FIG. 1

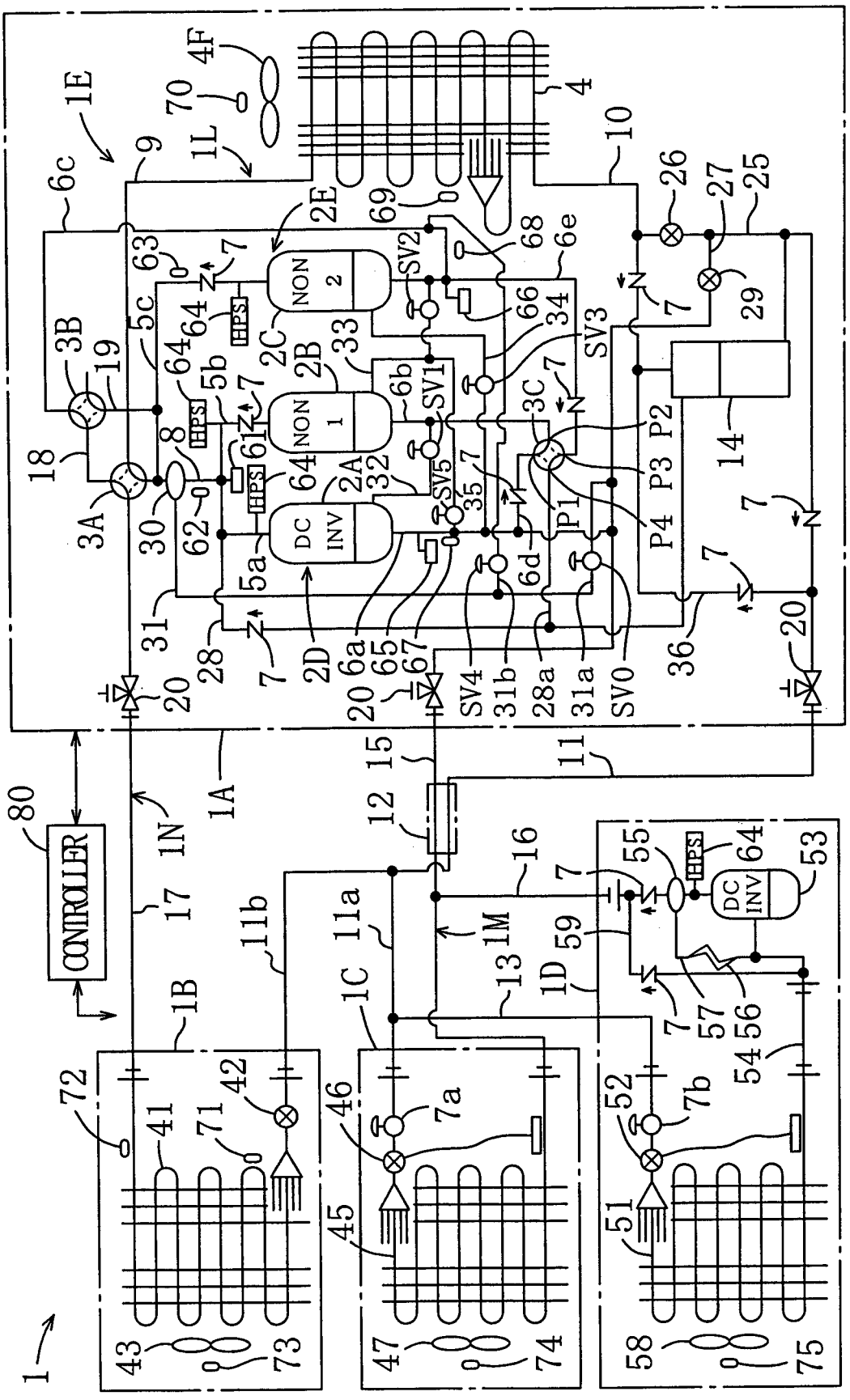

CONTROLLER
80
1
1A
1B
1C
1D
1E
1L
1M
1N
2A
2B
2C
2D
2E
3A
3B
3C
4
4F
5a
5b
5c
6a
6b
6c
6d
6e
7
7a
7b
8
9
10
11
11a
11b
12
13
14
15
16
17
18
19
20
25
26
27
28
28a
29
30
31
31a
31b
32
33
34
35
36
41
42
43
45
46
47
51
52
53
54
55
56
57
58
59
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
NON 1
NON 2
DC INV
HPS
SV0
SV1
SV2
SV3
SV4
SV5
P1
P2
P3
P4

