FIG. 1

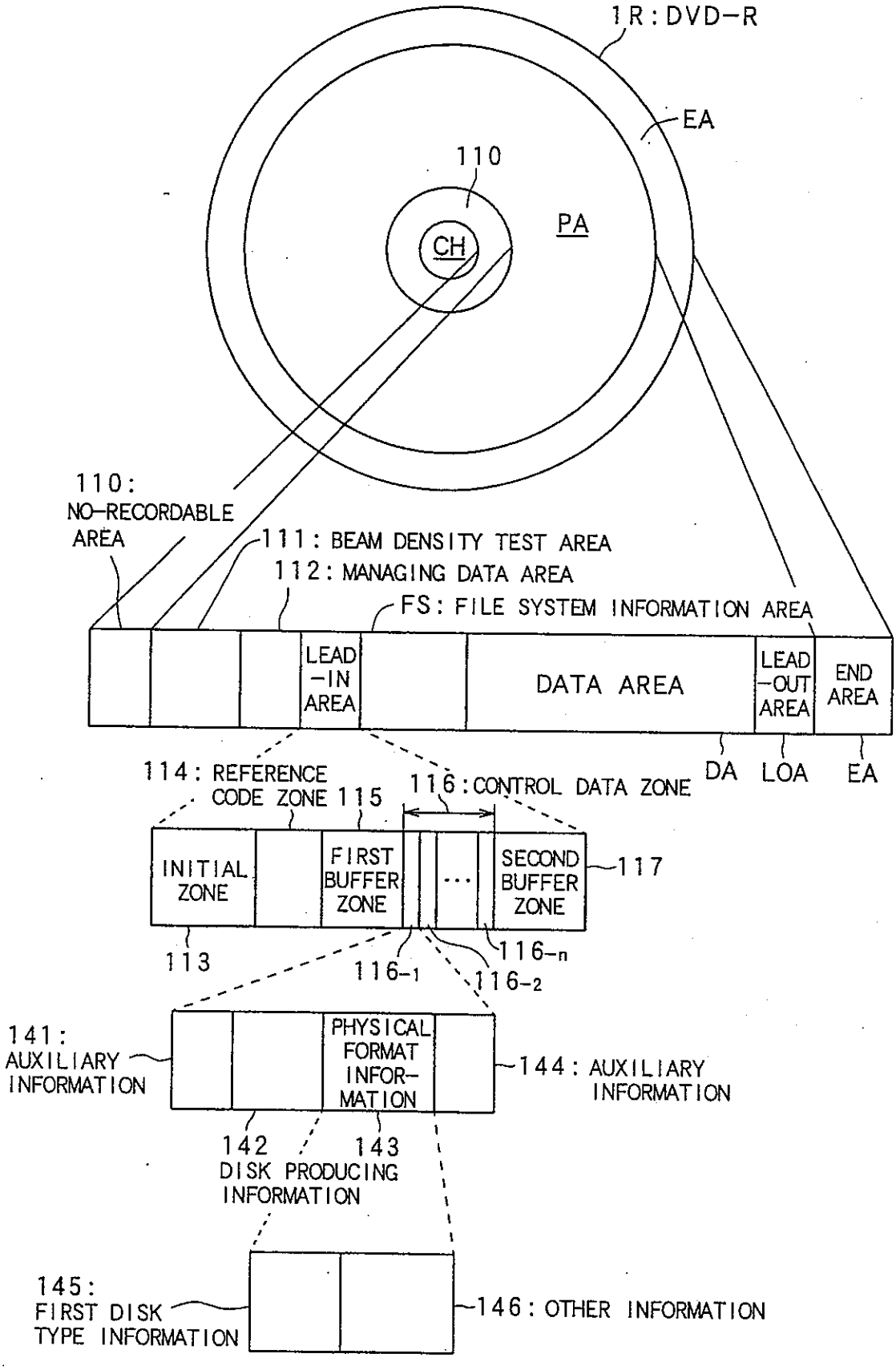

1R : DVD-R
EA
110
CH
PA
110 :
NO-RECORDABLE
AREA
111 : BEAM DENSITY TEST AREA
112 : MANAGING DATA AREA
FS : FILE SYSTEM INFORMATION AREA
LEAD
-IN
AREA
DATA AREA
LEAD
-OUT
AREA
END
AREA
DA
LOA
EA
114 : REFERENCE
CODE ZONE 115
116 : CONTROL DATA ZONE
INITIAL
ZONE
FIRST
BUFFER
ZONE
...
SECOND
BUFFER
ZONE
117
113
116-1
116-2
116-n
141 :
AUXILIARY
INFORMATION
PHYSICAL
FORMAT
INFOR-
MATION
144 : AUXILIARY
INFORMATION
142
DISK PRODUCING
INFORMATION
143
145 :
FIRST DISK
TYPE INFORMATION
146 : OTHER INFORMATION

