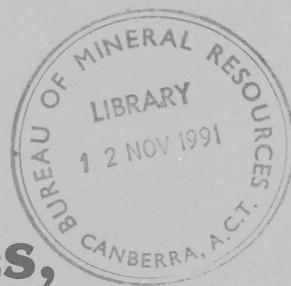


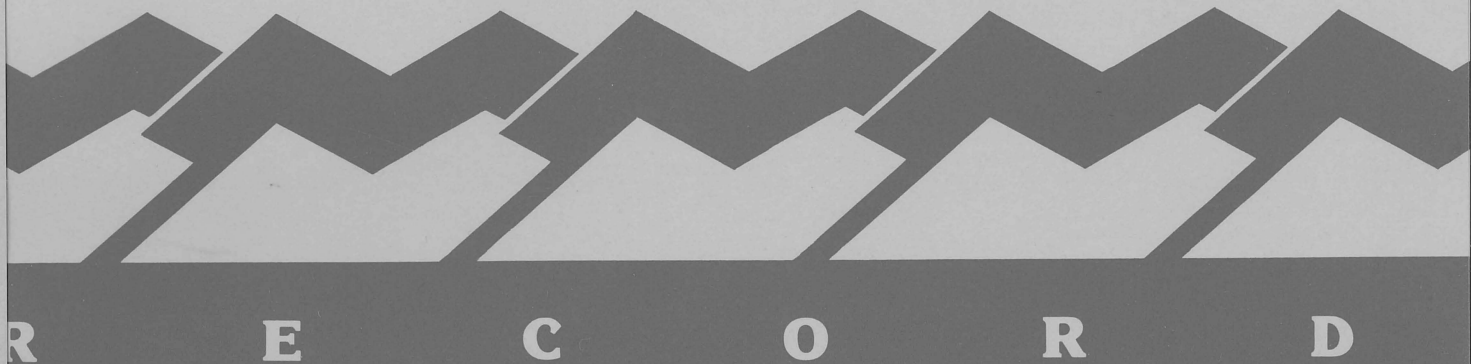
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LAND SEISMIC TAPE FORMATS
& DISCO EXAMPLES

by

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1991/98

C.2

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Bureau of Mineral Resources,
Geology and Geophysics

LAND SEISMIC TAPE FORMATS & DISCO EXAMPLES

Land Seismic

June, 1990



LAND SEISMIC TAPE FORMATS & DISCO EXAMPLES

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1.1 SEG-Y HEADER FORMAT FOR LAND SEISMIC TAPE ARCHIVAL

Based on : Barry et. al., 1975

BINARY TRACE HEADER

NAME	BYTE	DESCRIPTION
LINETRC	1-4	* Trace sequence number within line; numbers continue to increase if additional reels are required on the same line.
REELTRC	5-8	Trace sequence number within each reel; each reel starts with trace number one.
FFID	9-12	* Original field record number.
CHAN	13-16	* Trace number within original field record.
ESPNUM	17-20	Energy source point number; used when more than one record occurs at the same effective surface location.
CDP	21-24	CDP ensemble number.
SEQNO	25-28	Trace number within the CDP ensemble; each ensemble starts with trace number one.
TRACEID	29-30	* Trace identification code : 1 = seismic data 4 = time break 7 = timing 2 = dead 5 = uphole 8 = water break 3 = dummy 6 = sweep 9 - N = optional (N = 32,767)
VSTACK	31-32	Number of vertically summed traces yielding this trace. (1 is one trace, 2 is two summed traces, etc).
FOLD	33-34	Number of horizontally stacked traces yielding this trace. (1 is one trace, 2 is two stacked traces, etc).
DATAUSE	35-36	Data use : 1 = production. 2 = test.
SOFFSET	37-40	Distance from source point to receiver group (negative if opposite to direction in which line is shot).
RELEV	41-44	Receiver group elevation; all elevations above sea level are positive and below sea level are negative.
SELEV	45-48	Surface elevation at source.
SDEPTH	49-52	Source depth below surface (a positive number).
RDATUM	53-56	Datum elevation at receiver group.
SDATUM	57-60	Datum elevation at source.
WDEPTHSO	61-64	Water depth at source.
WDEPTHRC	65-68	Water depth at group.
ED-SCAL	69-70	Scalar to be applied to all elevations and depths specified in bytes 41-68 to give the real value. Scalar = 1, +/- 10, +/- 100, +/- 1,000, or +/- 10,000. If positive, scalar is used as a multiplier; if negative scalar is used as a divisor.
CO-SCAL	71-72	Scalar to be applied to all co-ordinates specified in bytes 73-88 to give the real value. Scalar = 1, +/- 10, +/- 100, +/- 1,000, or +/- 10,000. If positive, scalar is used as a multiplier; if negative scalar is used as a divisor.

1.1 SEG-Y HEADER FORMAT FOR LAND SEISMIC TAPE ARCHIVAL cont.

BINARY TRACE HEADER cont.

NAME	BYTE	DESCRIPTION
SHT-X	73-76	Source co-ordinate - X. If the coordinate units are in seconds of arc, the X values represent longitude and the Y values latitude. A positive value designates the number of seconds east of the Greenwich Meridian or north of the equator and a negative value designates the number of seconds south or west.
SHT-Y	77-80	
REC-X	81-84	
REC-Y	85-88	Coordinate units: 1 = length (feet or metres). 2 = seconds of arc.
COORUNIT	89-90	
WVEL	91-92	Weathering velocity.
SUBWVEL	93-94	Subweathering velocity.
SHUPHOLE	95-96	Uphole time at source.
RCUPHOLE	97-98	Uphole time at group.
SHSTAT	99-100	Source static correction.
RCSTAT	101-102	Group static correction.
STAPPLY	103-104	Total static applied. (Zero if no static has been applied).
LAGTIMEA	105-106	Lag time A. Time in ms between end of 240-byte trace identification header and time break. Positive if time break occurs after end of header, negative if time break occurs before end of header. Time break is defined as the initiation pulse which may be recorded on an auxiliary trace or as otherwise specified by the recording system.
LAGTIMEB	107-108	Lag time B. Time in ms between time break and initiation time of the energy source. May be positive or negative.
DELAY	109-110	Delay recording time. Time in ms between initiation time of energy source and time when recording of data samples begins. (For deep water work if data recording does not start at zero time.)
MUTESTRT	111-112	Mute time : start.
MUTEEND	113-114	Mute time : end.
NSAMPLES	115-116	* Number of samples in this trace.
SRATE	117-118	* Sample interval in usec for this trace.
GAINTYPE	119-120	Gain type of field instruments : 1 = fixed. 2 = binary. 3 = floating point. 4 - N = optional use.
INGCONST	121-122	Instrument gain constant.
INITGAIN	123-124	Instrument early or initial gain (dB).
	125-126	Correlated : 1 = yes. 2 = no.
SWEEPSRT	127-128	Sweep frequency at start.
SWEEPEND	129-130	Sweep frequency at end.
SWEEPLNG	131-132	Sweep length in ms.
SWEEPTYP	133-134	Sweep type : 1 = linear. 2 = parabolic. 3 = exponential. 4 = other.
SWEEPSTP	135-136	Sweep trace taper length at start in ms.
SWEEPETP	137-138	Sweep trace taper length at end in ms.
TAPERTYP	139-140	Taper type : 1 = linear. 2 = cos**2. 3 = other.

1.1 SEG-Y HEADER FORMAT FOR LAND SEISMIC TAPE ARCHIVAL cont.

BINARY TRACE HEADER cont.

NAME	BYTE	DESCRIPTION
ALIASFIL	141-142	Alias filter frequency, if used.
ALIASLOP	143-144	Alias filter slope.
NOTCHFIL	145-146	Notch filter frequency, if used.
NOTCHSLP	147-148	Notch filter slope.
LOWCUT	149-150	Low cut frequency, if used.
HIGHCUT	151-152	High cut frequency, if used.
LOWCSLOP	153-154	Low cut slope.
HICSLOP	155-156	High cut slope.
YEAR	157-158	Year data recorded.
DAY	159-160	Day of year.
HOUR	161-162	Hour of day (24 hour clock).
MINUTE	163-164	Minute of hour.
SECOND	165-166	Second of minute.
TIMEBASE	167-168	Time basis code. 1 = local. 2 = GMT. 3 = other.
TRWEIGHT	169-170	Trace weighting factor : defined as $2^{*(-N)}$ volts for the least significant bit. (N = 0, 1,...,32,767).
RSTASWP1	171-172	Geophone group number of roll switch position one.
RSTATRC1	173-174	Geophone group number of trace number one within original original field record.
RSTATRCN	175-176	Geophone group number of last trace within original field record.
GAPSIZE	177-178	Gap size (total number of groups dropped).
OVERTRVL	179-180	Overtravel associated with taper at beginning or end of line : 1 = down (or behind). 2 = up (or ahead).

OPTIONAL INFORMATION : BYTES 181-240

CDP-STAT	183-184	CDP station number.
SHT-STAT	185-186	Shot station number.
REC-STAT	187-188	Receiver station number.
SHOT	189-190	Shot number.
CDP-X	191-194	CDP coordinate - X. Coordinate units as per bytes 73-88.
CDP-Y	195-198	CDP coordinate - Y.
AIRMAG	199-202	Aeromagnetic value in nT.
GRAVITY	203-206	Gravity value in mgal.
SHRSTAT	207-208	Shot residual static.
RCRSTAT	209-210	Receiver residual static.
CDP-ELEV	211-212	CDP elevation.
DMXSHT	213-214	Original demux shot number.
SHIFT	215-216	Time shift

* Strongly recommended that this information always be recorded.

1.1 SEG-Y HEADER FORMAT FOR LAND SEISMIC TAPE ARCHIVAL cont.

BINARY REEL HEADER

Based on : Barry et. al., 1975

NAME	BYTE	DESCRIPTION
JID	3201-3204	Job identification number.
LINE	3205-3208	* Line number (only one line per reel).
REELN	3209-3212	* Reel number.
NDTR	3213-3214	* Number of data traces per record (includes dummy and zero traces inserted to fill out the record or CDP).
NATR	3215-3216	* Number of auxiliary traces per record (includes sweep, timing, gain, sync, and all other non-data traces).
ISAMP	3217-3218	* Sample interval in usec (for this reel of data).
SINTF	3219-3220	Sample interval in usec (for original field recording).
NOSTR	3221-3222	* Number of samples per data trace (for this reel of data).
NOSTF	3223-3224	Number of samples per data trace (for original field recording).
IDFC	3225-3226	Data sample format code : 1 = floating point (4 bytes) 2 = fixed point (4 bytes) 3 = fixed point (2 bytes) 4 = fixed point w/gain code (4 bytes)
NTCDP	3227-3228	Auxiliary traces use the same number of bytes per sample. * CDP fold (expecyed number of data traces per CDP ensemble).
TSCOD	3229-3230	Trace sorting code : 1 = as recorded (no sorting) 2 = CDP ensemble 3 = single fold continuous profile 4 = horizontally stacked
VSCOD	3231-3232	Vertical sum code : 1 = no sum 2 = two sum N = N sum (N<32767)
SFST	3233-3234	Sweep frequency at start (Vibroseis)
SFEND	3235-3236	Sweep frequency at end (Vibroseis)
SWLEN	3237-3238	Sweep length (ms) (Vibroseis)
STCOD	3239-3240	Sweep type code (Vibroseis): 1 = linear 2 = parabolic 3 = exponential 4 = other
TNOSC	3241-3242	Trace number of sweep channel (Vibroseis)
STTLS	3243-3244	Sweep trace taper length in ms at start if tapered (the taper starts at zero time and is effective for this length)
STTLE	3245-3246	Sweep trace taper length in ms at end (the ending taper starts at sweep length minus the taper length at end)

1.1 SEG-Y HEADER FORMAT FOR LAND SEISMIC TAPE ARCHIVAL cont.

BINARY REEL HEADER cont.

