HULL NOS. : S-1291/93/94/95/96/97

GENERAL NOTE

Classification Society:

1. Lloyd Register (LR)
+100A1 "Double Hull Oil Tanker" ESP, +LMC, CSR, ShipRight(CM), LI, SCM, UMS, IGS, IWS, PCWBT, SPM(Fixed Fitting Only), SERS, COW

2. Indian Register of Shipping (IRS)
SUL, 'Oil Tanker, ESP', IY, SYJ

(42)SHEETS WITH A COVER

stx	MODEL NO.	60KPC01
	TYPE	60,470 DWT LR1 PRODUCT TANKER

MANAGER:	S.J.LEE	TITLE			
	Y.K.CHO	PIPING DIAGRAM IN ENGINE ROOM			
CHECKED:	Y.W.KIM				
DRAWN :	Y.S.JUNG				
TEL. NO.	+82-55-548-3267				
DEP'T	MACHINERY DESIGN 1 TEAM	SCALE NONE	DATE 2008.12.24	DWG. NO. D6011000	REV. NO. F

STX Offshore&Shipbuilding

FORM NAME : STXSE-PC31B

PLAN HISTORY

DATE	REV.	DESCRIPTION	DWN.	CHKD.	MGR.
2010.07.19	F	ISSUED FOR FINAL			

STX Shipbuilding Co., Ltd.

PLAN HISTORY

DATE	REV.	DESCRIPTION	DWN.	CHKD.	MGR.

THIS DRAWING OR DOCUMENT IS THE PROPERTY OF STX SHIPBUILDING CO., LTD. AND MUST NOT BE PARTIALLY
OR WHOLLY COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR WRITTEN PERMISSION OF STX SHIPBUILDING.

STX Shipbuilding Co., Ltd.

C 2 X
- X — CERTIFICATION (NON-CERT)
- 2 — PRESSURE (JIS 10K)
- C — PIPE MATERIAL (STPG370 SCH80 ERW)

* CONTENTS

* PIPE SPECIFICATION : KS AND/OR JIS STANDARD

PIPE MATERIAL

N.D: 15A, 32A, 40A, 50A, 65A, 80A, 150A, 200A, 250A, 300A, 350A, 400A, 500A, 550A, 600A, 650A

CODE	PIPE MATERIAL		
A	SPP ERW		
B	STPG370 SCH40 ERW	STPG370 9.5T ERW	STPY400 9.5T SAW
C	STPG370 SCH80 ERW	STPG370 12.7T ERW	STPY400 12.7T SAW
D	STPG370 SCH160 SMLS	STPG370 SCH120 SMLS	API 5L-B SAW
E	STPG370 SCH40 SMLS		
F	STPG370 SCH80 SMLS		
G	SUS304 WELDED SCH10S		
H	SUS304 WELDED SCH20S		
I	SUS304 WELDED SCH40		
J	SUS304 WELDED SCH80		
K	SUS304L WELDED SCH10S		
L	SUS304L WELDED SCH20S		
M	SUS304L WELDED SCH40		
N	SUS304L WELDED SCH80		
P	SUS316 WELDED SCH10S		
Q	SUS316 WELDED SCH20S		
R	SUS316 WELDED SCH40		
S	SUS316 WELDED SCH80		
T	SUS316L WELDED SCH10S		
U	SUS316L WELDED SCH20S		
V	SUS316L WELDED SCH40		
W	SUS316L WELDED SCH80		
X	COPPER JIS H3300-C1220T SMLS		
Y	AL-BR C6870 SER-I SMLS	AL-BR C6870 SER-I WELDED	
Z	AL-BR C6870 SER-II SMLS	AL-BR C6870 SER-II WELDED	
1	CU-NI 90/10 C7060 SER-I SMLS	CU-NI 90/10 C7060 SER-I WELDED	
2	CU-NI 90/10 C7060 SER-II SMLS	CU-NI 90/10 C7060 SER-II WELDED	
3		GRP PIPE	
4			
5			

PRESSURE		CERTIFICATION			
CODE	PRESSURE	CODE	CERTIFICATION	CODE	CERTIFICATION
1	5K	A	CLASS I	T	
2	10K	B	CLASS II	U	
3	16K	C	DNV III WITH CERT	V	
4	20K	D		W	
5	30K	E		Y	
6	63K	F		Z	
7	5K (E-TYPE FLANGE)	G		X	NON-CERT
8	10K (E-TYPE FLANGE)	H			
9	16K (E-TYPE FLANGE)	J			
0	210K S/W SQ FLANGE	K			
C	280K S/W SQ FLANGE	L			
D	350K S/W SQ FLANGE	M			
E	5K (E-TYPE 65-100A ADJ ONLY)	N			
F	10K (E-TYPE 65-100A ADJ ONLY)	P			
G	16K (E-TYPE 65-100A ADJ ONLY)	Q			
H	40K	R			
J	6000PSI	S			
K	70K S/W SQ FLANGE				

PIPE TABLE

STAINLESS STEEL PIPE

MATERIAL			SUS 304TP, SUS 316TP, SUS 316LTP								SMLS	
N.D		O.D (mm)	SCH.10S		SCH.20		SCH.40		SCH.80		SCH.120	
(A)	(inch)		T	W	T	W	T	W	T	W	T	W
10	3/8	17.3	1.65	0.637	2.0	0.755	2.3	0.851	3.2	1.11		
15	1/2	21.7	2.1	1.02	2.5	1.18	2.8	1.31	3.7	1.64		
20	3/4	27.2	2.1	1.30	2.5	1.52	2.9	1.74	3.9	2.24		
25	1	34.0	2.8	2.15	3.0	2.29	3.4	2.57	4.5	3.27		
32	1(1/4)	42.7	2.8	2.76	3.0	2.94	3.6	3.47	4.9	4.57		
40	1(1/2)	48.6	2.8	3.16	3.0	3.37	3.7	4.10	5.1	5.47		
50	2	60.5	2.8	3.98	3.5	4.92	3.9	5.44	5.5	7.46		
65	2(1/2)	76.3	3.0	5.43	3.5	6.28	5.2	9.12	7.0	12.0		
80	3	89.1	3.0	6.37	4.0	8.39	5.5	11.3	7.6	15.3		
100	4	114.3	3.0	8.23	4.0	10.9	6.0	16.0	8.6	22.4	11.1	28.2
125	5	139.8	3.4	11.4	5.0	16.6	6.6	21.7	9.5	30.5	12.7	39.8
150	6	165.2	3.4	13.6	5.0	19.8	7.1	27.7	11.0	41.8	14.3	53.2
200	8	216.3	4.0	20.9	6.5	33.6	8.2	42.1	12.7	63.8	18.2	88.9
250	10	267.4	4.0	26.0	6.5	41.8	9.3	59.2	15.1	93.9	21.4	150
300	12	318.5	4.5	34.8	6.5	50.0	10.3	78.3	17.4	129	25.4	184
350	14	355.6	5.0	43.2								
400	16	406.4	5.0	49.3								

MILD STEEL PIPE

N.D		O.D (mm)	SPP		7.9T		SCH.40						SCH.80				12.7T		SCH.160				16.0T	
(A)	(inch)		T	W	T	W	T	W	T	W	T	W												
10	3/8	17.3																						
15	1/2	21.7	2.8	1.31			2.8	1.31					3.7	1.64					4.7	1.97				
20	3/4	27.2	2.8	1.68			2.8	1.74					3.9	2.24					5.5	2.90				
25	1	34.0	3.2	2.43			3.4	2.57					4.5	3.27					6.4	4.36				
32	1(1/4)	42.7	3.5	3.38			3.6	3.47					4.9	4.57					6.4	5.70				
40	1(1/2)	48.6	3.5	3.89			3.7	4.10					5.1	5.47					7.1	7.27				
50	2	60.5	3.8	5.31			3.9	5.44					5.5	7.46					8.7	11.1				
65	2(1/2)	76.3	4.2	7.47			5.2	9.12					7.0	12.0					11.1	15.6				
80	3	89.1	4.2	8.79			5.5	11.3					7.6	15.3					12.5	21.4				
100	4	114.3	4.5	12.2			6.0	16.0					8.6	22.4					13.5	33.6				
125	5	139.8	4.85	15.0			6.6	21.7					9.5	30.5					15.9	46.4				
150	6	165.2	5.0	19.8			7.1	27.7					11.0	41.8					18.2	66.0				
200	8	216.3	5.85	30.1			8.2	42.1					12.7	63.8							16.0	79.0		
250	10	267.4	6.6	42.4			9.3	59.2							12.7	79.8					16.0	99.2		
300	12	318.5	7.0	53.0					9.5	72.4					12.7	95.8					16.0	119.0		
350	14	355.6	7.9	67.7					9.5	81.1					12.7	107.0					16.0	134.0		
400	16	406.4	7.9	77.6					9.5	93.0					12.7	123.0					16.0	154.0		
450	18	457.2	7.9	87.5					9.5	105.0					12.7	139.0					16.0	-		
500	20	508.0	7.9	97.4					9.5	117.0					12.7	155.0					16.0	-		
550	22	558.8							9.5	129.0					12.7	171.0					16.0	-		
600	24	609.6							9.5	141.0					12.7	187.0					16.0	-		
650	26	660.4									9.5	152.0					12.7	203.0					16.0	254.0
700	28	711.2									9.5	164.0					12.7	219.0					16.0	274.0
750	30	762.0									9.5	176.0					12.7	235.0					16.0	294.0
800	32	812.8									9.5	188.0					12.7	254.0					16.0	314.0
850	34	863.6									9.5	200.0					12.7	266.0					16.0	335.0
850	34	863.6									9.5	212.0					12.7	282.0					16.0	355.0
850	34	863.6									9.5	236.0					12.7	315.0					16.0	395.0
SGP			O																					
STPG370/STS370							0		0				0		0				0		0			
STPY 400					0						0						0						0	
ERW			0		0		0		0		0		0		0		0							
SMLS							0						0						0		0		0	

