DA-7000A

CD ENCODER

INSTRUCTION MANUAL

KENWOOD CORPORATION

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1. OUTLINE

The CD Encoder DA-7000A is designed for converting CD-ROM data or music recorded on DIGITAL AUDIO Tapes (DAT) for professional use or U-matic VCR into EFM signals based on the COMPACT DISC (CD) standards.
By combining with the CD-WO Writer DD-7200A a CD-WO system can be constructed.

2. FEATURES

(1) The unit conforms to the RED BOOK, YELLOW BOOK and ORANGE BOOK PART II (November 1990), and allows construction of a CD-WO system through combination with a CD-WO Writer DD-7200A.

(2) The control functions necessary for the encoder, including generation of the subcode, are all controlled through the GP-IB. System-incorporation is facilitated by possible control of the VCR and DAT through the GP-IB.

(3) Through application of LSI in the CD Encoder, circuitry has been simplified and reliability increased.

(4) Connecting U-matic VCR, professional DAT equipment, etc., is easy owing to the 3 data input interface systems: SDIF, AES/EBU Digital Audio Interface and parallel input.

3. SPECIFICATIONS

(1) Encode Method — Conforms to the CD RED/YELLOW/ORANGE BOOK PART II (November 1990).

(2) Master Clock — 8.6436 MHz Internal/External switchable

(3) EFM Output — Symmetry adjusted EFM / Asymmesty EFM; 1 system each
Level : 50 ohms TTL level output
Connector: BNC-R

(4) Data Input As AES/EBU Digital Audio Interface Format
Input method : Balanced
Connector : Canon connector
External synchronization clock: 44.1 kHz (50 ohms TTL level output, BNC-R use)

(5) SDIF Data Input

WORD SYNC	75 ohms TTL level output, BNC-R use
DEC CH1	75 ohms TTL level input, BNC-R use
DEC CH2	75 ohms TTL level input, BNC-R use

(6) Parallel Data Input
Data format : 8 bit units, positive logic, 2's complements
Input level : TTL level PULL-UP 330-ohm
PULL-DOWN 390-ohm
Connector : 50-pin miniature delta ribbon receptacle

(7) Symmetry Adjustment Function
Steps : 7 steps (including no delay)
Delay time : Approximately 60 ns/step
Pole reversal : Yes

(8) RS-422 Communication Terminal

Connector : 9-pin D-Sub Connector

(9) GP-IB Control

Governing standard : IEEE-488-1978

Interface functions : SH1, AH1, T6, L3, SR1, DC0, DT0, C0

(10) Dimensions : EIA133 133 (H) × 428 (W) × 415 (D) mm

(11) Weight : Approximately 10 kg (basic CD Encoder unit alone)

(12) Power Supply

Voltage : AC 85 ～ 250 V (50 ～ 440 Hz)

Fuse : 2.5 A

Power consumption : Approximately 10 W (basic CD Encoder unit alone)

(13) Supplied Accessories

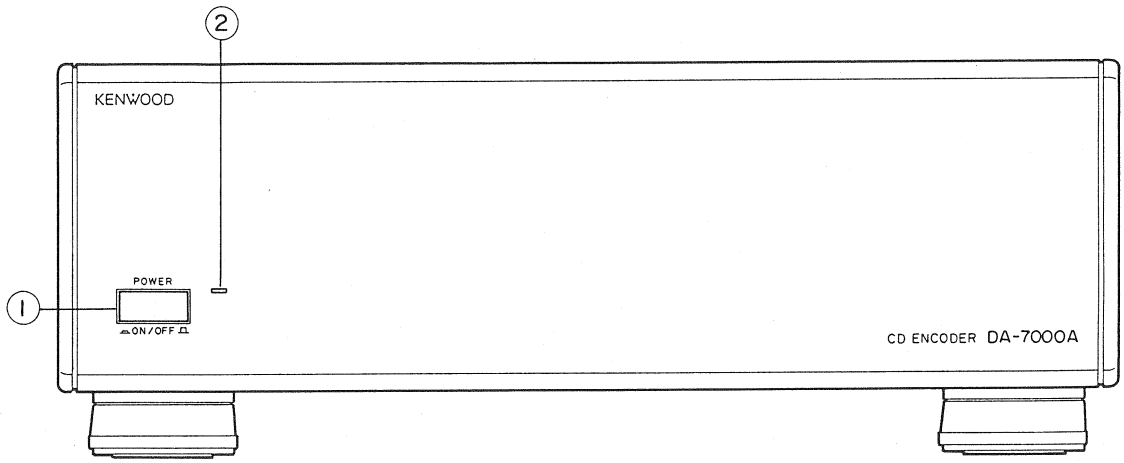
AC cord × 1

Instruction manual × 1

Replacement fuses × 2

4. EXPLANATION OF PANELS

(1) Front Panel



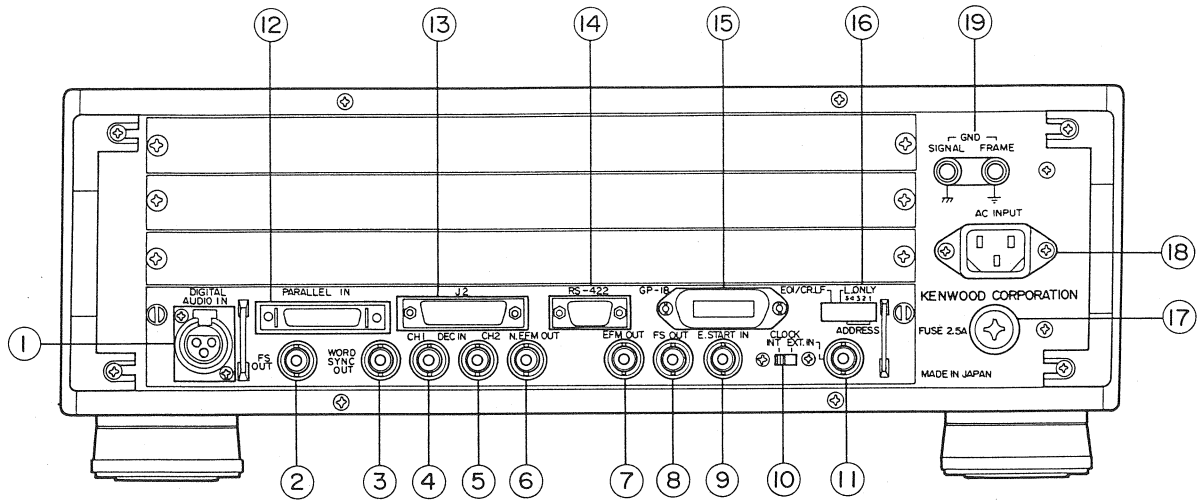
① Power switch

Press this switch to change between power ON/OFF status alternately.

