#270

MARINER 9

SEDR TV

71-051A-04K

SEDR PICTURE AND ENHANCEMENT

71-051A-04T

2 tapes

MARINER 9

PICTURE + ENHANCEMENT DATA TAPE

71-051A-04T

THIS DATA SET HAS BEEN RESTORED. IT ORIGINALLY CONTAINED ONE 7-TRACK, 556 BPI TAPE WRITTEN IN BCD. THERE IS ONE RESTORED TAPE WRITTEN IN EBCDIC. THERE IS BINARY DATA MIXED IN WITH THE EBCDIC DATA AND SO THE YEAR CANNOT BE VERIFIED. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGINAL TAPE WAS CREATED ON AN IBM 360 COMPUTER AND WAS RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBER AND TIME SPAN IS AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR005403	DS005403	D012867	1	10/09/71 - 10/17/72 (a)

(a) D012867 - 2 ERRORS, REC. 1298, 1845, FILE 1

REQ. AGENT	RAND NO.	ACQ. AGENT
ROP	RB4827	WSC

MARINER 9

SEDR TV

71-051A-04K

SEDR PICTURE & ENHANCEMENT

71-051A-04T

This data set contains 2 Mariner 9 tapes. They are 556 BPI, binary, 7-track, and were created on an IBM 360 computer. Each tape contains one file of data.

71-051A-04K

D#	C#	TIME SPAN
D-12866	C-11320	11/12/71 - 10/18/72

71-051A-04T

D#	C#	TIME SPAN
D-12867	C-11381	10/09/71 - 10/17/72

JET PROPULSION LABORATORY California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103

27 July 1973

Ref: 824-IPL/CRH:amk-73-223

Mr. Kenneth Michlovitz
Data Acquisition and Analysis Branch
Code 601
National Space Science Distribution Center
Goddard Space Flight Center
Greenbelt, Maryland 20771

Dear Ken:

This is to advise you we are shipping today under separate cover the items listed per attachment (3 pages).

Note that pages 2 and 3 of the attachment offer a description of the recording characteristics and record structure of items 1 and 2.

Sincerely,

Carl R. Heinzen

Carl R. Heinzen
Science Data Library

Attachment

MARINER 71 DATA FOR NSSDC

The following items are enclosed in this package:

1. Copy of final Television Supplementary Experimenter Data Record (TVSEDR) tape "MM71TV."

2. Copy of final Picture and Enhancement Catalog tape "MM71PE."

3. A description of the recording characteristics and record structure for the tapes "MM71TV" and "MM71PE."

4. MARKIV File Definition decks and listings for:

   A. TV-IND to read "MM71TV."

   B. PICTURE to read "MM71PE."

5. MARKIV request decks and listings for:

   A. TV-104 - Produces listings of TV pictures sorted by Latitude and Longitude (reads "MM71TV").

   B. IPLENCAT - Produces IPL Enhancement Catalog (reads "MM71PE").

   C. MTVSCAT - Produces Mariner 71 TV-Picture Catalog (reads "MM71PE").

6. Copy of final "LIBSET SEDR for TVS," Rev 1 to Rev 676. Pre-orbital data has not changed so is not included in this package.

M. Martin
7/20/73

RECORDING CHARACTERISTICS AND RECORD STRUCTURE

FINAL SEDR

1. "MM71TV" (TVSEDR Tape).

   Recording Characteristics -9~~7~~-track, ~~556~~ 6250 BPI, TRTCH=C, LABEL=(1,BLP).

   Record Format - Fixed-length unblocked.

   Record Length - 508 bytes.

   No. of Records - 83-pre-orbital.
   7296-Rev 1 to Rev 676
   7379-Total records.

   Record Structure - See MARKIV File Definition "TV-IND."

2. "MM71PE" (Picture and ENhancement Tape).

   Recording Characteristics -9~~7~~-track, ~~556~~ 6250 BPI, TRTCH=C, LABEL=(1,BLP).

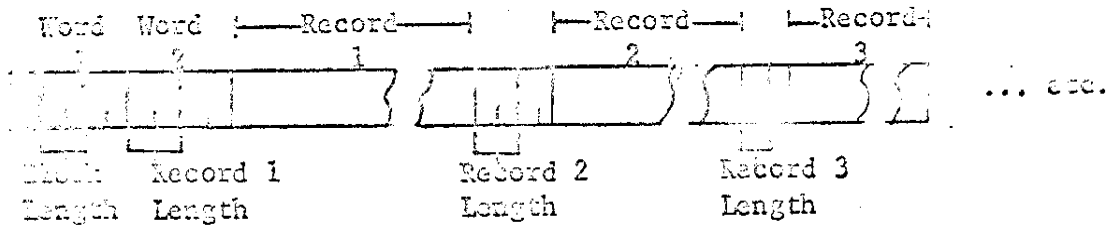
   Record Format - Variable blocked.

   Record Length - Maximum blocksize of 4000 bytes.

   No. of Records - 20 - dummy records (DAS less than or equal to 200)
   7613 - pre-orbital - Rev 676

   Record Structure -

The Picture File consists of variable length blocked records. The maximum block size is 4000 bytes. Blocklength is contained in the first two bytes of each block. The first two bytes of the second word contains the record length of the first record:



Each record is divided into three sections:

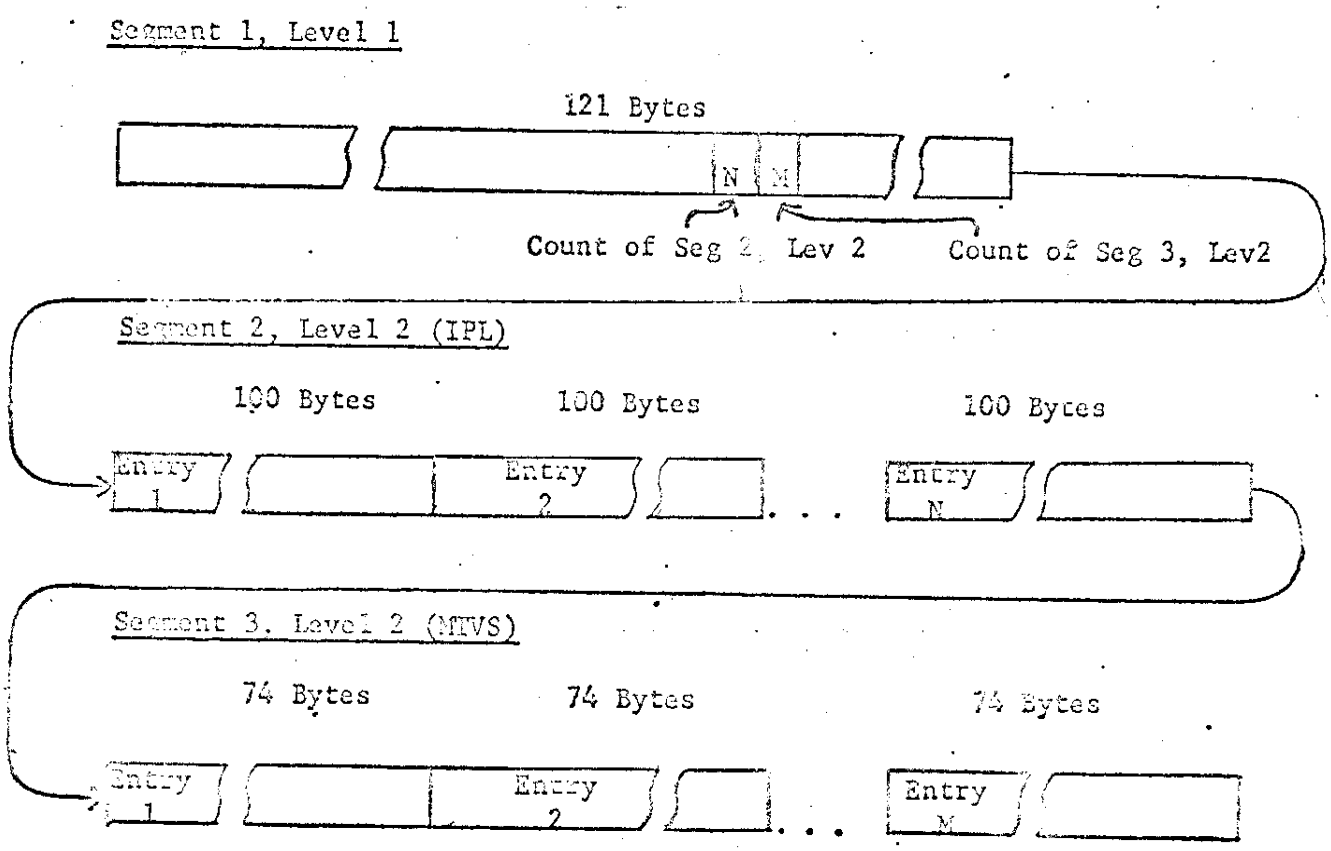
1. Segment 1, Level 1 - Always Occurs.
2. Segment 2, Level 2 - Variable.
3. Segment 3, Level 2 - Variable.

Segment 1, Level 1 occurs one time for every picture and has a fixed length [illegible] bytes. Two of the fields it contains, IPLCOUNT and MINCOUNT, reflect the number of entries in Segment 2, Level 2 and Segment 3, Level 2, respectively.

[illegible], Level 2, contains entries which reflect the number and [illegible] of a picture by the Image Processing Laboratory. Each entry has a fixed length of 100 bytes.

Segment 3, Level 2 contains entries which reflect the number and type of MTVS frames on which a picture exists (usually 3 or 4). Each entry has a fixed length of 74 bytes.

Individual records look like this:



DETAILED GLOSSARY BY LOCATION FOR
FILE DEFINITION - [illegible] IND

12/12/72

[illegible] FILE = 1
[illegible] IN FILE = 164

RECORD FORMAT = FIXED UNBLOCKED
RECORD SIZE = 508
BLOCK SIZE = 508

****
* SEGMENT 1, LEVEL 1 *
****

SEGMENT OCCURRENCE TIMES = 1
SEGMENT SIZE = 508
NUMBER OF FIELDS IN SEGMENT = 164

KEY FIELD 1 = DAS TIME TYPE = F LENGTH = 4

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
MEAS ID	C	1	6				6	6		
STRINGA	C	1	16				16	16		
SPACER	C	5	2				2	2		
INST NUM	F	7	1				4	4		
MTYR	F	8	2				7	7		
MTDAY	F	10	2				7	7		
MTHR	F	12	1				4	4		
MTMIN	F	13	1				4	4		
MTSEC	F	14	1				4	4		
MTMIL	F	15	2				7	7		
DAS	F	17	4				14	14		
DAS TIME	F	17	4				1[illegible]	14		
STRINGB	C	21	27				27	27		
ERTYR	F	21	2				7	7		
ERTDAY		23	2				7	7		
ERTHR	F	25	1				4	4		
[illegible]	F	[illegible]	1				4	4		
[illegible]	F	27	1				4	4		
[illegible]	F	[illegible]					7	7		

FIELD ID	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
TAP	F	30	3				10	10		
S/C ID	C	33	4				4	4		
[illegible]	F	37	2				7	7		
USN	C	39	6				6	6		
DODSYS	F	45	2				7	7		
DODSHD	F	47	1				4	4		
DAS SEP	F	47	1				4	4		
DAS-ELT	F	48	4				14	14		
HDR NUM	C	52	12				12	12		
CUPTID	C	52	14				14	14		
PON	C	52	3				3	3		
STRINGC	C	52	224				224	224		
CAMERA	C	52	1				1	1		
PIXCOUNT	C	56	2				2	2		
REVPIX	C	58	2				2	2		
DSPLN	C	60	1				1	1		
ZERO	C	61	1				1	1		
COMPOUNT	C	62	4				4	4		
EDR NUM	C	64	12				12	12		
S/C ALT	F	76	3				10	10		
[illegible]	F	79	3	2			7	7		
[illegible]	F	82	3	2			7	7		
[illegible]	F	85	3	2			7	7		
[illegible]	F	[illegible]	1				4	4		
[illegible]	[illegible]	[illegible]	3	2			7	7		

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
S/C-IV	P	92	2	1			5	5		
S/C-NV	P	94	2	1			5	5		
SLAR-5	P	96	3	2			7	7		
SLAR-1	P	99	3	2			7	7		
SLAR-3	P	102	3	2			7	7		
SLAR-7	P	105	3	2			7	7		
SLAR-9	P	108	3	2			7	7		
PAR-5	P	111	3	2			7	7		
PAR-1	P	114	3	2			7	7		
PAR-3	P	117	3	2			7	7		
PAR-7	P	120	3	2			7	7		
PAR-9	P	123	3	2			7	7		
VAR-5	P	126	3	2			7	7		
VAR-1	P	129	3	2			7	7		
VAR-3	P	132	3	2			7	7		
VAR-7	P	135	3	2			7	7		
VAR-9	P	138	3	2			7	7		
TRF	F	141	1				4	4		
LR-5	P	142	3	2			7	7		
LR-1	P	145	3	2			7	7		
LR-3	P	148	3	2			7	7		
LR-7	P	151	3	2			7	7		
LR-9	P	154	3	2			7	7		
LWR-9	P	157	3	2			7	7		
LGR-1	P	160	3	2			7	7		

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
[illegible]-3	F	163	3	2			7	7		
[illegible]-7	P	166	3	2			7	7		
[illegible]-9	P	169	3	2			7	7		
[illegible]-5	F	172	3				10	10		
SKR-1	F	175	3				10	10		
SKR-3	F	178	3				10	10		
SKR-7	F	181	3				10	10		
SKR-9	F	184	3				10	10		
LCIP-5	F	187	1				4	4		
ADX	F	188	3				10	10		
SLP	F	191	3				10	10		
SFD	F	194	3				10	10		
ASD	F	197	2	1			5	5		
XT	P	199	3	2			7	7		
GMAP	P	202	2				4	4		
SLAT	P	204	2				4	4		
SLON	P	206	2				4	4		
STP	P	208	2				4	4		
PMAG	F	210	3				10	10		
ZLAT	P	213	3	2			7	7		
ZLON	P	216	3	2			7	7		
SS1	P	219	3	2			7	7		
SS12	P	222	3	2			7	7		
SS2	P	225	3	2			7	7		
SS22	P	228	3	2			7	7		

DETAILED GLOSSARY BY LOCATION FOR
FILE DEFINITION - T[illegible]ND
SEGMENT 1, LEVEL 1 (C[illegible]FINUED)

12/12/72

[illegible]	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
[illegible]	P	[illegible]	4	2			10	10		
PPS1	P	235	4	2			10	10		
PPS3	P	239	4	2			10	10		
PPS[illegible]	P	243	4	2			10	10		
PPS9	P	247	4	2			10	10		
PDEC5	P	251	3	2			7	7		
PRA5	P	254	3	2			7	7		
[illegible]	P	257	3	2			7	7		
SUNAN	P	260	2				4	4		
SPANG	P	262	2				4	4		
SMPSV	P	264	2				4	4		
[illegible]	P	266	3	2			7	7		
[illegible]	F	[illegible]	3				10	10		
LATL	P	272	3	2			7	7		
LATR	P	275	3	2			7	7		
STRINGD	C	276	91				91	91		
LATC	P	278	3	2			7	7		
LONR	P	281	3	2			7	7		
LONL	P	284	3	2			7	7		
LONC	P	287	3	2			7	7		
NORAN	P	290	2				4	4		
SPLU5	P	292	2				4	4		
SSLU5	P	294	2				4	4		
[illegible]	P	296	2				4	4		
[illegible]	[illegible]	298	3				10	10		

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
[illegible]	F	301	3				10	10		
[illegible]	P	304	2				4	4		
[illegible]	P	306	2				4	4		
FIL ID	F	308	1				4	4		
FIL MODE	F	309	1				4	4		
EI	F	310	1				4	4		
EM	F	311	1				4	4		
CAM ID	F	312	1				4	4		
PICT ID	F	313	1				4	4		
LINES	F	314	2				7	7		
APV	F	316	1				4	4		
VT	F	317	2				7	7		
VR1	P	319	4	2			10	10		
VR2	P	323	4	2			10	10		
VR3	P	327	4	2			10	10		
C11	P	331	4	6			9	9		
C12	P	335	4	6			9	9		
C13	P	339	4	6			9	9		
C21	P	343	4	6			9	9		
C22	P	347	4	6			9	9		
C23	P	351	4	6			9	9		
C31	P	355	4	6			9	9		
[illegible]		359	4	6			9	9		
[illegible]	P	363	4	6			9	9		
[illegible]	P	367	4	[illegible]			9	9		

