (Phase 0 – Phase 1)

PHASE I

PURPOSE: To extract pertinent time data for inclusion on a DEA Tape. Also, to calculate the quasi clock readings and to convert the 12 character data point to a 3 character code.

METHOD: The DEA File Log cards (Figure V-4) are inputted to the computer where the information they contain is used to locate a logical file on a given buffer as noted in Phase 0. This file is then operated on using the Run Descripter Card (Figure V-5), and the pertinent information outputted onto the DEA Tape. Also at this time the file's information is converted to the 3 character code (Figure V-6) required and outputted onto a "C" tape for use during Phase 3.

The information placed on the DEA Tape is also printed on the 1403 printer along with this DEA printout is a header and a footer as shown in Figure V-7. Also printed is a run summary shown in Figure V-8.

USE: The printout generated will be studied by Quality Control and the necessary time and ID correction cards (Figure V-12) will be made. These corrections and the DEA Tape will be the input to Phase II.

FORMAT

RUN DESCRIPTER CARD

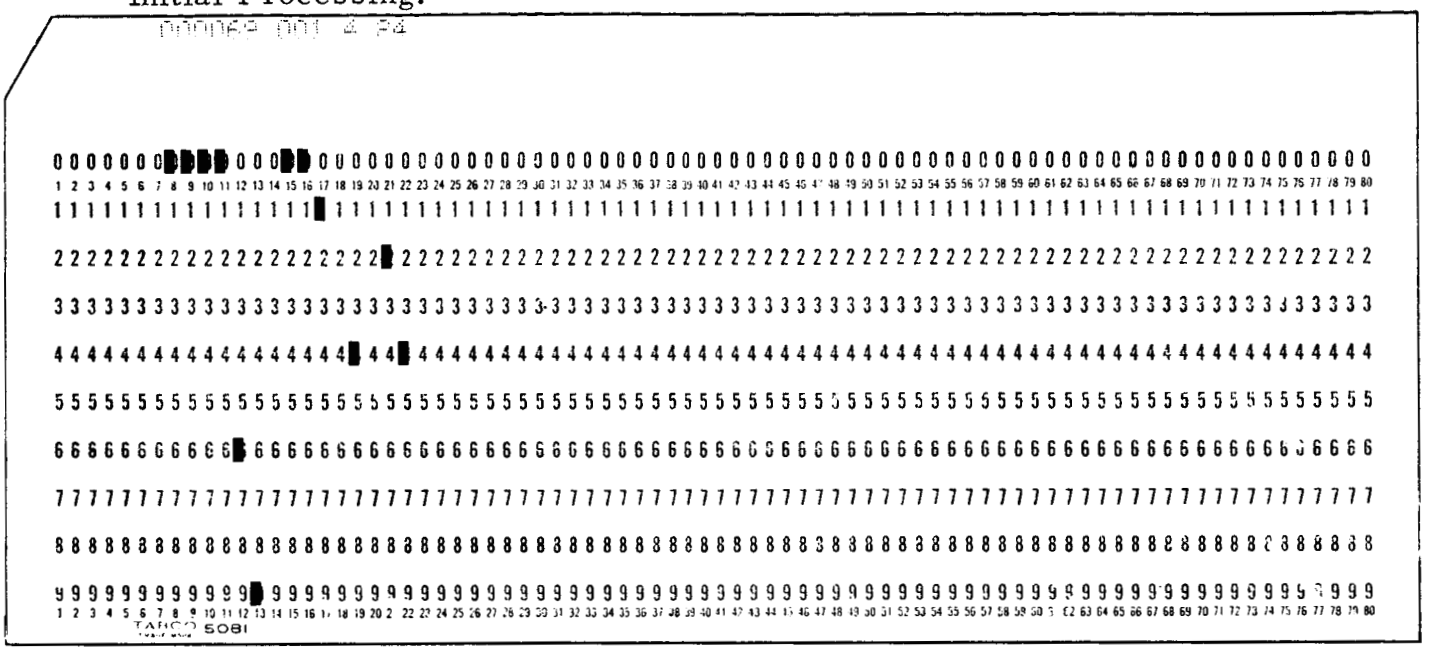
CONTENTS	COLUMN	SAMPLE
Reprocess indicator	1-6	RRRRRR*
First DEA Record Number	8-13	000069
Orbit Group Number	15-17	001
Rate of Digitization	19	4
Barker Test Level	21-22	24**

*Six R's are required if the tapes being processed are being reprocessed. Six blanks will be used if the tapes are being processed for the first time. Any deviation from this format will cause an abort.

**The Barker Test level, if perfect, would be 29, however, a more practical value is 24. This value may be changed as experience is gained.

Sample
Run Descriptor Card

Initial Processing:



Reprocessing:

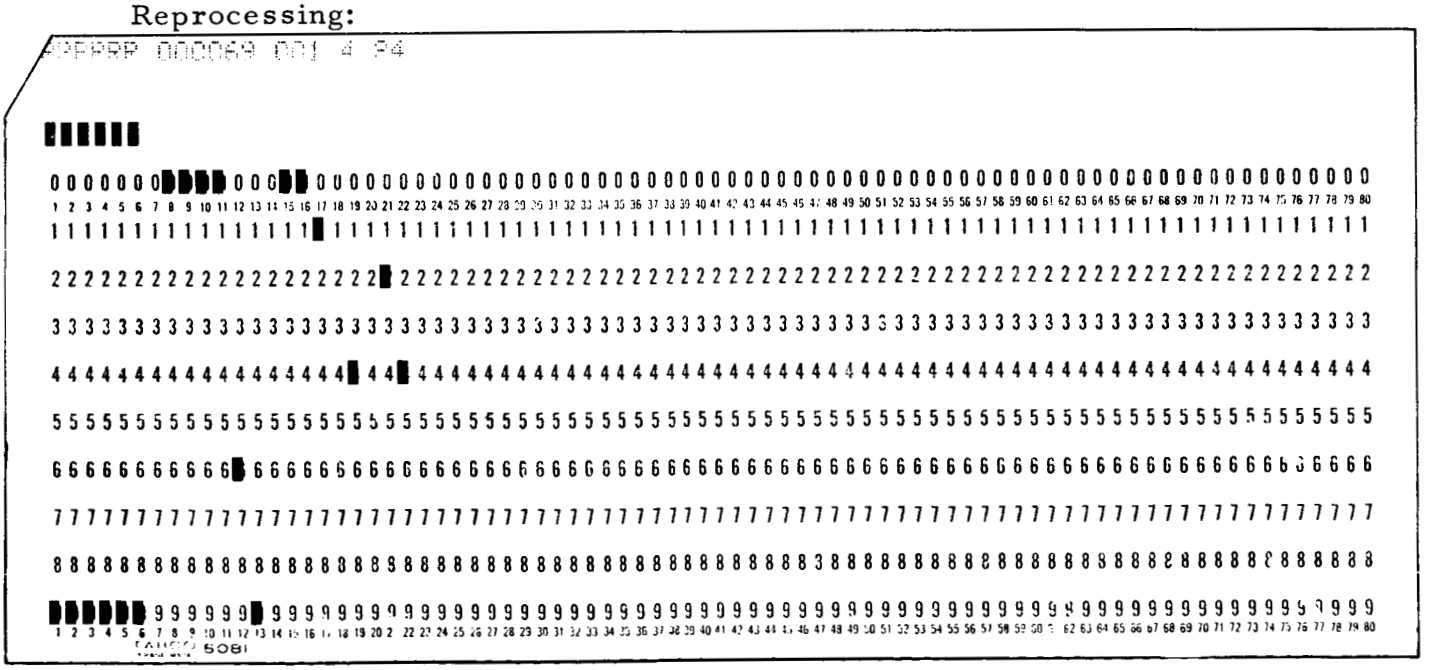


Figure V-5 – Run Descriptor Card (Phase 1)

PHASE ONE DATA POINT CONVERSION
(from 12 to 3 characters)

