

FIG.1

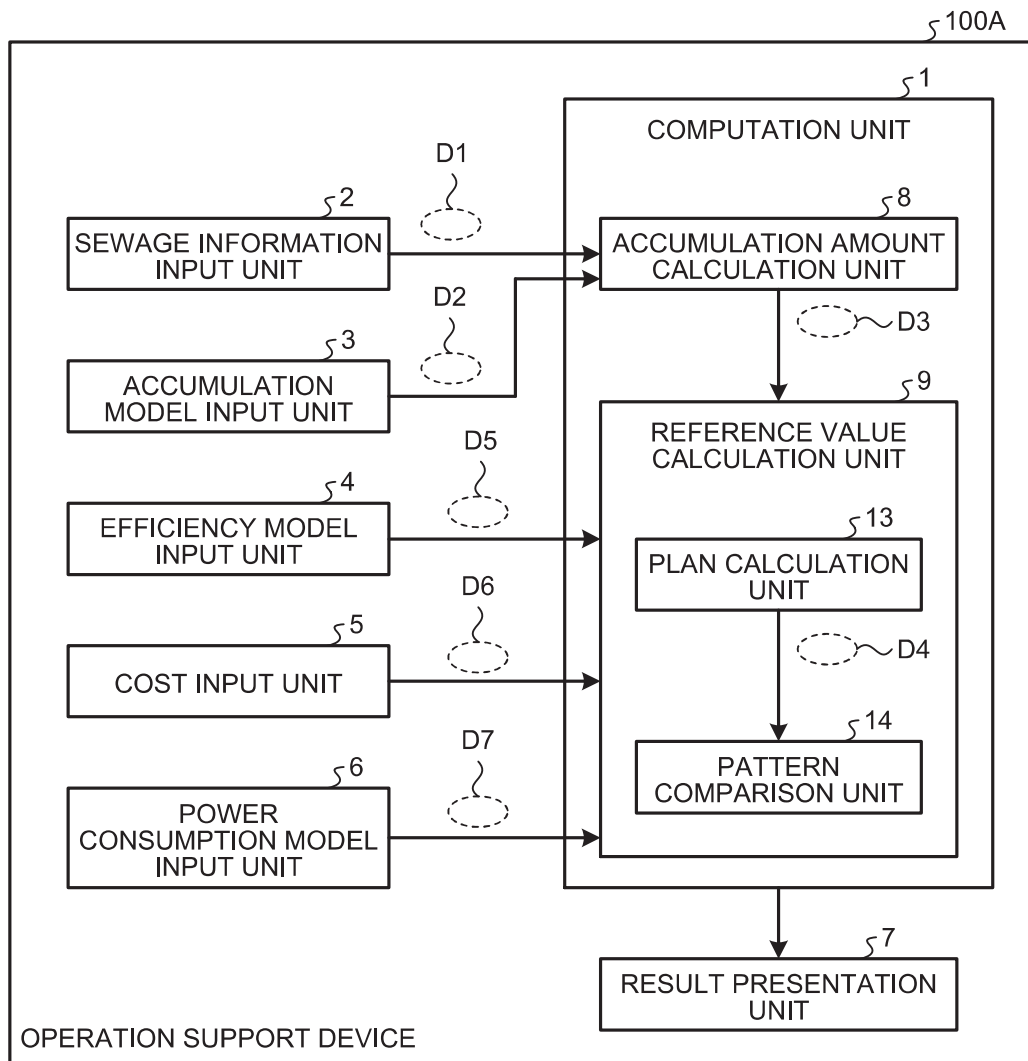


FIG.2

		BLOCKAGE RATE AS REPLACEMENT REFERENCE VALUE		
		30%	40%	50%
BLOCKAGE RATE AS CLEANING REFERENCE VALUE	30%	PATTERN A	PATTERN B	PATTERN C
	40%	PATTERN D	PATTERN E	PATTERN F
	50%	PATTERN G	PATTERN H	PATTERN I

