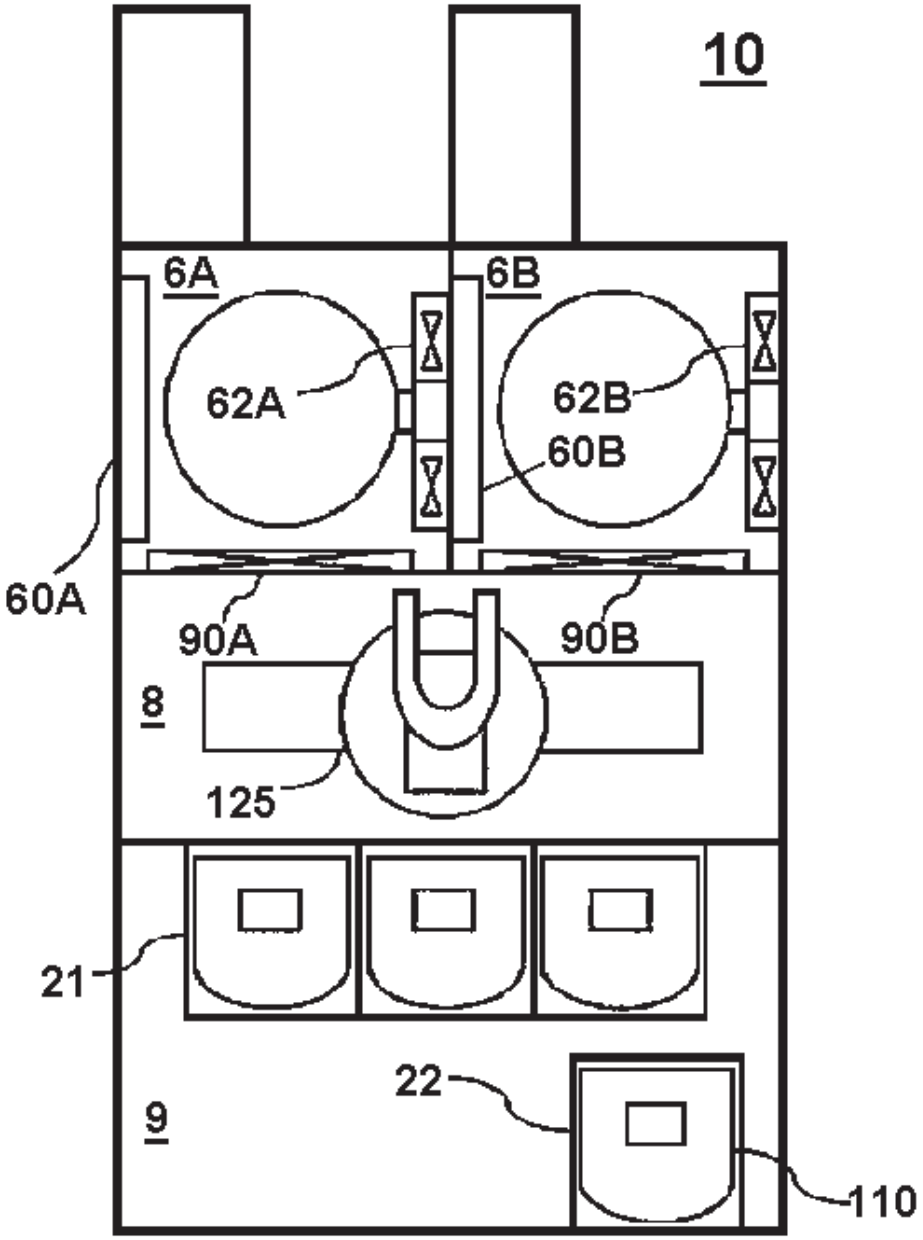