Data point as found on Buffer Tape:
Mode III

Bit	1	2	3	4	5	6	7	8	9	10	11	12
	C	C	C	X	X	X	K	K	K	K	K	F

C = Comb Filter Value

X = # of cycles of the unknown frequency (Data Burst)

K = # of cycles of the reference frequency (5mc)

F = Data flag

$\frac{K}{5 \times 10^6}$ = Time period of measurement in seconds

$\frac{X}{K} \times 5 \times 10^6$ = Frequency of Data Burst

Let: d = 100@ 5KC and 900@ 15KC

Using this criteria, to convert from frequency to the range 100 to 900 we use the following formula:

$d = (4X/K) \times 10^5 - 300$

Sample

C = 010
X = 40
K = 40,000

$$d = \frac{4(X)}{K} \times 10^5 - 300 = \frac{4(40)}{40,000} \times 10^5 - 300$$

d = 100

Figure V-6 – Phase One Data Point Conversion

FORMAT

DATA EXTRACT AND ANALYSIS PRINTOUT

1. Page heading
2. Identification heading
3. File identification
    a. DEA number
    b. date recorded
    c. orbit
    d. station
    e. analog tape
    f. buffer tape and file
    g. C-tape and file
    h. file start time
    i. file stop time
4. QC heading
5. QC entries
    a. entry number
    b. QC step time
    c. QC value
    d. number of QC readings alike
    e. frame count
    f. percent good points (not 999)

```
                EPED DATA EXTRACTION AND ANALYSIS        664287        PAGE 12          PHASE ONE

DEA NO. DATE ORBIT STA. TAPE BUFFER FILE CTAPE FILE  START TIME     STOP TIME  RECEIVED DIGITIZED SHIFT STATUS
000081 41006  0002  00  0015  90003  05   0001  12  067191956778  067193159808  641006    41006     1      P

            QC STEP TIME QC VALUE ALIKE  FRAME COUNT  PERCENT GOOD POINTS
   T  01  067 19 19 48321  168119    5        231              99
      02  067 19 20 58319  168120    8        240              98
      03  067 19 22 08317  168121    6        240              98
      04  067 19 23 18319  168122    4        240              98
      05  067 19 24 28318  168123    7        240              99
      06  067 19 25 38315  168124    5        240              98
      07  067 19 26 48313  168125    8        240              99
      08  067 19 27 58311  168126    7        240              98
      09  067 19 29 08312  168127    7        240              98
      10  067 19 30 18312  168128    5        240              99
      11  067 19 31 28308  168129    2         99              98


                                FILE LOG CARD PROCESSED

      SATELLITE STATION ANALOG RECORD ORBIT BUFFER FILE ANALOG ANALOG  DATE  STATUS   DATE      DATE     SHIFT
                        TAPE   DATE         TAPE   NO. START  STOP  RECD          EVALUATED DIGITIZED

        EPED      00    0015  641006  0002  90003  05  222222 333333 641006   P      41006     41006      1

TOTAL FRAMES= 2490                PERCENT GOOD= 91                                  0041
```

Figure V-7 – Data Extraction and Analysis Listing (Phase 1)

```
OKS  SHIFT-2          PHASE ONE RUN SUMMARY                    DATE 641013    GROUP 000          EPED

INPUT TAPES AND NO. FILES    90001 05   90002 03   90003 05   90004 04   90005 05   90006 03

OUTPUT TAPES AND NO. FILES  DEA000 25  C90001 15  C90002 10

RUN START TIME  2120  RUN STOP TIME  0038   TIME ELAPSED IS 03 HOURS AND 18 MINUTES.

EXPLANATION OF FLAGS APPENDED TO PRINTED ENTRIES

T- QC STEP TIME QUESTIONABLE          Q- QC READING QUESTIONABLE              F- FAILED TO RECOGNIZE END OF 240 FRAME CYCLE

M- TWO OR MORE OF ABOVE FLAGS

END PHASE ONE      ORBIT 0004   BARKER TEST LEVEL= 24 OUT OF 30.
     MON$$     END
```

Figure V-8 – Phase One Run Summary

PHASE II

PURPOSE: This phase of the program is concerned with correcting the time and ID information found on the buffer tapes. It will also sort the information on the DEA Tape by file in order to generate an output tape, "Catalog Tape" that is chronological.

METHOD: The DEA Tape is inputted with the Quality Control corrections obvious from the Phase I printout figure V-7. There will also be inputted residual generation control card which will control the generation of the ΔT, (Figure V-9). An output tape will be generated containing the DEA information in chronological order with the appropriate corrections.

Also generated will be a plot tape for a pictorial representation of the time history as in Figure V-10; and a printout of the contents of the Catalog Tape (Figure V-11). This printout will contain the new header for the Catalog Tape and the time information necessary for evaluation of the time history.

USE: The new printout and plot will be used to generate time corrections (Figure V-12) for re-input to Phase II. The cycle of, correction, plot tape generation, and recorrection will continue until Quality Control is satisfied with the accuracy of the time available.

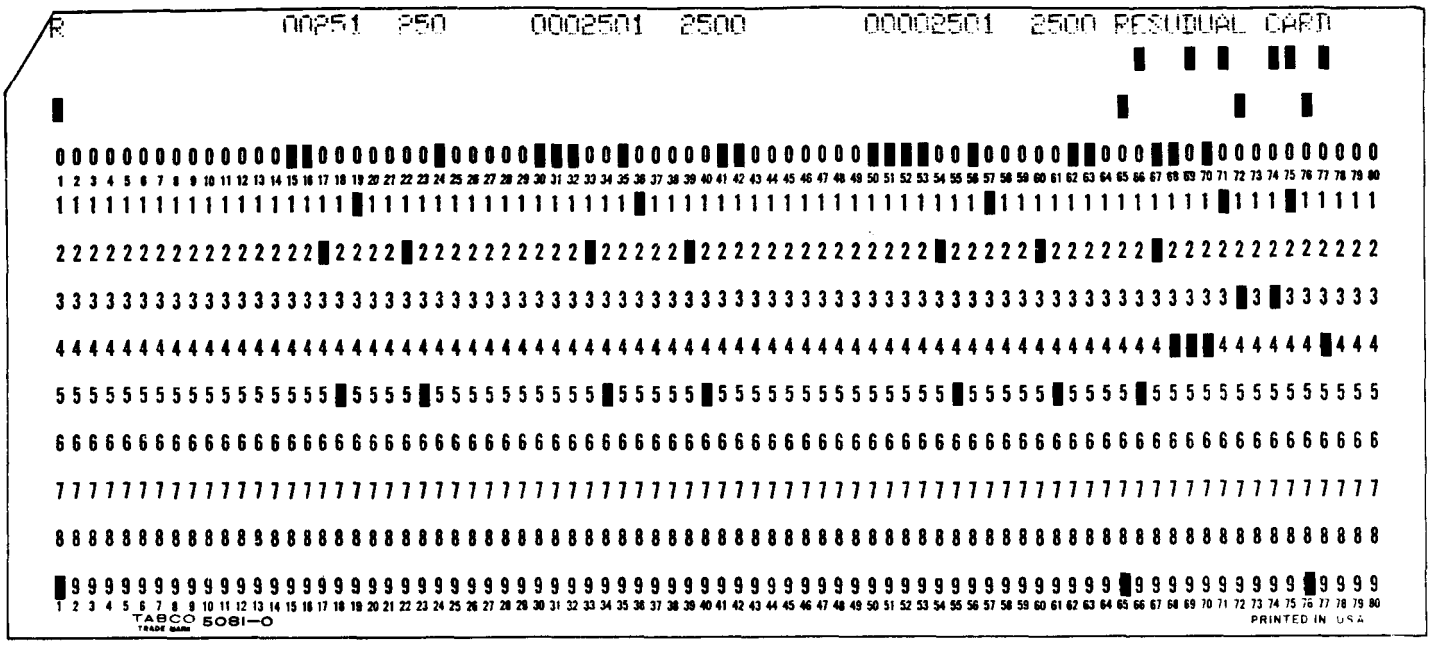
When Quality Control is satisfied with the quality of the data it will release the latest "Catalog" tape for input to Phase III along with the "C" tapes from Phase I.

