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G11B 7/09

(45)
(11)
(24)

2002 01 09
10 - 0319552
2001 12 20

(21)
(22)

10 - 1999 - 0035996
1999 08 27

(65)
(43)

2001 - 0019547
2001 03 15

(73)

20

(72)

4가 101 807

(74)

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(54)

，
1 ；
3 ；
4 ；
2 ； 1
5
가
가

6a

， ， ， ，

1 2

3a~ 3c

(Focusing Error Signal)

4

5

6a ~ 6c

7 5

1 : 10 :

11 : 12 :

20 : 30 :

40 : (FZC) 50 : A/D

60,61 : 70,71 :

80 :

o Disc, ' ') (CD: Compact Disc, ' ') (DVD: Digital Video Disc, ' ') (DVD Dual Layer) (DVD Single Layer) (CD) (DVD) 1.2mm 12cm

0.6mm

1.2mm

1 (1)
 (P/U) (2); (10) (PD: Photo Diode) (F
 ocusing Error Signal : FE) (FZC: Focus Zero Crossing)
 (40); (10) (Servo) (3);
 (10) (Sled) (11); (20)
 (1) (Spindle) (12); (11) (12)
 (Driver) (30); A/D (50);
 (1) (60); (70)

2 (40) (10) (PD)
 (A+C,B+D) (FE= ((A+C) - (B+D))) (Subtractor) ,
 (FE) (Ref) (Comparator) .
 (1)가
 (Tray) () (60) (20) (30)
 (12) (11) 가 (1)
 (10) (20) (PD)
 (40) (FE)

3a~ 3c (Data)
 (Coating) 0.6mm (DVD Single Layer) (1)
 / (40) (10),
 가 (L1) (Sc) ,
 (Sd1) (Sc,Sd1) (Ref)
 A/D (50)
 (60) (60) (tc,td1)

3b (Data) (Coating) 0.6mm
 (DVD Dual Layer) (1)
 (40) (10) , 가 (L2; L2L1) ,
 (Sc) (Sd1,Sd2) ,
 (Sc,Sd1,Sd2) (Ref) 가 ,
 (60) (tc,td1,td2)

3c (Data) (Coating) 1.2mm
 (CD Single Layer) (1)
 (40) (10) , 가 (L3; L3L2L1) , (
 60) (Sc,Sd3) (tc,td3)

, (60) (tc td1, tc, td1 td2 tc td3) (差) (tc
- td1, tc - td2, tc - td3) (1),

, (Sc) , 3a~ 3c 4
가 ,
가 , 가
가 , 가
(CD - RW) 가

1 ; 2 ; 1
3 ;
4 ; 5

5
, 1 (Focusing Error Signal : FE) 가 (10) (PD: Photo Diode)
(80)가
(71) , (71)
(1) (61) 1 .

6
5 6 가 (1 (Level3), 2 (Level4), 3 (Le
vel2), 4 (Level1))
가 , 7 2 (Level4)
1 (Level3) 3 (Level2) 4 (Level1) .

(Hexa Code) , 1 (Level3) 0x4500 , 2 (Level4) 0x6400
 , 3 (Level2) 0x2200 , 4 (Level1) 0x1500 .

(71) (S1) , (20) (30) , (61) (12)
 가 , (1) (1) . (61) (12)가
 (No Disk), (1)가 ,
 (1) .

(61) (10) , (80) (Gain)
 가 , (1) , (10) .
 (10) (1) (S3)
 (80) , (80)
 8 .

A/D (50) (61)
 가 , (61) 가 (1) (S4)
 (61) .

(61) (71) 1 Lev
 el3 (S10), 가 1 Level3
 RF , (61) (1) (S11),
 , (61) (CD mode) 가 1 Level3 ,
 80) (61) (DVD mode) (S20), (

(10) (1)
 , (80)
 .

(40) 가
 , (61) 가 (S21).
 , (80) A/D (50)
 (61) 가 , (61) 가
 (71) 2 Level4 (S22),
 (S30).

(1) , 2 Level4 , (61)
 (S31),
 .

(61) , 2 Level4 , (71)
 3 Level2 (S40).

, 3 Level2 (71)
 (61)
 (FZC) (=2) (S50),
 가 2 (61) (1)
 (S51), 가 2
 (61) (1) (S31),
 . 3
 Level2 , (61)
 (71) (=2)
 (S60), 가 2 ,
 (61) (71) 4 Level1 (S70),
 가 (CD - RW) (S71),
 .

, 가 2 (S60), 4
 Level1 (S80), (61) (1)
 (S81).

(61) , 가 4 Level1 ,
 (S90), (61)
 . (10) 가 , (10)
 (61) 가 ,
 (61) (Tray)() 가 (S
 91), .

(1) , (61) (80) (Gain)
 , (1) (1)

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,

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, 가
 , 가

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(57)

1.

1 ;

2 ;

1

3 ;

4 ;

,

5

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2.

1 ,

2 ,

가

1

,

(CD)

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3.

1 ,

5 ,

,

2 (1

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(DVD)

.

4.

1 ,

5 ,

,

2 (1

)

가

3 (< 1)

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;

3

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.

5.

4 , , , 가 3 , 가 (DVD) .

6.

4 , , , 가 3 , 가 (CD - RW) .

7.

4 , , , 가 3 , (DVD) .