DETAILED GLOSSARY BY LOCATION FOR
FILE DEFINITION - TV-IND
SEGMENT 1, LEVEL 1 (CONTINUED)

12/12/72

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
STRINGE	C	367	60				60	60		
ISLON	P	371	4	4			9	9		
INORAN	P	375	4	4			9	9		
LR-2	P	379	3	2			7	7		
LOR-2	P	382	3	2			7	7		
LR-4	P	385	3	2			7	7		
LOR-4	P	388	3	2			7	7		
LR-6	P	391	3	2			7	7		
LOR-6	P	394	3	2			7	7		
LR-8	P	397	3	2			7	7		
LOR-8	P	400	3	2			7	7		
QST	P	403	4	4			9	9		
QLAT	P	407	4	4			9	9		
QLON	P	411	4	4			9	9		
ISRR-5	F	415	4	2			14	14		
SRR-Q	F	419	4	2			14	14		
[illegible]	P	423	4	4			9	9		
RTID	C	427	20				20	20		
[illegible]	C	427	82				82	82		
[illegible]	C	447	62				62	62		

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DESCRIPTION
MEAS ID	C	1	4	Measurement ID
SPACER	C	5	2	Spacer
INST NUM	F	7	1	Instrument Number
MTYR	F	8	2	Measurement time, year
MTDAY	F	10	2	Measurement time, day of year
MTHR	F	12	1	Measurement time, hour of day
MTMIN	F	13	1	Measurement time, minute of hour
MTSEC	F	14	1	Measurement time, sec of min
MTMIL	F	15	2	Measurement time, milleseconds
DAS TIME	F	17	4	Das time of measurement
ERTYR	F	21	2	Earth received [illegible] year
ERTDAY	F	23	2	Earth received [illegible] day
ERTHR	[illegible]	25	1	Earth received [illegible] hour
ERTMIN	F	26	[illegible]	Earth received [illegible] min [illegible] hour
ERTSEC	F	27	1	Earth received [illegible] sec [illegible]
ERTMIL	F	28	2	Earth received [illegible]
TBP	F	30	3	Time from perigeis, sec [illegible]
S/C ID	C	33	4	Spacecraft ID
ON[illegible]	F	37	2	Orbit number
OSN	C	39	6	Orbit solution number
DODSYR	F	45	2	Date of solution year
DODS[illegible]	F	47	1	[illegible] of solution [illegible]
[illegible]	I	48	4	[illegible]
[illegible]	C	52	12	[illegible]
[illegible]	[illegible]	64	12	[illegible]
S/C [illegible]	[illegible]	[illegible]	3	Spacecraft [illegible]

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DESCRIPTION
SP-CL-A	P	79	3	Scan platform clock, angle, deg.
SP-CO-A	P	82	3	Scan platform cone, angle, deg.
SP-T-A	P	85	3	Scan platform twist, angle, deg.
SP-IMF[1]	F	88	1	Scan platform in motion flag
S/C TA	P	89	3	Spacecraft true, anomaly, deg.
S/C TV	P	92	2	Spacecraft tangential velocity KM/SEC
S/C RV	P	94	2	Spacecraft radial velocity KM/SEC
SLAR-5	P	96	3	Solar lighting angle for reticle 5
SLAR-1	P	99	3	Light (1)
SLAR-3	P	102	3	Light (3)
SLAR-7	P	105	3	Light (7)
SLAR-9	P	108	3	Light (9)
PAR-5	P	111	3	Phase angle for reticle 5
PAR-1	P	114	3	Phase (1)
PAR-3	P	117	3	Phase (3)
PAR-7	P	120	3	Phase (7)
PAR-9	P	123	3	Phase (9)
VAR-5	P	126	3	Viewing angle for reticle 5
VAR-1	P	129	3	View (1)
VAR-3	P	132	3	View (3)
VAR-7	P	135	3	View (7)
VAR-9	P	138	3	View (9)
TRF[2]	F	141	1	Telemetry received flag
LR-5	P	142	3	Latitude or reticle 5
LR-1	P	145	3	Plat (1)
LR-3	P	148	3	Plat (3)
LR-7	P	151	3	Plat (7)
LR-9	P	154	3	Plat (9)

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DESCRIPTION
LOR-5	P	157	3	Longitude of reticle 5
LOR-1	P	160	3	Plon (1)
LOR-3	P	163	3	Plon (3)
LOR-7	P	166	3	Plon (7)
LOR-9	P	169	3	Plon (9)
SRR-5	F	172	3	Slant range to reticle 5, KM
SRR-1	F	175	3	SRP (1)
SRR-3	F	178	3	SRP (3)
SRR-7	F	181	3	SRP (7)
SRR-9	F	184	3	SRP (9)
LCFR-5[7]	F	187	1	Limp crossing flag for reticle 5
AOA	F	188	3	Altitude of optic axis, KM
SRP	F	191	3	Slant range to phobos, KM
SRD	F	194	3	Slant range to deimos, KM
ASD	P	197	2	Angular semi-diameter of mars
XI	P	199	3	Osculating inclination
GMAP	P	202	2	Spacecraft path angle
SLAT	P	204	2	Spacecraft latitude
SLON	P	206	2	Spacecraft longitude
STP	P	208	2	Angle at center of mars between los and R
RMAG	F	210	3	Radial distance to center mars, KM
ZLAT	P	213	3	Latitude of sub solar point
ZLON	P	216	3	Longitude of sub solar point
SS1	P	219	3	Shadow coordinate of phobos, latitude
SS12	P	222	3	Shadow coordinate of phobos, longitude
SS2	P	225	3	Shadow coordinate of deimos, latitude
SS22	P	228	3	Shadow coordinate of deimos, longitude
PPS5	P	231	4	Projected size of LMM at reticle 5

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DESCRIPTION
PPS1	P	235	4	Projected size of LMM at reticle 1
PPS3	P	239	4	Projected size of LMM at reticle [illegible]
PPS7	P	243	4	Projected size of LMM at reticle 7
PPS9	P	247	4	Projected size of LMM at reticle 9
PDEC5	P	251	3	Declination of reticle 5
PRA5	P	254	3	Right ascension of reticle 5
MHA	P	257	3	Martian local time of reticle 5, hours
SUNAN	P	260	2	Sun direction in image, deg.
SPANG	P	262	2	Angle at planet between sun and LOS intercept
SHPSV	P	264	2	Tilt azimuth, deg.
ALPHA	P	266	3	Angle at los with item 90 above
RL	F	269	3	Range to nearest limb
LATL	P	272	3	Latitude of left limb extreme
LATR	P	275	3	Latitude of right limb extreme
LATC	P	278	3	Latitude of center of limb
LONR	P	281	3	Longitude of right limb extreme
LONL	P	284	3	Longitude of left limb extreme
LONC	P	287	3	Longitude of center of limb
NORAN	P	290	2	Direction of north in image, deg.
SPLO5	P	292	2	Angle in picture frame between sub spacecraft point and frame axis at LOS
SSLO5	P	294	2	Angle in picture frame between sub solar point and frame axis at LOS
PST05	P	296	2	Angle at spacecraft between LOS and R
PP1333H	F	298	3	Projected picture size between reticles 3 and 5, KM
PP1355W	F	301	3	Projected picture size between reticles 1 and 3, KM
MDEG	P	304	2	Martian date, month
MDAY	P	306	2	Martian date, day

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DESCRIPTION
FIL ID[3]	F	308	1	Filter ID, DN
FIL MODE[3]	F	309	1	Filter mode
EI[3]	F	310	1	Exposure interval, DN
EM[3]	F	311	1	Exposure mode
CAM ID[3]	F	312	1	Camera ID
PICT ID[3]	F	313	1	Picture ID
LINES[3]	F	314	2	Number of lines in picture
APV[3]	F	316	1	Average pixel value
VT	F	317	2	Vidicon temperature, DN
VR1	P	319	4	Position vector (VRX)
VR2	P	323	4	VRY
VR3	P	327	4	VRZ
C11	P	331	4	Unit vector in cone direction of Scan platform - C1(1)
C12	P	335	4	C1(2)
C13	P	339	4	C1(3)
C21	P	343	4	Unit vector in crosscone direction of scan platform - C2(1)
C22	P	347	4	C2(2)
C23	P	351	4	C2(3)
C31	P	355	4	Unit vector in LOS direction - C3(1)
C32	P	359	4	C3(2)
C33	P	363	4	C3(3)
ISLAT	P	367	4	Spacecraft latitude
ISLON	P	371	4	Spacecraft longitude
INORAN	P	375	4	Direction of north in image plane
LR-2	P	379	3	Latitude of reticle 2 - Plane [illegible]
LOR-2	P	382	3	Longitude of reticle 2 - Plane [illegible]
LR-4	P	385	3	Plane [illegible]

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DESCRIPTION
LOR-4	P	388	3	Plong (4)
LR-6	P	391	3	Plat (6)
LOR-6	P	394	3	Plong (6)
LR-8	P	397	3	Plat (8)
LOR-8	P	400	3	Plong (8)
QST	P	403	4	Angle at spacecraft between vidicon normal (Q-10) and P
QLAT	P	407	4	Latitude of Q-10
QLON	P	411	4	Longitude of Q-10
SRR-5	F	415	4	Slant range to reticle 5, KM
SRR-Q	F	419	4	Slant range to Q-10, KM
QANG	P	423	4	Clockwise angle from line through reticles 5 and 6 to line through sub spacecraft point and Q-10
PIID	C	427	20	Comments
RAA1	C	447	62	Comments

Field Type

C = Character String

P = Packed Decimal (first digit = field size, second digit = decimal places)

F = Fixed Point (two's complement binary format)

. = Floating Point

September 8, 1972

G. Holmlund

TVS INDEX-RECORD FORMAT

FOR BCD SEDR TAPES

Record length = 1076 characters (6-bit)

Tape character code: IBM binary coded decimal (BCD). Numeric data have sign and decimal point (if required) explicitly stated. Data are right justified.

Field No.	Field Length	Contents	Decimal Precision	POGAGIS Name/Notes
1	6	Measurement ID	-	"TV*A" or "TV*B"
2	6	Measurement time, year	0	
3	6	Measurement time, day of year	0	
4	4	Measurement time, hour of day	0	
5	4	Measurement time, minute of hour	0	
6	4	Measurement time, sec of minute	0	
7	6	Measurement time milliseconds	0	

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
8	11	DAS TIME of measurement	0	
9	6	Earth received time, year	0	"71" or "72"
10	6	ERT, day of year	0	ERT from telemetry
11	4	ERT, hour of day	0	
12	4	ERT, minute of hour	0	
13	4	ERT, second of minute	0	
14	6	ERT, milliseconds	0	
15	8	Time from periapsis, seconds	0	TMFRMP
16	4	Spacecraft ID	0	"75"
17	4	DAS serial number	0	"0"
18	4	Orbit number	0	Set to zero for preorbital science
19	6	Orbit solution number	-	Alpha-numeric
20	6	Date of solution, year	-	Not implemented
21	4	Date of solution, month	-	Not implemented
22	11	DAS TIME of picture, line 1	0	"0" when picture not received
23	12	MDR reel number	-	Not implemented

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
24	12	EDR reel number	-	Not implemented
25	8	Spacecraft altitude, km	0	HSC
26	7	Scan platform clock, angle, deg	0	KA
27	7	Scan platform cone, angle, deg	0	CA
28	7	Scan platform twist, angle, deg	0	TWA
29	4	Scan platform in, motion flag	0	See note 1
30	7	Spacecraft true, anomaly, deg	2	TA
31	5	Spacecraft tangential velocity, km/sec	1	VTMAG
32	5	Spacecraft radial velocity, km/sec	1	VRMAG
33	7	Solar lighting angle for reticile 1	2	LIGHT (1)
34	7	LIGHT (3)	2	
35	7	LIGHT (5)	2	

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
36	7	LIGHT (7)	2	
37	7	LIGHT (9)	2	
38	7	Phase angle for reticle 1	2	PHA(1)
39	7	PHA(3)	2	
40	7	PHA(5)	2	
41	7	PHA(7)	2	
42	7	PHA(9)	2	
43	7	Viewing angle for reticle 1	2	VIEW(1)
44	7	VIEW(3)	2	
45	7	VIEW(5)	2	
46	7	VIEW(7)	2	
47	7	VIEW(9)	2	
48	4	Telemetry received flag	0	See note 2
49	7	Latitude of reticle 1	2	PLAT(1)
50	7	PLAT(3)	2	
51	7	PLAT(5)	2	
52	7	PLAT(7)	2	
53	7	PLAT(9)	2	

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
54	7	Longitude of reticle 1	2	PLON(1)
55	7	PLON(3)	2	
56	7	PLON(5)	2	
57	7	PLON(7)	2	
58	7	PLON(9)	2	
59	8	Slant range to reticle 1, km	0	SRP(1)
60	8	SRP(3)	0	
61	8	SRP(5)	0	
62	8	SRP(7)	0	
63	8	SRP(9)	0	
64	4	Limb crossing flag for reticle 5	0	"0"=on planet "1"=off planet
65	9	Altitude of optic axis, km	0	ALTPN(5)
66	8	Slant range to Phobos, km	0	SMOON1
67	8	Slant range to Deimos, km	0	SMOON2

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
68	5	Angular semi-diameter of Mars	1	ASDT
69	7	Osculating inclination	2	XI
70	4	Spacecraft path angle	0	GMAP
71	4	Spacecraft latitude	0	SLAT
72	4	Spacecraft longitude	0	SLON
73	4	Angle at center of Mars between LOS and R	0	STP(5)
74	8	Radial distance to center Mars, km	0	RMAG
75	7	Latitude of subsolar point	2	ZLAT
76	7	Longitude of subsolar point	2	ZLON
77	7	Shadow coordinate of Phobos, latitude	2	MSHLA(1)
78	7	Shadow coordinate of Phobos, longitude	2	MSHLO(1)
79	7	Shadow coordinate of Deimos, latitude	2	MSHLA(2)

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
80	7	Shadow coordinate of Deimos, lognitude	2	MSHLO(2)
81	10	Projected size of 1mm at reticle 1, km	2	AXX1
82	10	Projected size of 1mm at reticle 3, km	2	AXX3
83	10	Projected size of 1 mm at reticle 5, km	2	AXX5
84	10	Projected size of 1mm at reticle 7, km	2	AXX7
85	10	Projected size of 1mm at reticle 9, km	2	AXX9
86	7	Declination of reticle 5	2	PDEC(5)
87	7	Right ascension of reticle 5	2	PRA(5)
88	7	Martian local time of reticle 5, hours	2	LT
89	4	Sun direction in image, deg	0	SUNAN
90	4	Angle at planet between sun and LOS intercept	0	PHA(5)

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
91	4	Angle at LOS with item 90 above	0	AZPHA
92	7	Tilt Azimuth, deg	2	SHPSV
93	8	Range to nearest limb	0	RLTP
94	7	Latitude of left limb extreme	2	RLTP
95	7	Latitude of right limb extreme	2	LATLI(3)
96	7	Latitude of center of limb	2	LATLI(2)
97	7	Longitude of left limb extreme	2	LONLI(1)
98	7	Longitude of right limb extreme	2	LONLI(3)
99	7	Longitude of center of limb	2	LONLI(2)
100	4	Direction of north in image, deg	0	NORAN
101	4	Angle in picture frame between subspacecraft point and frame axis at LOS	0	SPANG
102	4	Angle in picture frame between subsolar point and frame axis at LOS	0	SUNAN