FORMAT
RESIDUAL CARD

CONTENTS	COLUMN	SAMPLE
Type Card Indicator (must be "R")	1	R
Delta T (right justified)	2-11	0000069964
First Difference (tolerance)	15-19	00251
First Difference (maximum)	22-24	250
Second Difference (tolerance)	30-36	0002501
Second Difference (maximum)	39-42	2500
Residual (tolerance)	50-57	00002501
Residual (maximum)	60-63	2500

SAMPLE
RESIDUAL GENERATION CARD

I. If Delta T is to be calculated internal to the computer.



II. If Delta T is Not to be calculated internal to the computer.

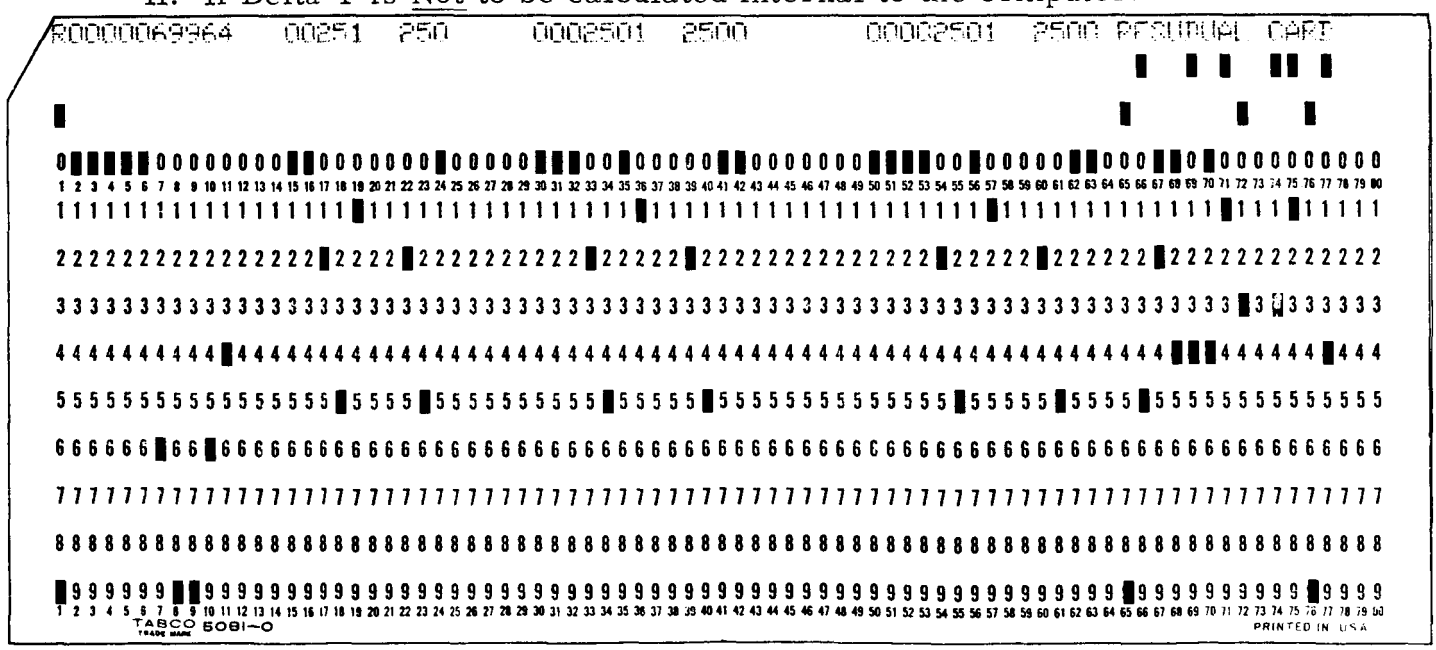


Figure V-9 – Residual Generation Card (Phase 2)

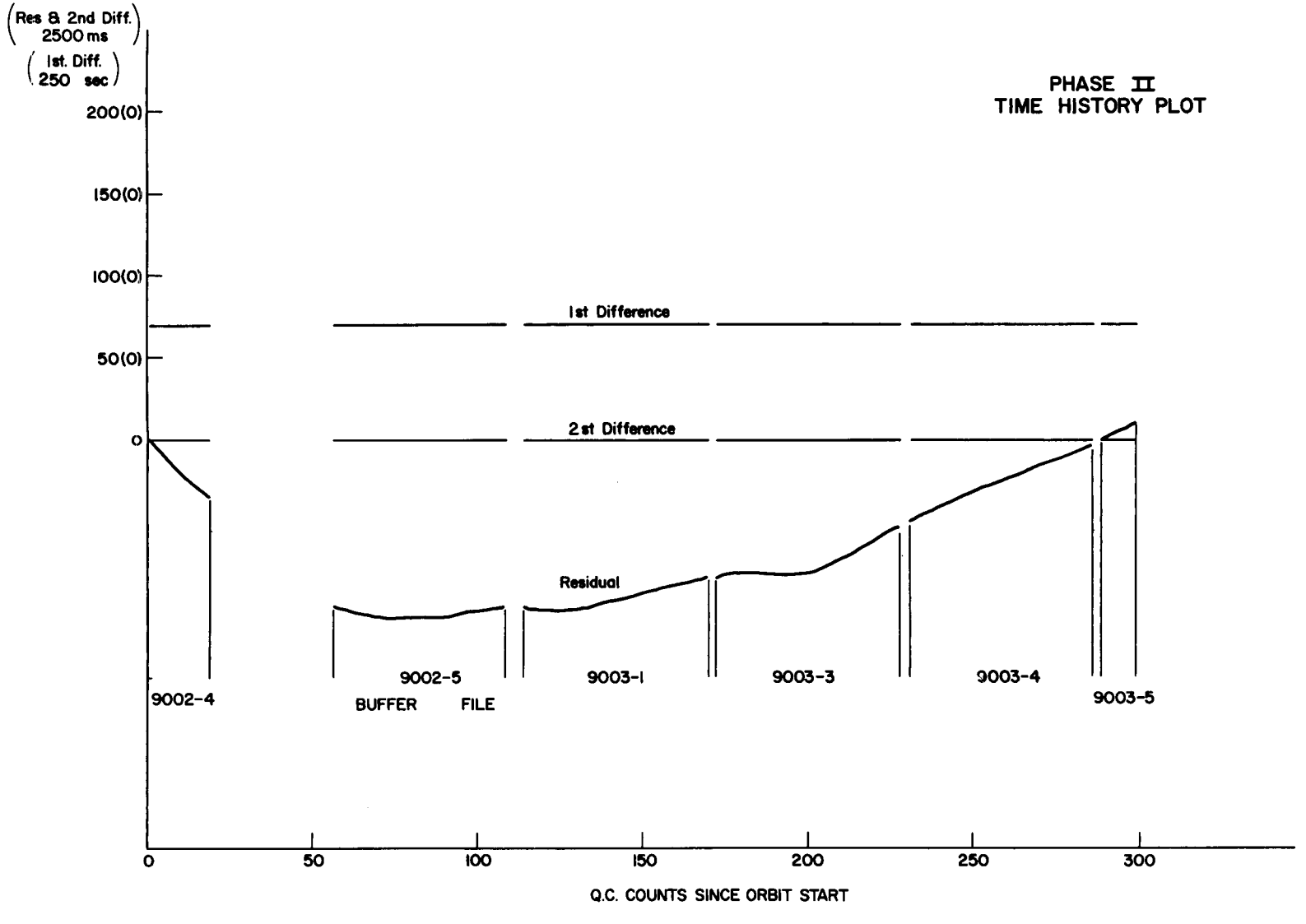


Figure V-10 – Plot of Time History (Phase 2)

FORMAT

PHASE II PRINTOUTS

Phase II generates three kinds of printouts:

I. Program Run Summary
II. Plot Parameters
II. Time Analysis Listing (Figure V-11)

The first page, the Program Run Summary, is a single page used as a header for the entire Phase II printout; it contains:

1. Name of the Program

2. Date

3. Header label of the input tape

4. Contents of the residual card and plot tolerances

5. All Catalog Correction Cards entered

6. An indication that all Catalog Correction cards were processed or, if not, the DEA numbers of those cards not processed.