FIG. 2

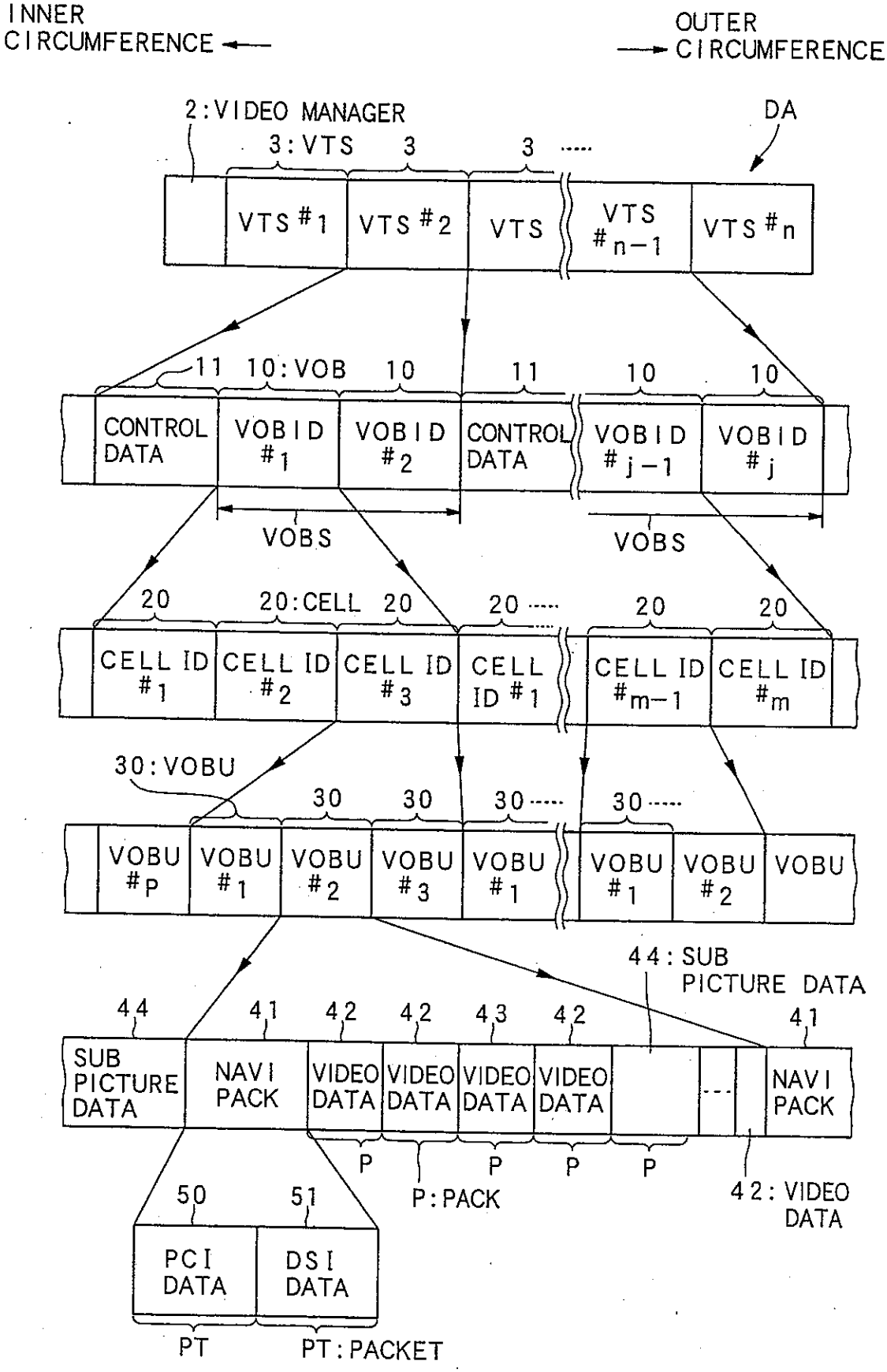

INNER CIRCUMFERENCE
OUTER CIRCUMFERENCE
2:VIDEO MANAGER
3:VTS
3
3
DA
VTS #1
VTS #2
VTS
VTS #n-1
VTS #n
11
10:VOB
10
11
10
10
CONTROL DATA
VOBID #1
VOBID #2
CONTROL DATA
VOBID #j-1
VOBID #j
VOBS
VOBS
20
20:CELL
20
20
20
20
CELL ID #1
CELL ID #2
CELL ID #3
CELL ID #1
CELL ID #m-1
CELL ID #m
30:VOBU
30
30
30
30
VOBU #P
VOBU #1
VOBU #2
VOBU #3
VOBU #1
VOBU #1
VOBU #2
VOBU
44:SUB PICTURE DATA
44
41
42
42
43
42
41
SUB PICTURE DATA
NAVI PACK
VIDEO DATA
VIDEO DATA
VIDEO DATA
VIDEO DATA
NAVI PACK
P
P
P
P
P:PACK
42:VIDEO DATA
50
51
PCI DATA
DSI DATA
PT
PT:PACKET

FIG. 3

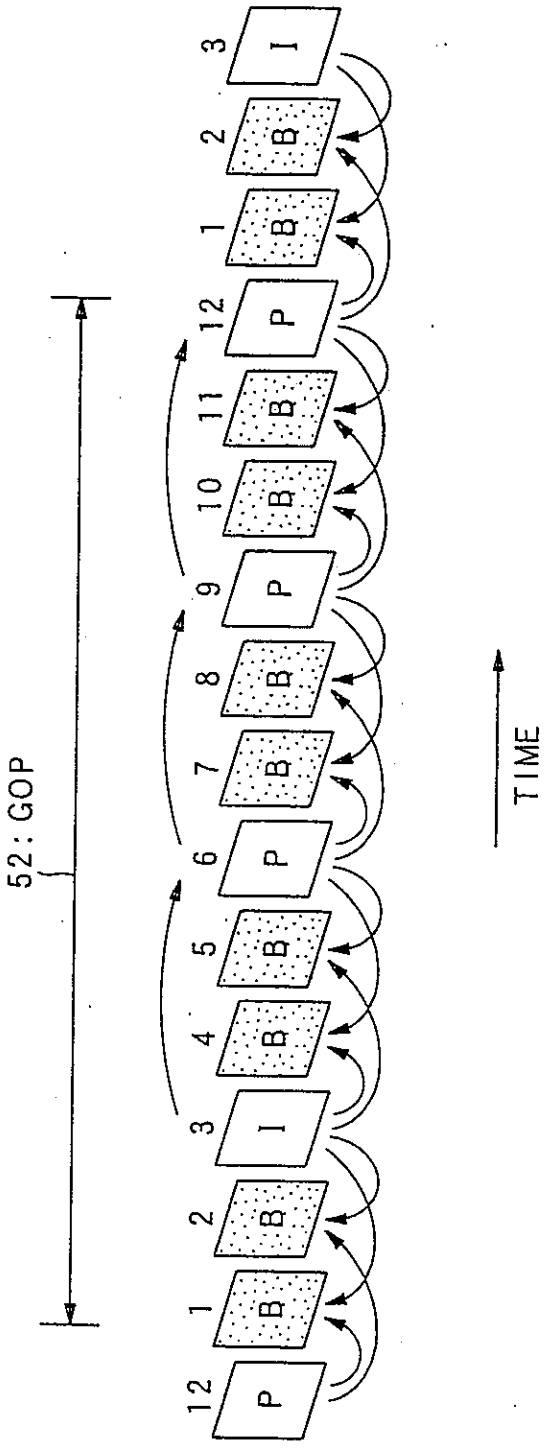


FIG. 4

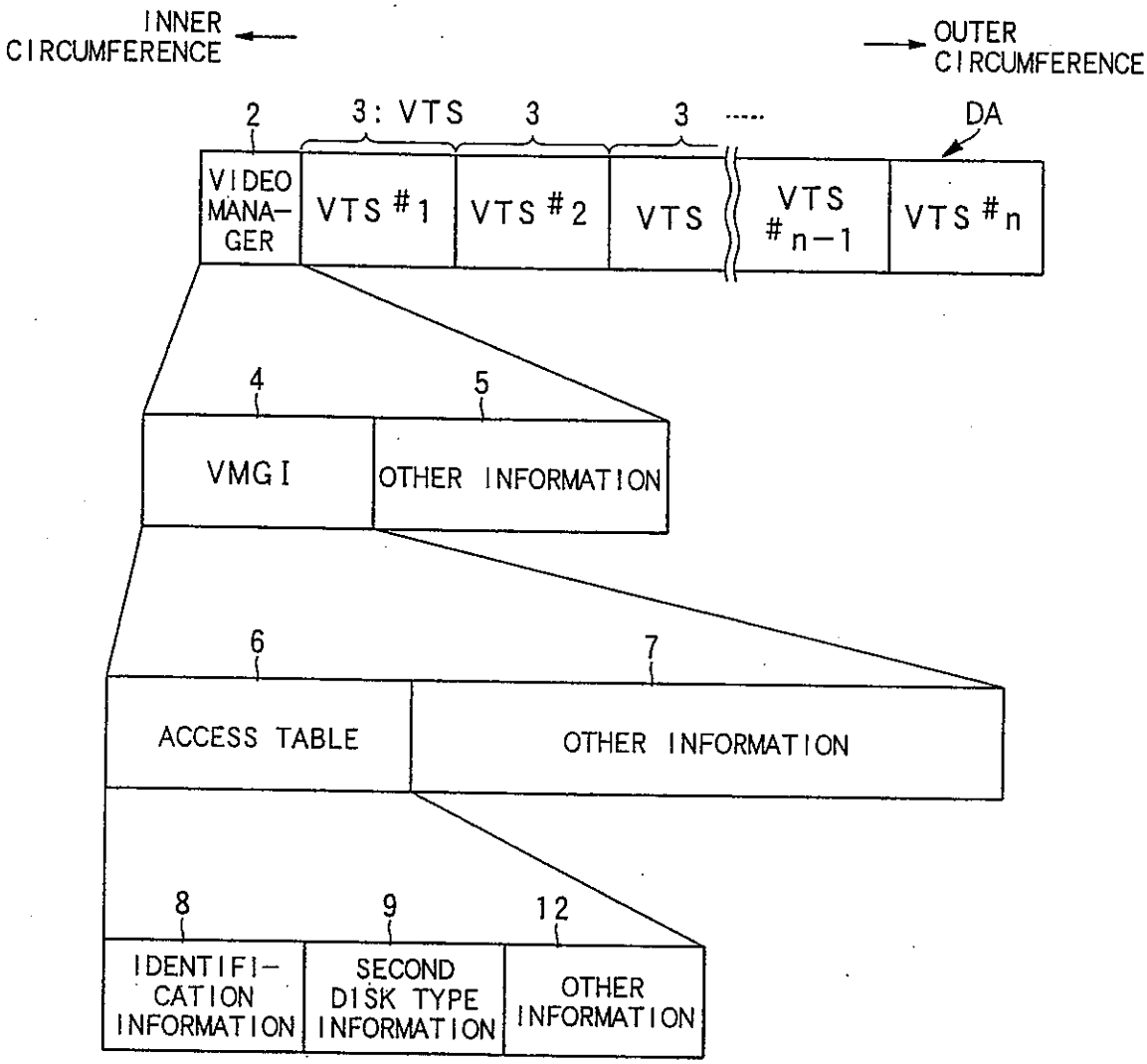

INNER CIRCUMFERENCE
OUTER CIRCUMFERENCE
2
3: VTS
3
3
.....
DA
VIDEO MANA-GER
VTS #1
VTS #2
VTS
VTS #n-1
VTS #n
4
5
VMGI
OTHER INFORMATION
6
7
ACCESS TABLE
OTHER INFORMATION
8
9
12
IDENTIFI-CATION INFORMATION
SECOND DISK TYPE INFORMATION
OTHER INFORMATION

