Fig.1

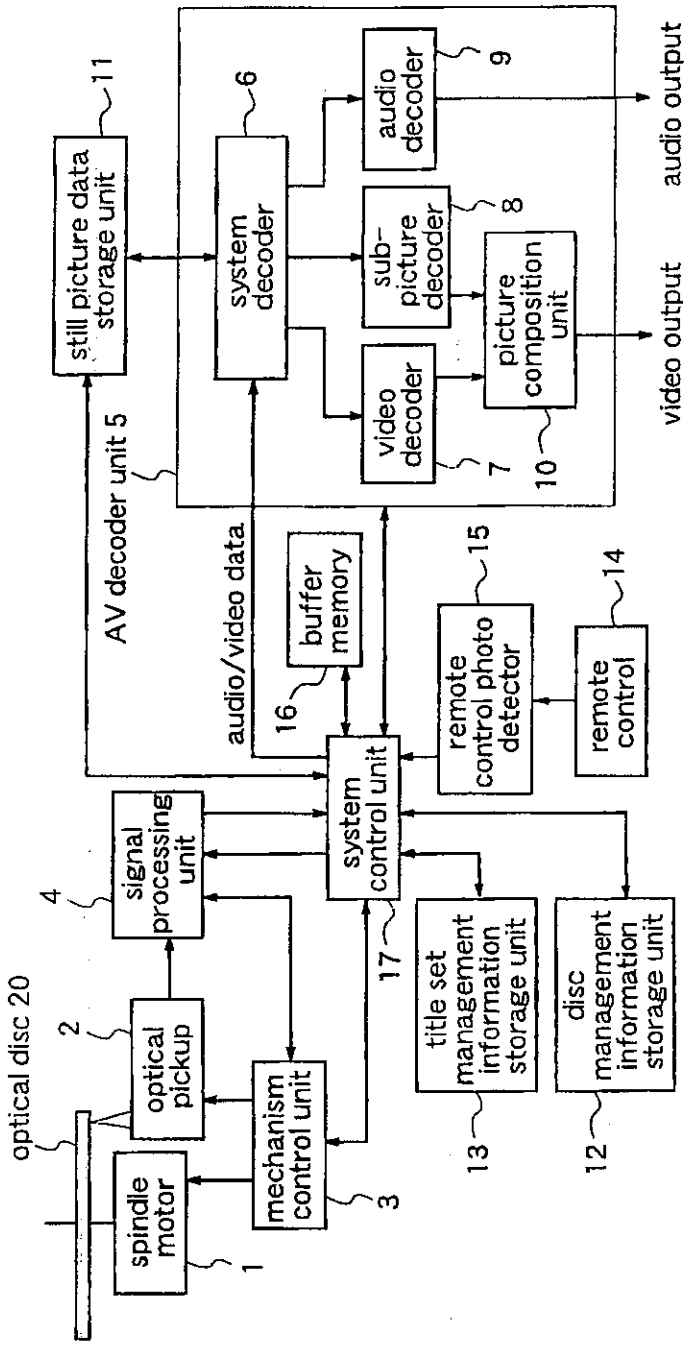

optical disc 20
spindle motor
1
optical pickup
2
mechanism control unit
3
signal processing unit
4
AV decoder unit 5
still picture data storage unit
11
system decoder
6
audio decoder
9
sub-picture decoder
8
picture composition unit
video decoder
7
10
audio output
video output
audio/video data
buffer memory
16
system control unit
17
remote control photo detector
15
remote control
14
title set management information storage unit
13
disc management information storage unit
12