FIG.3

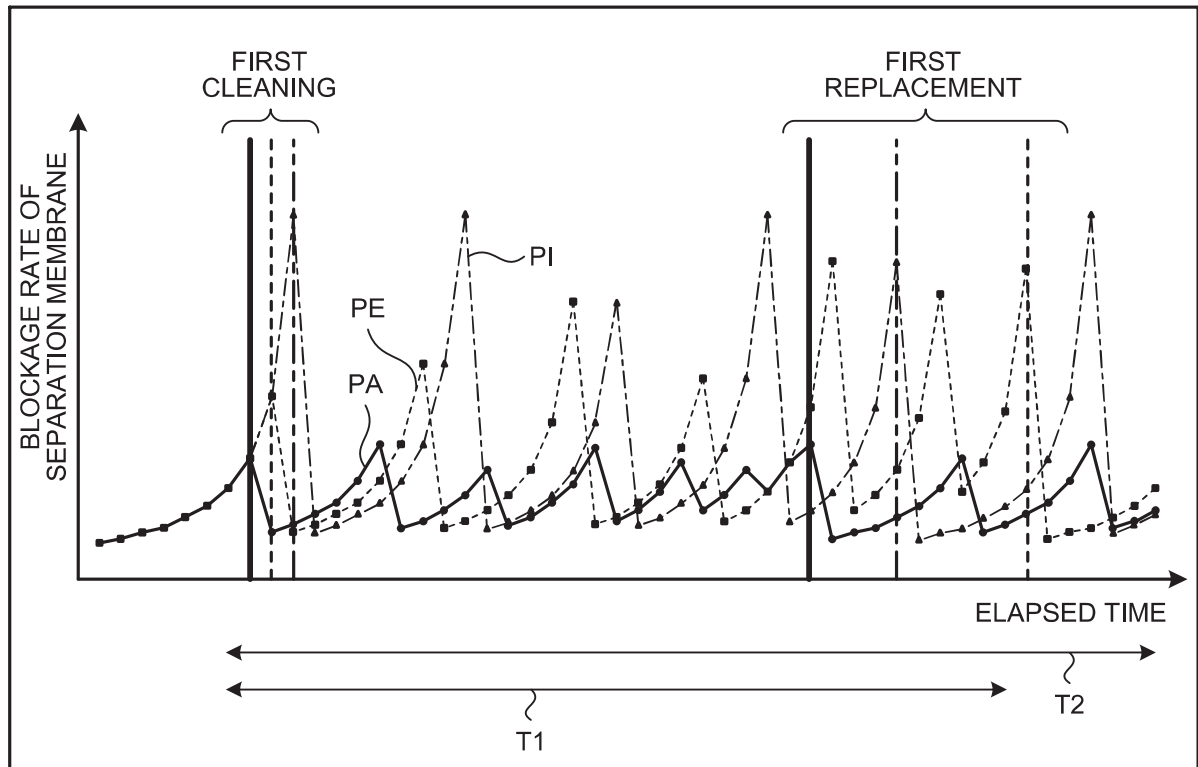


FIG.4

PERIOD	PATTERN	NUMBER OF CLEANING EVENTS	NUMBER OF REPLACEMENT EVENTS	ELECTRICITY EXPENSE	PATTERN OPERATION COST
240	PATTERN A	7	1	1410	5910
	PATTERN E	6	0	1462	4462
	PATTERN I	4	1	1476	4476
300	PATTERN A	9	1	1760	7260
	PATTERN E	6	1	1825	5825
	PATTERN I	5	1	1704	5204

FIG.5

MEMBRANE CLEANING TIMING:WHEN MEMBRANE IS XX% BLOCKED
MEMBRANE REPLACEMENT TIMING:WHEN TRANSMEMBRANE
PRESSURE DIFFERENCE AFTER CLEANING REACHES YY% OR MORE