7. Output Tape (New CAT tape) header label.

The second page always contains the Plot Parameter information. This information consists of:

1. The orbit number

2. The Quasi Clock reading at the beginning of the orbit.

3. The difference between the QC readings at the start and end of the orbit.

4. The DELTA T used for the calculation of the residual.

The remaining pages of the printout contain the Time Analysis Listing which is unique to each file. The following information is contained on these pages:

A. Header label and the contents of the ID record found in the file in question.

B. The following information for each Quasi Clock reading in the file:

1. Number of the QC reading for this analog file.
2. QC flag
3. QC step time
4. QC value (Reading)
5. Number of identical QC readings
6. Number of frames used for this QC reading
7. Percent of good points
8. First Difference
9. Second difference
10. Residual
11. A flag (asterisk) to the right of the first difference indicates time is going backward.

EPE-D TIME ANALYSIS LISTING CAT.TAPE CAT000 RUN 01 DATE 664288

DEA NO	RECORDED	ORBIT	STATION	A-TAPE	B-TAPE	B-FILE	C-TAPE	C-FILE	RECEIVED	DIGITIZED	SHIFT	STATUS
000081	41006	0002	00	0015	90003	05	C90001	12	641006	41006	1	P

FILE START TIME 067 1919 56778 FILE STOP TIME 067 1931 59808 FILE TIME CORRECTION

NO	FLAG	QC STEP TIME	QC VALUE	IDENT	NO.FRM	PER.GOOD	FIRST DIFF	2ND DIFF	RESIDUAL
01	T	067 1919 48321	168119	5	231	99	139.999		1
02		067 1920 58319	168120	8	240	98	69.998 -	70.001	10
03		067 1922 08317	168121	6	240	96	69.998	.000	19
04		067 1923 18319	168122	4	240	98	70.002	.004	32
05		067 1924 28318	168123	7	240	99	69.999 -	.003	42
06		067 1925 38315	168124	5	240	98	69.997 -	.002	50
07		067 1926 48313	168125	8	240	99	69.998	.001	59
08		067 1927 58311	168126	7	240	98	69.998	.000	68
09		067 1929 08312	168127	7	240	98	70.001	.003	80
10		067 1930 18312	168128	5	240	99	70.000 -	.001	91
11		067 1931 28308	168129	2	99	98	69.996 -	.004	98

PAGE 12

Figure V-11 – EPE-D Time Analysis Listing (Phase 2)

FORMAT

CATALOG CORRECTION CARD

CONTENTS	COLUMN	SAMPLE
Satellite Number	3-4	33
Station Number	6-7	18
Analog Tape Number	9-12	0012
Date Recorded	14-19	41219
Orbit Number	21-24	0001
DEA Number	27-32	000069
Time Correction	34-46	+000011243090
Date Received	48-53	641228
Status	55	P
Date Digitized	63-68	641228
Shift	70	2

SAMPLE
CATALOG CORRECTION CARD

There can be one card for each file found on the C-Tape, and listed in the DEA/CAT Tape.

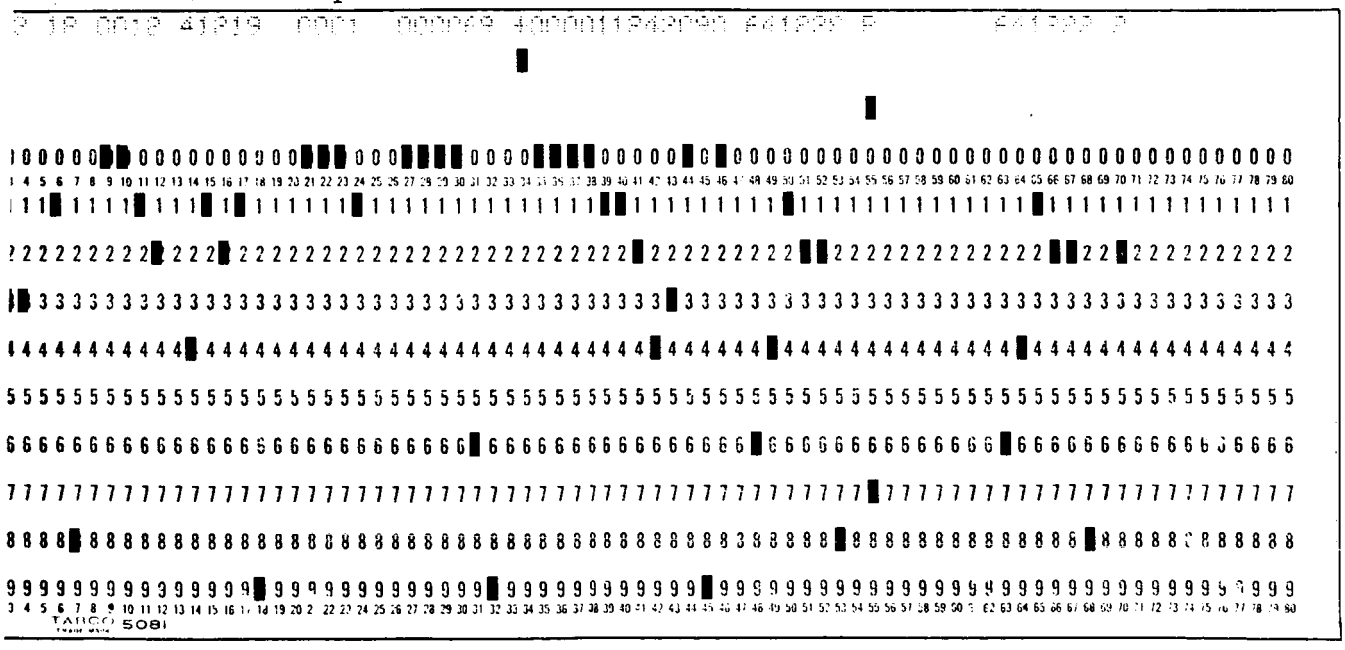


Figure V-12 – Catalog Correction Card (Phase 2)

PHASE III

PURPOSE: This phase will utilize the information and tapes generated in the previous phases (I and II). This phase will produce a Master Data Tape and a Special Analysis Tape. This Master Data Tape will be time correct with the appropriate flags included.

METHOD: The program will take the "Catalog" Tape information and from it determine which files from the "C" tapes are to be used and in what order. As a file is selected the time correction, if any, will be applied. A data quality flag will also be generated for each frame.

A Special Analysis Tape will also be generated for off line processing.

As the work progresses this program will also generate accounting lists Figures V-13 and V-14; and edit file accounting cards, Figure V-15.

USE: The corrected output tape the Master Data Tape will now be held until Quality Control has a chance to check the listings generated (Figures V-13 and V-14). If these listings show that what is on the Master Data Tape is as it should be they will release the tapes for Phase IV, decommutation.

Along with the Master Data Tape and the listing, are generated punched cards to be used by the Digital Accounting Office, Figure V-15.