Fig.2

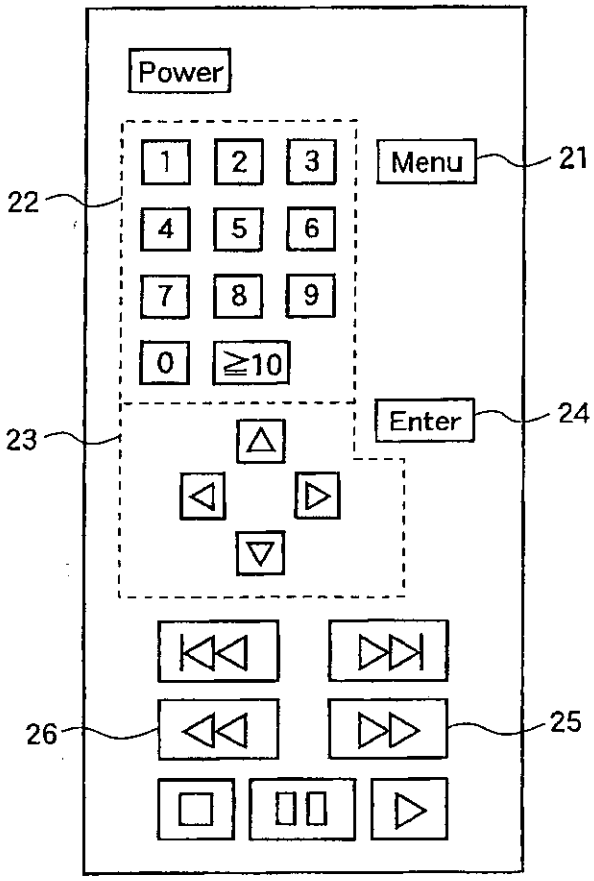


Fig.3

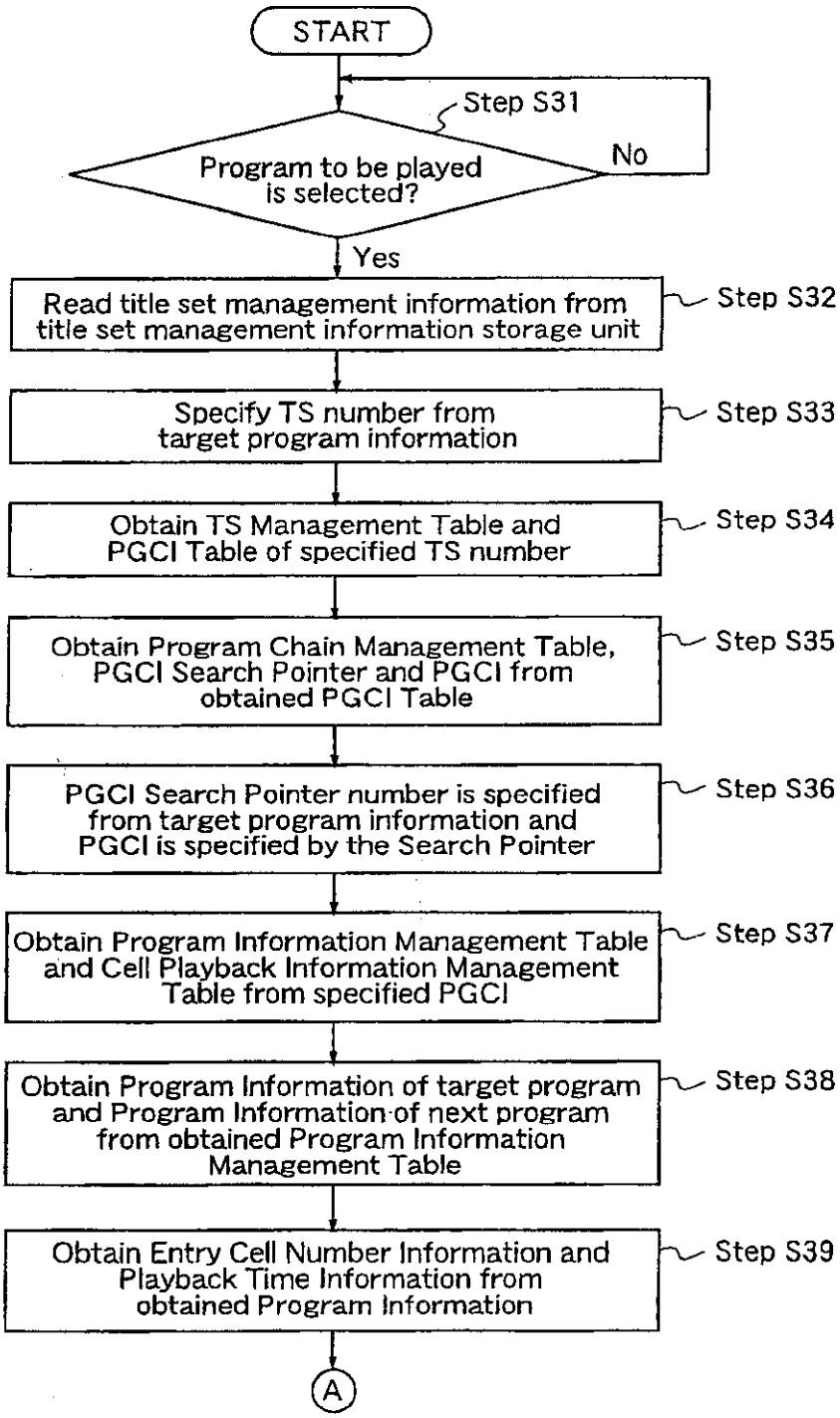

START
Step S31
Program to be played is selected?
No
Yes
Read title set management information from title set management information storage unit
Step S32
Specify TS number from target program information
Step S33
Obtain TS Management Table and PGCI Table of specified TS number
Step S34
Obtain Program Chain Management Table, PGCI Search Pointer and PGCI from obtained PGCI Table
Step S35
PGCI Search Pointer number is specified from target program information and PGCI is specified by the Search Pointer
Step S36
Obtain Program Information Management Table and Cell Playback Information Management Table from specified PGCI
Step S37
Obtain Program Information of target program and Program Information of next program from obtained Program Information Management Table
Step S38
Obtain Entry Cell Number Information and Playback Time Information from obtained Program Information
Step S39
A