FIG. 5

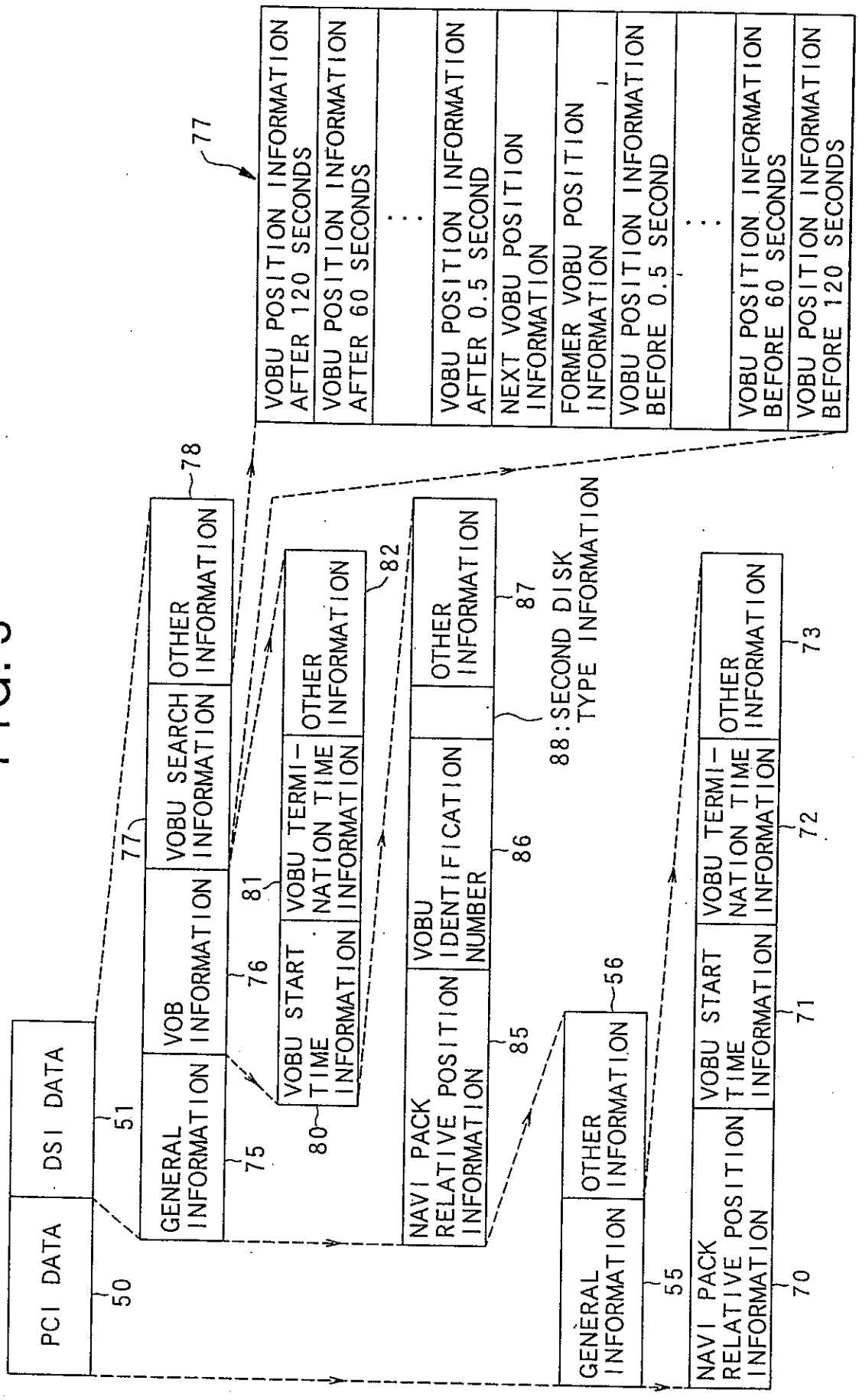

PCI DATA
DSI DATA
50
51
GENERAL INFORMATION
75
VOB INFORMATION
76
VOBU START TIME INFORMATION
80
VOBU TERMI-NATION TIME INFORMATION
81
VOBU SEARCH INFORMATION
77
OTHER INFORMATION
78
OTHER INFORMATION
82
NAVI PACK RELATIVE POSITION INFORMATION
85
VOBU IDENTIFICATION NUMBER
86
OTHER INFORMATION
87
88:SECOND DISK TYPE INFORMATION
GENERAL INFORMATION
55
OTHER INFORMATION
56
NAVI PACK RELATIVE POSITION INFORMATION
70
VOBU START TIME INFORMATION
71
VOBU TERMI-NATION TIME INFORMATION
72
OTHER INFORMATION
73
77
VOBU POSITION INFORMATION AFTER 120 SECONDS
VOBU POSITION INFORMATION AFTER 60 SECONDS
VOBU POSITION INFORMATION AFTER 0.5 SECOND
NEXT VOBU POSITION INFORMATION
FORMER VOBU POSITION INFORMATION
VOBU POSITION INFORMATION BEFORE 0.5 SECOND
VOBU POSITION INFORMATION BEFORE 60 SECONDS
VOBU POSITION INFORMATION BEFORE 120 SECONDS

