

(19)  
(12)

(KR)  
(A)

(51) 。 Int. Cl. <sup>7</sup>  
F02D 43/00

(11)  
(43)

2003 - 0027783  
2003 04 07

(21) 10 - 2002 - 0058666  
(22) 2002 09 27

(30) JP - P - 2001 - 00302994 2001 09 28 (JP)

(71) 가 가 가 4 6

(72) 2 4 - 6 101

3 16 - 21 202

가

2 - 21 - 5

(74)

:

(54)

, NOx

NOx

NOx

3

, NOx

1				NOx	
2				가	
3					
4	3			1	
5	3			1	
6a	6b	3			
7	3			NOx	
8	3				NOx
9	7				
10			7		
11	3				
12	11		(	)	1
13	12			1	
14	12				2
15	12	EGR			3
16	11				
17	11				
18	11				
19	11				
20	11		(	)	2
21	20			1	
22	20				2
23	11		(	)	1

24	23		1	.	
25	23			1	.
26	23				2 .
27	11	(		)	2 .
28	27		1	.	
29	27				2 .
30	3				.
31	30	NOx		.	
32	30				.
33	30				.
34	30		NOx		.

< >

1 :

2 :

3 :

4 :

5 :

6 :

7 :

8 : NOx

10 : (ECU)

13 :

50 :

701 : ( )

702 :

1102 :

1103 :

1104 :

가 ( ) 가 .

가 ( ) NOx 가 , (

NOx ppm

62 - 15722 ) .

NOx가 1800K 가 (

1).

가 ( 2), ( ,

11 - 6435 ).

가 NOx 가

가 ( , NOx 11 - 336600 ),

가 NOx 가

가 NOx 가 HC, CO가

NOx , NOx

NOx 가 (知見) 가

가





1 , NOx가 , NOx  
 (50) , (13) , (7) , (7) NOx (8)  
 , ECU(10) (10A) (Stoichiometric)

(7) NOx (8) NOx

7 , ECU(10) (10A)

ECU(10) , (701) (702) , (10A)가  
 (7) (702) NOx (8) , NOx (7) 가  
 (6) (701) , (701)  
 (7) (3)

8 , (6) 가 , NOx  
 NOx 가 , (7) NOx

9 , (10A) , NOx (8) 가 (NOxHLe)  
 (F/B) , NOx  
 (7) 가 , (F/B) , NOx가  
 NOx가

ECU(10) (6) 가 , (6)가  
 10A) (6) , NOx (8) , (

10 , ECU(10) (10A) NOx

(10A) , (6)  
 , NOx 가 (NOxHLe) NOx (8)  
 (NOxHLe) , 가  
 , NOx 가 (NOxLLe) , ,

, ECU(10) (10A)

11 , (10A)

4) (10A) , (1101), (1102), (1103) (110

(1101) , , , , (1102) , 2

, 가 가 가 가 가

(1102) , (1104)

(1103) , (1104) NOx (8)

1102) (1104) , (1103) (

(1101) EGR ) (1102) ( ,

가 , , 가 EGR EGR , EGR

12 , (10A) (1102)

, ( )

, (2) , (5) , (4) (3) 가,

, 가 ).

, EGR (EV1) (5) , EGR

(EV1) , 가 .



, (5) 가 가 가 EGR 가 , (12)  
 , 가 가 가 , (7)  
 가 , (10A) (2) EGR  
 . EGR (12) 가 , TV1 (2)  
 EGR , (TV1) (TV1) F/F  
 , 가 (12) 가 ,  
 (5) EGR 가 ,  
 (12) , 가  
 , 가 (2)  
 가 , 가 가 ,  
 13 , (10A) (12) , (7)  
 NOx ( 가, , NOx 가 ).  
 (2) (10A) 가 , , (6)  
 , , (7) NOx , (7)  
 NOx ,  
 EV1 (2) TV1 , (10A) , (12) 가 (5)  
 EGR 가  
 가 , 14 (TV1) (12)  
 가 NOx가 , NOx가 (7) NOx ,  
 EGR 가 NOx가 , 가 , 15 ,  
 , (10A) 11 (1103) , (1103)  
 NOx , (1104)  
 (6) (1103) , NOx , EGR  
 (1104) , NOx 가 (TV1) NOx

(1102) F/F (5) (EV1) NOx

(1104) , (1101)가

2

16 19 (10A) , 16 11

1601 ( , , ) 1602

(1101) 1603

1603 가 , YES 160

4 가 (1102) 1605 , 1603

1605 , 가 1606 (1104) NOx

(8) , YES (1102) (1101)

1602 (1101), 1604 (1102), 1606 (1104)

17 (10A) (1101)

1701 , YES , 1702 가 가 ( )

1706 , 1703 , 가

1703 1704 , 가

1703 가 , 가

가 가 가 1704 , 1704 가

1703 가 , YES 1705 ,

1703 1704

1705 ,

1702 가 , 1706 가 , 1706

가 , YES 1708 ,

가 (9) 가 1707 NOx (8) 가 , , . , . , YES 1708 가 , . , (10A) (1101) , 가 가 가 . , 가 가 . , , NOx (8) 가 , NOx 가 , . 18 , (10A) (1102) . 1801 EGR , EGR (2) (TV1) (5) 1802 , EGR (EV1) . 1803 (12) , 1804 (2) TV1 . 1805 , (12) 1806 , ( 5) EV1 , 1807 (12) , , 1808 . , (10A) (1102) , EGR (5) , EGR , (2) 가 . , 가 . 19 (10A) (1104) . 1901 가 가 , 가 , YES 1902 , 가 1903 . 1902 , , (2) (TV1) 가 . 1903 가 , 가 , YES 1904 , 가 1905 . EGR 가 (12) 가 가 , 1904 EGR 가 (5) (EV1) , .