Fig.4

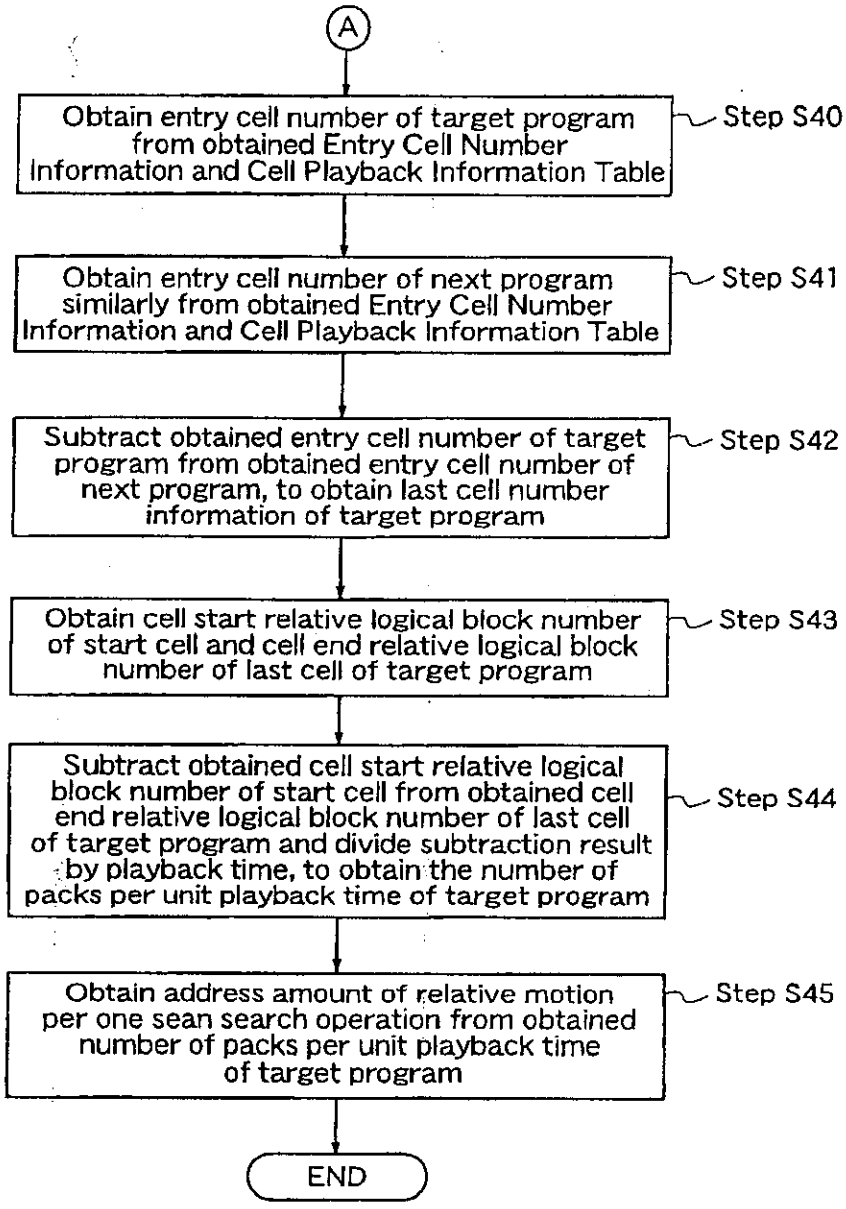

A
Obtain entry cell number of target program from obtained Entry Cell Number Information and Cell Playback Information Table
Step S40
Obtain entry cell number of next program similarly from obtained Entry Cell Number Information and Cell Playback Information Table
Step S41
Subtract obtained entry cell number of target program from obtained entry cell number of next program, to obtain last cell number information of target program
Step S42
Obtain cell start relative logical block number of start cell and cell end relative logical block number of last cell of target program
Step S43
Subtract obtained cell start relative logical block number of start cell from obtained cell end relative logical block number of last cell of target program and divide subtraction result by playback time, to obtain the number of packs per unit playback time of target program
Step S44
Obtain address amount of relative motion per one sean search operation from obtained number of packs per unit playback time of target program
Step S45
END