FIG. 6

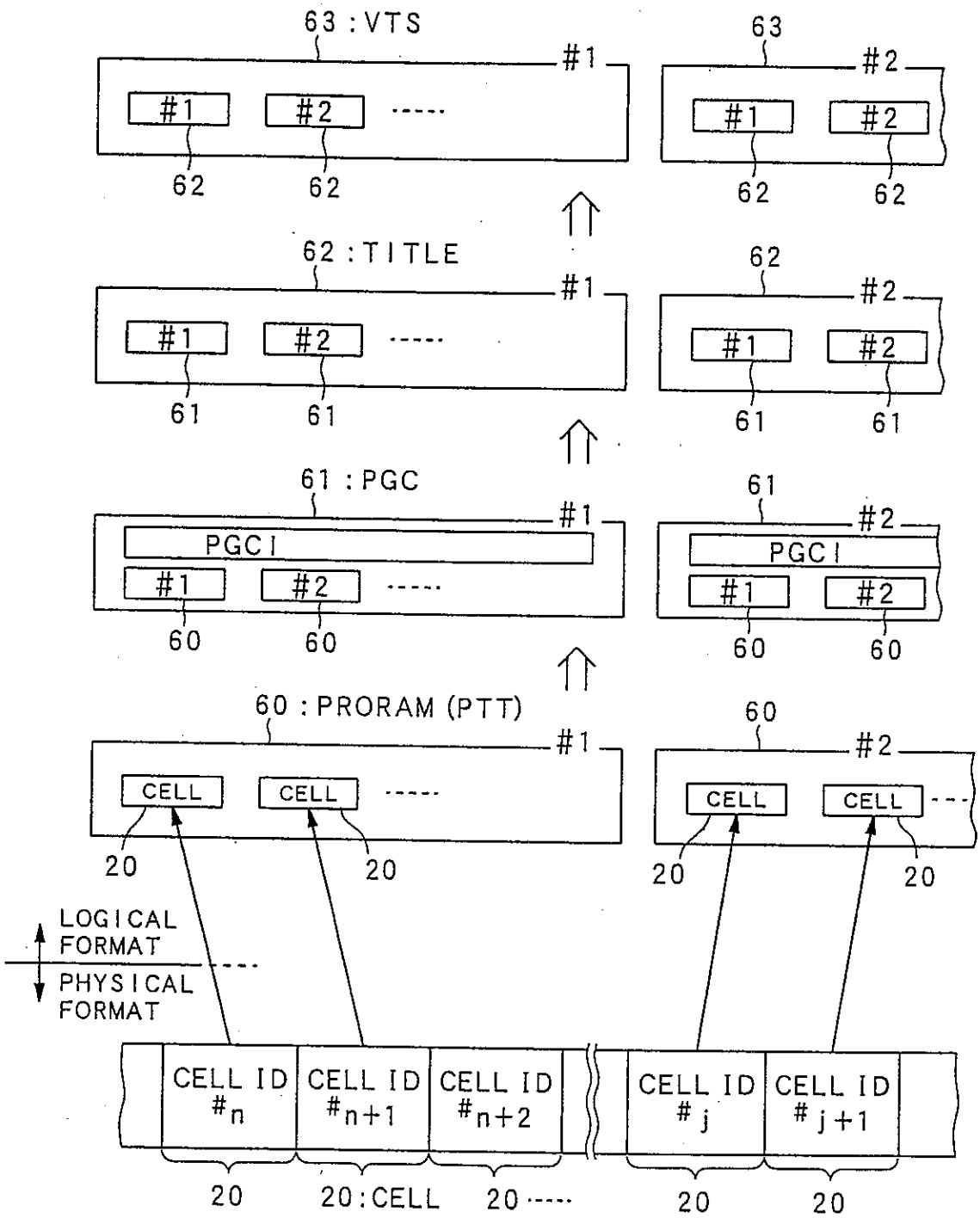

63 : VTS
#1
#2
62
63
62 : TITLE
61
61 : PGC
PGC I
60
60 : PRORAM (PTT)
CELL
20
LOGICAL FORMAT
PHYSICAL FORMAT
CELL ID #n
CELL ID #n+1
CELL ID #n+2
CELL ID #j
CELL ID #j+1
20 : CELL

FIG. 7

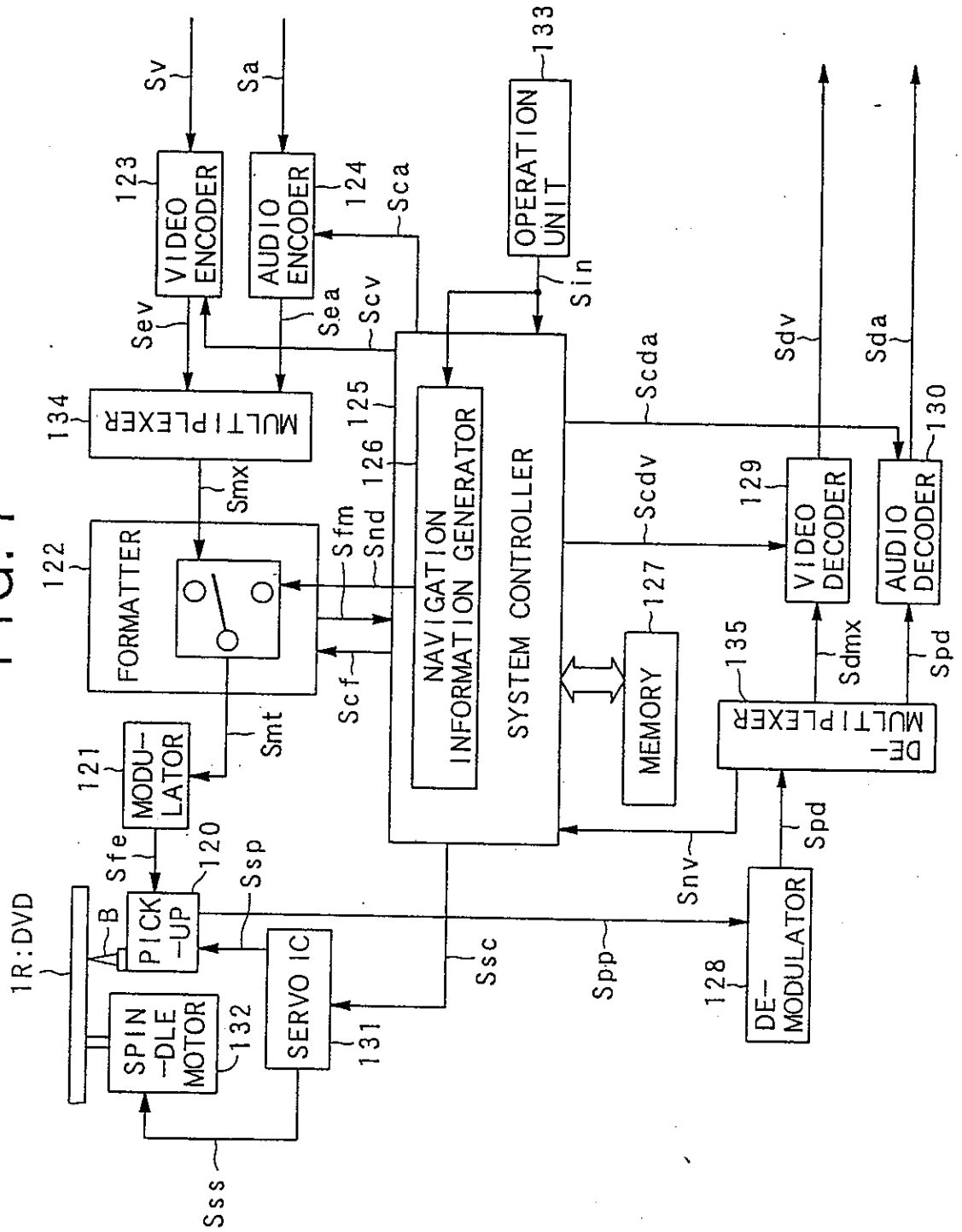

S
Sv
Sa
123
VIDEO ENCODER
124
AUDIO ENCODER
Sca
133
OPERATION UNIT
Sin
Sev
Sea
Scv
134
MULTIPLEXER
125
126
NAVIGATION INFORMATION GENERATOR
SYSTEM CONTROLLER
Scda
Sdv
Sda
130
Smx
122
FORMATTER
Sfm
Snd
Scdv
129
VIDEO DECODER
AUDIO DECODER
127
MEMORY
135
DE-MULTIPLEXER
Sdmx
Spd
Scf
Smt
121
MODU-LATOR
Sfe
120
Ssp
Snv
Spd
1R:DVD
B
PICK-UP
SERVO IC
Ssc
Spp
128
DE-MODULATOR
SPIN-DLE MOTOR
132
131
Sss