FIG. 2

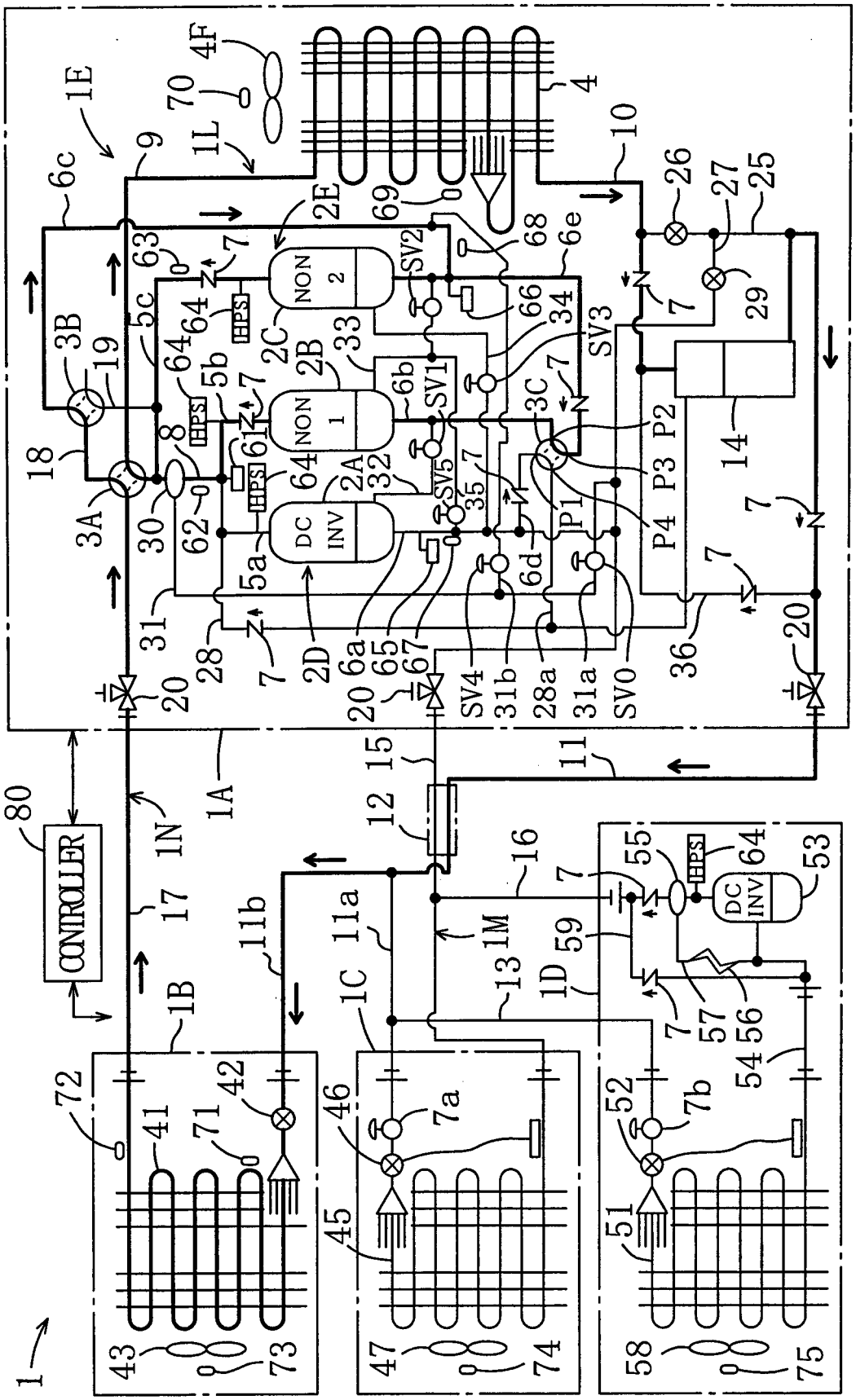

CONTROLLER
DC INV
NON 1
NON 2
HPS
SV0
SV1
SV2
SV3
SV4
SV5
P1
P2
P3
P4

FIG. 3

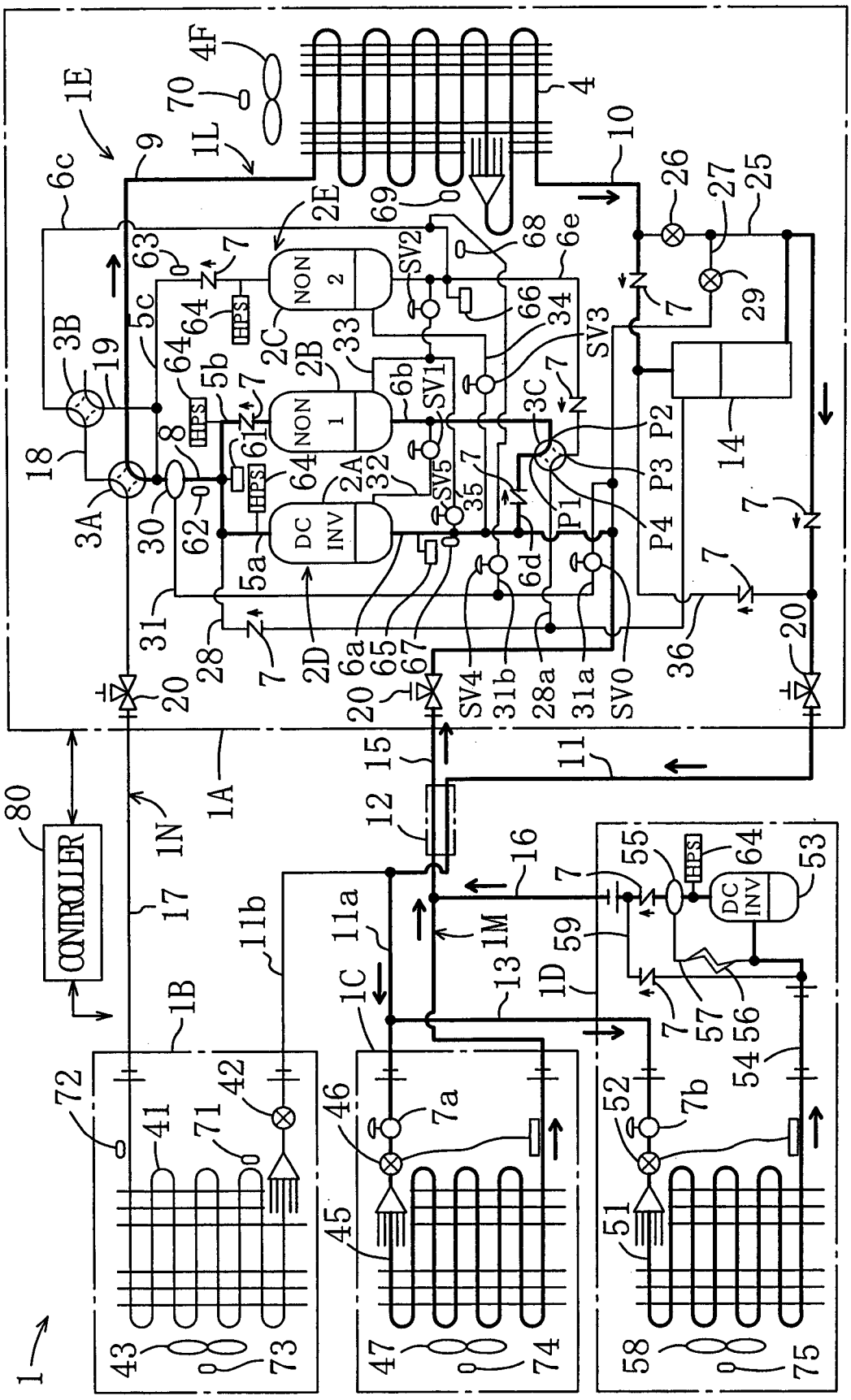

CONTROLLER
80
1
1A
1B
1C
1D
1E
1L
1M
1N
2A
2B
2C
2D
2E
3A
3B
3C
4
4F
5a
5b
5c
6a
6b
6c
6d
6e
7
7a
7b
8
9
10
11
11a
11b
12
13
14
15
16
17
18
19
20
25
26
27
28
28a
29
30
31
31a
31b
32
33
34
35
36
41
42
43
45
46
47
51
52
53
54
55
56
57
58
59
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
DC INV
NON 1
NON 2
HPS
SV0
SV1
SV2
SV3
SV4
SV5
P1
P2
P3
P4