Fig.5

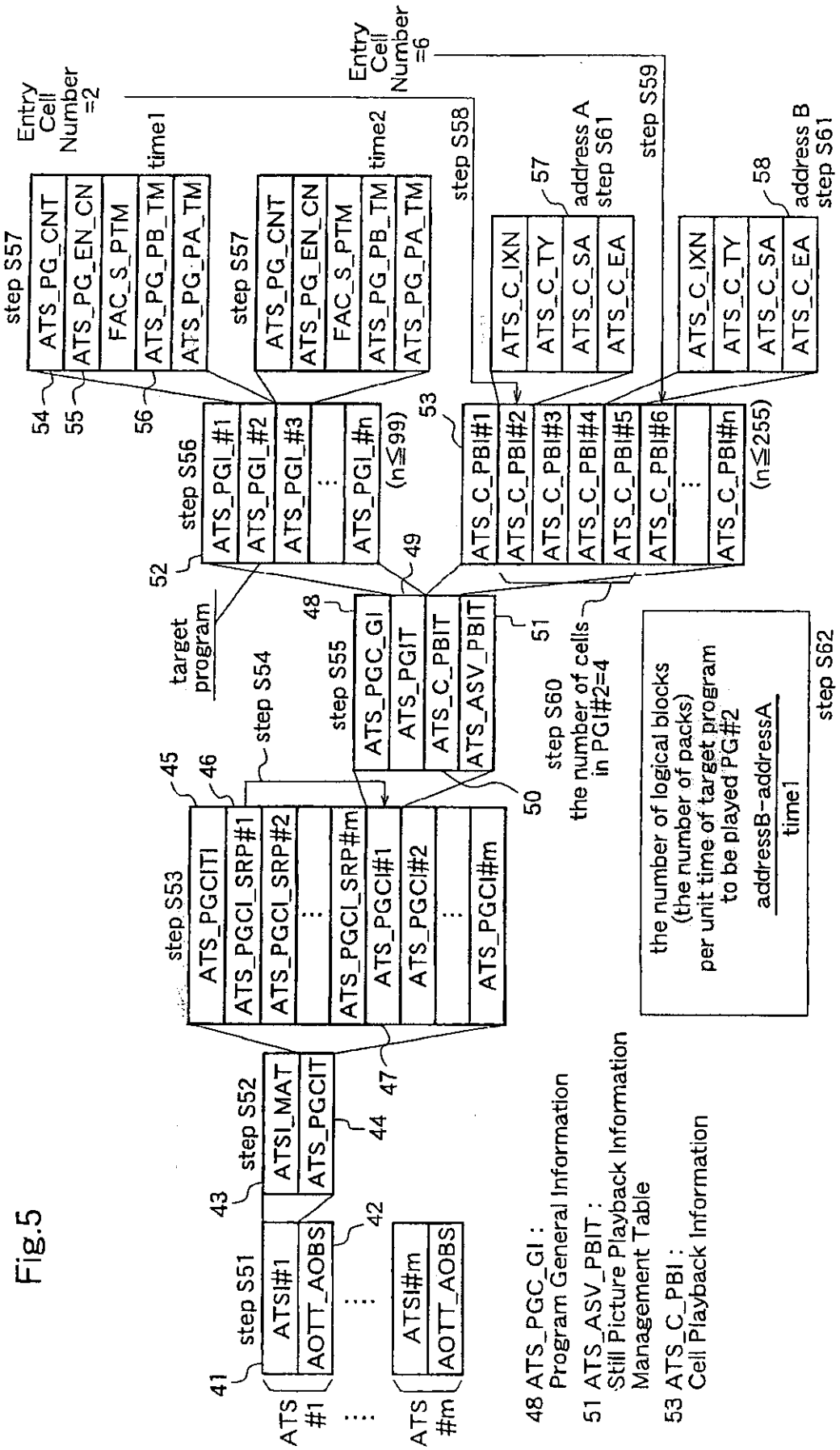

ATS #1
ATS #m
ATSI#1
AOTT_AOBS
ATSI#m
AOTT_AOBS
ATSI_MAT
ATS_PGCIT
ATS_PGCIT
ATS_PGCI_SRP#1
ATS_PGCI_SRP#2
ATS_PGCI_SRP#m
ATS_PGCI#1
ATS_PGCI#2
ATS_PGCI#m
ATS_PGC_GI
ATS_PGIT
ATS_C_PBIT
ATS_ASV_PBIT
ATS_PGI_#1
ATS_PGI_#2
ATS_PGI_#3
ATS_PGI_#n
ATS_C_PBI#1
ATS_C_PBI#2
ATS_C_PBI#3
ATS_C_PBI#4
ATS_C_PBI#5
ATS_C_PBI#6
ATS_C_PBI#n
ATS_PG_CNT
ATS_PG_EN_CN
FAC_S_PTM
ATS_PG_PB_TM
ATS_PG_PA_TM
ATS_C_IXN
ATS_C_TY
ATS_C_SA
ATS_C_EA
Entry Cell Number =2
Entry Cell Number =6
time1
time2
address A
address B
target program
the number of cells in PGI#2=4
the number of logical blocks (the number of packs) per unit time of target program to be played PG#2
addressB-addressA / time1
step S51
step S52
step S53
step S54
step S55
step S56
step S57
step S58
step S59
step S60
step S61
step S62
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
(n≦99)
(n≦255)
48 ATS_PGC_GI : Program General Information
51 ATS_ASV_PBIT : Still Picture Playback Information Management Table
53 ATS_C_PBI : Cell Playback Information

Fig.6 (a)

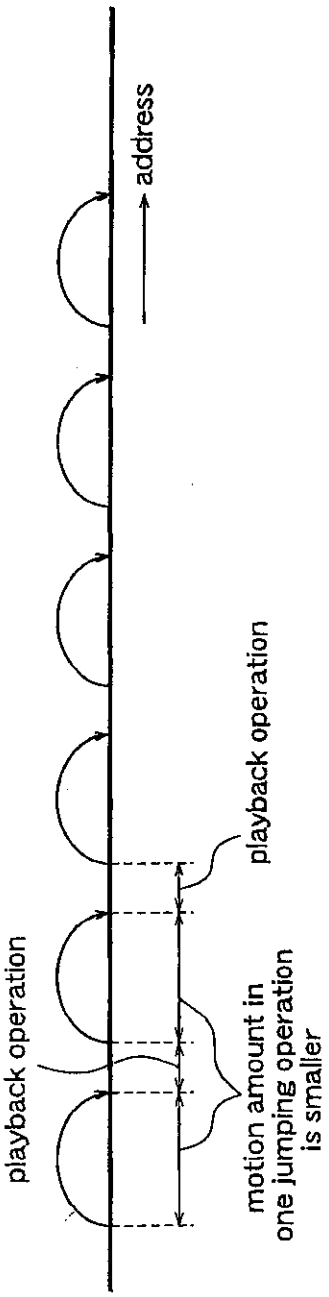

address
playback operation
playback operation
motion amount in
one jumping operation
is smaller

Fig.6 (b)

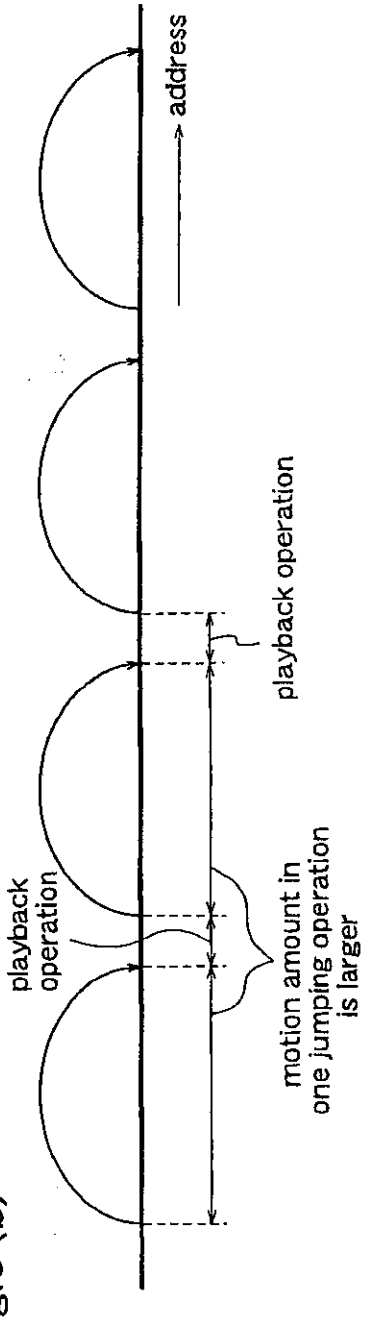

address
playback operation
playback
operation
motion amount in
one jumping operation
is larger