1905 , 1902 , 1904 가 (2) (5) 가  
 , YES , 가 , 가  
 1906 , . ,  
 , (10A) (1104) , EGR  
 , .  
 가 , 가 (1104) ,  
 20 , , (2) , (5) ,  
 (4) , (3) 가 , 가 ). ( ,  
 , 가 , (2) (5)  
 , (12) .  
 21 , 13 가 , , NOx .  
 , NOx가 (7) NOx 0 . ,  
 NOx (8) .  
 , 가 가 가 , 가  
 , 22 NOx 가 가 , 21 가  
 , (FC1) , (FC1)  
 가 . , NOx가 , FC1  
 , , (10A) (1104)  
 23 , (2) , (5) , (4) , (3) 가,  
 , 가 ). ( , 가 ,  
 , EGR (5) , (2) EGR  
 , (12) , 가

24 , (10A) (12) , (7) NO  
x ( 가, , NOx 가 ) .

, (7) NOx ( NOx )  
가 .

25 (10A)

(10A) , 2  
가 .

26 ,

NOx가 , 25 가 가  
가 가 .

27 (1102) 가

, (5)  
 , ERG 가 ,

28 , (1102) , NOx  
가 가 , (7) NOx  
 , (7) NOx

29 가 .

NOx가 .  
 , (1102)  
가 .

, (10A)

30 , NOx ,

3001 , NOx (8) (7) ,  
 (10A) NOx (8) NOx .

3002 , NOx (8) (7) 가 , , ,  
 YES 3003 , .

3003 , 가 가 , 가  
 , YES 3004 , 가

3004 , NOx (NOxHL) . (NOxHL)  
 (NOxHL) , YES 3005 , NOx 가 , NOx 가 (NOxHL)

3005 , ,  
 (10A) , NOx (8)  
 , 가 가 .  
 (6) 가

3005 , EGR  
 가 가 , 가  
 (NOx 가 , NOx (8) ) (3)

가 3006 가 가 3007 , ,  
 (6) 가 가 (7)

, ECU(10) (10B) .

(7) ECU(10) , (10A)  
 0B) NOx (8) NOx (8) (1

30 3001 NOx (8) , 31 ECU(10)  
 가 NOx가 , NOx NOx 가 0 , ECU(10)  
 가 (7) 가 NOx가 NOx가  
 가 NOx ( NOx1) , NOx NOx 가

, 30 3001 (7) , 32 가  
 (6) (7) NOx (8) (7) 가  
 NOx (7) 가 NOx

, 33 (7)가 , NOx가 가 ,  
 NOx , NOx가 .

, ECU(10) (6) ,  
 (10B) 가 NOx (8) (7)  
 NOx 가 NOx  
 가 (7) .

, 30 3004 (10B) , (10B)  
 NOx (8) (6)  
 (10B) , .

, ECU(10) (10A) , (13) (  
 7) NOx (8)가 , NOx (8)  
 (7) 가  
 ECU(10) (10B) NOx (8) (7)

, ECU(10) ,  
 , 가 ,  
 , 가

, 6a 6b (5)  
 , EGR 가 (5)  
 EGR 가  
 EGR (13) (12) EGR ,

, 30 3004 NOx (8) , NOx 가  
, 34 NOx 가 (TNOx) NOxHL  
3005 .

x , , NOx , NO

(57)

1.

, NOx , NOx

2.

1 , , NOx

3.

1 2 , , ,

4.

1 3 , , , , NOx

5.

4 , .

6.

4 , .

7.

4 , .

8.



4 ,

9.

4 , EGR

10.

4 ,

11.

1 10 ,

12.

1 11 , , NOx

13.

12 , , NOx 가

14.

1 13 , NOx , NOx NOx 가

15.

1 14 , , NOx

16.

15 , ,

17.

15 16 , , 가

18.

17  
가 , , 가

19.

1 18 , , NOx

20.

1 19 , , NOx /

21.

20  
NOx , NOx ,

22.

21 , NOx NOx 가 ,  
NOx

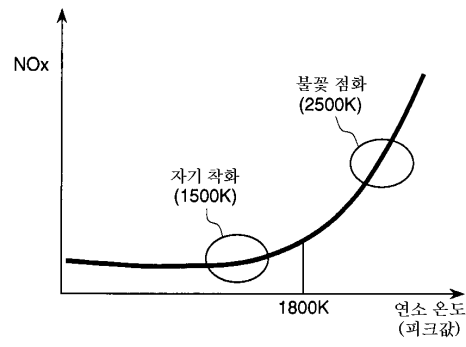
23.

20 22 , 가 NOx

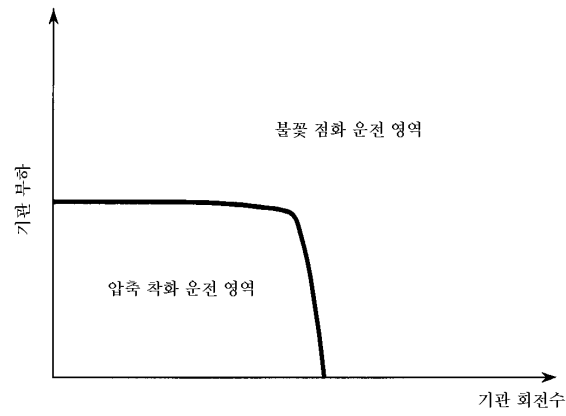
24.