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
103	4	Angle at spacecraft between LOS and R	0	PST(5)
104	8	Projected picture size between reticles 3 and 9, km	0	DIS(3) + DIS(4)
105	8	Projected picture size between reticles 1 and 3, km	0	DIS(1) + DIS(2)
106	4	Martian Date, month	-	Not implemented
107	4	Martian Date, day	-	Not implemented
108	4	Filter ID, DN	0	From telemetry*
109	4	Filter mode	0	From telemetry*
110	4	Exposure interval, DN	0	From telemetry*
111	4	Exposure mode	0	From telemetry*
112	4	Camera ID	0	From telemetry*
113	4	Picture ID	0	From telemetry*
114	7	Number of lines in picture	0	From telemetry*
115	4	Average pixel value	0	From telemetry*
116	7	Vidicon temperature, DN	0	From telemetry*

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
117	20	Mariner 9 TV picture code	-	From TV Team+
118	60	Comments	-	From TV Team+
119	10	Position vector	2	VRX
120	10	VRY	2	
121	10	VRZ	2	
122	9	Unit vector in cone direction of scan platform	6	C1(1)
123	9	C1(2)	6	
124	9	C1(3)	6	
125	9	Unit vector in cross-cone direction of scan platform	6	C2(1)
126	9	C2(2)	6	

*See note 3
+See note 4

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
127	9	C2(3)	6	
128	9	Unit vector in LOS direction	6	C3(1)
129	9	C3(2)	6	
130	9	C3(3)	6	
131	9	Spacecraft latitude	4	SLAT
132	9	Spacecraft longitude	4	SLON
133	9	Direction of north in image plane	4	NORAN
134	7	Latitude of reticle 2	2	PLAT(2)
135	7	Longitude of reticle 2	2	PLON(2)
136	7	PLAT(4)	2	
137	7	PLON(4)	2	
138	7	PLAT(6)	2	
139	7	PLON(6)	2	
140	7	PLAT(8)	2	
141	7	PLON(8)	2	
142	9	Angle at spacecraft between vidicon normal (Q-10) and R	4	PST(10)

Field No.	Field Length	Contents	Decimal Precision	POGASIS Name/Notes
143	9	Latitude of Q-10	4	PLAT(10)
144	9	Longitude of Q-10	4	PLON(10)
145	10	Slant range to reticle 5, km	2	SRP(5)
146	10	Slant range to Q-10, km	2	SRP(10)
147	9	Clockwise angle from line through reticles 5 and 6 to line through subspacecraft point and Q-10	4	~~PANG(10)~~ NOT IMPLEMENTED

Table 2. TV RDR frame label data description

Quantity	Description	Data source[a]
Picture ID	XXXCNN/TTD, where	
	XXX = orbit number	Hand input via TV SEDR
	C = camera ID (A or B)	TV EDR
	NN = picture number on this orbit	Hand input via TV SEDR
	TT = total number of images on this orbit	Hand input via TV SEDR
	D = discipline group indicator (e.g., this image is of interest to geodesy group)	Hand input via TV SEDR
Year, day, GMT	Year, day and GMT when data were received on the Earth	TV EDR
DAS time	DAS time of start of readout of line 1 of this image (DAS time is simply a numerical count maintained in the spacecraft and which is incremented every 1.2 seconds throughout mission) This is the primary identification used to index and catalog Mariner 9 pictures.	TV EDR → DATA AUTOMATION SUBSYSTEM
Picture number	Cumulative picture count since start of mission	Hand input via TV SEDR
Exp time	Shutter speed for this frame	TV EDR
Filter pos	A camera filter position or * for B camera	TV EDR

[a]Data obtained from the TV EDR originated in the spacecraft or in the ground telemetry processor. Data obtained from the TV SEDR was computed on the ground from raw telemetry data, except for the hand input quantities.

Table 2 (contd)

Quantity	Description	Data source[a]
View zenith angle	Angle between ray from spacecraft to surface and surface normal at center of field of view; deg	TV SEDR
Solar zenith angle	Angle between ray from Sun to surface and surface normal at center of field of view; deg	TV SEDR
Phase angle	Angle between ray from Sun to surface and ray from spacecraft to surface, at center of field of view; deg	TV SEDR
Longitude:		
Center	Longitude on surface at center reseau mark; deg	TV SEDR
Corners	Longitude on surface at corner reseau marks, given in following order: upper left, upper right, lower left, lower right; deg	TV SEDR
Latitude: Center/ corners	Corresponds to longitude data. When latitude-longitude data are missing for a particular reticle mark but other SEDR data are present, it indicates the line of sight through that reticle mark does not intersect the planet surface.	TV SEDR

[a]Data obtained from the TV EDR originated in the spacecraft or in the ground telemetry processor. Data obtained from the TV SEDR was computed on the ground from raw telemetry data, except for the hand input quantities.

71-051A-04T SEDR Picture Enhancement

FIELD NAME	SHORT NAME	FIELD TYPE	DATA TYPE	FIELD SIZE	REPEATABLE	CATEGORY	LEVEL
DAST	DAS time	Single Value	Numeric	~~9~~ 8	1	3	
~~REV~~	~~Revolution number~~	~~Single Value~~	~~Numeric~~	~~3~~	~~1~~	~~4~~	
PIID	Picture Identifier	Single Value	Alphanumeric	14	1		
PIIDA	Orbit number	Single Value	Numeric	3	1		
PIIDB	Camera (A or B)	Single Value	Alphabetic	1	1		
PIIDC	Picture number in revolution	Single Value	Numeric	2	1	1	
PIIDD	Total pictures in orbit	Single Value	Numeric	2	1		
PIIDE	Discipline Code	Single Value	Alphabetic	1	1		
PIIDF	Mission Cumulative picture number	Single Value	Numeric	5	1		
SHUTT	Shutter time (UT)	Single Value	Numeric + (XX/XX/XX/XX/XX.XX) DATE TIME	14	1	3	
SPID	Spacecraft ID	Single Value	Alphanumeric	7	1	4	
FILT	Filter	Single Value	Alphanumeric	13	1	5	
EXPOS	Exposure	Single Value	Numeric (XXXX MS)	4	1	5	
CAM	Camera type	Single Value	Alphabetic (TVS or TVB)	3	1	5	
TFPERI	Tim from Periapsis	Single Value	Numeric + (∓X/XX/XX)	8	1	4	
RMAG	Dist. of SP from center of planet	Single Value	Numeric + (XXXX.XX)	7	1	4	

FIELD NAME	SHORT NAME	FIELD TYPE	DATA TYPE	FIELD SIZE	REPEATABLE	CATEGORY	LEVEL
LOCATI	Local time	Single Value	Alphanumeric (XX.XX Hrs.)	9	1	6	
SPTA	Space Craft true anomaly	Single Value	Numeric + (XX.XX°)	6	1	4	
SUNLAT	Sun latitude	Single Value	Numeric (XXX.XX°)	7	1	4	
SUNLON	Sun longitude	Single Value	Numeric (XXX.XX°)	7	1	4	
SCLAT	Spacecraft latitude	Single Value	Numeric (XXX.XX°)	7	1	4	
SCLON	Spacecraft longitude	Single Value	Numeric (XXX.XX°)	7	1	4	
OLAT	Object latitude	Single Value	Numeric (XXX.XX°)	7	1	6	
OLON	Object longitude	Single Value	Numeric (XXX.XX°)	7	1	6	
NORAN	North direction	Single Value	Numeric (XX.XX)	5	1	6	
SUNAN	Sun direction	Single Value	Numeric + (XXX°)	4	1	6	
SCAN	S/C direction	Single Value	Numeric + (XXX°)	4	1	6	
PICWD	Picture width (Km)	Single Value	Alphanumeric (XX Km)	5	1	6	
PICHT	Picture Height (Km)	Single Value	Alphanumeric (XX Km)	5	1	6	

FIELD NAME	SHORT NAME	FIELD TYPE	DATA TYPE	FIELD SIZE	REPEATABLE	CATEGORY	LEVEL
PIXELS	Projected Pixel size	Single Value	Alphanumeric (X.XXX Km)	8	1	6	
LATX	Surface point latitude (reticle X)	Column Vector (fixed length)	Numeric (∓XX.XX)	6	1	7	
LONX	Surface point longitude (reticle X)	Column Vector (fixed length)	Numeric (∓XX.XX)	6	1	7	
VARX	Angle of SC to normal (reticle X)	Column Vector (fixed length)	Numeric (∓XX.XX)	6	1	7	
SLARX	Angle of Sun to normal (reticle X)	Column Vector (fixed length)	Numeric (∓XX.XX)	6	1	7	
PARX	Angle of Sun to S/C (reticle X)	Column Vector (fixed length)	Numeric (∓XX.XX)	6	1	7	
SPPX	Dist of S/C to surface (reticle X)	Column Vector (fixed length)	Numeric (XXXX.XX Km)	9	1	7	

JET PROPULSION LABORATORY

INTEROFFICE MEMO
GLH:296-71-049
22 February 1971

Received 6/7/73
STEVE GUNTHER
213 354-6927

TO: Distribution

FROM: G. L. Holmlund

SUBJECT: Mariner Mars 1971 Supplementary Experimenter Data Records: Nature and Formats

REFERENCES:
1. Software Requirements Document, Mariner Mars 1971, Library Program Set (LIBSET)
2. MIP-71-5-1200, Division Engineering Planning Document, Mariner Mars 1971, Planetary Orbital Geometry and Science Instrument Scan (POGASIS)

This document defines the nature and formats of the Supplementary Experimenter Data Record (SEDR) which will be produced by the Science Data Team during MM'71 mission operations. Specifically it discusses:

1. Function of the SEDR, including an operational definition.
2. Function of SEDR tapes.
3. Data formats for each index-record.
4. Data organization on magnetic tapes.
5. Recording characteristics.
6. User facility considerations.

It is intended that this document will provide the basis from which the users of the SEDR tapes can develop the computer programs they require.

LIBSET is still in development; it is naive to assume that small changes will not be desirable and/or necessary. However, this document provides the structure and formats of the SEDR tapes and only "fine tuning" is anticipated. Gross changes would be necessary only if the information requirements for the SEDR are significantly altered or amended. Much capability exists within the Mark IV system (which extracts information from the LIBSET master file and writes the SEDR tapes) to adapt to format changes or changes in collating sequence, and the greatest impact of gross changes will be upon the SEDR user.

This document will be revised as required and elements of clarification added when necessary.

SUPPLEMENTARY EXPERIMENTER DATA RECORD (SEDR)

The SEDR is an indexed data file containing descriptors that define the environment in which science instrument measurements were made during a given time interval. The descriptors are generated by LIBSET - a collection of computer programs including SCISIM, SPOP, POGASIS and LIBACC.

Characteristics of the SEDR are:

1. SEDR contains very little spacecraft telemetry data.

2. Descriptors are associated (synced) one-to-one with the actual scientific measurements made.

3. The descriptors for a single measurement are organized into one record called an "index-record".

4. The information content of an index-record is different for each science instrument (TV, IRIS, IRR and UVS).

5. For distribution to the users, selected records from the SEDR will be recorded on reels of magnetic tape using the Informatics Mark IV File Management System (a proprietary software package for the System/360).

The following paragraphs briefly discuss the operations involved in producing the SEDR.

The SEDR is the primary output product from LIBSET. The main purpose of LIBSET is to create the indexed master data file containing all the "descriptors" required.

Most of the quantities involved are calculated within LIBSET. A few quantities are obtained directly from the Ø420 and E140 telemetry streams, e.g., UVS F channel gain state and TV vidicon temperature.

The descriptors are, of course, different for each science instrument. The information content is especially tailored to the characteristics of the particular science instrument whose measurements are being described (supplemented).

The LIBSET runs which create the descriptors in the SEDR will utilize the following inputs:

1. Ground Command Master Data Record produced by the Deep Space Network.

2. Ø420 and E140 telemetry data.

3. Refined trajectory information.

- Information defining actual CC&S events aboard the spacecraft.

The Informatics Mark IV File Management System will be used to edit as necessary the data files created by LIBSET to assure the veracity of the file's contents. After editing, the data file for a given time period is merged with the master data file thereby creating an up-to-date master file.

SEDR TAPES

Using the Informatics Mark IV System, information will be selected from the SEDR master file, formatted and then recorded on reels of magnetic tape. A SEDR tape will be a component of each EDR data package. Characteristics of the SEDR tapes include the following:

1. A single SEDR tape contains information only for one spacecraft. (Mission A or Mission B)

2. A single SEDR tape contains only one type of index-record, e.g., TV index-records.

3. Index-records will be sequenced chronologically on the SEDR tapes using "DAS Time".

4. The time interval spanned by the index-records on an SEDR tape will be determined by the time interval spanned by the particular EDR data package. Nominally this will be one day's data.

INDEX-RECORD FORMAT

Each index-record on an SEDR tape contains information which supplements one measurement of one science instrument. In this way the required descriptors are associated (synced) one-to-one with the science data. For example, the values of the descriptors generated for a TV index-record are referenced in time to the end of the exposure of a TV picture which was actually "taken". The descriptors of the other science data (UV spectra, etc.) are referenced and organized similarly. (See Reference 1)

"DAS Time" can be used to correlate telemetry data recorded on the EDR tapes with the SEDR tape records.

The data format of each type of index-record is defined in the appendices of this document as follows:

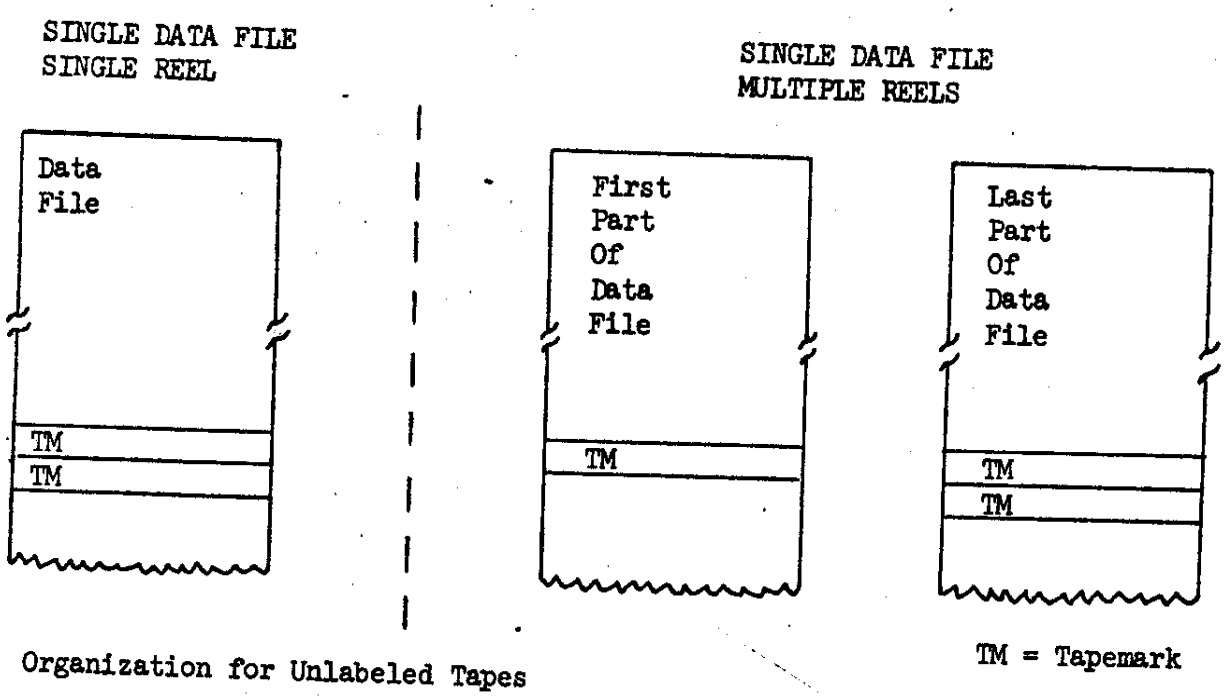
TV Index-record----------Appendix A
IRIS Index-record----------Appendix B
IRR Index-record----------Appendix C
UVS Index-record----------Appendix D

All index-records are fixed length. (System/360 type F or FB)

It is desirable to block the SEDR tape records in order to help minimize I/O time and to conserve recording tape. Blocking factors for each SEDR are in the process of being defined. Blocking factors will be integers.

