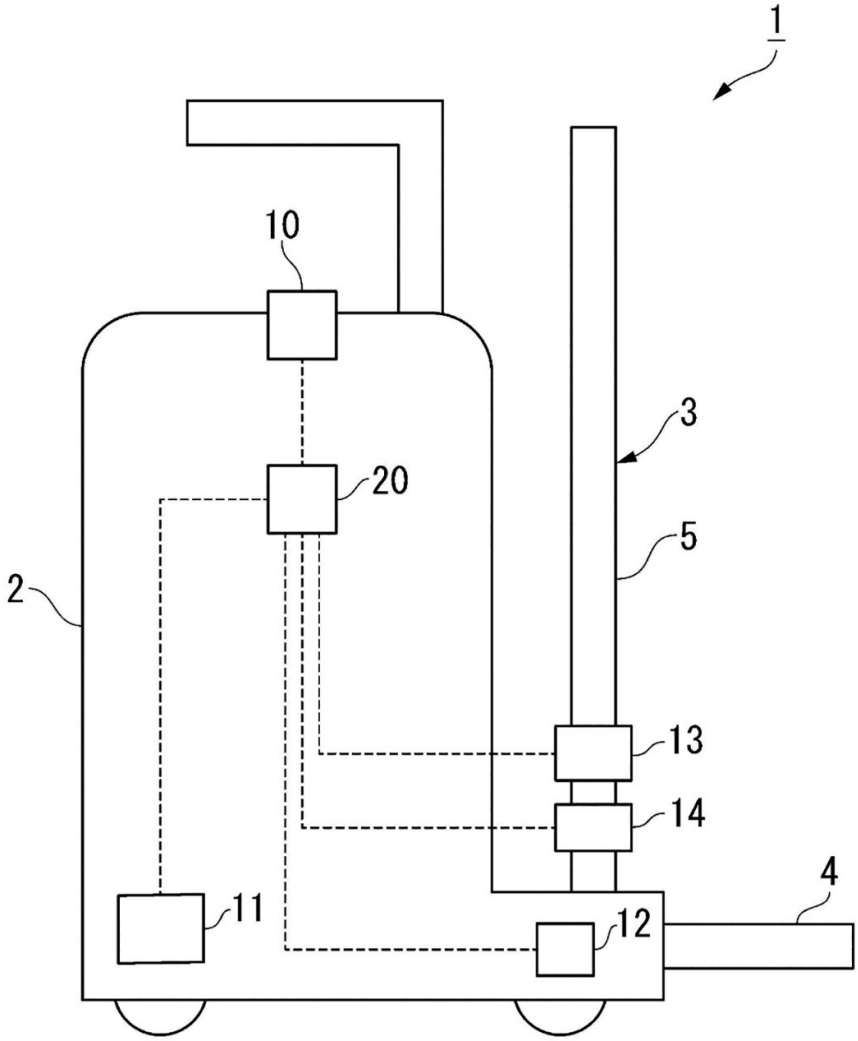


FIG. 1

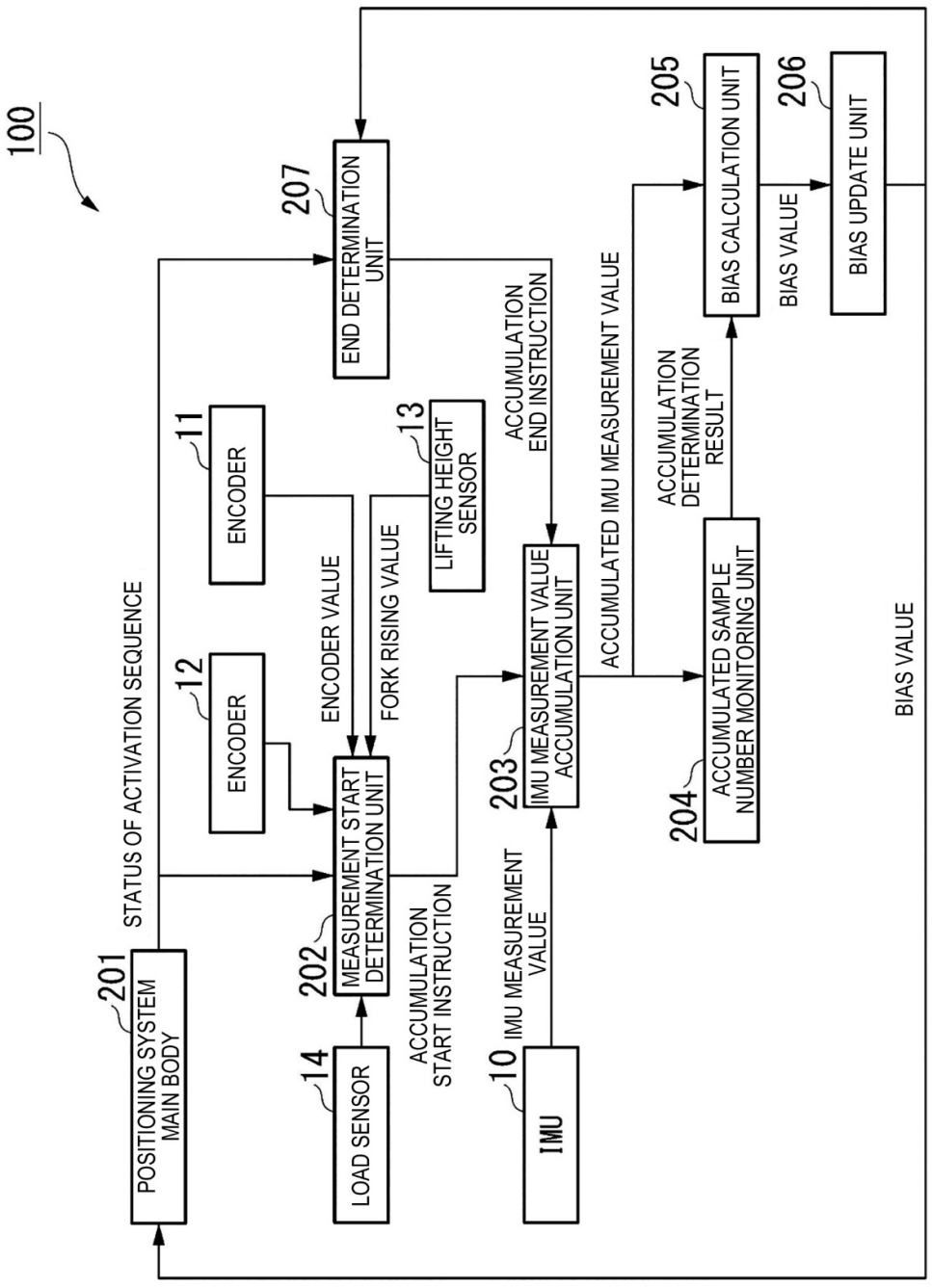

100
201
POSITIONING SYSTEM MAIN BODY
STATUS OF ACTIVATION SEQUENCE
202
MEASUREMENT START DETERMINATION UNIT
ACCUMULATION START INSTRUCTION
14
LOAD SENSOR
12
ENCODER
11
ENCODER
ENCODER VALUE
FORK RISING VALUE
13
LIFTING HEIGHT SENSOR
207
END DETERMINATION UNIT
ACCUMULATION END INSTRUCTION
10
IMU
IMU MEASUREMENT VALUE
203
IMU MEASUREMENT VALUE ACCUMULATION UNIT
ACCUMULATED IMU MEASUREMENT VALUE
204
ACCUMULATED SAMPLE NUMBER MONITORING UNIT
ACCUMULATION DETERMINATION RESULT
205
BIAS CALCULATION UNIT
BIAS VALUE
206
BIAS UPDATE UNIT
BIAS VALUE