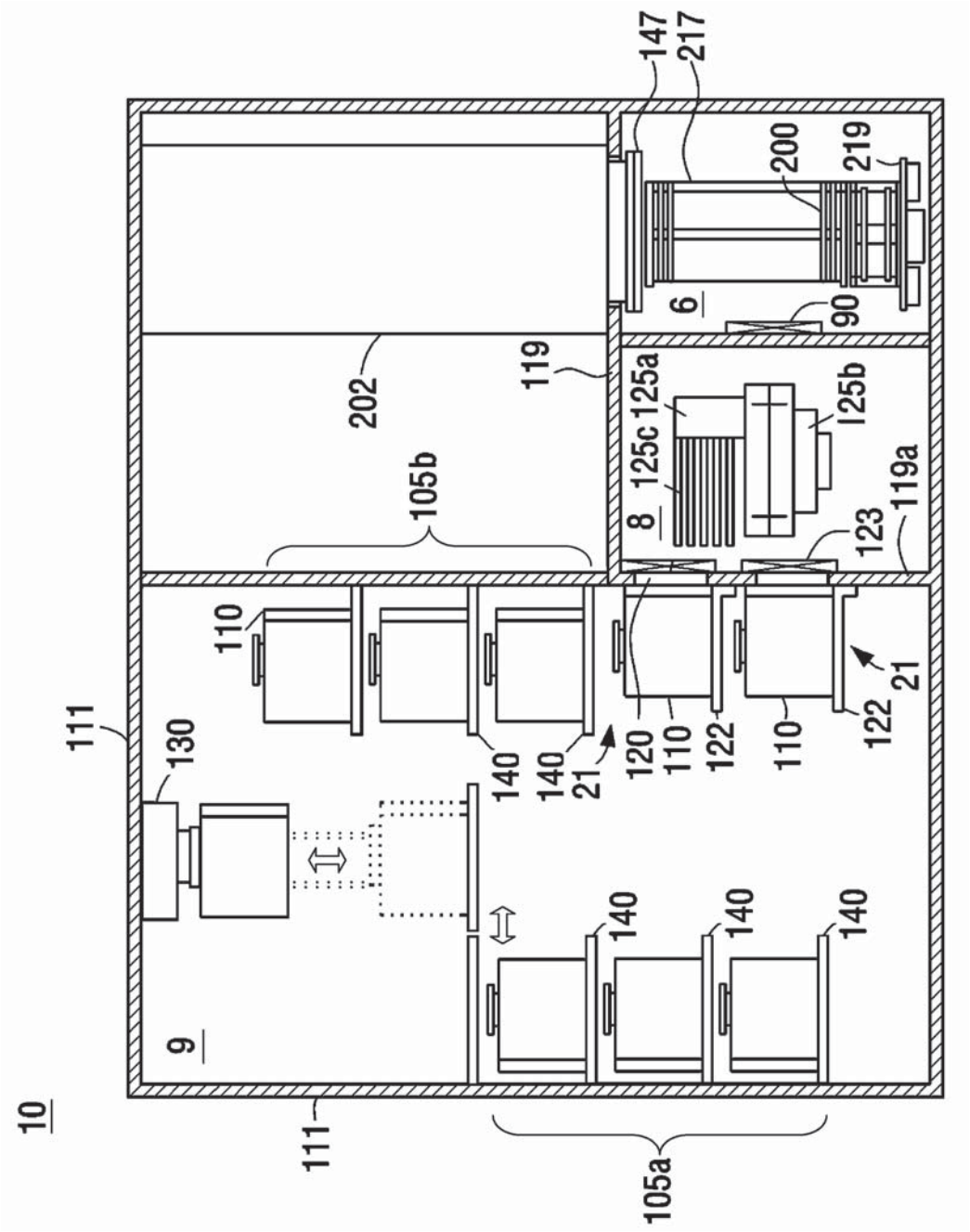
[Figures]