FIG. 4

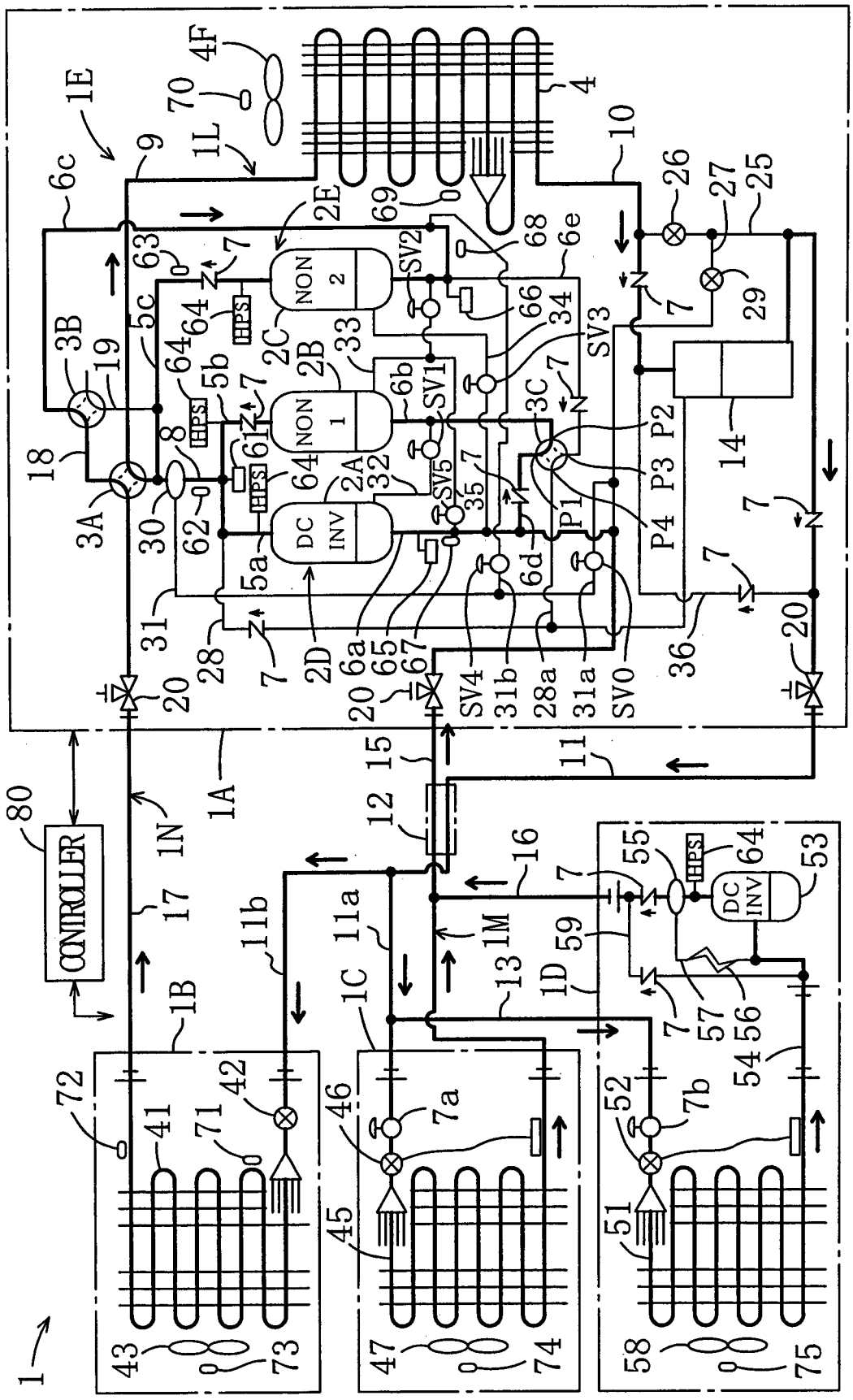

CONTROLLER
80
1
1A
1B
1C
1D
1E
1L
1M
1N
2A
2B
2C
2D
2E
3A
3B
3C
4
4F
5a
5b
5c
6a
6b
6c
6d
6e
7
7a
7b
8
9
10
11
11a
11b
12
13
14
15
16
17
18
19
20
25
26
27
28
28a
29
30
31
31a
31b
32
33
34
35
36
41
42
43
45
46
47
51
52
53
54
55
56
57
58
59
62
63
64
65
66
67
68
69
70
71
72
73
74
75
DC INV
NON 1
NON 2
HPS
SV0
SV1
SV2
SV3
SV4
SV5
P1
P2
P3
P4