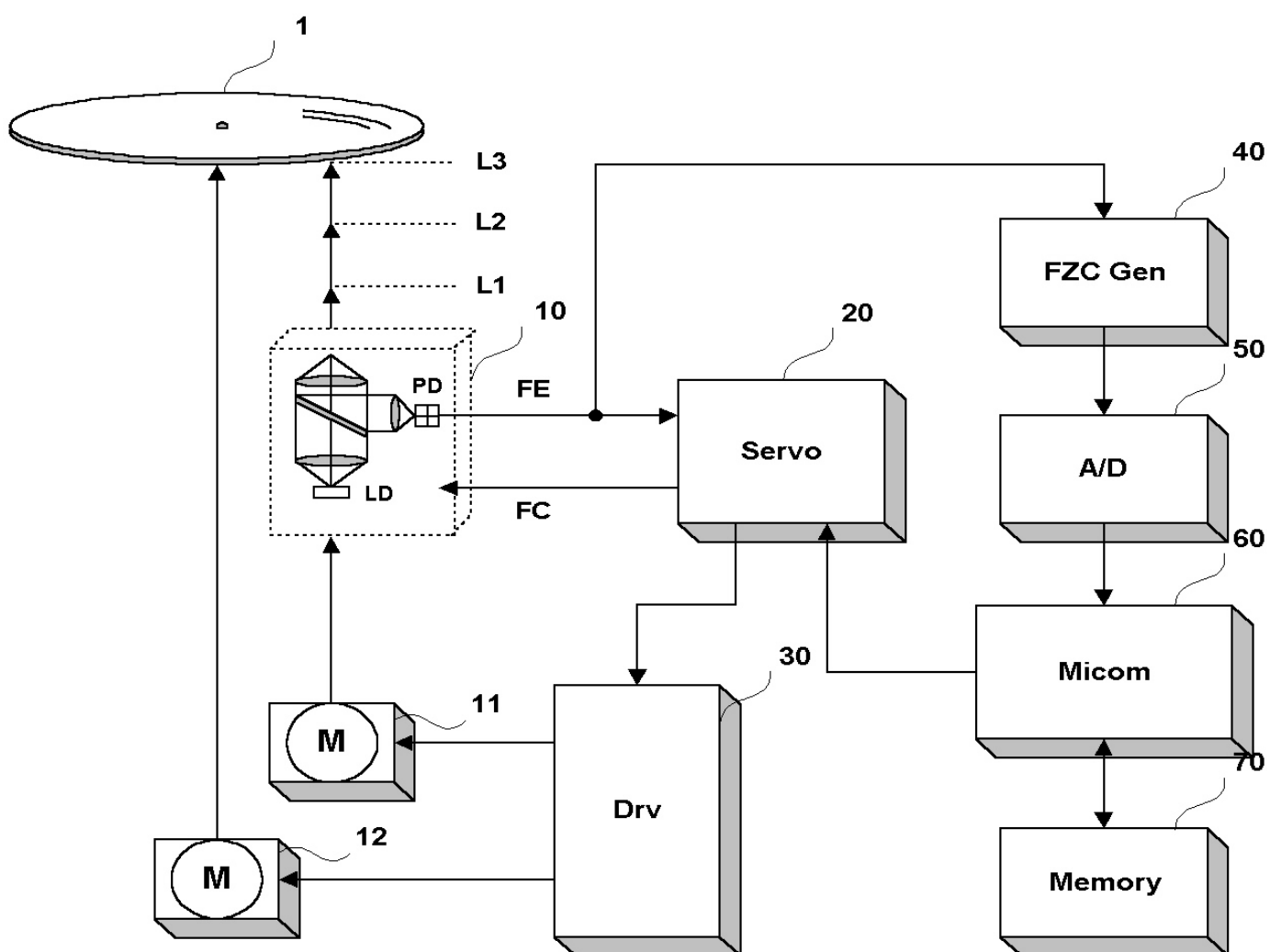
8.

6 7 , 4 (< 3) (DVD) .