FORMAT

EDIT FILE LISTING

CONTENTS	COLUMN
Station	4-5
Analog Tape	8-11
Date Recorded	14-18
Buffer Tape and File	21-28
Orbit	31-34
Status	37
Date Digitized	40-45
Shift	48
Date Received	51-56
C-Tape and File	59-67
Time Correction	71-82
DEA Number	85-90

EPED EDIT FILE LISTING

STA.	TAPE	ORIG.	BTAPE	OBS.		DIGIT.		RECVD.	C-TAPE	CORRECTION	DEA NO.	64290	GROUP000	EPED
00	0002	41006	90001-01	0001	P	41006	1	641006	C90001-01		000070		01	
00	0003	41006	90001-02	0001	P	41006	1	641006	C90001-02		000071		02	
00	0004	41006	90001-03	0001	P	41006	1	641006	C90001-03		000072		03	
00	0005	41006	90001-04	0001	P	41006	1	641006	C90001-04		000073		04	
00	0006	41006	90001-05	0001	P	41006	1	641006	C90001-05		000074		05	
00	0007	41006	90002-01	0001	P	41006	1	641006	C90001-06		000075		06	
00	0010	41006	90002-04	0002	P	41006	1	641006	C90001-07		000076		07	
00	0011	41006	90002-05	0002	P	41006	1	641006	C90001-08		000077		08	
00	0012	41006	90003-01	0002	P	41006	1	641006	C90001-09		000078		09	
00	0013	41006	90003-03	0002	P	41006	1	641006	C90001-10		000079		10	
00	0014	41006	90003-04	0002	P	41006	1	641006	C90001-11		000080		11	
00	0015	41006	90003-05	0002	P	41006	1	641006	C90001-12		000081		12	
00	0016	41006	90003-06	0003	P	41006	1	641006	C90001-13		000082		13	
00	0017	41007	90004-01	0003	P	41007	1	641007	C90001-14		000083		14	
00	0019	41007	90004-03	0003	P	41007	1	641007	C90001-15		000084		15	
00	0020	41007	90004-04	0003	P	41007	1	641007	C90002-01		000085		16	
00	0021	41007	90004-05	0003	P	41007	1	641007	C90002-02		000086		17	
00	0022	41007	90005-01	0003	P	41007	1	641007	C90002-03		000087		18	
00	0023	41007	90005-02	0004	P	41007	1	641007	C90002-04		000088		19	
00	0024	41007	90005-03	0004	P	41007	1	641007	C90002-05		000089		20	
00	0025	41007	90005-04	0004	P	41007	1	641007	C90002-06		000090		21	
00	0026	41007	90005-05	0004	P	41007	1	641007	C90002-07		000091		22	
00	0027	41007	90006-01	0004	P	41007	1	641007	C90002-08		000092		23	
00	0028	41007	90006-02	0004	P	41007	1	641007	C90002-09		000093		24	
00	0029	41007	90006-03	0004	P	41007	1	641007	C90002-10		000094		25	

Figure V-13 – Edit File Listing (Phase 2)

FORMAT

EDIT COVERAGE LISTING

CONTENTS	COLUMN
Station	4-5
Analog Tape	8-11
Date Recorded	14-18
Orbit	31-34
Status	37
File Start Time	40-51
File Stop Time	54-65
File Coverage	69-80
Overlap	83-94
No Coverage	97-108

EPED EDIT COVERAGE LISTING

STA.	TAPE	GRID.	GRB.	FILE START	FILE STOP	COVERAGE	OVERLAP	NO COVERAGE	64290	GROUP000	EPED
00	0002	41006	0001 P	066123221761	066133737364	10515603				01	
00	0003	41006	0001 P	066134152123	066144608819	10416696		414259		02	
00	0004	41006	0001 P	066144757889	066154232585	9434696		148570		03	
00	0005	41006	0001 P	066155609263	066166825942	1216679		1336178		04	
00	0006	41006	0001 P	066170419771	066172509606	2049835		5553329		05	
00	0007	41006	0001 P	066181147474	066191810767	10623293		4637369		06	
00	0010	41006	0002 P	067134135910	067140546315	2410405		1823246431		07	
00	0011	41006	0002 P	067144944241	067155124032	10139791		4357426		08	
00	0012	41006	0002 P	067155533487	067170150983	10610596		414955		09	
00	0013	41006	0002 P	067170410373	067180957783	10547405		219795		10	
00	0014	41006	0002 P	067181147739	067191756655	10610916		149456		11	
00	0015	41006	0002 P	067191956774	067193159905	1203030		157623		12	
00	0016	41006	0003 P	068123220434	068133727455	10507001		1700201461		13	
00	0017	41007	0003 P	068133614082	068150104600	10450518		1846127		14	
00	0019	41007	0003 P	068150951492	068171456894	10505402		10946372		15	
00	0020	41007	0003 P	068171650936	068182201360	10510422		153544		16	
00	0021	41007	0003 P	068182415535	068192857955	10442320		213675		17	
00	0022	41007	0003 P	068193034393	068202600869	5426276		136038		18	
00	0023	41007	0004 P	069123242657	069130232457	2949930		1607414881		19	
00	0024	41007	0004 P	069134041864	069144600477	10515613		3808877		20	
00	0025	41007	0004 P	069144727280	069153305271	10537991		126403		21	
00	0026	41007	0004 P	069153459037	069163000077	10501040		153266		22	
00	0027	41007	0004 P	069170155293	069180705980	10510687		154716		23	
00	0028	41007	0004 P	069180946405	069191405279	10413874		239925		24	
00	0029	41007	0004 P	069191551437	069193453802	3902365		145659		25	
AVAILABLE TIME		3072232041			RUN TOTALS	229320194		2084553857			

Figure V-14 – Edit Coverage Listing (Phase 3)

FORMAT

EDIT FILE ACCOUNTING CARD

CONTENTS	COLUMN	SAMPLE
Satellite	1-4	EPED
Station	5-7	OOM
Analog Tape	8-11	0012
Analog File	12-13	01
Date recorded	14-19	641219
Orbit	21-24	0001
Master Data Tape	25-29	00001
Master Data File	31-32	03
File Start	34-39	123221
File Stop	41-46	133737
Buffer Tape	48-52	00003
Date Digitized	56-60	41228
Date Edited	62-66	50103
Card Type	80	4

SAMPLE – EDIT FILE ACCOUNTING CARD

One card such as this is generated for each file found on the Master Data Tapes

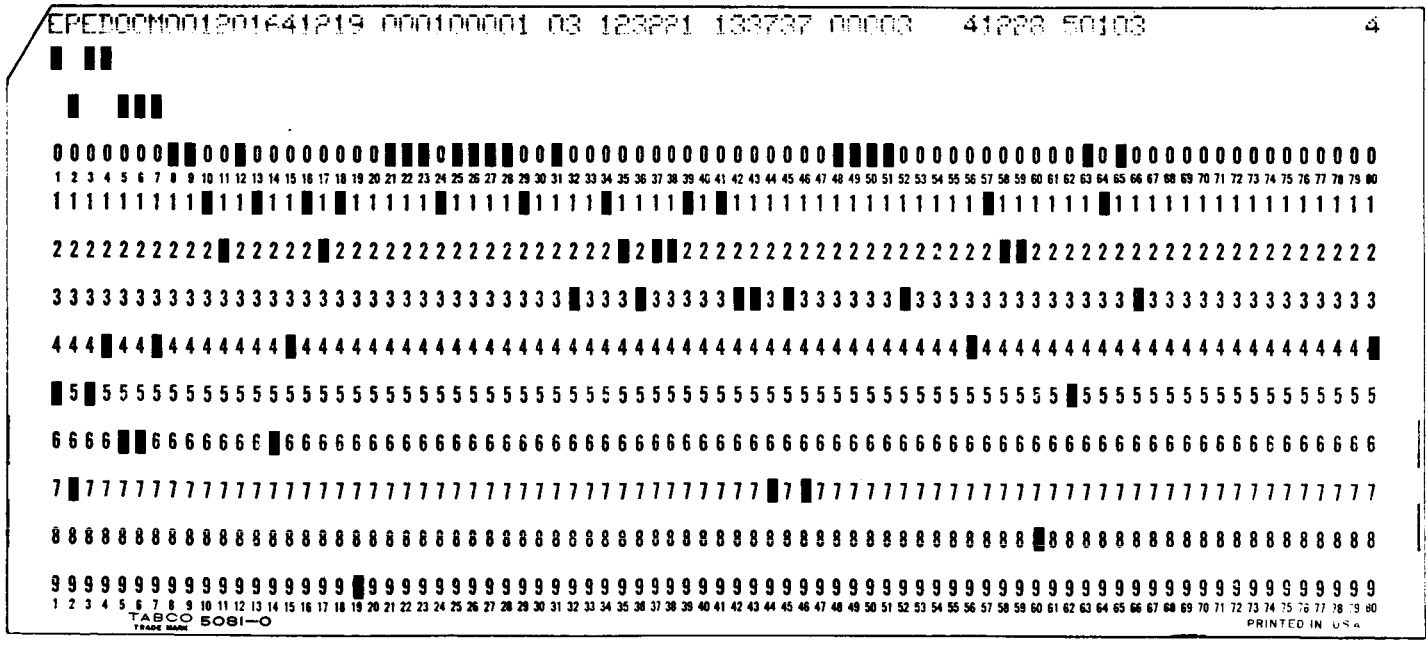


Figure V-15 – Edit File Accounting Card (Phase 3)

PURPOSE: This phase is to generate the experimenter data tapes. These tapes will be extracts of the Master Data Tape giving each experimenter his data.