FIG. 5

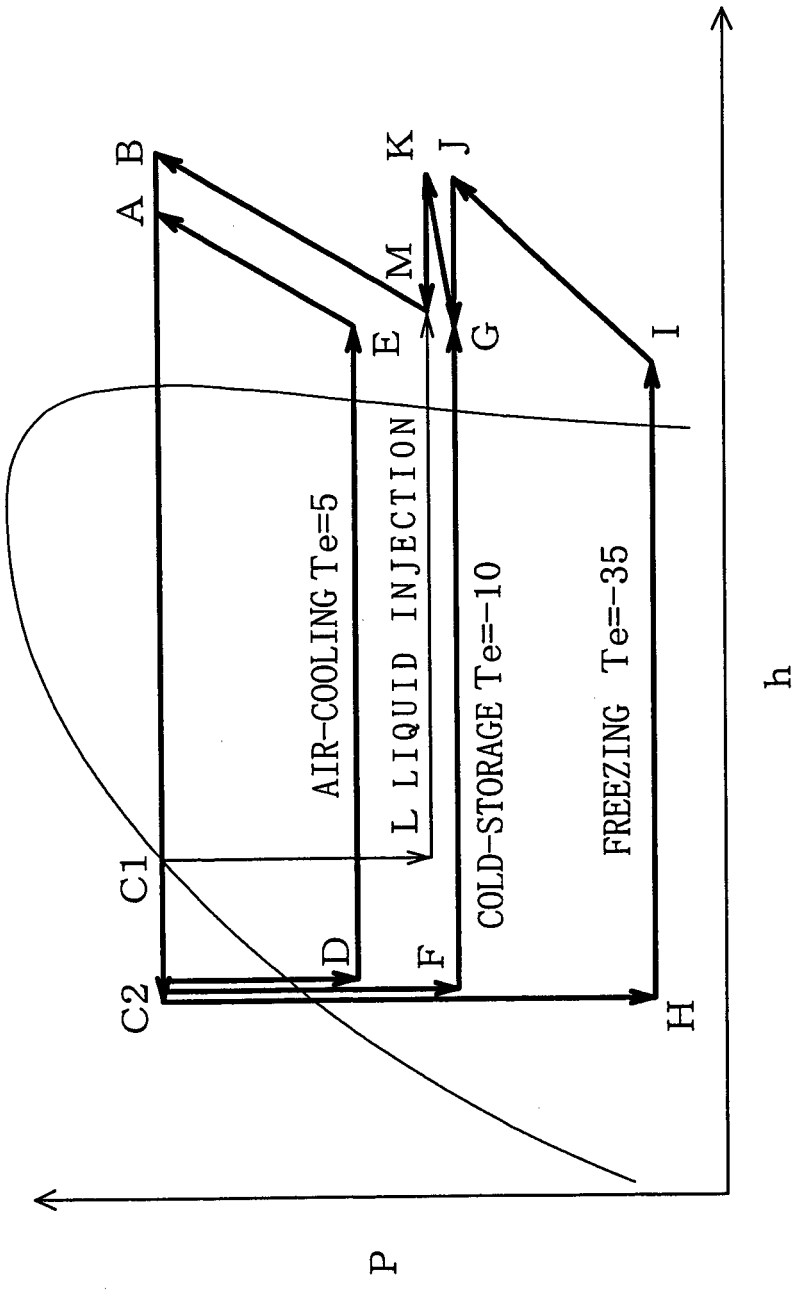

A
B
K
J
M
E
G
I
C1
D
F
C2
H
AIR-COOLING Te=5
L LIQUID INJECTION
COLD-STORAGE Te=-10
FREEZING Te=-35
h
P

FIG. 6

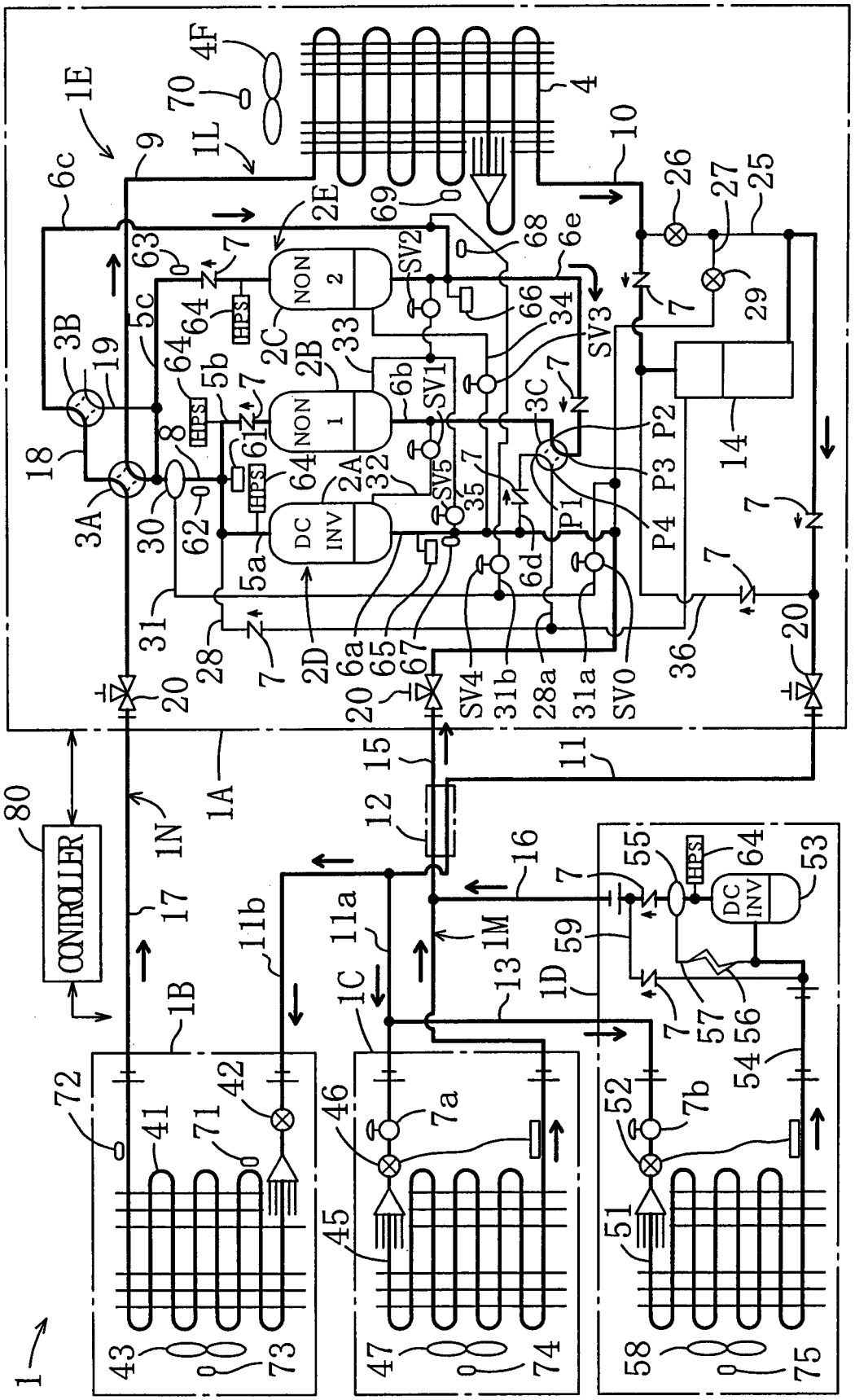

1
1A
1B
1C
1D
1E
1L
1M
1N
2A
2B
2C
2D
2E
3A
3B
3C
4
4F
5a
5b
5c
6a
6b
6c
6d
6e
7
7a
7b
8
9
10
11
11a
11b
12
13
14
15
16
17
18
19
20
25
26
27
28
29
30
31
31a
31b
32
33
34
35
36
41
42
43
45
46
47
51
52
53
54
55
56
57
58
59
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
80
CONTROLLER
DC INV
NON 1
NON 2
HPS
SV0
SV1
SV2
SV3
SV4
SV5
P1
P2
P3
P4