DATA ORGANIZATION ON MAGNETIC TAPE

The SEDR tapes are generated by an IBM System/360-75 computer. The tapes contain no "header records" and no label information is recorded on the tape. An IBM System/360 unlabeled tape contains only data records and tapemarks. (A tapemark is a special single byte block) The organization of a single data file on one or more reels of tape is shown below:



A tapemark does not precede the data file on any reel.

Two tapemarks follow a data file if it is the last or only data file on the reel.

The SEDR delivered with each EDR data package will be a single data file and may be recorded on multiple tape reels.

External labels will, of course, be affixed to the tape reels to provide visual identification of the reel and its contents.

SUMMARY OF DATA RECORDING CHARACTERISTICS

SEDR	TAPE CHARACTER CODE	PARITY	TAPE TRACKS	DENSITY	BLOCK SIZE*	COMMENT
TV	EBCDIC	Odd	7	800 bpi		Tape written with data converter on
IRIS	EBCDIC	Odd	9	800 bpi		
IRR	EBCDIC	Odd	9	800 bpi		**
UVS	BCD	Even	7	556 cpi	≤ 5120 char.	Tape written with translator on

bpi = 8-bit bytes/inch

cpi = 6 bit characters/inch

All tapes recorded in the NRZ mode
* Blocking factor to be determined.
**If required, a magnetic tape recorded in the BCD mode can be provided.

22 February 1971

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APPENDIX A

TV INDEX-RECORD FORMAT

FOR SEDR TAPE

RECORD LENGTH = 458 BYTES

TAPE CHARACTER CODE EXTENDED BINARY CODED DECIMAL INTERCHANGE CODE (EBCDIC)

C = CHARACTER STRING
E = FLOATING POINT
F = BINARY (FIXED POINT)

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
1	6	MEASUREMENT ID	C	-	SCISIM VARIABLE, ALPHA NUMERIC
2	2	MEASUREMENT TIME, YEAR	F	0	
3	2	MEASUREMENT TIME, DAY OF YEAR	F	0	
4	2	MEASUREMENT TIME, HOUR OF DAY	F	0	
5	2	MEASUREMENT TIME, MINUTE OF HOUR	F	0	
6	2	MEASUREMENT TIME, SECOND OF MINUTE	F	0	
7	4	MEASUREMENT TIME, MILLISECONDS	F	0	
8	4	DAS TIME	F	0	
9	2	EARTH RECEIVED TIME, YEAR	F	0	ERT FROM TELEMETRY, GMT
10	2	ERT, DAY	F	0	
11	2	ERT, HOUR	F	0	
12	2	ERT, MINUTE	F	0	
13	2	ERT, SECOND	F	0	
14	2	ERT, MILLISECOND	F	0	
15	4	TIME BEFORE PERIAPSIS, SECONDS	F	0	POGASIS VARIABLE TFP
16	4	SPACECRAFT ID,	C	-	ALPHA NUMERIC
17	2	DAS SERIAL NO.	F	0	
18	2	ORBIT NO.	F	0	POGASIS VARIABLE ON
19	6	ORBIT SOLUTION NO.	C	-	POGASIS VARIABLE ODSN, ALPHA NUMERIC
20	2	DATE OF SOLUTION, YEAR	F	0	DATE OF ORBIT SOLUTION

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
21	2	DATE OF SOLUTION, MONTH OF YEAR	F	0	
22	2	DATE OF SOLUTION, DAY OF MONTH	F	0	
23	2	DATE OF SOLUTION, HOUR OF DAY	F	0	
24	2	DATE OF SOLUTION, MINUTE OF HOUR	F	0	
25	4	DATE OF SOLUTION, SECOND OF MINUTE	F	0	
26	12	MDR REEL NO.	C	-	ALPHA NUMERIC
27	12	EDR REEL NO.	C	-	ALPHA NUMERIC
28	4	SPACECRAFT ALTITUDE, KM	F	0	POGASIS VARIABLE HSC
29	4	SCAN PLATFORM CLOCK ANGLE	E	-	
30	4	SCAN PLATFORM CONE ANGLE	E	-	
31	4	SCAN PLATFORM TWIST ANGLE	E	-	
32	4	SCAN PLATFORM IN MOTION FLAG	F	0	
33	4	SPACECRAFT TRUE ANOMALY, DEG	E	-	POGASIS VARIABLE TA
34	4	SPACECRAFT TRANGENTIAL VELOCITY, KM/SEC	E	-	POGASIS VARIABLE VT
35	4	SPACECRAFT RADIAL VELOCITY, KM/SEC	E	-	
36	4	SOLAR LIGHTING ANGLE FOR RETICLE 1	E	-	POGASIS VARIABLE LA(1)
37	4	LA(3)	E	-	
38	4	LA(5)	E	-	
39	4	LA(7)	E	-	
40	4	LA(9)	E	-	
41	4	PHASE ANGLE FOR RETICLE 1	E	-	POGASIS VARIABLE PHA(1)
42	4	PHA(3)	E	-	
43	4	PHA(5)	E	-	
44	4	PHA(7)	E	-	
45	4	PHA(9)	E	-	
46	4	VIEWING ANGLE FOR RETICLE 1	E	-	POGASIS VARIABLE VA(1)

A-2

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
47	4	VA(3)	E	-	
48	4	VA(5)	E	-	
49	4	VA(7)	E	-	
50	4	VA(9)	E	-	
51	4	TELEMETRY RECEIVED FLAG	F	0	
52	4	LATITUDE OF RETICLE 1	E	-	POGASIS VARIABLE LATP(1)
53	4	LATP(3)	E	-	
54	4	LATP(5)	E	-	
55	4	LATP(7)	E	-	
56	4	LATPO(9)	E	-	
57	4	LONGITUDE OF RETICLE 1	E	-	POGASIS VARIABLE LONP(1)
58	4	LONP(3)	E	-	
59	4	LONP(5)	E	-	
60	4	LONP(7)	E	-	
61	4	LONP(9)	E	-	
62	4	SLANT RANGE TO RETICLE 1, KM	F	0	POGASIS VARIABLE SRP(1)
63	4	SRP(3)	F	0	
64	4	SRP(5)	F	0	
65	4	SRP(7)	F	0	
66	4	SRP(9)	F	0	
67	4	LIMB CROSSING FLAG FOR RETICLE 5	F	0	POGASIS VARIABLE PSL(5)
68	4	ALTITUDE OF OPTIC AXIS, KM	F	0	POGASIS VARIABLE ALTP(5)
69	4	SLANT RANGE TO PHOBOS, KM	F	0	POGASIS VARIABLE SMN1
70	4	SLANT RANGE TO DEIMOS, KM	F	0	POGASIS VARIABLE SMN2
71	4	ANGULAR SEM-DIAMETER OF PLANET	E	-	POGASIS VARIABLE ASDT
72	4	OSCILLATING INCLINATION	E	-	POGASIS VARIABLE XI

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
73	4	SPACECRAFT PATH ANGLE	E	-	POGASIS VARIABLE GMAP
74	4	SPACECRAFT LATITUDE	E	-	POGASIS VARIABLE SLAT
75	4	SPACECRAFT LONGITUDE	E	-	POGASIS VARIABLE SLON
76	4	ANGLE AT CENTER OF PLANET BETWEEN LOS AND R	E	-	POGASIS VARIABLE STP
77	4	RADIAL DISTANCE TO CENTER OF PLANET, KM	F	0	POGASIS VARIABLE RMAG
78	4	LATITUDE OF SUBSOLAR POINT	E	-	POGASIS VARIABLE ZLAT
79	4	LONGITUDE OF SUBSOLAR POINT	E	-	POGASIS VARIABLE ZLON
80	4	SHADOW COORDINATE OF PHOBOS, LATITUDE	E	-	POGASIS VARIABLE SS1
81	4	SHADOW COORDINATE OF PHOBOS, LONGITUDE	E	-	POGASIS VARIABLE SS1
82	4	SHADOW COORDINATE OF DIEMOS, LATITUDE	E	-	POGASIS VARIABLE SS2
83	4	SHADOW COORDINATE OF DIEMOS, LONGITUDE	E	-	POGASIS VARIABLE SS2
84	4	PROJECTED PIXEL SIZE OF RETICLE 1, KM	E	-	POGASIS VARIABLE PPS(1)
85	4	PPS(3)	E	-	
86	4	PPS(5)	E	-	
87	4	PPS(7)	E	-	
88	4	PPS(9)	E	-	
89	4	DECLINATION OF RETICLE 5, DEG	E	-	POGASIS VARIABLE PDEC(5)
90	4	RIGHT ASCENSION OF RETICLE 5	E	-	POGASIS VARIABLE PRA(5)
91	4	MARS LOCAL TIME (HOUR ANGLE FROM SUB-SOLAR POINT), HOURS	E	-	POGASIS VARIABLE MHA
92	4	SUN DIRECTION IN IMAGE, DEG	E	-	POGASIS VARIABLE SUNAN
93	4	ANGLE AT PLANET BETWEEN SUN AND LOS INTERCEPT	E	-	POGASIS VARIABLE SPANG
94	4	ANGLE AT LOS WITH ITEM 93 ABOVE	E	-	POGASIS VARIABLE SHPSV
95	4	TILT AZIMUTH, DEG	E	-	POGASIS VARIABLE AZPHA
96	4	RANGE TO LIMB, KM	F	0	POGASIS VARIABLE RL
97	4	LATITUDE OF LEFT LIMB EXTREME	E	-	POGASIS VARIABLE LATL

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
98	4	LATITUDE OF RIGHT LIMB EXTREME	E	-	POGASIS VARIABLE LATR
99	4	LATITUDE OF CENTER OF LIMB	E	-	POGASIS VARIABLE LATC
100	4	LONGITUDE OF LEFT LIMB EXTREME	E	-	POGASIS VARIABLE LONR
101	4	LONGITUDE OF RIGHT LIMB EXTREME	E	-	POGASIS VARIABLE LONL
102	4	LONGITUDE OF CENTER OF LIMB	E	-	POGASIS VARIABLE LONC
103	4	DIRECTION OF NORTH IN IMAGE PLANE, DEG	E	-	POGASIS VARIABLE NORAN
104	4	ANGLE IN PICTURE FRAME BETWEEN SUBSPACECRAFT POINT AND FRAME AXIS AT LOS	E	-	POGASIS VARIABLE SPL(5)
105	4	ANGLE IN PICTURE FRAME BETWEEN SUBSOLAR POINT AND FRAME AXIS AT LOS	E	-	POGASIS VARIABLE SSL(5)
106	4	ANGLE AT SPACECRAFT BETWEEN LOS AND VECTOR TO CENTER OF PLANET	E	-	POGASIS VARIABLE PST(5)
107	4	PICTURE SIZE (PROJECTED HEIGHT AND WIDTH BETWEEN POINTS 1 AND 8, 3 AND 5, WHEN PAIR FALL ON PLANET)	F	0	POGASIS VARIABLE PP1835
108	4	MARTIAN DATE (EQUIVALENT EARTH DATE), MONTH	E	-	
109	4	MARTIAN DATE, DAY	E	-	
110	2	FILTER ID	F	0	FROM TELEMETRY
111	2	FILTER MODE	F	0	FROM TELEMETRY
112	2	EXPOSURE INTERVAL, ENCODED	F	0	FROM TELEMETRY
113	2	EXPOSURE MODE	F	0	FROM TELEMETRY
114	2	CAMERA ID	F	0	FROM TELEMETRY
115	2	PICTURE ID	F	0	FROM TELEMETRY
116	2	NUMBER OF LINES IN PICTURE	F	0	
117	2	AVERAGE PIXEL VALUE	F	0	FROM TELEMETRY
118	2	VIDICON TEMPERATURE, DN	F	0	FROM E140
119	20	RESERVED AREA FOR ANNOTATION	C	-	

APPENDIX B

IRIS INDEX-RECORD FORMAT

FOR SEDR TAPE

RECORD LENGTH = 338 BYTES

TAPE CHARACTER CODE EXTENDED BINARY CODED DECIMAL INTERCHANGE CODE (EBCDIC)

C = CHARACTER STRING
P = PACKED DECIMAL
F = BINARY (FIXED POINT)

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
1	6	MEASUREMENT ID	C	-	SCISIM VARIABLE, ALPHA NUMERIC
2	2	INSTRUMENT NO.	F	0	SCISIM VARIABLE
3	2	MEASUREMENT TIME, YEAR	F	0	
4	2	MEASUREMENT TIME, DAY OF YEAR	F	0	
5	2	MEASUREMENT TIME, HOUR OF DAY.	F	0	
6	2	MEASUREMENT TIME, MINUTE OF HOUR	F	0	
7	2	MEASUREMENT TIME, SECOND OF MINUTE	F	0	
8	2	MEASUREMENT TIME, MILLISECONDS	F	0	
9	4	DAS TIME	F	0	
10	2	EARTH RECEIVED TIME, YEAR	F	0	ERT FROM TELEMETRY, GMT
11	2	ERT, DAY	F	0	
12	2	ERT, HOUR	F	0	
13	2	ERT, MINUTE	F	0	
14	2	ERT, SECOND	F	0	
15	2	ERT, MILLISECOND	F	0	
16	4	TIME BEFORE PERIAPSIS, SECONDS	F	0	POGASIS VARIABLE TFP
17	4	SPACECRAFT ID,	C	-	ALPHA NUMERIC
18	2	DAS SERIAL NO.	F	0	
19	2	ORBIT NO.	F	0	POGASIS VARIABLE ON

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
20	6	ORBIT SOLUTION NO.	C	-	POGASIS VARIABLE ODSN, ALPHA NUMERIC
21	2	DATE OF SOLUTION, YEAR	F	0	DATE OF ORBIT SOLUTION
22	2	DATE OF SOLUTION, MONTH OF YEAR	F	0	
23	2	DATE OF SOLUTION, DAY OF MONTH	F	0	
24	2	DATE OF SOLUTION, HOUR OF DAY	F	0	
25	2	DATE OF SOLUTION, MINUTE OF HOUR	F	0	
26	4	DATE OF SOLUTION SECOND OF MINUTE	F	0	
27	12	MDR REEL NO.	C	-	ALPHA NUMERIC
28	12	EDR REEL NO.	C	-	ALPHA NUMERIC
29	4	SPACECRAFT ALTITUDE, KM	F	0	POGASIS VARIABLE HSC
30	3	SCAN PLATFORM CLOCK ANGLE	P	2	
31	3	SCAN PLATFORM CONE ANGLE	P	2	
32	3	SCAN PLATFORM TWIST ANGLE	P	2	
33	1	SCAN PLATFORM IN MOTION FLAG	P	1	
34	3	SPACECRAFT TRUE ANOMALLY, DEG	P	2	POGASIS VARIABLE TA
35	2	SPACECRAFT TANGENTIAL VELOCITY, KM/SEC	P	1	POGASIS VARIABLE VT
36	2	SPACECRAFT RADIAL VELOCITY, KM/SEC	P	1	POGASIS VARIABLE VR
37	1	TELEMETRY RECEIVED FLAG	P	0	
38	3	SOLAR LIGHTING ANGLE FOR RETICLE 5	P	2	POGASIS VARIABLE LA5
39	3	PHASE ANGLE FOR RETICLE 5	P	2	POGASIS VARIABLE PHA5
40	4	VIEWING ANGLE FOR RETICLE 5	P	2	POGASIS VARIABLE VA5
41	4	LATITUDE OF RETICLE 5	P	2	POGASIS VARIABLE LATP5
42	4	LONGITUDE OF RETICLE 5	P	2	POGASIS VARIABLE LONP5
43	4	SLANT RANGE TO RETICLE 5, KM	F	0	POGASIS VARIABLE SRP5
44	3	LATITUDE OF POINT Q(1)	P	2	POGASIS VARIABLE LATQ(1)
45	3	LATQ(2)	P	2	
46	3	LATQ(3)	P	2	