METHOD: Each Master Data Tape is operated on a file at a time generating 3 experimenter tapes. When all data is decommutated the experimenter tape with Type A format will be automatically duplicated producing the required 4th tape. At the same time four (4) printouts of the tape's contents are generated. (Figure V-16). Also produced is a decom accounting card for each experimenters tape, Figure V-17

USE: Each of the four tapes produced will have a printout to accompany them. These tapes and printout are then sent to the experimenters.

At this point, 4 orbits have been completed and all printouts should be booked up for keeping, accounting cards sent to correct areas, and all extraneous tapes and listings eliminated.

FORMAT

DECOM FILE LISTING

CONTENTS	COLUMN
Station	4-5
Analog Tape	8-11
Date Recorded	14-18
Orbit	31-34
Status	37
File Start Time	40-51
File Stop Time	54-65

EPED DECOM FILE LISTING

STA.	TAPE	ORIG.	JOB.		FILE START	FILE STOP		64293	GROUP000	EPED
00	0016	41006	0003	P	068123220454	068133727455	01			
00	0017	41007	0003	P	068135614082	068150104600	02			
00	0019	41007	0003	P	068160951492	068171456894	03			
00	0020	41007	0003	P	068171650938	068182201360	04			
00	0021	41007	0003	P	068182415535	068192857855	05			
00	0022	41007	0003	P	068193034393	068202500669	06			
00	0023	41007	0004	P	069123242657	069130232487	07			
00	0024	41007	0004	P	069134041864	069144600377	08			
00	0025	41007	0004	P	069144727280	069155305271	09			
00	0026	41007	0004	P	069155459037	069170000077	10			
00	0027	41007	0004	P	069170155293	069180705980	11			
00	0028	41007	0004	P	069180946405	069191405279	12			
00	0029	41007	0004	P	069191551437	069195453802	13			

Figure V-16 – EPE-D Decom File Listing (Phase 4)

FORMAT

DECOM FILE ACCOUNTING CARD

CONTENTS	COLUMN	SAMPLE
Satellite	1-4	EPED
Station	5-7	OOM
Analog Tape	8-11	0012
Analog File	12-13	01
Data Recorded	14-19	641219
Orbit	21-24	0001
Master Data Tape	25-29	00001
Master Data File	31-32	04
File Start Time	34-39	123221
File Stop Time	41-46	123737
Orbit Group	47-49	001
Exp. #1 Tape & File of Group	51-54	1-06
Exp. #2 Tape & File of Group	59-62	1-06
Exp. #3 Tape & File of Group	67-70	1-06
Exp. #4 Tape & File of Group	75-78	1-06
Accounting Card Type	80	5

SAMPLE OF DECOM FILE ACCOUNTING CARD

One card such as this is produced for each file generated in a decommutation group.

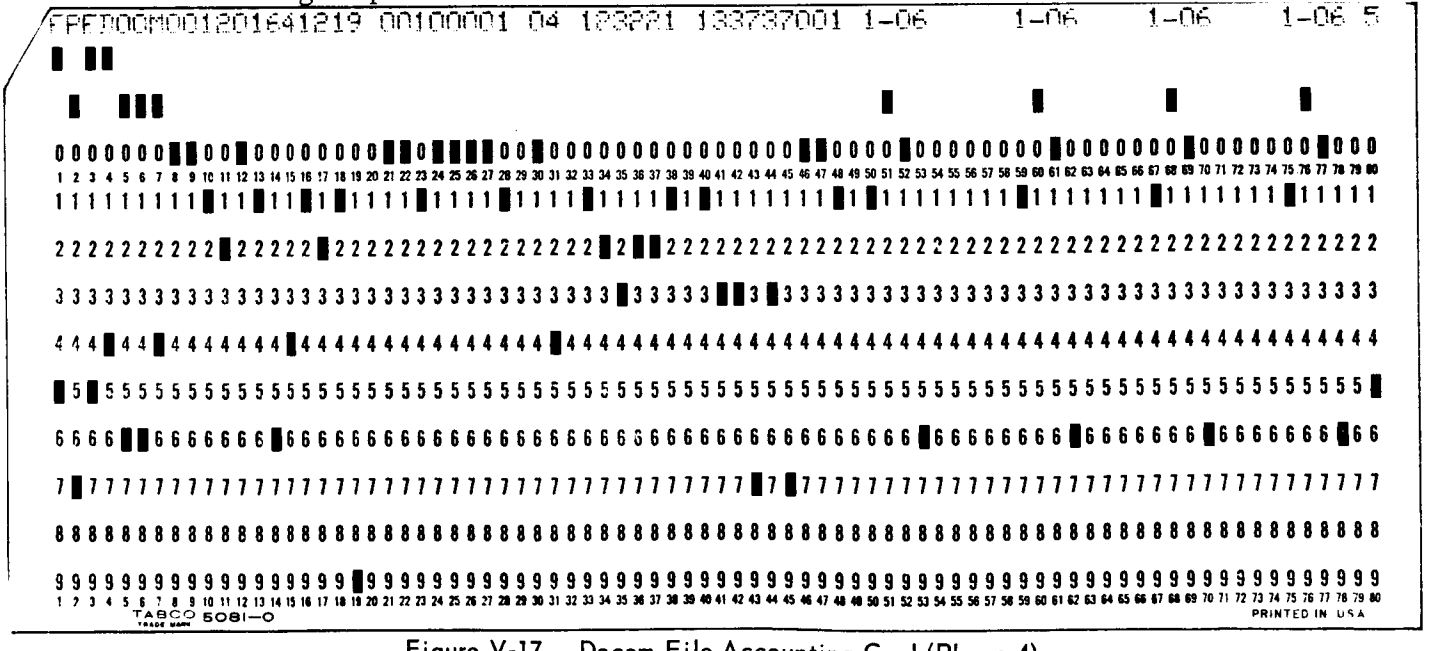


Figure V-17 – Decom File Accounting Card (Phase 4)

SPECIAL PURPOSE ANALYSIS PROGRAM

To be supplied at a later date.

EPE-D DATA PROCESSING PLAN

TECHNICAL DESCRIPTION

VOLUME II

VI – COMPUTER DISPATCHER

EPE-D Data Processing Engineer — Marc Jay Selig

Head, Signal Processing Section — R. J. Pauly

EPE-D Processing Specialist — Hubert Hinton

Computer Dispatchers Office — J. Sullivan

COMPUTER DISPATCHER

This operation is the connecting link between the A/D operation, the IBM 7010 and the Digital Accounting Office.

The primary responsibility of the group is to insure that the proper tapes are input to each phase of the computer processing program (Figure VI-1). All of the tapes which are shown in this figure as being released must be signed off by the EPE-D Computer Processing Specialist. This normally will not occur until all of the work on a group of orbits has been completed.

The following Figure (#VI-2) and Table (#VI-3) show the tapes used during the processing of this satellite and what is to be done with them after their generation and use.

It will also be this groups responsibility to distribute the tapes and printouts which are developed during each Phase.

During the first production phase where 72 hours of Quick Look data will be processed, four printouts will be produced during each phase of the computer program and the copies sent to the DPE, the Processing Specialist, Quality Control, and Production Control.

After this initial phase is completed the following schedule will be followed.