FIG. 7

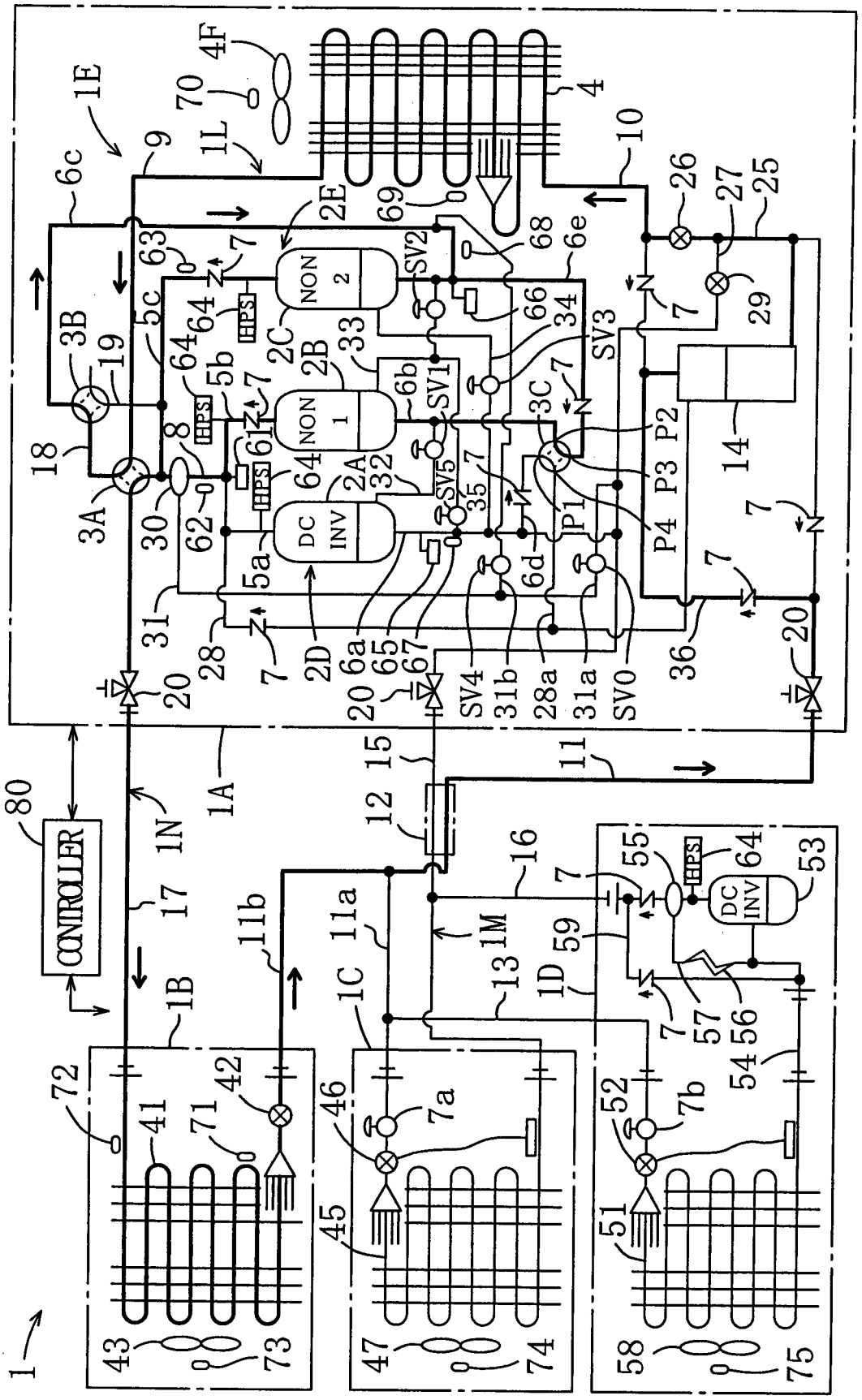

CONTROLLER
80
1
1A
1B
1C
1D
1E
1L
1M
1N
2A
2B
2C
2D
2E
3A
3B
3C
4
4F
5a
5b
5c
6a
6b
6c
6d
6e
7
7a
7b
8
9
10
11
11a
11b
12
13
14
15
16
17
18
19
20
25
26
27
28
28a
29
30
31
31a
31b
32
33
34
35
36
41
42
43
45
46
47
51
52
53
54
55
56
57
58
59
62
63
64
65
66
67
68
69
70
71
72
73
74
75
NON 1
NON 2
DC INV
HPS
SV0
SV1
SV2
SV3
SV4
SV5
P1
P2
P3
P4