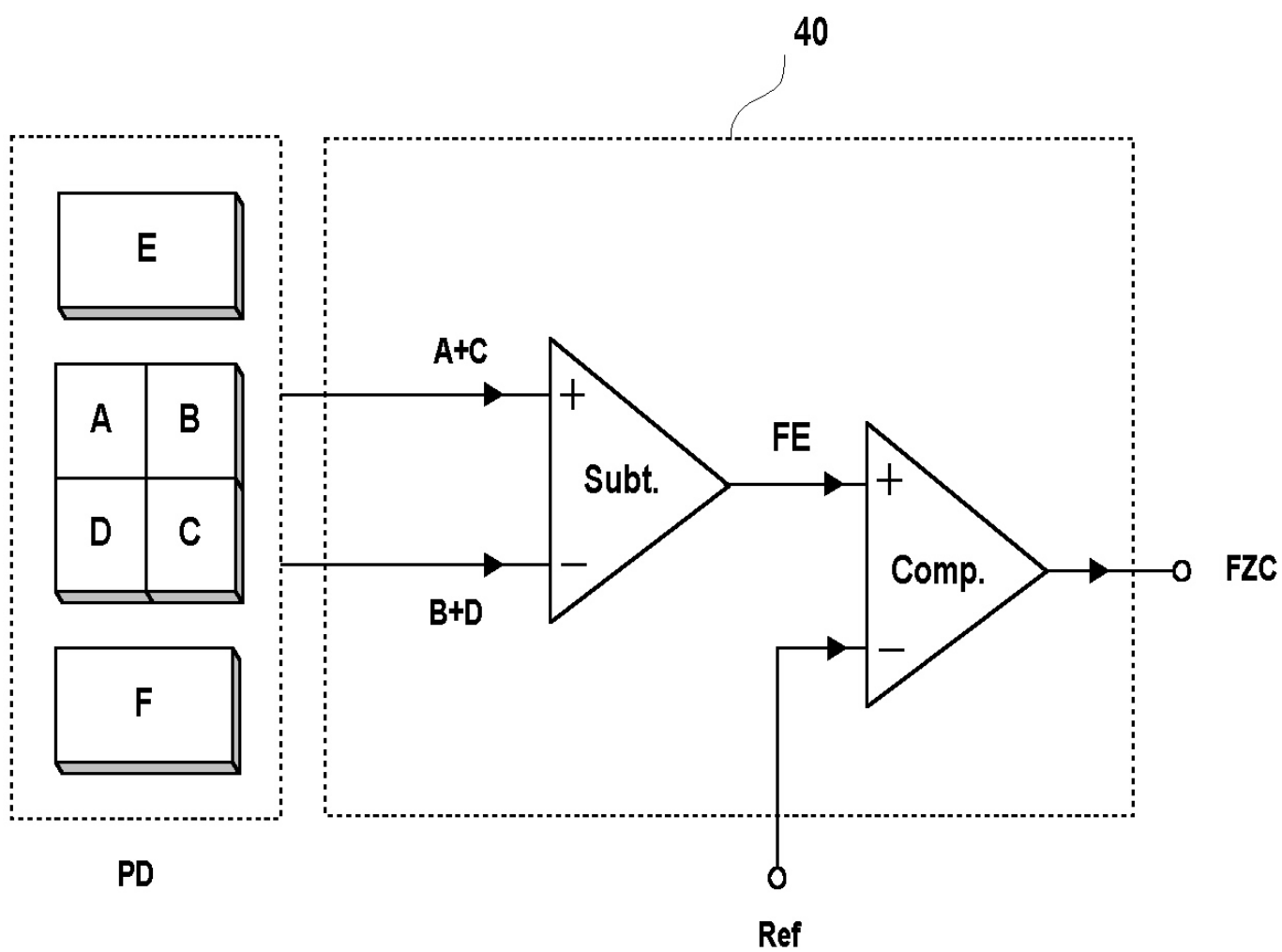
9.

1 , 1 (CD) , 3 (DVD) .

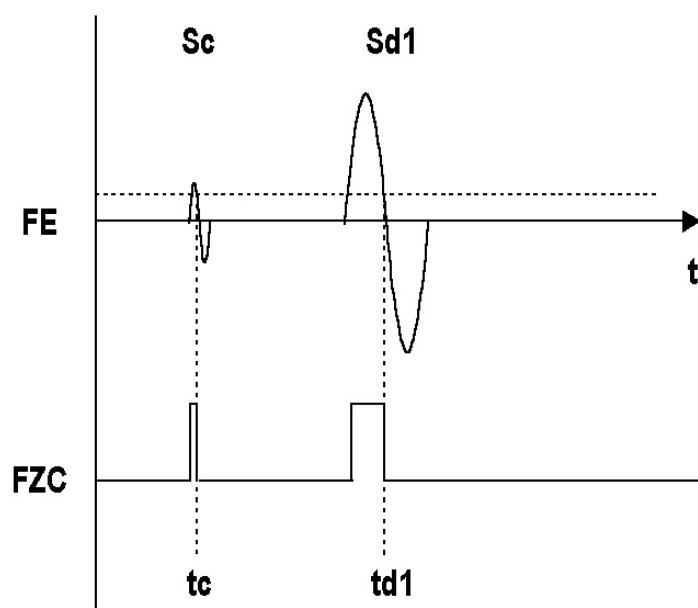
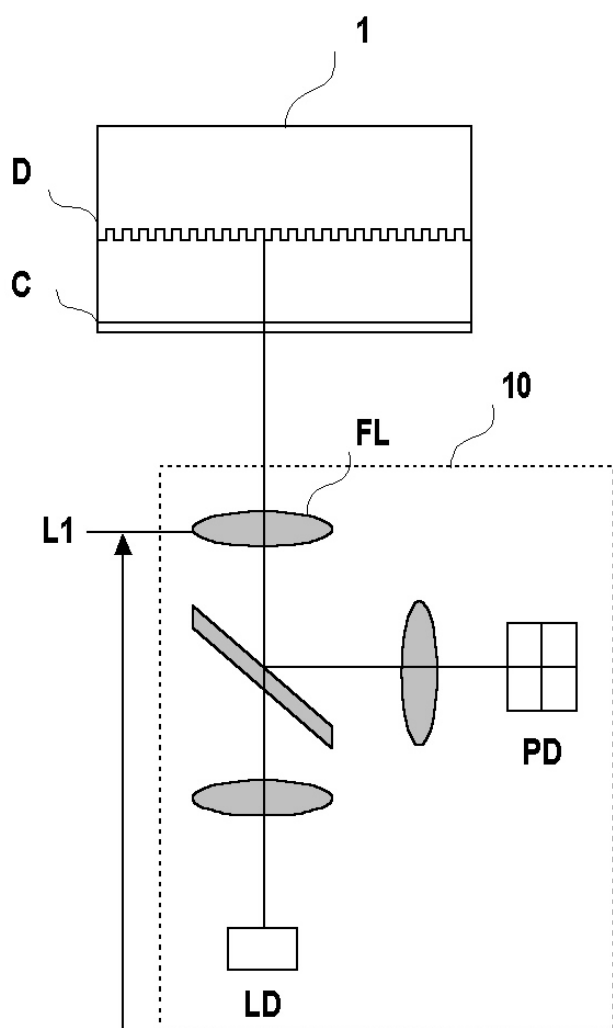
1