[Figure 1]



[Figure 2]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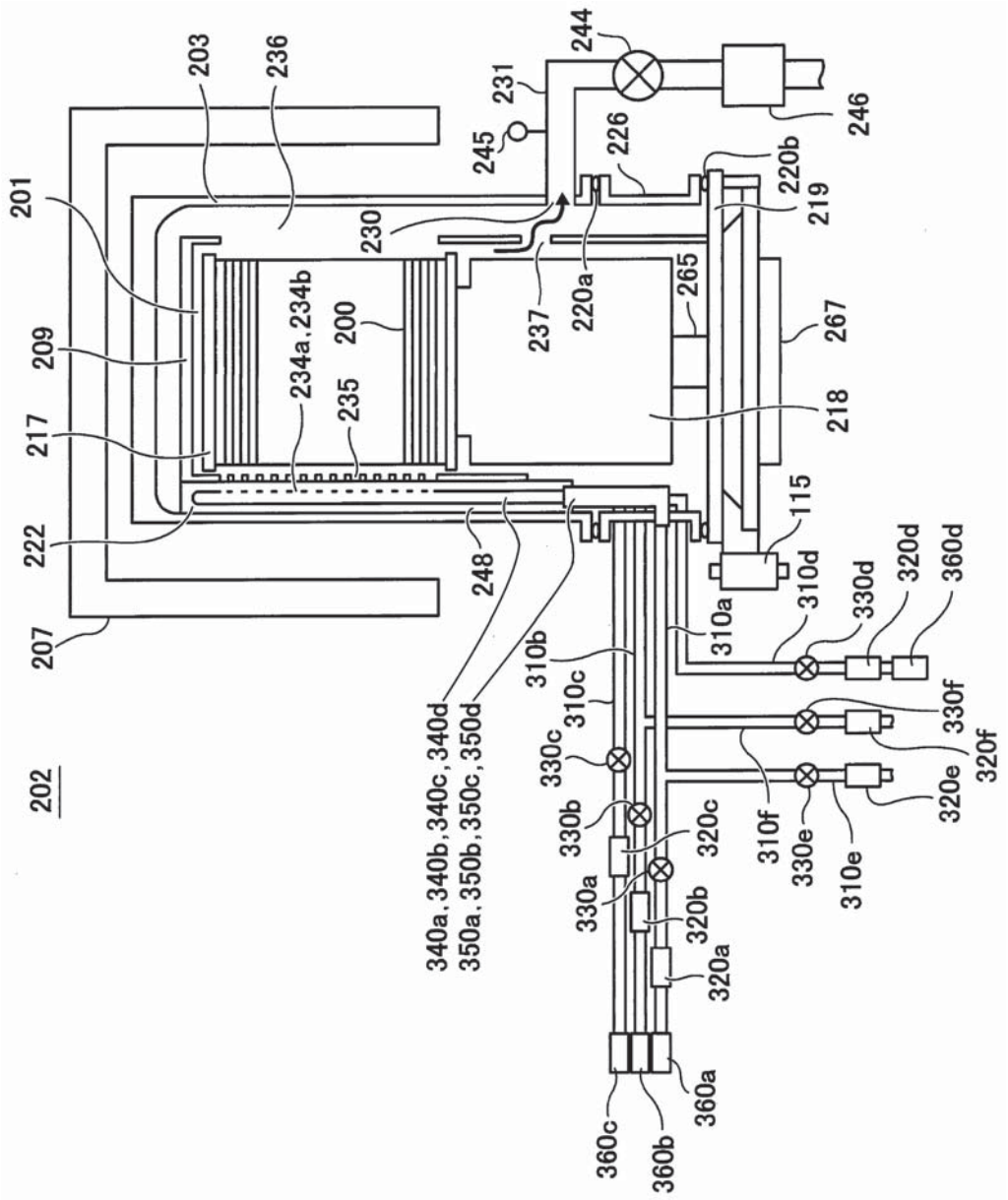
217
200
219
6
90
202
119
125a
125b
125c
8
105b
119a
123
110
111
130
140
21
120
122
9
10
105a

[Figure 3]