FIG. 8

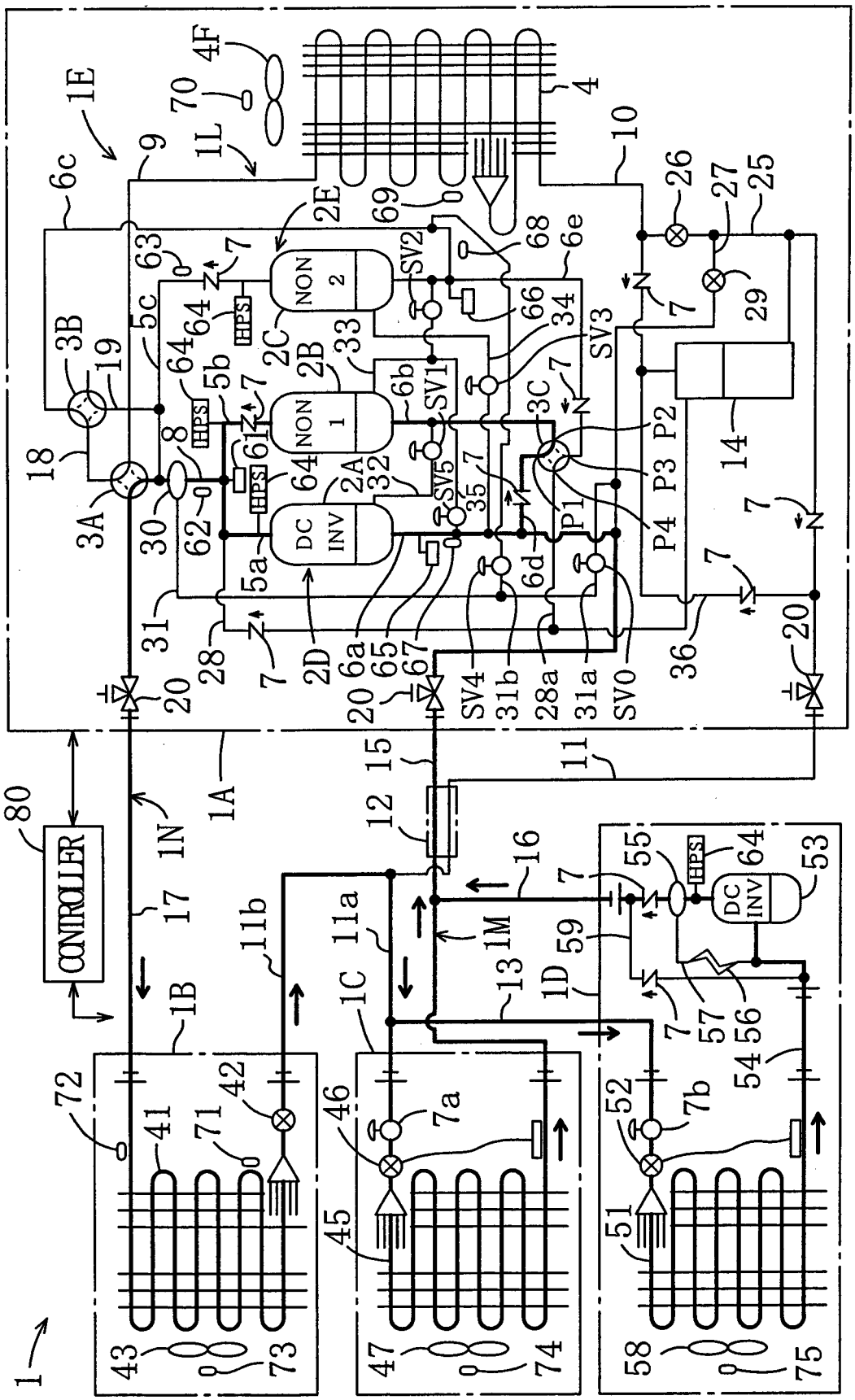

1E
4F
70
1L
4
9
10
6c
2E
69
68
6e
26
27
25
63
7
SV2
NON 2
64
HPS
2C
33
34
66
SV3
29
3B
19
5c
64
5b
2B
6b
SV1
3C
P2
P3
P4
P1
14
18
3A
8
61
2A
32
SV5
35
30
62
DC INV
5a
6d
31
28
2D
6a
65
67
SV4
31b
28a
31a
SV0
36
20
12
15
11
1A
80
CONTROLLER
1N
17
16
55
53
64
DC INV
11b
11a
1C
1M
59
13
1D
57
56
54
1B
72
41
71
42
46
7a
45
52
7b
51
43
73
47
74
58
75
1