NAME	BYTE	DESCRIPTION
TATYP	3247-3248	Taper type : 1 = linear 2 = cos**2 3 = other
CORR	3249-3250	Correlated data traces : 1 = no 2 = yes
BGREC	3251-3252	Binary gain recovered : 1 = yes 2 = no
AMREC	3253-3254	Amplitude recovery method : 1 = none 2 = spherical divergence 3 = AGC 4 = other
MSYST	3255-3256	* Measurement system : 1 = metres 2 = feet
ISPOL	3257-3258	Impulse signal polarity : 1 = increase in pressure or upward geophone case movement gives negative number on tape 2 = increase in pressure or upward geophone case movement gives positive number on tape
SLCOD	3259-3260	Vibratory polarity code : seismic signal lags pilot signal by : 1 = 337.5 to 022.5 deg 2 = 022.5 to 067.5 3 = 067.5 to 112.5 4 = 112.5 to 167.5 5 = 157.5 to 202.5 6 = 202.5 to 247.5 7 = 247.5 to 292.5 8 = 292.5 to 337.5
	3261-3600	Unassigned - for optional information

* Strongly recommended that this information always be recorded.

1.2 SEG-Y HEADER FORMAT FOR SPOCK/FJT TAPES

Based on : Brassil et. al., 1981

BINARY TRACE HEADER

NAME	BYTE	DESCRIPTION
TSNL	1-4	* Trace sequence number within line; numbers continue to increase if additional reels are required on the same line.
TSNR	5-8	Trace sequence number within each reel; each reel starts with trace number one.
FRN	9-12	* Original field record number.
TNFR	13-16	* Trace number within original field record.
ESPN	17-20	Energy source point number; used when more than one record occurs at the same effective surface location.
CDPN	21-24	CDP ensemble number.
CDPT	25-28	Trace number within the CDP ensemble; each ensemble starts with trace number one.
TID	29-30	* Trace identification code : 1 = seismic data 4 = time break 7 = timing 2 = dead 5 = uphole 8 = water break 3 = dummy 6 = sweep 9 = reverse trace 10-N = optional (N = 32,767)
NVST	31-32	Number of vertically summed traces yielding this trace. (1 is one trace, 2 is two summed traces, etc).
NHST	33-34	Number of horizontally stacked traces yielding this trace. (1 is one trace, 2 is two stacked traces, etc).
DUSE	35-36	Data use : 1 = production. 2 = test.
DSR	37-40	Distance from source point to receiver group (negative if opposite to direction in which line is shot).
ELEVR	41-44	Receiver group elevation; all elevations above sea level are positive and below sea level are negative.
ELEVS	45-48	Surface elevation at source.
DOS	49-52	Source depth below surface (a positive number).
DTMR	53-56	Datum elevation at receiver group.
DTMS	57-60	Datum elevation at source.
WDS	61-64	Water depth at source.
WDR	65-68	Water depth at group.
ESCLR	69-70	Scalar to be applied to all elevations and depths specified in bytes 41-68 to give the real value. Scalar = 1, +/- 10, +/- 100, +/- 1,000, or +/- 10,000. If positive, scalar is used as a multiplier; if negative scalar is used as a divisor.
CSCLR	71-72	Scalar to be applied to all co-ordinates specified in bytes 73-88 to give the real value. Scalar = 1, +/- 10, +/- 100, +/- 1,000, or +/- 10,000. If positive, scalar is used as a multiplier; if negative scalar is used as a divisor.
SXC	73-76	Source co-ordinate - X. If the coordinate units are in seconds of arc, the X values represent longitude and the Y

1.2 SEG-Y HEADER FORMAT FOR SPOCK/FJT TAPES cont.

BINARY TRACE HEADER cont.

NAME	BYTE	DESCRIPTION
SYC	77-80	values latitude. A positive value designates the number of seconds east of the Greenwich Meridian or north of the
RXC	81-84	equator and a negative value designates the number of seconds south or west.
RYC	85-88	
CU	89-90	Coordinate units: 1 = length (feet or metres). 2 = seconds of arc.
WV1	91-92	Weathering velocity.
WV2	93-94	Subweathering velocity.
TUH	95-96	Uphole time at source.
TUHG	97-98	Uphole time at group.
SSC	99-100	Source static correction.
RSC	101-102	Group static correction.
TSA	103-104	Total static applied. (Zero if no static has been applied).
LTA	105-106	Lag time A. Time in ms between end of 240-byte trace identification header and time break. Positive if time break occurs after end of header, negative if time break occurs before end of header. Time break is defined as the initiation pulse which may be recorded on an auxiliary trace or as otherwise specified by the recording system.
LTB	107-108	Lag time B. Time in ms between time break and initiation time of the energy source. May be positive or negative.
DRT	109-110	Delay recording time. Time in ms between initiation time of energy source and time when recording of data samples begins. (For deep water work if data recording does not start at zero time.)
MTS	111-112	Mute time : start.
MTE	113-114	Mute time : end.
NSAMP	115-116	* Number of samples in this trace.
ISAMP	117-118	* Sample interval in usec for this trace.
GT	119-120	Gain type of field instruments : 1 = fixed. 2 = binary. 3 = floating point. 4 - N = optional use.
IGC	121-122	Instrument gain constant.
IEG	123-124	Instrument early or initial gain (dB).
CORR	125-126	Correlated : 1 = yes. 2 = no.
	127-140	Reserved for vibroseis parameters.
AAF	141-142	Alias filter frequency, if used.
AAS	143-144	Alias filter slope.
NF	145-146	Notch filter frequency, if used.
NS	147-148	Notch filter slope.
LCF	149-150	Low cut frequency, if used.
HCF	151-152	High cut frequency, if used.
LCS	153-154	Low cut slope.
HCS	155-156	High cut slope.
YEAR	157-158	Year data recorded.

1.2 SEG-Y HEADER FORMAT FOR SPOCK/FJT TAPES cont.

BINARY TRACE HEADER cont.

NAME	BYTE	DESCRIPTION
DAY	159-160	Day of year.
HOUR	161-162	Hour of day (24 hour clock).
MINUTE	163-164	Minute of hour.
SECOND	165-166	Second of minute.
TBC	167-168	Time basis code. 1 = local. 2 = GMT. 3 = other.
TWF	169-170	Trace weighting factor : defined as $2^{*(-N)}$ volts for the least significant bit. (N = 0, 1,...32,767).
GRS1	171-172	Geophone group number of roll switch position one.
GNF1	173-174	Geophone group number of trace number one within original original field record.
GNFN	175-176	Geophone group number of last trace within original field record.
GAP	177-178	Gap size (total number of groups dropped).
OVT	179-180	Overtravel associated with taper at beginning or end of line : 1 = down (or behind). 2 = up (or ahead).

OPTIONAL INFORMATION : BYTES 181-240

SSN	181-184	Shot station number. (185-186 in SEG-Y 1.1)
RSN	191-192	Receiver station number. (187-188 in SEG-Y 1.1)
SHINT	193-196	Nominal shot spacing (m).
GRINT	197-200	Nominal group interval (m). (floating point)
POFS	202-203	Perpendicular offset of source.
SOSTN	204-205	Distance from source to source station parallell to traverse (+'ve in direction of shooting)
ESSNF	206-209	Gather shot location. (floating point)
CHANS	214-215	Number of seismic channels. (SN368)
FCP	216-217	First channel position.(SN368)
RUP	218-219	Recorder unit position. (SN368)
MLC	220-221	Missing low channels. (SN368)
REAR	222-223	Number of channels in rear. (SN368)
GAP	224-225	Number of channels in gap. (SN368)
FRONT	226-227	Number of channels in front. (SN368)
MHC	228-229	Missing high channels. (SN368)
INV	230-231	Polarity of channel reversed.

* Strongly recommended that this information always be recorded.

BINARY REEL HEADER

See section 1.1

1.3 SEG-Y HEADER FORMAT FOR 1980-82 GSI TAPES

The following is a description of the SEG-Y format used by GSI for the demultiplexed SEG-Y tapes from the Eromanga Basin project 1980-82

The 1600 word 'ASCII' header is probably EPCDIC. The 200 word binary reel header and the first 120 words of the trace header are reproduced below. These binary numbers have been taken directly from one of the 1600 bpi tapes. The significant words have been labeled.

**200 WORD BINARY REEL HEADER

0	000	000	001	111	111	
1	110	101	000	100	010	
0	000	111	010	111	111	
0	010	111	001	000	111	
0	000	000	010	100	111	
1	100	101	111	000	000	
0	000	000	000	110	000	NDTR word 7
0	000	000	000	000	000	
0	000	111	110	100	000	ISAMP word 9
0	000	000	000	000	000	
0	001	001	110	001	001	NOSTR word 11
0	001	001	110	001	001	NOSTF word 12
0	000	000	000	000	001	IDFC word 13
0	000	000	000	000	000	
0	000	000	000	000	001	TSCOD word 15
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	000	
0	000	000	000	000	001	MSYST word 28

**All the remainder are zeroes.

1.3 SEG-Y HEADER FORMAT FOR 1980-82 GSI TAPES cont.

[illegible]

```

**All the remainder are zeroes.

```

1.3 SEG-Y HEADER FORMAT FOR 1980-82 GSI TAPES cont.

BINARY REEL HEADER

NAME	WORD	DESCRIPTION
NDTR	7	Number of data traces per record (includes dummy and zero traces inserted to fill the record or CDP).
ISAMP	9	Sample interval in microseconds.
NOSTR	11	Number of samples per data trace (for this reel of data).
NOSTF	12	Number of samples per data trace (for original field record).
IDFC	13	Data sample format code : 1 = Floating point (2 words) 2 = Fixed point (2 words) 3 = Fixed point (1 word) 4 = Fixed point with gain code (2 words)
TSCOD	15	Auxiliary traces use the same number of words per sample Trace sorting code : 1 = As recorded (no sorting) 2 = CDP ensemble 3 = Single fold continuous profile 4 = Horizontally stacked
MSYST	28	Measurement system : 1 = Metres 2 = Feet

BINARY TRACE HEADER

NAME	BYTE	DESCRIPTION
TSNL	1-4	Trace sequence number within line; numbers continue to increase if additional reels are required on the same line.
TSNR	5-8	Trace sequence number within each reel; each reel starts with trace number one.
FRN	9-12	Original field record number.
CHAN	13-16	Trace number within original field record.
TID	29-30	Trace identification code : 1 = seismic data 4 = time break 7 = timing 2 = dead 5 = uphole 8 = water break 3 = dummy 6 = sweep 9 - N = optional (N = 32,767)
NVST	31-32	Number of vertically summed traces yielding this trace. (1 is one trace, 2 is two summed traces, etc).
CU	89-90	Coordinate units: 1 = length (feet or metres). 2 = seconds of arc.
MTE	113-114	Mute time : end.
NSAMP	115-116	Number of samples in this trace.
ISAMP	117-118	Sample interval in usec for this trace.