1 23

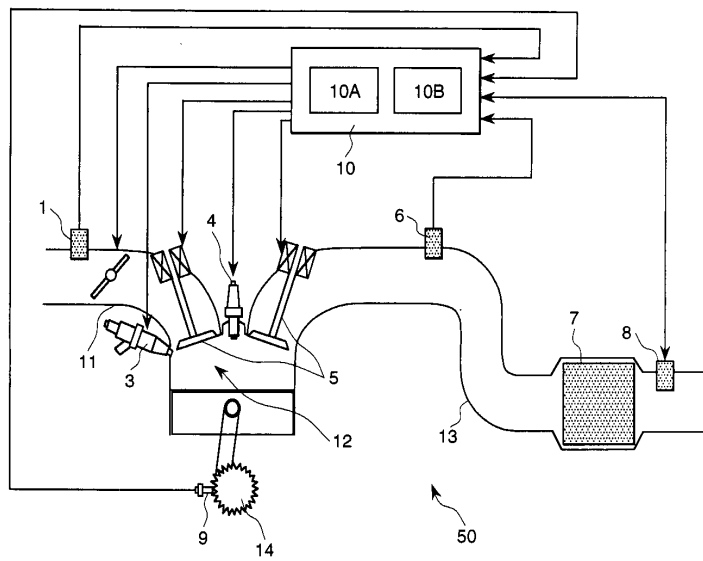
1



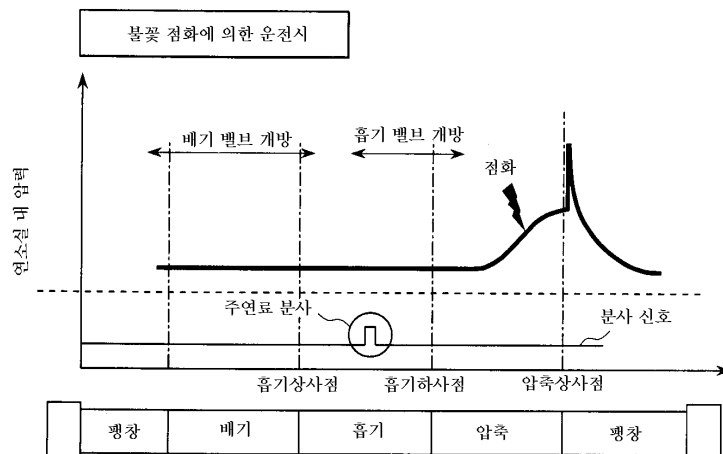
2



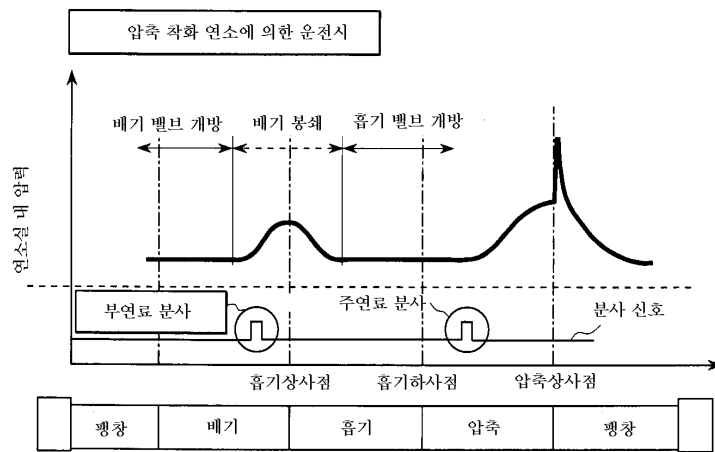
3



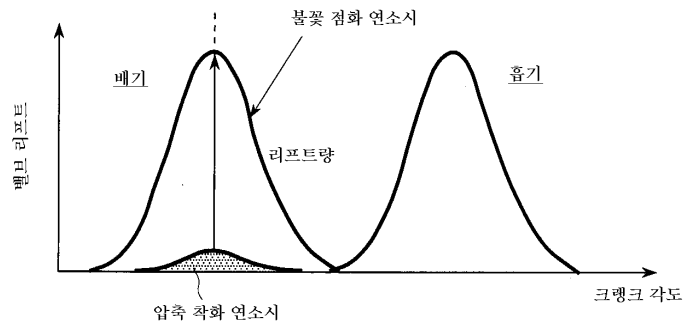
4



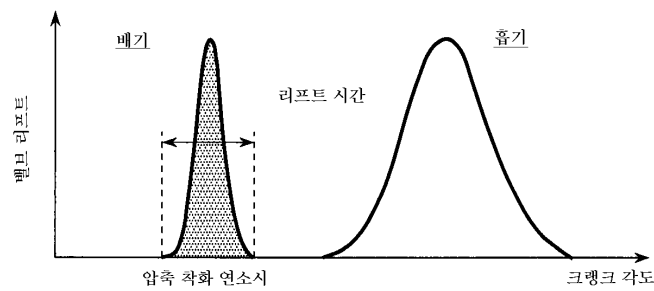
5