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
47	3	LATQ(4)	P	2	
48	3	LATQ(5)	P	2	
49	3	LATQ(6)	P	2	
50	3	LATQ(7)	P	2	
51	3	LATQ(8)	P	2	
52	3	LATQ(9)	P	2	
53	3	LATQ(10)	P	2	
54	3	LATQ(11)	P	2	
55	3	LATQ(12)	P	2	
56	3	LATQ(13)	P	2	
57	3	LATQ(14)	P	2	
58	3	LATQ(15)	P	2	
59	3	LATQ(16)	P	2	
60	3	LATQ(17)	P	2	
61	3	LATQ(18)	P	2	
62	3	LATQ(19)	P	2	
63	3	LATQ(20)	P	2	
64	3	LONGITUDE OF POINT Q(1)	P	2	POGASIS VARIABLE LONQ(I)
65	3	LONQ(2)	P	2	
66	3	LONQ(3)	P	2	
67	3	LONQ(4)	P	2	
68	3	LONQ(5)	P	2	
69	3	LONQ(6)	P	2	
70	3	LONQ(7)	P	2	
71	3	LONQ(8)	P	2	
72	3	LONQ(9)	P	2	
73	3	LONQ(10)	P	2	

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
74	3	LONG(11)	P	2	
75	3	LONG(12)	P	2	
76	3	LONG(13)	P	2	
77	3	LONG(14)	P	2	
78	3	LONG(15)	P	2	
79	3	LONG(16)	P	2	
80	3	LONG(17)	P	2	
81	3	LONG(18)	P	2	
82	3	LONG(19)	P	2	
83	3	LONG(20)	P	2	
84	3	ANGLE AT SPACECRAFT BETWEEN LOS AND CENTER OF MARS	P	2	POGASIS VARIABLE PST 5
85	3	ANGULAR SEMI-DIAMETER OF MARS	P	2	POGASIS VARIABLE ASDT
86	3	CONE ANGLE OF CENTER OF MARS	P	2	POGASIS VARIABLE TPCA
87	3	CLOCK ANGLE OF CENTER OF MARS	P	2	POGASIS VARIABLE TPKA
88	4	RANGE TO CENTER OF MARS, KM	F	0	POGASIS VARIABLE RMAG
89	3	CONE ANGLE OF PHOBOS	P	2	POGASIS VARIABLE MCA1
90	3	CLOCK ANGLE OF PHOBOS	P	2	POGASIS VARIABLE MKA1
91	4	RANGE TO PHOBOS, KM	P	2	POGASIS VARIABLE SMN1
92	3	CONE ANGLE OF DEIMOS	P	2	POGASIS VARIABLE MCA2
93	3	CLOCK ANGLE OF DEIMOS	P	2	POGASIS VARIABLE MKA2
94	4	RANGE TO DEIMOS, KM	P	2	POGASIS VARIABLE SMN2
95	3	LATITUDE OF SUBSOLAR POINT	P	2	POGASIS VARIABLE ZLAT
96	3	LONGITUDE OF SUBSOLAR POINT	P	2	POGASIS VARIABLE ZLON
97	4	MARS LOCAL TIME (HOUR ANGLE FROM SUBSOLAR POINT), HOURS	P	2	POGASIS VARIABLE MHA
98	2	IMCC POSITION	F	0	FROM TELEMETRY

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
99	2	SCAN ENABLED FLAG	F	0	FROM TELEMETRY
100	2	BLACKBODY TEMPERATURE, DN	F	0	FROM TELEMETRY
101	2	DETECTOR TEMPERATURE, DN	F	0	FROM TELEMETRY
102	2	RADIATING SURFACE TEMPERATURE, DN	F	0	FROM TELEMETRY
103	26	RESERVED AREA FOR ANNOTATION	C	-	

APPENDIX C

IRR INDEX-RECORD FORMAT

FOR SEDR TAPE

RECORD LENGTH = 288 BYTES

TAPE CHARACTER CODE EXTENDED BINARY CODED DECIMAL INTERCHANGE CODE (EBCDIC)

C = CHARACTER STRING
E = FLOATING POINT
F = BINARY (FIXED POINT)
P = PACKED DECIMAL

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
1	6	MEASUREMENT ID	C	-	SCISIM VARIABLE, ALPHA NUMERIC
2	2	INSTRUMENT NO.	F	0	SCISIM VARIABLE
3	2	MEASUREMENT TIME, YEAR	F	0	
4	2	MEASUREMENT TIME, DAY OF YEAR	F	0	
5	2	MEASUREMENT TIME, HOUR OF DAY	F	0	
6	2	MEASUREMENT TIME, MINUTE OF HOUR	F	0	
7	2	MEASUREMENT TIME, SECOND OF MINUTE	F	0	
8	2	MEASUREMENT TIME, MILLISECONDS	F	0	
9	4	DAS TIME	F	0	
10	2	EARTH RECEIVED TIME, YEAR	F	0	ERT FROM TELEMETRY, GMT
11	2	ERT, DAY	F	0	
12	2	ERT, HOUR	F	0	
13	2	ERT, MINUTE	F	0	
14	2	ERT, SECOND	F	0	
15	2	ERT, MILLISECOND	F	0	
16	4	TIME BEFORE PERIAPSIS, SECONDS	F	0	POGASIS VARIABLE TFP
17	4	SPACECRAFT ID,	C	-	ALPHA NUMERIC
18	2	DAS SERIAL NO.	F	0	
19	2	ORBIT NO.	F	0	POGASIS VARIABLE ON
20	6	ORBIT SOLUTION NO.	C	-	POGASIS VARIABLE ODSN, ALPHA NUMERIC

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
21	2	DATE OF SOLUTION, YEAR	F	0	DATE OF ORBIT SOLUTION
22	2	DATE OF SOLUTION, MONTH OF YEAR	F	0	
23	2	DATE OF SOLUTION, DAY OF MONTH	F	0	
24	2	DATE OF SOLUTION, HOUR OF DAY	F	0	
25	2	DATE OF SOLUTION, MINUTE OF HOUR	F	0	
26	4	DATE OF SOLUTION SECOND OF MINUTE	F	0	
27	12	MDR REEL NO.	C	-	ALPHA NUMERIC
28	12	EDR REEL NO.	C	-	ALPHA NUMERIC
29	4	SPACECRAFT ALTITUDE, KM	F	0	POGASIS VARIABLE HSC
30	3	SCAN PLATFORM CLOCK ANGLE	P	2	
31	3	SCAN PLATFORM CONE ANGLE	P	2	
32	3	SCAN PLATFORM TWIST ANGLE	P	2	
33	1	SCAN PLATFORM IN MOTION FLAG	P	1	
34	3	SPACECRAFT TRUE ANOMALLY, DEG	P	2	POGASIS VARIABLE TA
35	2	SPACECRAFT TANGENTIAL VELOCITY, KM/SEC	P	1	POGASIS VARIABLE VT
36	2	SPACECRAFT RADIAL VELOCITY, KM/SEC	P	1	POGASIS VARIABLE VR
37	1	TELEMETRY RECEIVED FLAG	P	0	
38	3	SOLAR ILLUMINATION ANGLE FOR RETICLE 5	P	2	POGASIS VARIABLE LA5
39	3	PHASE ANGLE FOR RETICLE 5	P	2	POGASIS VARIABLE PHA5
40	4	VIEWING ANGLE FOR RETICLE 5	P	2	POGASIS VARIABLE VA5
41	4	LATITUDE OF RETICLE 5	P	2	POGASIS VARIABLE LATP5
42	4	LONGITUDE OF RETICLE 5	P	2	POGASIS VARIABLE LONP5
43	4	SLANT RANGE TO RETICLE 5, KM	F	0	POGASIS VARIABLE SRP5
44	2	LIMB CROSSING FLAG FOR RETICLE 5	F	-	POGASIS VARIABLE PSL5
45	4	OSCILLATING INCLINATION	P	2	POGASIS VARIABLE XI
46	4	LATITUDE OF SUB SOLAR POINT	P	2	POGASIS VARIABLE ZLAT

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
47	4	LONGITUDE OF SUB-SOLAR POINT	P	2	POGASIS VARIABLE ZLON
48	2	TERMINATOR CROSSING FLAG FOR RETICLE 5	F	2	LATP5 = 90.00 DEG
49	2	LONGITUDE OF ASCENDING NODE	P	0	POGASIS VARIABLE OMEGA
50	2	ARGUMENT OF PERIAPSIS, DEG	P	0	POGASIS VARIABLE ARGP
51	4	SEMI-MAJOR AXIS, KM	F	0	POGASIS VARIABLE A
52	4	ECCENTRICITY	P	4	POGASIS VARIABLE ECC
53	4	ECCENTRIC ANOMALY	P	0	POGASIS VARIABLE EA
54	2	DIRECTION OF NORTH IN IMAGE PLANE	P	0	POGASIS VARIABLE NORAN
55	3	MARS LOCAL TIME (HOUR ANGLE FROM SUBSOLAR POINT), HOURS	P	2	POGASIS VARIABLE MHA
56	3	SCALE FACTOR INDICATING AVERAGE LINEAR DIMENSION AT SURFACE	P	0	POGASIS VARIABLE SCAF
57	4	RANGE TO CENTER OF PLANET, KM	F	0	POGASIS VARIABLE RMAG
58	4	ANGLE BETWEEN LOS AND PLANETS NEAREST LIMB	P	2	POGASIS VARIABLE PSL5. NEGATIVE FOR INTERCEPTING PATHS
59	4	POSITION VECTOR, R(1,1)	F	0	POGASIS VARIABLE R IN 1950 MEAN EARTH EQUATORIAL COORDINATES
60	4	R(1,2)	F	0	
61	4	R(1,3)	F	0	
62	4	UNIT VECTOR OF PLATFORM DESCRIBING POINTING DIRECTION, C(1,1)	E	-	POGASIS VARIABLE C IN 1950 MEAN EARTH EQUATORIAL COORDINATES
63	4	C(1,2)	E	-	
64	4	C(1,3)	E	-	
65	4	C(2,1)	E	-	
66	4	C(2,2)	E	-	
67	4	C(2,3)	E	-	
68	4	C(3,1)	E	-	

FIELD NO.	FIELD LENGTH	CONTENT	DATA TYPE	DECIMALS	NOTES
69	4	C(3,2)	E	-	
70	4	C(3,3)	E	-	
71	4	TRANSFORMATION MATRIX FROM MARS FIXED COORDINATES TO 1950 EARTH MEAN EQUATORIAL, MEM(1,1)	E	-	POGASIS VARIABLE MEM
72	4	MEM(1,2)	E	-	
73	4	MEM(1,3)	E	-	
74	4	MEM(2,1)	E	-	
75	4	MEM(2,2)	E	-	
76	4	MEM(2,3)	E	-	
77	4	MEM(3,1)	E	-	
78	4	MEM(3,2)	E	-	
79	4	MEM(3,3)	E	-	
80	20	RESERVED AREA FOR ANNOTATION	C	-	

APPENDIX D

UVS INDEX-RECORD FORMAT

FOR SEDR TAPES

RECORD LENGTH = 565 CHARACTERS (6-BIT)

TAPE CHARACTER CODE BINARY CODED DECIMAL (BCD). NUMERIC DATA HAVE SIGN (ALWAYS) AND DECIMAL POINT (IF REQUIRED) EXPLICITLY STATED.

FIELD NO.	FIELD LENGTH	CONTENTS	UVS CHAN	DECIMAL ACCURACY	NOTES
1	6	MEASUREMENT ID	F,G	-	SCISIM VARIABLE
2	4	INSTRUMENT NO.	F,G	0	SCISIM VARIABLE
3	6	MEASUREMENT TIME, YEAR	F,G	0	
4	6	MEASUREMENT TIME, DAY OF YEAR	F,G	0	
5	4	MEASUREMENT TIME, HOUR OF DAY	F,G	0	
6	4	MEASUREMENT TIME, MINUTE OF HOUR	F,G	0	
7	4	MEASUREMENT TIME, SECOND OF MINUTE	F,G	0	
8	6	MEASUREMENT TIME, MILLISECONDS	F,G	0	
9	11	DAS TIME	F,G	0	
10	6	EARTH RECEIVED TIME, YEAR	F,G	0	ERT FROM TELEMETRY, GMT
11	6	ERT, DAY	F,G	0	
12	4	ERT, HOUR	F,G	0	
13	4	ERT, MINUTE	F,G	0	
14	4	ERT, SECOND	F,G	0	
15	6	ERT, MILLISECONDS	F,G	0	
16	8	TIME BEFORE PERIAPSIS, SECONDS	F,G	0	POGASIS VARIABLE TFP
17	4	SPACECRAFT ID	F,G	-	ALPHA NUMERIC
18	4	DAS SERIAL NO.	F,G	0	
19	4	ORBIT NO.	F,G	0	POGASIS VARIABLE ON
20	6	ORBIT SOLUTION NO.	F,G	-	POGASIS VARIABLE ODSN, ALPHA NUMERIC

FIELD NO.	FIELD LENGTH	CONTENTS	UVS CHAN	DECIMAL ACCURACY	NOTES
21	6	DATE OF SOLUTION, YEAR	F,G	0	
22	4	DATE OF SOLUTION, MONTH OF YEAR	F,G	0	
23	4	DATE OF SOLUTION, DAY OF MONTH	F,G	0	
24	4	DATE OF SOLUTION, HOUR OF DAY	F,G	0	
25	4	DATE OF SOLUTION, MINUTE OF HOUR	F,G	0	
26	4	DATE OF SOLUTION, SECOND OF MINUTE	F,G	0	
27	12	MDR REEL NO.	F,G	-	ALPHA NUMERIC
28	12	EDR REEL NO.	F,G	-	ALPHA NUMERIC
29	8	SPACECRAFT ALTITUDE, KM	F,G	0	POGASIS VARIABLE HSC
30	7	SCAN PLATFORM CLOCK ANGLE	F,G	2	
31	7	SCAN PLATFORM CONE ANGLE	F,G	2	
32	7	SCAN PLATFORM TWIST ANGLE	F,G	2	
33	4	SCAN PLATFORM IN MOTION FLAG	F,G	2	
34	7	SPACECRAFT TRUE ANOMALY, DEG	F,G	2	POGASIS VARIABLE TA
35	5	SPACECRAFT TANGENTIAL VELOCITY, KM/SEC	F,G	1	POGASIS VARIABLE VT
36	7	SOLAR LIGHTING ANGLE FOR RETICLE 5	F	2	POGASIS VARIABLE LA5
37	7	PHASE ANGLE FOR RETICLE 5	F	2	POGASIS VARIABLE PHA5
38	7	VIEWING ANGLE FOR RETICLE 5	F	2	POGASIS VARIABLE VA5
39	4	UV SPECTRA RECEIVED FLAG	F,G	0	
40	4	UV LYMAN ALPHA RECEIVED FLAG	G	0	
41	7	LATITUDE OF RETICLE 1	F	2	POGASIS VARIABLE LATP(1)
42	7	LATP(3)	F	2	
43	7	LATP(5)	F	2	
44	7	LATP(7)	F	2	
45	7	LATP(9)	F	2	
46	7	LATP(1)	G	2	
47	7	LATP(3)	G	2	

FIELD NO.	FIELD LENGTH	CONTENTS	UVS CHAN	DECIMAL ACCURACY	NOTES
48	7	LATP(5)	G	2	
49	7	LATP(7)	G	2	
50	7	LATP(9)	G	2	
51	7	LONGITUDE OF RETICLE 1	F	2	POGASIS VARIABLE LONP(1)
52	7	LONP(3)	F	2	
53	7	LONP(5)	F	2	
54	7	LONP(7)	F	2	
55	7	LONP(9)	F	2	
56	7	LONP(1)	G	2	
57	7	LONP(3)	G	2	
58	7	LONP(5)	G	2	
59	7	LONP(7)	G	2	
60	7	LONP(9)	G	2	
61	8	SLANT RANGE TO RETICLE 5, KM	F	0	POGASIS VARIABLE SRP5
62	8	SRP5	G	0	
63	4	LIMB CROSSING FLAG FOR RETICLE 1	F	0	POGASIS VARIABLE PSL(1)
64	4	PSL(5)	F	0	
65	4	PSL(9)	F	0	
66	4	PSL(1)	G	0	
67	4	PSL(5)	G	0	
68	4	PSL(9)	G	0	
69	9	ALTITUDE OF OPTIC AXIS, KM	F	2	POGASIS VARIABLE ALP5
70	7	RATE OF CHANGE OF ITEM 69 ABOVE, KM/SEC	F	2	
71	7	ANGLE BETWEEN 4-5-6- LINE AND TANGENT TO SURFACE AT POINT CLOSEST TO SLIT CENTER	F	2	POGASIS VARIABLE ALIGN