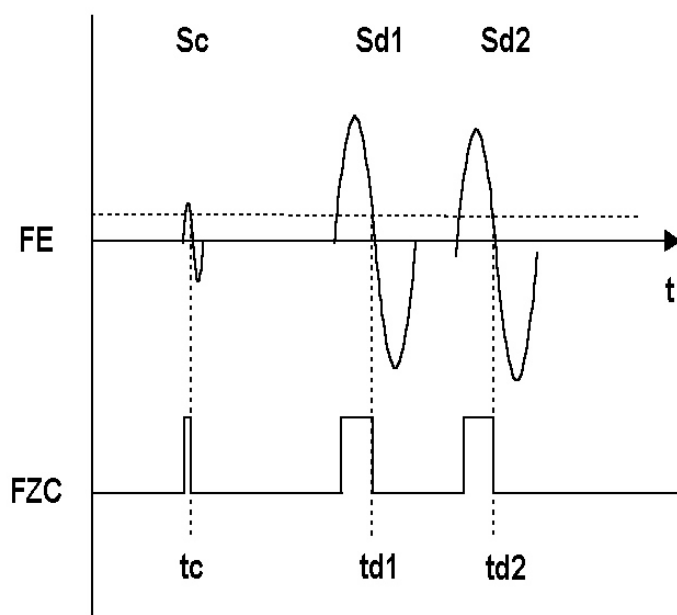
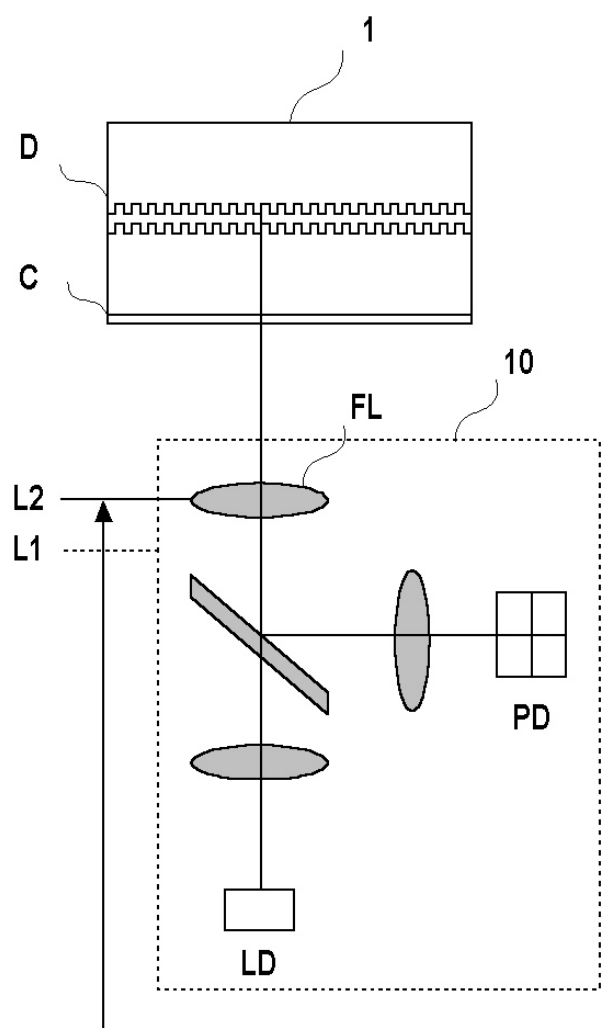
2