NOTES

1)SGP (JIS G3457, KS D3507):CARBON STEEL PIPE FOR ORDINARY PIPING.
2)STPG(JIS G3454, KS D3562):CARBON STEEL PIPE FOR PRESSURE SERVICE.
3)STS (JIS G3455):CARBON STEEL PIPE FOR HIGH PRESSURE SERVICE.
4)STPY(JIS G3457):ELECTRIC ARC WELDED CARBON STEEL PIPE.
5)ERW S:ELECTRIC RESISTANCE WELDED SPECIAL CARBON STEEL PIPE.
6)STPT(JIS G3456):CARBON STEEL PIPE FOR HIGH TEMPERATURE SERVICE.
7)PIPING STANDARD: KS AND/OR JIS
8)"*"MARK IS STX SHIPBUILDING STANDARD.
9)THE ALLOWANCE OF PIPE THICKNESS UP TO 1MM SHOULD BE CONSIDERED IN MANUFACTURING OF PIPES ON THE ABOVE TABLE.

REMARK : (K.S)	(JIS)	(K.S)	(JIS)
SPP	: SGP	SPW	: STPY
SPPS	: STPG	SPPH	: STS

COPPER PIPE

N.D	O.D (mm)	10K		70K	
		T	W	T	W
4A	6	1.2	0.161		
5A	8	1.2	0.230		
6A	10	1.2	0.295	2.0	0.447
8A	12	1.2	0.370		
10A	15	1.4	0.532	2.3	0.216
15A	20	1.6	0.823	3.0	1.425
20A	25	1.6	1.246	3.5	2.103
25A	30	1.6	1.270	4.0	2.906
32A	35	1.6	1.494	5.0	4.611
40A	45	2.0	2.403		
50A	55	2.0	2.962		
65A	70	2.0	3.801		
80A	85	2.5	5.764		
100A	110	3.0	8.971		
125A	140	3.0	11.45		
150A	160	3.5	15.31		

MATERIAL : C1220T (JIS H3300)

AL-BRASS/CU-NI PIPE

N.D	O.D (mm)	T	W	
			AL-BR	CU-NI
10	15.0	1.0	0.37	0.37
15	20.0	1.0	0.50	0.53
20	25.0	1.5	0.98	1.05
25	30.0	1.5	1.12	1.20
32	38.0	1.5	1.43	1.53
40	44.5	1.5	1.69	1.81
50	57.0	1.5	2.18	2.33
65	76.1	2.0	3.88	4.15
80	88.9	2.5	5.66	6.05
100	108.0	2.5	6.91	7.39
125	133.0	2.5	8.55	9.14
150	159.0	2.5	10.20	10.90
200	219.0	3.0	17.00	18.10
250	267.0	3.0	20.70	22.10
300	323.9	4.0	33.50	35.80
350	368.0	4.0	38.10	40.70

MATERIAL		
AL-BRASS		C6870T
CU-NI	90:10	C7060T
	70:30	C7150T

NOTE : 1)MATERIAL : BASED ON JIS H3300
2) N.D.≤ 200A : SEAMLESS PIPE
3) N.D ≥ 250A : ERW(WELDED PIPE)

STAINLESS STEEL TUBE (SEAMLESS)

OUT DIA. (Φ: mm)	Φ6	Φ8	Φ10	Φ12	Φ15
WALL THICKNESS (mm)	1.0	1.0	1.0	1.5	1.5
DESIGEN PRESSURE (Kg/Cm2)	477	340	265	340	265

stx	PIPING SYMBOL (1/2)	PAGE 5/42 MODEL NO. 62KPC01 DWG. NO. D6011000

NO.	SYMBOL	SYMBOL DESIGNATION
1. GENERAL CONVENTIONAL SYMBOL		
1.1		PIPE
1.2		PIPE WITH INDICATION OF DIRECTION OF FLOW
1.3		APPLIANCES
1.4		INDICATING AND MEASURING INSTRUMENTS
2. PIPES AND PIPE JOINTS		
2.1		CROSSING PIPES NOT CONNECTED
2.2		CROSSING PIPES CONNECTED
2.3		TEE PIPES
2.4		FLEXIBLE JOINT FLEXIBLE PIPES JOINT
2.5		FLANGED JOINT
2.6		SLEEVE JOINT
2.7		REDUCER
2.8		SCREWED JOINT
2.9		WELDED JOINT
2.10		JOINT QUICK-RELEASING
2.11		SLEEVE TYPE EXPANSION PIPE JOINT
2.12		BELLOWS TYPE EXPANSION PIPE JOINT
2.13		DRESSER(OR FLEXIBLE)TYPE EXPANSION PIPE JOINT
2.14		FLANGE ADAPTER TYPE EXPANSION PIPE JOINT
2.15		EXPANSION PIPE
2.16		CAP NUT
2.17		BLANK FLANGE

NO.	SYMBOL	SYMBOL DESIGNATION
2.18	OPEN CLOSE	SPECTACLE FLANGE
2.19		PENETRATING WATERTIGHT BULKHEAD & DECK CROSSING
2.20		PENETRATING NON-WATERTIGHT BULKHEAD & DECK CROSSING
2.21	OPEN CLOSE	SPOOL PIECE
2.22		TO BILGE (TO BE RELEASED LOCALLY)
2.23		PIPE GOING UPWARDS
2.24		PIPE GOING DOWNWARDS
2.25		ORIFICE
2.26		OFF PAGE CONNECTOR EXAP.) FT-01 DWG NO. SERIAL NO.
2.27		GRATING
2.28	A A	CONNECTED TO SAME MARKED NUMBER (SAME SYSTEM DRAWING)
2.29		RUBBER COMPENSATOR
3. VALVES, COCKS AND FLAPS		
3.1		GLOBE VALVE (STRAIGHT THROUGH)
3.2		ANGLE VALVE
3.3		GATE VALVE
3.4		SCREW DOWN NON-RETURN (SDNR) VALVE (GLOBE)
3.5		SCREW DOWN NON-RETURN (SDNR) VALVE (ANGLE)
3.6		NON-RETURN VALVE(GLOBE)
3.7		NON-RETURN VALVE(ANGLE)
3.8		SWING CHECK VALVE
3.9	JIS STORZ ANFT DIN	HOSE GLOBE VALVE
3.10	JIS STORZ ANFT DIN	HOSE ANGLE VALVE

NO.	SYMBOL	SYMBOL DESIGNATION
3.11		VALVE, THREE WAY
3.12		PRESSURE REDUCING VALVE
3.13		SAFETY VALVE, GLOBE
3.14		SAFETY VALVE, ANGLE
3.15		SELF-CLOSING VALVE STRAIGHT THROUGH
3.16		SELF-CLOSING VALVE ANGLE
3.17		REGULATING VALVE
3.18		QUICK-OPENING VALVE
3.19		QUICK-CLOSING VALVE
3.20		KINGSTON VALVE
3.21		BUTTERFLY VALVE (WAFER LEVER TYPE)
3.22	,	BUTTERFLY VALVE (WAFER, GEAR BOX TYPE)
3.23		BUTTERFLY VALVE (FLANGE LEVER TYPE)
3.24	,	BUTTERFLY VALVE (FLANGE GEAR BOX TYPE)
3.25	,	BUTTERFLY VALVE (LUG LEVER TYPE)
3.26	,	BUTTERFLY VALVE (LUG GEAR BOX TYPE)
3.27		BUTTERFLY CHECK VALVE (WAFER TYPE)(DUO CHECK)
3.28		BUTTERFLY CHECK VALVE (FLANGE TYPE)(DUO CHECK)
3.29	,	BUTTERFLY CHECK VALVE (LUG TYPE)(DUO CHECK)
3.30		BALL VALVE
3.31		HOSE BALL VALVE (JIS COUPLING)
3.32		HOSE BALL VALVE (DIN COUPLING)
3.33		BALL CHECK WITHOUT SPRING VALVE
3.34		BALL CHECK WITH SPRING VALVE