FIELD NO.	FIELD LENGTH	CONTENTS	UVS CHAN	DECIMAL ACCURACY	NOTES
72	9	LENGTH OF SLIT IMAGE ON SURFACE, KM	F	2	POGASIS VARIABLE LSS
73	9	LSS	G	2	
74	9	LENGTH OF SLIT IMAGE IN ATMOSPHERE, KM	F	2	POGASIS VARIABLE LSA
75	9	LSA	G	2	
76	9	SLIT BLUR, KM	F	2	POGASIS VARIABLE SBL
77	7	RIGHT ASCENSION OF RETICLE 5,	G	2	POGASIS VARIABLE PRA5
78	7	DECLINATION OF RETICLE 5, DEG	G	2	POGASIS VARIABLE PDEC5
79	5	MAPPING QUALITY	F	2	POGASIS VARIABLE MQUAL
80	7	LATITUDE OF NEAREST POINT ON SURFACE WHEN RETICLE 5 DOES NOT INTERSECT SURFACE	F	2	POGASIS VARIABLE LATI
81	7	LONGITUDE OF NEAREST POINT ON SURFACE WHEN RETICLE 5 DOES NOT INTERSECT SURFACE	F	2	POGASIS VARIABLE LONI
82	9	SHADOW LENGTH BETWEEN UMBRA AND PENUMBRA ALONG VECTOR 5, KM	F	2	POGASIS VARIABLE SHADL
83	9	SHADOW HEIGHT ABOVE SURFACE OF VECTOR 5 INTERCEPT WITH PENUMBRA AND UMBRA, KM	F	2	POGASIS VARIABLE SHADH
84	9	UMBRA LENGTH ALONG VECTOR 5 TO SURFACE, KM	F	2	POGASIS VARIABLE UL
85	6	GAIN STATE	F	0	FROM TELEMETRY
86	20	RESERVED AREA FOR ANNOTATION	C	-	ALPHA NUMERIC

Table 1. Enhancement catalog code definitions

Code	Definition
AVG	Low-pass filter, subsample
BITR	Bit error removed
BLEM	Blemishes removed
BLOG	Logged from BCE tape
CNR	Coherent noise removal
CNTR	Contoured
COMP	Data complemented
CONC	Concatenated with one or more other pictures
CONX	Contrast stretch
CPRO	2-standard conic projection
CR	Has been used in color reconstruction
CSL	Contrast stretch, linear
CST	Contrast stretch, table
DG	Standard decalibration geometric correction
DIFF	Differenced with another frame
DPC	Standard decalibration photometric correction
DRI	Standard decalibration residual-image processing
Dxxx	Standard decalibration processing, including geometric correction, possible residual-image correction, and photometric correction. The "xxx" specifies details that were subject to variation. Odd numbers specify the absence of residual-image correction, and even numbers specify that this correction is included. Explanation of "xxx" codes for standard processing: 001, 002 — Special geometric correction using the correction generated for DAS 00603702 for all frames; preliminary EDR data tapes.

Table 1 (contd)

Code		Definition
Dxxx (contd)	003, 004	Same as above, but with updated photometric calibration data file for B camera.
	005, 006	Same as above, but with normal geometric correction.
	007, 008	Same as above, but with updated photometric data file for A camera, filter position 2, and improved extrapolation algorithm in residual-image correction program.
	009, 010	Same as above, but with correction for random bit errors in raw video data.
	011, 012	Same as above, but with improved reseau location algorithm (RESEAU72).
	013, 014	Same as above, but with EDR data tapes (all previous codes imply use of preliminary EDR data).
	015, 016	Same as above, but with improved algorithm for correcting bit errors in label data.
	017, 018	Same as above, except preliminary EDR data tapes are used.
FA	Has been averaged with at least one other frame	
FRD	Has been registered and differenced with at least one other frame	
FREG	Registered with another frame	
GDyy	General-purpose automated production processing, where the "yy" defines the details of the processing as shown below.	
	Explanation of "yy" codes for general-purpose processing:	
	10	a. Use EDR as input.
		b. Locate reseau coordinates and save onto E-tape.
		c. Filter with two-dimensional filter.
		d. Contrast enhanced linear 10%.

Table 1 (contd)

Code	Definition
GDyy (contd)	e. Map grid superimposed.
	f. Masked onto V-tape.
	12 a. Use EDR as input.
	b. Contrast enhanced linear 12%.
	c. Masked onto V-tape.
	13 a. Use EDR as input.
	b. Filter with one-dimensional filter.
	c. Contrast enhanced linear 244-270.
	d. Masked onto V-tape.
GRAD	Direction of gradient
GRAM	Magnitude of gradient
GRID	Latitude-longitude grid overlayed
GTS	Special geometric transformation
LADL	Limb scan lines overlayed
LPRO	Lambert conformal projection
MAPG	Pixel grid overlayed
MDxx	"Maximum discriminability" processing: high-pass filter followed by linear contrast stretch. The "xx" code details the parameters for the programs used as follows:
	01 FASTFIL2: NLW 151 NSW 1 THRESH 50 MM71 ASTRTCH2: HALF COMP HIST SPIKES 1
	02 FASTFIL2: NLW 151 NSW 1 THRESH 50 MM71 MASK: HALF COMP HIST STRETCH 246 266
	03 FASTFIL1: NLW 1 NSW 101 THRESH 25 MASK: COMP HIST STRETCH 123 133
	04 FASTFIL1: NLW 1 NSW 101 THRESH 25 ASTRTCH2: COMP HIST

Table 1 (contd)

Code		Definition
MDxx (contd)	05	FASTFIL1: NLW 1 NSW 151 THRESH 25 MASK: STRETCH 123 133
	06	FASTFIL2: MM71 ASTRTCH2: HALF COMP HIST
	07	FASTFIL2: NLW 151 NSW 11 MM71 STRETCH: HALF LINEAR 246 266
	08	FASTFIL2: MM71 NLW 151 NSW 1 STRETCH: LINEAR 246 266
	09	FASTFIL2: NLW 151 NSW 1 THRESH 50 MM71 MASK: HALF COMP HIST STRETCH 246 269
	10	FASTFIL2: NLW 151 NSW 1 THRESH 25 MM71 STRETCH: HALF LINEAR 246 269
	11	FASTFIL2: NLW 151 NSW 1 THRESH 50 MM71 STRETCH: HALF LINEAR 246 269
	12	FASTFIL2: NLW 151 NSW 1 THRESH 50 MM71 STRETCH: HALF LINEAR 246 269
	13	FASTFIL2: MM71 THRESH 25 ASTRTCH2: HALF
	14	FASTFIL2: NLW 151 NSW 1 THRESH 50 MM71 STRETCH: HALF LINEAR 240 277
	15	FASTFIL2: MM71 NSW 151 NLW 1 THRESH 25 STRETCH: HALF LINEAR 240 277
	16	FASTFIL2: NLW 151 NSW 1 THRESH 25 MM71 STRETCH: HALF LINEAR 246 269
	17	FASTFIL2: NLW 151 NSW 1 THRESH 25 MM71 STRETCH: HALF LINEAR 239 275

(The program parameters listed may not be completely intelligible without the corresponding program documentation available from the Image Processing Laboratory. The numbers following "NLW" and "NSW" are, respectively, 2M + 1 and 2N + 1, where M and N are defined in Section II-C. The two numbers following "STRETCH" or "LINEAR" are lower and upper stretch limits, ℓ and h, defined in Section II-C. The other parameters should be of minor concern.)

Table 1 (contd)

Code	Definition
MOS	Has been computer mosaiced with at least one other frame
MPRO	Mercator projection
OLAY	Latitude-longitude grid overlayed
OPRO	Orthographic projection
ORIG	Original raw picture
PCL	Linear photometric correction
PCS	Special photometric correction
PR	Has been ratioed to at least one other frame
PRCF	Linear photometric correction, bit error correction
PS2	Two-dimensional power spectrum
RESR	Reseaux removed by four-point bilinear interpolation
RIS	Special residual-image process
ROTT	Rotated
Rxyy	Standard rectification and scaling processing. The "x" code indicates the projection type, and the "yy" code specifies details of the associated processing as shown below.
RSyy	Orthographic projection. Explanation of "yy" codes for orthographic projection is as follows:
	01 — Preliminary EDR data tapes used; fixed geometric correction transformation (rather than adapted to each frame, as in RDR processing).
	02-05 — RDR data tapes used; reseau marks removed by interpolation.
	06 — RDR data tapes used; reseau marks and three major A camera blemishes removed by interpolation.

Table 1 (contd)

Code	Definition
RLyy	Lambert conformal conic projection
RMyy	Mercator projection
RPyy	Polar stereographic projection
	Explanation of "yy" codes for Lambert, Mercator, and polar stereo projections:
	01 a. Reseau removed.
	b. A camera blemishes removed.
	c. MD17 applied.
	d. Truncated to byte data.
	e. Projected (background set to zero).
	f. Masked onto E-tapes.
	02 a. Reseau removed.
	b. A camera blemishes removed.
	c. MD17 applied.
	d. Truncated to byte data.
	e. Projected (background set to 121 DN).
	f. Masked onto E-tapes.
	03 a. Reseau removed.
	b. A camera blemishes removed.
	c. Truncated to byte data.
	d. Projected (background set to zero).
	e. Written on save tape.
	04 a. Reseau removed.
	b. A camera blemishes removed by percentage models.

Table 1 (contd)

Code		Definition
RLyy RMyy RPyy (contd)		c. MD17 applied.
		d. Truncated to byte data.
		e. Projected (background set to 121 DN).
		f. Masked onto E-tapes.
	05	a. Reseau removed.
		b. Blemishes removed.
		c. Filtered 151 lines × 1 sample threshold 25.
		d. Truncated to byte data.
		e. Projected (background set to zero).
		f. Written on save tape.
		g. Histogram generated.
	06	a. Contrast enhanced linear percent 10.
		b. Truncated to byte data.
		c. Projected (background set to 121 DN).
		d. Masked onto E-tape.
	07	a. Reseau removed.
		b. First 40 and last 40 lines replaced with 41st and 760th, respectively.
		c. A camera blemishes located at line 155, sample 190, and line 285, sample 866, removed by quantitative correction.
		d. A camera blemish at line 5 and 7, sample 155, removed by four-point bilinear interpolation.
		e. MD17 applied.
		f. Truncated to byte data.

Table 1 (contd)

Code	Definition
RLyy RMyy RPyy (contd)	g. Projected (background set to 121 DN).
	h. Masked onto E-tape.
	08 a. Truncated to byte data.
	b. Projected (2000 × 2000 output image size)
	c. Masked onto E-tape.
	09 Same as "07" except projection output image size was 2000 lines × 2000 samples.
SCRB	Segment of picture scribed
SFHP	Special filtering, high pass
SFLP	Special filtering, low pass
SFS	Special filtering
SFTR	Special high emphasis filter, also known as "GP filter" or "Rindfleisch filter"
SMAG	Segment of image magnified
SMTF	Standard MTF filtering
SPRO	Special projection
STPR	Stereographic projection
SUNN	Correction for solar illumination angle variation
VARI	Variance plot

Table 3. Coordinates of control points (reseau marks) in RDR format pictures

Control point No. [a]	Camera A		Camera B [b]		Control point No. [a]	Camera A		Camera B [b]	
	Line	Sample	Line	Sample		Line	Sample	Line	Sample
1	42.434	14.708	45.199	19.456	57	758.753	204.774	757.706	203.129
2	41.413	69.067	42.884	71.446	58	758.769	339.906	757.579	339.434
3	41.230	204.927	41.844	204.505	59	758.871	474.795	757.935	474.767
4	40.421	339.124	42.420	340.244	60	759.069	610.620	757.942	609.490
5	40.946	474.796	42.052	475.290	61	758.714	745.529	758.079	744.292
6	40.311	610.311	42.111	610.336	62	759.657	881.045	758.303	879.539
7	39.818	746.342	42.569	745.137	63	760.378	938.119	756.072	932.087
8	40.121	881.955	43.204	879.574	64	85.165	13.491	88.907	17.908
9	42.024	937.488	42.659	935.277	65	84.808	136.839	86.995	137.953
10	131.046	12.493	131.998	16.232	66	84.378	271.905	86.422	272.412
11	131.144	69.894	129.688	70.593	67	84.134	407.131	86.635	407.652
12	131.049	204.357	129.512	204.770	68	83.945	543.010	86.567	542.759
13	130.777	339.533	130.183	340.298	69	83.362	678.348	86.638	677.240
14	130.475	475.124	129.977	475.063	70	83.185	813.828	87.792	811.472
15	130.181	610.428	130.454	610.372	71	84.778	938.986	88.091	934.615
16	129.951	746.031	130.257	745.083	72	196.848	13.565	199.501	15.970
17	130.491	881.854	130.774	880.455	73	197.067	136.847	198.123	138.351
18	130.971	939.070	131.386	934.296	74	196.879	271.705	197.738	272.235
19	265.392	12.259	265.956	15.064	75	196.739	407.098	197.748	407.258
20	266.360	68.990	264.857	69.830	76	196.556	542.850	197.692	542.754
21	266.161	204.216	265.039	205.177	77	196.067	678.440	197.930	677.099
22	266.377	339.412	264.905	339.707	78	196.049	813.724	198.383	811.501
23	265.991	475.013	264.976	475.130	79	197.127	938.338	199.088	933.697
24	265.614	610.558	264.941	610.303	80	331.882	12.516	333.918	15.455
25	265.401	745.929	265.535	745.185	81	332.282	136.501	333.078	137.840
26	265.449	881.749	265.396	880.468	82	332.134	271.834	332.681	272.487
27	266.335	938.629	265.646	935.539	83	332.094	407.208	332.494	407.497
28	399.482	12.125	401.170	15.053	84	331.753	543.097	332.427	542.916
29	399.971	68.964	400.020	69.906	85	331.888	678.351	332.521	677.183
30	400.098	204.234	399.842	204.844	86	331.472	814.039	332.818	811.811
31	400.040	339.553	399.802	339.835	87	332.424	939.009	332.787	934.829
32	400.000	475.000	400.000	475.000	88	467.775	12.963	468.700	15.532
33	399.666	610.679	399.960	610.072	89	467.674	136.689	467.637	137.697
34	399.541	746.018	400.153	744.894	90	467.783	271.814	467.453	272.298
35	399.357	881.887	400.168	880.134	91	467.706	407.182	467.420	407.282
36	400.097	938.739	399.944	935.835	92	467.502	542.930	467.465	542.997
37	534.472	12.689	536.315	15.253	93	467.300	678.143	467.278	676.978
38	533.589	69.362	535.061	70.393	94	467.388	813.944	467.036	812.107
39	533.926	204.315	534.834	204.704	95	467.800	938.541	467.294	934.058
40	533.781	339.489	534.886	339.645	96	603.034	13.026	603.319	16.328
41	533.616	474.908	534.921	474.900	97	602.932	136.956	602.326	138.057
42	533.773	610.561	535.099	609.896	98	603.050	271.746	602.228	272.500
43	533.448	745.511	534.682	744.875	99	602.910	407.231	602.374	407.202
44	533.337	881.425	535.267	879.834	100	602.828	542.951	602.129	542.887
45	534.435	938.838	535.532	934.277	101	602.740	678.289	601.953	677.075
46	669.027	12.458	670.665	16.836	102	602.894	813.376	601.556	811.473
47	668.836	69.112	669.290	70.626	103	603.559	938.937	600.814	933.922
48	668.871	204.352	670.105	204.340	104	714.988	13.012	714.029	18.015
49	669.061	339.631	669.934	339.496	105	715.251	136.828	713.407	137.839
50	668.884	474.941	669.976	474.693	106	715.529	271.764	713.492	272.280
51	669.260	610.395	670.023	609.842	107	715.326	407.164	713.649	407.305
52	668.918	745.542	669.886	744.717	108	715.488	542.641	713.438	542.747
53	669.099	881.242	670.619	879.513	109	715.076	678.246	713.366	676.901
54	670.096	938.659	669.867	934.686	110	715.317	813.464	712.887	810.960
55	758.124	14.411	757.394	19.304	111	716.137	938.573	712.889	933.446
56	758.662	69.263	757.277	70.316					

[a] Numbering scheme is shown in Fig. 7.