(From Appendix B; BMR seismic processing system - SPOCK, BMR Record 1981/45)

2.1 DFS-IV (1976) DEMUX EXAMPLE, 800 bpi, NRZI FORMAT

```

**-----**
**
**      DEMUX EXAMPLE FOR SEG-B DATA 800 BPI (NRZI)
**      Recorded on DFS-IV in 1976
**      Sample rate      2ms
**      No. channels     24
**
**      NOTE : DISCO Version 6 job
**      Reference : DFS-IV Manual, A12 to A13
**-----**
*JOB      CAREP      3      TIM      DEMUX GALILEE DATA 800 BPI
*CALL     DEMUX      6000    2      SEGB      800
SHOTSEQ 1
HEADER   GAP        84      20
**-----**
**      SEPSW       : For SEG-B = GAP
**      LENGTH      : Header block length, 36 + 2 * No. chan = 84 bytes
**      DLEN        : Default = 20 bytes
**-----**
ID        4          2          1
**-----**
**      FORMAT      : 4 Bits BCD
**      LENGTH      : No. of bytes in each record number = 2
**      INDEX       : Byte number for start of record number = 1
**-----**
SCAN      74         4          FDFDFDFD
**-----**
**      NBSCAN      : Bytes per scan, 14 + 2.5 * No. chan = 74
**      NBSOS       : No. of bytes in SOS code = 4 bytes
**      SOS         : Start of scan code = FDFDFDFD
**      SOSALT      :
**      SOSMASK     :
**-----**
ERROR     5          1000      1000
CHANNEL
IG        IG        IG        IG        IG        GC        SG        SG
SG        SG        GC        SG        SG        SG        SG        GC
SG        SG        SG        SG        GC        SG        SG        SG
SG        GC        SG        SG        SG        SG        GC        SG
SG        SG        SG
**-----**
**      5 Auxilary channels (IG : ignore)
**      24 Data channels (SG : seismic channel demultiplex & gain correct)
**      Gain byte every fourth channel (GC)
**-----**
RECORD
2          8          76-011
*CALL     TAPOUT    1600      1          DEMXGAL          3
*END

```

2.2 DFS-IV (1983) DEMUX EXAMPLE, 1600 bpi, PE FORMAT

```

**-----**
**
** DEMUX EXAMPLE FOR SEG-B DATA 1600 BPI (PE)
** Transcribed onto DFS-IV in 1983
** Sample rate      2ms
** No. channels     24 active, 24 dead
**
** NOTE : DISCO VERSION 6 JOB
** Reference : DFS-IV Manual, A12 to A13
**-----**
*JOB   CAREP   A      BRG      DEMUX
*CALL  DEMUX   24000  2        SEGB   1600
SHOTSEQ 1
HEADER GAP      132    20
**-----**
** SEPSW      : For SEG-B = GAP
** LENGTH     : Header block length, 36 + 2 * No. chan = 132 bytes
** DLEN       : Default = 20 bytes
**-----**
ID      4      2      1
**-----**
** FORMAT     : 4 Bits BCD
** LENGTH     : No. of bytes in each record number = 2
** INDEX      : Byte number for start of record number = 1
**-----**
SCAN    134    4      FDFDFDFF
**-----**
** NBSCAN     : Bytes per scan, 14 + 2.5 * No. chan = 134
** NBSOS      : No. of bytes in SOS code = 4 bytes
** SOS        : Start of scan code = FDFDFDFF
** SOSALT     :
** SOSMASK    :
**-----**
ERROR   5      1000   1000
CHANNEL
IG      IG      IG      IG      IG      IG      IG      GC
SG      SG      SG      SG      GC      SG      SG      SG
SG      GC      SG      SG      SG      SG      GC      SG
SG      SG      SG      GC      SG      SG      SG      SG
GC      SG      SG      SG      SG
RECORD
230     278     83-011
282     323     83-012
*CALL   TAPOUT  6250   1      DEMUX      1
*END

```

2.3 SN338 (1989) DEMUX EXAMPLE, 1600 bpi, PE FORMAT

```

**-----**
**                                     **
** DEMUX EXAMPLE FOR SEG-B DATA 1600 BPI (PE) **
** Recorded on SN338 in 1989 **
** Sample rate      1ms **
** No. channels     48 **
**                                     **
** NOTE : DISCO VERSION 6 JOB **
** Reference : SN338 Manual **
**-----**
*JOB   COBAR   C2HR   PALMER   SEGB DEMUX OF HIRES DATA
*CALL  DEMUX   10000   1       SEGB   1600
HEADER GAP      120
**-----**
** SEPSW   : For SEG-B = GAP
** LENGTH  : Header block length, 120 bytes
** DLEN    : Default = 20 bytes
**-----**
ID      4      2      1
**-----**
** FORMAT  : 4 Bits BCD
** LENGTH  : No. of bytes in each record number = 2
** INDEX   : Byte number for start of record number = 1
**-----**
SCAN    134    4      01010103
**-----**
** NBSCAN  : Bytes per scan, 14 + 2.5 * No. chan = 134
** NBSOS   : No. of bytes in SOS code = 4 bytes
** SOS     : Start of scan code = 01010103
** SOSALT  :
** SOSMASK :
**-----**
ERROR   5      1000   1000
SHOTSEQ 77
CHANNEL
IG      IG      IG      IG      IG      IG      AD49   GC
SG      SG      SG      SG      GC      SG      SG      SG
SG      GC      SG      SG      SG      SG      GC      SG
SG      SG      SG      GC      SG      SG      SG      SG
GC      SG      SG      SG      SG      GC      SG      SG
SG      SG      GC      SG      SG      SG      SG      GC
SG      SG      SG      SG      GC      SG      SG      SG
SG      GC      SG      SG      SG      SG      GC      SG
SG      SG      SG
**-----**
** 6 Auxiliary channels (IG : ignore)
** 1 Uphole channel (AD49 : demux aux channel & number as 49)
** 48 Data channels (SG : seismic channel demultiplex & gain correct)
** Gain byte every fourth channel (GC)
**-----**
RECORD
77      100      89/100 REC
*CALL   TAPOUT   6250   1      DEMUXC2HR
*END

```

3.1 SN368 (1988) DEMUX EXAMPLE 1600 bpi, PE FORMAT

```

**-----**
**
** DEMUX EXAMPLE FOR SEG-D DATA 1600 BPI (PE)
** Recorded on SN368 in 1988
** Sample rate      2ms
** No. channels     96
**
** NOTE : DISCO VERSION 7 JOB
** Reference : SN368 Telemetry seismic D.A.S.
**-----**
*JOB   LAND88  3      TIM      SEGD DEMUX USING MODIFIED SEGB ROUTINE
*ALT   DEMUX   LAN2$DISK:[SEXTON.DEMUX.TEST1]
*CALL  DEMUX   20000  2      SEGB   1600
HEADER GAP    960    0      0
**-----**
**      SEPSW   : For SEG-D = GAP
**      LENGTH  : Header block length = 960 bytes
**      DLEN    : 0 bytes
**      NBLANK  : 0 bytes
**-----**
ID      4      2      1
**-----**
**      FORMAT  : 4 Bits BCD
**      LENGTH  : No. of bytes in each record number = 2
**      INDEX   : Byte number for start of record number = 1
**-----**
SCAN    258    4      FFFFFFF01FFFFFFF41FFFFFFF9F
**-----**
**      NBSCAN  : Bytes per scan, (No. seismic chan + 4) * 2.5 + 8 = 258
**      NBSOS   : No. of bytes in SOS code = 4 bytes
**      SOS     : Start of scan code = FFFFFFF01
**      SOSALT  : Alternate SOS      = FFFFFFF41
**      SOSMASK : Mask for SOS      = FFFFFFF9F
**-----**
ERROR   3      1000   10
SHOTSEQ 504
CHANNEL
IG      IG      IG      IG      GC      AG1      IG      IG
IG      GC      SG      SG      SG      SG      GC      SG
SG      SG      SG      GC      SG      SG      SG      SG
GC      SG      SG      SG      SG      GC      SG      SG
SG      SG      GC      SG      SG      SG      SG      GC
SG      SG      SG      SG      GC      SG      SG      SG
SG      GC      SG      SG      SG      SG      GC      SG
SG      SG      SG      GC      SG      SG      SG      SG
GC      SG      SG      SG      SG      GC      SG      SG
SG      SG      GC      SG      SG      SG      SG      GC
SG      SG      SG      SG      GC      SG      SG      SG
SG      SG      SG      SG      SG      SG      SG      SG
SG      SG      SG      SG      GC      SG      SG      SG
SG
**-----**
** 4 Auxiliary channels (IG : ignore)
** 1 Uphole channel (AG1 : demux aux channel, gain correct & number as 1)
** 96 Data channels (SG : seismic channel demultiplex & gain correct)
** Gain byte every fourth channel (GC)
**-----**
RECORD
3156    3161    88498   REC
*CALL  TAPOUT  6250   1      DEMUX3
*END