NO.	SYMBOL	SYMBOL DESIGNATION
3.35		FOOT VALVE
3.36		NEEDLE VALVE AND V-PORT VALVE, STRAIGHT THROUGH
3.37		NEEDLE VALVE AND V-PORT VALVE, ANGLE
3.38		RELIEF VALVE STRAIGHT THROUGH
3.39		RELIEF VALVE ANGLE
3.40		BREATHER VALVE
3.41		COCK, STRAIGHT THROUGH
3.42		COCK, ANGLE
3.43		COCK, THREE-WAY L-PORT IN PLUG
3.44		COCK, THREE-WAY, T-PORT IN PLUG
3.45		COCK, FOUR-WAY, STRAIGHT THROUGH IN PLUG
3.46		MANIFOLD VALVE, CHECK VALVE
3.47		STORM VALVE STRAIGHT THROUGH
3.48		STORM VALVE ANGLE
3.49		AIR FILTER REGULATOR
3.50		TEMPERATURE CONTROL VALVE (WAX TYPE)
3.51		HIGH VELOCITY PRESSURE/VACUUM VALVE WITH GAS FREE COVER
3.52		GAS FREEING COVE
3.53		AUTOMATIC DE-AERATING V/V
3.54		TEMPERATURE CONTROL VALVE (DIRECT TYPE)
4. CONTROL AND REGULATION PARTS		
4.1		HAND-OPERATED
4.2		REMOTE CONTROL

PIPING SYMBOL

PAGE	6/42
MODEL NO.	62KPC01
DWG. NO.	D6011000

NO.	SYMBOL	SYMBOL DESIGNATION
4.3		SPRING
4.4		MASS
4.5		FLOAT
4.6	H	HYDRAULIC OPERATED, OPEN/SHUT
4.7	H	HYDRAULIC OPERATED, CONTINUES
4.8	P	PNEUMATIC PISTON
4.9		DIAPHRAGM OPERATED
4.10	M	ELECTRIC MOTOR DRIVEN
4.11	A	AIR MOTOR DRIVEN
4.12	S	SOLENOID ACTUATOR
4.13		DECK STAND(REACH ROD)
4.14		DECK STAND(HTDRAULIC)
5. FITTING		
5.1		SUCTION BELL MOUTH
5.2		SCUPPER FOR COAMING
5.3		HOPPER WITHOUT COVER
5.4		HOPPER WITH HINGED COVER
5.5		SOUNDING HEAD WITH CAP
5.6		SOUNDING HEAD WITH SELF CLOSING VALVE
5.7		SOUNDING HEAD WITH SELF CLOSING AND TEST COCK
5.8		OBSERVATION GLASS
5.9		ROSE BOX
5.10		MUD BOX

NO.	SYMBOL	SYMBOL DESIGNATION
5.11		SIMPLEX STRAINER
5.12		DUPLEX OIL STRAINER
5.13		SEPARATOR
5.14		DRAIN TRAP
5.15		Y-TYPE STRAINER
5.16		Y-TYPE STEAM TRAP WITH STRAINER & COCK
5.17		Y-TYPE STEAM TRAP WITH STRAINER & COCK,BY-PASS
5.18		DRAIN SLIENCER
5.19		HULL DISTANCE PIECE
5.20		BILGE HAT
5.21		SIGHT GLASS
5.22		FUSING PLUG
5.23		BOSS
5.24		BOSS AND PLUG
5.25		ROSE PLATE
5.26		AIR VENT HEAD (GOOSE NECK TYPE)
5.27		GOOSE NECK TYPE AIR VENT PIPE HEAD(WITHOUT WIRE NET)
5.28		BONNET TYPE AIR PIPE HEAD(WITHOUT WIRE NET)
5.29		GOOSE NECK TYPE AIR PIPE HEAD(WITH WIRE NET)
5.30		BONNET TYPE AIR PIPE HEAD(WITH WIRE NET)
5.31		OIL TRAY COAMING
5.32		AIR DRAIN TRAP
5.33		GLYCERINE POT
5.34		VACUUM BREAKER

NO.	SYMBOL	SYMBOL DESIGNATION
5.35		SOUNDING CAP (DECK PIECE TYPE)
5.36		FLAME SCREEN
5.37		SCUPPER WITH WATER SEAL AND ROSE PLATE
6. PUMP, EQUIPMENT		
6.1		CENTRIFUGAL PUMP
6.2		GEAR PUMP
6.3		SCREW PUMP
6.4	T	PISTON PUMP
6.5		HAND PUMP
6.6		MONO PUMP
6.7	A A	AIR MOTOR DRIVEN PUMP
6.8		DOSING PUMP
6.9		VANE PUMP
6.10		VACCUM PUMP
6.11	A	AIR HORN
6.12	VM	VISCOMETER
6.13	FM	FLOWMETER
6.14		EJECTOR, EDUCTOR
6.15		HEAT EXCHANGER (SHELL/TUBE TYPE)
6.16		HEAT EXCHANGER (PLATE TYPE)
6.17	OR *	MAKER SUPPLY ITEM
6.18		SILENCER (FOR EXHAUST GAS)
6.19		PRIMA-VAC UNIT

NO.	SYMBOL	SYMBOL DESIGNATION
6.20	R	RECIRC. TANK FOR PRIMA-VAC SYS.
7. CONTROL & INSTRUMENT		
7.1	OR	HYDRAULIC OIL LINE
7.2	OR	CONTROL AIR LINE
7.3	OR	CAPILLARY TUBE
7.4	OR	ELECTRIC WIRING
7.5		INSULATION
7.6		STEAM TRACING & INSULATION
7.7		HEATING COIL
7.8		ELECTRIC COIL
7.9	XS	AUXILIARY SWITCH
7.10	AUTO CH-OVER	CHANGE OVER SWITCH BOX
7.11		SEAL POT
7.12		LOOP SEAL
7.13		LOCAL INSTRUMENT
7.14		REMOTE CONTROL INSTRUMENT
7.15		GLASS LEVEL GAUGE ○:OPEN ⊖:CLOSE ●:SELF CLOSING V/V)
7.16		FLAT LEVEL GAUGE ○:OPEN ⊖:CLOSE ●:SELF CLOSING V/V)
7.17		FLOAT TYPE LEVEL GAUGE (DIAL FLOAT/FLOAT) TYPE
7.18		CONTENT METER (DIAL TYPE)
7.19		MANOMETER

ABBREVIATION	EXPLANATION
A/B	ABOVE BASE LINE
A/C	AIR CONDITION
ACCOM.	ACCOMMODATION
A.C./H	AIR CHANGES PER HOUR
A/E	AUXILIARY ENGINE
AFT	AFTER
AIR CLR(A.C)	AIR COOLER
A.P	AIR PIPE
APPX.	APPROXIMATELY
A.P.TK	AFT(OR AFTER) PEAK TANK
ARR.	ARRIVAL
ATM.	ATMOSPHERE
AUTO.	AUTOMATIC
AUX.	AUXILIARY
A.V	ANGLE VALVE
A/V	AIR VENT
BA.	BALLAST
BCC	BALLAST CONTROL CONSOLE
B.C.C	BRIDGE CONTROL CONSOLE
B.C.D.B	BATTERY CHARGING AND DISCHARGING BOARD
B.F	BLANK FLANGE
BFLY V/V	BUTTERFLY VALVE
BG	BILGE
BHD	BULKHEAD
B.H.TK	BILGE HOLDING TANK
B.L	BASE LINE
BLK	BLOCK
BLR	BOILER
BLWG	BLOWING
BRG	BEARING
BSN STORE	BOSUN STORE
B.V.I	BEARING VIBRATION INDICATOR
B.W	BILGE WELL
B/W	BUTT WELDING
B.W.L	BALLAST WATER LINE
C.C.C	CARGO CONTROL CONSOLE
C.C.P	CHART CONSOLE PORT
C.C.R	CARGO CONTROL ROOM
C.C.S	CHART CONSOLE STARBOARD
C/D	COFFERDAM
CERT.	CERTIFICATE
CENT.	CENTRIFUGAL
C.F.W	COOLING FRESH WATER
CHEM.	CHEMICAL
CH-OVER	CHANGE OVER

ABBREVIATION	EXPLANATION
C/H	CARGO HOLD
CIRC.	CIRCULATING
CLASS	CLASSIFICATION SOCIETY
CLENG	CLEANING
CLR	COOLER
C.L (℄)	CENTER LINE
C/L	CHAIN LOCKER
COMP.	COMPRESSOR
COMP. AIR	COMPRESSED AIR
COMP. BLR	COMPOSITE BOILER
COMP'T	COMPARTMENT
COND.	CONDENSATE
COND'R	CONDENSER
CONN.	CONNECTION
C.O.P.T	CARGO OIL PUMP TURBINE
C.O.(T.)	CARGO OIL (TANK)
CO2P	CO2 FIRE EXTINGUISHING PIPE
C.P	CONTROL PANEL
C.P.P	CONTROLLABLE PITCH PROPELLER
C/S	CAMSHAFT
CST	CENTISTOKES
C.S.W	COOLING SEA WATER
C.T.S	CHART TABLE SPACE
CYL.	CYLINDER
D/B(D.B)	DOUBLE BOTTOM
D.B.W.B.T	DOUBLE BOTTOM WATER BALLAST TANK
D/E	DIESEL ENGINE
DEP.	DEPARTURE
DET.	DETAIL
DIA.	DIAMETER
DISCH.	DISCHARGE
DK	DECK
D/K	DUCK KEEL
DMCR	DERATED MAXIMUM CONTINUOUS RATING
DN	DOWN
D.P	DRAIN PIPE
DRIV'G W.	DRIVING WATER
DRN	DRAIN
DWG	DRAWING
E.C.C	ENGINE CONTROL CONSOLE
E.C.P	ELECTRIC CABLE PIPE
E.C.R	ENGINE CONTROL ROOM
E.F.P	EMERGENCY FIRE PUMP
E.G.B	EXHAUST GAS BOILER