[b] There are no reseau marks corresponding to points numbered 64 through 111 for camera B.

Table 4. Calibration test problems and effects

Calibration	Date	Comments
Bench 1	7/9/70	a. Temperature data not recorded. b. Because of new predicted encounter temperature, the TVS gain was subsequently reset and all photometric data from this test was rendered invalid. c. Imaging targets preceded photometric light transfer sequences resulting in residual image distortion of up to 20 DN to first sequence.
Environmental 1 Environmental 2 Environmental 3	7/24/70 7/28/70 7/29/70	a. Above reset of gain rendered these data invalid also. b. Imaging targets preceded photometric light transfer sequences resulting in residual image distortion of up to 20 DN to first sequence.
Environmental 4 Environmental 5 Environmental 6	8/19/70 8/20/70 8/21/70	a. B camera frames rendered invalid by replacement of B camera vidicon in September 1970. b. The A frames were illuminated with the 30.48-cm (12-in.) light cannon which had a different spectral response than the 12.70-cm (5-in.) light cannon utilized on all other calibrations. Analysis by the TVS engineering group resulted in a memorandum (Ref. 4) stating that the data was valid and could be used to photometrically correct flight frames. c. Imaging targets preceded photometric light transfer sequences resulting in residual image distortion of up to 20 DN to first sequence.

Table 4 (contd)

Calibration	Date	Comments
Bench 2	8/25/70	a. B camera vidicon replacement rendered this data invalid. b. Temperature data not recorded. c. Imaging targets preceded photometric light transfer sequences resulting in residual image distortion of up to 20 DN to first sequence.
Bench 2A	10/26/70	a. B camera frames exposed out of focus. b. Temperature data not recorded. c. Imaging targets preceded photometric light transfer sequences resulting in residual image distortion of up to 20 DN to first sequence.
Bench 2B Bench 2C	10/29/70 11/10/70	a. Temperature data not recorded. b. Imaging targets preceded photometric light transfer sequences resulting in residual image distortion of up to 20 DN to first sequence.
Environmental 7	11/3/70	a. Scene brightness target overexposed on B camera beyond decay point. This introduced negative residual image in subsequent B frames rendering them invalid. b. Imaging data preceded light transfer data.
Environmental 8	11/4/70	a. Negative residual image introduced during Environmental 7 rendered B frames invalid.

Table 4 (contd)

Calibration	Date	Comments
Environmental 9	11/5/70	a. Imaging targets preceded light transfer data.
Bench 3	2/3/71	a. Temperature data not recorded.
SAF cal verification	11/30/70	a. Temperature data not recorded.
ETR tests	3/24/71 to launch	a. Temperature data not recorded.

Table 5. Calibration data selected for use in generating temperature-interpolated PCDF

Camera	Filter	Calibration test name and temperature	Temperatures of interpolated PCDFs
B	-	ENV-9: -13.9°C	5.0°C
		BENCH-3: 25 ± 3°C	10.0°C
			15.0°C
A	1	ENV-4: 18.4°C	2.22°C
		ENV-5: 2.8°C	7.22°C
		ENV-6: -12.2°C	12.22°C
A	2	ENV-4: 18.4°C	4.71°C
		ENV-8: 2.2°C	7.22°C
			12.81°C
A	3	BENCH-3: 25 ± 3°C	
A	4	ENV-7: 18.3°C	2.22°C
		ENV-8: 2.2°C	7.22°C
		ENV-9: -12.2°C	12.22°C
A	5	BENCH-3: 25 ± 3°C	
A	6	ENV-7: 18.3°C	2.22°C
		ENV-8: 2.2°C	7.22°C
		ENV-9: -12.2°C	12.22°C
A	7	BENCH-3: 25 ± 3°C	
A	8	ENV-7: 18.3°C	2.22°C
		ENV-8: 2.2°C	7.22°C
		ENV-9: -12.2°C	12.22°C

Table 6. Picture label code definitions

Label	Inserted by program...	Function
GEOMA	GEOMA	Geometric transformation program; usually used to perform geometric decalibration, but may be used to perform any type of geometric transformation such as simple linear expansion of pixel format.
FICOR71	FICOR71	Photometric correction program for Mariner 9 pictures. The algorithm is described in Ref. 9.
TO CONVERT TO FT-L, MULTIPLY BY . . .	FICOR71	This message is added to the label by FICOR71 to provide the proper conversion factor from RDR data numbers to luminance in foot-lamberts.
STRETCH	STRETCH	Program for almost any pixel-by-pixel operation on a picture; usually used for contrast enhancement or contouring of the bit-clip type. The label may be followed by two numbers separated by a hyphen; this indicates a linear contrast stretch where the two numbers are the original DNs which have become black and white, respectively, on the enhanced picture.
...PROJECTION	MAP2	General-purpose mapping program for performing Mercator, Lambert Conformal, Polar Stereographic, and Orthographic map projections. Other data in the label block gives the particular parameters of the map such as scale, orientation, and location.
RESSAR	RESSAR	The reseau marks are eliminated by interpolation from the surrounding pixels.
SAR	SAR	General-purpose program for interpolating within a rectangular region; sometimes used to eliminate a blemish.

Table 6 (contd)

Label	Inserted by program...	Function
BLEM2	BLEM2	Special program for removing the two prominent dust speck shadows in the upper right corners of A camera frames. The data numbers within the blemishes are multiplied by a correction factor. Occasionally a ring-shaped artifact may remain.
NOISREM	NOISREM	Program for optimally subtracting a noise pattern from a picture, based on local correlation. This program is part of a sequence used for coherent noise removal.
QSAR	QSAR	Adds a constant (positive or negative) to each pixel in specified rectangular regions of a picture.
PSAR	PSAR	Adds a constant (positive or negative) to each pixel in specified polygonal regions of a picture.
ROTATE	ROTATE	Rotates a picture 90 deg clockwise or counterclockwise.
ROTATE2	ROTATE2	Rotates a picture by an arbitrary specified angle.
FLOT	FLOT	Rotates a picture 90 deg clockwise or counterclockwise, or "reflects" the picture across a vertical or horizontal centerline.
LGEOM	LGEOM	Performs same function as GEOM; only difference is in the computer algorithm.
CONCAT	CONCAT	Creates a picture consisting of several separate pictures juxtaposed. Only the label of the upper left segment is retained.

Table 6 (contd)

Label	Inserted by program...	Function
PICAVE	PICAVE	Averages several pictures, pixel by pixel. Only the label of the first one specified by the analyst is retained.
BLEM3	BLEM3	Program for removing the dust speck shadow in the lower left corner of A camera frames. The algorithm is a bilinear interpolation within a rectangular area circumscribing the blemish.
FILTER	FILTER	General-purpose convolution program used for MTF correction. May also be used for various special purpose filters too numerous to describe.
DIFFPIC	DIFFPIC	Add or subtract two pictures, pixel by pixel.
PIXH	PIXH	Program to add, subtract, multiply, or divide two pictures, pixel by pixel; may also be used to add, subtract, multiply, or divide one picture by a constant value.
GEOM	GEOM	Geometric transformation program; often used to linearly expand the pixel format, but may be used to perform a variety of geometric transformations.
GRID LAT INC = ...	OVERLAY	Overlays picture with a latitude-longitude grid. The label describes the grid spacing.
FFT2	FFT2	Two-dimensional Fourier transformation.
FFTPIC	FFTPIC	Program for converting the complex data in a Fourier transform into conventional 8-bit integer format, suitable for making a brightness display. The data numbers generated, and thus the brightness in a

Table 6 (contd)

Label	Inserted by program...	Function
FFTPIC (contd)	FFTPIC (contd)	resulting picture, may represent the AMPLITUDE (modulus), INTENSITY (modulus squared), or PHASE of the original complex samples. The label will describe which format was selected.
SPIKMASK	SPIKMASK	Program for multiplying a complex format Fourier transform by an integer format picture. This program is part of a sequence used for coherent noise removal.
MAPGRID	MAPGRID	A reference grid has been superimposed on the picture. This is usually done to aid in locating particular pixels by line and sample position. It is not related to mapping.
IPL ROLL NO. ...	(inserted by analyst)	This label indicates the IPL roll number according to which the negative is filed in the Science Data Library.
FASTFIL2	FASTFIL2	General-purpose high-pass filter program used for suppressing low spatial frequency content of a picture. The algorithm is described in Ref. 1.
NINE BIT DATA TRUNCATED TO EIGHT BITS	HB71	The original data range (0--511) has been compressed to 0--255 by eliminating the least-significant bit of the nine-bit representation. This is usually done when a subsequent program is used which cannot process the original data range.
RESRED71 CORRECTED FOR RESIDUAL IMAGE	RESRED71	Residual-image correction performed.
SUNANGLE MINNAERT ...	SUNANGLE	Compensation for varying solar illumination and phase angles within the picture field of view.

DETAILED GLOSSARY BY LOCATION FOR
FILE DEFINITION - PICTURE

06/26/73
PAGE 1

FILE IDENTIFICATION = MARINER9
NUMBER OF SEGMENTS IN FILE = 3
NUMBER OF FIELDS IN FILE = 55

RECORD FORMAT = VARIABLE BLOCKED
RECORD SIZE = 3992
BLOCK SIZE = 4000

HM7IPE PICTURE & ENHANCEMENT

```
*******************************
*     SEGMENT  1, LEVEL 1     *
*******************************
```

SEGMENT OCCURS N TIMES = 1
SEGMENT SIZE = 121
NUMBER OF FIELDS IN SEGMENT = 18

KEY FIELD 1 = DAS TYPE = C LENGTH = 8

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO	***	COLUMN HEADING	***
DAS	C	1	8				8	8				
									1	***	DAS	***
									2	***	TIME	***
REVNUM	C	9	3				3	3				
									1	***	REV	***
									2	***	NO.	***
PIID	C	9	14				14	14				
									1	***	PIID	***
CAMERA	C	12	1				1	3				
									1	***	CAM	***
PICNUM	C	13	2				2	3				
									1	***	NO.	***
									2	***	IN	***
									3	***	REV	***
PICS/REV	C	15	2				2	4				
									1	***	TOTL	***
									2	***	PICS	***
									3	***	IN	***
									4	***	REV	***
DISPLIN	C	17	1				1	1				
									1	***	D	***
									2	***	S	***
									3	***	P	***
									4	***	L	***
DCODE	C	17	1				1	1				
									1	***	D	***
									2	***	S	***
									3	***	P	***
									4	***	L	***

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO	***	COLUMN HEADING	***
CUMPICNO	C	18	5				5	5				
									1	***	CUML	***
									2	***	PIC	***
									3	***	NO.	***
EXP TIME	C	23	4				4	4				
									1	***	EXP	***
									2	***	TIME	***
									3	***	(MS)	***
EXPTIME	C	23	4				4	4				
									1	***	EXP	***
									2	***	TIME	***
									3	***	(MS)	***
FILTPOS	C	27	1				1	4				
									1	***	FILT	***
									2	***	POS	***
DAS VAR	C	28	2				2	9				
									1	***	DAS	***
									2	***	VARIATION	***
EVENTDAS	C	30	8				8	10				
									1	***	EVENT TIME	***
COMMENTS	C	38	53				53	53				
									1	***	COMMENTS	***
IPLCOUNT	F	91	3		2		10	10				
MTVCOUNT	F	94	3		3		10	10				
SPARE	C	97	25				25	25				

97
26/
127

```
*******************************
*     SEGMENT  2, LEVEL 2     *
*******************************
```

COUNT FIELD FOR SEGMENT = IPLCOUNT
SEGMENT SIZE = 100
NUMBER OF FIELDS IN SEGMENT = 23

KEY FIELD 1 = PROCTIME TYPE = C LENGTH = 8

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO	***	COLUMN HEADING	***
PROCTIME	C	1	8				8	8	1	***	PROC	***
									2	***	TIME	***
ENHC1	C	9	4				4	4	1	***	ENHC	***
									2	***	1	***
ENHC2	C	13	4				4	4	1	***	ENHC	***
									2	***	2	***
ENHC3	C	17	4				4	4	1	***	ENHC	***
									2	***	3	***
ENHC4	C	21	4				4	4	1	***	ENHC	***
									2	***	4	***
ENHC5	C	25	4				4	4	1	***	ENHC	***
									2	***	5	***
ENHC6	C	29	4				4	4	1	***	ENHC	***
									2	***	6	***
ENHC7	C	33	4				4	4	1	***	ENHC	***
									2	***	7	***
ENHC8	C	37	4				4	4	1	***	ENHC	***
									2	***	8	***
TVR TAPE	C	41	8				8	8	1	***	OUTPUT	***
									2	***	TAPE	***

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO	***	COLUMN HEADING	***
OUTAPEID	C	41	8				8	8	1	***	OUTPUT	***
									2	***	TAPE	***
TAPEFILE	C	49	2				2	4	1	***	TAPE	***
									2	***	FILE	***
TVR FILE	C	49	2				2	4	1	***	TAPE	***
									2	***	FILE	***
REMARKS	C	51	16				16	16	1	***	REMARKS	***
R&SDATE	C	67	6				6	8	1	***	R & S	***
									2	***	SHIPMENT	***
									3	***	DATE	***
R&SNUM	C	73	3				3	8	1	***	R & S	***
									2	***	SHIPMENT	***
									3	***	NUMBER	***
PROCDATE	C	76	6				6	6	1	***	PROC	***
									2	***	DATE	***
REQNBR	C	82	4				4	4	1	***	ROLL	***
									2	***	NO.	***
IPL ROLL	C	82	4				4	4	1	***	ROLL	***
									2	***	NO.	***
SHIPDATE	C	86	6				6	7	1	***	DATE	***
									2	***	SHIPPED	***
RDR STAT	C	92	3				3	6	1	***	RDR	***
									2	***	STATUS	***
SHPNUM	C	95	3				3	8	1	***	SHIPMENT	***
									2	***	NUMBER	***
IPLSPARE	C	98	3				3	3				