Fig.7

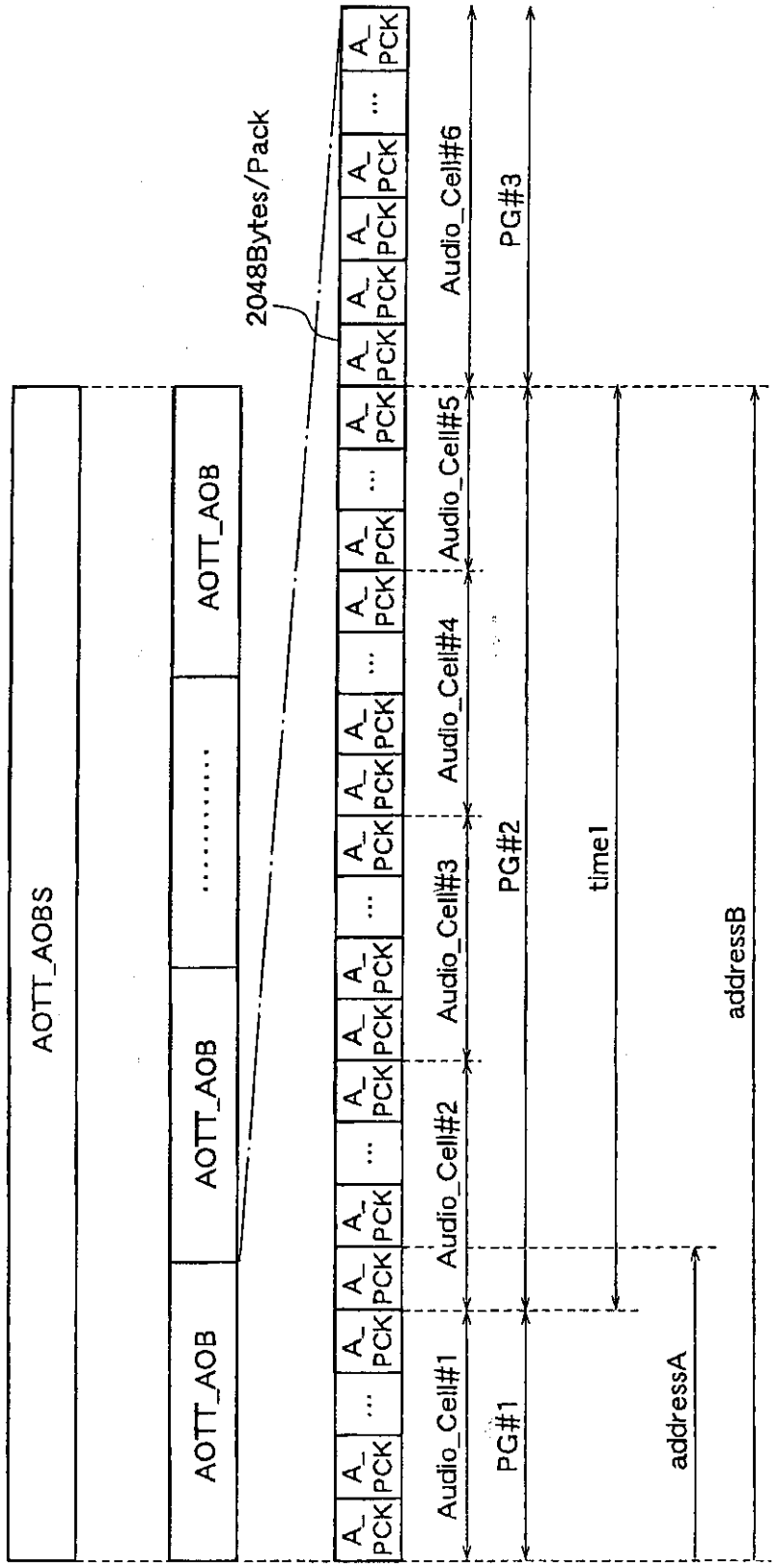
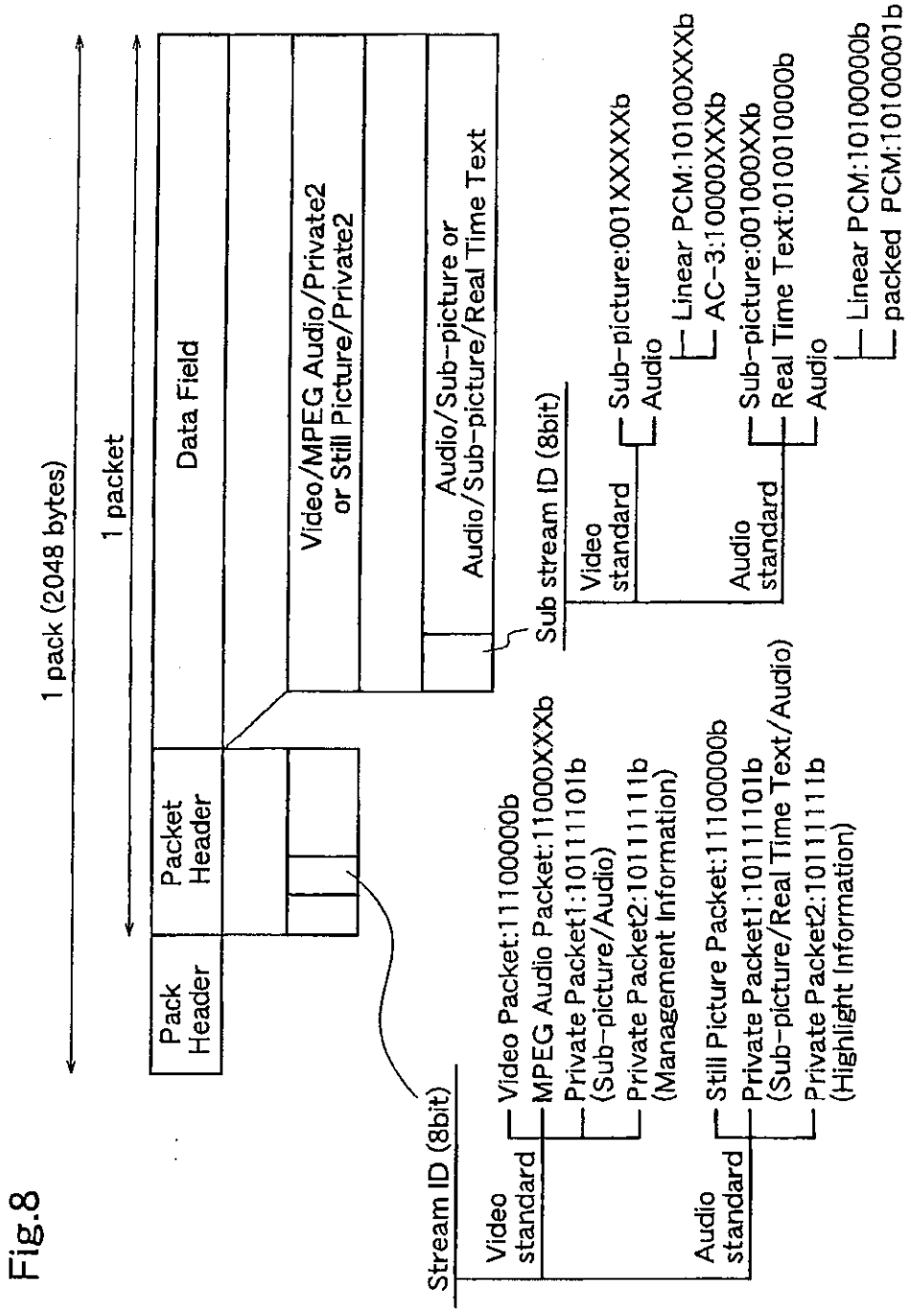