```

3.2 SN368 (1989) DEMUX EXAMPLE, 6250 bpi, GCR FORMAT

```

**-----**
**
** DEMUX EXAMPLE FOR SEG-D DATA 6250 BPI (GCR)
** Recorded on SN368 in 1989
** Sample rate      2ms
** No. channels     96
**
** NOTE : DISCO VERSION 7 JOB
** Reference : SN368 Telemetry seismic D.A.S.
**-----**
*JOB   LAND89  M9      TIM      SEGD DEMUX USING MODIFIED SEGB ROUTINE
*ALT   DEMUX   LAN2$DISK:[SEXTON.DEMUX.TEST1]
*CALL  DEMUX   20000   2        SEGB   6250
HEADER GAP     960     0        0
**-----**
** SEPSW      : For SEG-D = GAP
** LENGTH     : Header block length = 960 bytes
** DLEN       : 0 bytes
** NBLANK     : 0 bytes
**-----**
ID      4      2      1
**-----**
** FORMAT     : 4 Bits BCD
** LENGTH     : No. of bytes in each record number = 2
** INDEX      : Byte number for start of record number = 1
**-----**
SCAN    258    4
FFFFFFF01FFFFFFF41FFFFFFF9F
**-----**
** NBSCAN     : Bytes per scan, (No. seismic chan + 4) * 2.5 + 8 = 258
** NBSOS      : No. of bytes in SOS code = 4 bytes
** SOS        : Start of scan code      = FFFFFFF01
** SOSALT     : Alternate SOS           = FFFFFFF41
** SOSMASK    : Mask for SOS           = FFFFFFF9F
**-----**
ERROR    3      1000    100
SHOTSEQ  504
CHANNEL
IG      IG      IG      IG      GC      AG1      IG      IG
IG      GC      SG      SG      SG      SG      GC      SG
SG      SG      SG      GC      SG      SG      SG      SG
GC      SG      SG      SG      SG      GC      SG      SG
SG      SG      GC      SG      SG      SG      SG      GC
SG      SG      SG      SG      GC      SG      SG      SG
SG      GC      SG      SG      SG      SG      GC      SG
SG      SG      SG      GC      SG      SG      SG      SG
GC      SG      SG      SG      SG      GC      SG      SG
SG      SG      GC      SG      SG      SG      SG      GC
SG      SG      SG      SG      GC      SG      SG      SG
SG
**-----**
** 4 Auxiliary channels (IG : ignore)
** 1 Uphole channel (AG1 : demux aux channel, gain correct & number as 1)
** 96 Data channels (SG : seismic channel demultiplex & gain correct)
** Gain byte every fourth channel (GC)
**-----**
RECORD
22      25      89014    REC
*END

```

4.1 GIN SEG-Y LAND SEISMIC TAPE ARCHIVAL

```
**-----**
**
** GIN EXAMPLE FOR ARCHIVE SEG-Y DATA 6250 BPI (GCR) **
**
** NOTE : DISCO Version 7.0 job **
**-----**
*CALL GIN <length><sr> <maxntr>SHOT INCR SEG Y
DENSITY 6250 RETRY
REEL <reel> <start> <end>
MESSAGE <message to operator>
DEFINE SHOT 189 2 INT
DEFINE SHRSTAT 207 2 INT
DEFINE RCRSTAT 209 2 INT
DEFINE DMXSHT 213 2 INT
```

4.2 GIN SEG-Y SPOCK

```
**-----**
**
** GIN EXAMPLE FOR SPOCK/FJT SEG-Y DATA 1600 BPI (PE) **
**
** NOTE : DISCO Version 7.0 job **
**-----**
*CALL GIN <length><sr> <maxntr>FFID INCR SEG Y
DENSITY 1600 RETRY
REEL <reel> <start> <end>
MESSAGE <message to operator>
DEFINE SHT-STAT183 2 INT
DEFINE REC-STAT191 2 INT
```

4.3 GIN SEG-Y GEOSOURCE GEOCOR IV

```
**-----**
**
** GIN EXAMPLE FOR GEOSYSTEMS DATA 1600 BPI (PE) **
**
** NOTE : DISCO Version 7.0 job **
**-----**
*CALL GIN <length><sr> <maxntr>SHOT INCR GENERAL
DENSITY 1600 RETRY
REEL <reel> <start> <end>
MESSAGE <message to operator>
FORMAT 0 0 64 ATTACH 16INT 1 65
DEFINE FFID 1 2 INT
DEFINE CHAN 3 2 INT
DEFINE SHOT 5 2 INT
DEFINE PORT 7 2 BIT0106
DEFINE CCODE 7 2 BIT0710
DEFINE RECNUM 21 2 INT
LIST
```

5 REFERENCES

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DFS-IV service manual : Texas Instruments

Meiners, E.P., Lenz, L.L., Dalby, A.E. and Hornsby, J.M., 1972, Recommended standards for digital tape formats : Geophysics, v.37, p. 36-44

Northwood, E.J., Weisinger, R.C., and Bradley, J.J., 1967, Recommended standards for digital tape formats : Geophysics, v.32, p. 1073-1084

Savit, C.H., 1966, A proposed standard for nine track digital tape : Geophysics, v.31, p. 812-815

SEG : Digital field tape format standards - SEG-D, SEG subcommittee on digital tape formats : in Digital tape standards (pamphlet) SEG, p. 31-65

Sercel SN338 portable digital seismic data acquisition system specification manual : Sercel corporation

Sercel SN368 telemetry seismic data acquisition system specification manual : Sercel corporation

6.1 DFS-IV SEG-B TAPE FORMAT

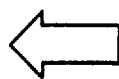
DFS-IV

HEADER BLOCK

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488</
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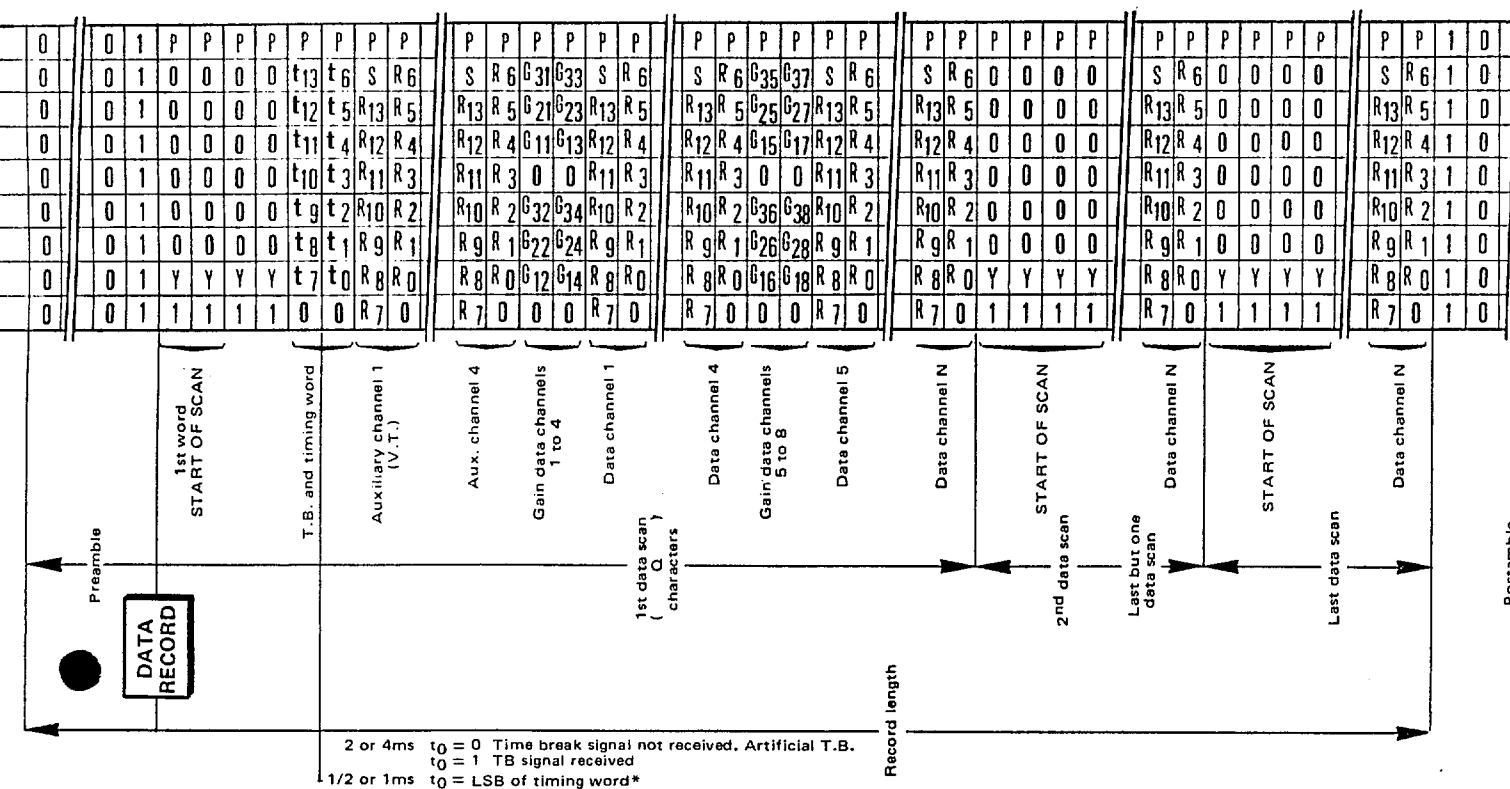
6.2 SN338 SEG-B TAPE FORMAT

SN338



Tape Motion
Oxide side up

SN 338 HR
12, 24 or 48 channels - 9 tracks



* NOTE : at 1/2ms sampling rate the timing word is the same for two consecutive scans.
It is T at times 2T and (2T + 1)

Variable gain encoding

$G_{1n} = G_1$ channel n
 $G_{2n} = G_2$ channel n
 $G_{3n} = G_3$ channel n

G_3	G_2	G_1	Gain
0	0	0	20
0	0	1	22
0	1	0	24
0	1	0	26
1	0	0	28
1	0	1	210
1	1	0	212
1	1	1	214

T - Type of record

Type	T_0	T_1	T_2	T_3
SHOT	0	0	0	1
TEST	1	0	0	0

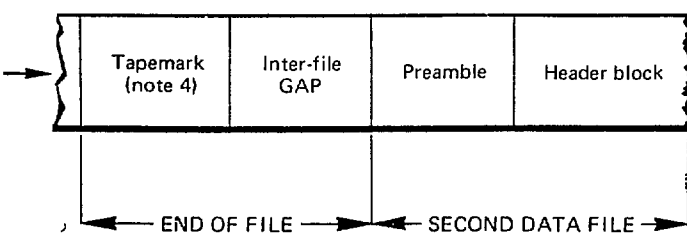
I - Sample rate

Rate	I_0	I_1	I_2	I_3
4ms	0	0	1	0
2ms	0	1	0	0
1ms	1	0	0	0
1/2ms	0	0	0	0

Code : Sign and magnitude
: One's or two's complement
- Density : 1600 BPI
- Vertical parity : ODD