② Power LED

This LED lights to indicate power ON of the CD Encoder.

(2) Rear Panel



① DIGITAL AUDIO IN connector

Data input connector for AES/EBU Digital Audio Interface Format.

② FS OUT terminal

44.1 KHz clock output for external synchronization of Digital Audio Interface Format data output equipment.

③ WORD SYNC OUT terminal

44.1 KHz clock output to PCM processor for external synchronization.

④ ⑤ CH1-DEC-CH2 terminal

Input terminals for SDIF data.

⑥ N.EFM OUT terminal

EFM output that does not pass through the symmetry adjustment circuitry. In the case of a CD-WO system, connect this terminal with the CD Writer's N.EFM IN terminal.

⑦ EFM OUT terminal

Output terminal for the EFM signal. In the case of a CD-WO system, connect this terminal with the CD Writer's EFM IN terminal.

⑧ FS OUT terminal

44.1 KHz output terminal. In the case of a CD-WO system, connect this terminal with the CD Writer's FS IN terminal.

⑨ E.START IN terminal

Input terminal for use when the encoder is part of a CD-WO system. When this terminal is set to "L" level, the encoder terminates generation of the subcode. When set to "H", generation of the subcode is started. Connect this terminal with the E.START OUT terminal of the CD-WO writer.

⑩ CLOCK INT/EXT selector switch

Switch to select master clock. When set to the INT position, the encoder operates according to the built-in clock. When set to EXT, it operates according to the external clock connected via the EXT IN terminal ⑪.

⑪ EXT IN terminal

To connect an external clock. When the CLOCK INT/EXT switch ⑩ is set to EXT, the unit operates according to the external clock signal coming through this connector.

⑫ PARALLEL IN connector

Parallel data input terminal.

⑬ J2 connector

Spare 25-pin D-sub connector.

⑭ RS-422 connector

RS-422 communication connector for controlling VCR and/or DAT.

⑮ GP-IB connector

⑯ ADDRESS, L.ONLY, EOI/CRLF switch

- ADDRESS are the switches for setting the GP-IB addresses.
- L.ONLY is a switch for listen-only function. Set to 1 position for

listen-only mode.

- EOI/CRLF is a switch to select the delimiter. To select EOI, set to 1 position.

⑰ AC INPUT Fuse holder

Use 2.5 A glass tube type fuses regardless of the voltage of the A.C. mains.

⑱ AC INPUT connector

Receptacle to connect the unit with the AC mains and feed the current through the built-in line filter. Use the supplied power cord to connect the CD Encoder to the AC mains.

⑲ GND terminal

This is the unit's earth terminal. FRAME GND is connected to the cabinet and the center pin of the power supply connector. For safety reasons, always earth this terminal.

The SIGNAL GND is the GND terminal of the unit's control signal system. When shipped from factory, the SIGNAL GND and FRAME GND are connected via a short bar.

5. SYSTEM ASSEMBLY

(1) Connection to audio or data source

The encoder has 3 input interfaces which can be selected by GP-IB control. Following equipment can be connected to the various interfaces.

① SDIF

For PCM processor (SONY PCM-1610, PCM-1630, etc.)

② AES/EBU Digital Audio Interface

DAT for professional use (FOSTEX D-20, etc.)

③ Parallel Input

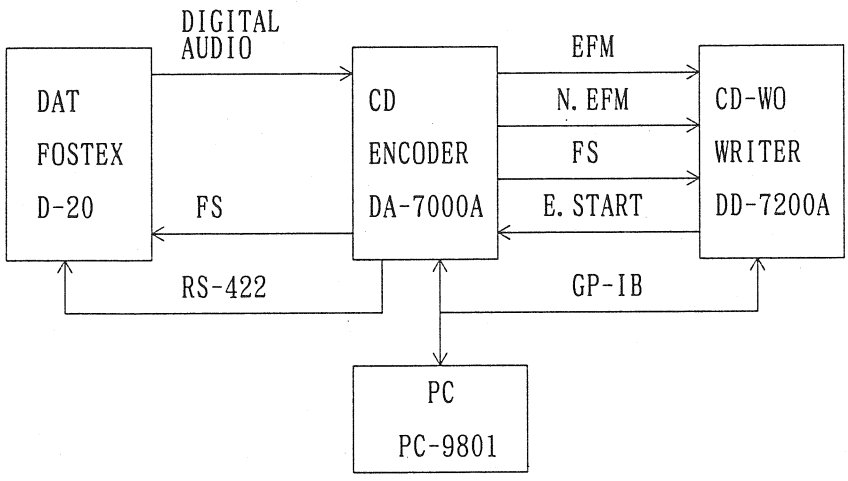
Since a 44.1 kHz and 88.2 kHz timing signal is output, data synchronized with these frequencies can be input.

(2) Connection to Recording Equipment

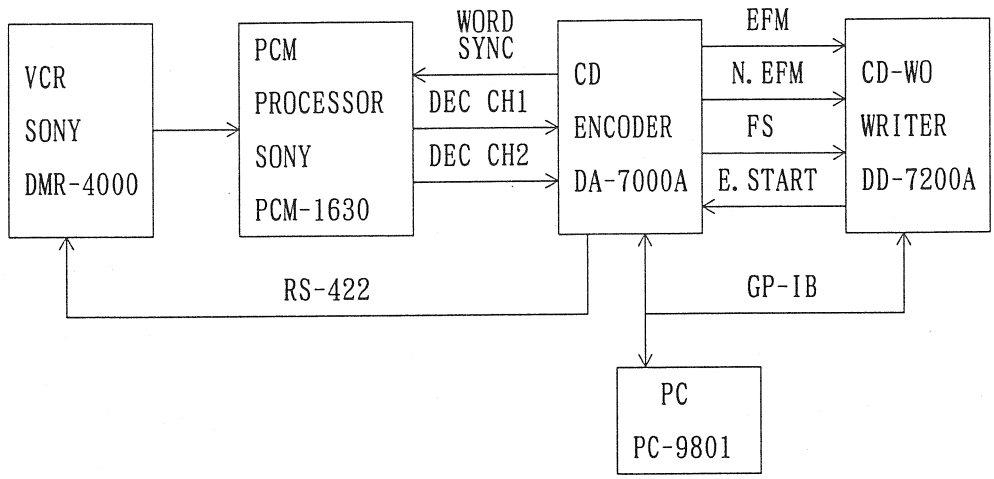
In the case of a CD-WO system conforming to the ORANGE BOOK PART II, connect the CD-WO Writer DD-7200A.

