

FIG.1

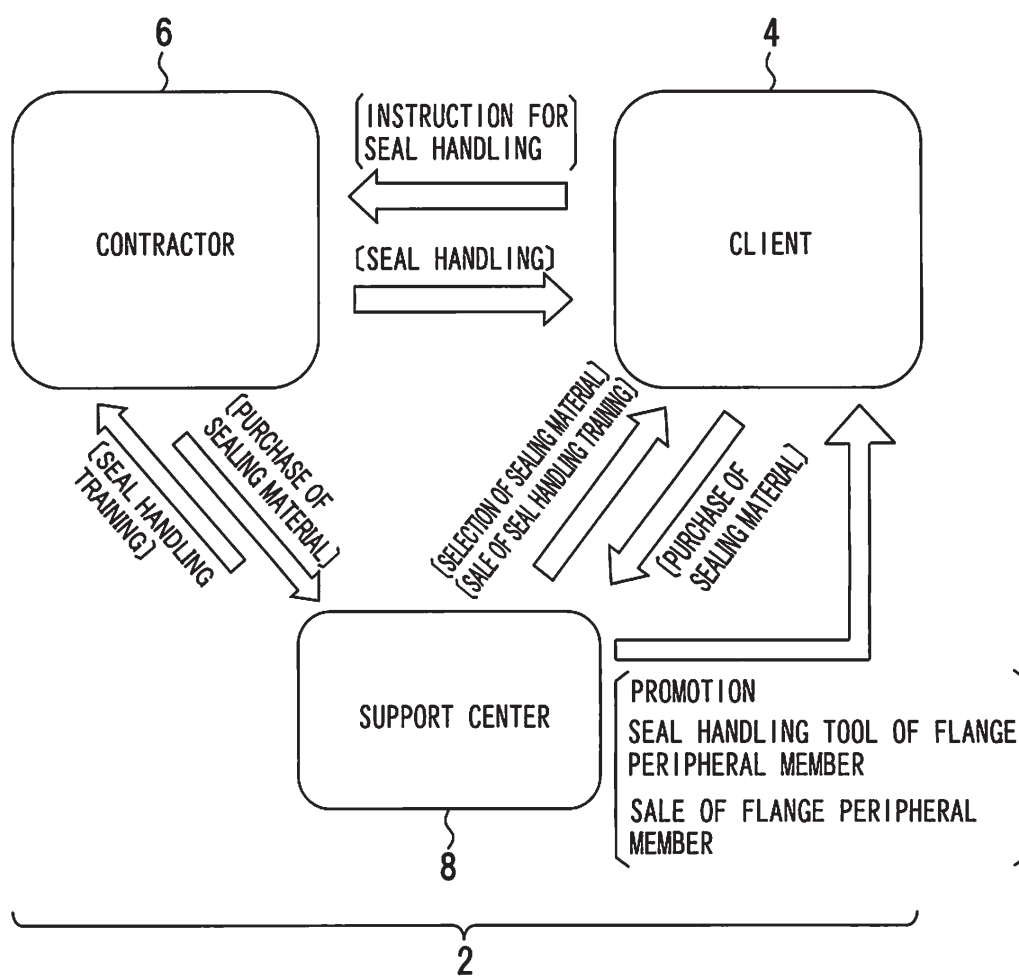


FIG.2

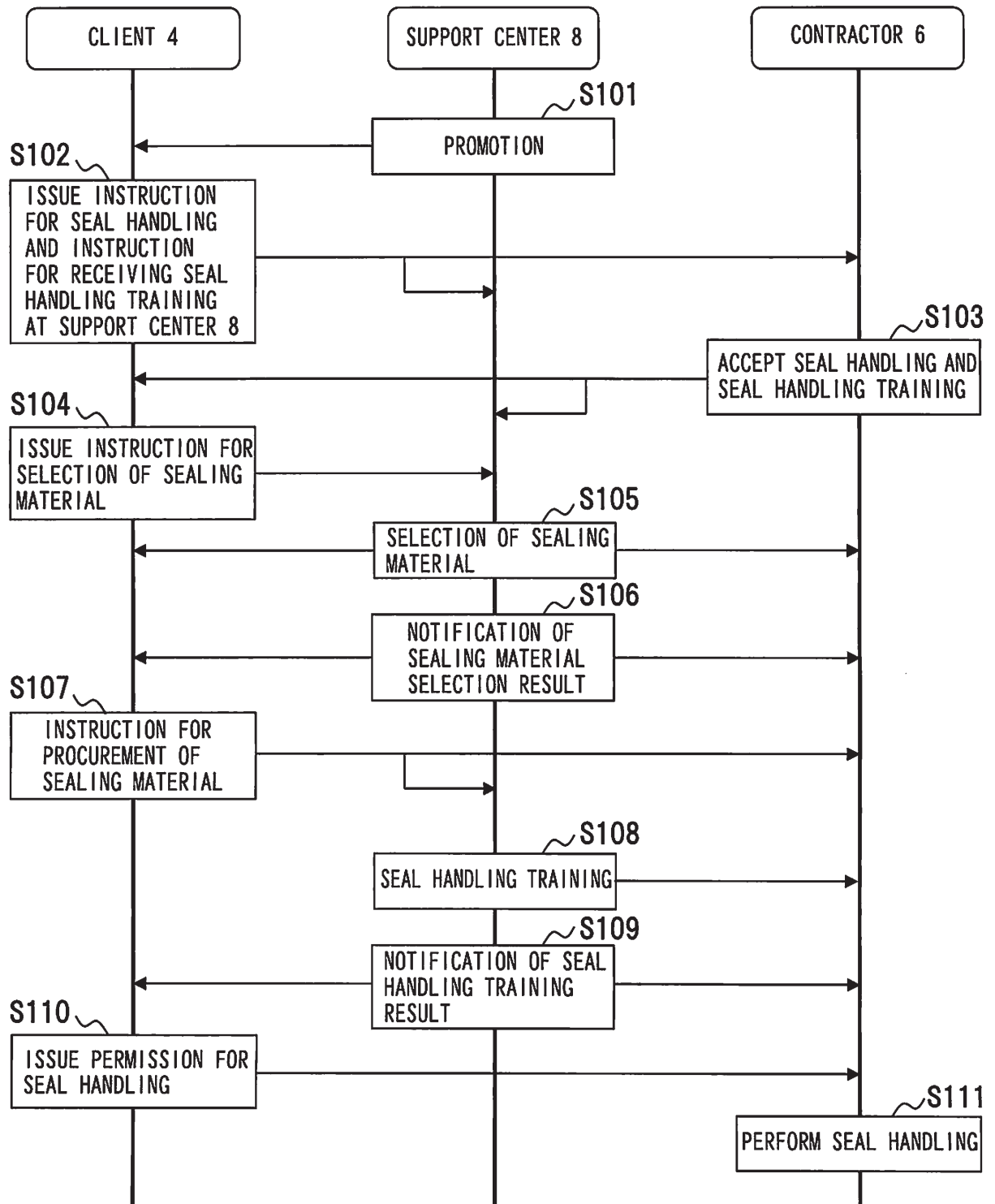


FIG.3

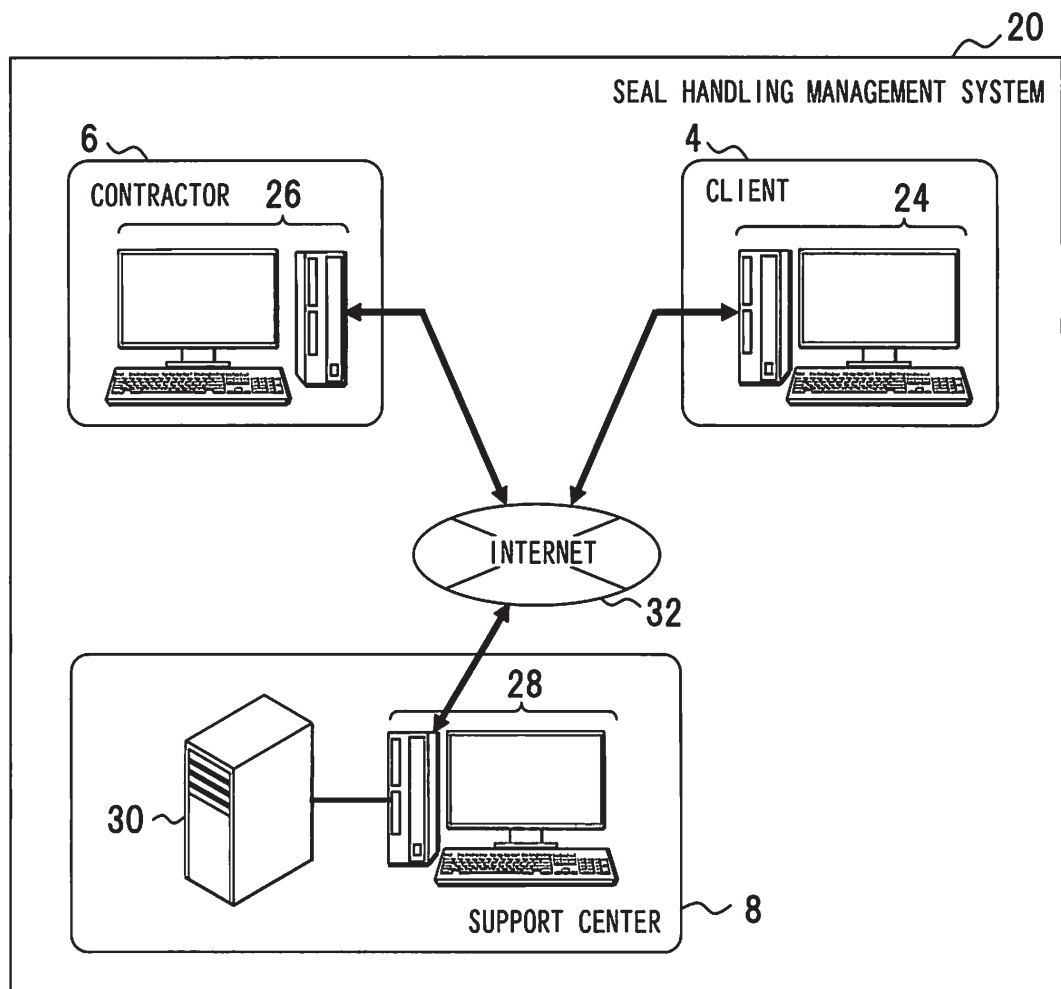


FIG.4

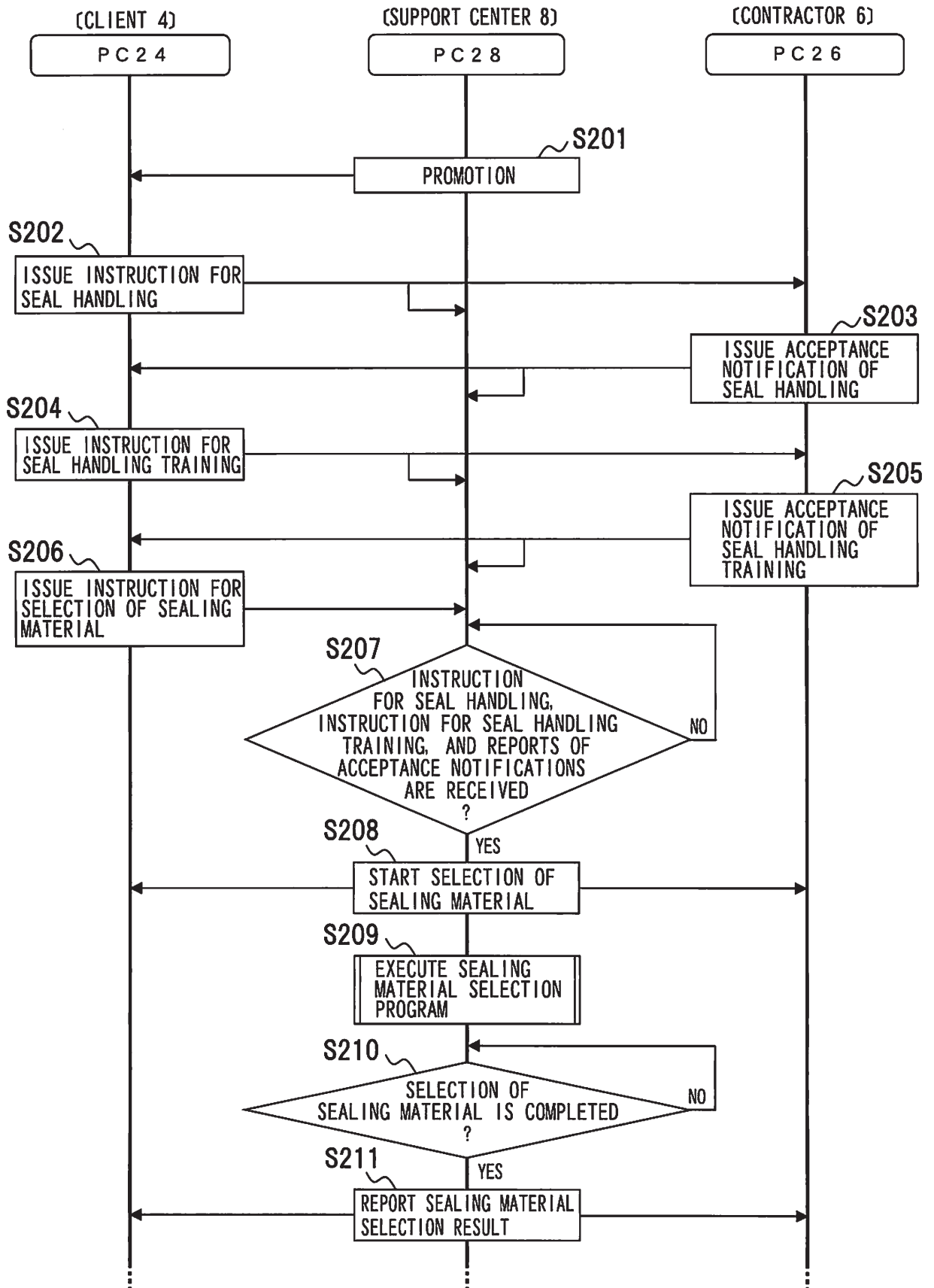


FIG.5

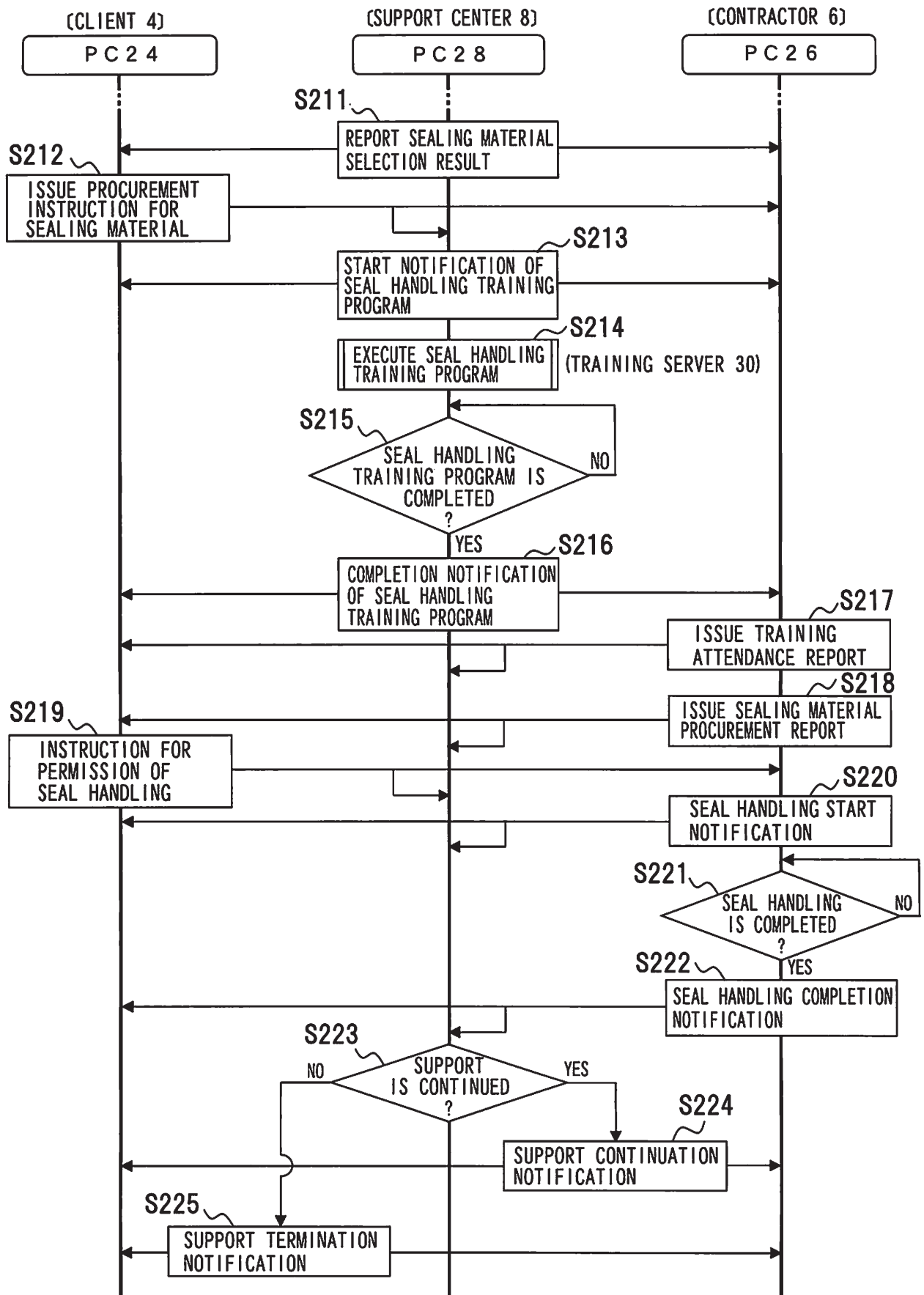


FIG.6

SEALING MATERIAL DATA TABLE 35

GASKET GROUP	USE CONDITIONS					
	OPERATING TEMPERATURE	OPERATING PRESSURE	OPERATING FLUID	FLANGE SHAPE	DEVICE USED	OTHER
1						
2						
3						
4						
N						

36
38

35

FIG.7

A [INPUT SCREEN 40]

40 {

SELECTION OF SEALING MATERIAL 42

1. OPERATING TEMPERATURE 44
 ---SELECT--- 56

2. OPERATING PRESSURE 46
 ---SELECT--- 56

3. OPERATING FLUID 48
 ---SELECT--- 56

4. FLANGE SHAPE 50
 ---SELECT--- 56

5. DEVICE USED 52
 ---SELECT--- 56

SEARCH START 54

B [OUTPUT SCREEN 60]

60 {

SELECTION RESULT OF SEALING MATERIAL 62

○SELECTION 1

PRODUCT NUMBER : AA0000

PRODUCT NAME :

USABLE RANGE (TEMPERATURE) :

USABLE RANGE (PRESSURE) :

APPLICABLE FLUID :

MANUFACTURING DIMENSION :

THICKNESS (mm)	SIZE (mm)
.....	
.....	

INTENDED USE :

○SELECTION 2

PRODUCT NUMBER : BB0000

.....