FIG. 9

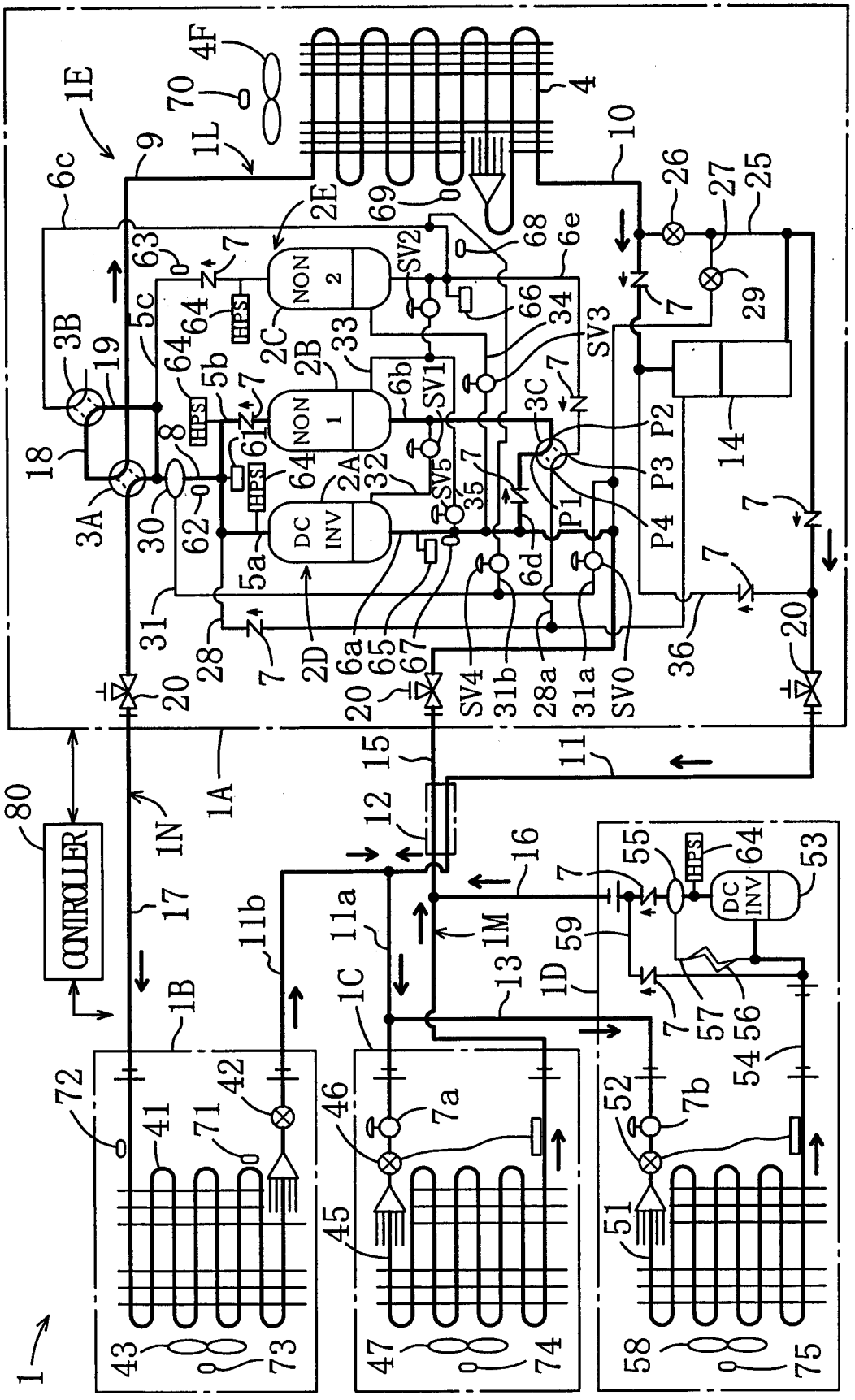

CONTROLLER
80
1
1A
1B
1C
1D
1E
1L
1M
1N
2A
2B
2C
2D
2E
3A
3B
3C
4
4F
5a
5b
5c
6a
6b
6c
6d
6e
7
7a
7b
8
9
10
11
11a
11b
12
13
14
15
16
17
18
19
20
25
26
27
28
29
30
31
31a
31b
32
33
34
35
36
41
42
43
45
46
47
51
52
53
54
55
56
57
58
59
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
DC INV
NON 1
NON 2
HPS
SV0
SV1
SV2
SV3
SV4
SV5
P1
P2
P3
P4