ABBREVIATION	EXPLANATION
E.G.E	EXHAUST GAS ECONOMIZER
E.G.P	EXHAUST GAS PIPE
EJEC.	EJECTOR
ELE.	ELECTRIC
ELEV.	ELEVATION
EM'CY	EMERGENCY
ENG.	ENGINE
E.R	ENGINE ROOM
E.R.W	ELECTRIC RESISTANCE WELDING
E/R O/H CRANE	ENGINE ROOM OVERHEAD CRANE
E.S.B	EMERGENCY SWITCH BOARD
EXH.	EXHAUST
EXP.	EXPANSION
EXP.JOINT	EXPANSION JOINT
F'CLE	FORECASTLE
FIL'G	FILLING
FLG	FLANGE
FLR	FLOOR
FLUS'G	FLUSHING
FM	FROM
F/M	FLOW METER
F.O	FUEL OIL
F.P.P	FIXED PITCH PROPELLER
F.P.TK	FORE PEAK TANK
FR.	FRAME
FRP	REIFORCED FIBERGLASS PLASTIC
FTR	FILTER
F.W	FRESH WATER
F.W CLR	FRESHWATER COOLER
FWD. fwd	FORWARD
F.W.E	FINISHED WITH ENGINE
G.A	GENERAL ARRANGEMENT
GALV.	GALVANIZED
G.C	GALSS CLOTH
GEN.	GENERAL
GEN'TR	GENERATOR
G.E	GENERATOR ENGINE
GRAV.	GRAVITY
G/S	GENERAL SERVICE
G.S.I	GENERAL STOCK ITEM
G.V	GLOBE VALVE
G.W	GLASS WOOL
H.C	HEATING COIL
H/C	HATCH COVER
HTR	HEATER

ABBREVIATION	EXPLANATION
H.F.O	HEAVY FUEL OIL
H-H	HIGH-HIGH
HORI.	HORIZONTAL
H.S.C	HIGH SEA CHEST
H.TEMP.(H.T)	HIGH TEMPERATURE
H/W	HARDWARE
HYD.	HYDRAULIC
HYD.P	HUDRAULIC OIL PIPE
HYDRO.	HYDROPHORE
HYDRO. UNIT	HYDROPHORE UNIT
H.P.P	HYDRAULIC POWER PACK
I.C.C.P	INPRESSED CURRENT CATHODIC PROTECTION
I.D	INSIDE DIAMETER
I.G.G	INERT GAS GENERATOR
I.G.S.	INERT GAS SYSTEM
INCIN.	INCINERATOR
IND.	INDICATION
INDEP. TK	INDEPENDENT TANK
INL.(IN.)	INLET
INST.	INSTALLATION
INTER.	INTERMEDIATE
I.O.P.P	INTERNATIONAL OIL POLLUTION PREVENTION
ISO.	ISOLATION
ISO	INTERNATIONAL STANDARD ORGANIZTION
J.F.W	JACKET FRESHWATER
JIS	JAPANESE INDUSTRY STANDARD
J.W HTR	JACKET WATER HEATER
K	KG/CM^2 ($1KG/CM^2=0.98BAR$)
K/L	KEEL LAYING
KS	KOREA INDUSTRIAL STANDARD
LBP	LENGTH BETWEEN PERPENDICULAR
L/C	LAUNCHING
L.C.V	LOW CALRORIFIC VALUE
L-L	LOW-LOW
L.O	MARINE LUBRICANTING OIL
LOA	LENGTH OVERALL
L.S.C	LOW SEA CHEST
LTR	LETTER
L.TEMP.(L.T)	LOW TEMPERATURE
LUB.	LUBRICATING
L.W.L	LOAD WATER LINE

ABBREVIATION (2)

ABBREVIATION	EXPLANATION
MACH.	MACHINERY
MAX.	MAXIMUM
M.A	MACHINERY ARRANGEMENT
MCR	MAXIMUM CONTINUOUS RATING
(M.)D.O	(MARINE) DIESEL OIL
M.E	MAIN ENGINE
MEAS'G	MEASURING
MFG.	MANUFACTURING
M.G.P.S	MARINE GROWTH PREVENTING SYSTEM
M/H	MAN HOLE
MIC.	MICRON
MID. mid	MIDDLE
MIN.	MINIMUM
M.I.P	MEAN INDICATING PRESSURE
MISC.	MISCELLANEOUS
MLC	METER LIQUID COLUMN
M.S.B	MAIN SWITCH BOARD
MT	METRIC TON
MWC	METER WATER COLUMN
NAV.	NAVIGATION
NBR	NATURAL BUTADIENE RUBBER
N.C	NORMAL CLOSE
N.C.O	NOZZLE COOLING OIL
NCR	NORMAL CONTINUOUS RATING
N.D	NOMINAL DIAMETER
NID	NAVIGATION INSTRUMENT DISTRIBUTION
NIL	NAVIGATION LIGHT CONTROL PANEL
NM	NAUTICAL MILE
NMCR	NOMINAL MAXIMUM CONTINUOUS RATING
NO.	NUMBER
N.O	NORMAL OPEN
NON-ASB.	NON-ASBESTOS
NOR.	NORMAL
NOZ.	NOZZLE
OBS	OBSERVATION
O.C.R	OWNER COMMENT REQUEST
O.D	OUTSIDE DIAMETER
ODMS(ODME)	OIL DISCHARGE MONITORING SYSTEM (EQUIPMENT)
OLI	OUTDOOR LIGHT CONTROL PANEL
OMD	OIL MIST DETECTOR
OPER'G	OPERATING
OUTL.(OUT.)	OUTLET

ABBREVIATION	EXPLANATION
OVBD	OVERBOARD
O.W.S	OILY WATER SEPARATOR
P(P)	PORT(PORT SIDE)
(PA)	PORT SIDE AFTER (AFT)
P.B	PUSH BUTTON
(PF)	PORT SIDE FORWARD
P/F	PLATFORM
POT.W	PORTABLE WATER
P/P	PUMP
PRESS.	PRESSURE
P&S	PORT & STARBOARD
PURI.	PURIFIER
Q/C	QUICK CLOSING
Q'TY	QUANTITY
R.C.V(V/V)	REMOTE CONTROL VALVE
REDC'G	REDUCING
REFL'G	REFILLING
REG.	REGULATION
REM. CONT.	REMOTE CONTROL
RESV.	RESERVOIR
R.H	RELATIVE HUMIDITY
RM	ROOM
RMT	REMOTE
RPM	REVOLUTION PER MINUTE
RTN	RETURN
R.V.I	ROTOR VIBRATION INDICATOR
R.W	ROCK WOOL
S.B.M	SUCTION BELL MOUTH
S/C	SEA CHEST
SCAV.	SCAVENGE
SCH.	SCHEDULE
SCUP.P	SCUPPER PIPE
SDNR V/V	SCREW DOWN NON-RETURN VALVE
SEC.	SECTION
SEPT	SEPARATOR
SERV.	SERVICE
SETT.TK	SETTLING TANK
(S.)F.O.C	(SPECIFIC) FUEL OIL CONSUMPTION
S.G	SPECIFIC GRAVITY
S/G	STEERING GEAR
S.GEN	SHAFT GENERATOR
SL.V	SLUICE VALVE (OR GATE VALVE)
SLI	SIGNAL LIGHT CONTROL PANEL
S.L.W.L	SUMMER LOAD WATER LINE
S.M	SUCTION MOUTH