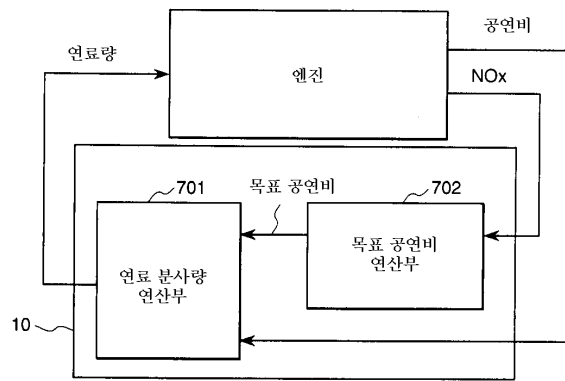
6a



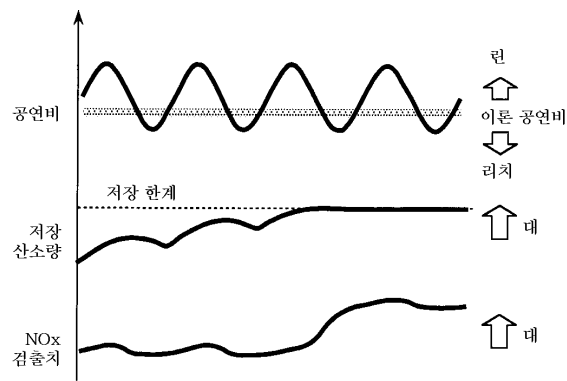
6b



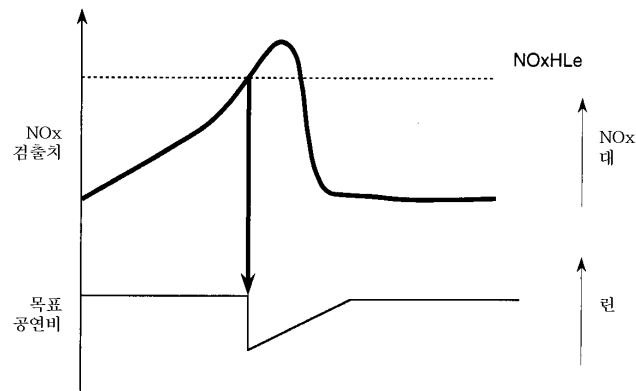
7



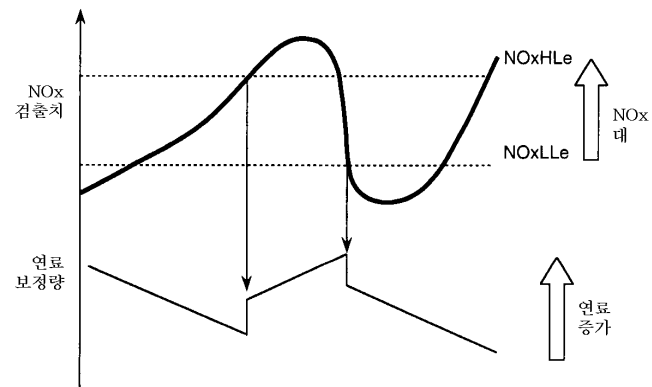
8



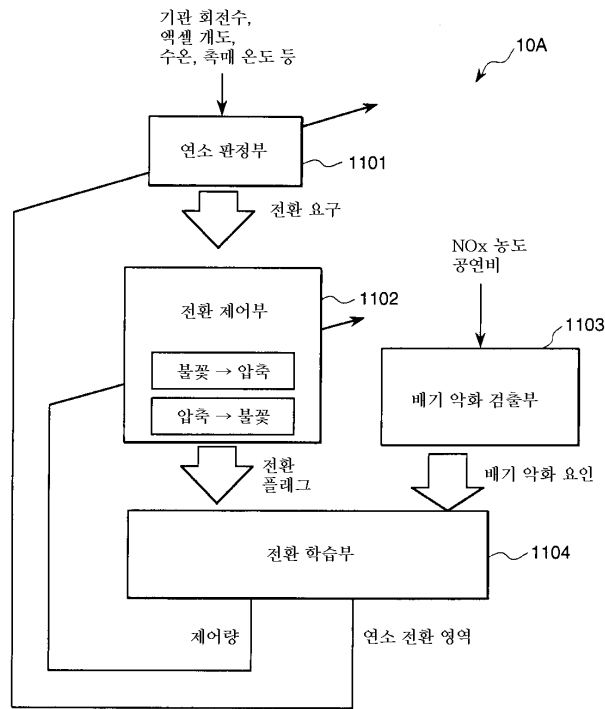
9



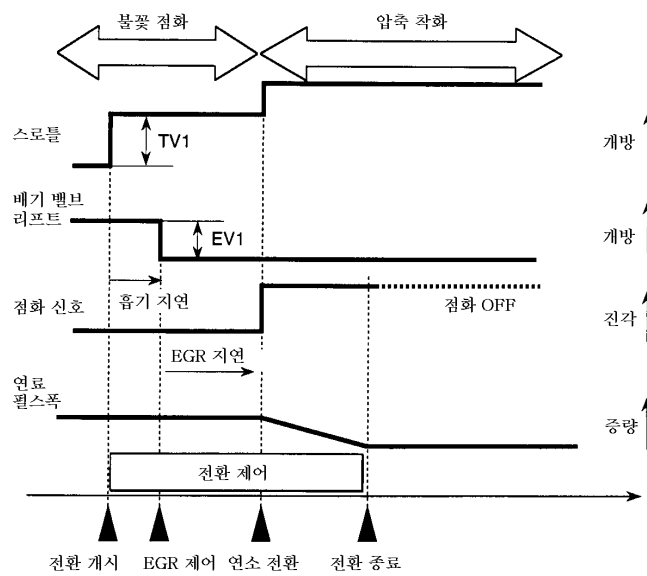