FIG. 8

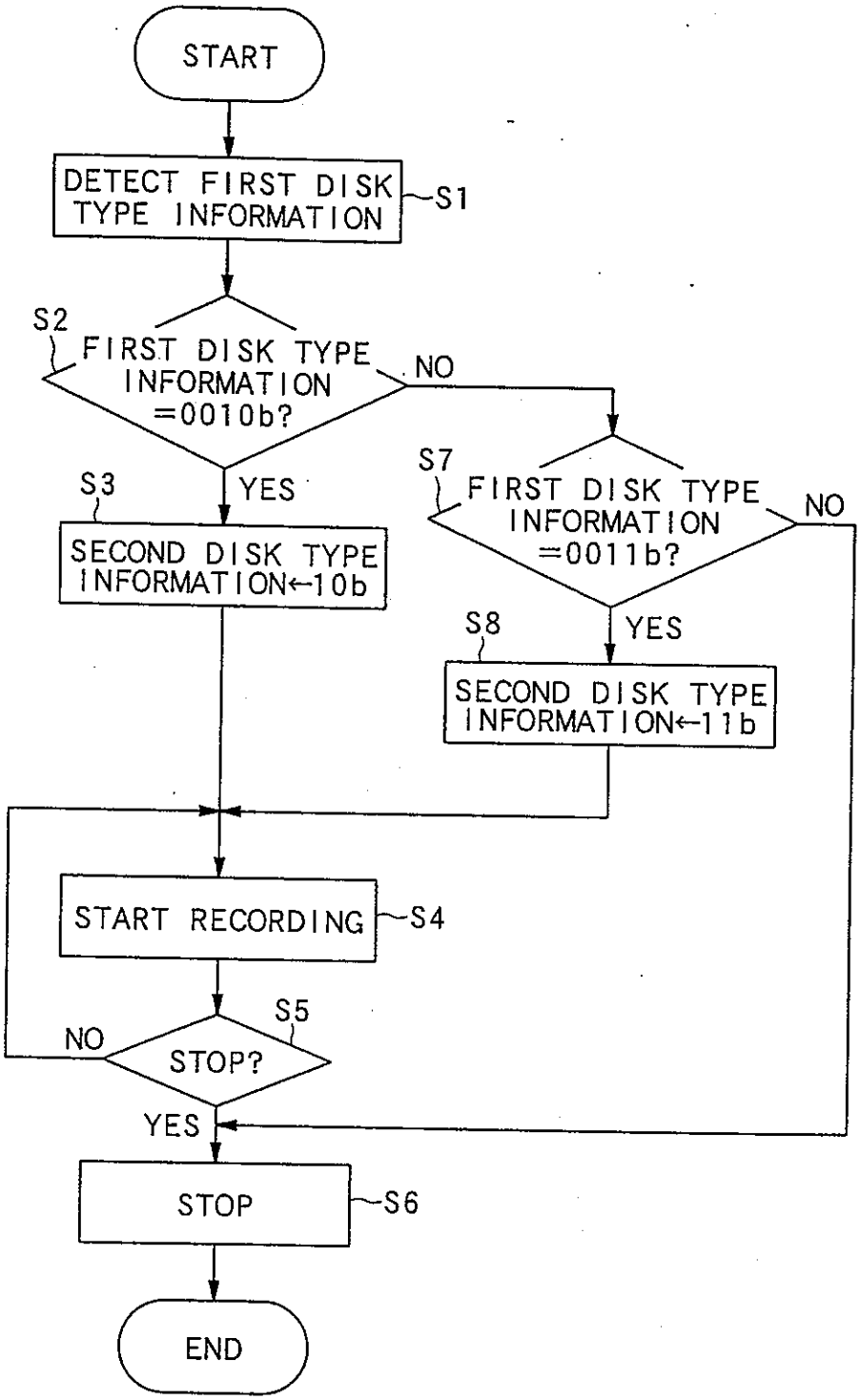

START
DETECT FIRST DISK TYPE INFORMATION
S1
S2
FIRST DISK TYPE INFORMATION =0010b?
NO
YES
S3
SECOND DISK TYPE INFORMATION←10b
S7
FIRST DISK TYPE INFORMATION =0011b?
NO
YES
S8
SECOND DISK TYPE INFORMATION←11b
START RECORDING
S4
S5
NO
STOP?
YES
STOP
S6
END

FIG. 9

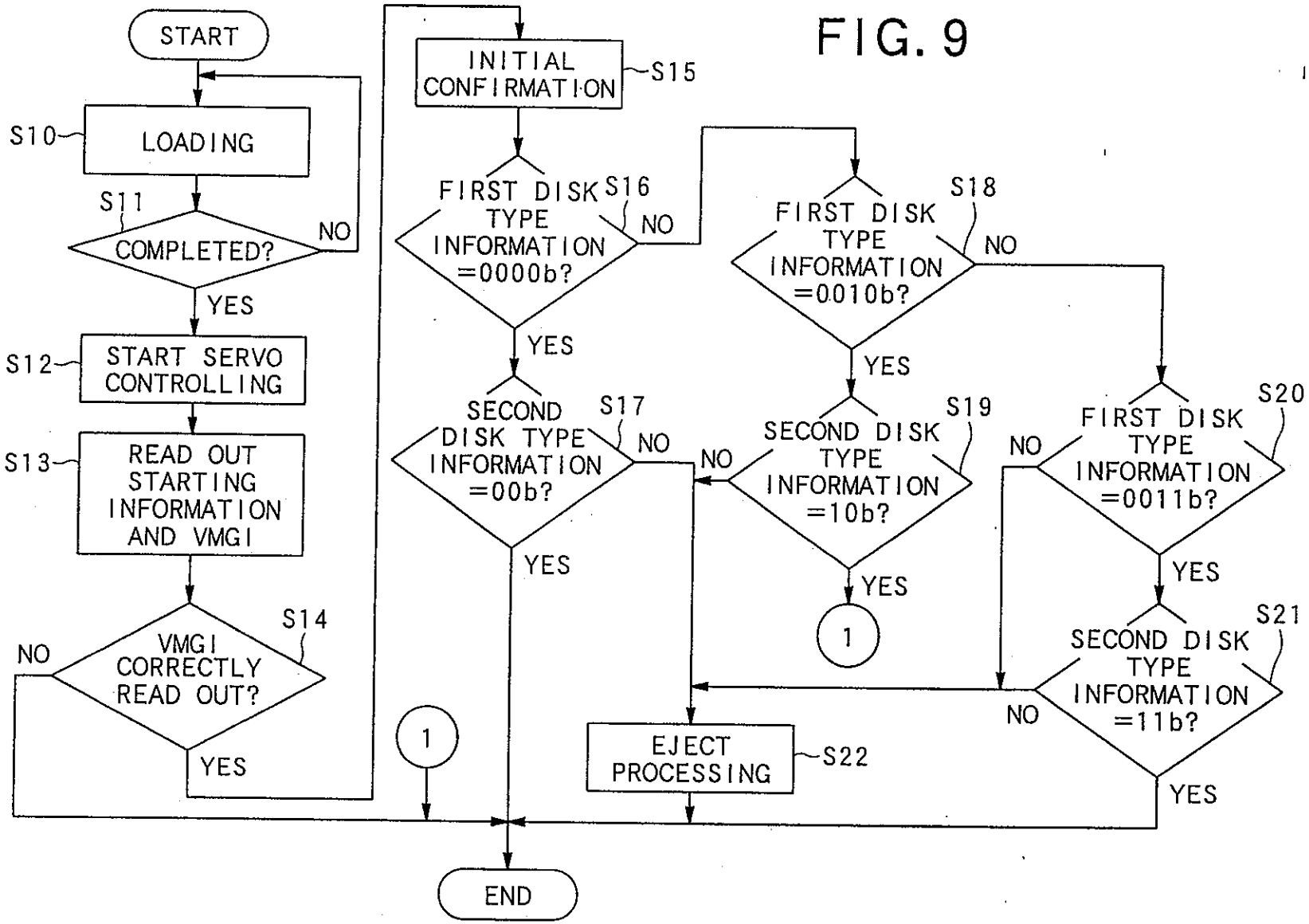

START
S10
LOADING
S11
COMPLETED?
NO
YES
S12
START SERVO CONTROLLING
S13
READ OUT STARTING INFORMATION AND VMGI
S14
VMGI CORRECTLY READ OUT?
NO
YES
INITIAL CONFIRMATION
S15
FIRST DISK TYPE INFORMATION =0000b?
S16
NO
YES
SECOND DISK TYPE INFORMATION =00b?
S17
NO
YES
FIRST DISK TYPE INFORMATION =0010b?
S18
NO
YES
SECOND DISK TYPE INFORMATION =10b?
S19
NO
YES
1
FIRST DISK TYPE INFORMATION =0011b?
S20
NO
YES
SECOND DISK TYPE INFORMATION =11b?
S21
NO
YES
1
EJECT PROCESSING
S22
END