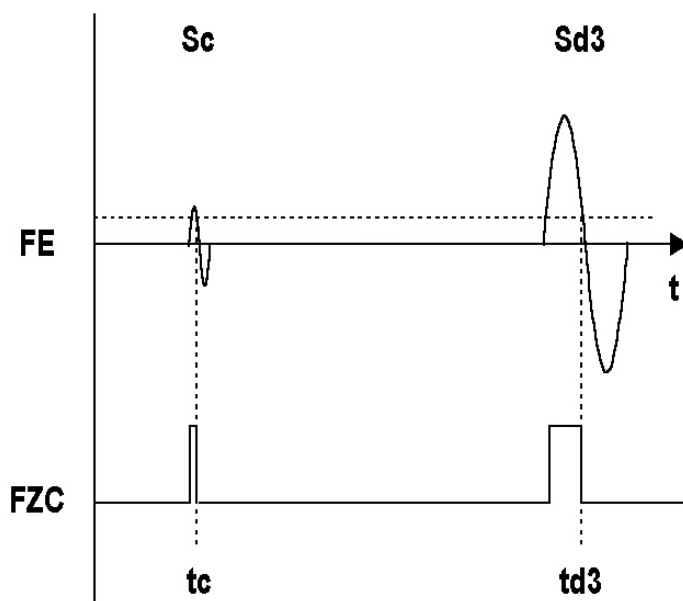
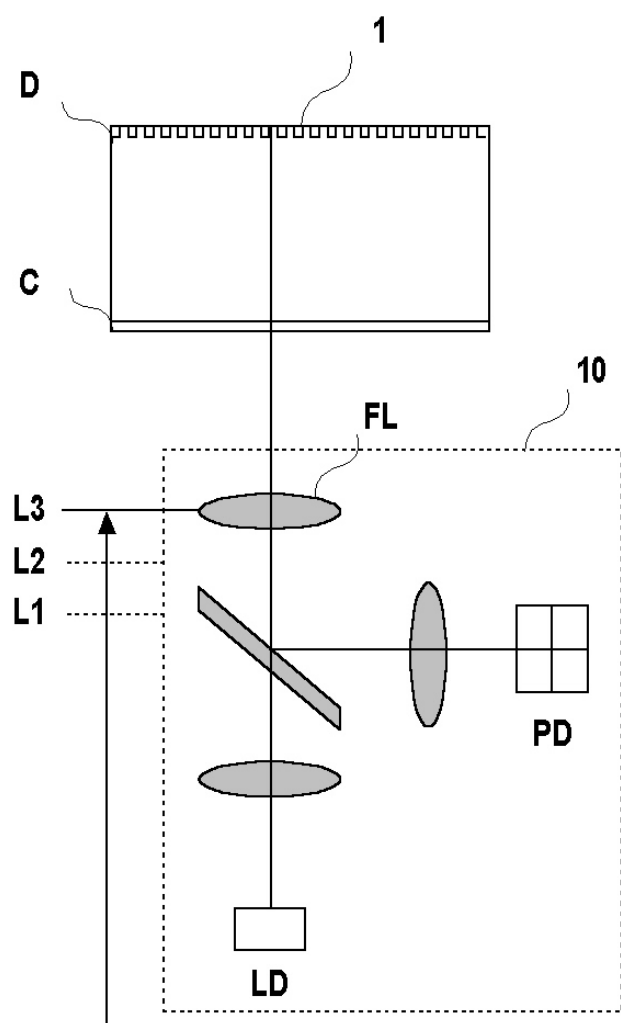
3a