GF - Fixed gain

Gain	GF_0	GF_1	GF_2	GF_3
25	1	0	1	0
27	1	1	1	0



YYYY : 0000 12 or 24 channels
0001 48 channels

Q : Number of characters per scan

Q : 14 + 2,5 N

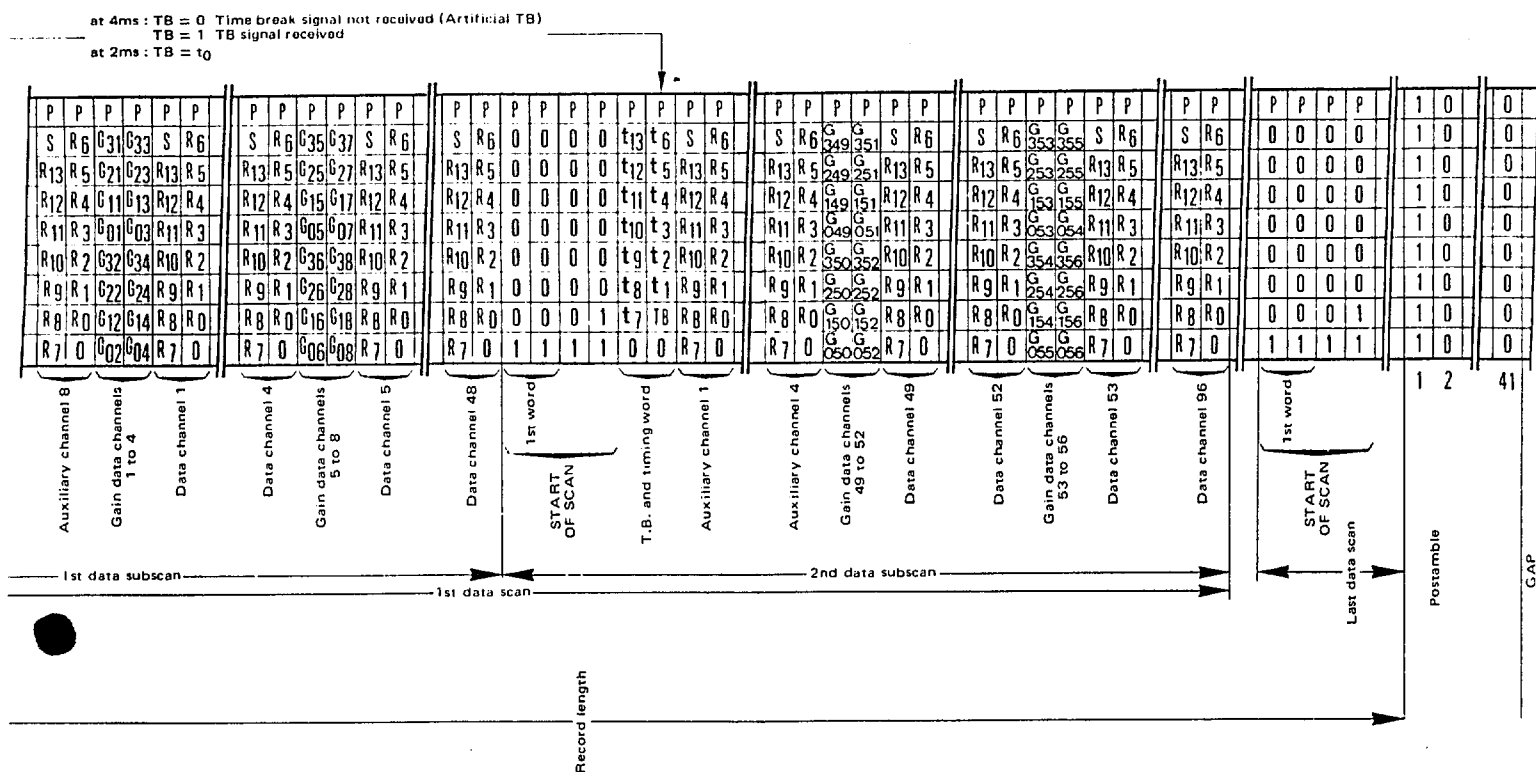
N : Number of seismic channel

FIG. 31



Tape Motion
Oxide side up

SN 338 HR
96 channels - 9 tracks



Variable gain encoding

G_{1n}	G_1 channel n			
G_{2n}	G_2 channel n			
G_{3n}	G_3 channel n			
G_3	G_2	G_1	G_0	Gain
0	0	0	0	2^0
0	0	1	0	2^2
0	1	0	0	2^4
0	1	0	0	2^6
1	0	0	0	2^8
1	0	1	0	2^{10}
1	1	0	0	2^{12}
1	1	1	0	2^{14}

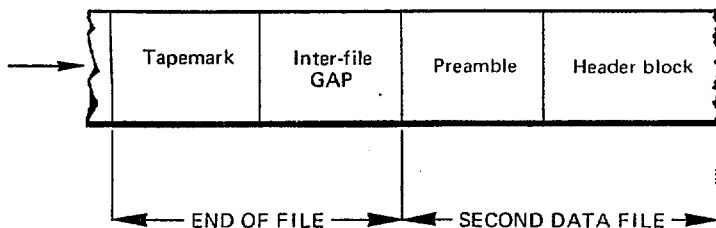
T - Type of record

Type	T_0	T_1	T_2	T_3
SHOT	0	0	0	1
TEST	1	0	0	0

- Code : Sign and magnitude
- Density : One's or two's complement
- Density : 1600 BPI
- Vertical parity : ODD

GF - Fixed gain

Gain	GF_0	GF_1	GF_2	GF_3
25	1	0	1	0
27	1	1	1	0



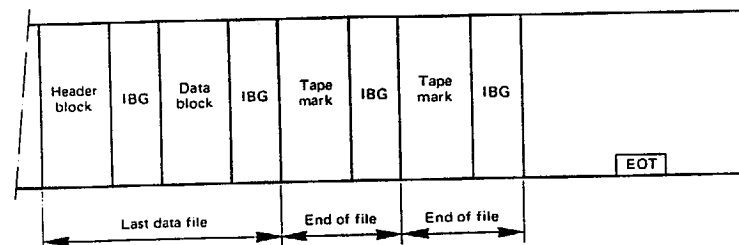
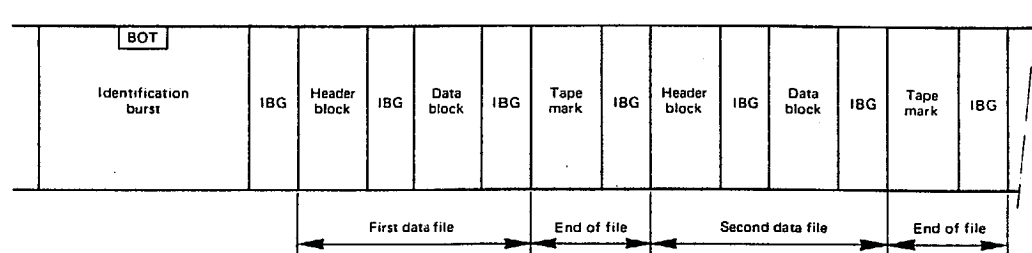
4 : At 4 ms, the timing word is incremented by 2 ms at every subscan.

At 2 ms, it is incremented by 1 ms and the T.B. position is used for the LSB.

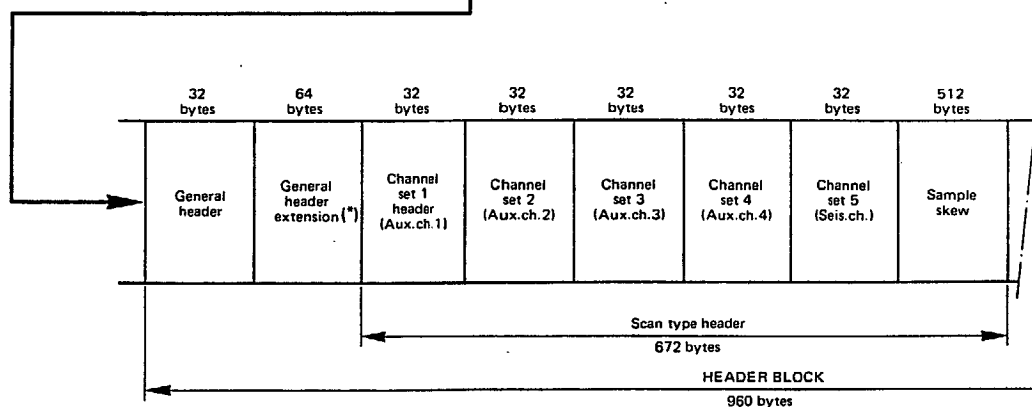
6.3 SN368 SEG-D TAPE FORMAT

SN368

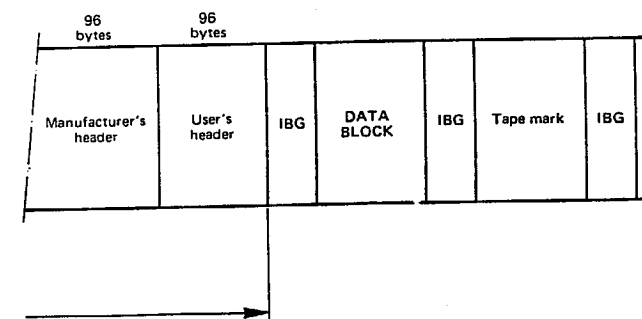
RECORD FORMAT



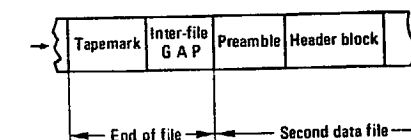
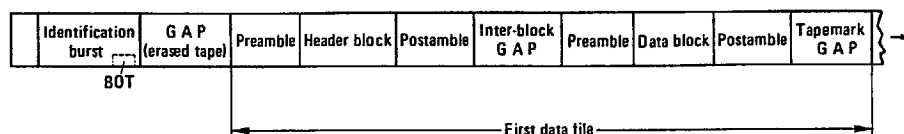
← **TAPE MOTION**
(tape viewed oxide side up)



(*) See note page A15



FORMAT FOR 1600 bpi-PE & 6250 bpi-GCR



IBG = Inter Block Gap
BOT = Beginning Of Tape sticker
EOT = End Of Tape sticker

NOTES FOR 1600 BPI PHASE ENCODED RECORDING

- 1: PE identification burst consists of 1600 flux reversals per inch in track P, all other tracks DC erased
- 2: Preamble consists of forty bytes with 0 bits in all tracks followed by one byte with 1 bits in all tracks
- 3: Postamble consists of one byte with 1 bits in all tracks followed by forty bytes with 0 bits in all tracks
- 4: PE tapemark consists of 80 flux reversals at 3200 FCI in tracks P, 0, 2, 5, 6 and 7 tracks 1, 3 and 4 are DC erased

NOTES FOR 6250 BPI GROUP CODED RECORDING

- 1: GCR identification burst
 - ID burst consists of 3014 FRPI on track 6 and erasure on all other tracks
 - Immediately following the ID burst there is an ARA burst (all ones in all tracks) that is separated from the ID burst by an undefined gap
 - Appended to the end of the ones burst are ARA ID characters consisting of ones in tracks 2, 3, 5, 6, 8, and 9 and erasure in tracks 1, 4 and 7
- 2: Preamble consists of 80 characters, of which the first 6 are 101010 in all tracks followed by 74 characters with all «ones» in all tracks
- 3: Postamble consists of 80 characters, of which the first 74 are all «ones» in all tracks followed by 01010L in all tracks (the L character is the last character)
- 4: GCR tapemark is specified as 250 to 400 flux changes, all «ones» at 9042 FCI in tracks 1, 2, 4, 5, 7 and 8, tracks 3, 6, and 9 are DC erased.