FIG. 2

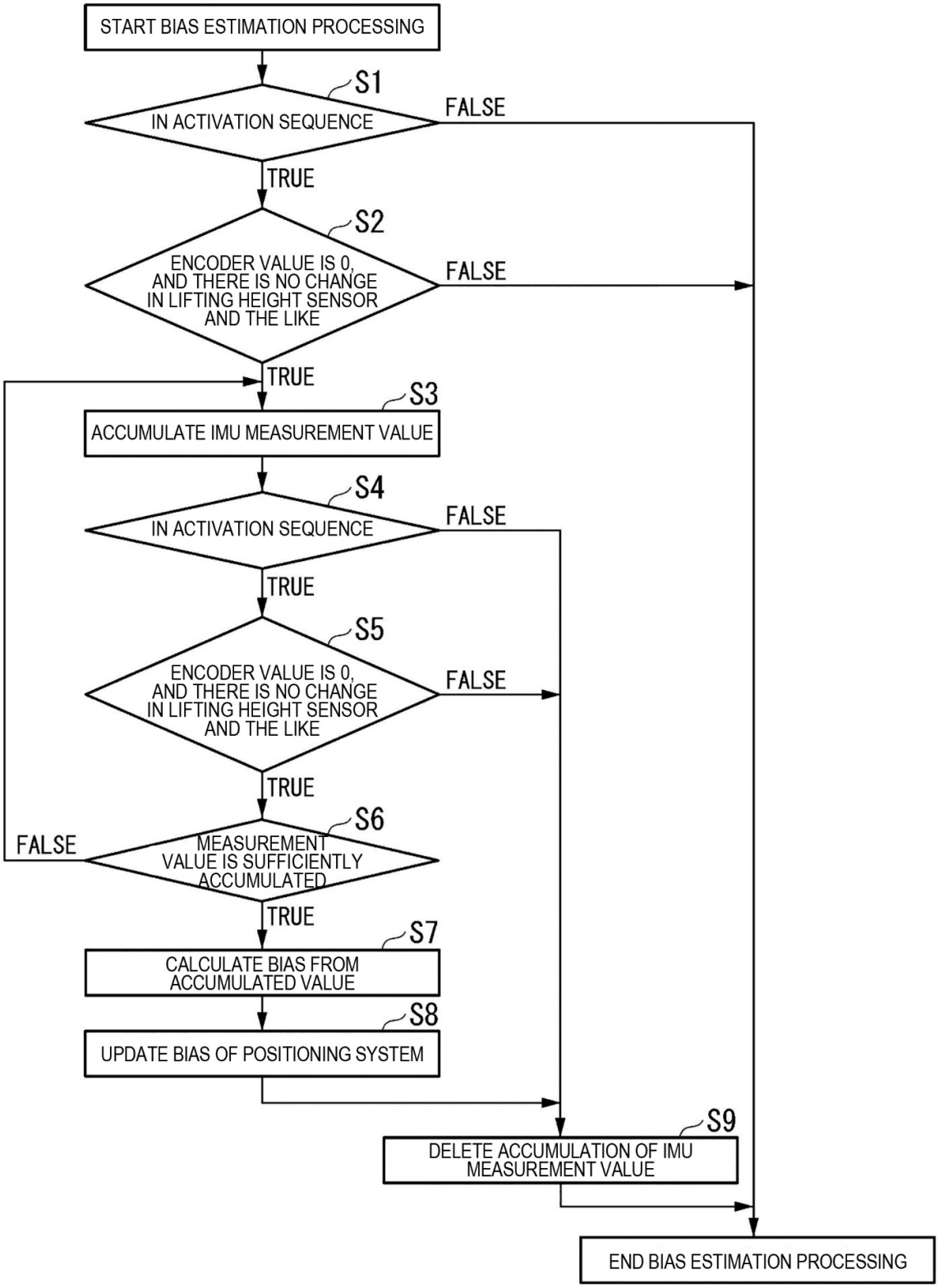

START BIAS ESTIMATION PROCESSING
S1
IN ACTIVATION SEQUENCE
FALSE
TRUE
S2
ENCODER VALUE IS 0, AND THERE IS NO CHANGE IN LIFTING HEIGHT SENSOR AND THE LIKE
FALSE
TRUE
S3
ACCUMULATE IMU MEASUREMENT VALUE
S4
IN ACTIVATION SEQUENCE
FALSE
TRUE
S5
ENCODER VALUE IS 0, AND THERE IS NO CHANGE IN LIFTING HEIGHT SENSOR AND THE LIKE
FALSE
TRUE
S6
MEASUREMENT VALUE IS SUFFICIENTLY ACCUMULATED
FALSE
TRUE
S7
CALCULATE BIAS FROM ACCUMULATED VALUE
S8
UPDATE BIAS OF POSITIONING SYSTEM
S9
DELETE ACCUMULATION OF IMU MEASUREMENT VALUE
END BIAS ESTIMATION PROCESSING