(3) System Example

① CD-WO system utilizing DAT for professional use.



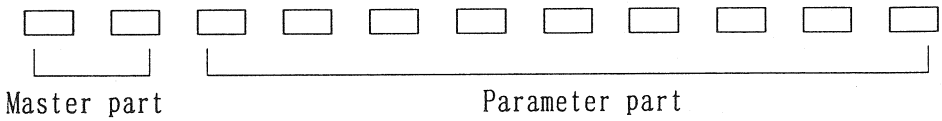
② CD-WO system utilizing U-matic VCR



6. GP-IB OPERATION

I. General Command Format

The unit's commands consist of a master part and a parameter part as shown below. The master part consists of one alphabetic letter and one cipher between 0 - 9. The parameter consists of ciphers between 0 - 9 and special characters. There are also commands which consist oly of the master part and have no parameter part.



II. Command List

Master Part Code	Operation
E 1	Setting of input data, subcode generation, symmetry switch
E 2	Control of VCR
E 6	Setting of subcode data
E 7	Start subcode sending
H n	ON/OFF setting of SRQ
I n	Muting setting
J n	Setting of the setting mode
L n	Setting of output data

(Note 1) n is a cipher between 0 and 9.

(Note 2) To execute the E1, 2, 6, 7 commands, it is necessary initially to send the J2 (setting mode command).

Ⅲ. Command Operation

[E 1] Command

This command has the following forms.

[E 1 S 0 0] Input data select command

(Function) Selects the input data. (Data input terminals on the rear panel).

(Command format) E 1 S 0 0 ! N_1N_2 $ ／

N_1N_2	FUNCTION
0 0	To input SDIF format data
0 1	To input AES/EBU Digital Audio Interface Format
0 2	Input via the parallel input terminals

(Remark) When the power is first turned ON, the setting is N_1N_2=00 (SDIF)

[E 1 S 0 1] Command for setting the subcode generation method

(Function) Sets the way the subcode is generated.

(Command format) E 1 S 0 1 ! N_1N_2 $ ／

N_1N_2	FUNCTION
0 0	FREE RUNNING mode (In the case of normal cutting)
0 1	START/STOP mode (In the case of ORANGE BOOK PART II)
0 2	STOP mode

(Remarks) ① When the START/STOP mode is specified, the sending of the subcode can be controlled by the input signal throgh the E. START IN terminal on the rear panel. (When E. START = "HIGH /LOW" level, the subcode sending is "taking place" "not taking place" respectively.

② When the power is first turned ON, the setting is N_1N_2=00.

[E 1 S 0 2] Symmetry Setting Command

(Function) Command to carry out the symmetry setting.

(Command format) E 1 S 0 2 ! N_1N_2 $ ／

N_1= 0 or 1 (Polarity of the EFM output is reversed.)

N_2= 0 - 6 (The delay of the EFM output is switched. Delay amount increases with larger figures. When 0, delay amount = 0.)

(Remark) When the power is first turned ON, the setting is N_1N_2=00.

[E 2] Command

This command is for control of the VCR. The following commands are available:

[E 2 S 0 0] VCR STOP Command

(Function) Stops the VCR

(Command format) E 2 S 0 0 ! ／

[E 2 S 0 1] VCR PLAY Command

(Function) Starts VCR play.

(Command format) E 2 S 0 1 ! ／

[E 2 S 0 2] VCR REWIND Command

(Function) Rewinds the tape to its beginning.

(Command format) E 2 S 0 2 ! ／

(Note) When using this command, first set the subcode generation mode to STOP mode.

[E 2 S 0 3] VCR STANDBY Command

(Function) Sets the VCR to the STANDBY mode.

(Command format) E 2 S 0 3 ! ／

[E 2 S 1 0] VCR LOCATE Command

(Function) Transports tape to specified time-defined position.

(Command format) E 2 S 1 0 ! $H_{10}H_1M_{10}M_1S_{10}S_1F_{10}F_1$ $ ／

H_{10}-F_1 indicates SMPTE time, minutes, seconds, frame number in tens and single digits.

(Note) Before using this command, set the subcode generation mode to STOP mode and the VCR to PLAY mode.

[E 6] Command

This group of commands is used as the data of the subcode generation.

[E 6 S 0 0] Disc Type Setting

(Function) By setting the disc type, generation of the LEAD-IN portion's subcode takes place in accordance with the disc type.

(Command format) E 6 S 0 0 ! N_1N_2 $ ／

N_1N_2	DISC TYPE
0 0	CD-DA, CD-ROM
0 1	Undefined
0 2	Undefined

(Remark) When the power is first turned ON, the setting is N_1N_2=00.

[E 6 S 0 1] First Track Number Setting

(Function)

① During normal cutting and CD-WO uninterrupted writing, specify the disc's first track number. This value is used to create the LEAD-IN data when setting the track time. Carry out this command before setting the track time.

② In the case of CD-WO incremental writing, specify the value by adding 1 to the last already written track number.

(Command format) E 6 S 0 1 ! N_1N_2 $ ／

$01 \leqq N_1\ N_2 \leqq 99$ (N_1N_2 are numeric values between 0 ~ 9)

(Remark) When the power is first turned ON, the setting N_1N_2=01.

[E 6 S 0 4] Track Time Setting

(Function) To set the time information on each track. When this setting has been completed, the encoder generates the TOC data based on the input value.

(Command format)

① First send the following command to enter the track time setting mode.

E 6 S 0 4 ! ／

② Next, the time data should be set by combining the 6 kinds of commands that indicate time information change points. For the time value CD ATIME should be used. To send to the encoder, use a format where the information is contained in brackets ( ). M_{10}～F_1 signify minutes / seconds / frame number in tens and single digits.

1) P. START (S # $M_{10}M_1S_{10}S_1F_{10}F_1$ $ ／)

In the case of normal cutting and CD-WO uninterrupted writing, this command is used to specify the program area's starting time ($00^M00^S00^F$)

In the case of CD-WO incremental writing, the command is used to specify the starting time for the additional writing.