FIG.10

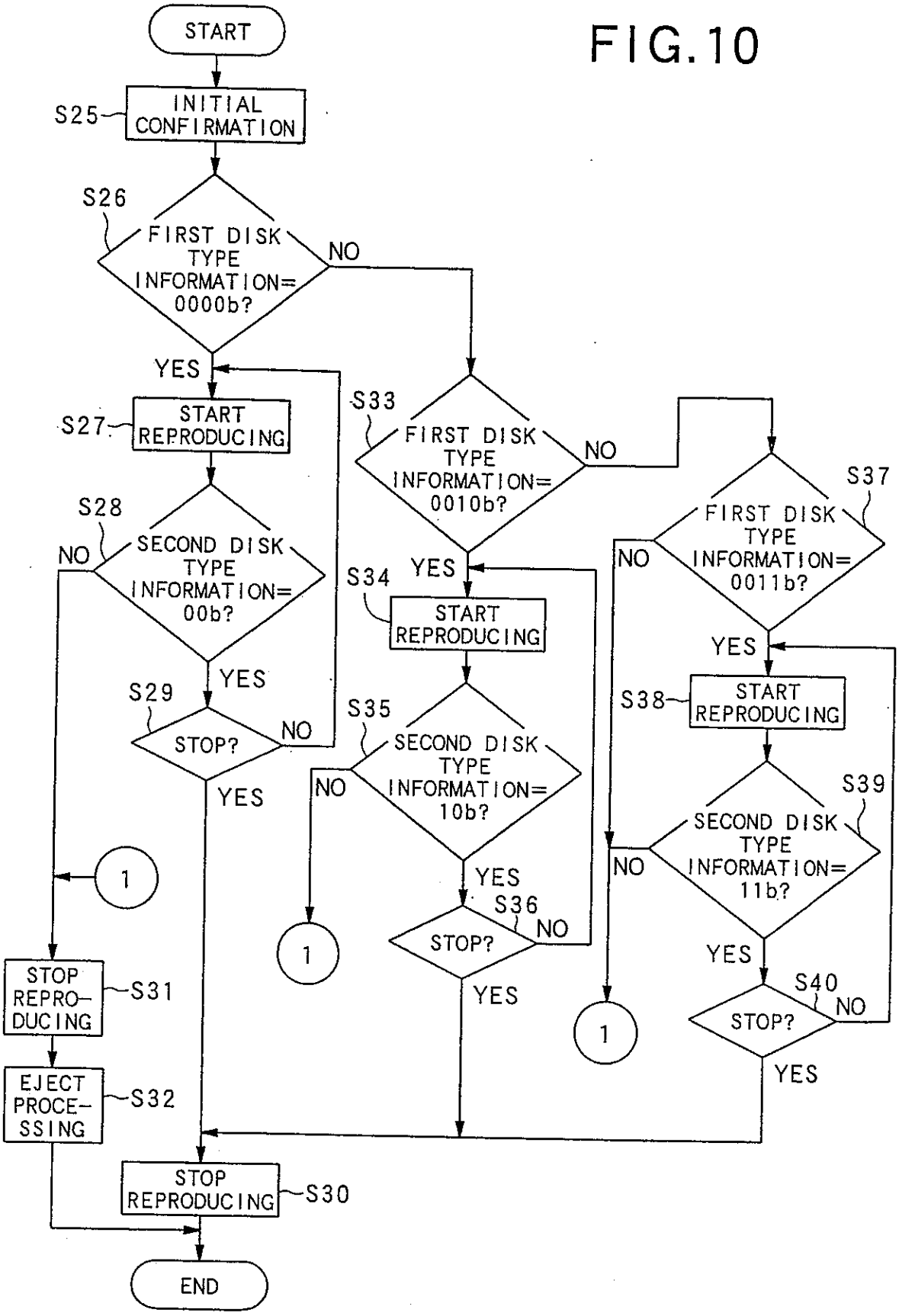

START
S25
INITIAL CONFIRMATION
S26
FIRST DISK TYPE INFORMATION= 0000b?
NO
YES
S27
START REPRODUCING
S28
SECOND DISK TYPE INFORMATION= 00b?
NO
YES
S29
STOP?
NO
YES
1
STOP REPRO-DUCING
S31
EJECT PROCE-SSING
S32
STOP REPRODUCING
S30
END
S33
FIRST DISK TYPE INFORMATION= 0010b?
NO
YES
S34
START REPRODUCING
S35
SECOND DISK TYPE INFORMATION= 10b?
NO
YES
S36
STOP?
NO
YES
1
S37
FIRST DISK TYPE INFORMATION= 0011b?
NO
YES
S38
START REPRODUCING
S39
SECOND DISK TYPE INFORMATION= 11b?
NO
YES
S40
STOP?
NO
YES
1