FIG. 3

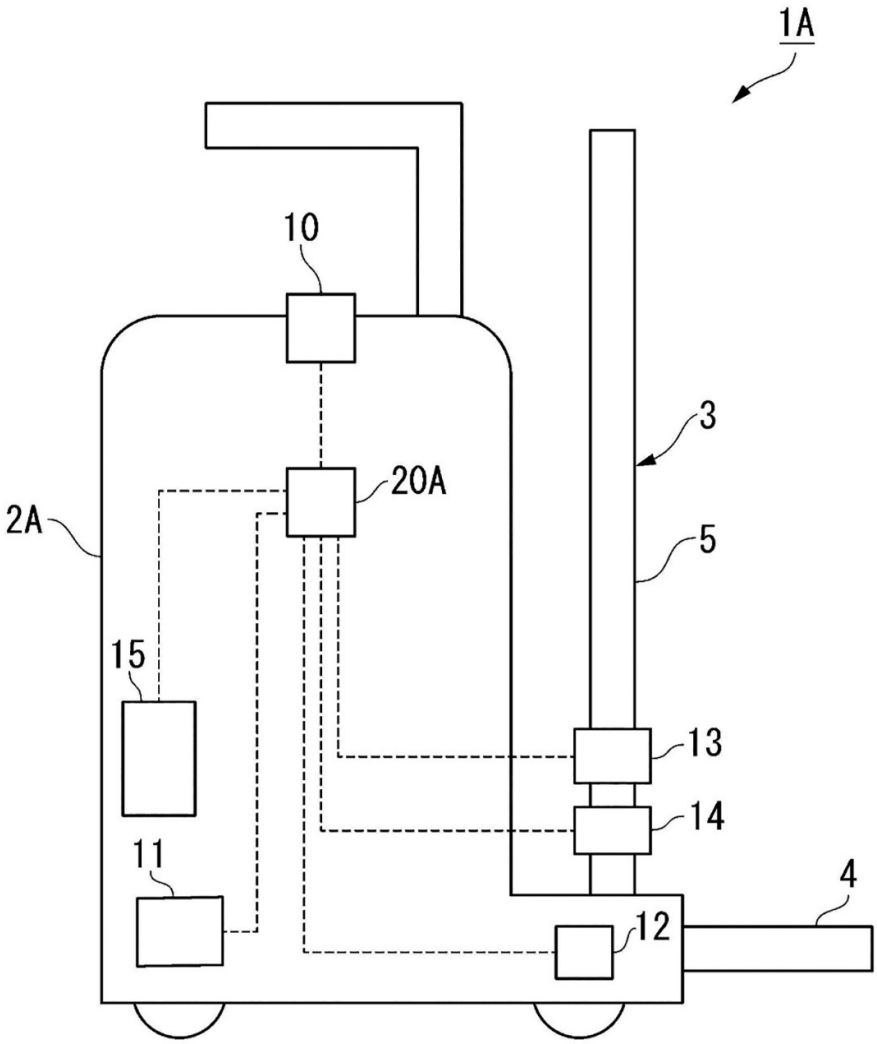


FIG. 4

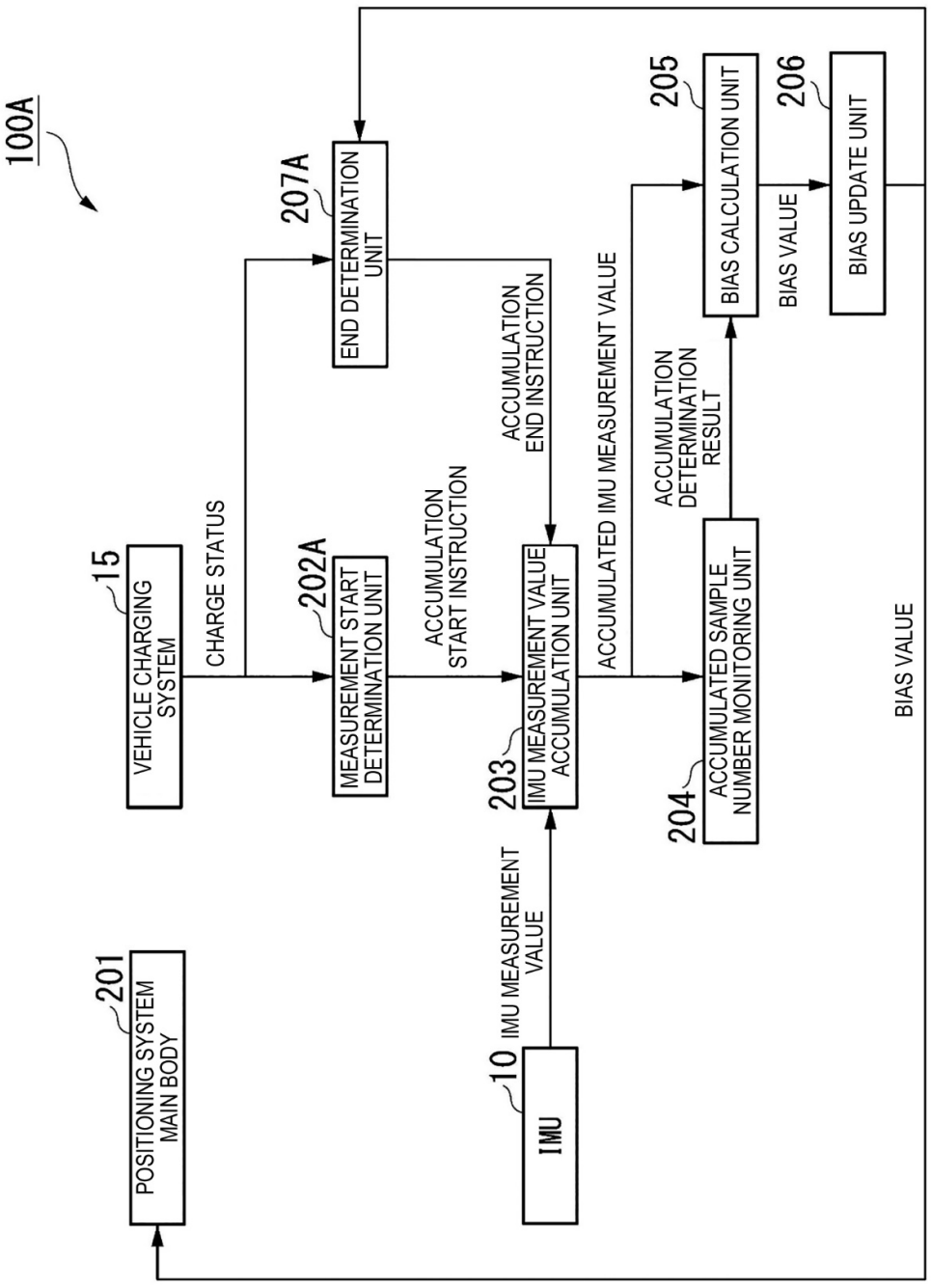

100A
201
POSITIONING SYSTEM MAIN BODY
15
VEHICLE CHARGING SYSTEM
CHARGE STATUS
202A
MEASUREMENT START DETERMINATION UNIT
ACCUMULATION START INSTRUCTION
207A
END DETERMINATION UNIT
ACCUMULATION END INSTRUCTION
10
IMU
IMU MEASUREMENT VALUE
203
IMU MEASUREMENT VALUE ACCUMULATION UNIT
ACCUMULATED IMU MEASUREMENT VALUE
204
ACCUMULATED SAMPLE NUMBER MONITORING UNIT
ACCUMULATION DETERMINATION RESULT
205
BIAS CALCULATION UNIT
BIAS VALUE
206
BIAS UPDATE UNIT
BIAS VALUE