BACK 66

64-1

64-2

FIG.8

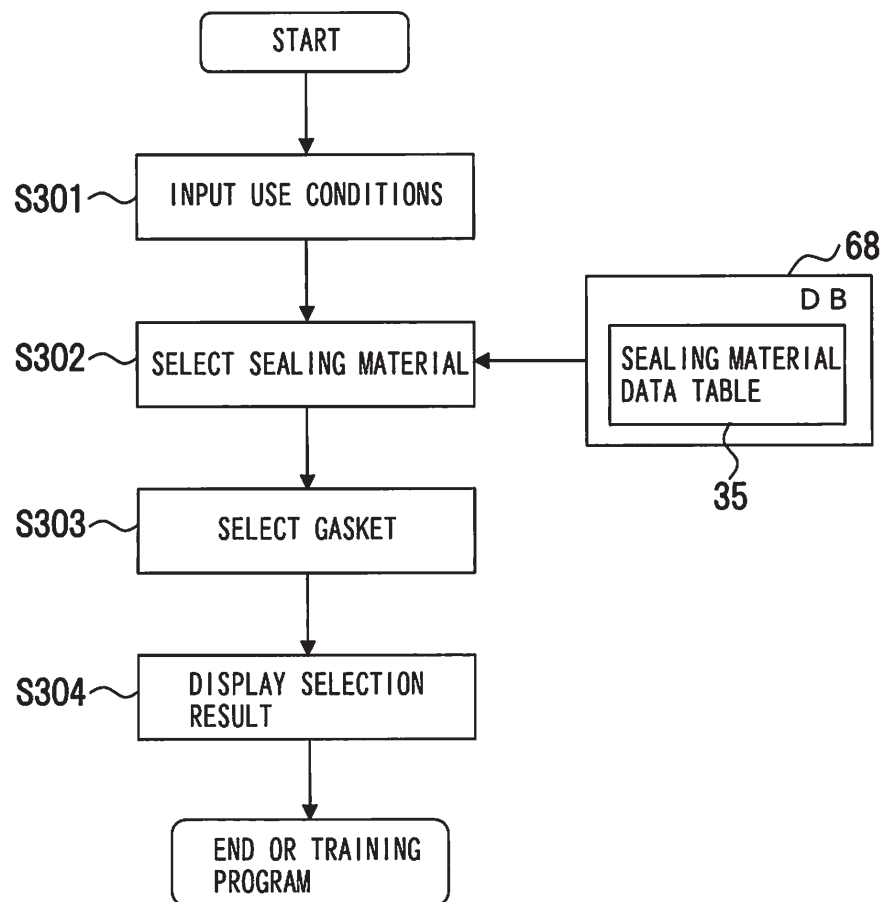


FIG.9

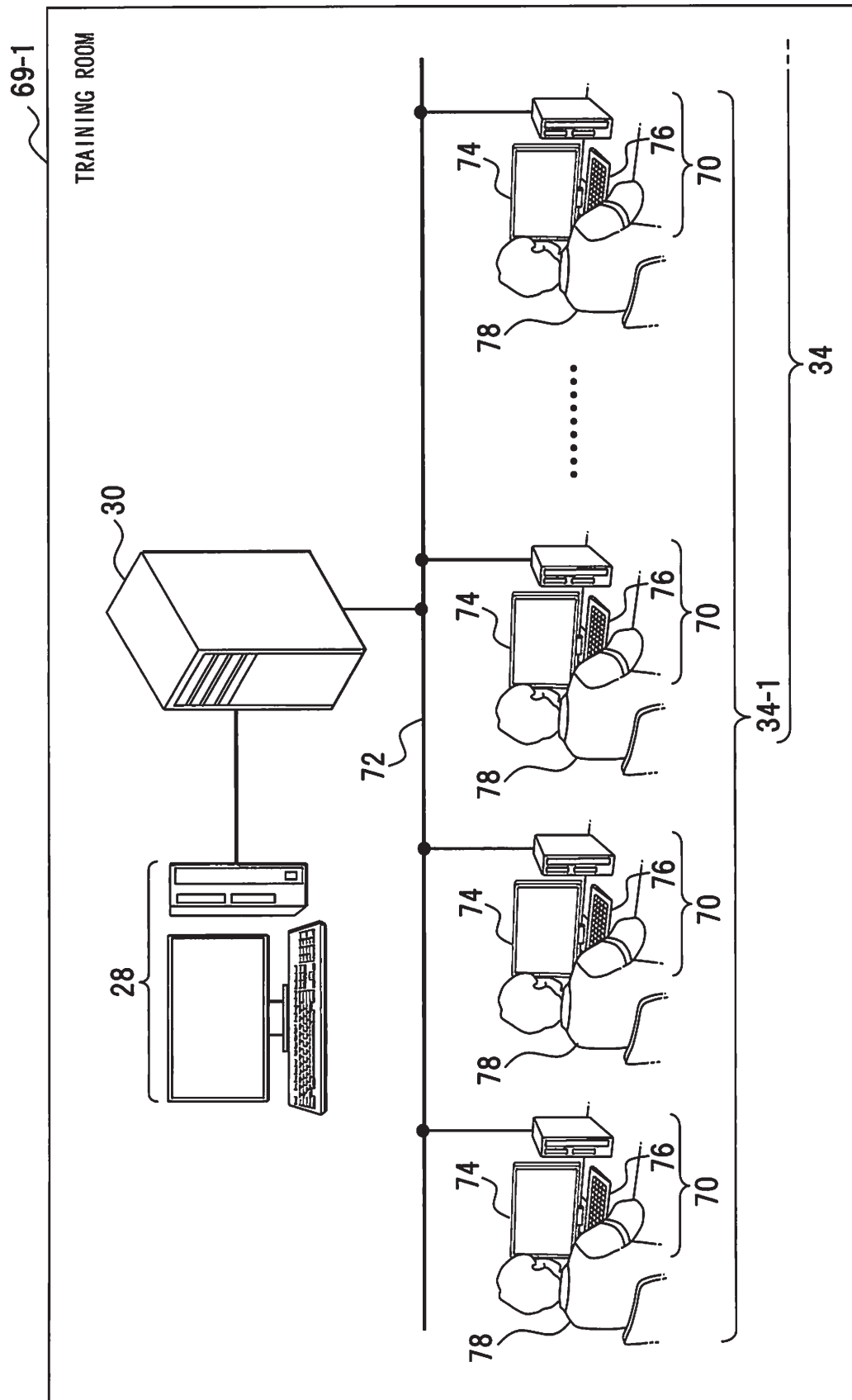


FIG.11

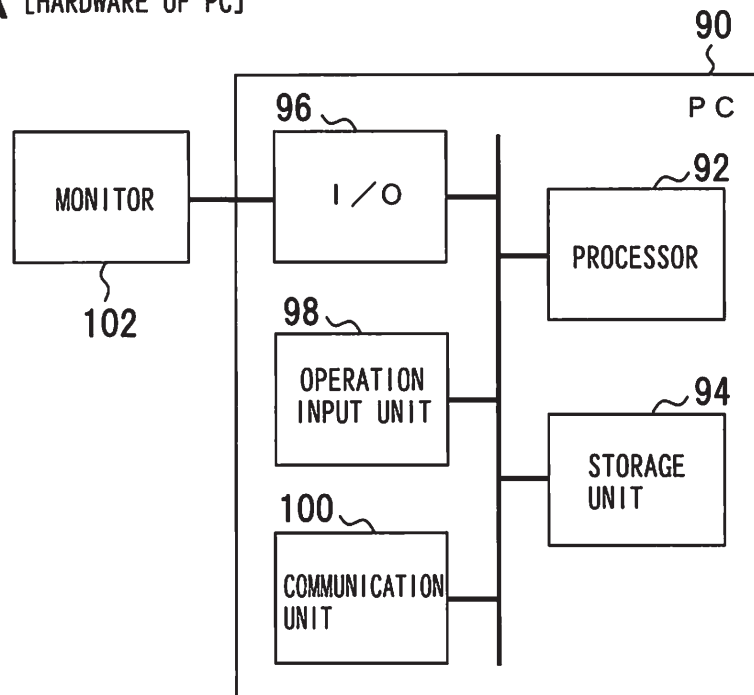
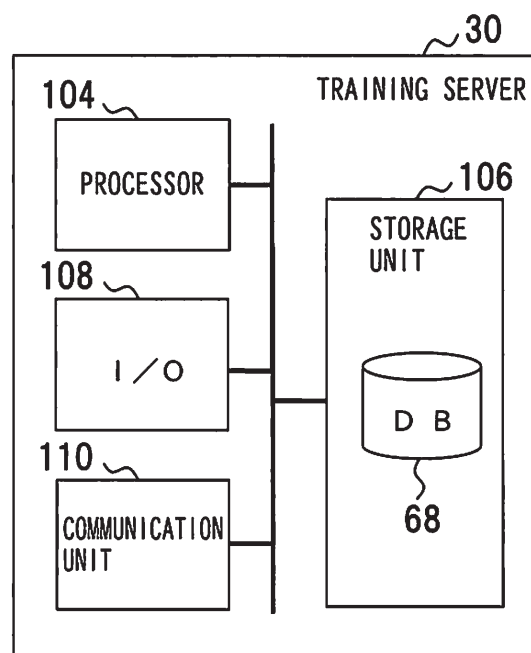
A [HARDWARE OF PC]**B** [TRAINING SERVER 30]

FIG.12

SEAL HANDLING TRAINING INFORMATION TABLE 112

	CATEGORIES	LARGE ITEMS	MIDDLE ITEMS	SMALL ITEMS
114-1 ~	PERSONNEL INFORMATION	ADMINISTRATOR INFORMATION		
		WORKER INFORMATION		
114-2 ~	SEALING INFORMATION	SEALING MATERIAL INFORMATION		
114-3 ~	SEAL HANDLING INFORMATION	SEAL HANDLING DEVICE INFORMATION		
		SEAL HANDLING TOOLS		
		SEAL HANDLING REQUEST INFORMATION		
114-4 ~	TRAINING INFORMATION	SEAL HANDLING TRAINING PROGRAM		
114-5 ~	RELATED INFORMATION	POLICY		
		STANDARD		
		ANALYSIS		
		INVESTIGATION		
		SUPPORT INFORMATION		
	⋮	⋮	⋮	⋮
114		116	118	120
112				

A [PERSONNEL INFORMATION TABLE 122] **FIG.13**

CATEGORIES	LARGE ITEMS	MIDDLE ITEMS	SMALL ITEMS
PERSONNEL INFORMATION	ADMINISTRATOR INFORMATION	DEPARTMENT	
		JOB	
		NAME	
	WORKER INFORMATION	COMPANY NAME	
		DEPARTMENT	
		JOB	
		NAME	
		SKILL	

122

B [SEALING MATERIAL INFORMATION/ SEAL HANDLING INFORMATION TABLE 124]

CATEGORIES	LARGE ITEMS	MIDDLE ITEMS	SMALL ITEMS
SEAL HANDLING INFORMATION	SEALING MATERIAL INFORMATION	PRODUCT NAME	
		DIMENSIONS	
	SEAL HANDLING DEVICE INFORMATION	FLANGE	STANDARD (DIMENSIONS)
		BOLT/NUT	MATERIAL
		FLUID	
		PRESSURE	
		TEMPERATURE	
	SEAL HANDLING TOOLS	TIGHTENING TOOL	MANUAL TORQUE WRENCH
		FLANGE TOOL	FLANGE OPENER
		FLANGE TOOL	FLANGE SPREADER
	SEAL HANDLING REQUEST INFORMATION	STORAGE	PLACE
		TRANSPORTATION METHOD	MEANS
		INSTALLATION METHOD	FLANGE TOOL USED
		BOLT/NUT	MAINTENANCE LUBRICANT TYPE
		TIGHTENING FORCE	REPLACEMENT MATERIAL
		TIGHTENING PROCEDURE	TORQUE
			AXIAL FORCE
			DIMENSIONS
			FLANGE CLOSER
			BOOSTER WRENCH
			AIR TORQUE WRENCH
			HYDRAULIC TORQUE WRENCH
			BOLT TENSIONER
			ULTRASONIC AXIAL FORCE METER

120

118

116

124

FIG.14**A** [TRAINING INFORMATION TABLE 126]

CATEGORIES	LARGE ITEMS	MIDDLE ITEMS	SMALL ITEMS
114-4 TRAINING INFORMATION	SEAL HANDLING TRAINING PROGRAM	1. TIGHTENING METHOD	FLANGE TIGHTENING PRACTICAL TRAINING EQUIPMENT
			TORQUE FEELING PRACTICAL TRAINING EQUIPMENT
		2. STRESS RELAXATION	CREEP RELAXATION PRACTICAL TRAINING EQUIPMENT
		3. SEALABILITY	SEALABILITY PRACTICAL TRAINING EQUIPMENT
		4. COMPRESSION FAILURE	COMPRESSION FAILURE PRACTICAL TRAINING EQUIPMENT
		5. SURFACE PRESSURE DISTRIBUTION	BOLT INFLUENCE PRACTICAL TRAINING EQUIPMENT
		6. SITE FLANGE SEAL HANDLING	SITE SIMULATION TIGHTENING PRACTICAL TRAINING EQUIPMENT
		7. SITE FLANGE SEAL HANDLING	PIPING ALIGNMENT PRACTICAL TRAINING EQUIPMENT
		8.	
	⋮	⋮	⋮
114	116	118	120
126			