SCHEDULE OF CLEANING AHEAD:Za DAYS LATER, Zb DAYS LATER,
AND Zc DAYS LATER

SCHEDULE OF REPLACEMENT AHEAD:Zd DAYS LATER, Ze DAYS
LATER, AND Zf DAYS LATER

FIG.6

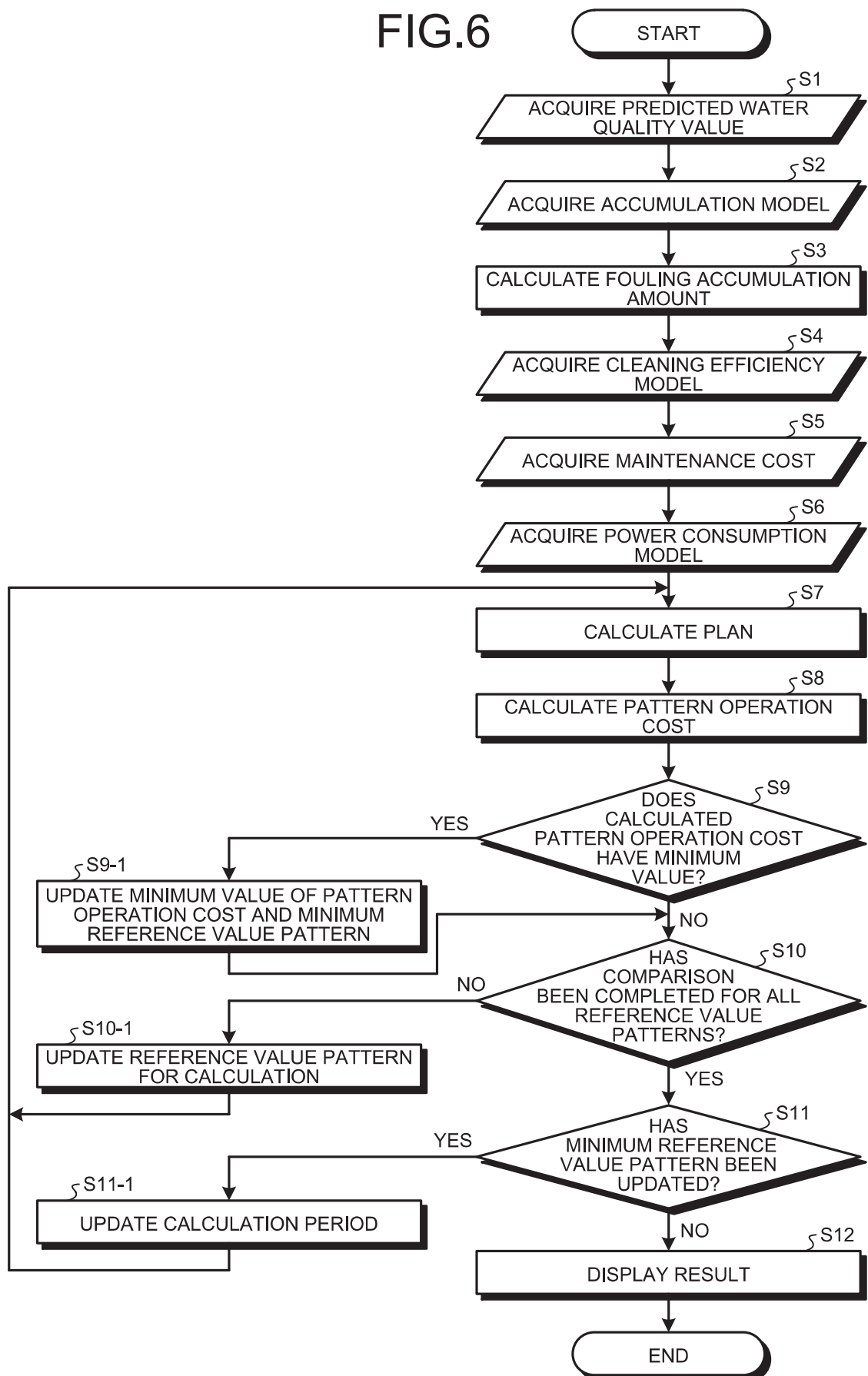


FIG.7

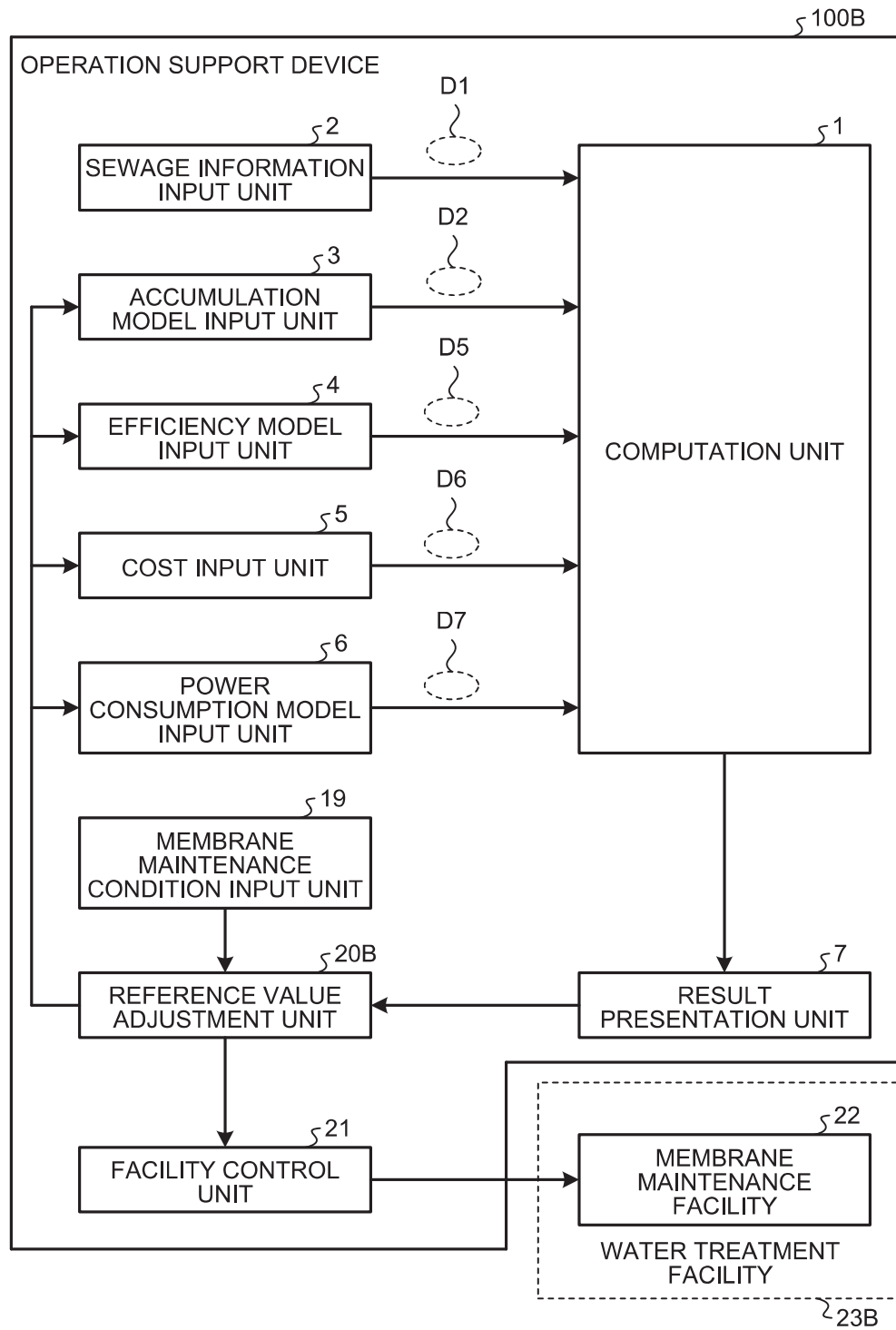


FIG.8

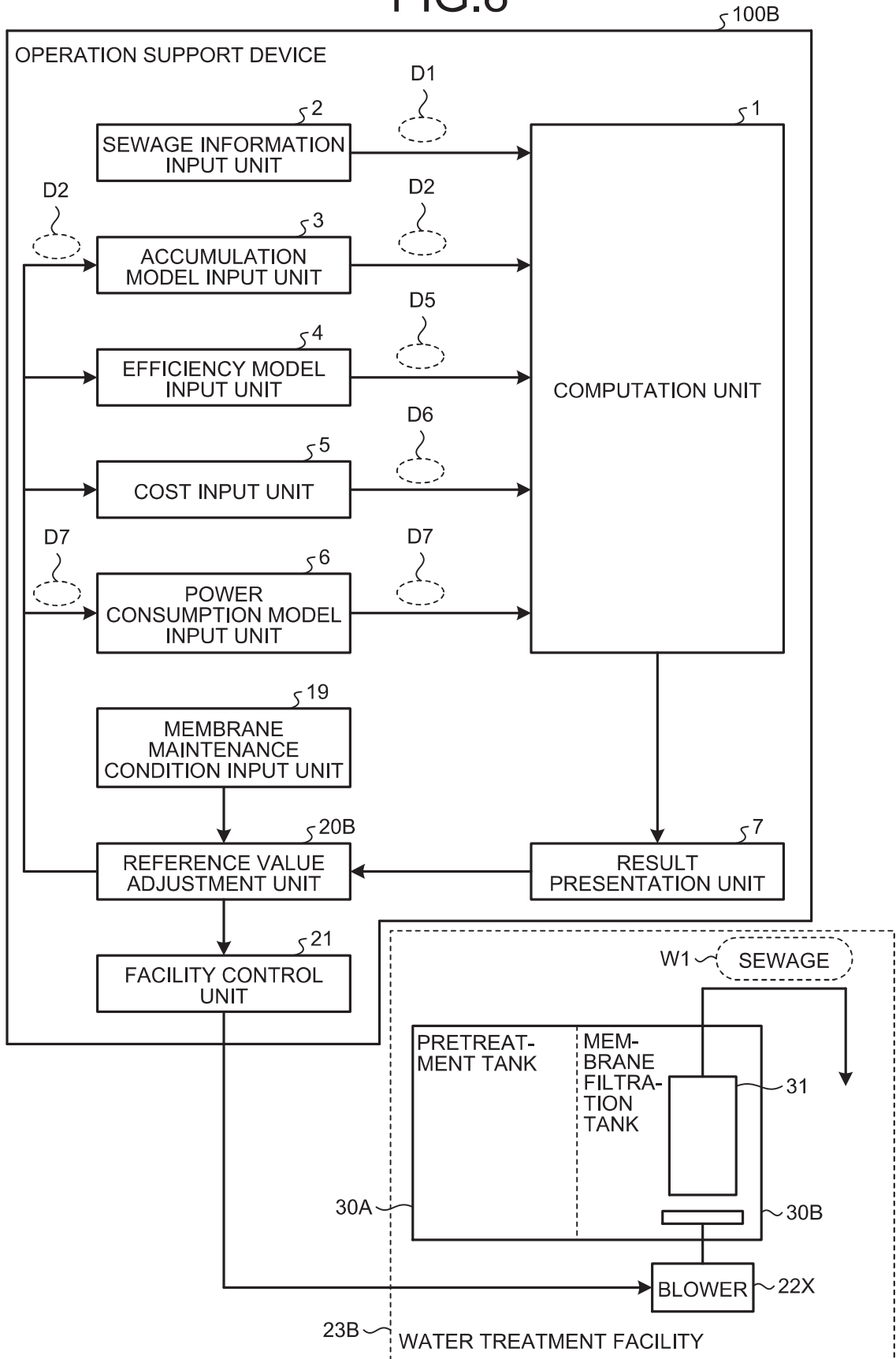


FIG.9

BLOWER OUTPUT	a	b	d	CLEANING REFER- ENCE VALUE	REPLACE- MENT REFER- ENCE VALUE	REPLACE- MENT CYCLE	PATTERN OPERATION COST
50	20	0.90	30	0.9	0.7	44	12130

FIG.10

NUM- BER OF CAL- CULA- TIONS	BLOWER OUTPUT	a	b	d	CLEANING REFER- ENCE VALUE	REPLACE- MENT REFER- ENCE VALUE	REPLACE- MENT CYCLE	PATTERN OPERATION COST
1	50	20	0.90	30	0.9	0.7	44	12130
2	60	20	0.85	35	0.9	0.7	48	12245
3	70	20	0.80	40	0.8	0.7	50	12866
4	80	20	0.75	45	0.8	0.7	54	12053
5	85	20	0.70	50	0.9	0.7	59	12175