ABBREVIATION	EXPLANATION
SMLS	SEAMLESS
SOUN.P	SOUNDING PIPE
SPEC.	SPECIFICATION
SPLY	SUPPLY
S/S	SHIPSIDE
STBD(S)	STARBOARD (STARBOARD SIDE)
ST-BY	STAND-BY
S.T	SEA TRIAL
S/T	STERN TUBE
ST.	STARTER
STM	STEAM
STOR.	STORAGE
STR	STRAINGER
STRIP.	STRIPPING
STUFF. B	STUFFING BOX
SUCT. (SUC.)	SUCTION
S.V	STOP VALVE
S/V	SOLENOID VALVE
S.W	SEA WATER
S. WEL'G	SOCKET WELDING
SWL	SAFETY WORKING LOAD
SYS	SYSTEM
T/C	TURBO CHARGER
TEMP.	TEMPERATURE
T.H.D.P	TANK HEATING DRAIN PIPE
THK	THICKNESS
T.H.S.P	TANK HEATING STEAM PIPE
TK	TANK
TK/C	TANK CLEANING
TRANS	TRANSFER
TRANSM	TRANSMITTER
T.S.W.TK	TOP SIDE WING TANK
T.TOP(T.T)	TANK TOP
TYP.	TYPICAL
UND(U)	UNDER
UPP.DK	UPPER DECK
U.S.(A)	UNITED STATES (OF AMERICA)
U.S.C.G	UNITED STATES COAST GUARD
VAC. COND.	VACCUM CONDENSER
VENT.	VENTILATION
VERT.	VERTICAL
VISCO.(VISC.)	VISCOSITY
V/V(V.)	VALVE
WAS'G	WASHING

ABBREVIATION	EXPLANATION
W/B	WASH BASIN
W.B.STR.P	WATER BALLAST STRIPPING PIPE
W.B.(T.)	WATER BALLAST (TANK)
W.C	WATER CLOSET
W.C.C	WHEEL-HOUSE CONTROL CONSOLE
W.D.P	WASH DECK PIPE
W/H	WHEEL HOUSE
W.M.C	WHEEL-HOUSE MANUEVRING CONSOLE
W.N.C	WHEEL-HOUSE NAVIGATION CONSOLE
W.O.TK	WASTE OIL TANK

stx	INSTRUMENT SYMBOL LIST & PIPE TREATMENT SYMBOL	PAGE	9/42
		MODEL NO.	60KPC01
		DWG. NO.	D6011000

INSTRUMENT SYMBOL LIST

ABBREVIATION	CONTENTS	ABBREVIATION	CONTENTS
CI	COMPOUND GAUGE	TAH	TEMPERATURE ALARM HIGH
DPI	DIFFERENTIAL PRESSURE INDICATOR	TI	TEMPERATURE INDICATOR
DPS	DIFFERENTIAL PRESSURE SWITCH	TIAL	TEMPERATURE INDICATOR ALARM LOW
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	TIAH	TEMPERATURE INDICATOR ALARM HIGH
FD	FLOW DETECTOR	TIAHL	TEMPERATURE INDICATOR ALARM HIGH LOW
FS	FLOW SWITCH	TIC	TEMPERATURE INDICATING CONTROLLER
FT	FLOW TRANSMITTER	TS	TEMPERATURE SWITCH
IL	INDICATION LAMP	TT	TEMPERATURE TRANSMITTER
LI	LEVEL INDICATOR	VAL	VISCOSITY ALARM LOW
LIC	LEVEL INDICATING CONTROLLER	VAH	VISCOSITY ALARM HIGH
LAL	LEVEL ALARM LOW	VCA	VACUUM ALARM
LAH	LEVEL ALARM HIGH	VCI	VACUUM INDICATOR
LIAL	LEVEL INDICATOR ALARM HIGH	VI	VISCOSITY INDICATOR
LIAHL	LEVEL INDICATOR ALARM HIGH LOW	VT	VISCOSITY TRANSMITTER
LIAHH	LEVEL INDICATOR ALARM HIGH HIGH	XS	AUXILIARY UNSPECIFIED SWITCH
LS	LEVEL SWITCH	ZI	POSITION INDICATOR
LT	LEVEL TRANSMITTER	ZS	LIMIT SWITCH
ODAH	OIL DETECTOR ALARM HIGH		
PAL	PRESSURE ALARM LOW		
PI	PRESSURE GAUGE / INDICATOR		
PIAL	PRESSURE INDICATOR ALARM LOW		
PIAH	PRESSURE INDICATOR ALARM HIGH		
PIAHL	PRESSURE INDICATOR ALARM HIGH LOW		
PIC	PRESSURE INDICATING CONTROLLER		
PS	PRESSURE SWITCH		
PT	PRESSURE TRANSMITTER		
SAH	SALINITY ALARM HIGH		
SD	SOLINITY DETECTOR		
SI	SALINITY INDICATOR		
SOD	SMOKE DETECTOR		
SV	SOLENOID VALVE		
TAL	TEMPERATURE ALARM LOW		

PIPE TREATMENT SYMBOL

NO	MARK	DESCRIPTION	REMARK
1	AA	ACID PICKLING	
2	AG	ACID PICKLING + GALVANIZING	
3	AP	ACID PICKLING + PAINTING	
4	BP	BLASTING + PAINTING	
5	PPH	POWER TOOL + PHOSPHATE	
6	P(S)P	POWER TOOL OR SWEEPING + PAINTING	
7	NO	NO TREATMENT	
8	APH	ACID PICKLING + PHOSPHATE	
9	AO	ACID PICKLING + OILING	

NOTE
REFER TO "THE PAINTING SPECIFICATION" FOR FURTHER DETAILS OF PAINTING SYSTEM.

TANK LIST IN E/R

PAGE	10/42
MODEL NO.	60KPC01
DWG. NO.	D6011000

NO	TANK NAME	CAPACITY (M^3)	Q'TY	TYPE		HEAT RATIO (M^2/M^3)	HEATING COIL	STEAM BLOWING	SOUNDING METHOD					LEVEL ALARM (%)		LEVEL CONTROL (%)		OVERFLOW (%)	TEMP. INDICATOR			TEMP. ALARM (°C)		WORKING TEMP (°C)	INSULATION	POSITION OF TANK	REMARK
				HULL	INDI				FLAT GLASS	DIAL FLOAT	SOUN'G CAP	REMOTE	CONTENT	LOW	HIGH	START	STOP		LOCAL BAR	LOCAL DIAL	REMOTE	LOW	HIGH				
1	NO.1 H.F.O. TANK(P)	ABT.	1	◎		0.03	UNIT	◎			◎	◎			90/85						◎		50	45		FR43~FR47(P)	
2	NO.1 H.F.O. TANK(S)	ABT.	1	◎		0.03	UNIT	◎			◎	◎			90/85						◎		50	45		FR43~FR47(S)	
3																											
4	NO.2 H.F.O. TANK(S)	ABT.	1	◎		0.03	UNIT	◎			◎	◎			90/85						◎		50	45		E/R(S)	
5	H.F.O. LOW SULPHUR SETTLING TANK	ABT. 35.0	1	◎		0.1	UNIT	◎				◎	◎	30	85	40	80	90	◎		◎		110	60	◎	2ND~1ST DK(P)	
6	H.F.O. SETTLING TANK	ABT. 40.0	1	◎		0.1	UNIT	◎				◎	◎	30	85	40	80	90	◎		◎		110	60	◎	2ND~1ST DK(P)	
7	H.F.O. LOW SULPHUR SERVICE TANK	ABT. 35.0	1	◎		0.08	UNIT	◎				◎	◎	50				95	◎		◎		110	98	◎	2ND~1ST DK(P)	
8	H.F.O. SERVICE TANK	ABT. 40.0	1	◎		0.08	UNIT	◎				◎	◎	50				95	◎		◎		110	98	◎	2ND~1ST DK(P)	
9	M.D.O. STORAGE TANK	ABT.	1	◎							◎	◎			90/85											E/R D/B(P)	
10	M.G.O. STORAGE TANK FOR H.P.P ENGINE	ABT. 65.0	1	◎							◎	◎			90/85		SEE PAGE.20									E/R D/B(S)	
11	M.D.O. SETTLING TANK	ABT. 20.0	1	◎								◎	◎	30	85	40	80	90								1ST DK(P)	
12	M.D.O. SERVICE TANK	ABT. 20.0	1	◎								◎	◎	50				95								1ST DK(P)	
13	FUEL OIL OVERFLOW TANK	ABT. 15.0	1	◎		0.04	◎	◎			◎				50					◎	◎		50	45		E/R D/B(P)	
14	SLUDGE TANK	ABT. 10.0	1	◎		0.1	◎	◎			◎				50					◎						PURI.RM UNDER	
15	M.E. LUB. OIL SUMP TANK	ABT. 17.0	1	◎			SEE NOTE.3			◎				50						◎						M.E UNDER	
16	M.E. LUB. OIL STORAGE TANK	ABT. 17.0	1	◎							◎		◎		90											1ST DK(P)	
17	M.E. LUB. OIL SETTLING TANK	ABT. 17.0	1	◎		0.04	◎				◎		◎		90				◎							1ST DK(P)	
18	CYLINDER OIL STORAGE TANK	ABT. 25.0	1	◎							◎		◎													1ST DK(S)	
19	LOW TBN CYL. OIL STORAGE TANK	ABT. 20.0	1	◎							◎		◎													1ST DK(S)	
20	G.E. LUB. OIL STORAGE TANK	ABT. 5.0	1	◎							◎		◎		90											1ST DK(P)	
21	G.E. LUB. OIL SETTLING TANK	ABT. 5.0	1	◎		0.04	◎				◎		◎		90				◎							1ST DK(P)	
22	STERN TUBE L.O. DRAIN TANK	ABT. 1.0	1	◎						◎																E/R D/B(S)	
23	HYD. OIL STORAGE TANK FOR CARGO PUMP HYD. POWER PACK UNIT	ABT. 10.0	1	◎						◎					80											HYD.RM UNDER	
24	HYD. POWER PACK CLEAN HYD. OIL STORAGE TANK FOR CARGO PUMP	ABT. 10.0	1	◎						◎																HYD.RM UNDER	
25	BILGE HOLDING TANK	ABT. 35.0	1	◎			SEE NOTE.3			◎					90											E/R D/B	
26	OILY BILGE TANK	ABT. 25.0	1	◎		0.04	◎	◎		◎					90					◎						E/R D/B(P)	
27	STURN TUBE L.O. TANK	0.18	1		◎				◎					40	80											1ST DK(S)	
28	M.E. SCAVENGING AIR BOX DRAIN TANK	0.4	1		◎	0.04	◎	◎		◎					80					◎						TANK TOP(P)	
29	EM'CY G.E. MARINE GAS OIL TANK	0.8	1		◎				◎		◎	◎		30												EM'CY G.E RM	
30	M.E. AIR COOLER CHEMICAL CLEANING TANK	0.6	1		◎	0.04	◎		◎											◎						TANK TOP(S)	
31	H.T. F.W. EXP. TANK FOR M.E.	1.0	1		◎				◎					50				90								UPPER DECK	
32	L.T. F.W. EXP. TANK FOR G.E. AND AUX. MACHINERIES	1.0	1		◎				◎					50				90								UPPER DECK	
33	CASCADE TANK WITH OBSERVATION TANK	5.0	1		◎				◎					30				90	◎				60	◎		2ND DK(P)	
34	WASTE OIL SERVICE TANK FOR INCINERATOR	1.0	1		◎	0.2	◎	◎			◎		◎		80			90	◎				90	◎		1ST DK(S)	
35	SAWAGE HOLDING TANK	20.0	1	◎						◎					80			90								2ND DK(P)	
36	SOOT DRAIN TANK	1.0	1		◎													90								2ND DK(P)	
37	M.G.O SERV. TK FOR H.P.P ENGINE	ABT. 15.0	1	◎								◎	◎	30				SEE PAGE.20								2ND DK(P)	
38	HYD. OIL STOR. TANK FOR STEERING GEAR	ABT. 2.0	1		◎				◎																	S/G ROOM	
39	G.E L.O DAILY TANK	0.25	1		◎				◎								80									2ND DK(S)	
40	CYLINDER OIL MEASURING TANK	0.9	1		◎				◎					30												1ST DK(S)	
41	LOW TBN CYLINDER OIL MEASURING TANK	0.7	1		◎				◎					30												1ST DK(S)	
42	GEAR OIL DAILY TANK	0.25	1		◎				◎																	2ND DK(S)	
43	WASTE OIL SETT. TANK FOR INCINERATOR	1.0			◎	0.2	◎	◎			◎		◎		80			90	◎				90	◎		UPP DK(S)	