B [RELATED INFORMATION TABLE 128]

CATEGORIES	LARGE ITEMS	MIDDLE ITEMS	SMALL ITEMS
114-5 RELATED INFORMATION	POLICY	SAFETY AND SECURITY MEASURES FOR CUSTOMER PLANT OPERATION	
	STANDARD	FALANGE TIGHTENING OPERATION QUALIFICATION CERTIFICATION SYSTEM STANDARD	
	ANALYSIS	ANALYSIS ACCORDING TO HIGH-PRESSURE GAS ACCIDENT CAUSE	
	INVESTIGATION	LEAKAGE CAUSE INVESTIGATION RESULT (PETROLEUM REFINING/CHEMISTRY)	
	SUPPORT INFORMATION	SUPPORT CENTER	
⋮	⋮	⋮	⋮
114	116	118	120
128			

FIG.15

COURSE CURRICULUM TABLE 130

COURSES		CURRICULUMS	CONTENTS	HOURS
130-1	BASIC	LECTURE (BASIC)	• GASKET IS.....	2
			• GASKET.....	
			• GASKET.....	
			• SEALING.....	
			• GAS.....	
		PRACTICAL TRAINING (BASIC)	• GASKET.....	4
			• GASKET.....	
			• GASKET.....	
				
		⋮	⋮	⋮
130-2	ADVANCED	LECTURE (APPLIED)	• GASKET IS.....	3
			• GASKET.....	
			• GASKET.....	
			• SEALING.....	
			• GAS.....	
		PRACTICAL TRAINING (BASIC)	• GASKET.....	4
			• GASKET.....	
			• GASKET.....	
				
		PRACTICAL TRAINING (APPLIED)	• FLANGE.....	4
			• BOLT.....	
		⋮	⋮	⋮
130-3	CUSTOM	LECTURE (BASIC)	• GASKET IS.....	2
			• GASKET.....	
			• GASKET.....	
			• SEALING.....	
			• GAS.....	
		LECTURE (APPLIED)	• GASKET.....	3
			• GASKET.....	
			• GASKET.....	
			• SEALING.....	
				
		PRACTICAL TRAINING (BASIC)	• GASKET.....	4
			• GASKET.....	
			• GASKET.....	
			• GASKET.....	
		PRACTICAL TRAINING (APPLIED)	• FLANGE.....	4
			• BOLT.....	
		⋮	⋮	⋮

132
134
136
138

130

FIG.16**A** [GASKET'S LECTURE CONTENTS TABLE 140]

CURRICULUMS	LEVELS	CONTENTS
GASKET IS...		SEALING IS SOCIAL ENVIRONMENTAL.....
GASKET...	BASIC	GASKET CATEGORIES.....
	APPLIED	GASKET MATERIALS.....
GASKET...	BASIC	SELECTION.....
	APPLIED	SELECTION FLOW.....
SEALING...	BASIC	.....
	APPLIED	.....
GASKET...	BASIC	FROM STORAGE...
	APPLIED	FROM STORAGE...
⋮	⋮	⋮
142 144 146 140		

B [GASKET'S PRACTICAL TRAINING CONTENTS TABLE 148]

CURRICULUMS	LEVELS	CONTENTS	PRACTICAL TRAINING EQUIPMENT
TIGHTENING...	BASIC	JIS B 2251...	• FLANGE TIGHTENING PRACTICAL TRAINING EQUIPMENT • TORQUE FEELING PRACTICAL TRAINING EQUIPMENT
CREEP...		GASKET...	• CREEP RELAXATION PRACTICAL TRAINING EQUIPMENT
SEALING...		GASKET...	• SEALABILITY PRACTICAL TRAINING EQUIPMENT
COMPRESSION...		GASKET...	• COMPRESSION FAILURE PRACTICAL TRAINING EQUIPMENT
FLANGE...		FLANGE...	• SEALABILITY PRACTICAL TRAINING EQUIPMENT
BOLT...		BOLT...	• BOLT INFLUENCE PRACTICAL TRAINING EQUIPMENT
TIGHTENING...	APPLIED	PIPING...	• SITE SIMULATION TIGHTENING PRACTICAL TRAINING EQUIPMENT • TORQUE FEELING PRACTICAL TRAINING EQUIPMENT
⋮	⋮	⋮	⋮
150 152 154 156 148			

FIG.17**A** [GLAND PACKING'S LECTURE CONTENTS TABLE 158]

CURRICULUMS	CONTENTS
GLAND PACKING IS...	OUTLINE OF SEALING
GLAND	GLAND
GLAND	SELECTION FLOW
GLAND	FROM STORAGE

160
162

158

B [GLAND PACKING'S PRACTICAL TRAINING CONTENTS TABLE 164]

CURRICULUMS	OUTLINES	EQUIPMENT
ACTUAL VALVE	GLOBE VALVE	ACTUAL
ACTUAL ROTARY	ACTUAL ROTARY	ACTUAL

166
168
170

164

FIG.18

LECTURE CONTENTS TABLE 172

LEARNING ITEMS	LEARNING CONTENTS	SKILLS			
		DESIGN	MAINTENANCE	SEAL HANDLING	NEWCOMER
1. GASKET	1. 1 SEALING (LEAKAGE).....	○	○	○	○
	1. 2 SOCIAL ENVIRONMENTAL... SOCIAL ENVIRONMENT...	○	○		
	1. 3 ALLOWANCE..... LEAKAGE.....	◎	◎	○	○
	1. 4 REQUIRED..... GASKET.....	◎	◎	○	○
2. GASKET TYPE	2. 1 GASKET..... GASKET.....	○	○		
	2. 2 GASKET..... GASKET.....	○	○	○	○
	2. 3 GASKET..... EACH.....	◎	◎	○	◎
3. SELECTION OF GASKET	3. 1 SELECTION FLOW..... SELECTION FLOW.....	◎	◎	○	○
	3. 2 FLUID..... GASKET.....	◎			
	3. 3 FLANGE..... FLANGE.....	○	○	○	○
	3. 4 FAILURE..... GASKET.....	◎	◎	◎	◎
	3. 5 CORROSION.....	○	○		
4. SEALING DESIGN	4. 1	◎	○	○	○
	4. 2	○			
	4. 3	◎	○	○	○
	4. 4	○	○		
	4. 5	◎	○		
5. SEAL HANDLING	5. 1		○	◎	○
	5. 2		◎	◎	
	5. 3		○	○	
	5. 4	○	○	○	
	5. 5	○	◎	◎	◎
	5. 6		○	◎	
	5. 7	○	◎	◎	○
	5. 8		◎	○	
	5. 9	○	◎	◎	◎
⋮	⋮	⋮	⋮	⋮	⋮

174

176

178

172

FIG.19

PRACTICAL TRAINING CONTENTS TABLE 180

PRACTICAL TRAINING ITEMS	PRACTICAL TRAINING CONTENTS	SKILLS				EQUIPMENT NAMES
		DESIGN	MAINTENANCE	SEAL HANDLING	NEWCOMER	
1. TIGHTENING METHOD	EFFECT AND PROCEDURE OF TIGHTENING MANAGEMENT	○	◎	◎	○	FLANGE TIGHTENING PRACTICAL TRAINING EQUIPMENT
	TORQUE MANAGEMENT (BY HAND SPANNER.....		◎	◎		TORQUE FEELING PRACTICAL TRAINING EQUIPMENT
2. STRESS RELAXATION	TEMPERATURE, TIME.....	○	○	○	○	CREEP RELAXATION PRACTICAL TRAINING EQUIPMENT
	VARIOUS GASKETS.....	○	○			
3. SEALABILITY	VARIOUS GASKETS.....	◎	◎	○	○	SEALABILITY PRACTICAL TRAINING EQUIPMENT
	FLANGE SURFACE.....		○	◎		
4. COMPRESSION FAILURE	VARIOUS GASKETS.....	◎	◎	◎	○	COMPRESSION FAILURE PRACTICAL TRAINING EQUIPMENT
	PRESENCE/ABSENCE OF PASTE.....		○	◎	○	
5. SURFACE PRESSURE DISTRIBUTION	BOLT MAINTENANCE.....	◎	◎	◎	○	BOLT INFLUENCE PRACTICAL TRAINING EQUIPMENT
6. SITE FLANGE SEAL HANDLING	TIGHTENING WORK.....		◎	◎	○	SITE SIMULATION TIGHTENING PRACTICAL TRAINING EQUIPMENT
7. SITE FLANGE SEAL HANDLING	PIPE FLANGE.....		◎	◎	○	PIPING ALIGNMENT PRACTICAL TRAINING EQUIPMENT
8. HEAT EXCHANGER SEAL HANDLING	FIXATION.....		◎	◎		HEAT EXCHANGER PRACTICAL TRAINING EQUIPMENT
9.....	.....					.....
⋮	⋮	⋮	⋮	⋮	⋮	⋮
182		184			186	
					188	
					180	

FIG.20**A** [TRAINING INPUT SCREEN 190]

190 {

TRAINEE INFORMATION INPUT

1. COMPANY NAME

2. DEPARTMENT NAME

3. NAME

4. SKILL

5. ATTENDANCE PLACE

.....

DECISION

192
 194
 196
 198
 200
 202
 201
 204

B [TRAINING OUTPUT SCREEN 206]

206 {

TRAINING COMPLETION DATA

NAME	.....
DEPARTMENT NAME	.....
COMPLETED COURSE NAME	☐ BASIC COURSE ☐ CUSTOM COURSE ☐ ADVANCED COURSE
EVALUATION (SKILL)	..... ..... .....
.....	