FIGURE A1
SN 368 RECORD FORMAT

TRACK NO.		4	7	6	5	3	9	1	8	2	
BIT NO.		P	0	1	2	3	4	5	6	7	
BCD VALUE MSD		8	4	2	1	8	4	2	1		LSD
BINARY VALUE MSB		128	64	32	16	8	4	2	1		LSB
FILE NUMBER		F ₁	F ₁	F ₁	F ₁	F ₂	F ₂	F ₂	F ₂		1
		F ₃	F ₃	F ₃	F ₃	F ₄	F ₄	F ₄	F ₄		2
FORMAT CODE		0	0	0	0	0	0	0	0		3
		0	0	0	1	0	1	0	1		4
		0	0	0	0	0	0	0	0		5
		0	0	0	0	0	0	0	0		6
GENERAL CONSTANTS		0	0	0	0	0	0	0	0		7
		0	0	0	0	0	0	0	0		8
		0	0	0	0	0	0	0	0		9
		0	0	0	0	0	0	0	0		10
YEAR		YR ₁	YR ₁	YR ₁	YR ₁	YR ₂	YR ₂	YR ₂	YR ₂		11
GENERAL HEADER EXTENSION LENGTH - DAY (DY)		0	0	1	0	DY ₁	DY ₁	DY ₁	DY ₁		12
		DY ₂	DY ₂	DY ₂	DY ₂	DY ₃	DY ₃	DY ₃	DY ₃		13
HOUR		H ₁	H ₁	H ₁	H ₁	H ₂	H ₂	H ₂	H ₂		14
MINUTE		MI ₁	MI ₁	MI ₁	MI ₁	MI ₂	MI ₂	MI ₂	MI ₂		15
SECOND		SE ₁	SE ₁	SE ₁	SE ₁	SE ₂	SE ₂	SE ₂	SE ₂		16
MANUFACTURER'S CODE		0	0	0	1	0	0	1	1		17
MANUFACTURER'S SERIAL NUMBER		M ₃	M ₃	M ₃	M ₃	M ₄	M ₄	M ₄	M ₄		18
		M ₅	M ₅	M ₅	M ₅	M ₆	M ₆	M ₆	M ₆		19
BYTES PER SCAN		B ₁	B ₁	B ₁	B ₁	B ₂	B ₂	B ₂	B ₂		20
		B ₃	B ₃	B ₃	B ₃	B ₄	B ₄	B ₄	B ₄		21
		B ₅	B ₅	B ₅	B ₅	B ₆	B ₆	B ₆	B ₆		22
BASE SCAN INTERVAL		I ₃	I ₂	I ₁	I ₀	I ₋₁	I ₋₂	I ₋₃	I ₋₄		23
POLARITY (P) - SCANS/BLOCK EXPONENT (S/Bx)		0	0	0	0	0	0	0	0		24
SCANS/BLOCK		0	0	0	0	0	0	0	0		25
RECORD TYPE (Z)		Z	Z	Z	Z	R ₁	R ₁	R ₁	R ₁		26
RECORD LENGTH (R)		R ₂	R ₂	R ₂	R ₂	R ₃	R ₃	R ₃	R ₃		27
NUMBER OF SCAN TYPES/RECORD		0	0	0	0	0	0	0	1		28
NUMBER OF CHANNEL SETS/SCAN TYPE		0	0	0	0	0	1	0	1		29
SKEW BLOCKS		0	0	0	1	0	1	1	0		30
MANUFACTURER HEADER BLOCKS		0	0	0	0	0	0	1	1		31
USER HEADER BLOCKS		0	0	0	0	0	0	1	1		32

FIGURE A2 - SN 368 HEADER BLOCK :
GENERAL HEADER

GENERAL HEADER

Byte index	Abbreviation or value	Description	Context Memory	Code
1 2	F1 - F2 F3 - F4	File number of four digits (0 - 9999)	009	REC N
3 4	00 15	Format code 0015 : 20 bit binary multiplexed APP. A	—	FC
5 - 10	0 - - - - - 0	Not used GENERAL CONSTANTS	—	GC
11	YR1 - YR2	Last two digits of year (0 - 99)	—	YY
12	2	General header extension (2 times 32 bytes)	—	XD
13	DY1 DY2 - DY3	Julian day 3 digits (1 - 366)	—	DD
14	H1 - H2	Hour of day 2 digits (0 - 23)	—	HH
15	MI1 - MI2	Minute of hour 2 digits (0 - 59)	—	MM
16	SE1 - SE2	Second of minute 2 digits (0 - 59)	—	SS
17	13	Manufacturer's code (13 for Sercel) APP. B	—	MC
18 19	M3 - M4 M5 - M6	Manufacturer's serial number	—	SN
20 21 22	B1 - B2 B3 - B4 B5 - B6	Byte per scan 6 digits (138 - 1218) APP. E2 = (N + 4) x 2.5 + 8 for N seismic channel configuration N = 96 BS = 255	—	NBPS
23	I3 thru I4	Base scan interval 1 ms = 10 2 ms = 20 4 ms = 40	050	SR
24 - 25	0 - - - - - 0	Not used POLARITY UNTESTED, DATA BODY IS ONE CONTINUOUS BLOCK	—	POL, SPB
26	Z	Record type 8 = Normal 2 = Test record	—	TYPE
27	R1 R2 - R3	Record length (01.0 - 99.0 units) The unit (1s or 1.024s) is specified in general header extension	010	RECL
28	01	Scan types per record	—	STPR
29	05	Number of channel sets per scan type	—	CPSC
30	16	Number of 32 byte fields to record sample skew APP. E3	—	SSB
31	03	Manufacturer header length (32 byte extensions)	—	MHB
32	03	User's header length (32 byte extensions)	—	UHB

REFERENCE: DIGITAL TAPE STANDARDS: SEG D. SOCIETY OF EXPLORATION GEOPHYSICISTS. APPENDIX A

TRACK NO	4	7	6	5	3	9	1	8	2
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BIT NO	P	0	1	2	3	4	5	6	7
--------	---	---	---	---	---	---	---	---	---

BCD VALUE MSD	8	4	2	1	8	4	2	1	LSD
BINARY VALUE MSB	128	64	32	16	8	4	2	1	LSB

BLOCK #1	MLC ₁	MLC ₁	MLC ₁	MLC ₁	MLC ₂	MLC ₂	MLC ₂	MLC ₂	1
	MLC ₃	MLC ₃	MLC ₃	MLC ₃	MLC ₄	MLC ₄	MLC ₄	MLC ₄	2
	RC ₁	RC ₁	RC ₁	RC ₁	RC ₂	RC ₂	RC ₂	RC ₂	3
	RC ₃	RC ₃	RC ₃	RC ₃	RC ₄	RC ₄	RC ₄	RC ₄	4
	GC ₁	GC ₁	GC ₁	GC ₁	GC ₂	GC ₂	GC ₂	GC ₂	5
	GC ₃	GC ₃	GC ₃	GC ₃	GC ₄	GC ₄	GC ₄	GC ₄	6
	FC ₁	FC ₁	FC ₁	FC ₁	FC ₂	FC ₂	FC ₂	FC ₂	7
	FC ₃	FC ₃	FC ₃	FC ₃	FC ₄	FC ₄	FC ₄	FC ₄	8
	MHC ₁	MHC ₁	MHC ₁	MHC ₁	MHC ₂	MHC ₂	MHC ₂	MHC ₂	9
	MHC ₃	MHC ₃	MHC ₃	MHC ₃	MHC ₄	MHC ₄	MHC ₄	MHC ₄	10
	NL ₁	NL ₁	NL ₁	NL ₁	NL ₂	NL ₂	NL ₂	NL ₂	11
	CL ₁	CL ₁	CL ₁	CL ₁	CL ₂	CL ₂	CL ₂	CL ₂	12
	CL ₃	CL ₃	CL ₃	CL ₃	CL ₄	CL ₄	CL ₄	CL ₄	13
	FCL ₁	FCL ₁	FCL ₁	FCL ₁	FCL ₂	FCL ₂	FCL ₂	FCL ₂	14
	FCG ₁	FCG ₁	FCG ₁	FCG ₁	FCG ₂	FCG ₂	FCG ₂	FCG ₂	15
	FCG ₃	FCG ₃	FCG ₃	FCG ₃	FCG ₄	FCG ₄	FCG ₄	FCG ₄	16
	0	0	0	0	0	0	0	IS	17
	INC ₁	INC ₁	INC ₁	INC ₁	INC ₂	INC ₂	INC ₂	INC ₂	18
	RUL ₁	RUL ₁	RUL ₁	RUL ₁	RUL ₂	RUL ₂	RUL ₂	RUL ₂	19
	RUP ₁	RUP ₁	RUP ₁	RUP ₁	RUP ₂	RUP ₂	RUP ₂	RUP ₂	20
	RUP ₃	RUP ₃	RUP ₃	RUP ₃	RUP ₄	RUP ₄	RUP ₄	RUP ₄	21
	0	0	0	0	0	0	0	TS	22
	0	0	0	0	TOP	TOP	TOP	TOP	23
	0	0	0	0	TST	TST	TST	TST	24
	0	0	0	0	TBP	TBP	TBP	TBP	25
	0	0	0	0	NAU	NAU	NAU	NAU	26
	0	0	0	0	0	0	0	INV	27
	0	0	0	0	TFU	TFU	TFU	TFU	28
	RLU ₁	RLU ₁	RLU ₁	RLU ₁	RLU ₂	RLU ₂	RLU ₂	RLU ₂	29
	RLU ₃	RLU ₃	RLU ₃	RLU ₃	RLU ₄	RLU ₄	RLU ₄	RLU ₄	30
	SN ₁	SN ₁	SN ₁	SN ₁	SN ₂	SN ₂	SN ₂	SN ₂	31
	SN ₃	SN ₃	SN ₃	SN ₃	SN ₄	SN ₄	SN ₄	SN ₄	32
	0	0	0	0	TEX	TEX	TEX	TEX	33
	SPL ₁	SPL ₁	SPL ₁	SPL ₁	SPL ₂	SPL ₂	SPL ₂	SPL ₂	34
	SPL ₃	SPL ₃	SPL ₃	SPL ₃	SPL ₄	SPL ₄	SPL ₄	SPL ₄	35
	SPG ₁	SPG ₁	SPG ₁	SPG ₁	SPG ₂	SPG ₂	SPG ₂	SPG ₂	36
	SPG ₃	SPG ₃	SPG ₃	SPG ₃	SPG ₄	SPG ₄	SPG ₄	SPG ₄	37
	SPG ₅	SPG ₅	SPG ₅	SPG ₅	SPG ₆	SPG ₆	SPG ₆	SPG ₆	38
	0	0	0	0	0	0	0	0	39
	0	0	0	0	0	0	0	0	40
BLOCK #2									
	0	0	0	0	0	0	0	0	63
	0	0	0	0	0	0	0	0	64