FIG. 5

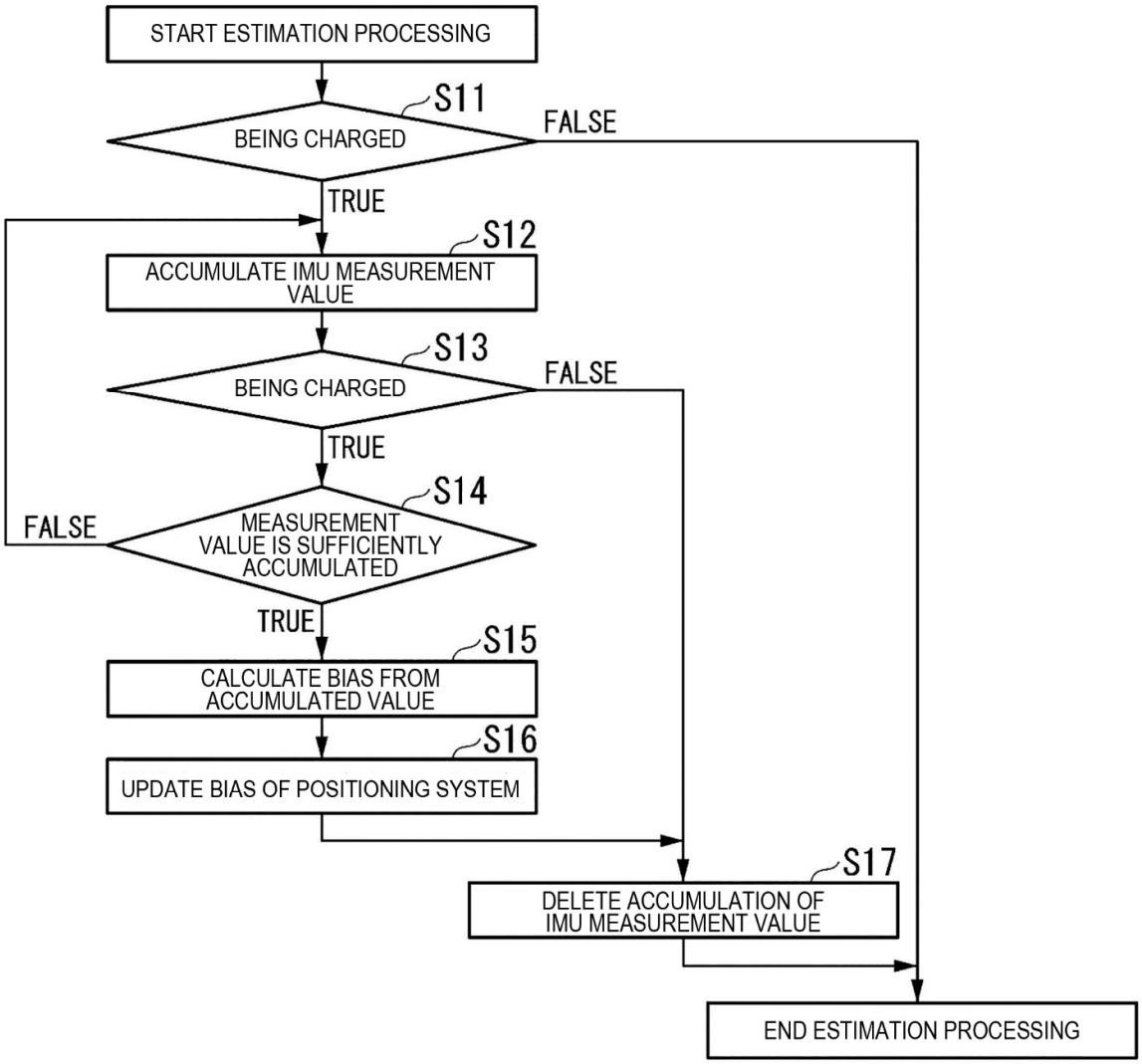

START ESTIMATION PROCESSING
S11
BEING CHARGED
FALSE
TRUE
S12
ACCUMULATE IMU MEASUREMENT VALUE
S13
BEING CHARGED
FALSE
TRUE
S14
MEASUREMENT VALUE IS SUFFICIENTLY ACCUMULATED
FALSE
TRUE
S15
CALCULATE BIAS FROM ACCUMULATED VALUE
S16
UPDATE BIAS OF POSITIONING SYSTEM
S17
DELETE ACCUMULATION OF IMU MEASUREMENT VALUE
END ESTIMATION PROCESSING

FIG. 6

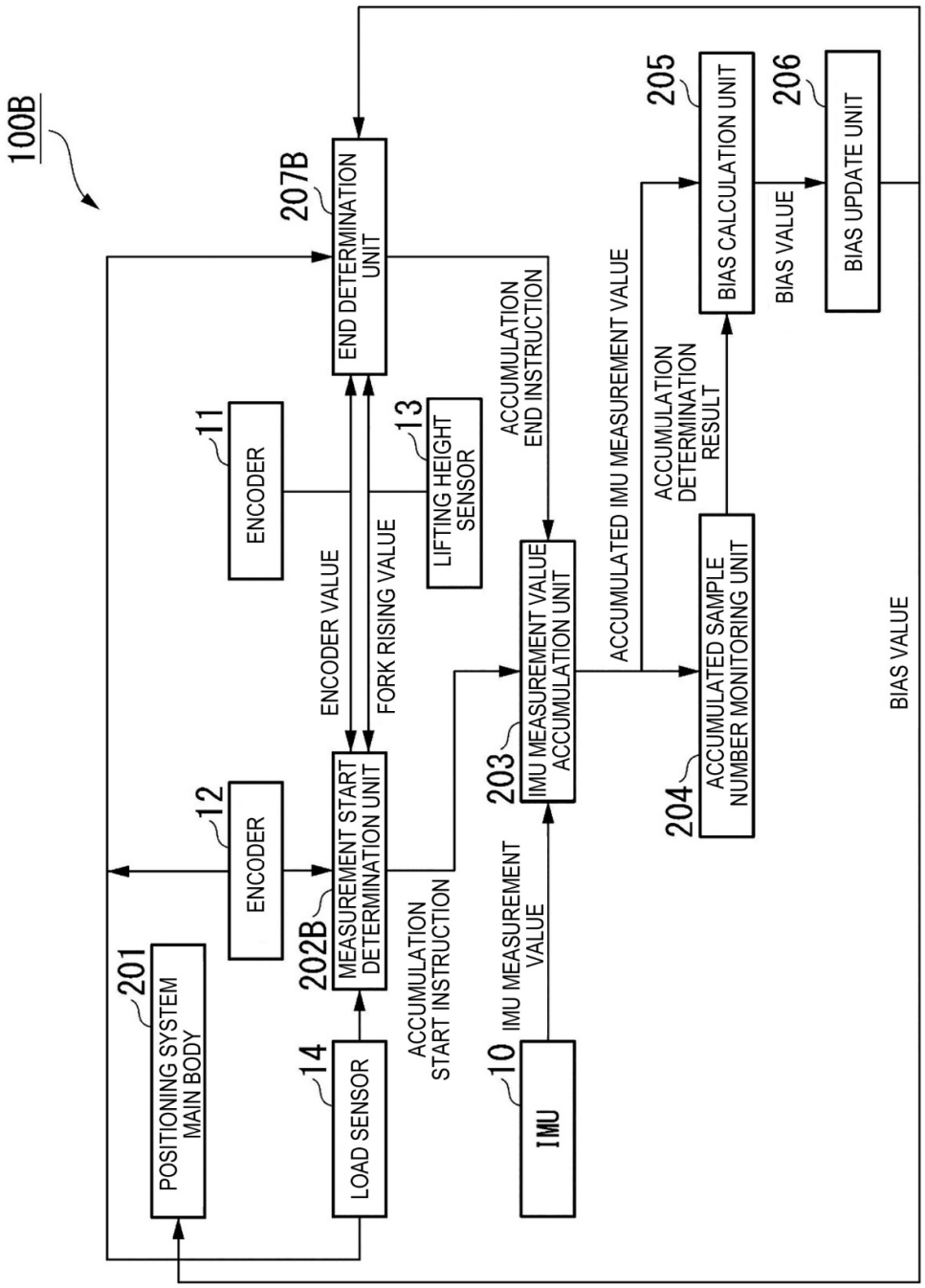

100B
207B
END DETERMINATION UNIT
205
BIAS CALCULATION UNIT
206
BIAS UPDATE UNIT
BIAS VALUE
11
ENCODER
13
LIFTING HEIGHT SENSOR
ACCUMULATION END INSTRUCTION
ACCUMULATED IMU MEASUREMENT VALUE
ACCUMULATION DETERMINATION RESULT
ENCODER VALUE
FORK RISING VALUE
12
ENCODER
202B
MEASUREMENT START DETERMINATION UNIT
203
IMU MEASUREMENT VALUE ACCUMULATION UNIT
204
ACCUMULATED SAMPLE NUMBER MONITORING UNIT
201
POSITIONING SYSTEM MAIN BODY
14
LOAD SENSOR
ACCUMULATION START INSTRUCTION
IMU MEASUREMENT VALUE
10
IMU
BIAS VALUE