10



11

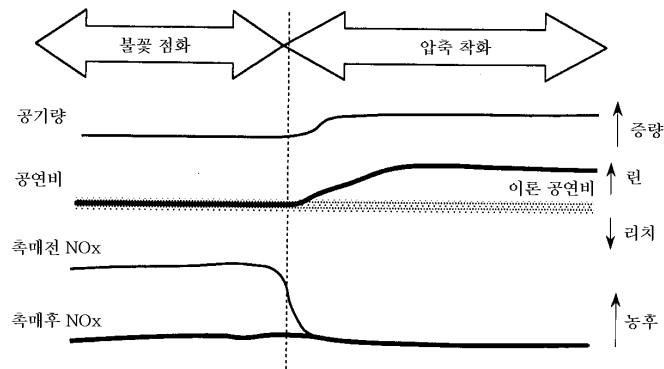


12

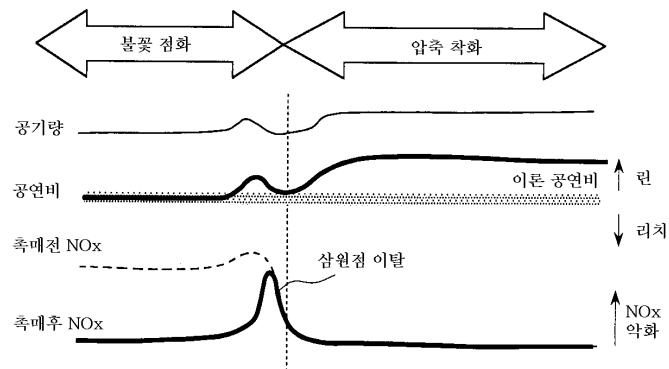




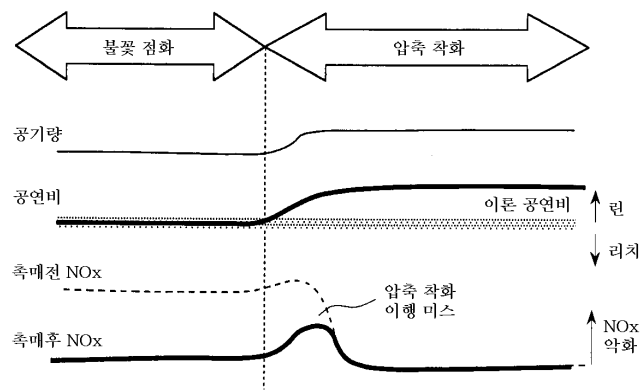
13

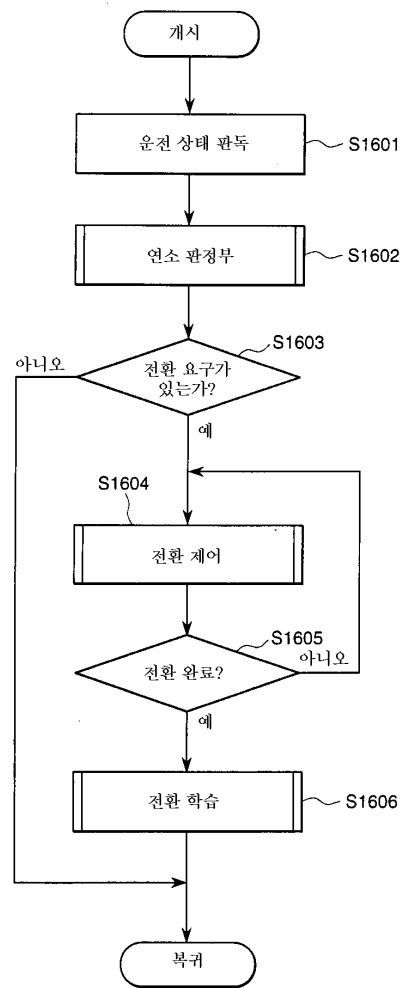


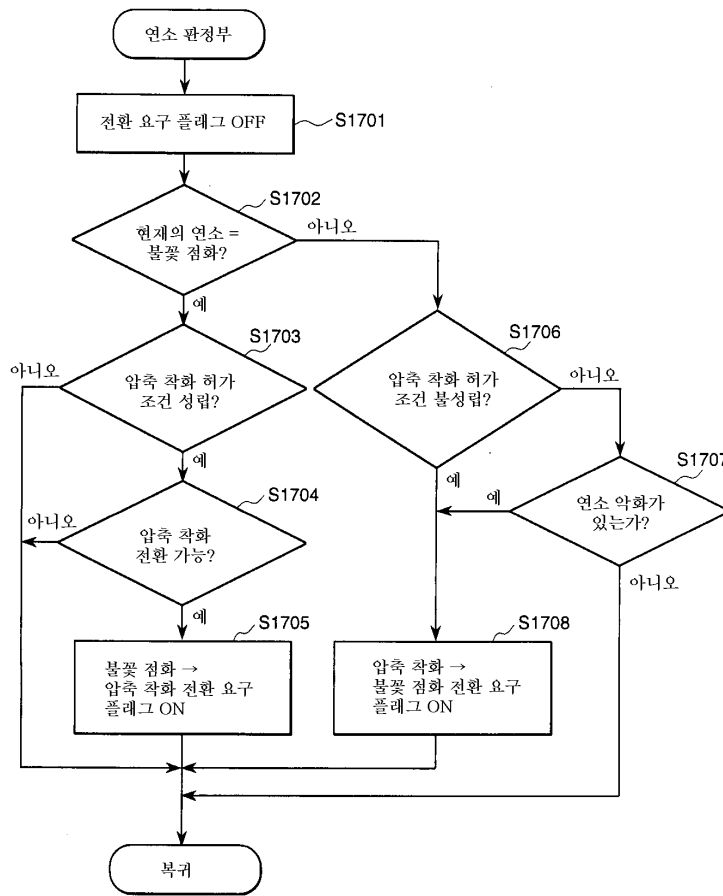
14