FIGURE A3
SN 368 HEADER BLOCK :
GENERAL
HEADER EXTENSION

GENERAL HEADER EXTENSION

Byte index	Abbreviation or value	Description	Context Memory	Code
1 - 2	MLC1 to MLC4	Number of missing channels in LOW branch		LMNOT
3 - 4	RC1 to RC4	Number of channels in the REAR spread	000	RNOT
5 - 6	GC1 to GC4	Number of channels in the GAP spread	001	GNOT
7 - 8	FC1 to FC4	Number of channels in the FRONT spread	002	FNOT
9 - 10	MHC1 to MHC4	Number of missing channels in HIGH branch		HMNOT
11	NL1 - NL2	Number of lines (1 - 99)	048	NOL
12 - 13	CL1 to CL4	Number of channels per line		NOTBL
14	FCL1 - FCL2	First channel line number	003	FLPL
15 - 16	FCG1 to FCG4	First channel geophone number	004	FLPG
17	IS	Sign of first channel increment 0 = + 1 = -	005 FLCI	FLPIS
18	INC1 - INC2	First channel increment (0 - 99)		FLPI
19	RUL1 - RUL2	Recording unit position line number	006	RUPL
20 - 21	RUP1 to RUP4	Recording unit position geophone number	007	RUPG
22	TS	Type of spread 0 = multiline 1 = single line	174	MOND
23	TOP	Type of operation 0 = explosive 1 = vibroseis TM 2 = weight drop	051	EXPL
24	TST	Type of stacker 0 = CS 2502	052	STAC
25	TBP	TB/UH unit position 0 = none 1 = spread 2 = aux. line	113	AUXS
26	NAU	Number of vibro aux. unit (0 - 4)	114	AUXL
27	INV	Trace arrangement 0 = normal = trace 1 in LOW 1 = reverse = trace 1 in HIGH	118 RSI	SIF
28	TFU	Type of field unit 0 = SN 348 or SN 368 C 1 = SN 368 E	112	SUT
29 - 30	RLU1 to RLU4	Record length unit (1000 or 1024 ms)	120	RLU
31 - 32	SN1 to SN4	Survey number	054	SCN
33	TEX	Type of explosive operation 0 = normal 1 = fast record		FSS
34 - 35	SPL1 - SPL4	Shot point line number (0.01 - 99.99)	187	SPNL
36 - 38	SPG1 - SPG6	Shot point geophone number (0.01 - 9999.99)	188-189	SPG
39 - 64	0	Not used	SPNG	

TRACK NO.	4	7	6	5	3	9	1	8	2
-----------	---	---	---	---	---	---	---	---	---

BIT NO.	P	0	1	2	3	4	5	6	7
---------	---	---	---	---	---	---	---	---	---

BCD VALUE MSD	8	4	2	1	8	4	2	1	LSD
BINARY VALUE MSB	128	64	32	16	8	4	2	1	LSB

SCAN TYPE NUMBER	ST ₁	ST ₁	ST ₁	ST ₁	ST ₂	ST ₂	ST ₂	ST ₂	1
CHANNEL SET NUMBER	CN ₁	CN ₁	CN ₁	CN ₁	CN ₂	CN ₂	CN ₂	CN ₂	2
CHANNEL SET START TIME	TF ₁₆	TF ₁₅	TF ₁₄	TF ₁₃	TF ₁₂	TF ₁₁	TF ₁₀	TF ₉	3
	TF ₈	TF ₇	TF ₆	TF ₅	TF ₄	TF ₃	TF ₂	TF ₁	4
CHANNEL SET END TIME	TE ₁₆	TE ₁₅	TE ₁₄	TE ₁₃	TE ₁₂	TE ₁₁	TE ₁₀	TE ₉	5
	TE ₈	TE ₇	TE ₆	TE ₅	TE ₄	TE ₃	TE ₂	TE ₁	6
DESCALE MULTIPLIER	MP ₅	MP ₄	MP ₃	MP ₂	MP ₁	MP ₀	MP ₋₁	MP ₋₂	7
	MP ₋₃	MP ₋₄	MP ₋₅	MP ₋₆	MP ₋₇	MP ₋₈	MP ₋₉	MP ₋₁₀	8
NUMBER OF CHANNELS	C/S ₁	C/S ₁	C/S ₁	C/S ₁	C/S ₂	C/S ₂	C/S ₂	C/S ₂	9
	C/S ₃	C/S ₃	C/S ₃	C/S ₃	C/S ₄	C/S ₄	C/S ₄	C/S ₄	10
CHANNEL TYPE (C)	C ₁	C ₁	C ₁	C ₁	0	0	0	0	11
SAMPLES/CHANNEL (S/C) - CHANNEL GAIN (J)	S/C	S/C	S/C	S/C	J	J	J	J	12
ALIAS FILTER FREQUENCY	AF ₁	AF ₁	AF ₁	AF ₁	AF ₂	AF ₂	AF ₂	AF ₂	13
	AF ₃	AF ₃	AF ₃	AF ₃	AF ₄	AF ₄	AF ₄	AF ₄	14
ALIAS FILTER SLOPE (AS)	0	0	0	0	AS ₁	AS ₁	AS ₁	AS ₁	15
	AS ₂	AS ₂	AS ₂	AS ₂	AS ₃	AS ₃	AS ₃	AS ₃	16
LOW CUT FILTER	LC ₁	LC ₁	LC ₁	LC ₁	LC ₂	LC ₂	LC ₂	LC ₂	17
	LC ₃	LC ₃	LC ₃	LC ₃	LC ₄	LC ₄	LC ₄	LC ₄	18
LOW CUT FILTER SLOPE (LS)	0	0	0	0	LS ₁	LS ₁	LS ₁	LS ₁	19
	LS ₂	LS ₂	LS ₂	LS ₂	LS ₃	LS ₃	LS ₃	LS ₃	20
FIRST NOTCH FILTER	NT ₁	NT ₁	NT ₁	NT ₁	NT ₂	NT ₂	NT ₂	NT ₂	21
	NT ₃	NT ₃	NT ₃	NT ₃	NT ₄	NT ₄	NT ₄	NT ₄	22
	0	0	0	0	0	0	0	0	23
	0	0	0	0	0	0	0	0	24
	0	0	0	0	0	0	0	0	25
	0	0	0	0	0	0	0	0	26
	0	0	0	0	0	0	0	0	27
	0	0	0	0	0	0	0	0	28
	0	0	0	0	0	0	0	0	29
	0	0	0	0	0	0	0	0	30
	0	0	0	0	0	0	0	0	31
	0	0	0	0	0	0	0	0	32

FIGURE A4 - SN 368 HEADER BLOCK :
CHANNEL SET DESCRIPTOR

CHANNEL SET DESCRIPTOR *BLOCKS 1 TO 5*

Byte index	Abbreviation or value	Description	Code																									
1	ST1 - ST2	Scan type number (1)	STH																									
2	CN1 - CN2	Channel set number (1 to 5)	CSD																									
3 - 4	TF1 thru TF16	Channel set starting time (binary number in 2 ms increments - TF1 = 2 ms)	ST																									
5 - 6	TE1 thru TE16	Channel set end time (binary number in 2 ms increments - TE1 = 2 ms)	ET																									
7 - 8	MPS MP ₄ thru MP ₁₀	This sign magnitude binary number is the exponent of the base 2 multiplier to be used to convert data on tape into millivolts (decimal point between MP ₀ and MP ₁)	MP																									
		<table><tr><th>Fixed gain</th><th>Hexadecimal value MP₅, MP₄ . . . MP₁₀</th><th>Theoretical decimal value</th></tr><tr><td>2⁴</td><td>9 8 E 8</td><td>- 6.226861</td></tr><tr><td>2⁷</td><td>A 4 E 8</td><td>- 9.226861</td></tr></table>	Fixed gain	Hexadecimal value MP ₅ , MP ₄ . . . MP ₁₀	Theoretical decimal value	2 ⁴	9 8 E 8	- 6.226861	2 ⁷	A 4 E 8	- 9.226861																	
Fixed gain	Hexadecimal value MP ₅ , MP ₄ . . . MP ₁₀	Theoretical decimal value																										
2 ⁴	9 8 E 8	- 6.226861																										
2 ⁷	A 4 E 8	- 9.226861																										
		For TBUH or unused channels, this value is set to zero.																										
9 - 10	C/S1 thru C/S4	Number of channels in this channel set (0 - 480)	CN																									
11	C1, 0	Channel type identification	ID																									
		<table><tr><th>0</th><th>1</th><th>2</th><th>3</th><th>Bits</th></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>Up hole (TBUH)</td></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td><td>Seis</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>Unused</td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td><td>Signature, filtered (Aux)</td></tr></table>	0	1	2	3	Bits	0	0	1	1	Up hole (TBUH)	0	0	0	1	Seis	0	0	0	0	Unused	1	0	0	1	Signature, filtered (Aux)	
0	1	2	3	Bits																								
0	0	1	1	Up hole (TBUH)																								
0	0	0	1	Seis																								
0	0	0	0	Unused																								
1	0	0	1	Signature, filtered (Aux)																								
12	S/C, J	2 ^{S/C} represents the number of subscans of this channel set in the base scan (2 ⁰) J is the channel gain control : 9 = IFP	SS, GCM																									
13 - 14	AF1 thru AF4	Alias filter frequency at - 6 dB point (Hz) 62, 89, 125, 178, 250, 356. For TBUH or unused channels this value is set to zero.	AFF																									
15 - 16	AS1 thru AS3	Alias filter slope (dB) 63, 72. For TBUH or unused channels this value is set to zero.	AFS																									
17 - 18	LC1 thru LC4	Low cut filter (Hz) 4, 8, 10, 12, 16, 20, 24, 25, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 84. A zero indicates the filter is out or unstandarded. For TBUH or unused channels the value is set to zero.	LFF																									
19 - 20	LS1 thru LS3	Low cut filter slope (dB) 12, 18, 36. For TBUH or unused channels this value is set to zero.	LFS																									
21 - 22	NT1 thru NT4	Notch frequency (Hz) 50.0 or 60.0. A zero indicates the filter is out. For TBUH or unused channels this value is set to zero.	NF																									
23 thru 32	0 - - - - - 0	Not used																										