AOTT_AOBS
AOTT_AOB
AOTT_AOB
.....
AOTT_AOB
2048Bytes/Pack
A_PCK
...
Audio_Cell#1
Audio_Cell#2
Audio_Cell#3
Audio_Cell#4
Audio_Cell#5
Audio_Cell#6
PG#1
PG#2
PG#3
time1
addressA
addressB

Fig.8


1 pack (2048 bytes)
1 packet
Pack Header
Packet Header
Data Field
Video/MPEG Audio/Private2 or Still Picture/Private2
Audio/Sub-picture or Audio/Sub-picture/Real Time Text
Stream ID (8bit)
Video standard
Video Packet:11100000b
MPEG Audio Packet:11000XXXb
Private Packet1:10111101b (Sub-picture/Audio)
Private Packet2:10111111b (Management Information)
Audio standard
Still Picture Packet:11100000b
Private Packet1:10111101b (Sub-picture/Real Time Text/Audio)
Private Packet2:10111111b (Highlight Information)
Sub stream ID (8bit)
Video standard
Sub-picture:001XXXXXb
Audio
Linear PCM:10100XXXb
AC-3:10000XXXb
Audio standard
Sub-picture:001000XXb
Real Time Text:01001000b
Audio
Linear PCM:10100000b
packed PCM:10100001b

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Fig.9 (a)

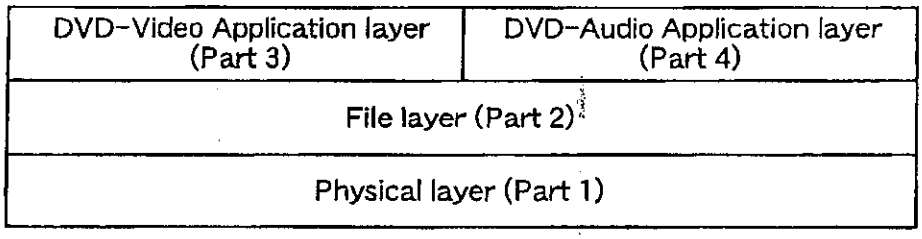


Fig.9 (b)