FIG. 7

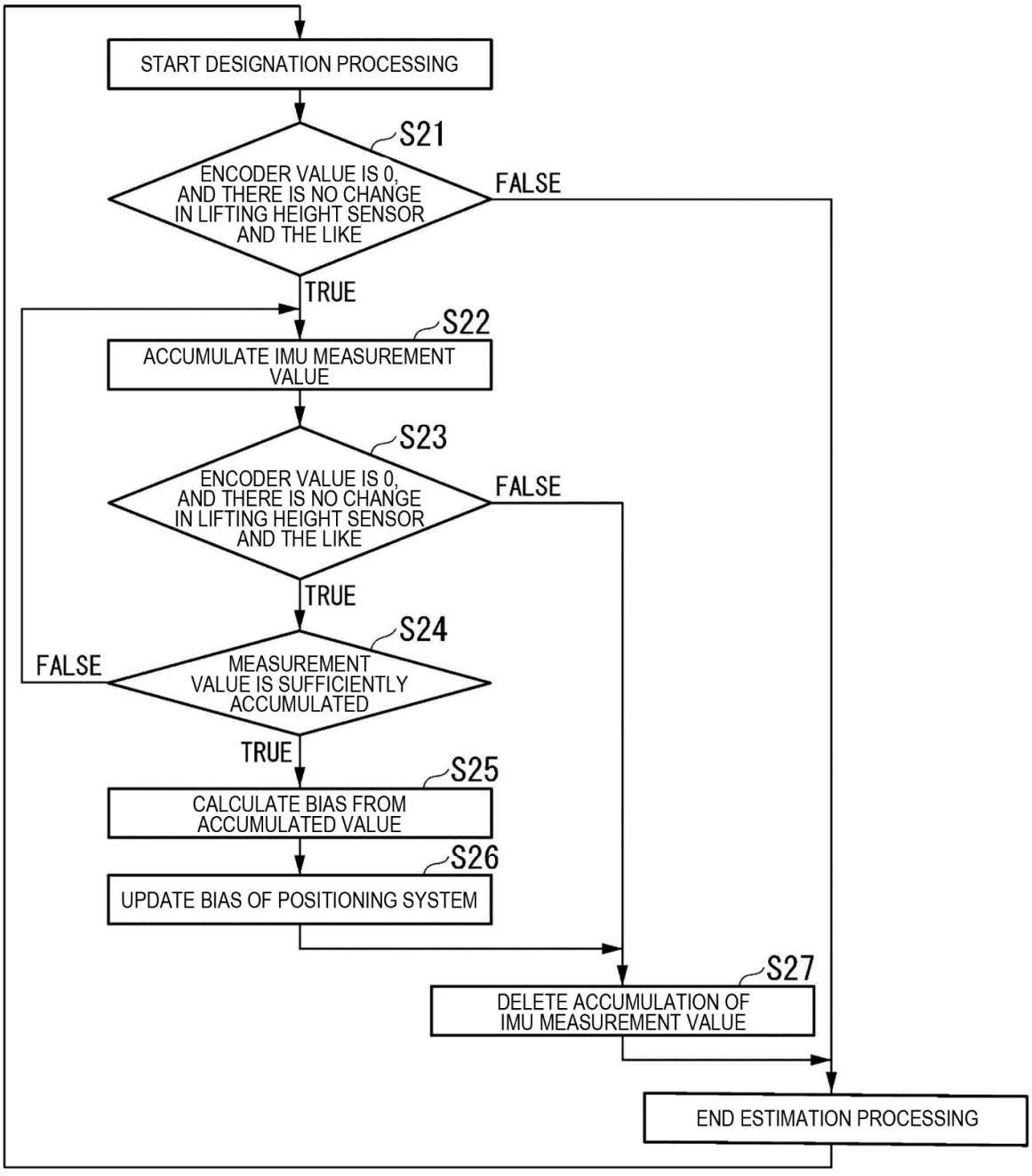

START DESIGNATION PROCESSING
S21
ENCODER VALUE IS 0, AND THERE IS NO CHANGE IN LIFTING HEIGHT SENSOR AND THE LIKE
FALSE
TRUE
S22
ACCUMULATE IMU MEASUREMENT VALUE
S23
ENCODER VALUE IS 0, AND THERE IS NO CHANGE IN LIFTING HEIGHT SENSOR AND THE LIKE
FALSE
TRUE
S24
MEASUREMENT VALUE IS SUFFICIENTLY ACCUMULATED
FALSE
TRUE
S25
CALCULATE BIAS FROM ACCUMULATED VALUE
S26
UPDATE BIAS OF POSITIONING SYSTEM
S27
DELETE ACCUMULATION OF IMU MEASUREMENT VALUE
END ESTIMATION PROCESSING