202
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203
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222
207
234a,234b
200
235
230
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220a
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245
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244
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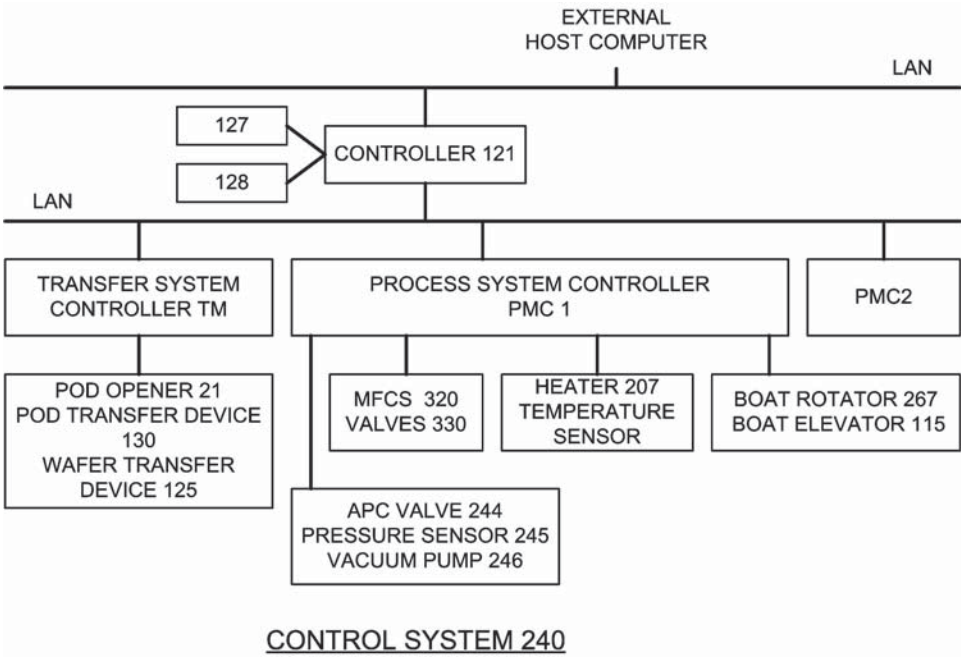
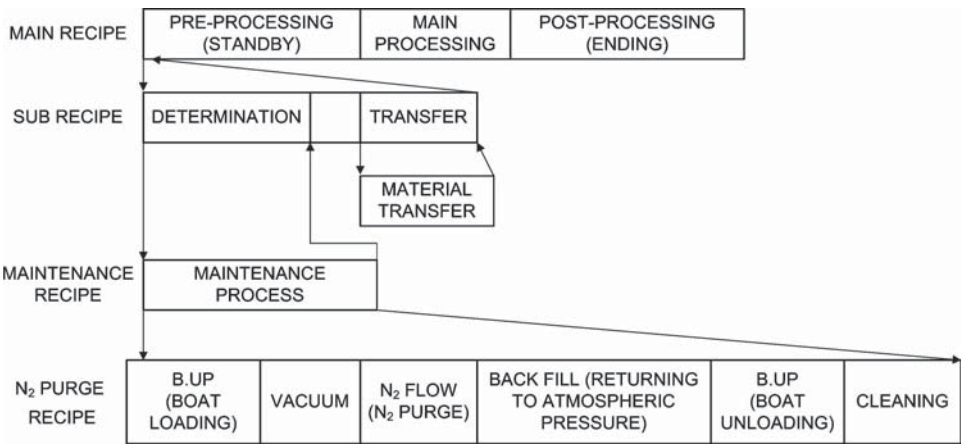
220b
219
265
267
218
115
248
340a,340b,340c,340d
350a,350b,350c,350d
310a
310b
310c
310d
310e
310f
330a
330b
330c
330d
330e
330f
320a
320b
320c
320d
320e
320f
360a
360b
360c
360d

[Figure 4]



[Figure 5]



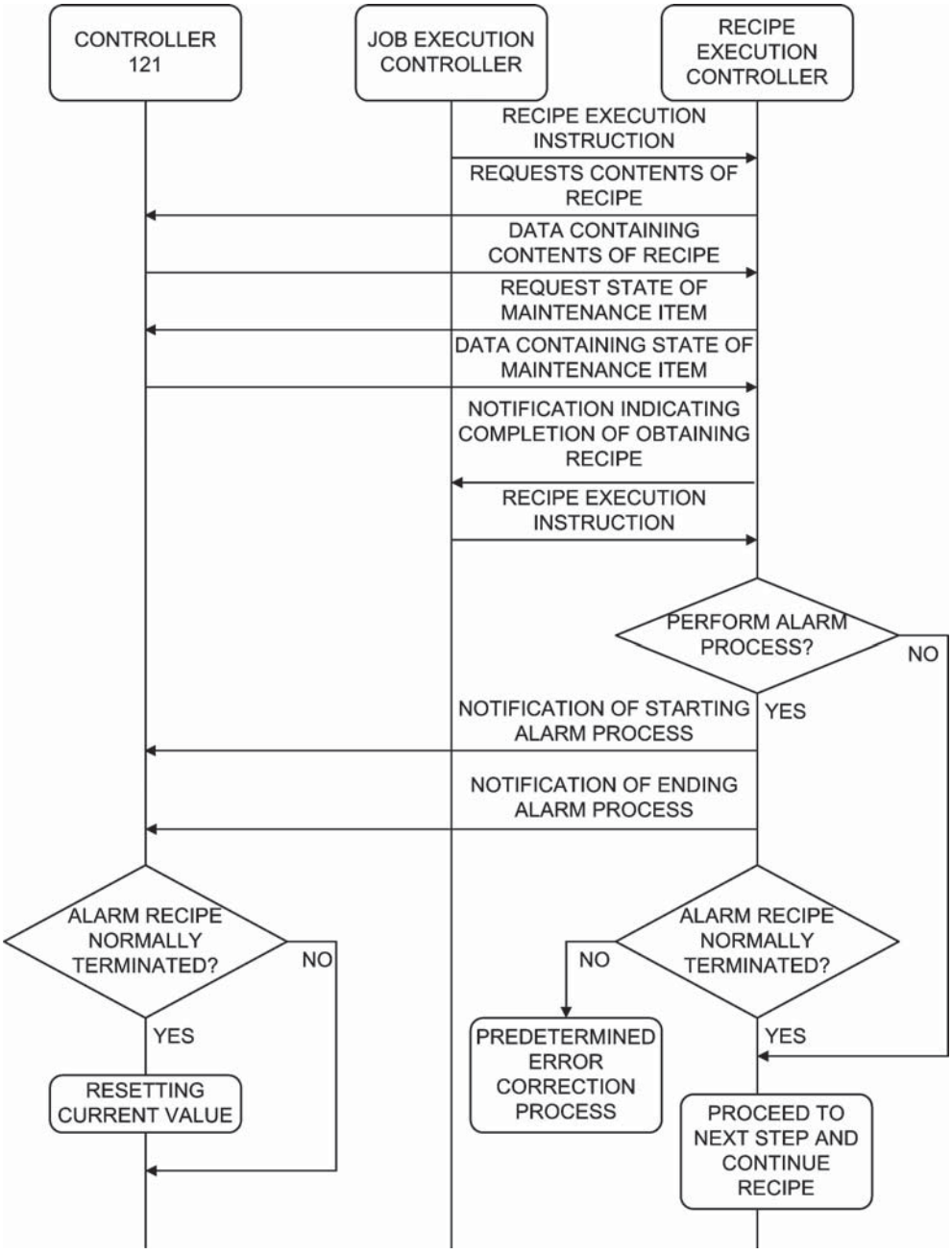
[Figure 6]