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*******************************
*     SEGMENT  3, LEVEL 2     *
*******************************
```

COUNT FIELD FOR SEGMENT = MTVCOUNT
SEGMENT SIZE = 74
NUMBER OF FIELDS IN SEGMENT = 14

KEY FIELD 1 = ROLLFILE TYPE = C LENGTH = 9

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO	***	COLUMN HEADING	***
ROLLFILE	C	1	9				9	10	1	***	MTVS	***
									2	***	ROLL FILE	***
ENHCVERS	C	10	3				3	5	1	***	MTC	***
									2	***	ENHC	***
									3	***	R S F	***
INTAPEID	C	13	8				8	8	1	***	INPUT	***
									2	***	TAPE	***
INTAPFIL	C	21	2				2	4	1	***	FILE	***
									2	***	NO	***
GMT	C	23	12				12	12	1	***	GMT	***
PTV TAPE	C	35	8				8	8	1	***	PTV TAPE	***
SPECIAL	C	35	8				8	8	1	***	PTV TAPE	***
PTV FILE	C	43	2				2	4	1	***	FILE	***
REMARK 2	C	45	15				15	15	1	***	MTVS REMARKS	***
FICHE NO	C	60	11				11	11				
FICHROLL	C	60	5				5	5				
FICHCARD	C	65	2				2	2				
FICHFRME	C	67	4				4	4				
MTVSPARE	C	71	4				4	4				

*** END OF MARK IV FILE DEFINITION GLOSSARY

DETAILED GLOSSARY BY LOCATION FOR
FILE DEFINITION - TV-IND

FILE IDENTIFICATION =
NUMBER OF SEGMENTS IN FILE = 1
NUMBER OF FIELDS IN FILE = 164

RECORD FORMAT = FIXED UNBLOCKED
RECORD SIZE = 508
BLOCK SIZE = 508

****
* SEGMENT 1, LEVEL 1 *
****

SEGMENT OCCURS N TIMES = 1
SEGMENT SIZE = 508
NUMBER OF FIELDS IN SEGMENT = 164

KEY FIELD 1 = DAS TIME TYPE = F LENGTH = 4

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
MEAS ID	C	1	6				6	6		
STRINGA	C	1	16				16	16		
SPACER	C	5	2				2	2		
INST NUM	F	7	1				4	4		
MTYR	F	8	2				7	7		
MTDAY	F	10	2				7	7		
MTHR	F	12	1				4	4		
MTMIN	F	13	1				4	4		
MTSEC	F	14	1				4	4		
MTMIL	F	15	2				7	7		
DAS	F	17	4				14	14		
DAS TIME	F	17	4				14	14		
STRINGB	C	21	27				27	27		
ERTYR	F	21	2				7	7		
ERTDAY	F	23	2				7	7		
ERTHR	F	25	1				4	4		
ERTMIN	F	26	1				4	4		
ERTSEC	F	27	1				4	4		
ERTMIL	F	28	2				7	7		

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
TBP	F	30	3				10	10		
S/C ID	C	33	4				4	4		
ON	F	37	2				7	7		
OSN	C	39	6				6	6		
DODSYR	F	45	2				7	7		
DODSMO	F	47	1				4	4		
DAS SER	F	47	1				4	4		
DAS-ERT	F	48	4				14	14		
MDR NUM	C	52	12				12	12		
CUPIID	C	52	14				14	14		
PON	C	52	3				3	3		
STRINGC	C	52	224				224	224		
CAMERA	C	55	1				1	1		
PIXCOUNT	C	56	2				2	2		
REVPIX	C	58	2				2	2		
DSPLN	C	60	1				1	1		
ZERO	C	61	1				1	1		
CUMPOUNT	C	62	4				4	4		
EDR NUM	C	64	12				12	12		
S/C ALT	F	76	3				10	10		
SP-CL-A	P	79	3	2			7	7		
SP-CO-A	P	82	3	2			7	7		
SP-T-A	P	85	3	2			7	7		
SP-IMF	F	88	1				4	4		
S/C TA	P	89	3	2			7	7		

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
S/C TV	P	92	2	1			5	5		
S/C RV	P	94	2	1			5	5		
SLAR-5	P	96	3	2			7	7		
SLAR-1	P	99	3	2			7	7		
SLAR-3	P	102	3	2			7	7		
SLAR-7	P	105	3	2			7	7		
SLAR-9	P	108	3	2			7	7		
PAR-5	P	111	3	2			7	7		
PAR-1	P	114	3	2			7	7		
PAR-3	P	117	3	2			7	7		
PAR-7	P	120	3	2			7	7		
PAR-9	P	123	3	2			7	7		
VAR-5	P	126	3	2			7	7		
VAR-1	P	129	3	2			7	7		
VAR-3	P	132	3	2			7	7		
VAR-7	P	135	3	2			7	7		
VAR-9	P	138	3	2			7	7		
TRF	F	141	1				4	4		
LR-5	P	142	3	2			7	7		
LR-1	P	145	3	2			7	7		
LR-3	P	148	3	2			7	7		
LR-7	P	151	3	2			7	7		
LR-9	P	154	3	2			7	7		
LOR-5	P	157	3	2			7	7		
LOR-1	P	160	3	2			7	7		

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
LOR-3	P	163	3	2			7	7		
LOR-7	P	166	3	2			7	7		
LOR-9	P	169	3	2			7	7		
SRR-5	F	172	3				10	10		
SRR-1	F	175	3				10	10		
SRR-3	F	178	3				10	10		
SRR-7	F	181	3				10	10		
SRR-9	F	184	3				10	10		
LCFR-5	F	187	1				4	4		
AOA	F	188	3				10	10		
SRP	F	191	3				10	10		
SRD	F	194	3				10	10		
ASD	P	197	2	1			5	5		
XI	P	199	3	2			7	7		
GMAP	P	202	2				4	4		
SLAT	P	204	2				4	4		
SLON	P	206	2				4	4		
STP	P	208	2				4	4		
RMAG	F	210	3				10	10		
ZLAT	P	213	3	2			7	7		
ZLON	P	216	3	2			7	7		
SS1	P	219	3	2			7	7		
SS12	P	222	3	2			7	7		
SS2	P	225	3	2			7	7		
SS22	P	228	3	2			7	7		

DETAILED GLOSSARY BY LOCATION FOR
FILE DEFINITION - TV-IND
SEGMENT 1, LEVEL 1 (CONTINUED)

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
PPS5	P	231	4	2			10	10		
PPS1	P	235	4	2			10	10		
PPS3	P	239	4	2			10	10		
PPS7	P	243	4	2			10	10		
PPS9	P	247	4	2			10	10		
PDEC5	P	251	3	2			7	7		
PRA5	P	254	3	2			7	7		
MHA	P	257	3	2			7	7		
SUNAN	P	260	2				4	4		
SPANG	P	262	2				4	4		
SHPSV	P	264	2				4	4		
AZPHA	P	266	3	2			7	7		
RL	F	269	3				10	10		
LATL	P	272	3	2			7	7		
LATR	P	275	3	2			7	7		
STRINGD	C	276	91				91	91		
LATC	P	278	3	2			7	7		
LONR	P	281	3	2			7	7		
LONL	P	284	3	2			7	7		
LONC	P	287	3	2			7	7		
NORAN	P	290	2				4	4		
SPL05	P	292	2				4	4		
SSL05	P	294	2				4	4		
PST05	P	296	2				4	4		
PP1835H	F	298	3				10	10		

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
PP1835W	F	301	3				10	10		
MDEED	P	304	2				4	4		
MDAY	P	306	2				4	4		
FIL ID	F	308	1				4	4		
FIL MODE	F	309	1				4	4		
EI	F	310	1				4	4		
EM	F	311	1				4	4		
CAM ID	F	312	1				4	4		
PICT ID	F	313	1				4	4		
LINES	F	314	2				7	7		
APV	F	316	1				4	4		
VT	F	317	2				7	7		
VR1	P	319	4	2			10	10		
VR2	P	323	4	2			10	10		
VR3	P	327	4	2			10	10		
C11	P	331	4	6			9	9		
C12	P	335	4	6			9	9		
C13	P	339	4	6			9	9		
C21	P	343	4	6			9	9		
C22	P	347	4	6			9	9		
C23	P	351	4	6			9	9		
C31	P	355	4	6			9	9		
C32	P	359	4	6			9	9		
C33	P	363	4	6			9	9		
ISLAT	P	367	4	4			9	9		

DETAILED GLOSSARY BY LOCATION FOR
FILE DEFINITION - TV-IND
SEGMENT 1, LEVEL 1 (CONTINUED)

FIELD NAME	FIELD TYPE	FIELD LOCATION	FIELD LENGTH	DECIMAL PLACES	COUNT FIELD FOR SEGMENT	EDIT CODES ( ) ( ) ( )	EDIT LENGTH	OUTPUT WIDTH	LINE NO ***	COLUMN HEADING ***
STRINGE	C	367	60				60	60		
ISLON	P	371	4	4			9	9		
INORAN	P	375	4	4			9	9		
LR-2	P	379	3	2			7	7		
LOR-2	P	382	3	2			7	7		
LR-4	P	385	3	2			7	7		
LOR-4	P	388	3	2			7	7		
LR-6	P	391	3	2			7	7		
LOR-6	P	394	3	2			7	7		
LR-8	P	397	3	2			7	7		
LOR-8	P	400	3	2			7	7		
QST	P	403	4	4			9	9		
QLAT	P	407	4	4			9	9		
QLON	P	411	4	4			9	9		
ISRR-5	F	415	4	2			14	14		
SRR-Q	F	419	4	2			14	14		
QANG	P	423	4	4			9	9		
PIID	C	427	20				20	20		
RAA	C	427	82				82	82		
RAA1	C	447	62				62	62		

*** END OF MARK IV FILE DEFINITION GLOSSARY

MARINER 9

SEDR FINAL DATA TAPE

71-051A-04K

THIS DATA SET HAS BEEN RESTORED. THERE WAS ORIGINALLY ONE 7-TRACK. 556 BPI TAPE. WRITTEN IN ASCII. THERE IS ONE RESTORED TAPE. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK. 6250 BPI. THE TAPE WAS CREATED ON AN IBM 360 COMPUTER. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING D NUMBER AND TIME SPAN IS AS FOLLOWS

DR#	DS#	DD#	FILES	TIME SPAN
DR004189	DS004189	D012866	1	11/12/71 - 10/18/72

See 71-051A-04T

MARINER 9 SEDR TV

MM71TV

```
J864098C0700481C0599265D0387563D0140769D0458438C0558776C06578D28332C00766D31496C04157C12233C04792C33
324C0002361C0054490D3378022C0487D5A50485E1441509548CD7D6C9C2F1F24040D7F0F0F0F1F2404040404040F0F5F540
40C4C1D9D240C3C9D9C34B40E2E3D9D240E3D9E4D5C3C1E3C5E240C54B40D6C640C3D44B4040404040404040404040404040
4040404040404040
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```
E3E55CC240400107B3013B09223702E20016CD000047013C001C360130FC8AF74040F7F5000040F6F5F3F0400000000016CD   REC   2. LENGTH   508
05D7D6F1C2F0F2F2F1D7F0F0F0F0F25C5CC5C4D95C5C5C5C5C0B5D2809723C11967C00035C001164 7D000C032D08992C0320
3C14673C05735C12118C00000C00000C00000C00000C00000C09011C09046C09046C09089C09090C0106656C03189D00470C
0321450659 8C00740C32275C14891C34135C11294C0B6A530B6A270B6A260B69CA0B69CA010005BE0B8D430B1121002C0650
8C089D014D060C000C0B6A630230 5D35765C04928C68896D04928C68896D0000000C0000000C0000000C0000000C0000000C
02252D31967C01310C179C000C060C00000C0B6A5B05859D04928D02237D05285C04928D20351C359C269C179C000C00250A
000F4A000C000C02000101000F02BA00004126636 78D4472237C9082168C0708531C0625727C0326263C0044722C0501226D
0864159C0704260C0597693D0383118D0140856D0608499C3597512C05254D08234C00847C33382C04453C13535C06610C00
822C0002616C0748342C0415365C047588A404758BC10760816CD7D6C9C2F1F34040D7F0F0F0F1F3404040404040F0F7F040
40404040404040404040404040404040404040404040404040404040404040404040404040404040404040404040404040
4040404040404040
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E3E55CC240400107B3013B0A241F02D60016D9080047013C00223503ACFC99674040F7F5000040F6F5F3F0400000000016D9   REC   3. LENGTH   508
0DD7D6F1C2F0F3F2F1D7F0F0F0F0F35C5CC5C4D95C5C5C5C5C0B2E4F09697C11971C00011D0011643D000C032D07756C0421
0C13912C05298C12976C06011C00000C00000C00000C00000C03465C09050C09060C09067C09076C0102030C04900D00948D
0268 3605697C07861C33031C16735C35426C14101C0B30A60B3B480B3B360B3B270B3B1400FFFA4C0B52130AE57B002C0650
3C089D014D075C034C0B3B8A02305D01263C04928C68896D04928C68896D0151780C0000000C0000000C0000000C0000000C
02252D31967C00760C187C060C054C00000C0B3B8204928D04928D04928D04928D04928D04928D072C246C187C000C001BA0
00102A000C000C02000101001102BC00004118262 10D3758308C8605175C0707436C0629395C0321551C0051736C0499849D
0864565C0704881C0594988D0386174D0140946D0758557C0726271C06021D19093C00648D34490C02759C15739C06998C03
35C0001218C00040 39D0998442C045F00EB045EAC320792535CD7D6C9C2F1F44040D7F0F0F0F1F4404040404040F0F8F540
40C2D9C9C7C8E340C1D4C1E9D6D5C9E260E3E8D7C540E2E3D9C5C1D240D5D940E2D6D3C9E240D34B4040404040404040404040
404040404040404040
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E3E55CC240400107B3013B0B260702CC0016E5100047013C00283502E5FCA7D74040F7F5000040F6F5F3F0400000000016E5   REC   4. LENGTH   508
15D7D6F1C2F0F4F2F1D7F0F0F0F0F45C5CC5C4D95C5C5C5C5C0AFF7509712C11978C00037C0011640D000C032D11454C0389
3C14469C05962C12808C06011C00000C00000C00000C00000C09003C09036C09062C09071C09090C0107248C04429D00024C
0347 3605873C12634C34760C17987C01215C15382C0B0CA7080C850B0C580B0C460B0C180100018F0B07520ABDD5002C0649
7C089D014D090C034C0B0CB002304D02761C04928C68896D04928C68896D0000000C0000000C0000000C0000000C0000000C
02256D31987C00909C150C060C056C01338C0B0CA904928D04928D04928D04928D04928D04928D150C240C150C000C001F17
000 5AF000C000C02000101001302BA00004009887 76D3044302C8128131C0706642C0626803C0328288C0045101C0502924D
0863152C0706131C0595134D0383657D0141039D0908614C1509960C04246D19369C00575C00295C03453C16977C07273C05
998C0002518C0405660C1376642C0450F140044F2E470391429CD7D6C9C2F1F54040D7F0F0F0F1F5404040404040F1F0F040
40C3D47EF9F06F40E2C1D4C540E2E3D9C5C1D2E240D9D6E3C1E3C5C440E661D7D3C1D5C5E3404040404040404040404040404040
4040404040404040
```

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E3E55CC240400107B3013B0C272B02BF0016F1180047013C002E3501B5FCB6474040F7F5000040F6F5F3F0400000000016F1   REC   5. LENGTH   508
1DD7D6F1C2F0F5F2F1D7F0F0F0F0F55C5CC5C4D95C5C5C5C5C0AD09B09681C11958C00009C0011637D000C032D05229C0455
0C13119C04444C13206C06024C00000C00000C00000C00000C00845C09065C09059C09064C09058C0101915D05366D02066D
01605C05443C09882C35759C20034C02100C17364C0AD0BF0ADD780ADD830ADD7B0ADD860 FFF4B70ABFE80A99D6002C0649
2C089D014D105C008C0ADDD602304D04259C04928C68896D04928C68896D0142973C0000000C0000000C0000000C0000000C
02256D31987C00825C177C060C159C00000C0ADDCE04928D04928D04928D04928D04928D04928D073C018C177C000C0017D0
001221000C000C02000101001502AF00004001512 74D2330216C7651037C0708698C0626066C0325249C0049917C0504353D
0862053C0703743C0594700D0388685D0141135D1058669C0734930C06994D23710C01938D01160C01698C19073C06301C04
687C0001330C0387299D1234375C04398AE3043A2443102911 3CD7D6C9C2F1F64040D7F0F0F0F1F6404040404040F1F0F540
0C3D47EF9F06F40E2C1D4C540E2E3D9C5C1D2E240D9D6E3C1E3C5C440E661D7D3C1D5C5E3404040404040404040404040404040
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4040404040404040

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E3E55CC240400107B30138 0D291302B30016FD200047013C003A3001C1FCC4B74040F7F5000040F6F5F3F0400000000016FD  REC     7, LENGTH   508
25D7D6F1C2F0F7F2F1D7F0F0F0F0F75C5CC5C4D95C5C5C5C5C0AA1BF09708C11966C00012C0011633D000C032D08290C0390
0C14195C05506C12738C06016C00000C00000C00000C00000C05220C09045C09055C09071C09079C0103777C04455D00502D
02943C05963C11762C01761C21127C04022C18298C0AA6D90AAEC10AAEAF0AAE900AAE7E00FFFD3A0A8BD20A78F6002C0648
7C089D014D120C051C0AAEFA02304D05758C04928C68896D04928C68896D0147438C0000000C0000000C0000000C0000000C
02232D31818C00799C185C060C057C00000C0AAEF104928D04928D04928D04928D04928D04928D068C254C185C000C001DC6
000FCC000C000C020001010019 02BC00004193137 00D1616048C7173892C0707328C0628058C0324390C0048347C0500809D
0864206C0705230C0595593D0384601D0141235D1208722C0680309C05853D23441C00081D03136C03274C20057C06944C07
611C0001516C0136815C1388586C04292CD0042805440764170CD7D6C9C2F1F84040D7F0F0F0F1F84040404040F1F2F040
40E2D3C9C7C8E340C2D9D6C1C440C4C1D9D2C5D5C9D5C740E2C9D9C5D5E4D440D44BE34BE4E2E4C1D340E24B40E2E3D94040
```