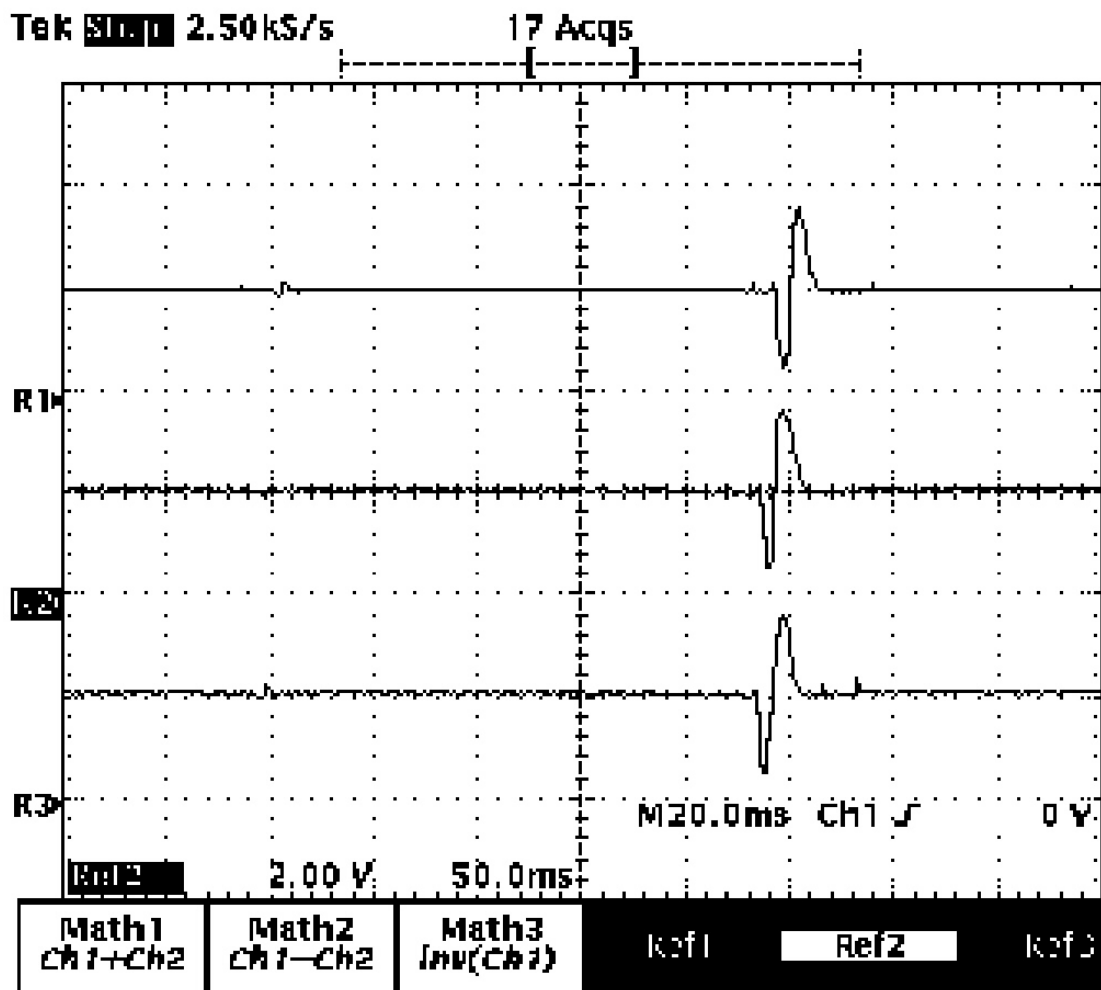
3b



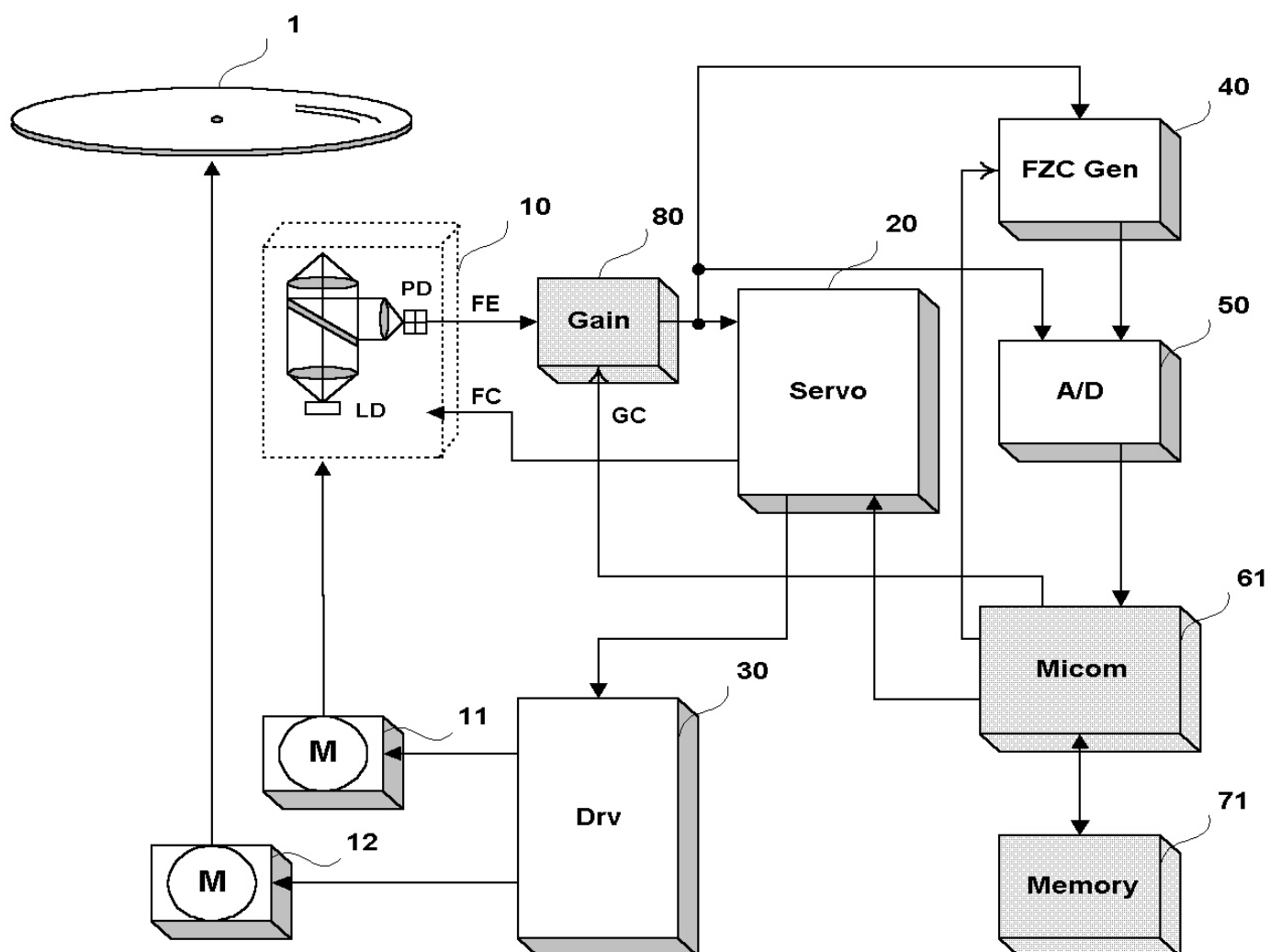
3c



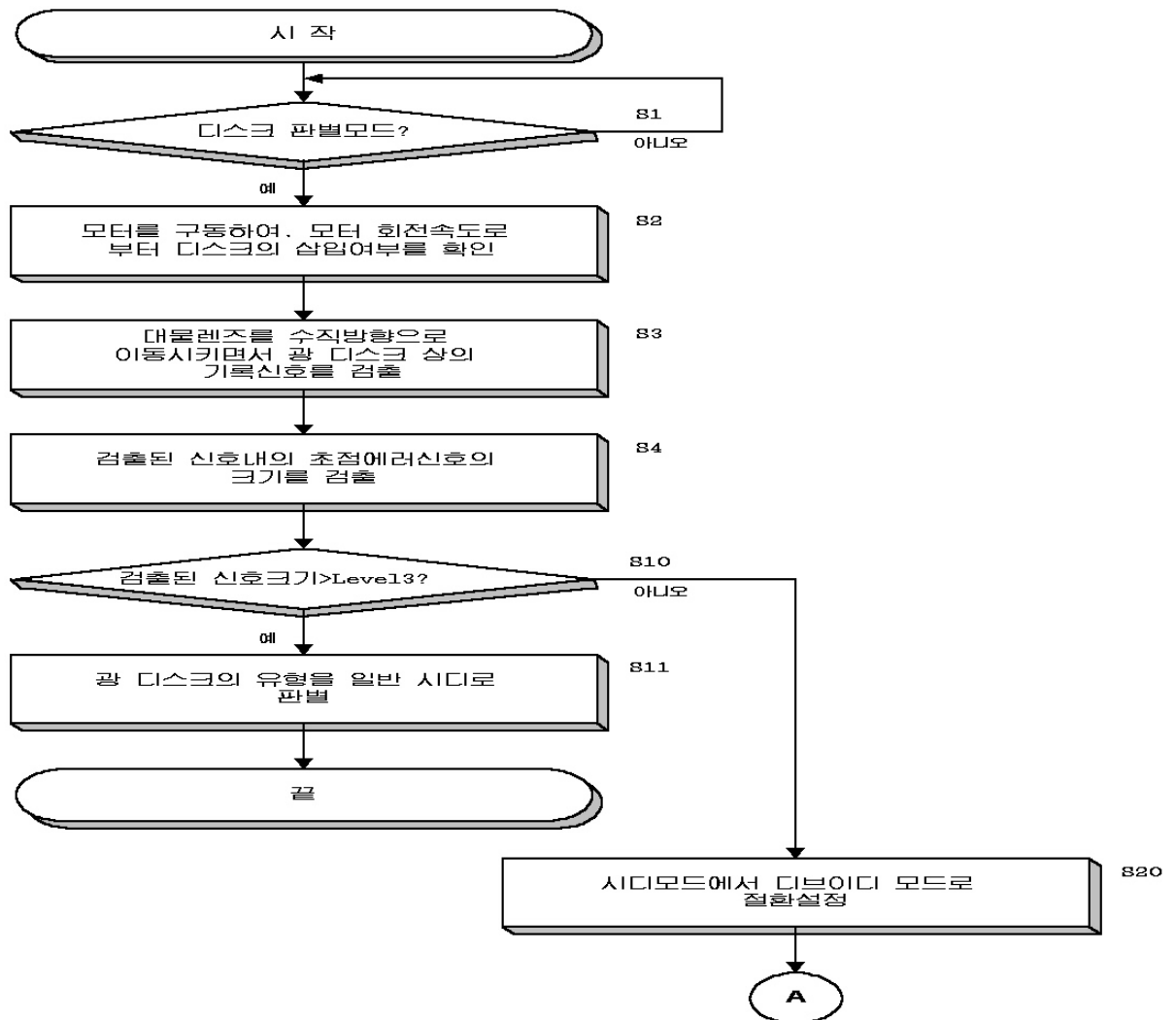