FIG.11

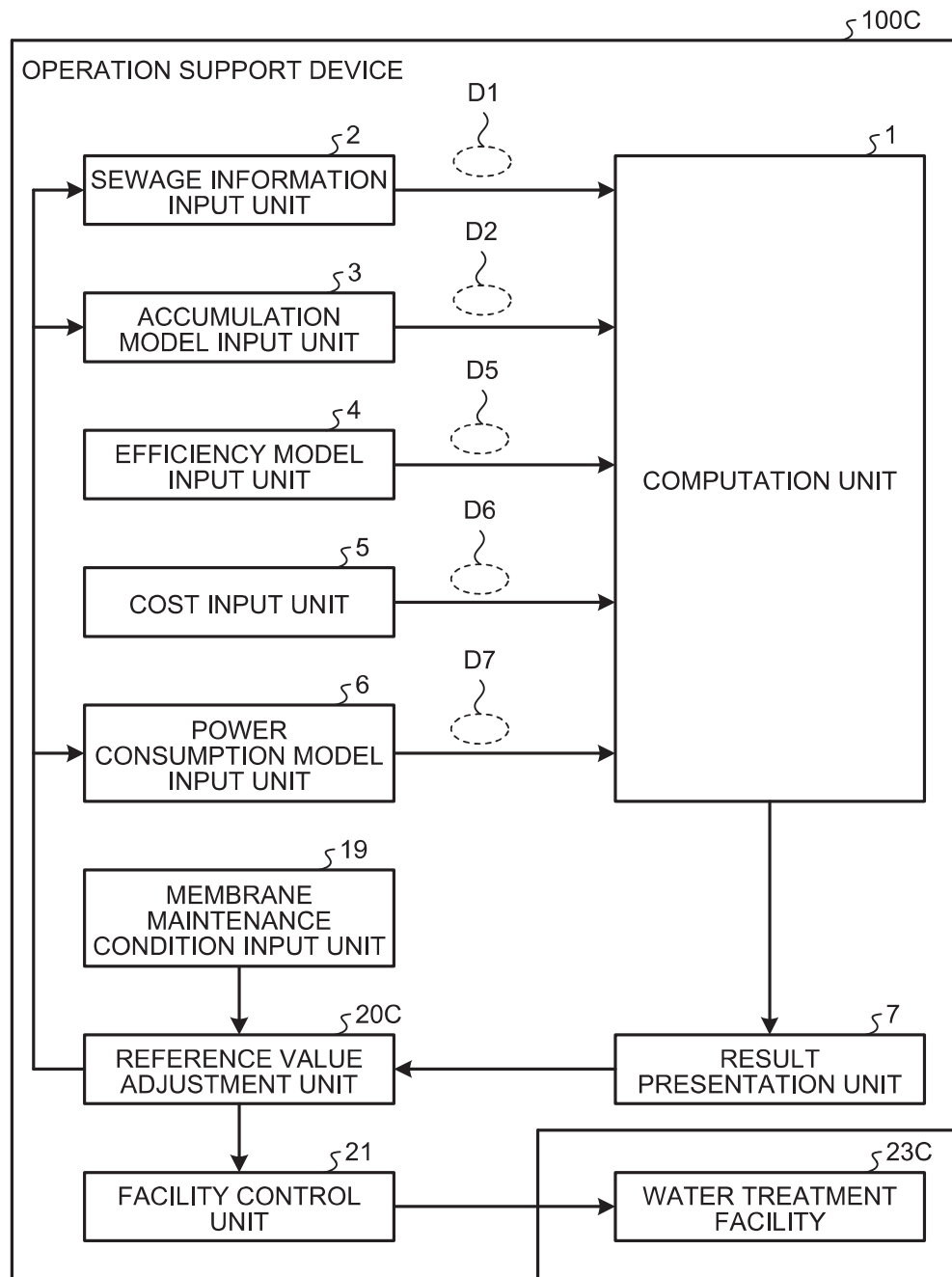


FIG.12

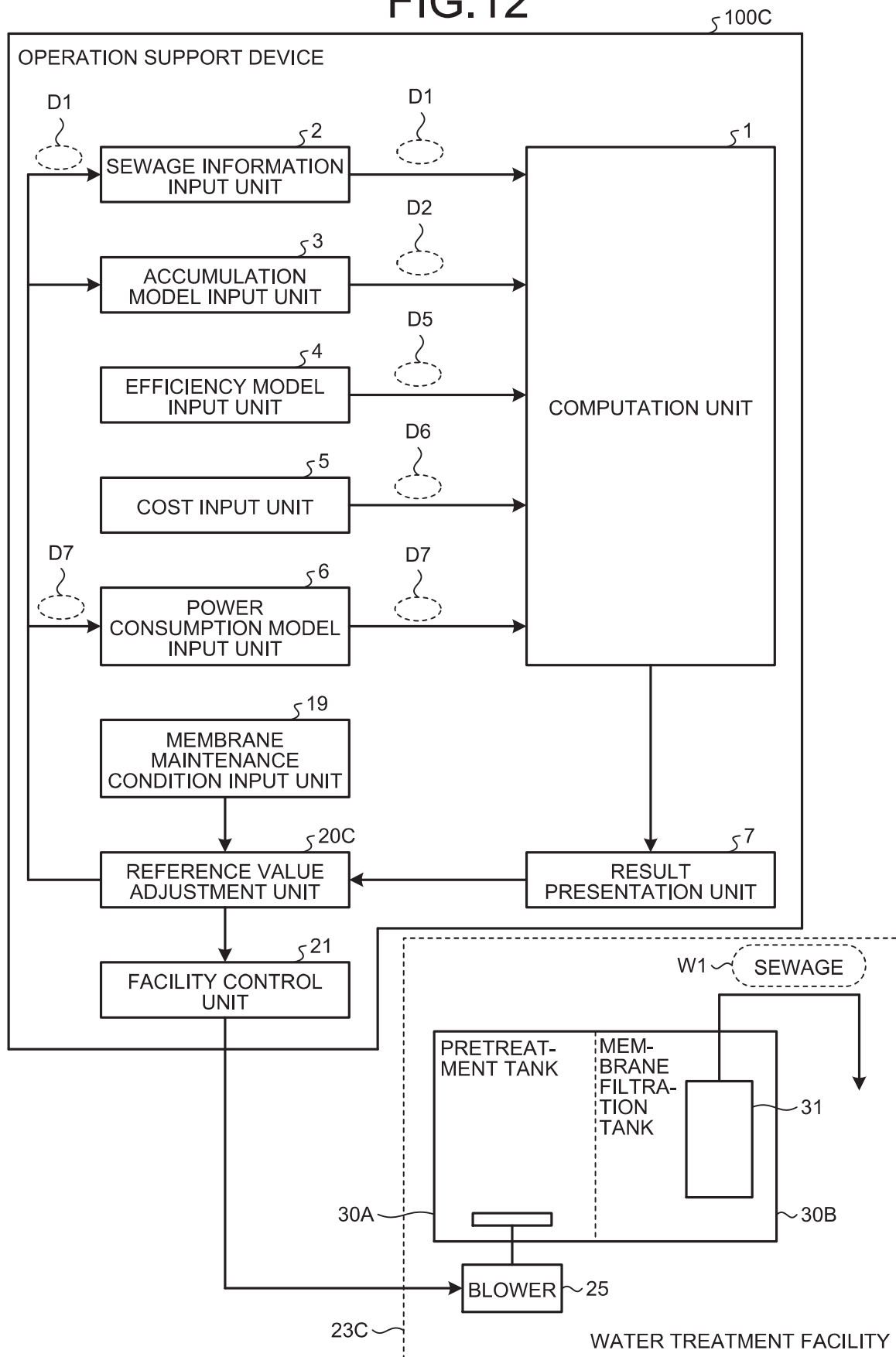


FIG.13

BLOWER OUTPUT	a	d	CLEANING REFER- ENCE VALUE	REPLACE- MENT REFER- ENCE VALUE	REPLACE- MENT CYCLE	PATTERN OPERATION COST
50	40	30	0.9	0.7	40	12729

FIG.14

NUM- BER OF CAL- CULA- TIONS	BLOWER OUTPUT	a	d	CLEANING REFER- ENCE VALUE	REPLACE- MENT REFER- ENCE VALUE	REPLACE- MENT CYCLE	PATTERN OPERATION COST
1	80	40	30	0.9	0.7	40	12729
2	90	35	40	0.9	0.7	44	13157
3	100	30	50	0.8	0.7	50	13619
4	110	25	60	0.9	0.7	59	12559
5	120	20	70	0.7	0.7	67	12815