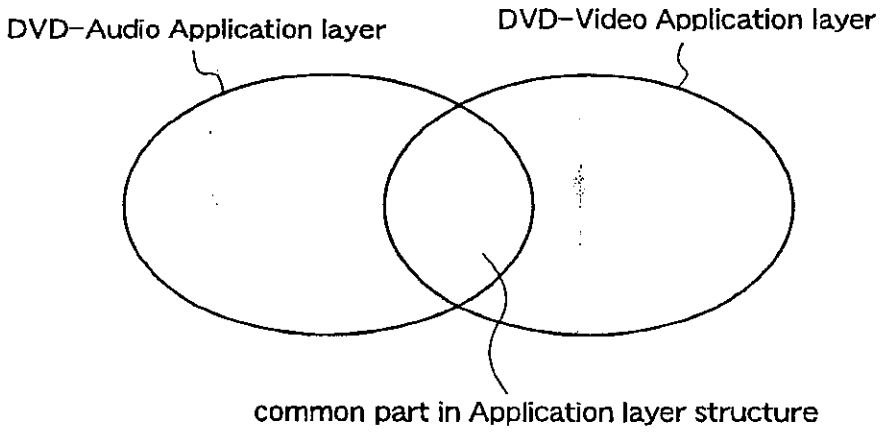


Fig.10

Contents in Video Zone can also be played back according to DVD-Audio standard

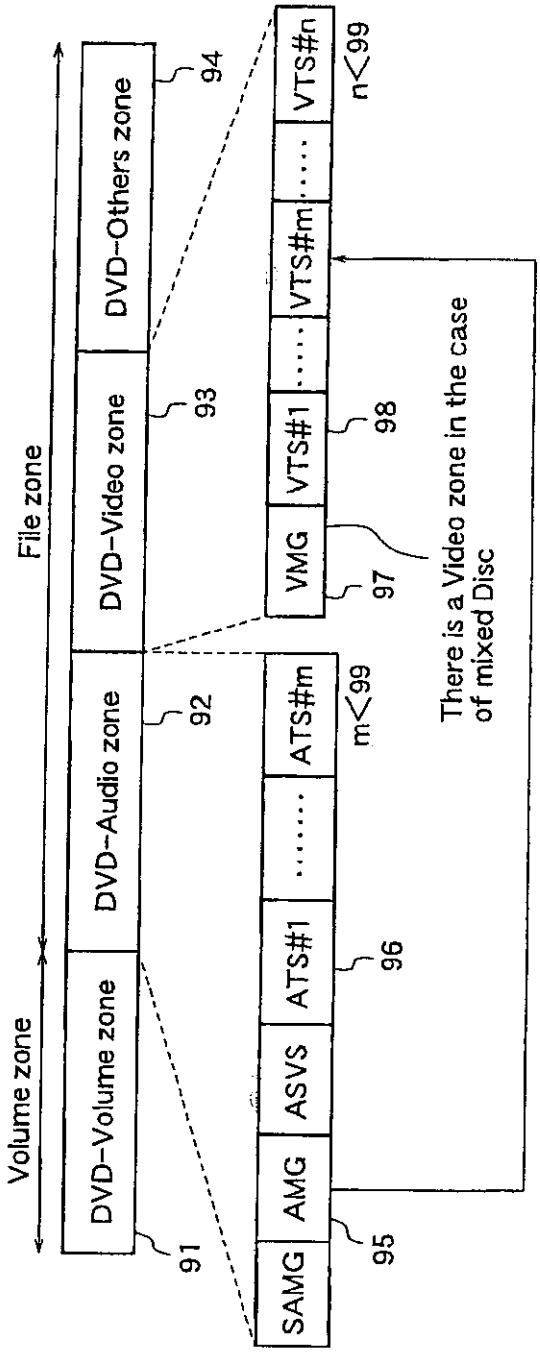


Fig.11

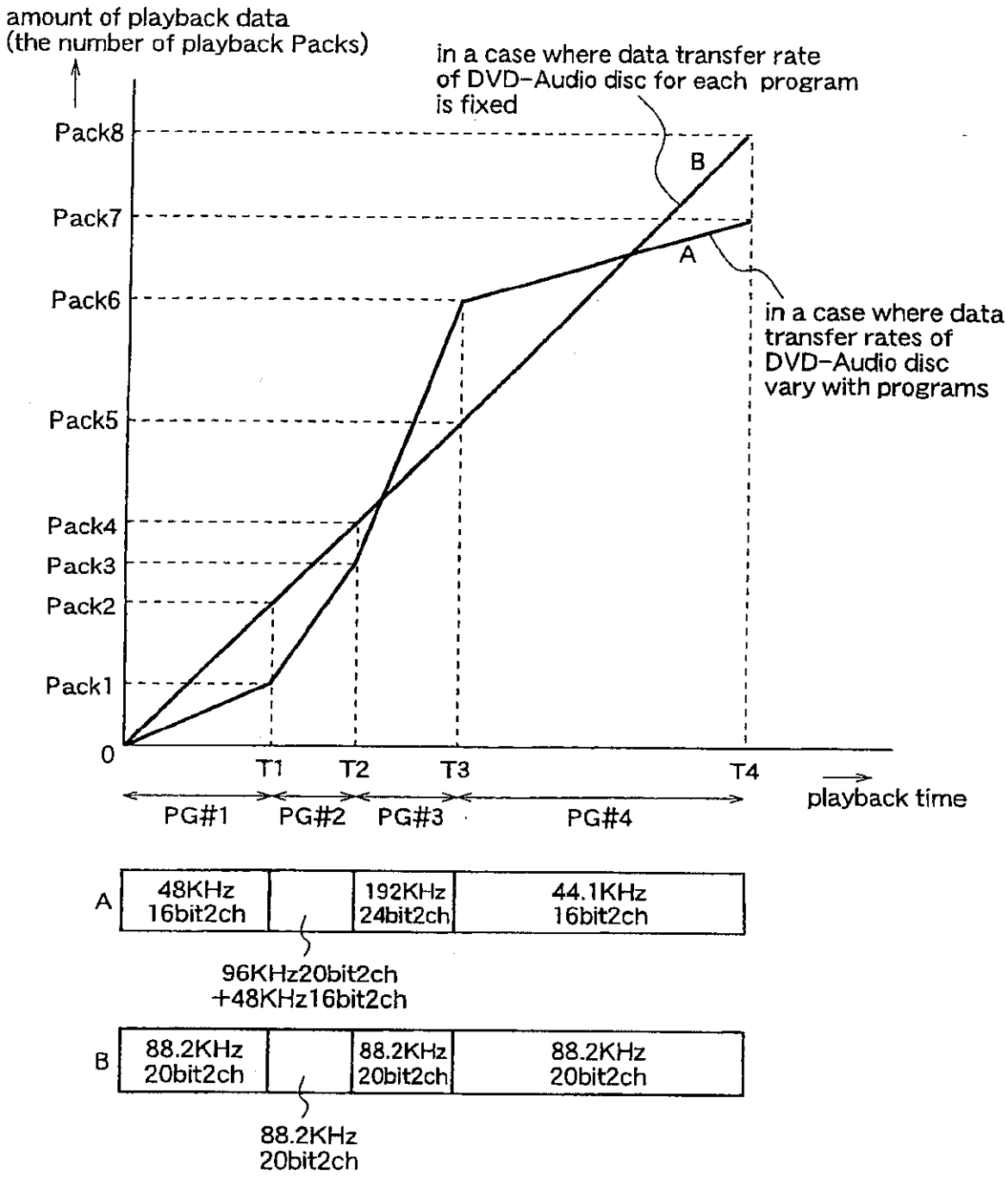

amount of playback data
(the number of playback Packs)
in a case where data transfer rate of DVD-Audio disc for each program is fixed
Pack8
Pack7
Pack6
Pack5
Pack4
Pack3
Pack2
Pack1
0
B
A
in a case where data transfer rates of DVD-Audio disc vary with programs
T1
T2
T3
T4
playback time
PG#1
PG#2
PG#3
PG#4
A
48KHz 16bit2ch
192KHz 24bit2ch
44.1KHz 16bit2ch
96KHz20bit2ch +48KHz16bit2ch
B
88.2KHz 20bit2ch
88.2KHz 20bit2ch
88.2KHz 20bit2ch
88.2KHz 20bit2ch

Fig.12

Main Item		DVD-Audio Standard	DVD-Video Standard
Video Playback Stream		MPEG1,MPEG2	MPEG1,MPEG2
Audio Playback Stream	Stream	1.LinearPCM(mandatory) 2.PackedPCM(mandatory) Lossless compression 3.AC-3(option)compression 4.DTS(option)compression	1.AC-3(mandatory)compression 2.LinearPCM(mandatory) 3.MPEG(mandatory)compression 4.DTS(option)compression 5.SDDS(option)
	Number of Channel	Max.6(in linear)corresponding to Smart Contents	Max.6(in compression)
	Sampling Frequency	48KHz/44.1KHz×1/2/4 Max.192KHz	48KHz×1/2 Max.96KHz
	Quantization	16/20/24bits	16/20/24bits
Still Picture Playback		1.Browsable 2.Random/shuffle 3.Sequential 4.Maximum number ASVU Unit 2Mbytes＊99 About 100 frames(depending on image quality)	None
Text		1.Normal Text Data 2.Real TimeText	1.Normal Text Data