NOTE
1. TOTAL CAPACITY CAN BE CHANGED ACCORDING TO FINAL VOLUME TABLE AND THIS IS ONLY FOR REFERENCE.
2. THE LEVEL ALARM(%), LEVEL CONTROL(%) AND OVERFLOW(%) MAY BE CHANGED ACCORDING TO TANK CAPACITY TABLE AND ACTUAL CONSTRUCTION OF VESSEL.
3. HEATING COIL SHALL BE FITTED AROUND BELL MOUTH ONLY.

ITEM / SYSTEM MAIN	SUB.	DESIGN CONDITION PRESS. (Kg/Cm²)	DESIGN CONDITION TEMP. (°C)	CLASS OF PIPE	HYD.PRESS.TEST (Kg/Cm²) SHOP	HYD.PRESS.TEST (Kg/Cm²) SHIP	PIPE NOM. DIA.	PIPE SPEC.	PIPE MAT'L	PIPE TREATMENT IN SIDE	PIPE TREATMENT OUT SIDE	PIPE JOINT TYPE	PIPE JOINT RATE	PIPE JOINT FITTING	GASKET	INSULATION	VALVE MAT'L BODY	VALVE MAT'L DISC	REMARK
F.O FILL'G & TRANSFER SYSTEM	F.O FILLING AND TRANSFER	3.3	45	III	—	5.0	≦ 40A	B1X	STPG370 SCH40-E	APH	AP	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	*NOTE 1	BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	M.D.O & M.G.O FILLING AND TRANSFER		NOR			5.0	≦ 40A										BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	OVERFLOW	ATM				—	≦ 40A	C1X	STPG370 SCH80-E								—	—	
							≧ 50A										—		
F.O PURIFING SYSTEM	F.O PURIFYING LINE BEFORE HEATER	3.1	60	III	—	4.7	≦ 40A	B1X	STPG370 SCH40-E	APH	AP	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	*NOTE 1	BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	F.O PURIFYING LINE AFTER HEATER	3.1	98	II	4.7	4.7	≦ 40A	B1B	STPG370 SCH40-E								BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	D.O PURIFYING LINE	3.1	NOR	III	—	4.7	≦ 40A	B1X	STPG370 SCH40-E								BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	SLUDGE	ATM				—	≦ 40A			AA							BRONZE	BRONZE	
							≧ 50A										CAST IRON		
F.O SERVICE SYSTEM FOR M.E. G.E	F.O SUPPLY P/P SUC. LINE	3.1	85	II	4.7	4.7	≦ 40A	B1B	STPG370 SCH40-E	APH	AP	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	*NOTE 1	BRONZE	BRONZE	1. CAST STEEL OR BRONZE FOR VALVE FITTED TO OIL TANK 2. OPEN ENDED DRAIN LINES NOT TO BE TESTED.
							≧ 50A										CAST STEEL	SUS	
	F.O SUPPLY P/P DISCH. LINE	4.4			6.6	6.6	≦ 40A										BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	F.O CIRC. P/P DISCH. LINE	14.0	155		21.0	21.0	≦ 40A	E3B	STPG370 SCH40-S				16K				BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	M.E & G.E F.O RETURN PIPE						≦ 40A										BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	G.E D.O SUPPLY P/P SUC. LINE	3.1	NOR	III	—	4.7	≦ 40A	B1X	STPG370 SCH40-E				5K				BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	G.E D.O SUPPLY P/P DISCH. LINE	5.5		III	8.25	8.25	≦ 40A	B1X	STPG370 SCH40-E				5K				BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	G.E D.O RETURN LINE	4.0		III	6.0	6.0	≦ 40A	B1X	STPG370 SCH40-E				5K				BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	DRAIN LINE	ATM			—	—	≦ 40A			AA	AP						BRONZE	BRONZE	
							≧ 50A										CAST IRON		
F.O SERVICE SYSTEM FOR AUX. BLR	AUX. BLR F.O P/P SUC. LINE	3.1	85	II	4.7	4.7	≦ 40A	B1B	STPG370 SCH40-E	APH	AP	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	*NOTE 1	BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	AUX. BLR F.O P/P SUC. LINE (M.G.O COOLING LINE)	3.1	NOR	III	—	4.7	≦ 40A	B1X	STPG370 SCH40-E								BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	AUX. BLR F.O P/P DISCH. LINE	30.0	85	I	45.0	45.0	≦ 25A	E5A	STPG370 SCH40-S				30K				BRONZE	BRONZE	
	F.O HEATER FOR AUX. BLR OUTLET LINE		150				≧ 32A										CAST STEEL	SUS	
	AUX. BLR D.O IGNITION PUMP SUC	3.1	NOR	III	—	4.0	≦ 40A	B1X	STPG370 SCH40-E				5K				BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	AUX. BLR D.O IGNITION PUMP DISCH.	11.0	NOR	II	16.5	16.5	≦ 40A	E3B	STPG370 SCH40-S				16K				BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
F.O SERVICE SYSTEM FOR INCI. & ETC	SLUDGE P/P SUC. & DISCH. LINE	4.0	NOR	III	6.0	—	≦ 40A	B1X	STPG370 SCH40-E	APH	AP	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	*NOTE 1	BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	INCI. WASTE OIL LINE	3.1	100	II	4.7	—	≦ 40A	B1B	STPG370 SCH40-E				5K				BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	EM'CY G.E M.G.O LINE	3.1	NOR	III	—	4.7	≦ 40A	B1X	STPG370 SCH40-E				5K				BRONZE	BRONZE	
							≧ 50A										CAST IRON		