FIG.15

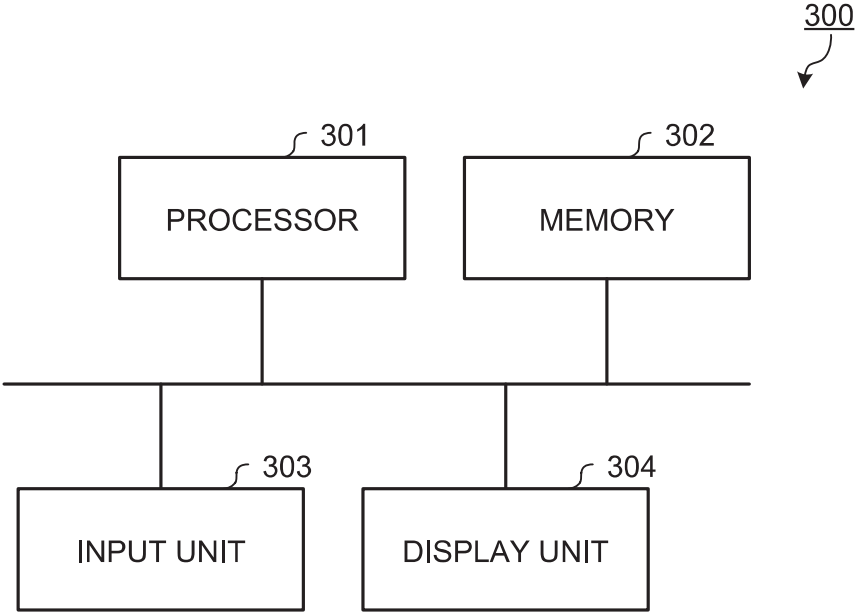


FIG.16

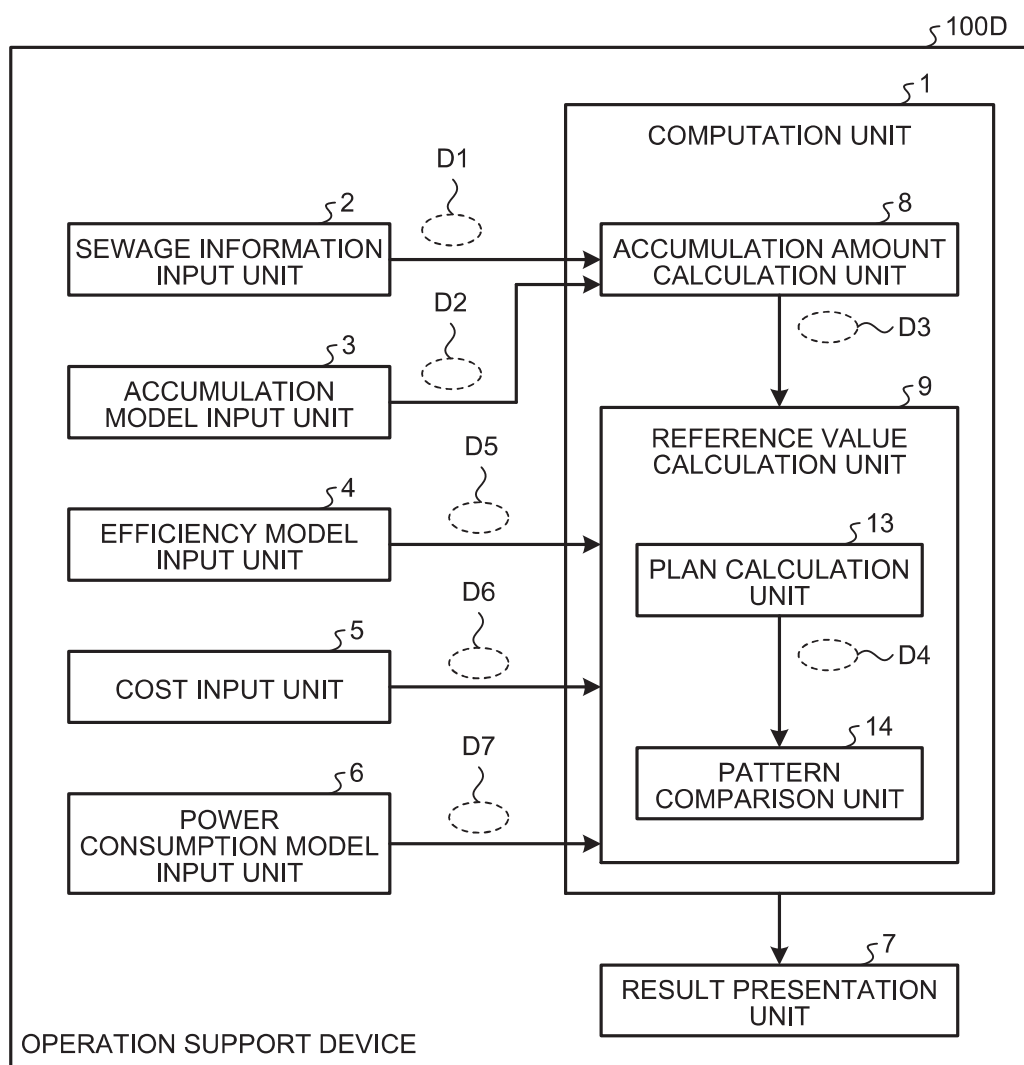


FIG.17

		BLOCKAGE RATE AS REPLACEMENT REFERENCE VALUE		
		30%	40%	50%
BLOCKAGE RATE AS CLEANING REFERENCE VALUE	30%	PATTERN Ax	PATTERN Bx	PATTERN Cx
	40%	PATTERN Dx	PATTERN Ex	PATTERN Fx
	50%	PATTERN Gx	PATTERN Hx	PATTERN Ix