2) M. START (S 7 $M_{10}M_1S_{10}S_1F_{10}F_1$ $ ／)

This command is used to specify the time when the melody or data (in the case of CD-ROM, etc.) should actually start inside the track. In the case of the disc's first traci - if this is amelody - the specified time should be within the range of 00^M 02^S 00^F ～00^M 03^S 00^F . If the first track is to contain data, the setting should be $00^M02^S00^F$.

3) INDEX (S O $M_{10}M_1S_{10}S_1F_{10}F_1$ $ ／)

Used to sp ecify the time position where the index should be incremented.

4) M. CHANGE (S 1 $M_{10}M_1S_{10}S_1F_{10}F_1$ $ ／)

Used to specify the starting time of melody or data. If this setting deviates from the M. START, this command is used when no interval should be left between melodies, or - in the case of data - no pre gap.

5) M.STOP (S 4 $M_{10}M_1S_{10}S_1F_{10}F_1$ $/)

Indicates the ending of the melody or data. This also becomes the start time of the next track. In the case of normal cutting and CD-WO uninterrupted writing, use the P.STOP for the program area's last melody or data stop. In the case of incremental writing, also use the P.STOP for the last melody or data stop.

6) P.STOP (S %$M_{10}M_1S_{10}S_1F_{10}F_1$ $/)

In the case of normal cutting and CD-WO uninterrupted writing, this indicates the program area's last melody or data stop and becomes the start time of the LEAD-OUT area. In the case of incremental writing, it indicates the ending time of the last melody or data to be added.

When receiving this command, the encoder terminates input.

[E 6 S 0 5] Control Bit Setting

(Function) Used to set the control bit for each track.

(Command format) $B_3 \sim B_0$ signifies the value 0 or 1; B_3=4/2 CHANNEL; B_2= DATA bit; B_1=COPY bit and B_0=EMPHASIS bit.

① Initally send the following command to enter the control bit setting mode:

E 6 S 0 5 ! /

② Set the control bit for the LEAD-IN part.

S $B_3B_2B_1B_0$ $/

③ Next, the LEAD-OUT part control bit should be set.

S $B_3B_2B_1B_0$ $/

④ Now, set the control bit for each track beginning with the first track.

S $B_3B_2B_1B_0$ $/

⋮

S $B_3B_2B_1B_0$ $/

⑤ Finally send the command to end the setting.

S &/

(Remarks) ① When the power is first turned ON, all setting are 0000.

② When the control bit has been set, it does not change until it is reset.

[E 6 S 1 0] START TIME OF LEAD-IN Setting

(Function) Command for ORANGE BOOK PART II

Set the START TIME OF LEAD-IN of the SPECIAL FUNCTION read from the disc.

(Command format) E 6 S 1 0 ! $M_{10}M_1S_{10}S_1F_{10}F_1$ $ ／

(M_{10}~F_1 signify minutes / seconds / frame number in tens an single digits.)

[E 6 S 1 1] PARTITION Number Setting

(Function) Command for the ORANGE BOOK PART II

When writing to PCA, this command is used to set the PARTITION number. After completing the setting, the encoder calculates the ATIME value of the first subcode for PCA writing start based on the previously set START TIME OF LEAD-IN and the partition number setting.

(Command format) E 6 S 1 1 ! N_1N_2 $ ／

$00 \leqq N_1N_2 \leqq 99$ (N_1N_2 are numeric values between 0 ～ 9)

(Remarks) ① Previous to this setting, the START TIME OF LEAD-IN should be set.

② When carrying out FINALIZING of the disc, the PCA writing time should be $N_1N_2 = 00$.

[E 6 S 1 2] PMA Data Setting (For INCREMENTAL WRITING)

(Function) Command for ORANGE BOOK PART II

Used for setting the necessary data for PMA writing occuring immediately after conclusion of INCREMENTAL WRITING.

(Command format)

① Send the following command to enter the PMA data sett ing mode.

E 6 S 1 2 !

② Then send 80 bits PMA data for one track by sending a t a time 4 bits, consisting of 0~9 ciphers, 20 times.

$SN_1 \cdots\cdots N_{20}$ &／

⋮

$SN_1 \cdots\cdots N_{20}$ &／

③ Finally, send the following command to finish the setting.

S &／

[E 6 S 1 3] PMA Data Setting (For FINALIZING)

(Function) To read all PMA data from the disc to the encoder when FINALIZING is carried out. From these values the encoder calculates thebeginning time of TOC and LEAD-OUT.

(Command format)

① Send the following command to enter the PMA data sett ing mode.

E 6 S 1 3 !

② Then send 80 bits PMA data for one track by sending a t a time 4 bits, consisting of 0 ～9 ciphers, 20 times.

$SN_1 \cdots\cdots N_{20}\&/$

$SN_1 \cdots\cdots N_{20}\&/$

③ Finally, send the following command to finish the setting.

S &／

E 6 S 1 4 MUTING Setting

(Function) Command for ORANGE BOOK PART II

To set the MUTING of the LEAD-IN, LEAD-OUT, and LINKING parts.

(Command format) E 6 S 1 4 ! $N_1N_2N_3N_4N_5N_6N_7N_8\$/$

① N_1N_2 are for setting MUTING of the LEAD-IN.

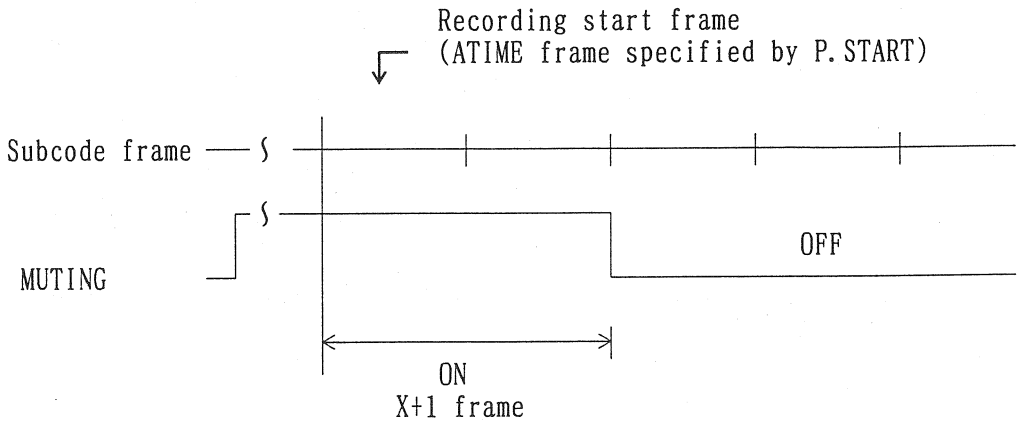
N_1N_2	FUNCTION
0 0	MUTING OFF
1 0	MUTING ON

② N_3N_4 are for setting MUTING of the LEAD-OUT.