FIG. 8

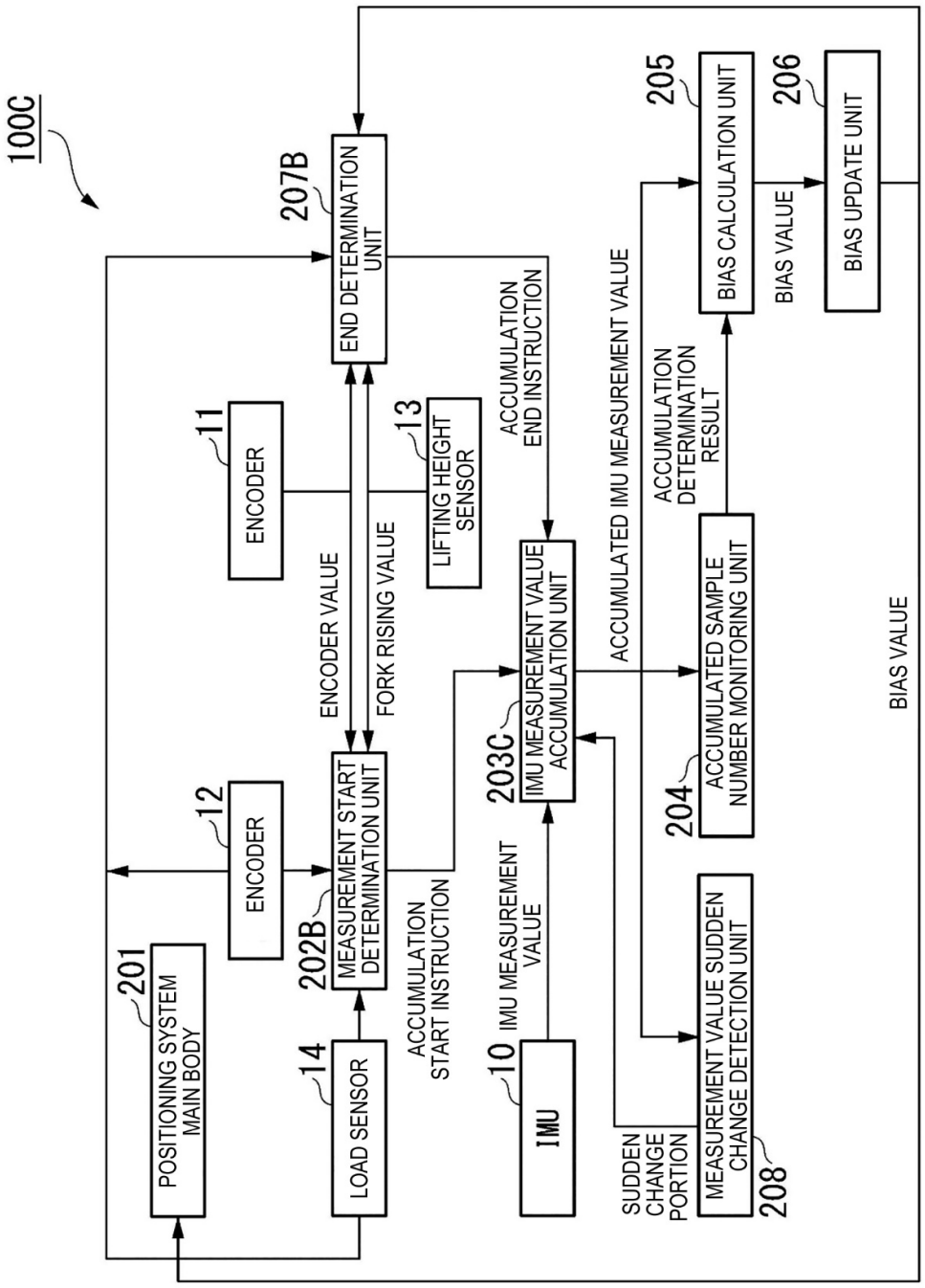

100C
201
POSITIONING SYSTEM MAIN BODY
14
LOAD SENSOR
12
ENCODER
202B
MEASUREMENT START DETERMINATION UNIT
11
ENCODER
13
LIFTING HEIGHT SENSOR
207B
END DETERMINATION UNIT
ENCODER VALUE
FORK RISING VALUE
ACCUMULATION START INSTRUCTION
10
IMU
IMU MEASUREMENT VALUE
203C
IMU MEASUREMENT VALUE ACCUMULATION UNIT
ACCUMULATION END INSTRUCTION
ACCUMULATED IMU MEASUREMENT VALUE
204
ACCUMULATED SAMPLE NUMBER MONITORING UNIT
ACCUMULATION DETERMINATION RESULT
205
BIAS CALCULATION UNIT
206
BIAS UPDATE UNIT
BIAS VALUE
BIAS VALUE
SUDDEN CHANGE PORTION
MEASUREMENT VALUE SUDDEN CHANGE DETECTION UNIT
208

FIG. 9

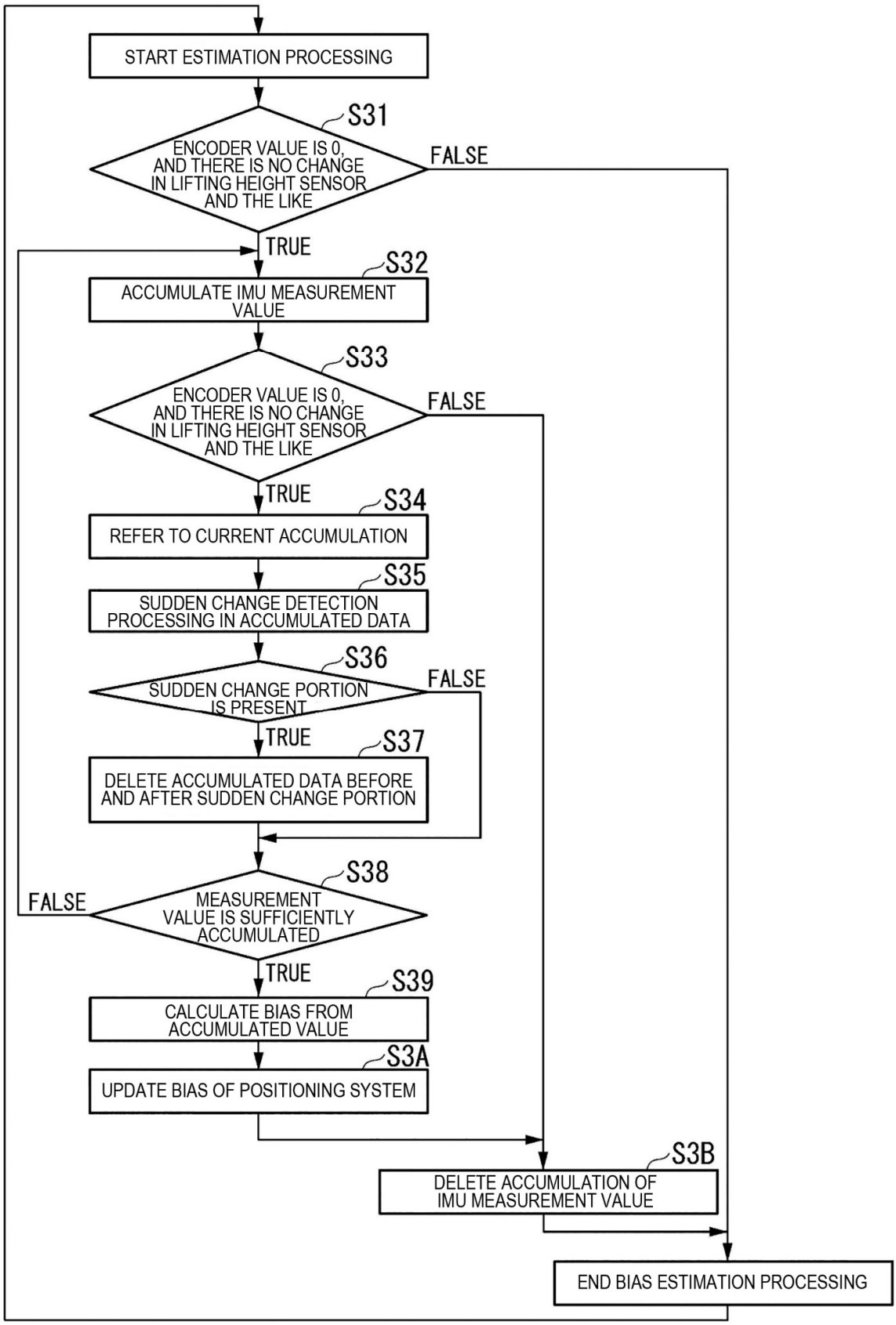

START ESTIMATION PROCESSING
S31
ENCODER VALUE IS 0, AND THERE IS NO CHANGE IN LIFTING HEIGHT SENSOR AND THE LIKE
FALSE
TRUE
S32
ACCUMULATE IMU MEASUREMENT VALUE
S33
ENCODER VALUE IS 0, AND THERE IS NO CHANGE IN LIFTING HEIGHT SENSOR AND THE LIKE
FALSE
TRUE
S34
REFER TO CURRENT ACCUMULATION
S35
SUDDEN CHANGE DETECTION PROCESSING IN ACCUMULATED DATA
S36
SUDDEN CHANGE PORTION IS PRESENT
FALSE
TRUE
S37
DELETE ACCUMULATED DATA BEFORE AND AFTER SUDDEN CHANGE PORTION
S38
MEASUREMENT VALUE IS SUFFICIENTLY ACCUMULATED
FALSE
TRUE
S39
CALCULATE BIAS FROM ACCUMULATED VALUE
S3A
UPDATE BIAS OF POSITIONING SYSTEM
S3B
DELETE ACCUMULATION OF IMU MEASUREMENT VALUE
END BIAS ESTIMATION PROCESSING