FIG.11

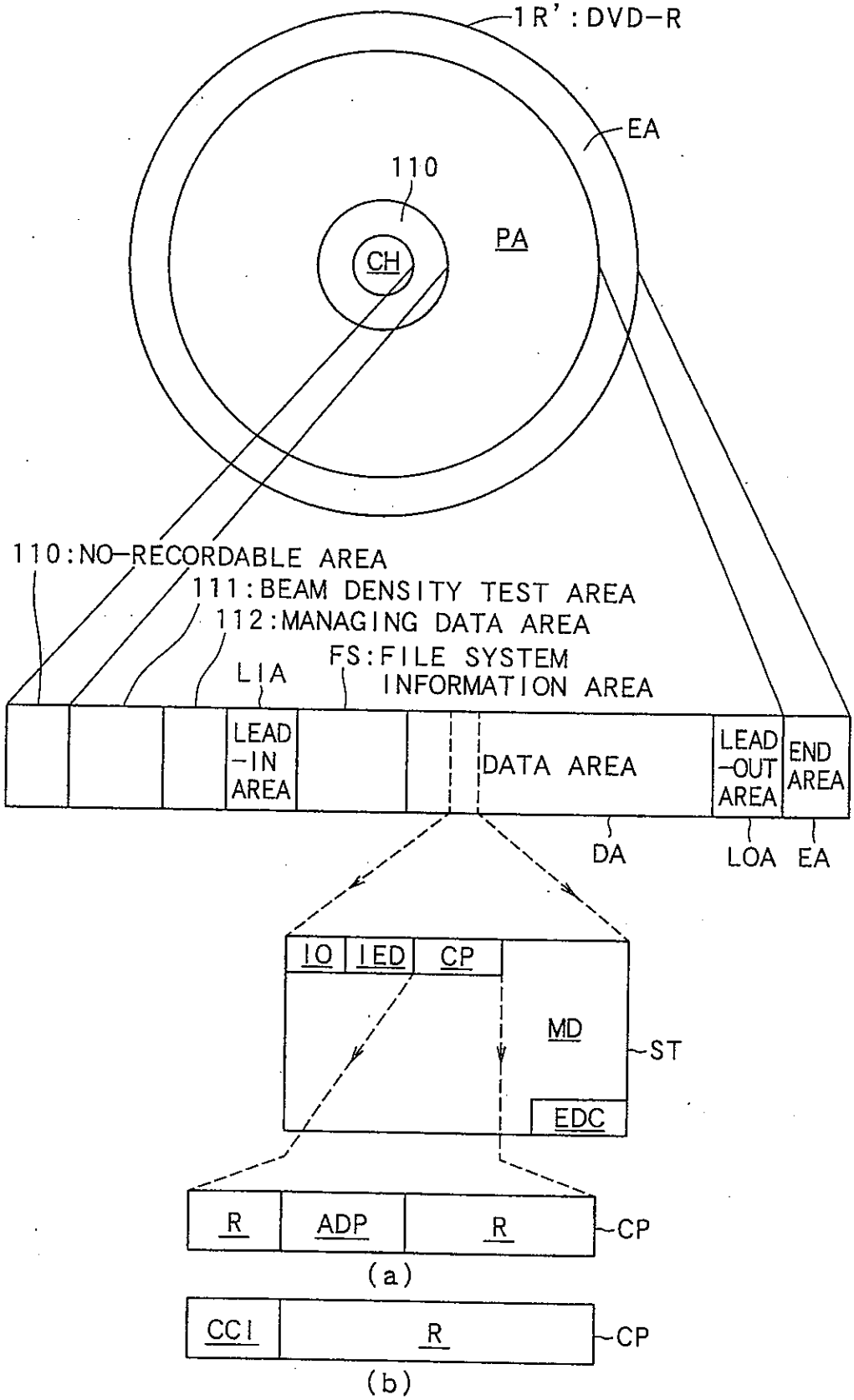

1R': DVD-R
EA
110
CH
PA
110: NO-RECORDABLE AREA
111: BEAM DENSITY TEST AREA
112: MANAGING DATA AREA
FS: FILE SYSTEM INFORMATION AREA
LIA
LEAD-IN AREA
DATA AREA
LEAD-OUT AREA
END AREA
DA
LOA
EA
IO
IED
CP
MD
EDC
ST
R
ADP
R
CP
(a)
CCI
R
CP
(b)

FIG.12

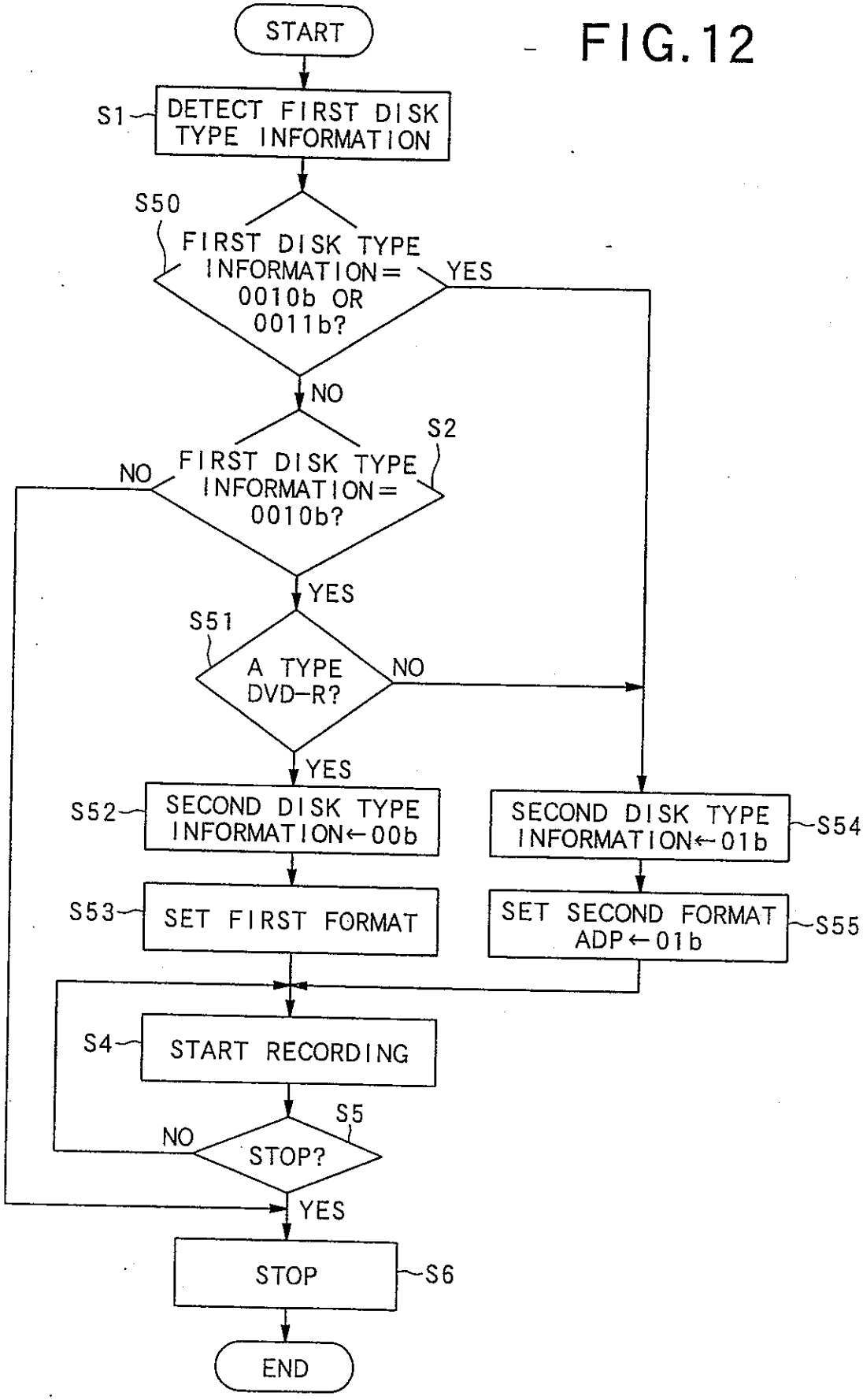

START
S1
DETECT FIRST DISK TYPE INFORMATION
S50
FIRST DISK TYPE INFORMATION= 0010b OR 0011b?
YES
NO
S2
FIRST DISK TYPE INFORMATION= 0010b?
NO
YES
S51
A TYPE DVD-R?
NO
YES
S52
SECOND DISK TYPE INFORMATION←00b
S53
SET FIRST FORMAT
SECOND DISK TYPE INFORMATION←01b
S54
SET SECOND FORMAT ADP←01b
S55
S4
START RECORDING
S5
NO
STOP?
YES
STOP
S6
END