N_3N_4	FUNCTION
0 0	MUTING OFF
1 0	MUTING ON

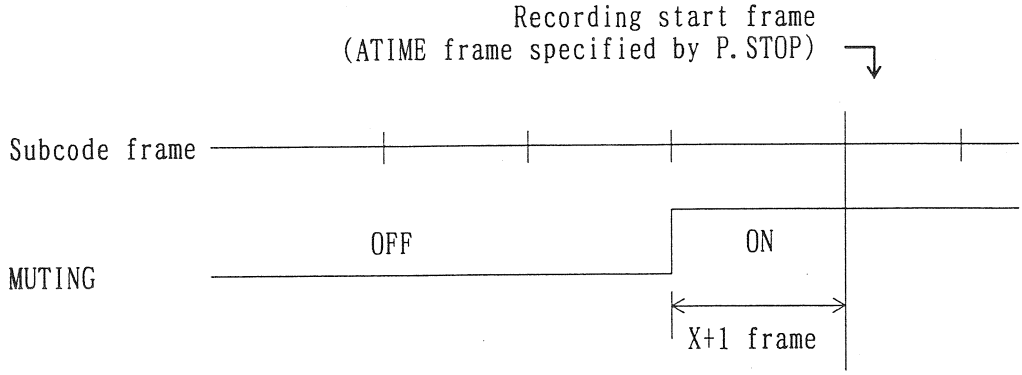
③ N_5N_6 are for setting the MUTING taking place at the location where writing starts in the case of INCREMENTAL WRITING.

N_5N_6	FUNCTION
0 0	MUTING OFF
1 ×	MUTING takes places only at the sub-code frame part indicated by the × (×= 0 ～ 9)



④ N_7N_8 are for setting the MUTING taking place at the location where writing stops in the case of INCREMENTAL WRITING.

N_7N_8	FUNCTION
0 0	MUTING OFF
1 ×	MUTING takes places only at the sub-code frame part indicated by the × (×= 1 ~ 9)



(Remark) When the power is first turned ON, $N_1 \sim N_8$ values are all set to 0.

[E 7] Command

The E7Sxx command can be used to set up and then start subcode sending.

[E 7 S 1 0] Setup Command for Sending of PCA WRITING subcode.

(Function) Command for ORANGE BOOK PART II
Sends subcode when PCA WRITING should take place.

(Command format) E7S10!/

[E 7 S 1 1] Setup Command for Sending of PMA WRITING subcode.

(Function) Command for ORANGE BOOK PART II
Sends subcode when PMA WRITING should take place.

(Command format) E7S11!/

[E 7 S 1 2] Setup Command for Sending of LEAD-OUT WRITING subcode.

(Function) Command for ORANGE BOOK PART II
Sends subcode when LEAD-OUT WRITING should take place.

(Command format) E7S12!/

[E 7 S 1 3] Setup Command for Sending of LEAD-IN WRITING subcode.

(Function) Command for ORANGE BOOK PART II
Sends subcode when LEAD-IN WRITING should take place.

(Command format) E7S13!/

[E 7 S 1 4] Setup Command for Sending of UNINTERRUPTED WRITING Subcode.

(Function) Command for ORANGE BOOK PART II

Sends subcode when UNINTERRUPTED WRITING should take place.

(Command format) E7S14!/

[E 7 S 1 5] Setup Command for Sending of INCREMENTAL WRITING (No LEAD-OUT) Subcode.

(Function) Command for ORANGE BOOK PART II

Sends the subcode when INCREMENTAL WRITING should take place.

(Command format) E7S15!/

[E 7 S 1 6] Setup Command for Sending of INCREMENTAL WRITING (With LEAD-OUT) Subcode.

(Function) Command for ORANGE BOOK PART II

Sends the subcode when INCREMENTAL WRITING should take place. When using this command, sending of the LEAD-OUT area subcode begins when sending of the subcode of the program area ends.

(Command format) E 7 S 1 6 ! ／

[H_n] Command

(Function) To enabel/disable SRQ (Service Request)

(Command format) H 0 Disables SRQ

H 1 Enables SRQ

(Remark) When the power is first switched ON, the setting is SRQ disabled state.

SRQ Value (HEX)	Factors that cause SRQ
4 1	When the ORANGE BOOK PART II setup command for subcode sending is received, the encoder completes the internal processing and the writer may send the E.START signal at the "H" level.
5 0	When the execution of the VCR control command has been completed normally.
5 1	When execution is interrupted due to occurrence of transmission error during VCR control command execution.
5 2	When the tape cannot be transported to the specified time-defined position during execution of the VCR locate command. In this case, give the locate command several times or retry.

[I_n] Command

(Function) To set up the setting mode.

(Command format)

Command	Function
I 0	L Channel Muting OFF
I 1	L Channel Muting ON
I 2	R Channel Muting OFF
I 3	R Channel Muting ON

[J$_n$] Command

(Function) To set up the setting mode.

(Command format)

Command	Function
J 1	Undefined
J 2	Before using E$_n$ commands, it is necessary to send this command.

[L$_n$] Command

(Function) To select data for output.

(Command format)

Command	Function
L 1	Undefined
L 2	Outputs Q code
L 3	Outputs program data
L 4	Outputs mark data
L 5	Outputs lead-in data
L 6	Outputs control bit data
L 7	Outputs PMA data

(Action of each command)

① L2 (Q Command Data)

- Outputs the generated subcode Q.
- Output format:

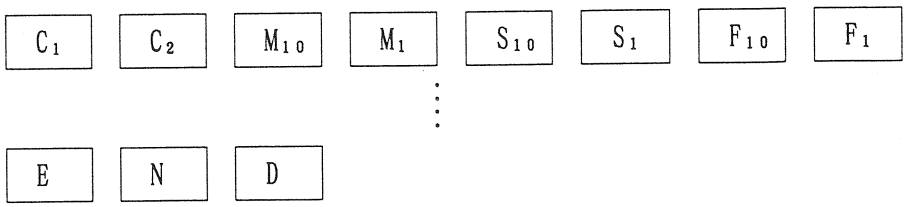
  Headed by the control bit, output is 4-bit unit HEX system.