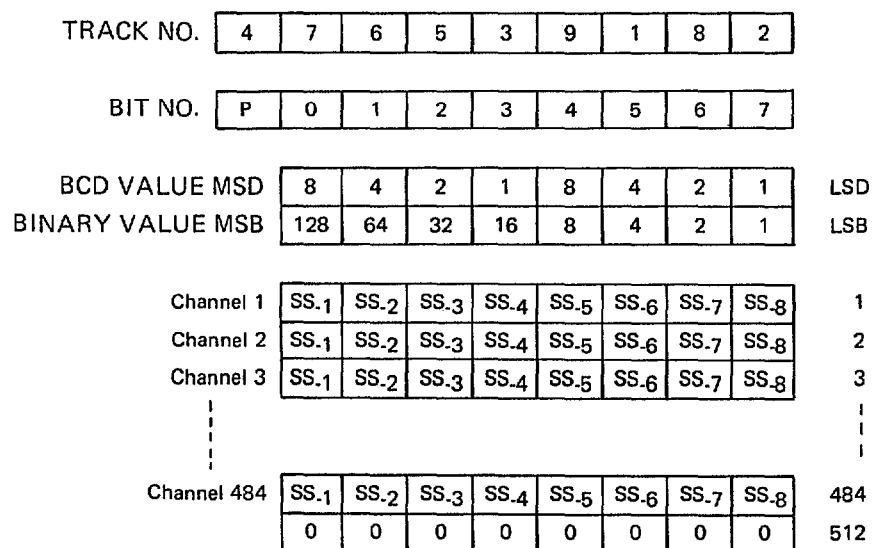


FIGURE A5 - SN 368 HEADER BLOCK : SAMPLE SKEW HEADER

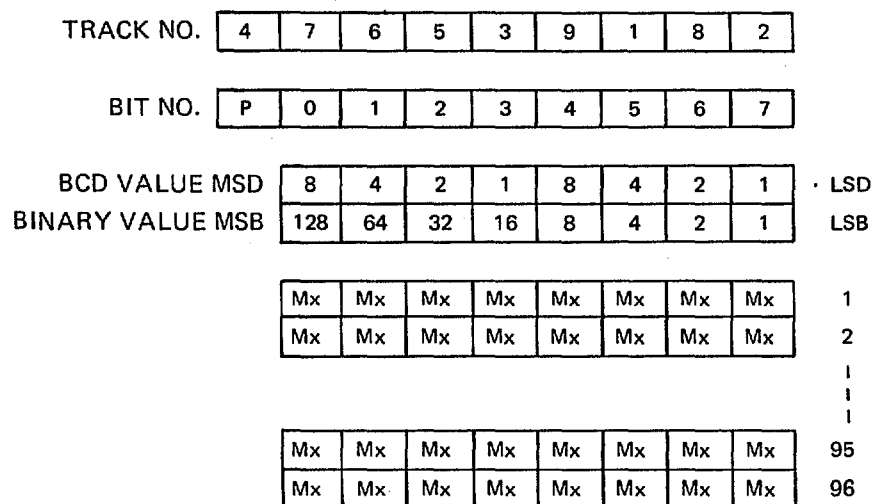


FIGURE A6 - SN 368 HEADER BLOCK : MANUFACTURER'S HEADER

SAMPLE SKEW HEADER

Byte index	Abbreviation or value	Description
1 thru 484	SS.1 thru SS.8	Sample skew of the first sample of the trace. Each byte represents a fractional part of the base scan interval. The resolution is 1/256 of this interval. Sample skew is recorded in a single byte for each channel.
485 - 512	0 - - - - - 0	Unused

MANUFACTURER'S HEADER

Byte index	Abbreviation or value	Description
1 thru 96	Mx	Manufacturer's header information

TRACK NO.

4	7	6	5	3	9	1	8	2
---	---	---	---	---	---	---	---	---

BIT NO.

P	0	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---	---

BCD VALUE MSD

8	4	2	1	8	4	2	1
---	---	---	---	---	---	---	---

 LSD
 BINARY VALUE MSB

128	64	32	16	8	4	2	1
-----	----	----	----	---	---	---	---

 LSB

Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	1
Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	2

Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	31
Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	Ex1	32
Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	33
Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	34

Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	95
Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	Ex2	96

FIGURE A7 - SN 368 HEADER BLOCK :

USER'S HEADER

USER'S HEADER

Byte index	Abbreviation or value	Description
1 thru 32	Ex1	Informations from SN 368 context memory (32 bytes)
33 thru 96	Ex2	Informations from external device (64 bytes)

00	00	00	00	00	00	00	00
01	01	01	01	01	01	01	01
02	02	02	02	02	02	02	02
03	03	03	03	03	03	03	03
04	04	04	04	04	04	04	04
05	05	05	05	05	05	05	05
06	06	06	06	06	06	06	06
07	07	07	07	07	07	07	07
08	08	08	08	08	08	08	08
09	09	09	09	09	09	09	09
0A	0A	0A	0A	0A	0A	0A	0A
0B	0B	0B	0B	0B	0B	0B	0B
0C	0C	0C	0C	0C	0C	0C	0C
0D	0D	0D	0D	0D	0D	0D	0D
0E	0E	0E	0E	0E	0E	0E	0E
0F	0F	0F	0F	0F	0F	0F	0F
10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19
1A	1A	1A	1A	1A	1A	1A	1A
1B	1B	1B	1B	1B	1B	1B	1B
1C	1C	1C	1C	1C	1C	1C	1C
1D	1D	1D	1D	1D	1D	1D	1D
1E	1E	1E	1E	1E	1E	1E	1E
1F	1F	1F	1F	1F	1F	1F	1F

20	20	20	20	20	20	20	20
21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29
2A	2A	2A	2A	2A	2A	2A	2A
2B	2B	2B	2B	2B	2B	2B	2B
2C	2C	2C	2C	2C	2C	2C	2C
2D	2D	2D	2D	2D	2D	2D	2D
2E	2E	2E	2E	2E	2E	2E	2E
2F	2F	2F	2F	2F	2F	2F	2F
30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31
32	32	32	32	32	32	32	32
33	33	33	33	33	33	33	33
34	34	34	34	34	34	34	34
35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36
37	37	37	37	37	37	37	37
38	38	38	38	38	38	38	38
39	39	39	39	39	39	39	39
3A	3A	3A	3A	3A	3A	3A	3A
3B	3B	3B	3B	3B	3B	3B	3B
3C	3C	3C	3C	3C	3C	3C	3C
3D	3D	3D	3D	3D	3D	3D	3D
3E	3E	3E	3E	3E	3E	3E	3E
3F	3F	3F	3F	3F	3F	3F	3F

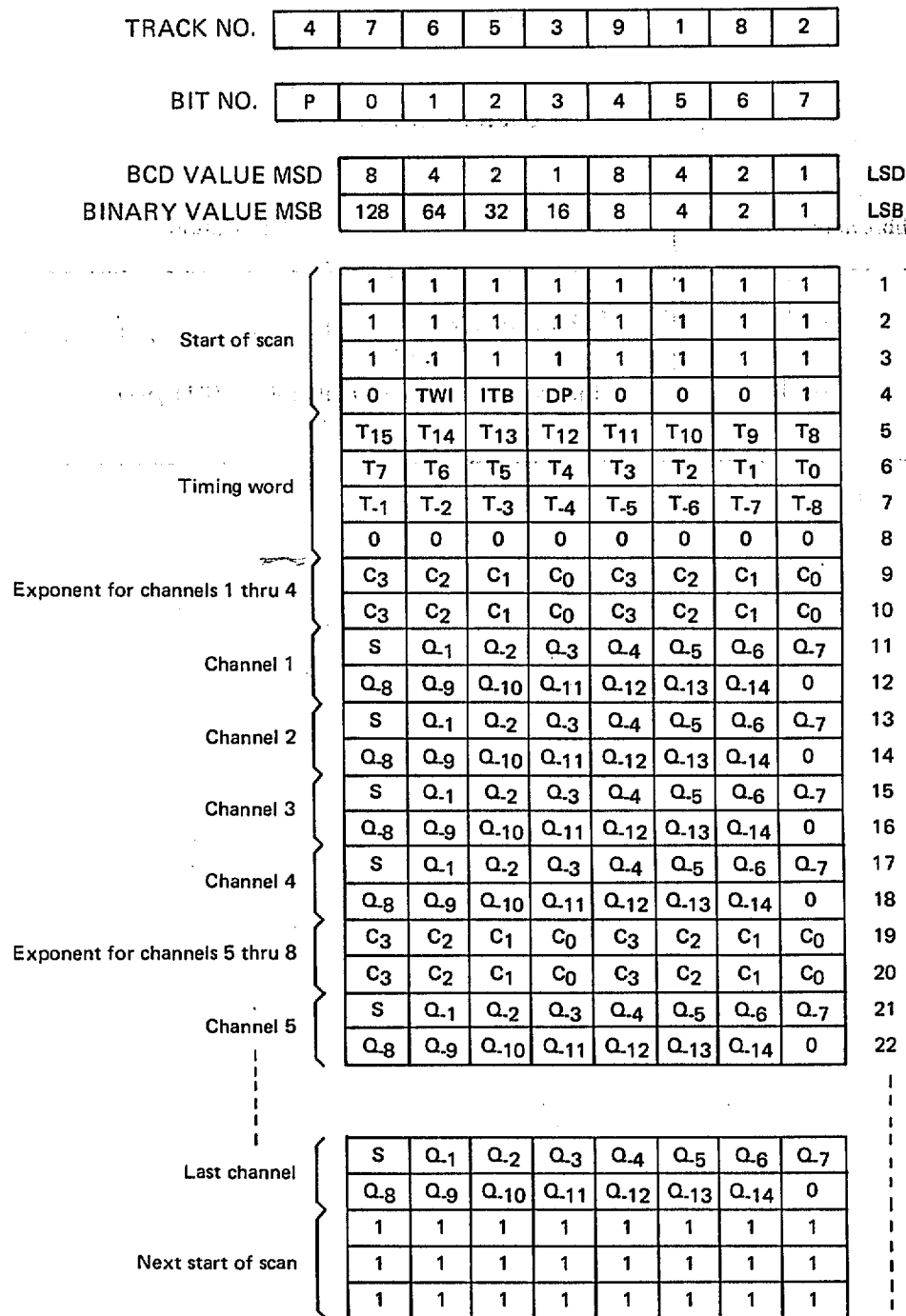


FIGURE A8 - SN 368 DATA BLOCK

DATA BLOCK

Byte index	Abbreviation or value	Description
1 - 3	1 - - - - - 1	Start of scan
4	TWI - ITB - DP	4th byte of start of scan TWI : Time break window. It changes from zero to one at the close of time break window. ITB : Internal time break (0 = normal 1 = internal) DP : Dynamic parameter change (0)
5 - 7	T ₁₅ thru T ₈	Timing word in 1/256 ms The first scan of data starts with timing word zero. The last scan ends with timing word equal to record length.
8	0	Not used
9 - 10	C0 thru C3	Binary exponents for channels 1 to 4 This is a 4 bit positive binary exponent of 2 written as 2 ^{cccc} where cccc can assume values of 0-15. The four exponents are in channel number order for the four channels starting with channel one in bits 0-3 of byte 9
11 - 18	S, Q _{.1} to Q _{.14}	This is a 14 bit two's complement binary fraction. The radix point is to the left of the MSB (Q _{.1}) defined as 2 ⁻¹ . The sign and fraction can assume values 1 - 2 ⁻¹⁴ to - 1 + 2 ⁻¹⁴ Input signal = S. QQQ QQQ QQQ QQQ x 2 ^{cccc} x 2 ^{MP} millivolts where 2 ^{MP} is the value required to descale the data word to the recording system. See byte 8 in the scan type header.

Note that the number of data channel must be exactly divisible by 4 in order to preserve the data grouping of this method.

Channels 1 to 4 are dedicated to auxiliary channels. When an auxiliary channel is not used, corresponding samples are zeroed.