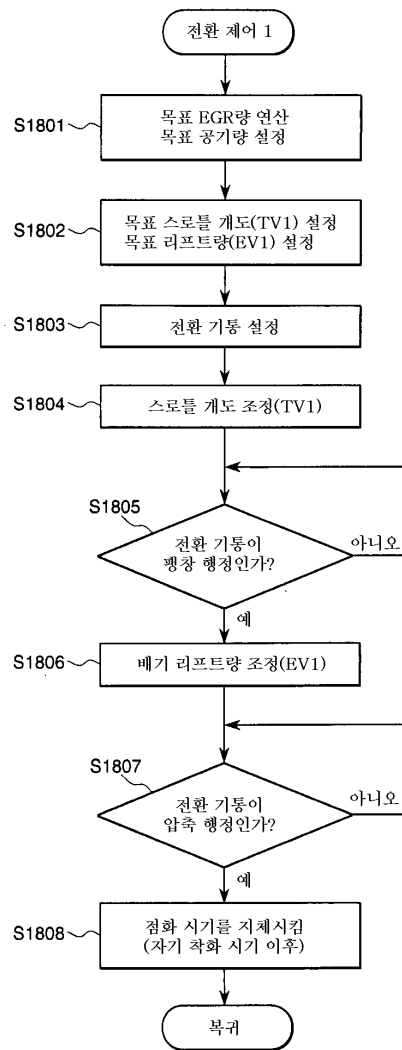
15



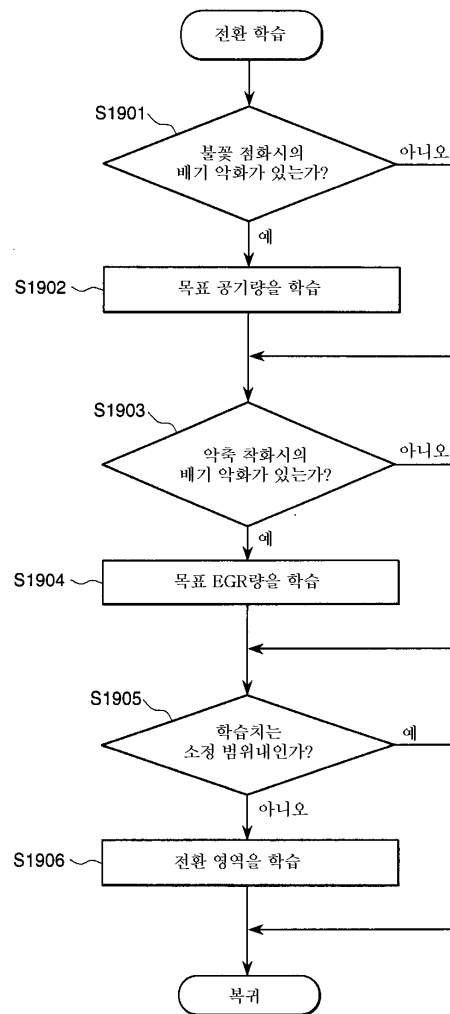




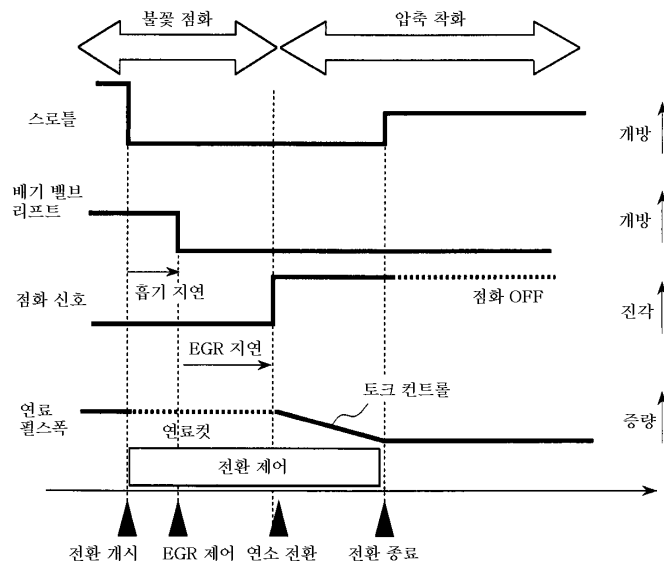
18



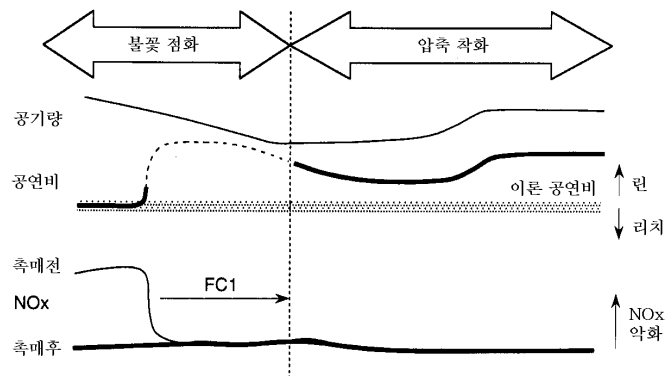
19



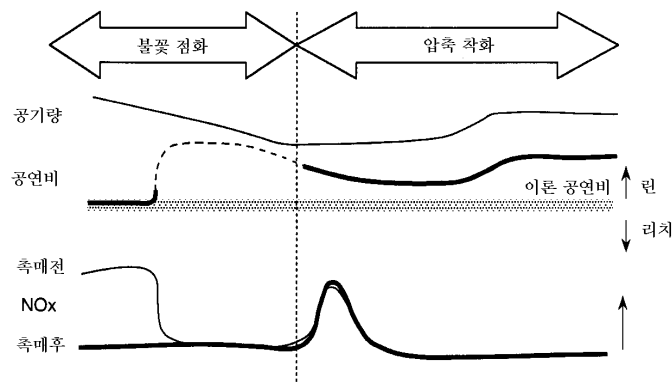
20



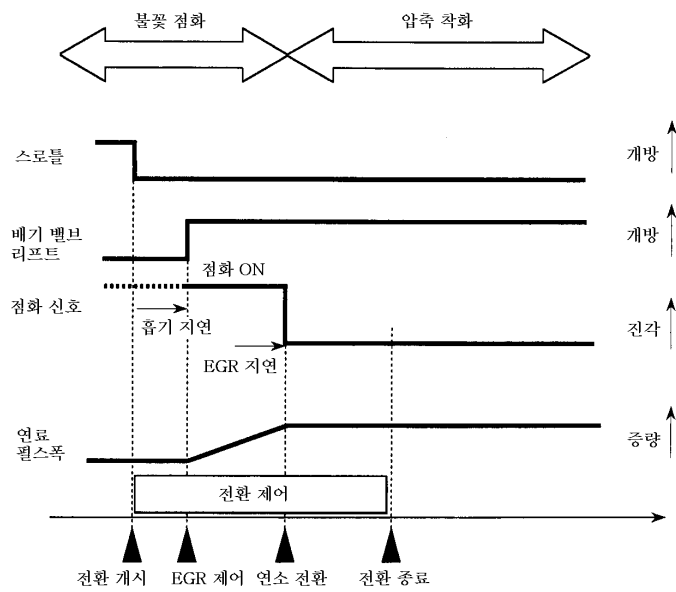