② L3 (Program Data)

- Program data is the result calculated on the basis of the set value of the set track time and the information on the change point of the actually sent subcode.

  In addition to the set track time, the length of the interval between melodies (value minus 1 frame) and when the P code is set are output.

• Output format:



Data on 1 program consists of 8 letters from C_1 ~ F_1, C_1, C_2 indicate the time change point code; M_{10} ~ F_1 indicate time (minutes, seconds, frame). The meanings of C_1 and C_2 are as follows.

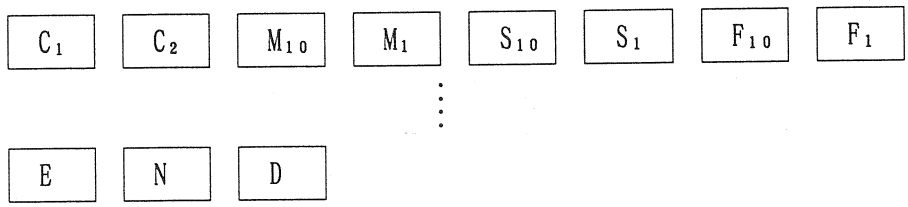
F0 = P. START
F1 = M. START
F2 = M. CHANGE
F3 = INDEX
F4 = M. STOP
F5 = P. STOP
F6 = PAUSE
00 = Length of interval between melodies (1 frame)

For the meaning of F0 ~ F5, refer to the section on TRACK TIME SETTING COMMAND. F6 is when the P code is set. 00 is the code that comes after P. START and M. STOP. However, it becomes the length (1 frame) of the interval between melodies. The data ends with END.

③ L4 (Mark Data)

• Mark data is identical to the specified track time. The time change point code is the same as in the case of L3. The data ends with END.

• Output format:



④ L5 (Lead-In Data)

- The lead-in time calculated by the encoder after the track time has been set.
- Output format:

T_1	T_2	M_{10}	M_1	S_{10}	S_1	F_{10}	F_1
⋮							
T_1	T_2	M_{10}	M_1	S_{10}	S_1	F_{10}	F_1
A	0						
A	1						
A	2						
E	N	D					

⑤ L6 (Control Bit Data)

- Outputs the control bit data. In addition to the control bit of each track, the control bits corresponding to the TOC's POINT = A0, A1, A2 are output. A total of 99+3 = 102 sets of data can be output and the output ends with END.
- Output format:

H	0	Control bit of track = 01
⋮		⋮
H	0	Control bit of track = 99
H	0	Control bit of POINT = A0
H	0	Control bit of POINT = A1
H	0	Control bit of POINT = A2
E	N	D

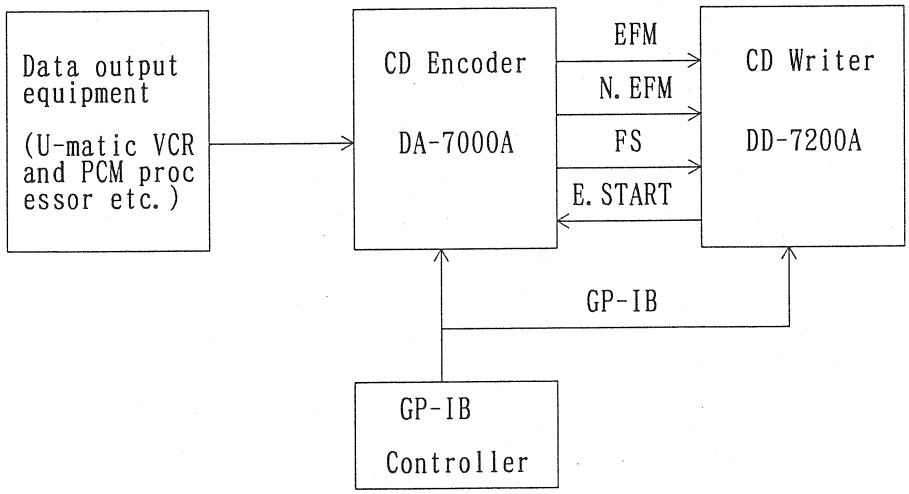
H indicates the control's 4-bit as HEX.

7. GP-IB OPERATION PROGRAMMING

(1) In the case of a CD-WO system based on the ORANGE BOOK PART II.