208
 210-1
 210-2
 210-3
 210-4
 210-5
 210

FIG.21

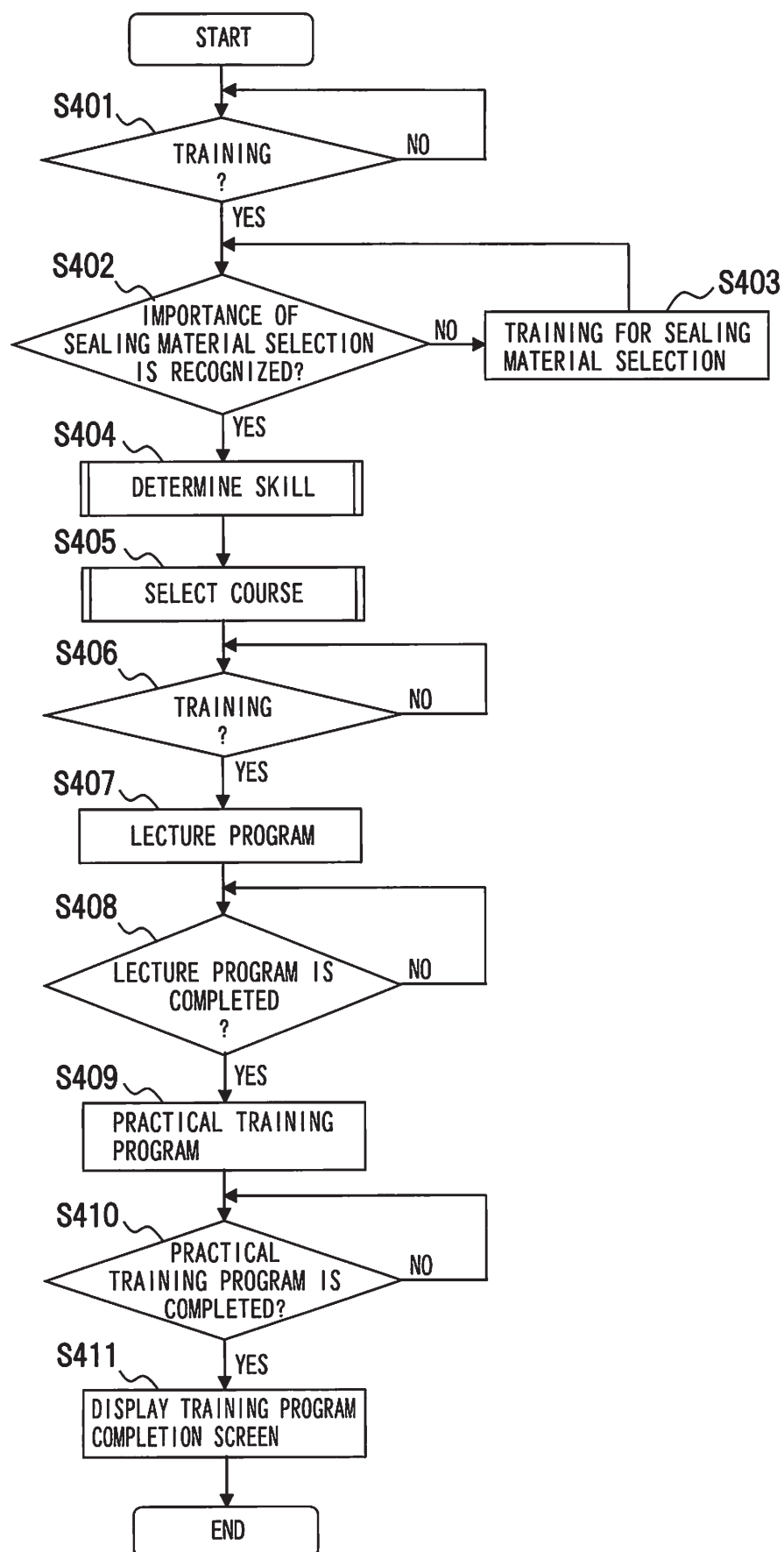


FIG.22

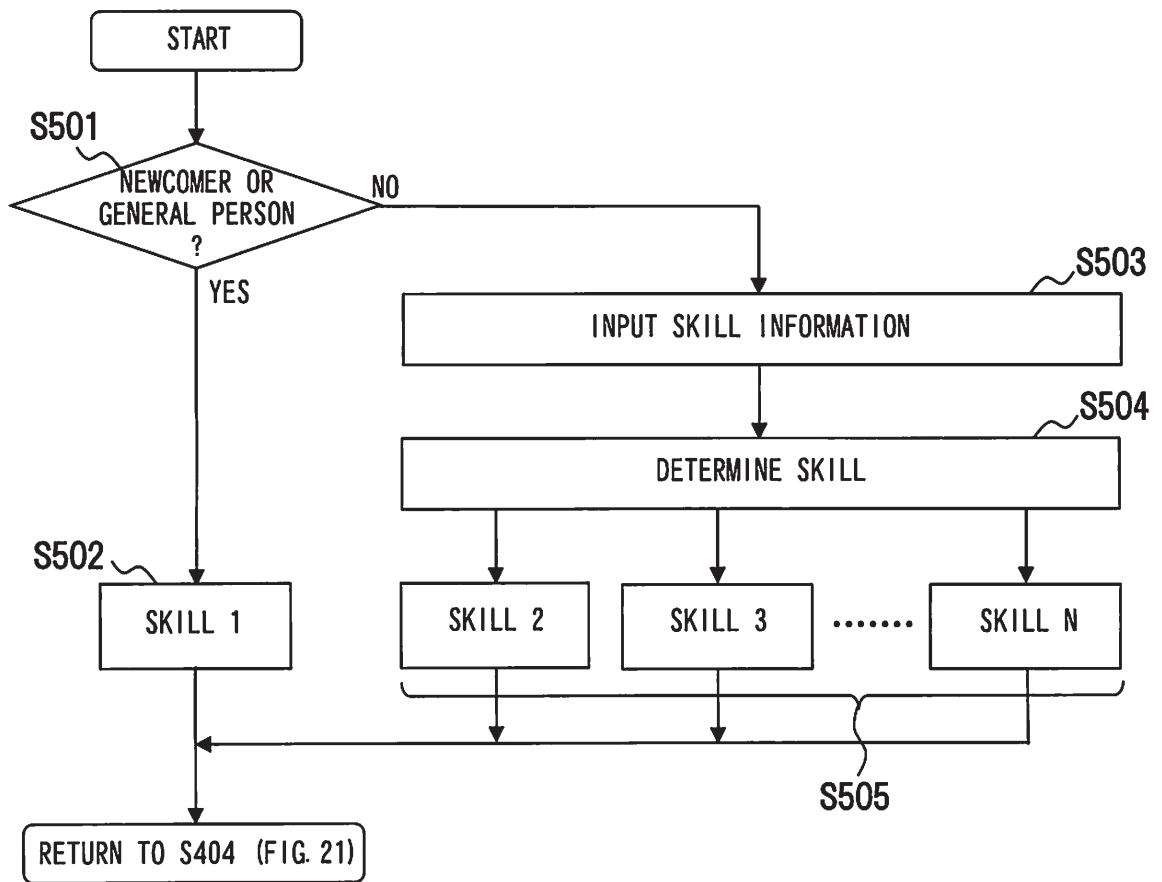


FIG.23

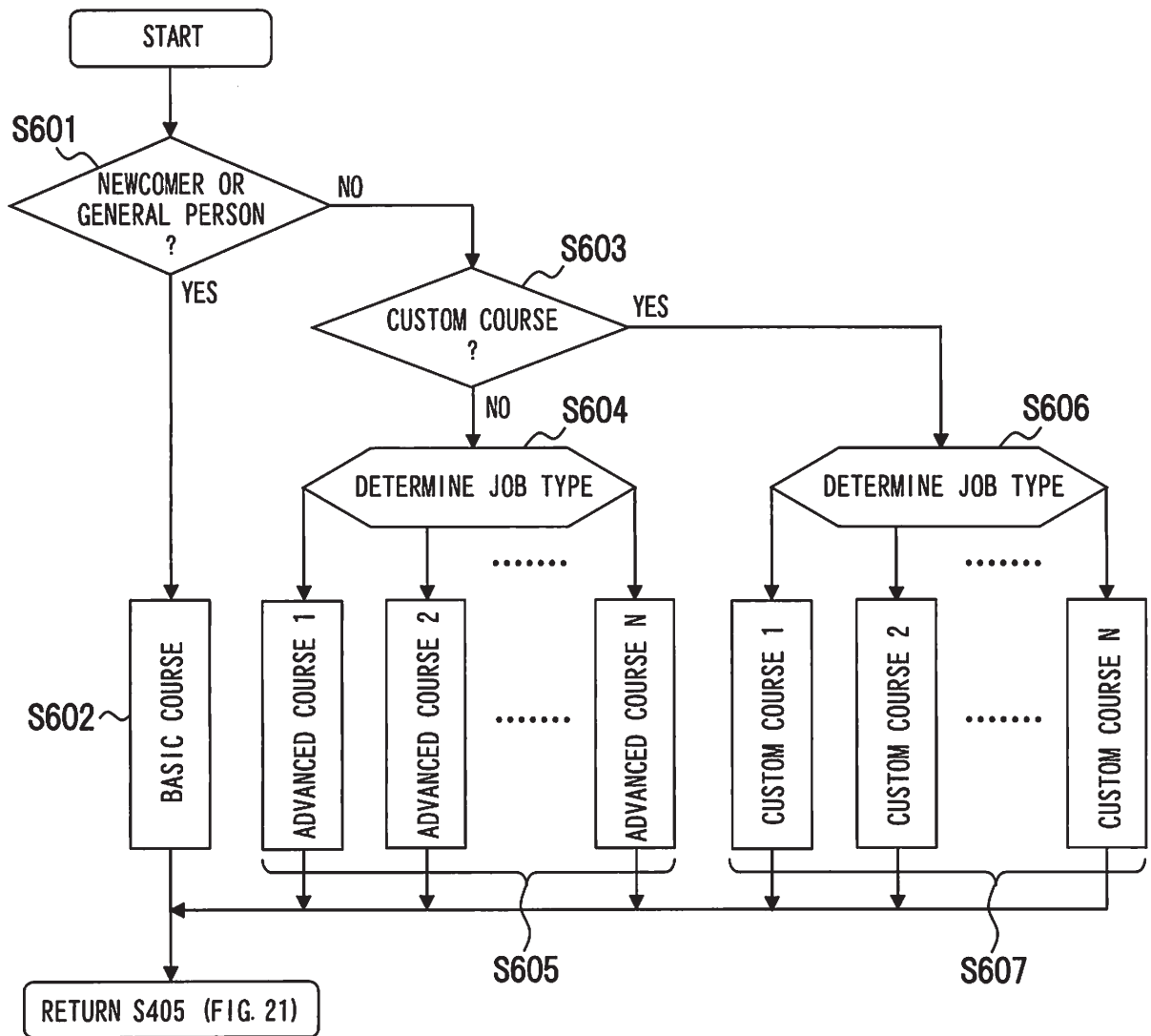