FIG. 10

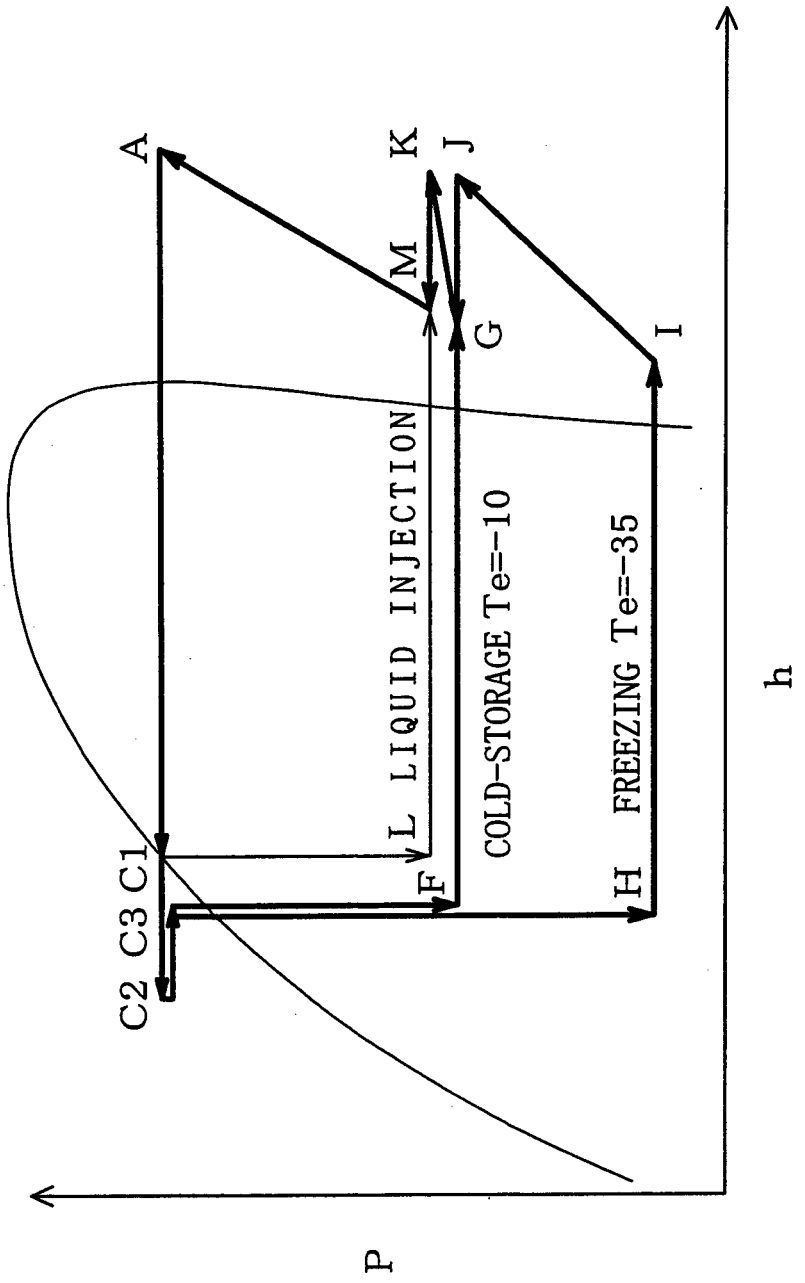

A
K
J
M
G
I
L LIQUID INJECTION
COLD-STORAGE Te=-10
H FREEZING Te=-35
F
C2 C3 C1
P
h

FIG. 11

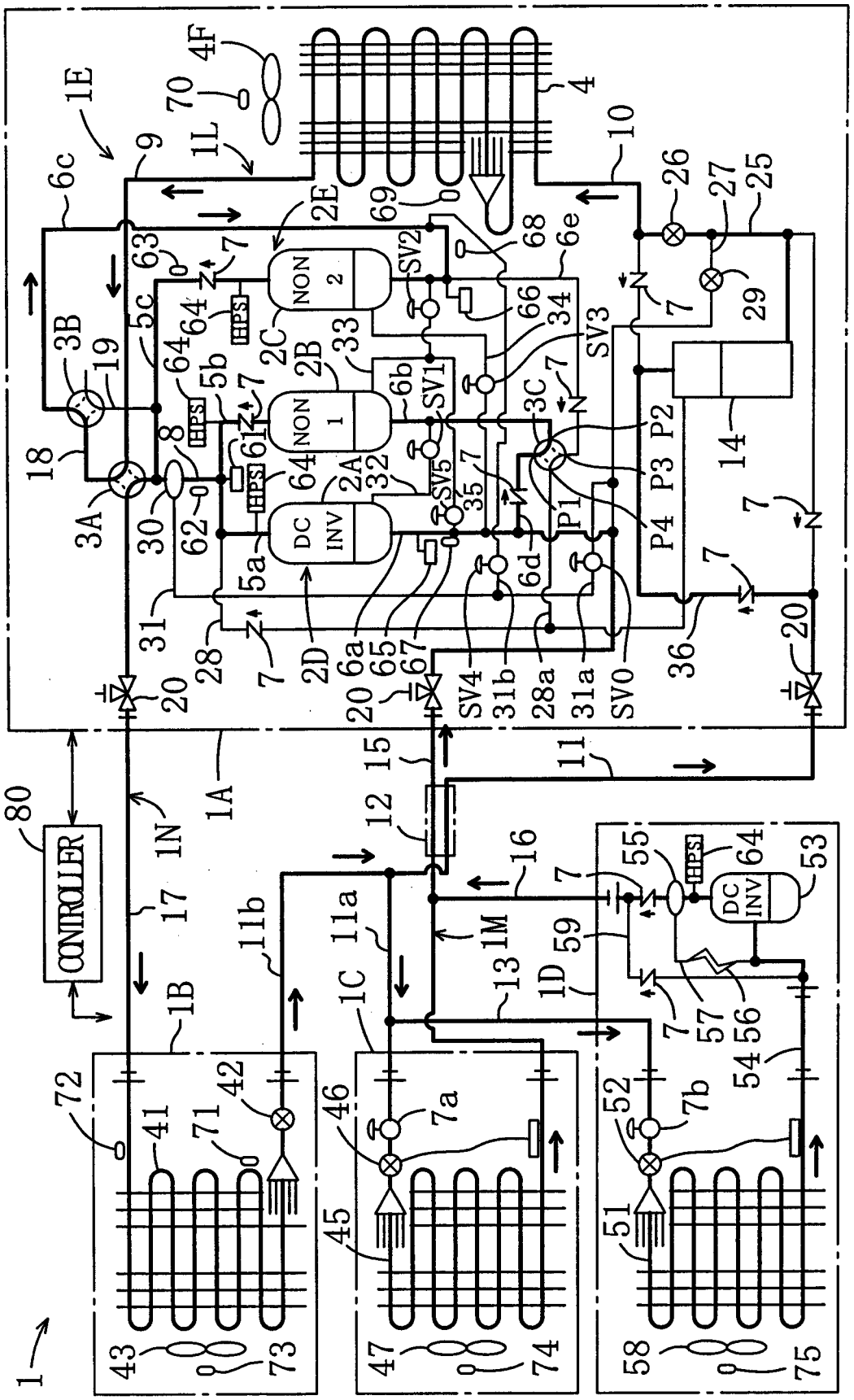
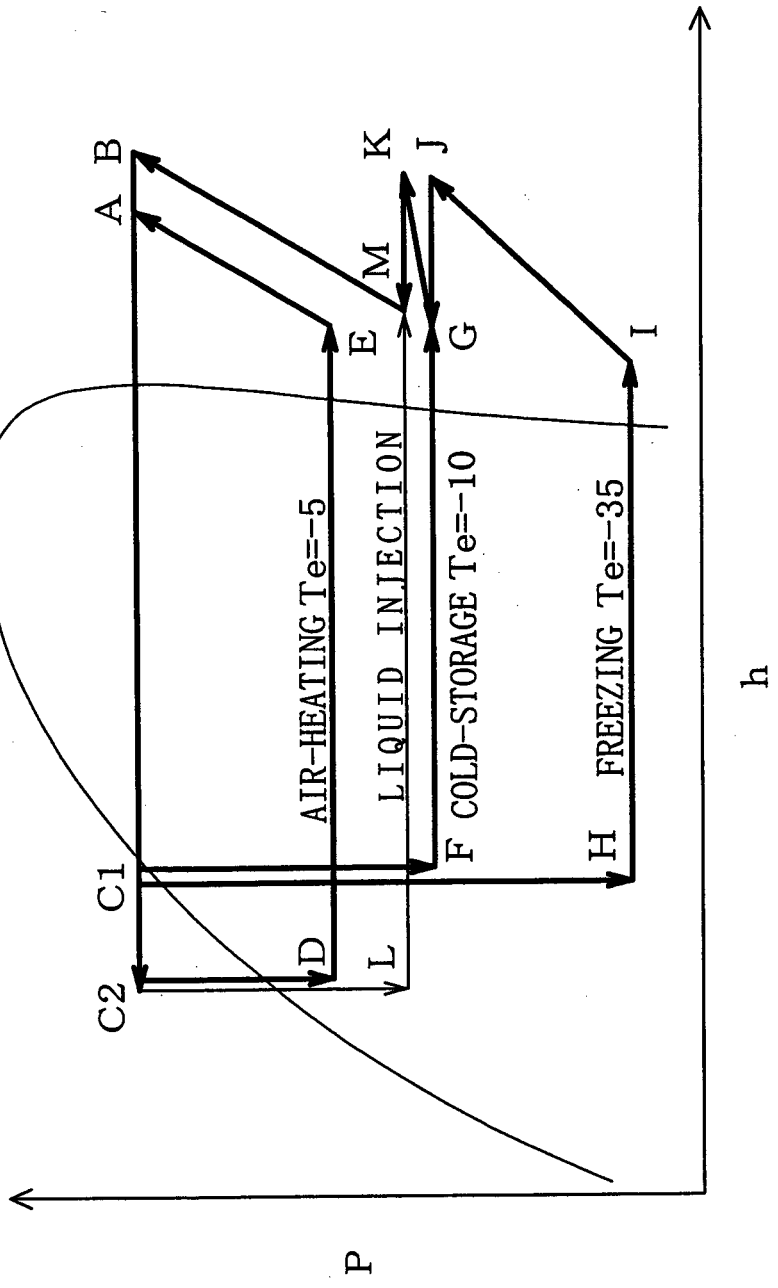

CONTROLLER
80
1
1A
1B
1C
1D
1E
1L
1M
1N
2A
2B
2C
2D
2E
3A
3B
3C
4
4F
5a
5b
5c
6a
6b
6c
6d
6e
7
7a
7b
8
9
10
11
11a
11b
12
13
14
15
16
17
18
19
20
25
26
27
28
28a
29
30
31
31a
31b
32
33
34
35
36
41
42
43
45
46
47
51
52
53
54
55
56
57
58
59
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
DC INV
NON 1
NON 2
HPS
SV0
SV1
SV2
SV3
SV4
SV5
P1
P2
P3
P4

FIG. 12


A
B
K
J
M
E
G
I
AIR-HEATING Te=-5
LIQUID INJECTION
F COLD-STORAGE Te=-10
H FREEZING Te=-35
C1
C2
D
L
P
h