SPECIFICATION OF PIPING SYSTEM

PAGE	12/42
MODEL NO.	60KPC01
DWG. NO.	D6011000

ITEM / SYSTEM MAIN	SUB.	DESIGN CONDITION PRESS. (Kg/Cm²)	TEMP. (°C)	CLASS OF PIPE	HYD.PRESS.TEST (Kg/Cm²) SHOP	SHIP	PIPE NOM. DIA.	SPEC.	MAT'L	TREATMENT IN SIDE	TREATMENT OUT SIDE	PIPE JOINT TYPE	RATE	FITTING	GASKET	INSULATION	VALVE MAT'L BODY	VALVE MAT'L DISC	REMARK
L.O SYSTEM	L.O FILLING AND TRANSFER	3.3	NOR	III	—	—	≦ 40A	B1X	STPG370 SCH40-E	AO	AP	FLANGE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	*NOTE 1	BRONZE CAST IRON	BRONZE	1.CAST STEEL OR BRONZE FOR VALVE FITTED TO OIL TANK 2.OPEN ENDED DRAIN LINES NOT TO BE TESTED. 3.L.O LINE -ABOVE 100A E-TYPE FLANGE
							≧ 50A												
	L.O PURIFYING BEFORE HEATER		45				≦ 40A										BRONZE CAST IRON	BRONZE	
							≧ 50A												
	L.O PURIFYING AFTER HEATER		90	II	5.0		≦ 40A	B1B	STPG370 SCH40-E								BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	MAIN L.O SERVICE LINE	4.3	NOR	III	6.5	—	≦ 40A	B1X OR B7X	STPG370 SCH40-E			SLIP-ON FLANGE (E-TYPE)					BRONZE CAST IRON	BRONZE	
							≧ 50A												
	MAIN L.O DRAIN LINE TO SUMP TANK	ATM					ALL	A1X	SPP-E			—	5K				—	—	
	STERN TUBE L.O SERVICE LINE	1.1			—		≦ 40A	B1X	STPG370 SCH40-E			FLANGE					BRONZE CAST IRON	BRONZE	
							≧ 50A												
	L.O SLUDGE & L.O DRAIN	ATM					≦ 40A			AA	AP	FLANGE OR SLEEVE					BRONZE CAST IRON	BRONZE	
							≧ 50A												
BILGE & FIRE.G/S SYSTEM	BILGE GENERAL AND OILY BILGE LINE	3.0	NOR	III	—	—	≦ 40A	C1X	STPG370 SCH80-E	AG	AG	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	—	BRONZE CAST IRON	BRONZE	1.MATERIAL OF FIRE HOSE V/V BODY IS BRONZE 2.OPEN ENDED DRAIN LINES NOT TO BE TESTED.
							≧ 50A												
	BILGE DRAIN THROUGTH A.P.TK	ATM					≦ 40A	C1X	STPG370 SCH80-E								BRONZE CAST IRON	BRONZE	
							≧ 50A												
	FIRE & G.S PUMP SEA WATER LINE A.P TANK SUC. & DISCH. LINE	10.0					≦ 100A	C2X	STPG370 SCH80-E	1.100A & BELOW:AG 2.125A & ABOVE: POLYETHYLENE COATING			10K				BRONZE CAST IRON	BRONZE	
	FIRE & WASH DECK LINE						125A & 150A	D2X	STPG370 SCH160-E	AG	AG						BRONZE CAST IRON	BRONZE	
							≧ 200A	C2X	STPG370 SCH80-E (12.7MM)										
	SHIPSIDE CONNECTION	—	—	II		5.1	≦ 50A	D2B	STPG370 SCH160-E	AG	AG						BRONZE	BRONZE	
							≧ 65A	C2B	STPG370 SCH80-E	*NOTE9			10K				CAST STEEL	SUS	
COOLING S.W & SERVICE SYSTEM	SEA WATER GENERAL SERVICE, COOLING SEA WATER LINE,	2.5 ~ 5.0	NOR	III	—	—	—	C1X OR D1X	1. 100A & BELOW STPG370 SCH80-E 2. 125A - 150A STPG370 SCH160-E 3. 200A & ABOVE STPG370 SCH80-E(12.7T)	1.100A & BELOW: AG 2.125A & ABOVE: POLYETHYLENE COATING		FLANGE	5K OR 10K	B.W	NON ASBESTOS	—	BRONZE CAST IRON	BRONZE	SEA CHEST STRAINER: *ELEMENT= SUS316 *INSIDE COATING= TAR-EPOXY
	MAIN SEA CROSS OVER LINE						ALL	B1X	STPG370 (9.5T)	POLYETHYLENE									
	SHIPSIDE CONNECTION	—	—	II	—	5.1	≦ 50A	D2B	STPG370 SCH160-S	AG	AG						BRONZE	BRONZE	
							≧ 65A	C2B	STPG370 SCH80-E	*NOTE9							CAST STEEL	SUS	
	MAIN SEA CROSS LINE SEA WATER INLET (IN SEA CHEST)						≧ 450A	C2B	STPG370 SCH80-E (12.7T)	AG *NOTE9	AG						CAST STEEL	SUS	
F.W SERVICE SYSTEM	DOMESTIC F.W SERVICE LINE	4.0	NOR	III	—	—	≦ 40A	B1X	STPG370 SCH40-E	AG	AG	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	—	BRONZE CAST IRON	BRONZE	
							≧ 50A												
	DRINKING WATER SERVICE LINE & F.W SUCTION LINE						≦ 40A	X1X	COPPER-S	NO	NO	UNION COUPLING	—	BITE OR BRAZING	—		BRONZE CAST IRON	BRONZE	
							≧ 50A												
	HOT WATER SERVICE LINE	5.0	70				≦ 40A	X1X	COPPER-S							*NOTE 1	BRONZE CAST IRON	BRONZE	
							≧ 50A												
COOLING F.W SYSTEM	M.E JACKET COOLING F.W SERVICE LINE	3.0	80	III	—	—	≦ 40A	A1X OR B1X	1. 100A & BELOW: STPG370 SCH40-E 2. 125A & ABOVE: SPP-E	APH	AP	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	—	BRONZE CAST IRON	BRONZE	
							≧ 50A												
	AUX. JACKET COOLING F.W SERVICE LINE						≦ 40A										BRONZE CAST IRON	BRONZE	
							≧ 50A												
	M.E AIR COOLER CLEANING LINE	3.0	NOR				≦ 40A										BRONZE CAST IRON	BRONZE	
							≧ 50A												

SPECIFICATION OF PIPING SYSTEM

PAGE	13/42
MODEL NO.	60KPC01
DWG. NO.	D6011000

ITEM / SYSTEM MAIN	SUB.	DESIGN CONDITION PRESS. (Kg/Cm²)	TEMP. (°C)	CLASS OF PIPE	HYD.PRESS.TEST (Kg/Cm²) SHOP	SHIP	PIPE NOM. DIA.	SPEC.	MAT'L	TREATMENT IN SIDE	TREATMENT OUT SIDE	PIPE JOINT TYPE	RATE	FITTING	GASKET	INSULATION	VALVE MAT'L BODY	VALVE MAT'L DISC	REMARK
AIR SERVICE SYSTEM	30Kg/Cm²COMPRESSED AIR LINE	33	NOR	II	49.5	49.5	≦ 25A	F5B	STPG370 SCH80-S	APH	AP	FLANGE	30K	B.W S.W FOR BELOW 32A	NON ASBESTOS	—	FORGED	SUS	
							≧ 32A										CAST STEEL		
	7Kg/Cm²COMPRESSED AIR LINE	7.7		III	—	11.5	≦ 40A	C2X	STPG370 SCH80-E	AG	AG	FLANGE OR SLEEVE	10K				BRONZE	BRONZE	
							≧ 50A										CAST STEEL		
	CONTROL AIR LINE						≦ 40A										BRONZE	BRONZE	
							≧ 50A										CAST STEEL		
	R.C.V CONTROL LINE						≧ 15A										BRONZE	BRONZE	
							< 15A	X2X	COPPER-S	NO	NO	UNION	—	BITE JOINT	—				
AUX. BLR FEED WATER SYSTEM	FEED WATER P/P SUC. LINE	ATM	60	III	—	4.0	≦ 40A	B1X	STPG370 SCH40-E	AA	AP	FLANGE OR SLEEVE	5K	B.W S.W FOR BELOW 32A	NON ASBESTOS	*NOTE 1	BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	FEED WATER P/P DISCH. LINE	12.0			18.0	18.0	≦ 40A	E3X	STPG370 SCH40-S				16K				BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	AUX. BLR BLOW-OFF LINE	9.0	175	II	13.5	13.5	≦ 40A	E3B	STPG370 SCH40-S				10K		SPIRAL WOUND (STEAM)		BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	STEAM EXHUAST LINE	ATM	NOR	III		—	≦ 40A	C1X	STPG370 SCH80-E				5K				BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	SHIPSIDE CONNECTION	—	—	II		5.0	≦ 50A	D2B	STPG370 SCH160-S	AG	AG		10K		NON ASBESTOS		BRONZE	BRONZE	
							≧ 65A	C2B	STPG370 SCH80-E								CAST STEEL	SUS	
STEAM SERVICE & CONDENSATE SYSTEM	7Kg/Cm²STEAM SERVICE LINE	9.0	175	II	13.5	—	≦ 40A	C2B	STPG370 SCH80-E	AA	AP	FLANGE OR SLEEVE	10K	B.W S.W FOR BELOW 32A	SPIRAL WOUND (STEAM)	*NOTE 1	BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	4Kg/Cm²STEAM SERVICE LINE	4.4	147	III	6.6		≦ 40A	C1X	STPG370 SCH80-E				5K				BRONZE	BRONZE	
							≧ 50A										CAST STEEL	SUS	
	7Kg/Cm²STEAM HEATING COIL (HEATING UNIT) SHELL SIDE	9.0	175	II		13.5	40A OR 50A	C2B	STPG370 SCH80-E			SLEEVE	—		—		—	—	
	7Kg/Cm²STEAM HEATING COIL (HEATING UNIT) TUBE SIDE							F2B	STPG370 SCH80-S										
	4Kg/Cm²STEAM HEATING COIL	4.4	147	III	—	6.6		F1X											
	CONDENSATE WATER LINE	ATM	MAX. 100			—	≦ 40A	C1X	STPG370 SCH80-E			FLANGE OR SLEEVE	5K		SPIRAL WOUND (STEAM)		BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	4Kg/Cm²STEAM TRACING LINE	4.4	147				≦ 10A	X1X	COPPER-S	NO	NO	UNION	—	BITE JOINT	—		BRONZE	BRONZE	
AIR VENT AND SOUNDING SYSTEM	AIR VENT FOR HULL AND INDI. TANK	ATM	NOR	III	—	—	ALL	C1X	STPG370 SCH80-E	AG EXCEPT FOR OIL TK		SLIP-ON FLANGE OR SLEEVE	5K	B.W	NON ASBESTOS	—	VENT HEAD MAT'L: - BODY: GAL'V CAST IRON - FLOAT: STAINLESS STEEL		VENT HEAD TO BE FITTED STAINLESS STEEL WIRE GAUGE
	AIR VENT ON WEATHER DK AND PASSING THROUGH F.O.TK																		
	SOUNDING GENERAL																		
	SOUNDING ON WEATHER DK AND PASSING THROUGH F.O.TK																		