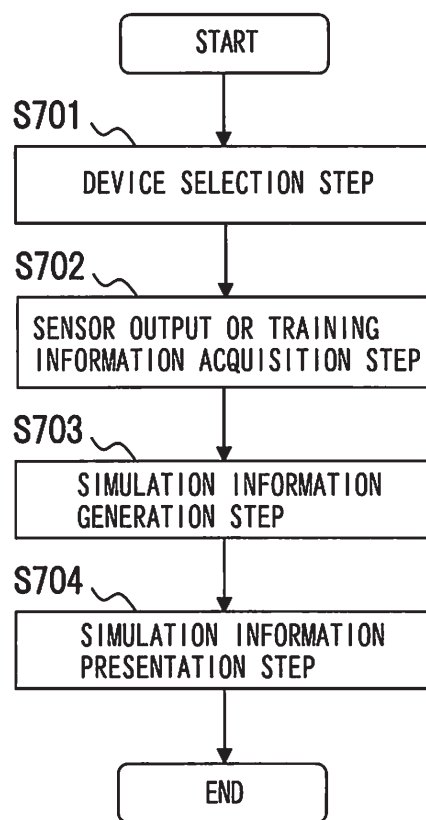
FIG.24

FIG.25

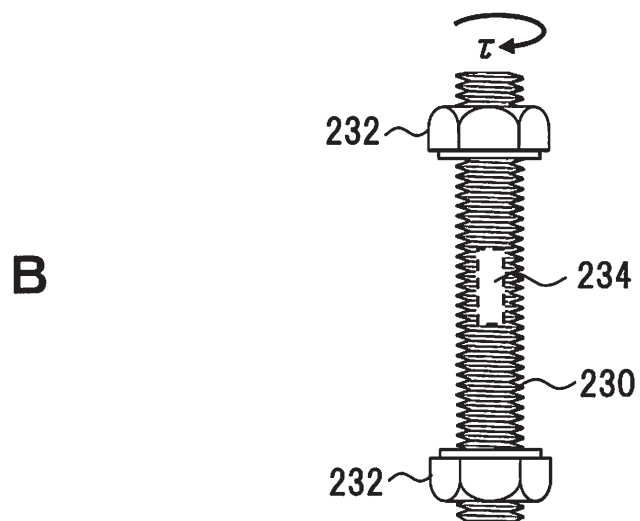
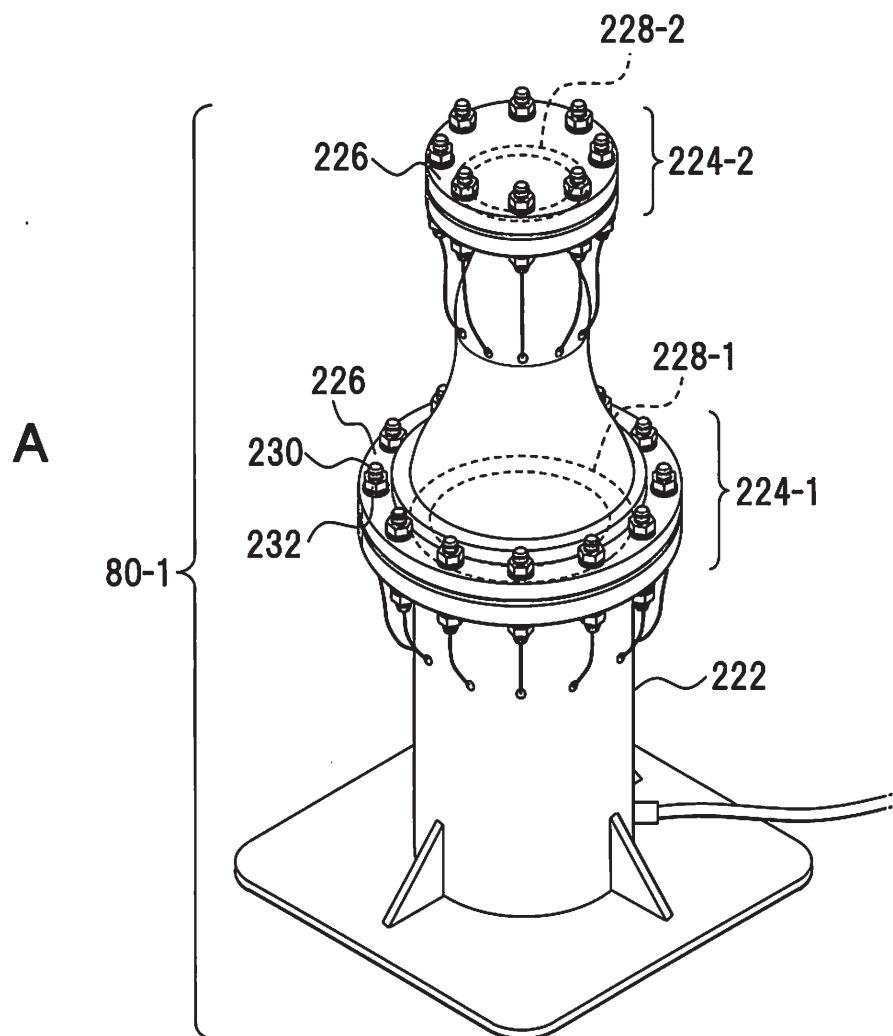


FIG.26

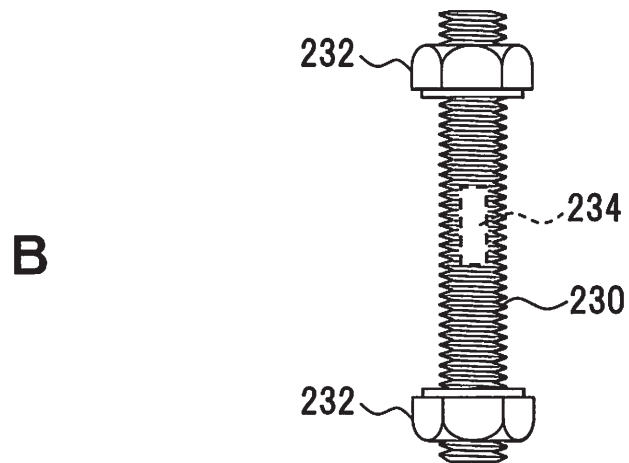
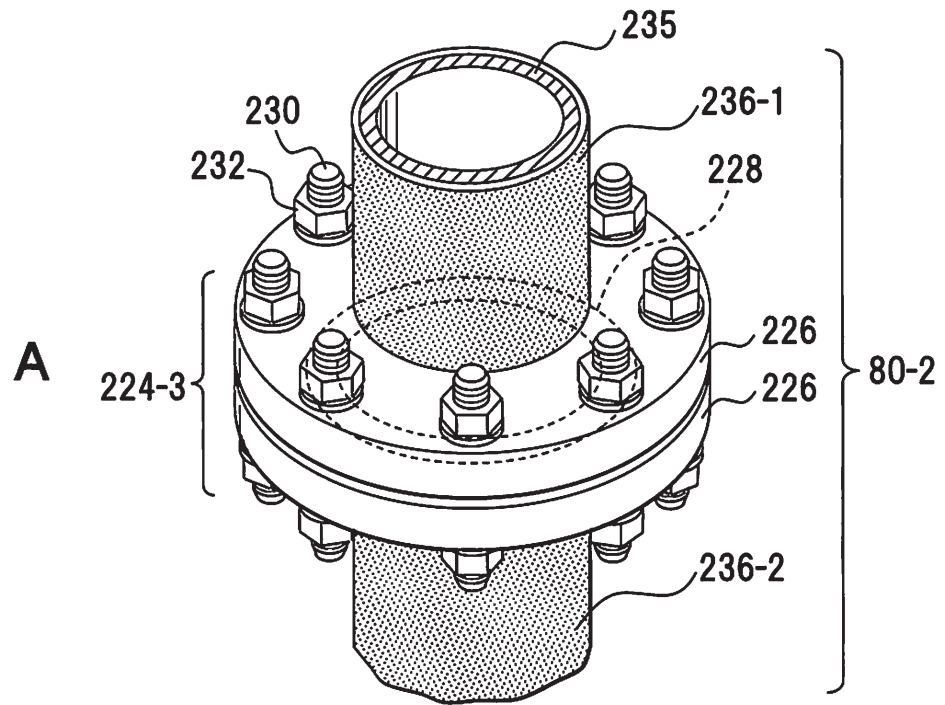