FIG. 10

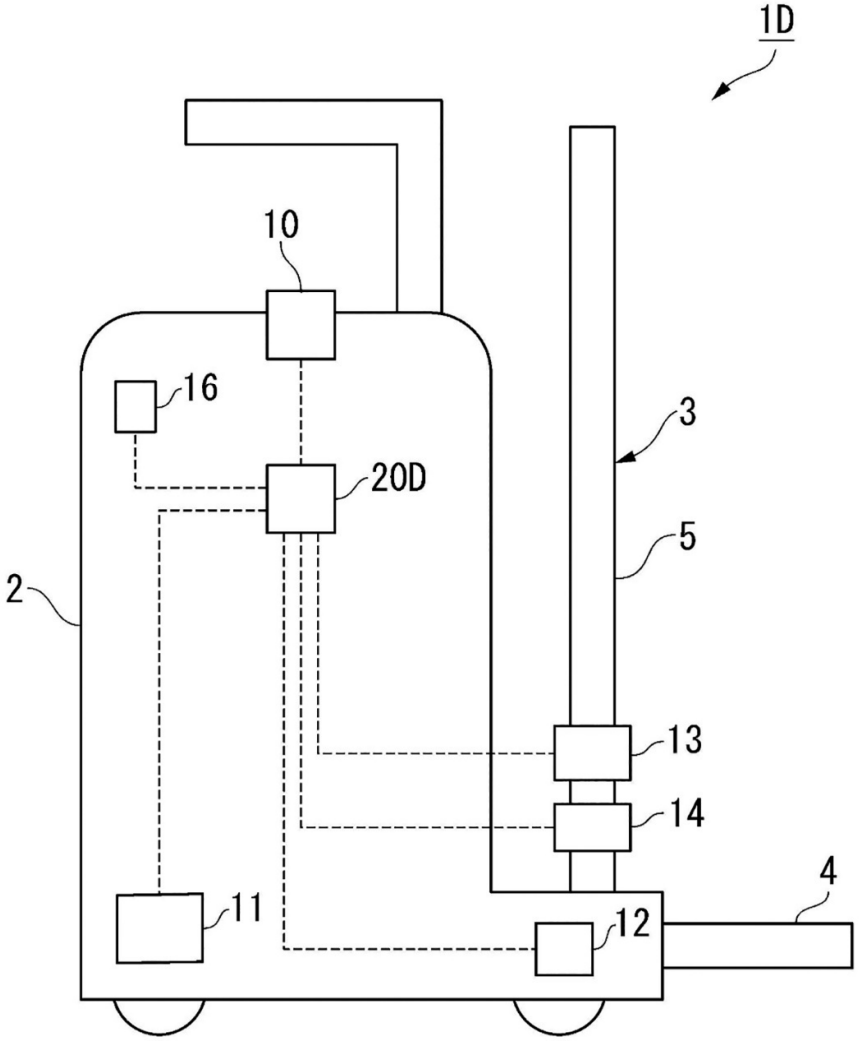


FIG. 11

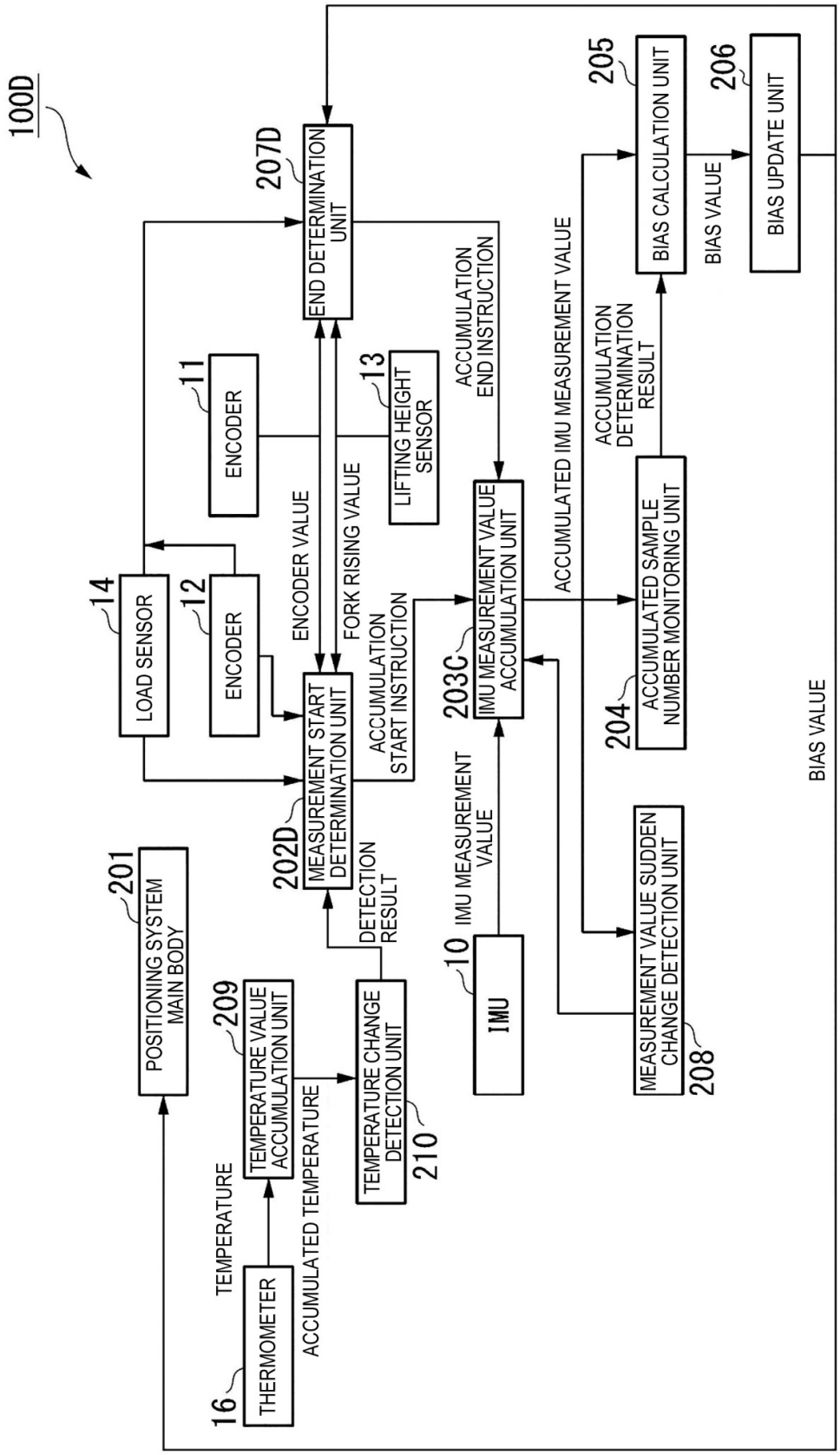

100D
207D
END DETERMINATION UNIT
205
BIAS CALCULATION UNIT
206
BIAS UPDATE UNIT
BIAS VALUE
11
ENCODER
13
LIFTING HEIGHT SENSOR
ACCUMULATION END INSTRUCTION
ACCUMULATED IMU MEASUREMENT VALUE
ACCUMULATION DETERMINATION RESULT
14
LOAD SENSOR
12
ENCODER
ENCODER VALUE
FORK RISING VALUE
203C
IMU MEASUREMENT VALUE ACCUMULATION UNIT
204
ACCUMULATED SAMPLE NUMBER MONITORING UNIT
202D
MEASUREMENT START DETERMINATION UNIT
ACCUMULATION START INSTRUCTION
201
POSITIONING SYSTEM MAIN BODY
DETECTION RESULT
IMU MEASUREMENT VALUE
10
IMU
MEASUREMENT VALUE SUDDEN CHANGE DETECTION UNIT
208
BIAS VALUE
209
TEMPERATURE VALUE ACCUMULATION UNIT
TEMPERATURE CHANGE DETECTION UNIT
210
TEMPERATURE
ACCUMULATED TEMPERATURE
16
THERMOMETER