Others		1.Hidden Track Playback 2.Spotlight Playback 3.Audio Selection 4.No Parental Control 5.No Region Code Control	1.Muliti Angle 2.Muliti Caption 3.Muliti Voice 4.Parental Control 5.Region Code Control
Disc Management Information		AMG	VMG
Management Target Title Set		ATS+VTS	VTS
Navigation command		・Commands defined by AMG and ATS are different from those of Video and peculiar to Audio ・Commands defined by VTS are ones having restriction on Video Standard	Commands defined by VMG and VTS are peculiar to Video

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Fig.13

No.	Ch0	Ch1	Ch2	Ch3	Ch4	Ch5	the number of Ch
1	C						1
2	L	R					2
3	Lf	Rf	S				3
4	Lf	Rf	Ls	Rs			4
5	Lf	Rf	LFE				3
6	Lf	Rf	LFE	S			4
7	Lf	Rf	LFE	Ls	Rs		5
8	Lf	Rf	C	S			4
9	Lf	Rf	C	Ls	Rs		5
10	Lf	Rf	C	LFE			4
11	Lf	Rf	C	LFE	S		5
12	Lf	Rf	C	LFE	Ls	Rs	6
13	Lf	Rf	C	S			4
14	Lf	Rf	C	Ls	Rs		5
15	Lf	Rf	C	LFE			4
16	Lf	Rf	C	LFE	S		5
17	Lf	Rf	C	LFE	Ls	Rs	6
18	Lf	Rf	Ls	Rs	LFE		5
19	Lf	Rf	Ls	Rs	C		5
20	Lf	Rf	Ls	Rs	C	LFE	6

channel group 1 | channel group 2

L : Left
R : Right
Lf : Left front
Rf : Right front
C : Center
LFE : Low Frequency Effects
S : Sorround
Ls : Left Surround
Rs : Right Sorround

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Fig.14

	the number of bits Q	sampling frequency fs
channel group 1	16bit 20bit 24bit	48KHz 96KHz 192KHz 44.1KHz 88.2KHz 176.4KHz
channel group 2	16bit 20bit 24bit	48KHz 96KHz 44.1KHz 88.2KHz