NO.	ITEM \ TARGET OBJECT	FOUP	WAFER	BOAT	TUBE	EQUIPMENT
1	NUMBER OF TIMES OF USE	-	O	-	O	-
2	USAGE TIME	-	-	-	O	-
3	TIME SPENT IN APPARATUS	O	-	-	-	-
4	ACCUMULATIVE FILM THICKNESS	-	O	O	O	-
5	REMAINING NUMBER OF USABLE WAFERS	-	O	-	-	-
6	STANDBY TIME	-	-	-	-	O
7	NUMBER OF TIMES MAINTENANCE PROCESS IS PERFORMED	-	-	-	-	O
8	NUMBER OF TIMES OF USING DUMMY WAFERS	-	-	O	-	-
9	ACCUMULATIVE FILM THICKNESS ON DUMMY WAFERS	-	-	O	-	-

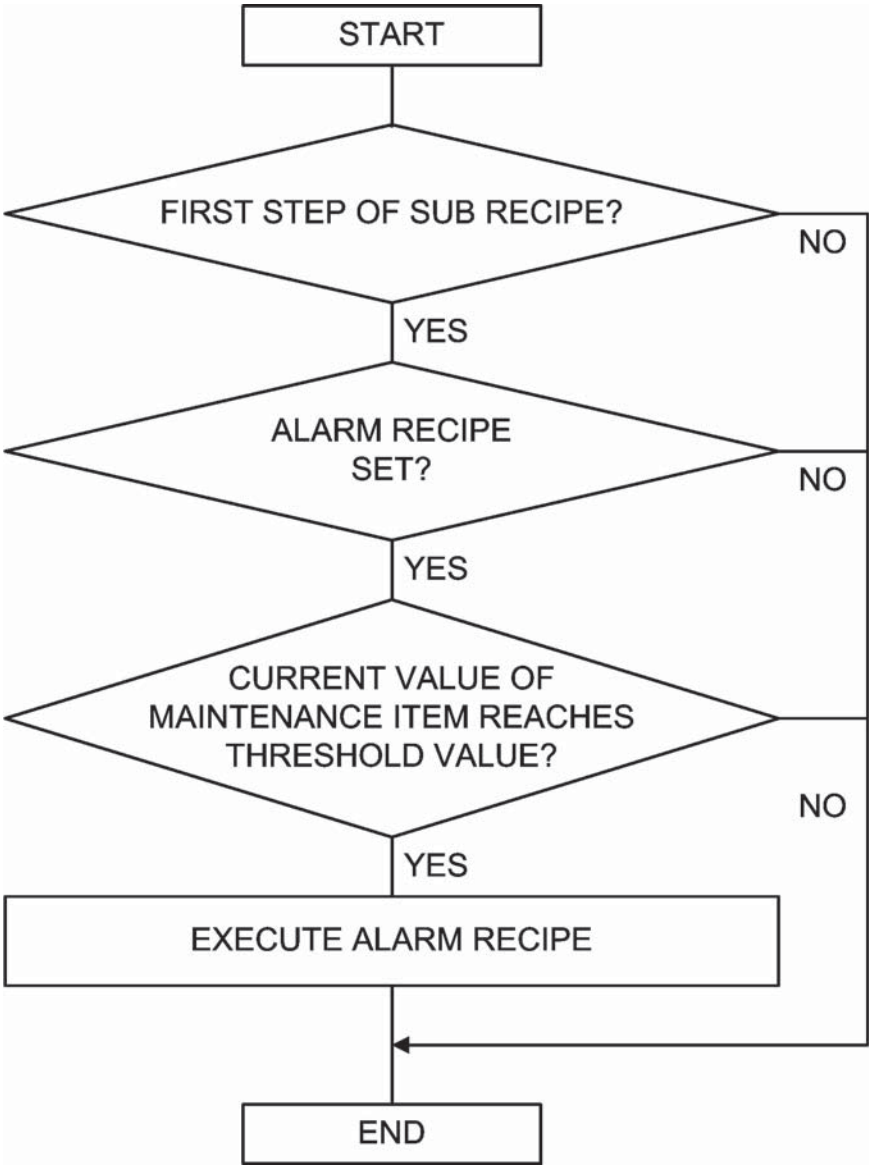
[Figure 7]

SELECTION	DESCRIPTION
NO DESIGNATION	NO MAINTENANCE PROCESS IS PERFORMED. WHEN A MAINTENANCE ALARM IS NOTIFIED, THE MAINTENANCE ALARM IS FORCIBLY RECOVERED BY SELECTING "NO DESIGNATION".
ALARM REPORT	THE MAINTENANCE ALARM IS NOTIFIED. THE MAINTENANCE ALARM IS FORCIBLY RECOVERED BY SETTING THE CURRENT VALUE OF THE MAINTENANCE ITEM TO BE LESS THAN OR EQUAL TO THE THRESHOLD VALUE
JOB EXECUTION PROHIBITION	THE CONTINUOUS EXECUTION OF A JOB IS SUSPENDED WHEN AN ACTIVE JOB (A JOB CURRENTLY EXECUTED) IS COMPLETED. THE MAINTENANCE ALARM IS FORCIBLY RECOVERED BY SETTING THE CURRENT VALUE OF THE MAINTENANCE ITEM TO BE LESS THAN OR EQUAL TO THE THRESHOLD VALUE.
MAINTENANCE JOB MANUAL START	A MAINTENANCE JOB IS AUTOMATICALLY GENERATED AND INSERTED BEFORE A NEXT JOB TO BE EXECUTED. SINCE THE MAINTENANCE JOB IS DESIGNATED AS A MANUAL START, THE MAINTENANCE JOB IS IN STANDBY, AND EXECUTED WHEN A START INSTRUCTION IS RECEIVED.
MAINTENANCE JOB AUTOMATIC START	THE MAINTENANCE JOB IS AUTOMATICALLY GENERATED AND INSERTED BEFORE THE NEXT JOB TO BE EXECUTED. SINCE THE MAINTENANCE JOB IS DESIGNATED AS AN AUTOMATIC START, THE MAINTENANCE JOB IS AUTOMATICALLY EXECUTED.
ALARM RECIPE CALL	WHEN THE CURRENT VALUE OF THE MAINTENANCE ITEM IN A FIRST STEP OF A SUB RECIPE EXECUTED IN A PRE-PROCESSING (STANDBY STEP) REACHES THE THRESHOLD VALUE, A PREDETERMINED ALARM RECIPE IS EXECUTED.