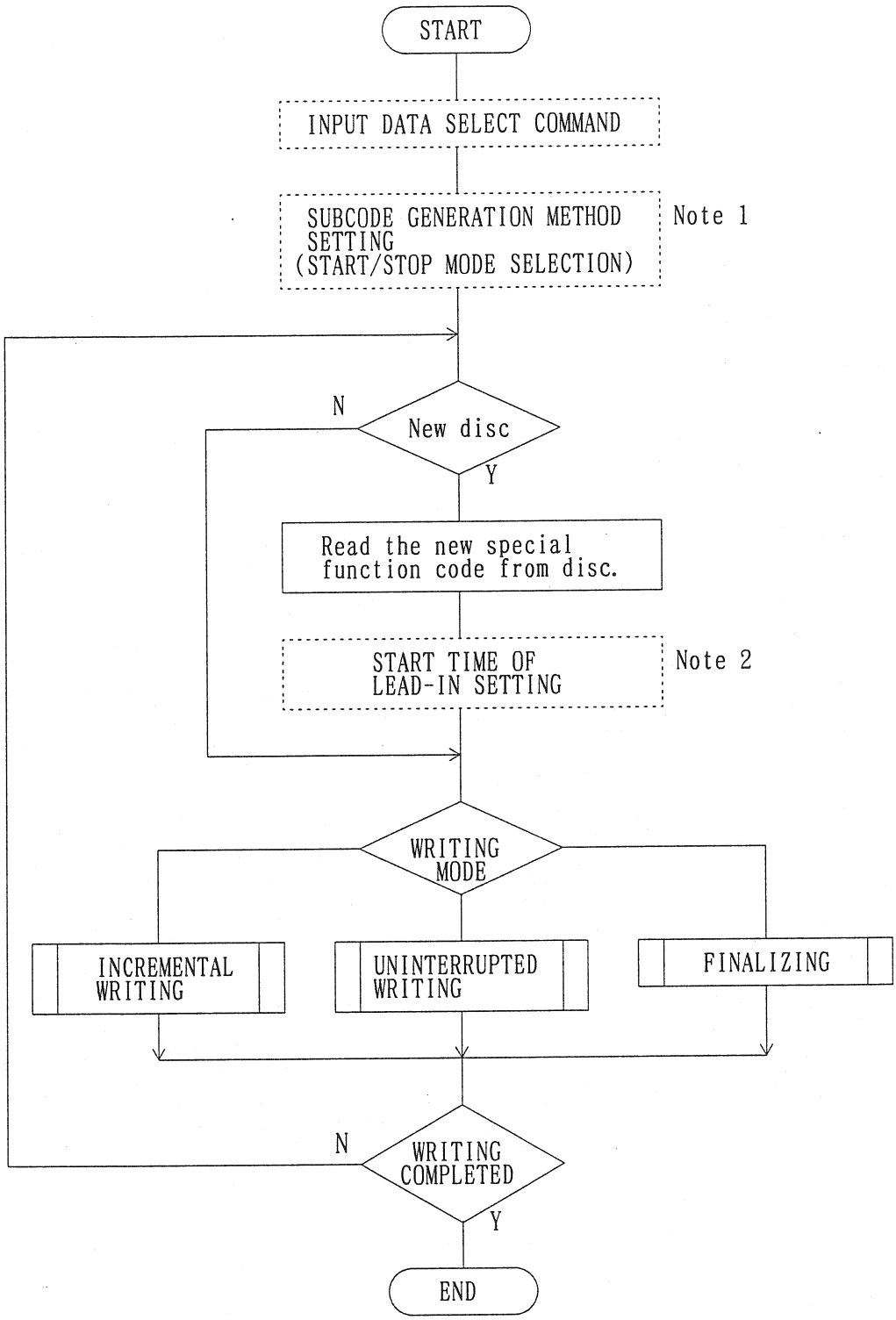
① System construction

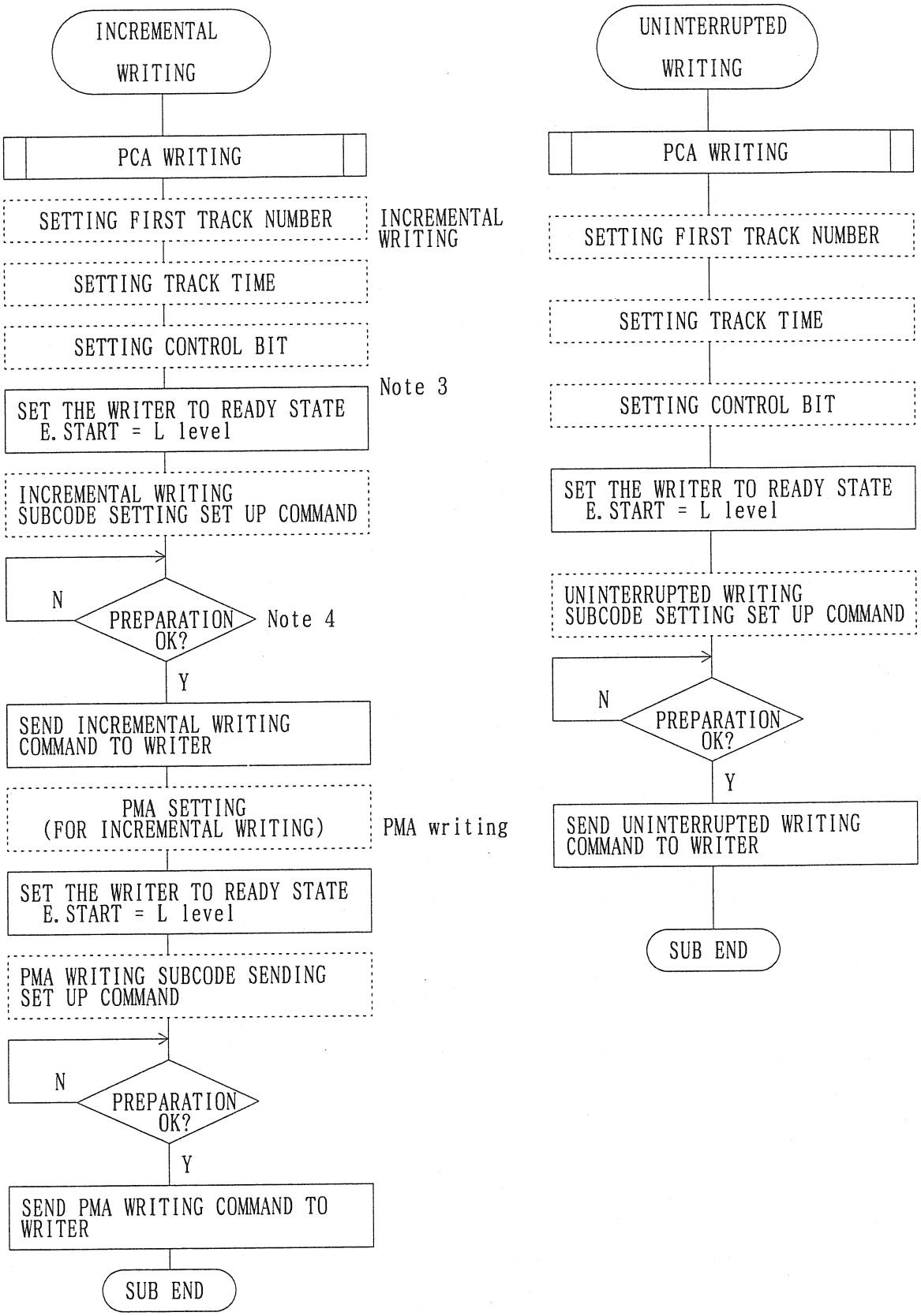
The following kind of system construction is imagined.