FIG.13

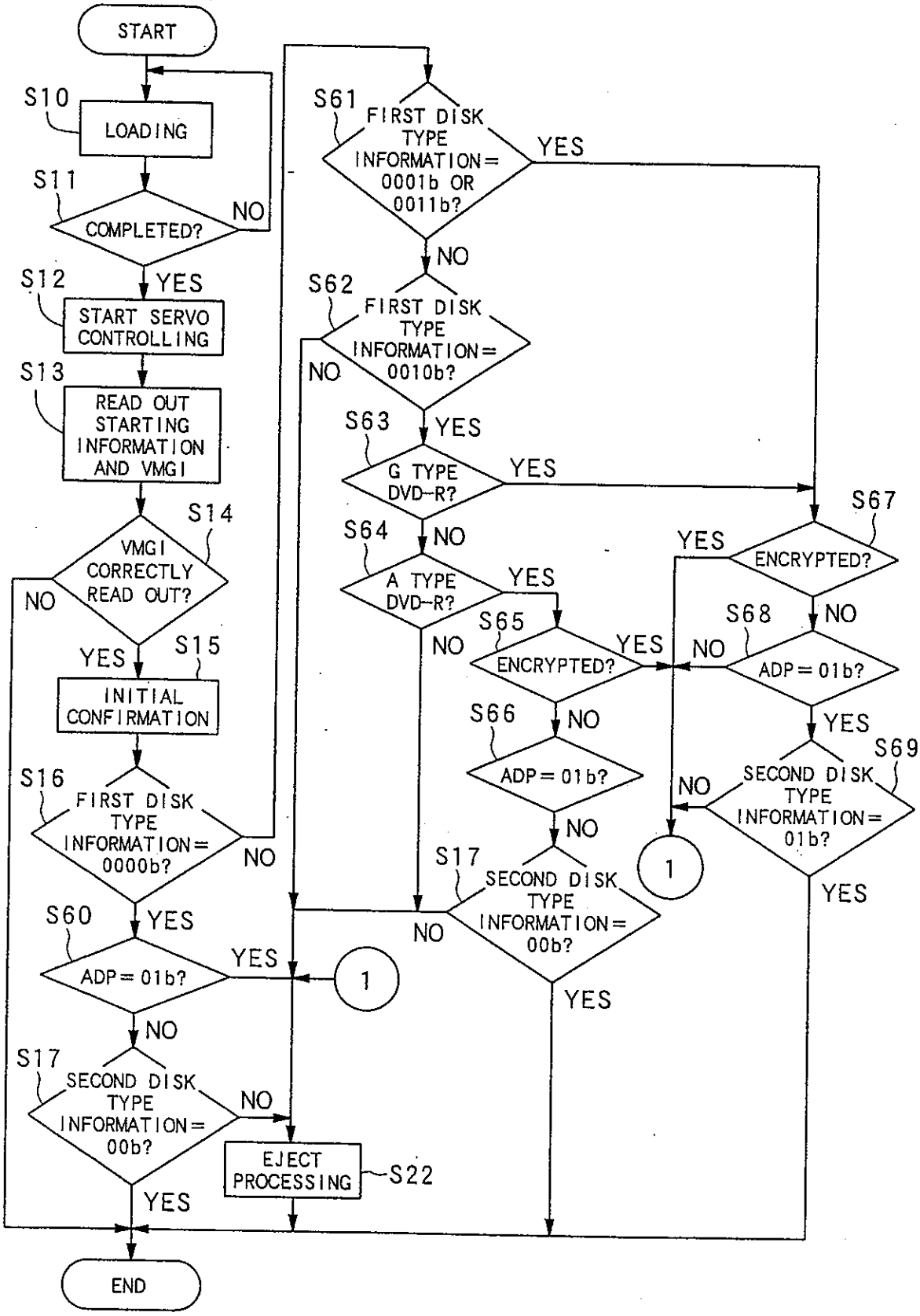
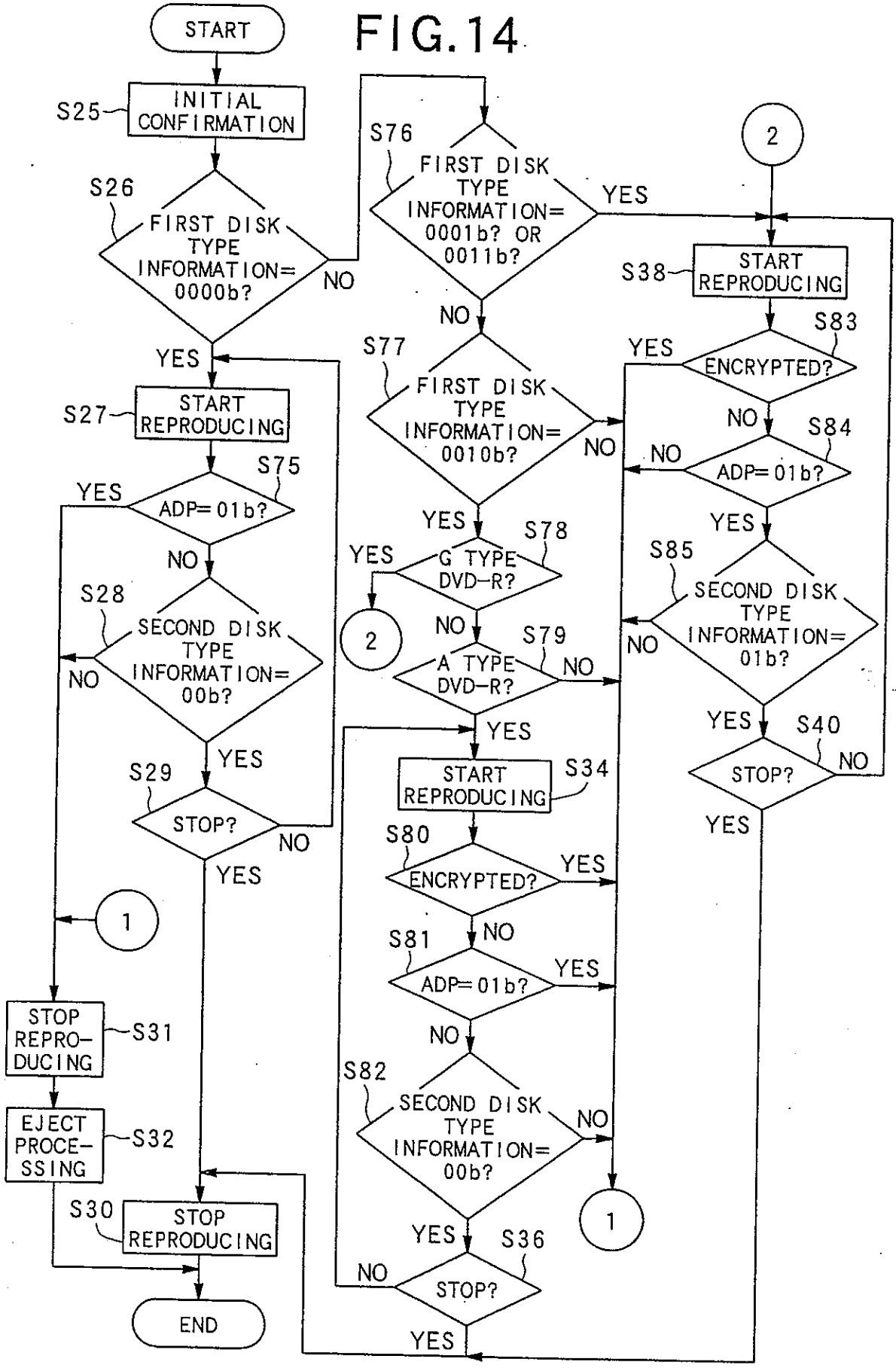

START
S10
LOADING
S11
COMPLETED?
NO
YES
S12
START SERVO CONTROLLING
S13
READ OUT STARTING INFORMATION AND VMGI
S14
VMGI CORRECTLY READ OUT?
NO
YES
S15
INITIAL CONFIRMATION
S16
FIRST DISK TYPE INFORMATION= 0000b?
NO
YES
S60
ADP=01b?
YES
NO
S17
SECOND DISK TYPE INFORMATION= 00b?
NO
YES
EJECT PROCESSING
S22
END
S61
FIRST DISK TYPE INFORMATION= 0001b OR 0011b?
YES
NO
S62
FIRST DISK TYPE INFORMATION= 0010b?
NO
YES
S63
G TYPE DVD-R?
YES
NO
S64
A TYPE DVD-R?
YES
NO
S65
ENCRYPTED?
YES
NO
S66
ADP=01b?
NO
YES
S17
SECOND DISK TYPE INFORMATION= 00b?
NO
YES
1
1
S67
ENCRYPTED?
YES
NO
S68
ADP=01b?
NO
YES
S69
SECOND DISK TYPE INFORMATION= 01b?
NO
YES

FIG.14


START
S25
INITIAL CONFIRMATION
S26
FIRST DISK TYPE INFORMATION= 0000b?
NO
YES
S27
START REPRODUCING
S75
ADP= 01b?
YES
NO
S28
SECOND DISK TYPE INFORMATION= 00b?
NO
YES
S29
STOP?
NO
YES
1
STOP REPRO-DUCING
S31
EJECT PROCE-SSING
S32
S30
STOP REPRODUCING
END
S76
FIRST DISK TYPE INFORMATION= 0001b? OR 0011b?
YES
NO
S77
FIRST DISK TYPE INFORMATION= 0010b?
NO
YES
S78
G TYPE DVD-R?
YES
NO
2
S79
A TYPE DVD-R?
NO
YES
S34
START REPRODUCING
S80
ENCRYPTED?
YES
NO
S81
ADP= 01b?
YES
NO
S82
SECOND DISK TYPE INFORMATION= 00b?
NO
YES
S36
STOP?
NO
YES
1
2
S38
START REPRODUCING
S83
ENCRYPTED?
YES
NO
S84
ADP= 01b?
NO
YES
S85
SECOND DISK TYPE INFORMATION= 01b?
NO
YES
S40
STOP?
NO
YES