21



22

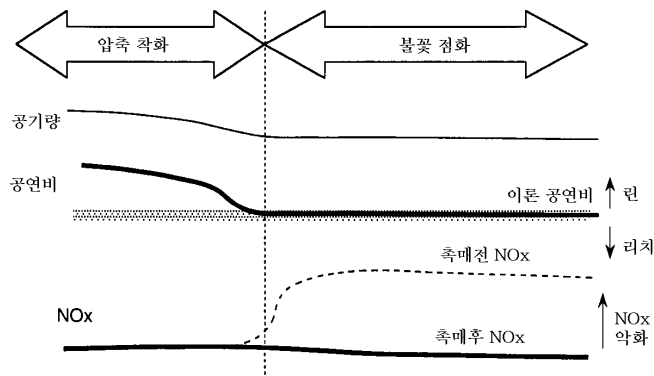


23

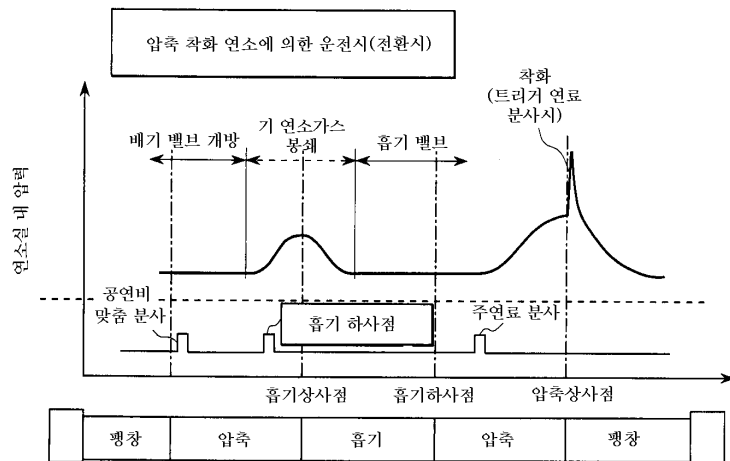




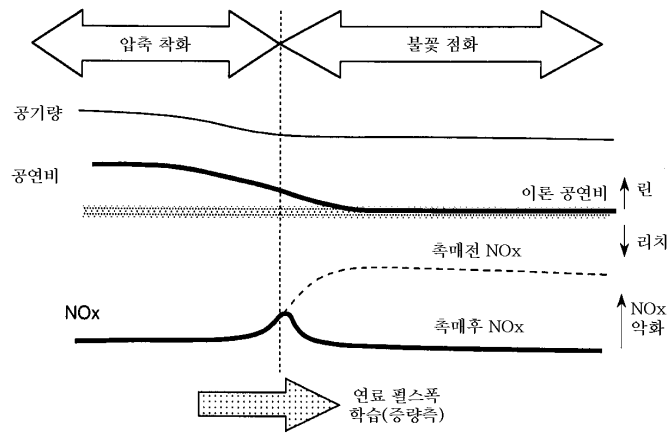
24



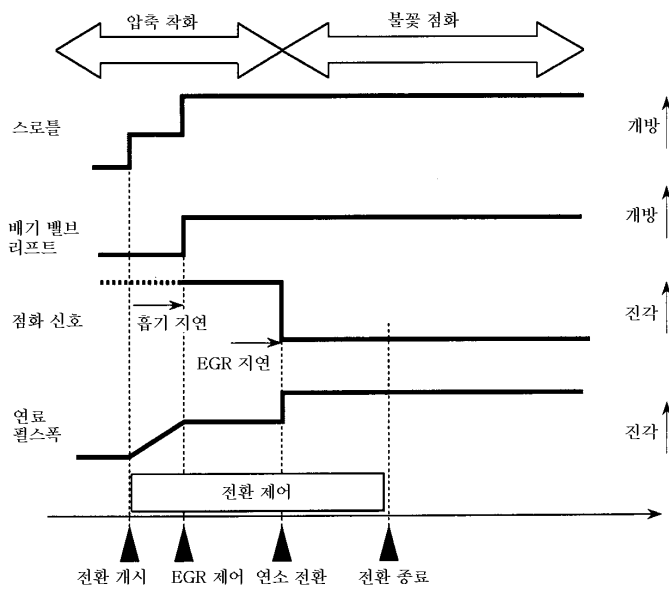
25



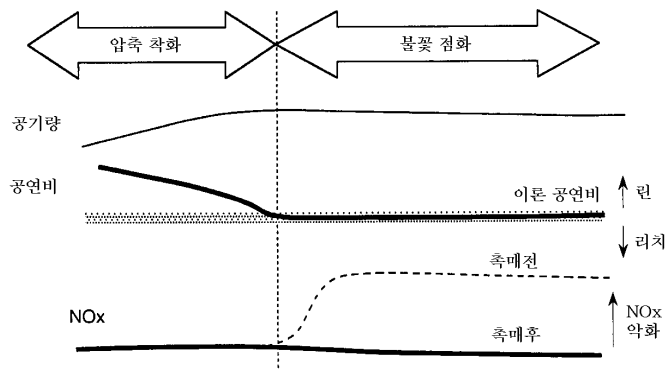