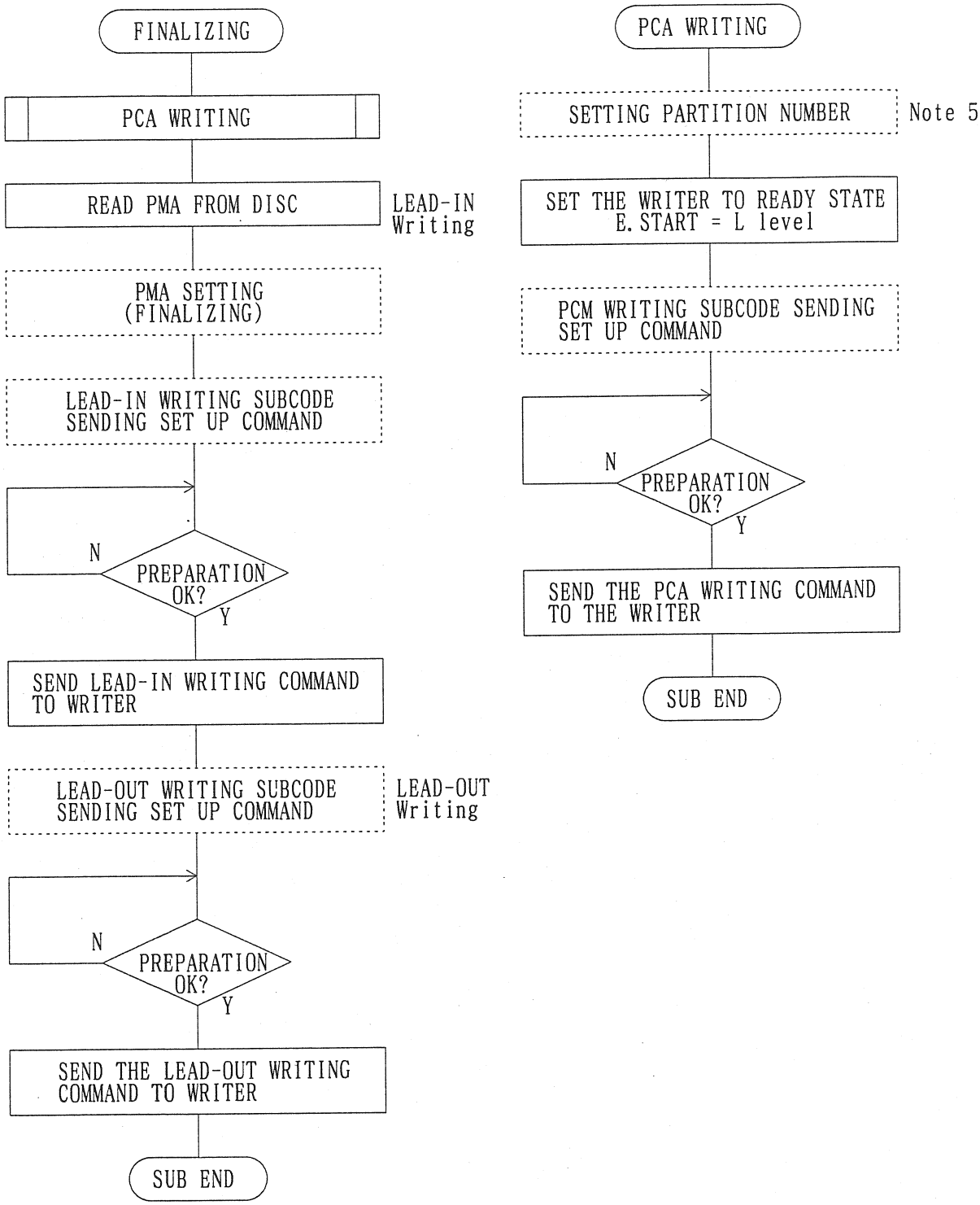


② Program Construction

- Below the method to control the CD-WO system is shown in the from of flow-chart. In the case of this flow-chart, 3 writing-modes exist.
  UNINTERRUPTED WRITING is the method where the disc is written at one time.
  If additions are to be made, INCREMENTAL WRITING is repeated. When the last addition has been made, FINALIZING is carried out.
- Instructions in [ ] boxes refer to settings that concern the DA-7000A.


START
INPUT DATA SELECT COMMAND
SUBCODE GENERATION METHOD SETTING (START/STOP MODE SELECTION)
Note 1
N
New disc
Y
Read the new special function code from disc.
START TIME OF LEAD-IN SETTING
Note 2
WRITING MODE
INCREMENTAL WRITING
UNINTERRUPTED WRITING
FINALIZING
N
WRITING COMPLETED
Y
END


INCREMENTAL WRITING
PCA WRITING
SETTING FIRST TRACK NUMBER
INCREMENTAL WRITING
SETTING TRACK TIME
SETTING CONTROL BIT
Note 3
SET THE WRITER TO READY STATE
E. START = L level
INCREMENTAL WRITING
SUBCODE SETTING SET UP COMMAND
N
PREPARATION OK?
Note 4
Y
SEND INCREMENTAL WRITING
COMMAND TO WRITER
PMA SETTING
(FOR INCREMENTAL WRITING)
PMA writing
SET THE WRITER TO READY STATE
E. START = L level
PMA WRITING SUBCODE SENDING
SET UP COMMAND
N
PREPARATION OK?
Y
SEND PMA WRITING COMMAND TO
WRITER
SUB END
UNINTERRUPTED WRITING
PCA WRITING
SETTING FIRST TRACK NUMBER
SETTING TRACK TIME
SETTING CONTROL BIT
SET THE WRITER TO READY STATE
E. START = L level
UNINTERRUPTED WRITING
SUBCODE SETTING SET UP COMMAND
N
PREPARATION OK?
Y
SEND UNINTERRUPTED WRITING
COMMAND TO WRITER
SUB END


FINALIZING
PCA WRITING
READ PMA FROM DISC
LEAD-IN Writing
PMA SETTING (FINALIZING)
LEAD-IN WRITING SUBCODE SENDING SET UP COMMAND
N
PREPARATION OK?
Y
SEND LEAD-IN WRITING COMMAND TO WRITER
LEAD-OUT WRITING SUBCODE SENDING SET UP COMMAND
LEAD-OUT Writing
N
PREPARATION OK?
Y
SEND THE LEAD-OUT WRITING COMMAND TO WRITER
SUB END
PCA WRITING
SETTING PARTITION NUMBER
Note 5
SET THE WRITER TO READY STATE E. START = L level
PCM WRITING SUBCODE SENDING SET UP COMMAND
N
PREPARATION OK?
Y
SEND THE PCA WRITING COMMAND TO THE WRITER
SUB END

Note 1: For the subcode generation method select the START/STOP mode. Thus the ATIP and SUBCODE are synchronized.

Note 2: When replacing the disc, re-set the START TIME OF LEAD-IN value on the DA-7000A.

Note 3: Before sending the subcode sending set up command, the E.START signal must be set to the "L" level. If the writer detects the writing starting position, set E.START to "H" level. Thus the DA-7000A starts sending the subcode.

Note 4: The DA-7000A receives the subcode sending setup command, completes the internal processing and displays SRQ when the subcode sending setup can be done.

Note 5: Set the partition number to 00 when FINALIZING should be carried out.

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