1. Phase Zero (0) for EPE-D - Printout sent to the Processing Specialist where the logical files will be chozen for further processing. A copy will also be sent to the DPE.
2. Phase One (1) - Printout sent to Quality Control and DPE for check of gross errors.
3. Phase Two (2) - Printout sent to Quality Control and DPE for time error detection. Plot tape sent to Quality Control.
4. Phase Three (3) - Printout sent to Production Control and DPE.
5. Phase Four (4) - Printout sent to Quality Control and DPE. Quality Control printout will be sent to Production Control when released, then four copies of the 'Decom File Listing' will be striped out and sent with the experimenter tapes.

It should also be noticed that there are a set of cards generated during Phases 3&4, these cards are used for accounting purposes and will be sent to the Digital Accounting Office.

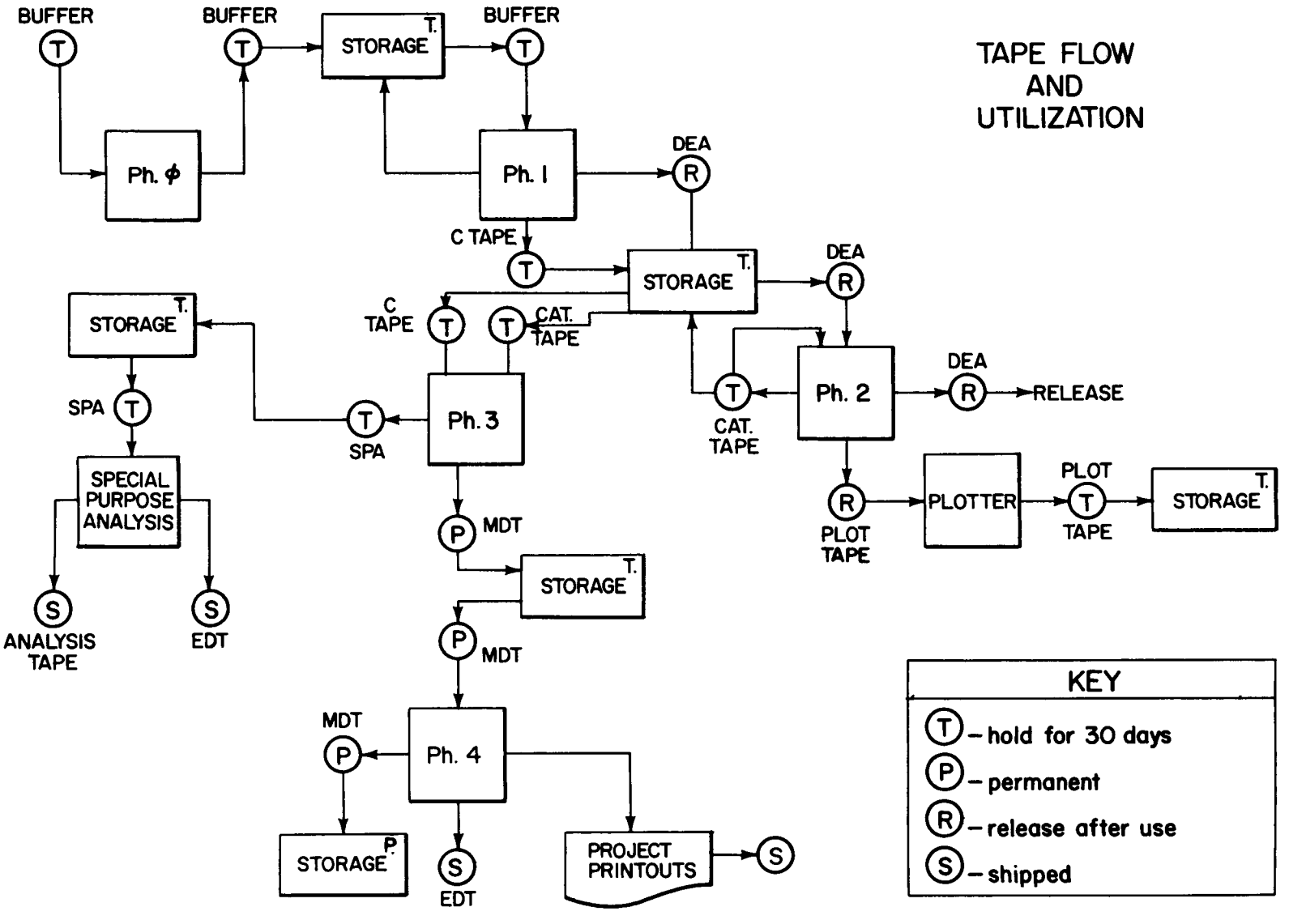


Figure VI-1 – Tape Flow and Utilization

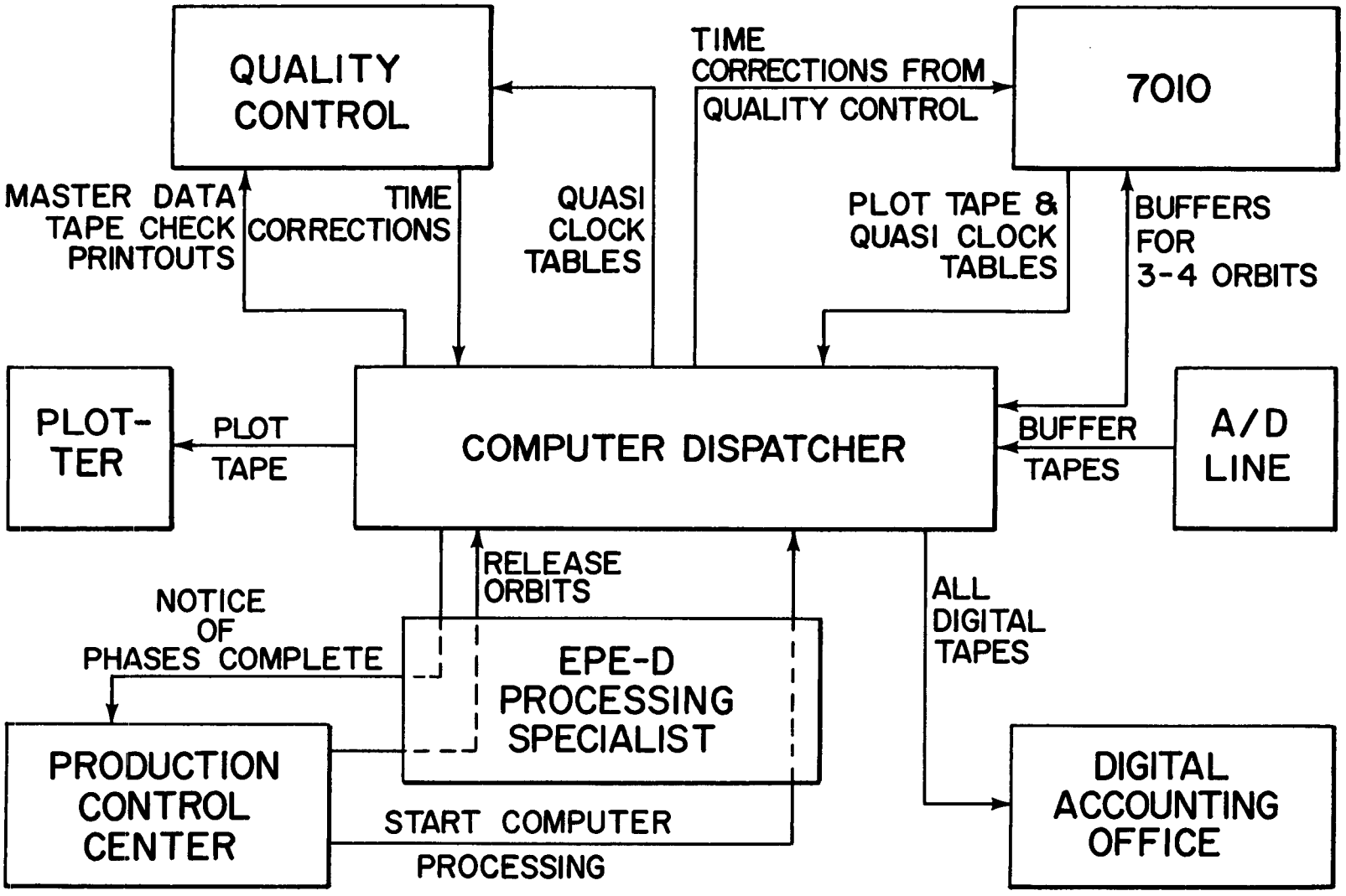


Figure VI-2 – Computer Dispatcher Functional Diagram

TABLE VI-3

TAPE FLOW AND UTILIZATION

INPUT	PHASE	OUTPUT	ACTION
Program	ϕ	Program	Permanent in Computer Room
Buffer		Buffer	Input to Phase 1
Program	1	Program	Permanent in Computer Room
Buffer		Buffer	Temporary storage
		C Tape	Input to Phase 3
		DEA Tape	Input to Phase 2
Program	2	Program	Permanent in Computer Room
DEA (Catalog)		Catalog	Input to Phase 2 or 3
		Plot Tape	To Plotter then Temporary Storage
		DEA	Release
Program	3	Program	Permanent in Computer Room
Catalog Tape		Master Data Tape	Input Phase 4
		Special Analog	Hold for input to Special Analog program
		C Tapes & Catalog	To temporary storage
Program	4	Program	Permanent in Computer Room
Master Data Tape		Master Data Tape	Temporary storage
		Experimenters Data Tape (1-4)	Digital Accounting Office for shipment
Program	SPA	Program	Permanent in Computer Room
Special Analog		Special Analog	Temporary storage
		Experimenters Data Tape (5)	Digital Accounting Office for shipment
		Special Purpose Analysis	Temporary Storage

Figure VI-3 – Table of Tape Flow and Utilization

EPE-D DATA PROCESSING PLAN

TECHNICAL DESCRIPTION

VOLUME II

VII – QUALITY CONTROL

EPE-D Data Processing Engineer	Marc Jay Selig
Head, Signal Processing Section	R. J. Pauly
EPE-D Processing Specialist	Hubert Hinton
Quality Control	G. R. Stonesifer

QUALITY CONTROL

It is the objective of this group (Figure VII-1) to insure that the files are outputted in chronological order and that the files needing time corrections have the appropriate value added to the entire file.