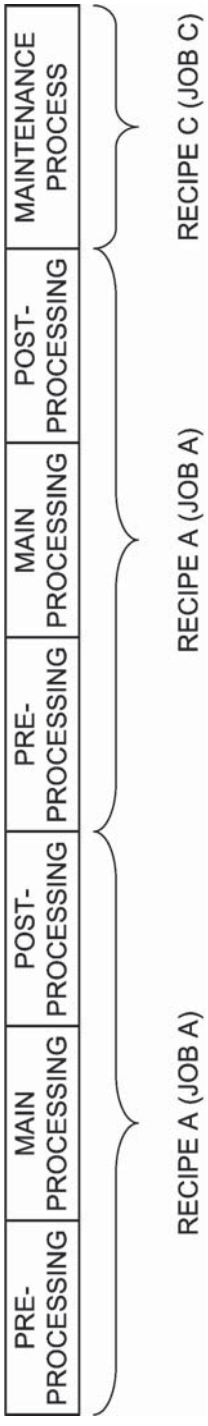
[Figure 8]


CONTROLLER 121
JOB EXECUTION CONTROLLER
RECIPE EXECUTION CONTROLLER
RECIPE EXECUTION INSTRUCTION
REQUESTS CONTENTS OF RECIPE
DATA CONTAINING CONTENTS OF RECIPE
REQUEST STATE OF MAINTENANCE ITEM
DATA CONTAINING STATE OF MAINTENANCE ITEM
NOTIFICATION INDICATING COMPLETION OF OBTAINING RECIPE
RECIPE EXECUTION INSTRUCTION
PERFORM ALARM PROCESS?
NO
YES
NOTIFICATION OF STARTING ALARM PROCESS
NOTIFICATION OF ENDING ALARM PROCESS
ALARM RECIPE NORMALLY TERMINATED?
NO
YES
RESETTING CURRENT VALUE
ALARM RECIPE NORMALLY TERMINATED?
NO
YES
PREDETERMINED ERROR CORRECTION PROCESS
PROCEED TO NEXT STEP AND CONTINUE RECIPE

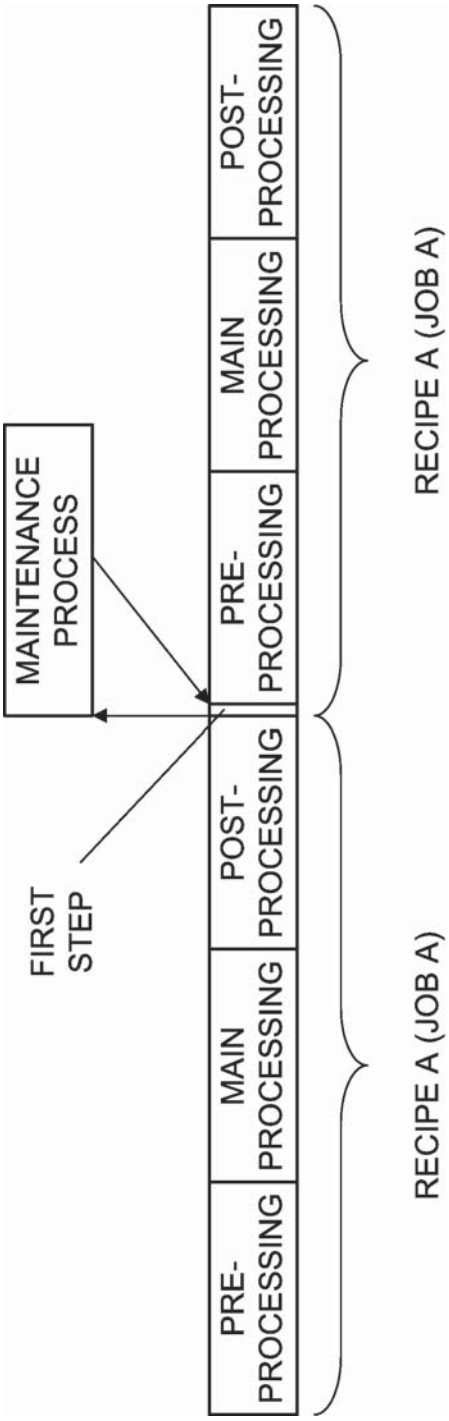
[Figure 9]


START
FIRST STEP OF SUB RECIPE?
NO
YES
ALARM RECIPE SET?
NO
YES
CURRENT VALUE OF MAINTENANCE ITEM REACHES THRESHOLD VALUE?
NO
YES
EXECUTE ALARM RECIPE
END