FIG.27

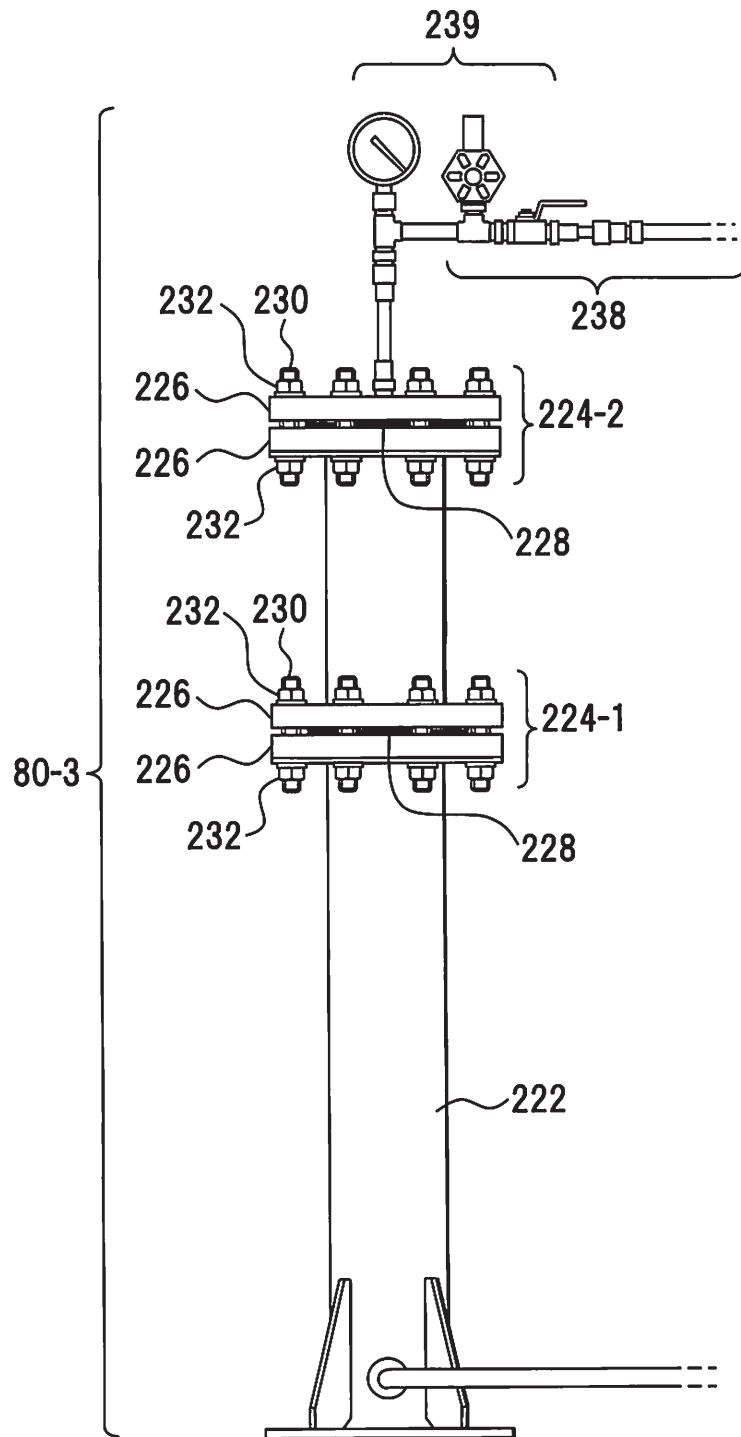


FIG. 28

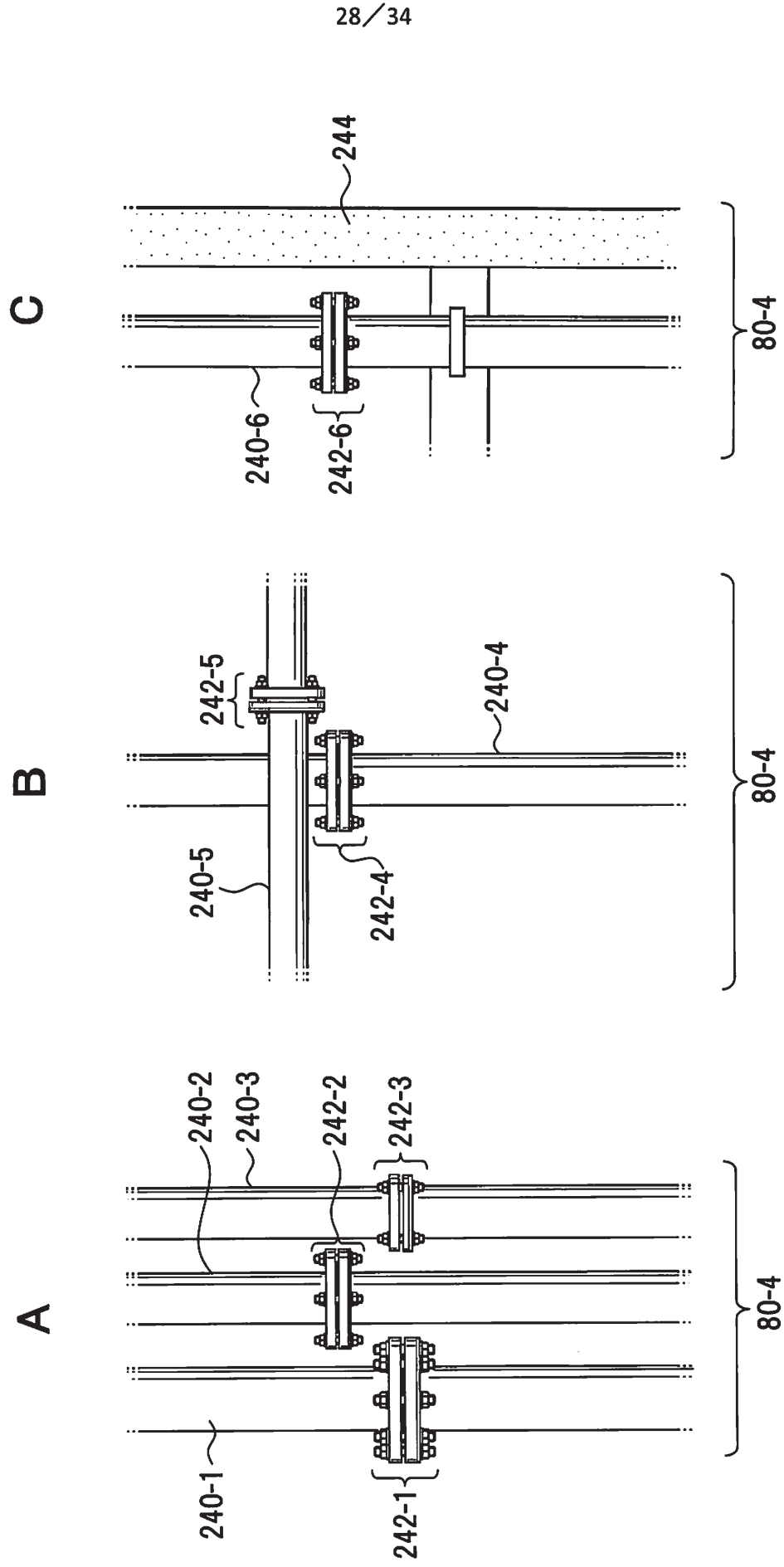


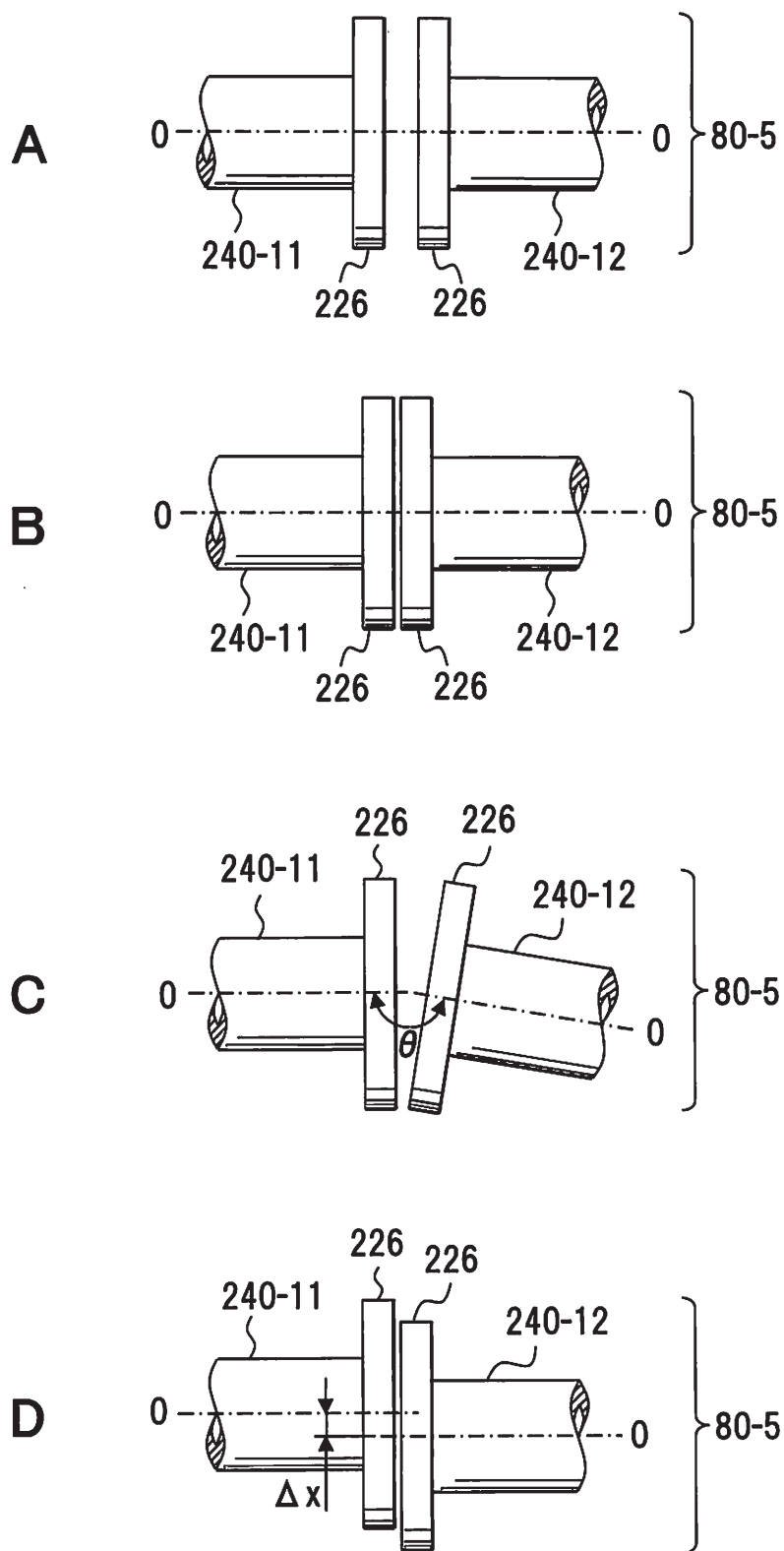
FIG.29

FIG.30

TRAINING TABLE 246

EQUIPMENT NAME	BASIC/APPLIED	PRACTICAL TRAINING NAME	CONTENTS	PROGRAM AVAILABILITY		
(1) FLANGE TIGHTENING PRACTICAL TRAINING EQUIPMENT	BASIC COURSE	1. TIGHTENING METHOD	TIGHTENING MANAGEMENT.....	○		
(2) TORQUE FEELING PRACTICAL TRAINING EQUIPMENT			TORQUE MANAGEMENT (HAND SPANNER.....)	○		
(1) FLANGE TIGHTENING PRACTICAL TRAINING EQUIPMENT		2. STRESS RELAXATION	SURFACE PRESSURE ACCORDING TO TIME.....			
(3) SEALABILITY PRACTICAL TRAINING EQUIPMENT			VARIOUS ASKETS.....			
(4) SEALING COMPRESSION FAILURE PRACTICAL TRAINING EQUIPMENT		3. SEALABILITY	VARIOUS ASKETS.....	○		
			FLANGE SURFACE.....	○		
(5) INFLUENCE OF FLANGE/BOLT/WASHER		4. COMPRESSION FAILURE	VARIOUS GASKETS.....	○		
	PRESENCE/ABSENCE OF PASTE.....					
	BOLT MAINTENANCE STATE.....		○			
(6) ALIGNMENT PRACTICAL TRAINING EQUIPMENT	APPLIED COURSE	6. PIPING MISALIGNMENT	PIPE FLANGE.....	○		
(7) PIPE RACK PRACTICAL TRAINING EQUIPMENT		7. SITE FLANGE SEAL HANDLING	TIGHTENING OPERATION.....			
248		250		252	254	256
						246