26



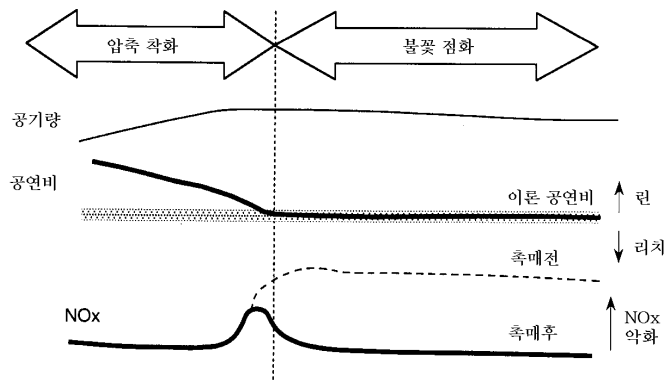
27

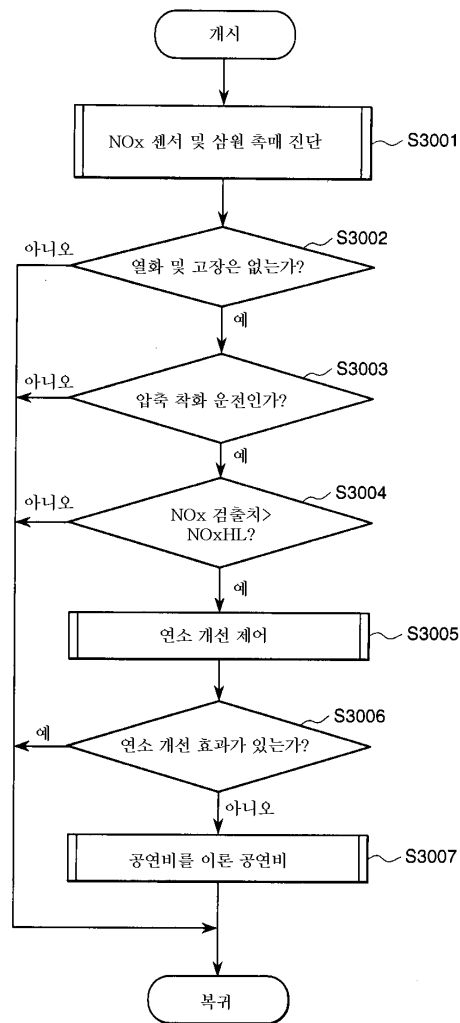


28

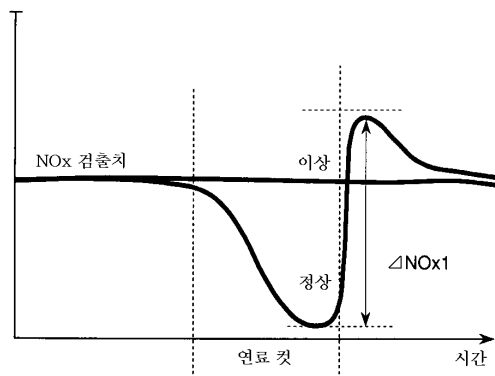


29

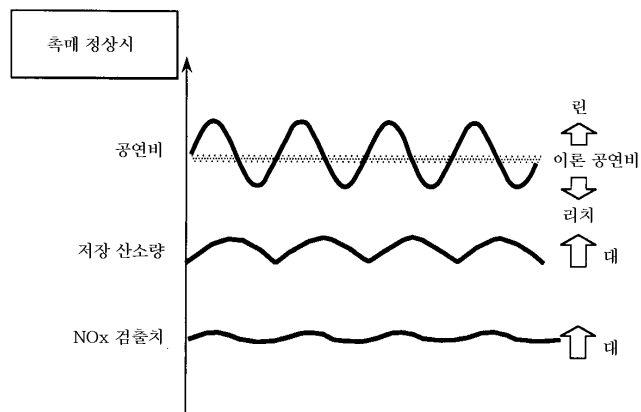




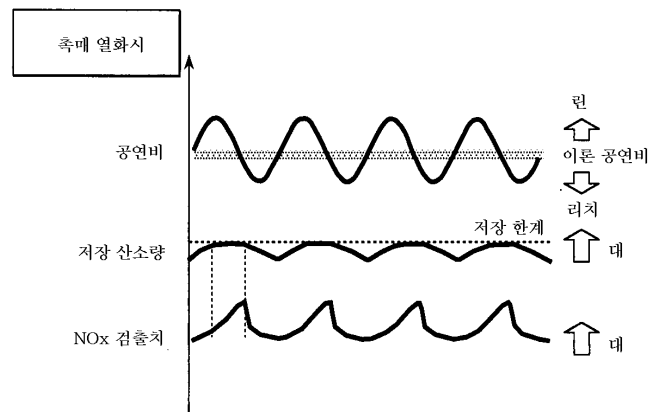
31



32



33



34