FIG. 12

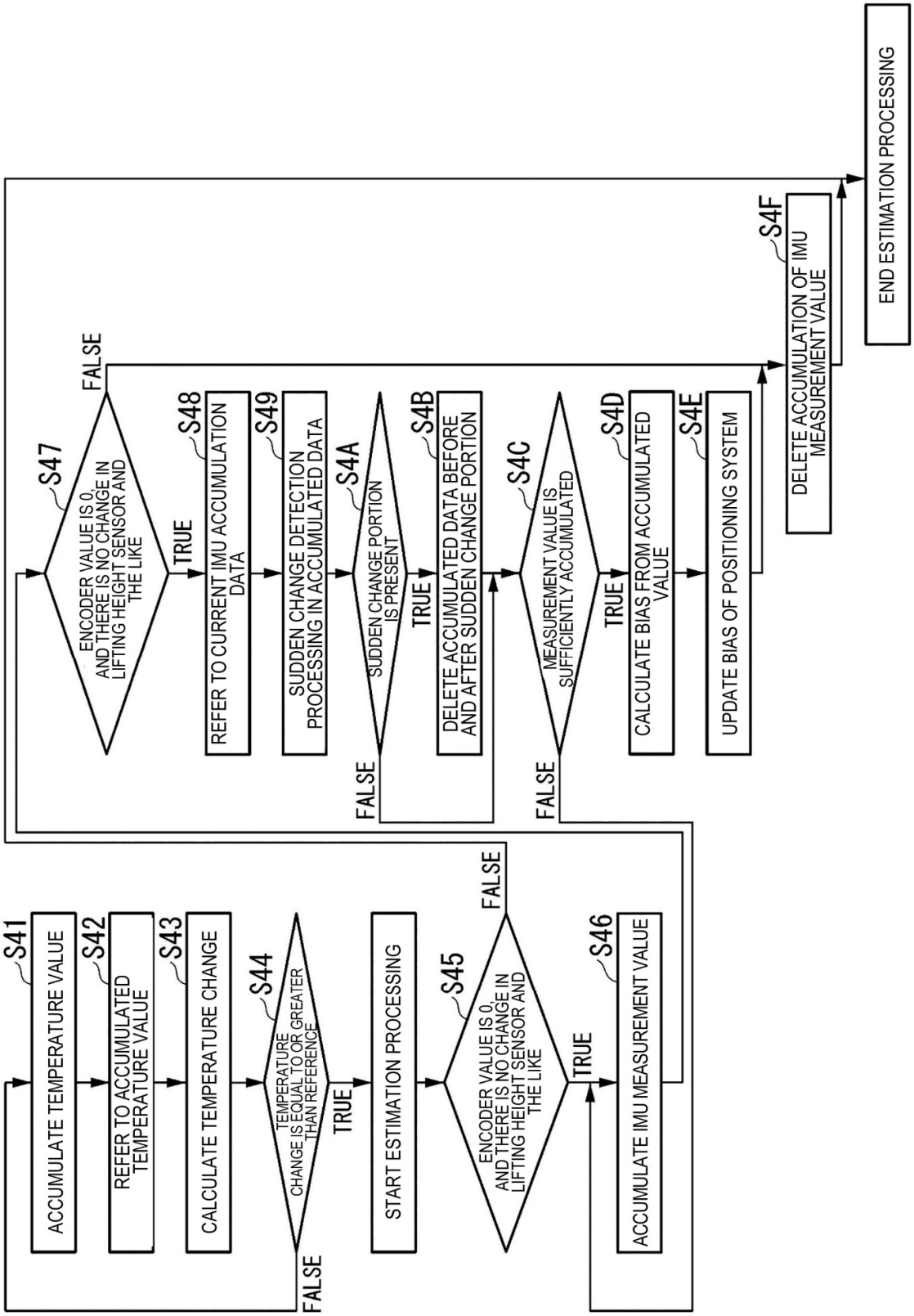

S41
ACCUMULATE TEMPERATURE VALUE
S42
REFER TO ACCUMULATED TEMPERATURE VALUE
S43
CALCULATE TEMPERATURE CHANGE
S44
TEMPERATURE CHANGE IS EQUAL TO OR GREATER THAN REFERENCE
TRUE
FALSE
START ESTIMATION PROCESSING
S45
ENCODER VALUE IS 0, AND THERE IS NO CHANGE IN LIFTING HEIGHT SENSOR AND THE LIKE
TRUE
FALSE
S46
ACCUMULATE IMU MEASUREMENT VALUE
S47
ENCODER VALUE IS 0, AND THERE IS NO CHANGE IN LIFTING HEIGHT SENSOR AND THE LIKE
TRUE
FALSE
S48
REFER TO CURRENT IMU ACCUMULATION DATA
S49
SUDDEN CHANGE DETECTION PROCESSING IN ACCUMULATED DATA
S4A
SUDDEN CHANGE PORTION IS PRESENT
TRUE
FALSE
S4B
DELETE ACCUMULATED DATA BEFORE AND AFTER SUDDEN CHANGE PORTION
S4C
MEASUREMENT VALUE IS SUFFICIENTLY ACCUMULATED
TRUE
FALSE
S4D
CALCULATE BIAS FROM ACCUMULATED VALUE
S4E
UPDATE BIAS OF POSITIONING SYSTEM
S4F
DELETE ACCUMULATION OF IMU MEASUREMENT VALUE
END ESTIMATION PROCESSING

FIG. 13

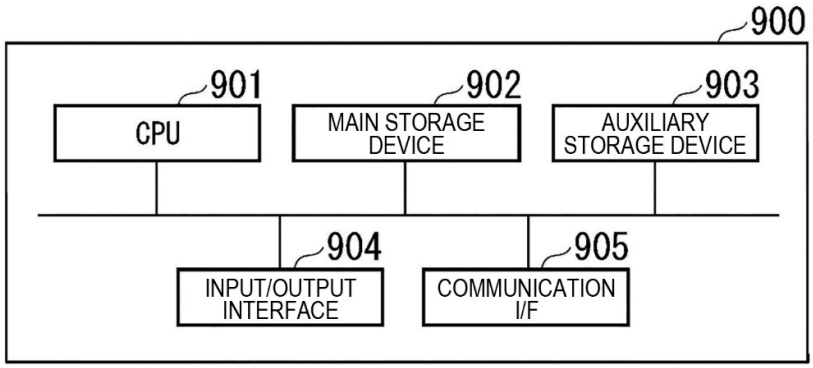

900
901
CPU
902
MAIN STORAGE DEVICE
903
AUXILIARY STORAGE DEVICE
904
INPUT/OUTPUT INTERFACE
905
COMMUNICATION I/F

FIG. 14