The first time Q.C. will handle the data during normal processing will be to check for vast errors as depicted in the printouts of Phase 1, (Figures V-7 & V-8).

1. If the "Percent Good Points" is below 80% and the "Frame Count" is very erratic (i.e., not reading 240 frames/Quasi Clock) then the file shall be rejected. This deletion shall be done by placing an "R" in the appropriate column of the Catalog Correction Card (Figure V-12). (This will be qualified after launch as experience is gained.)

2. Major time errors shall be corrected using the Catalog Correction Card (Figure V-12). These corrections will only affect "Day Count".

If no deletions or corrections are required, the Production Control Center shall be notified to proceed with processing.

The next output which will be checked are the printout and plot generated by Phase 2 (Figures V-10 & V-11).

1. Time corrections will be made where the errors exceed 50 milliseconds.

2. Files with internal time discrepancies or improper clock steps will be rejected.

3. These corrections or deletions shall be accomplished by the use of the Catalog Correction Cards covering the appropriate files (see Figure V-12).

If it is found that more than 10% of the available files for the group of orbits (4 orbits approximately 30 tapes) have been rejected for one reason or another, then the group shall be held while all of the rejected files are reprocessed.

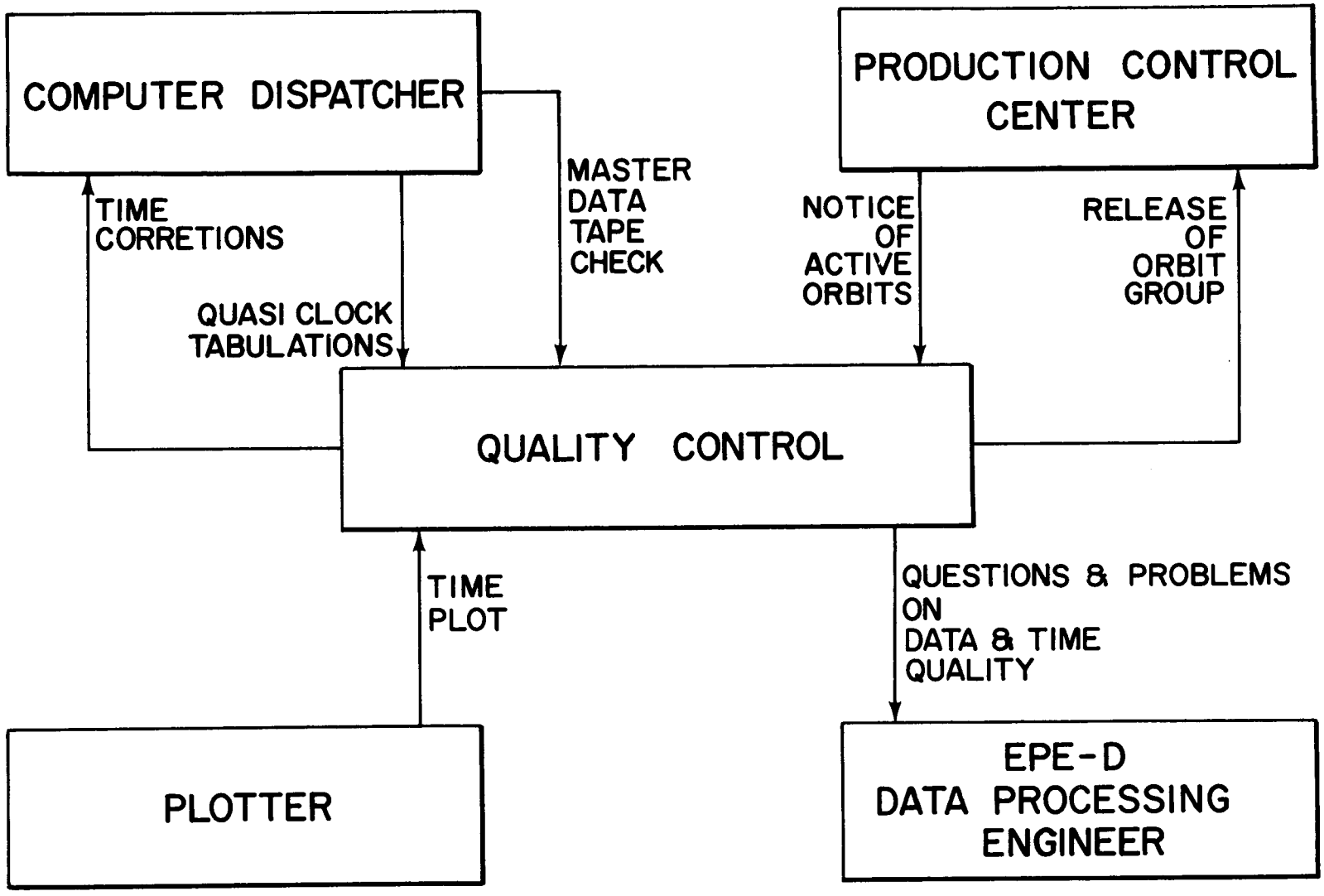


Figure VII-1 – Quality Control Functional Diagram

When these files are redigitized they will be reinputted to the processing program and Q.C. will recheck them. If any of these files are again rejected, they will be set aside and the group will be inputted to Phase 3 and the processing continued to completion.

The next output, Phase 3 (Figure V-14), will be inputted to Q.C. where a check will be made of the file times to insure that all of the files have been operated on correctly and that they are in the correct sequence to give a chronological experimenter tape.

The final step prior to release will be the checking of the experimenter tape to insure inclusion of all of the files. If all present when compared to the Phase 3 output, then Q.C. will notify P.C.C. to release the orbit group.

QUICK LOOK PROCESSING

The Q.L. processing will require Quality Control to check all phases at the conclusion of all the phases to insure that there is data being sent to the experimenter which will be of some use to him.