4



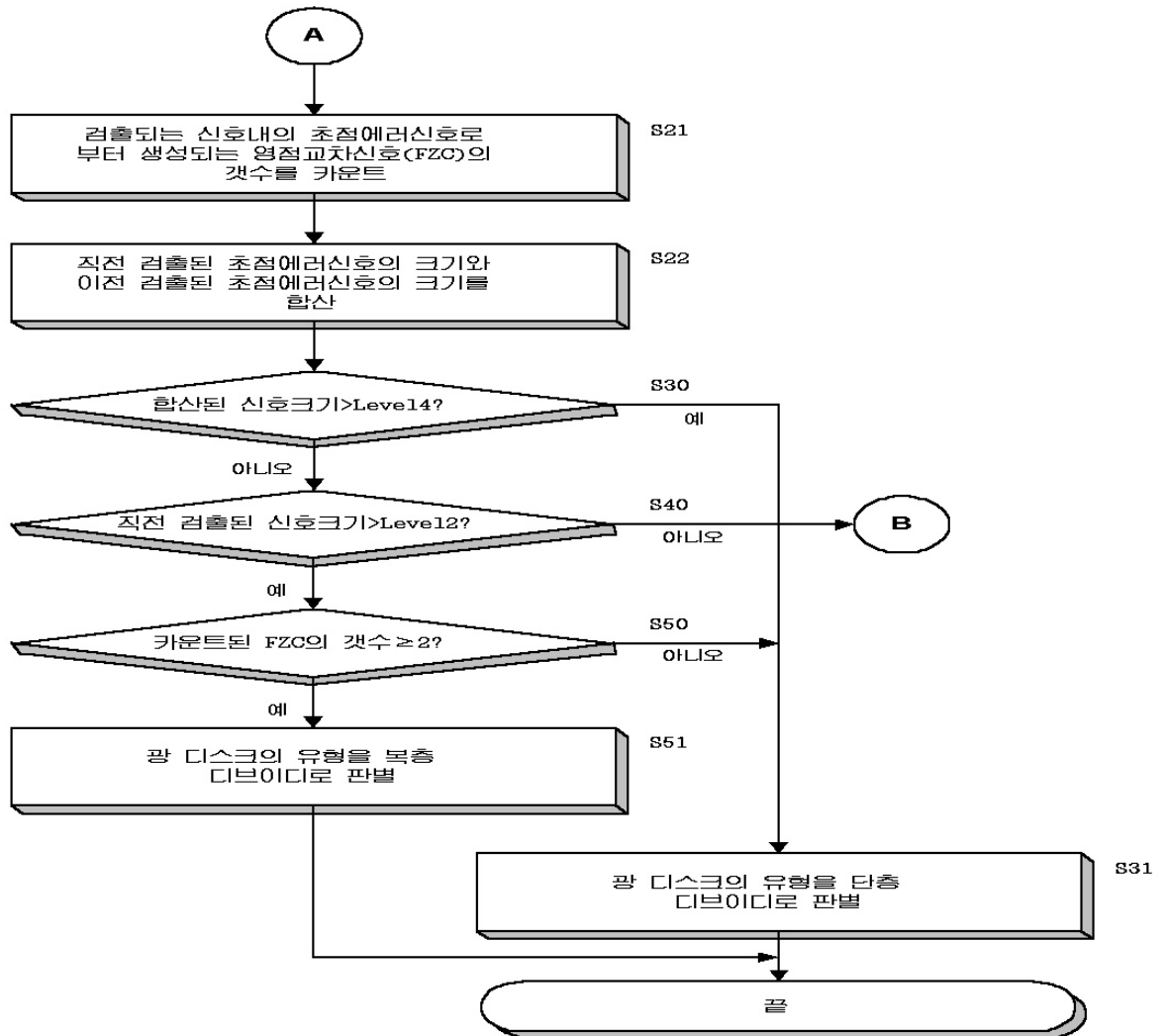
5



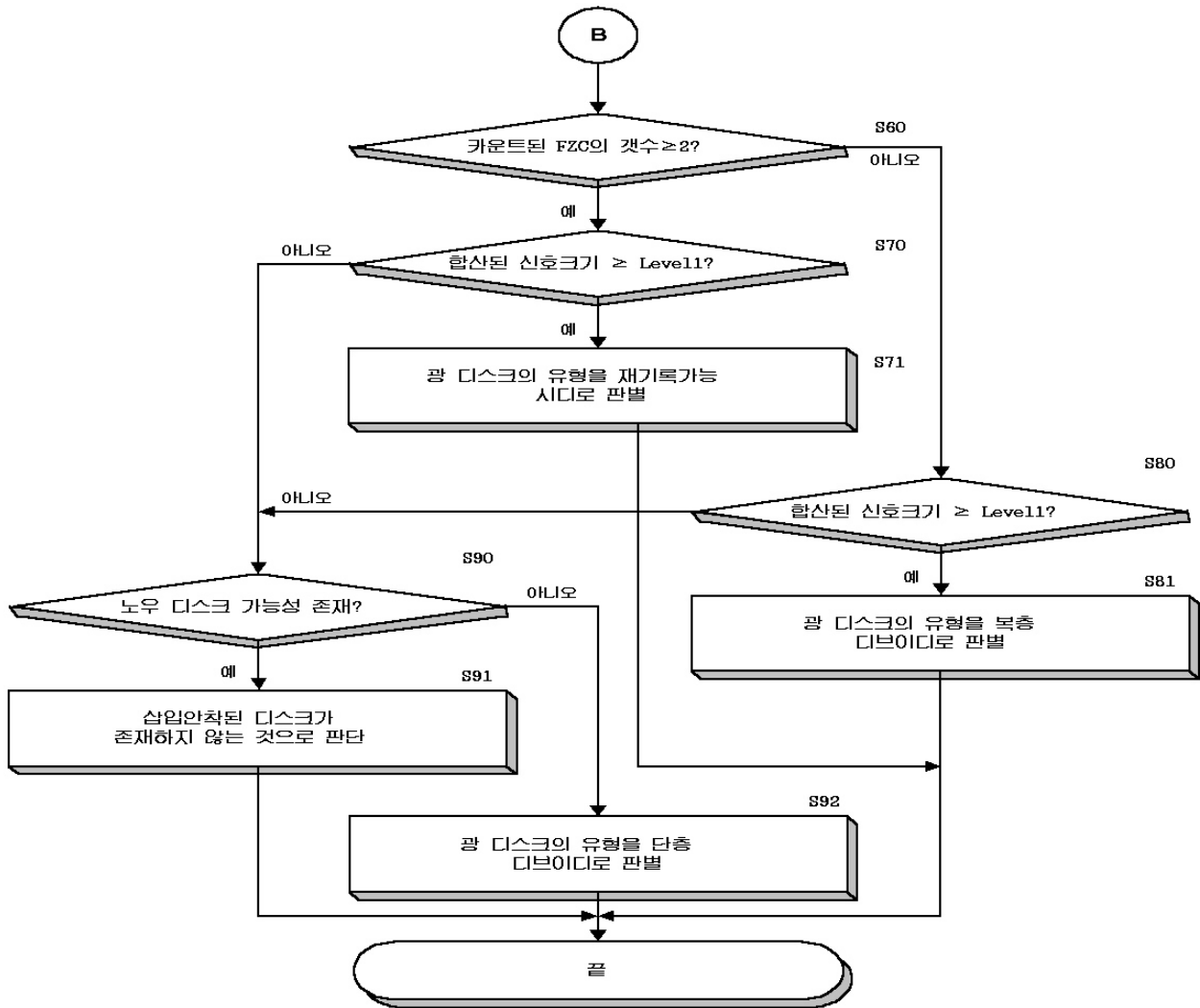
6a



6b



6c



7

메모리(71)의 저장내용

FZC신호의 기준갯수 : 2개	
초점에러신호의 기준크기	
제1 기준크기	Level 3
제2 기준크기	Level 4
제3 기준크기	Level 2
제4 기준크기	Level 1

Level 1<Level 2<Level 3<Level 4