FIG.31

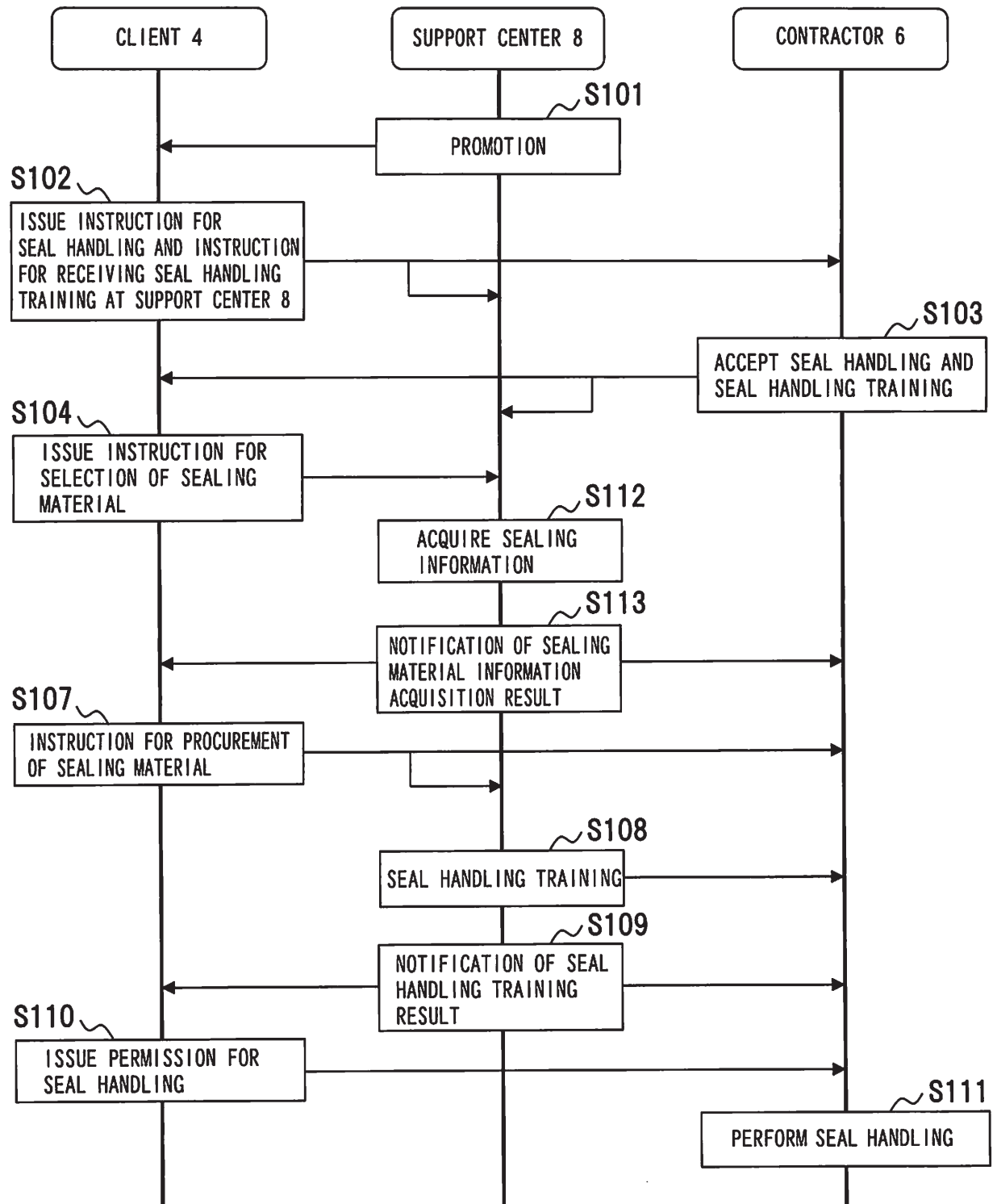


FIG.32

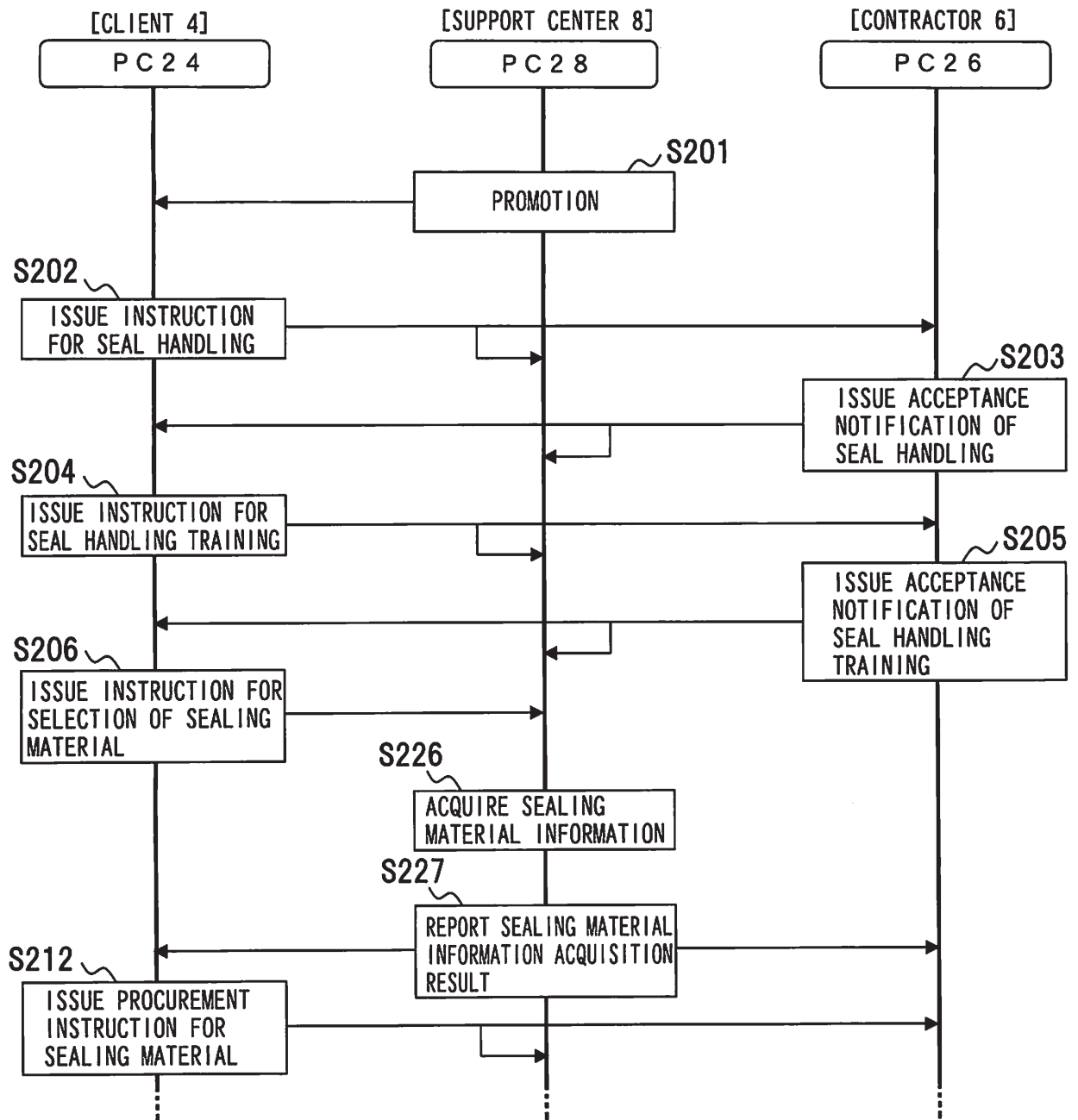


FIG.33

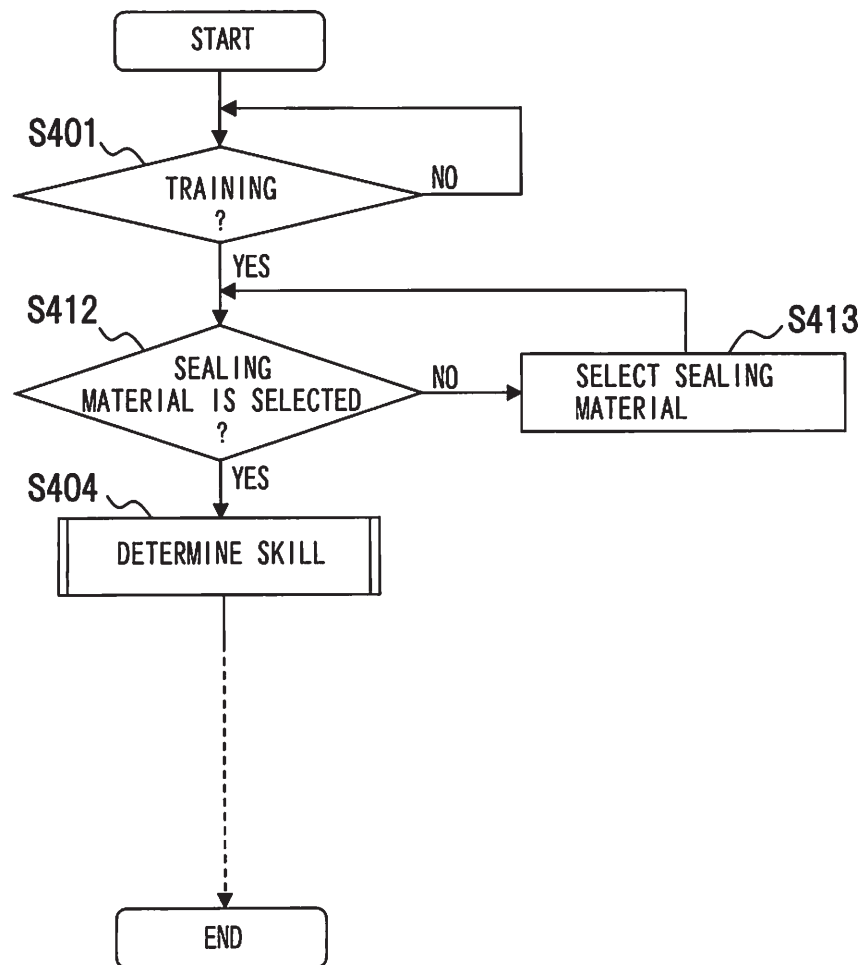


FIG.34

190

TRAINING INPUT SCREEN			
AFFILIATION			
PERSON-IN-CHARGE	.....	.....	.....
191			
CONTENTS OF TRAINING			
NUMBER OF DAYS	☐	PERSONS	NOTE :
NUMBER OF PERSONS		☐ SUPERVISOR ☐ DESIGNER ☐ WORKER ☐ BEGINNER/INEXPERIENCED ☐ OTHER	
JOB TYPE OF PARTICIPANT		YEARS ~ YEARS	
HISTORY OF PARTICIPANT		☐ ☐	
ATTENDANCE PLACE		: ~ : NOTE :	
TIME OF LECTURE		☐ LECTURE :	
(1) BASIC COURSE		☐ LECTURE :	
(2) ADVANCED COUSE		☐ BASIC ☐ APPLIED	
LECTURE		☐ TIGHTENING ☐ ☐ ☐	
PRACTICAL TRAINING		☐ FLANGE..... ☐ BOLT.....	
		☐	
OPTION		☐ LECTURE	
(LECTURE/ PRACTICAL TRAINING)		☐ PRACTICAL TRAINING	
		☐ PRACTICAL TRAINING	
COURSE DETAILS		.....	
.....		YEN NOTE :	
.....		☐	
.....		☐	
.....		☐	
193			
SPECIAL NOTATION			
195			
DECISION			
204			