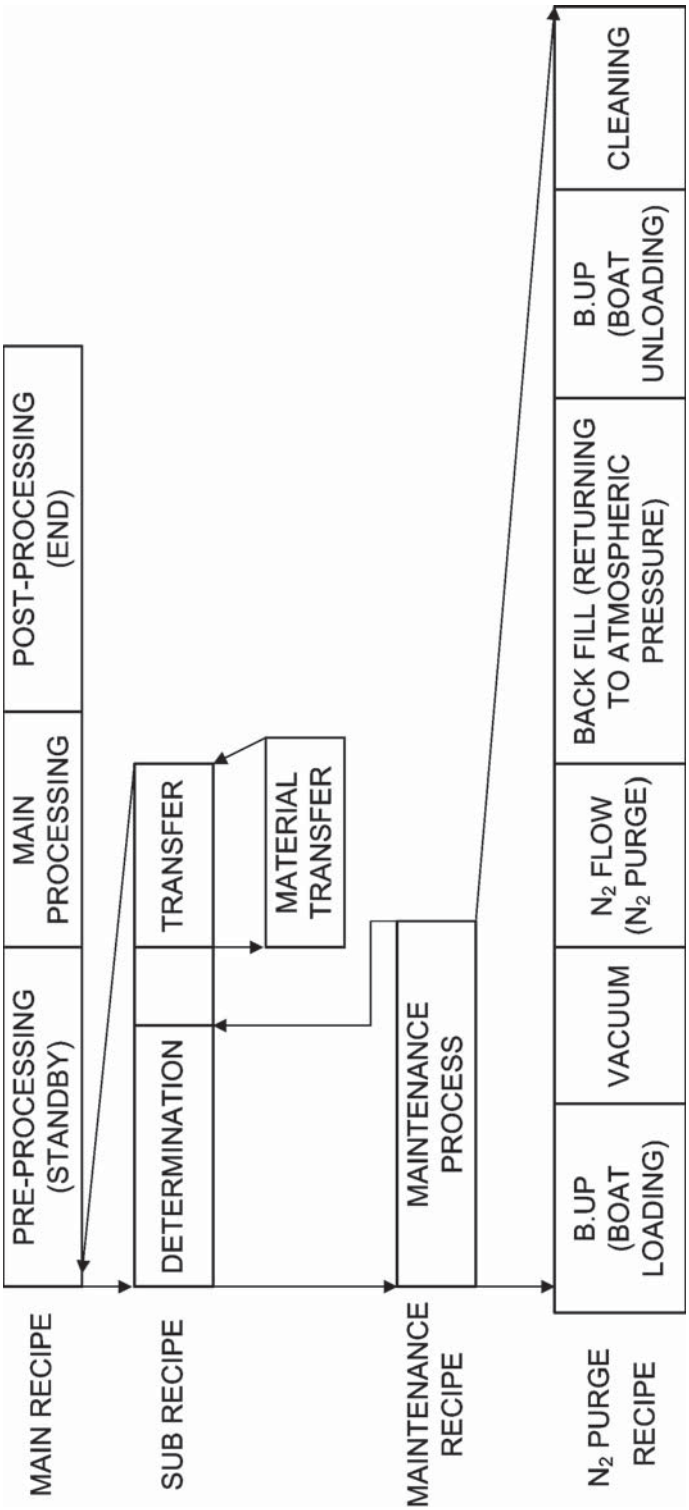
[Figure 10A]


PRE-PROCESSING
MAIN PROCESSING
POST-PROCESSING
PRE-PROCESSING
MAIN PROCESSING
POST-PROCESSING
MAINTENANCE PROCESS
RECIPE A (JOB A)
RECIPE A (JOB A)
RECIPE C (JOB C)

[Figure 10B]


PRE-PROCESSING
MAIN PROCESSING
POST-PROCESSING
PRE-PROCESSING
MAIN PROCESSING
POST-PROCESSING
FIRST STEP
MAINTENANCE PROCESS
RECIPE A (JOB A)
RECIPE A (JOB A)

[Figure 11]


MAIN RECIPE
PRE-PROCESSING (STANDBY)
MAIN PROCESSING
POST-PROCESSING (END)
SUB RECIPE
DETERMINATION
TRANSFER
MATERIAL TRANSFER
MAINTENANCE RECIPE
MAINTENANCE PROCESS
N2 PURGE RECIPE
B.UP (BOAT LOADING)
VACUUM
N2 FLOW (N2 PURGE)
BACK FILL (RETURNING TO ATMOSPHERIC PRESSURE)
B.UP (BOAT UNLOADING)
CLEANING