FIG.18

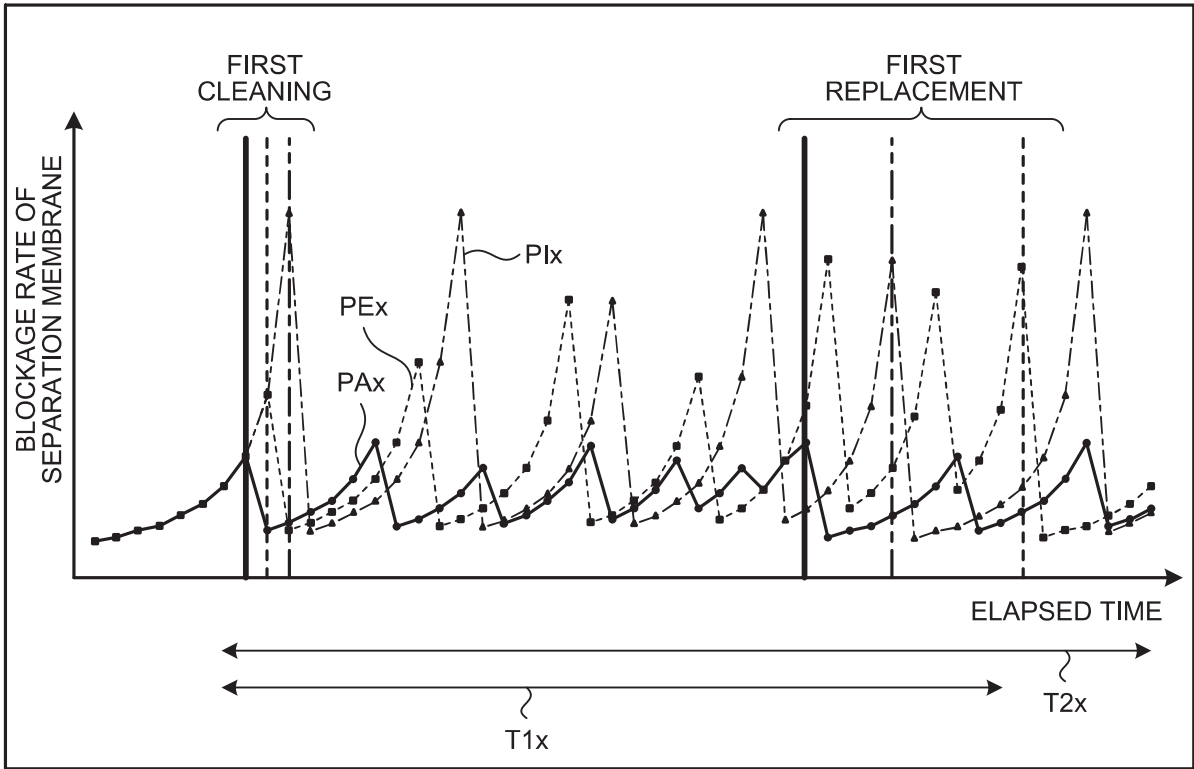


FIG.19

PERIOD	PATTERN	NUMBER OF CLEANING EVENTS	NUMBER OF REPLACEMENT EVENTS	ELECTRICITY EXPENSE	OPERATION COST
240	PATTERN Ax	7	1	1410	5910
	PATTERN Ex	6	0	1462	4462
	PATTERN Ix	4	1	1476	4476
300	PATTERN Ax	9	1	1760	7260
	PATTERN Ex	6	1	1825	5825
	PATTERN Ix	5	1	1704	5204

FIG.20

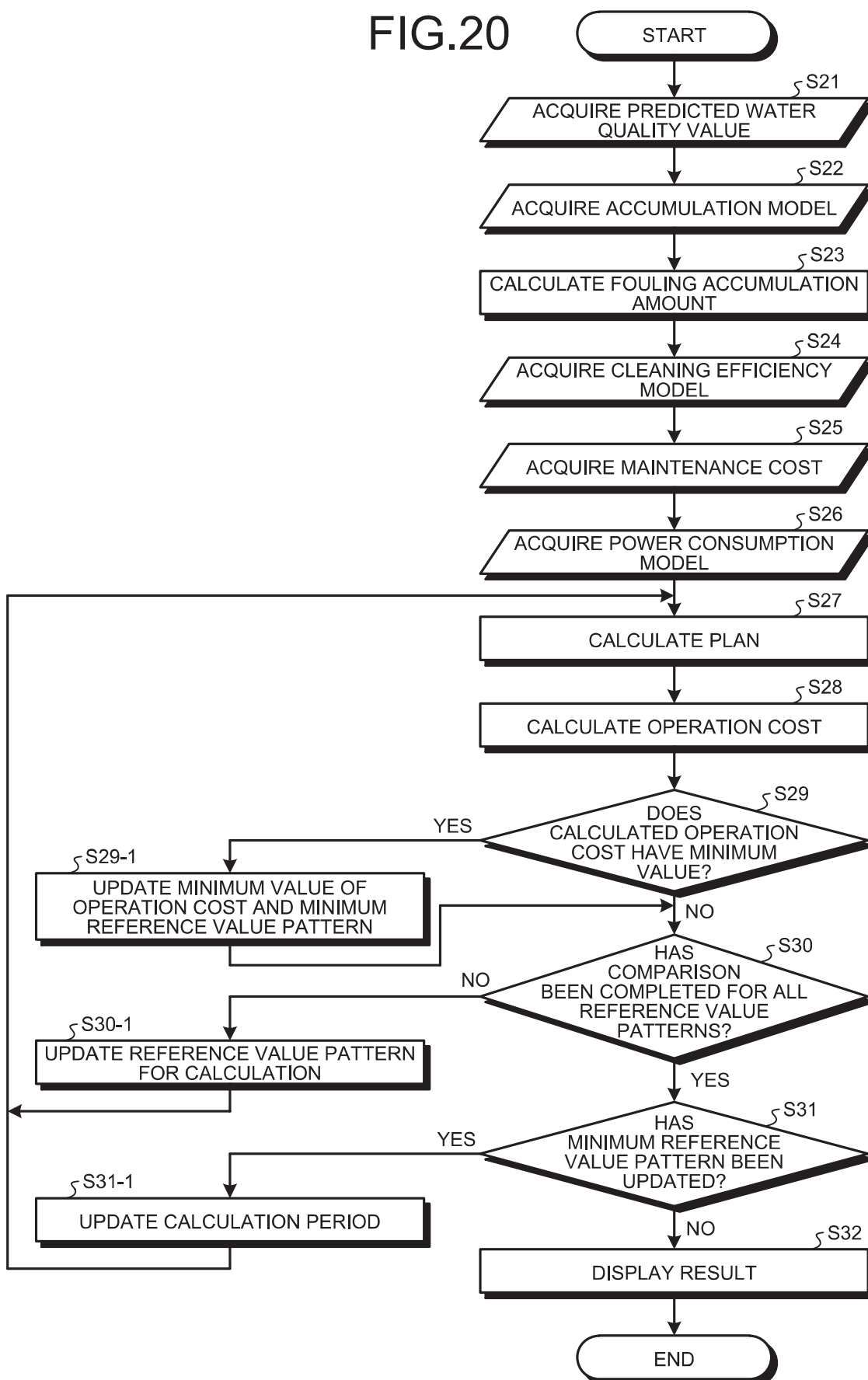


FIG.21