SPECIFICATION OF PIPING SYSTEM

PAGE	14/42
MODEL NO.	60KPC01
DWG. NO.	D6011000

ITEM / SYSTEM MAIN	SUB.	DESIGN CONDITION PRESS. (Kg/Cm²)	DESIGN CONDITION TEMP. (°C)	CLASS OF PIPE	HYD.PRESS.TEST (Kg/Cm²) SHOP	HYD.PRESS.TEST (Kg/Cm²) SHIP	PIPE NOM. DIA.	PIPE SPEC.	PIPE MAT'L	PIPE TREATMENT IN SIDE	PIPE TREATMENT OUT SIDE	PIPE JOINT TYPE	PIPE JOINT RATE	PIPE JOINT FITTING	GASKET	INSULATION	VALVE MAT'L BODY	VALVE MAT'L DISC	REMARK
EXH. GAS SYSTEM	MIST VENT LINE	ATM	NOR	III	—	—	≦ 40A	B1X	STPG370 SCH40-E	AA	AP	FLANGE OR SLEEVE	5K	B.W	NON ASBESTOS (EXH.)	*NOTE 1	BRONZE	BRONZE	1.500A & ABOVE : JISF7805 STEEL PLATE SLIP-ON OR BUTT WELDING.
							≧ 50A										CAST IRON		
	DRAIN LINE						≦ 40A	C1X	STPG370 SCH80-E	AG	AG						BRONZE	BRONZE	
							≧ 50A										CAST IRON		
	EXH. GAS LINE		MAX. 400				≦ 450A	A1X	SPP-E	NO	NO	*1) FLANGE OR BUTT WELD'G	EXH. GAS				—	—	
							≧ 500A		STEEL PLATE-8MM (SS400)										
SCUPPER SYSTEM	E/R DECK SCUPPER LINE	ATM	NOR	III	—	—	≦ 40A	C1X	STPG370 SCH80-E	AG	AG	FLANGE OR SLEEVE	5K	B.W	NON ASBESTOS	—	BRONZE	BRONZE	
							≧ 50A												
OTHER	INSTRUMENT LINE	ATM	—	III	—	—	ALL	—	COPPER-S	NO	NO	BRASS UNION	—	BITE	—	—	BRONZE	BRONZE	
FIRE EXTIN-GUISHING	EXTINGUISHING P/P SUCTION LINE	ATM	NOR	III	—	—	≦ 40A	B1X	STPG370 SCH40-E	AG	AG	FLANGE	5K	B.W	NON ASBESTOS	—	BRONZE	BRONZE	OPEN ENDED LINES NOT TO BE TESTED.
							≧ 50A										CAST IRON		
	EXTINGUISHING P/P DISCHARGE LINE	10.1					≦ 40A	B2X					10K				FORGED	SUS	
							≧ 50A										CAST STEEL		

* NOTES

1. THE SURFACE HAVING NORMAL OPERATING TEMPERATURE ABOVE 65°C, EXCEPT FOR THE COOLING FRESH WATER LINE AND CONDENSATE LINE WHERE OTHERWISE DESCRIBED BELOW.

SYSTEM	NOMINAL DIA. (SIZE)	MATERIAL	THICKNESS
STEAM SUPPLY	32A & ABOVE	GLASS WOOL	25MM
	25A & BELOW	FIBER GLASS CLOTH	TWO LAYER
STEAM ESCAPE FOR SAFETY VALVE	ALL	FIBER GLASS CLOTH	TWO LAYER
H.F.O/L.O(STEAM TRACED & INSULATED)	ALL	GLASS WOOL	25MM
H.F.O/L.O(INSULATED)	32A & ABOVE	GLASS WOOL	25MM
	25A & BELOW	FIBER GLASS CLOTH	TWO LAYER
HOT WATER CIRCULATION	ALL	FIBER GLASS CLOTH	TWO LAYER
EXH. GAS	M.E.	ROCK WOOL WITH GALV. SHEET STEEL	75MM
	G.E. & AUX. BOILER ETC	ROCK WOOL WITH GALV. SHEET STEEL	50MM
H.F.O SERV./SETT. TK, WASTE OIL TK	-	GLASS WOOL	25MM
FLANGE & VALVE FOR STEAM	-	ROCK WOOL MAT	25MM
S.W FOR M.E. AIR COOLER & ABOVE ELEC. EQUIPMENT	ALL	FIBER GLASS CLOTH	ONE LAYER
H.T COOLING FRESH WATER & CONDENSATE LINE (WHERE THE LINES ARE EXPOSED TO PASSAGE WAY)	ALL	FIBER GLASS CLOTH	TWO LAYER

THICKNESS OF INSULATION MENTIONED ABOVE SHALL BE SUFFICENT TO CAUSE NO INJURY FOR ACCIDENTAL TOUCH AND TEMP. SHALL NOT BE EXCEED 55°C.

2. THE EXHAUST GAS PIPING AFTER TURBOCHARGER OF MAIN ENGINE AND GEN. ENGINES, BOILER AND INCINERATOR SHALL BE INSULATED WITH ROCK WOOL OR EQUIVALENT AND FASTENED BY GALVANIZED STEEL WIRE AND FINISHED WITH GALVANIZED STEEL PLATE.

3. EXHAUST GAS PIPE AND UPTAKE UPTO FUNNEL TOP LEVEL SHALL BE INSULATED.

4. THE EXPOSED PART TO THE CREW OF FOLLOWING PIPE SHALL BE INSULATED WITH GLASS CLOTH REGARDLESS OF PIPE DIAMETER AND INTERNAL FLUID TEMPERATURE.
- DRAIN PIPE AFTER PASSING THROUGH DRAIN VALVE AND TRAP.
- BLOW OFF PIPE OF BOILER WATER.
- EXHAUST STEAM PIPE AFTER RELIEF AND SAFETY VALVE.
- BOILER FEED WATER LINE OF NOMINAL DIA. 15A AND BELOW.

5. FLANGE AND VALVE OF FO/LO SYSTEM TO BE INSULATED WITH REMOVABLE TYPE MAT INSULATION.

6. THE THICKNESS OF GALVANIZED STEEL PLATE SHALL BE OF 0.5MM, IN GENERAL.
7. THE FLANGE JOINTS AND VALVES FOR STEAM PIPING SHALL BE INSULATED BY REMOVAABLE TYPE MATTRESS.
8. VALVE TYPE(STRAIGHT OR ANGLE) ON PIPING DIAGRAM CAN BE CHANGED IN ACCORDANCE WITH PIPING ARRANGEMENT.
9. THE INSIDE PAINTING FOR SHIPSIDE CONNECTION(125A & ABOVE) TO BE TREATED ACCORDING TO THE YARD PAINT SPEC.
10. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ⬚ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER'S STANDARD.
11. SYMBOL MEANS

12. POSITIONS OF PIPE BRANCHES SHOWN IN THIS DIAGRAM MAY BE CHANGED TO OTHER SUITABLE POSITIONS ACCORDING TO MACHINERY AND PIPING ARRANGEMENT CONDITION.
13. THIS DRAWING CAN BE MODIFIED IN ACCORDANCE WITH DRAWING OF EQUIPMENT MAKER.
14. PIPE INSULATION IN WAY OF FLANGES AND FITTINGS, THE END IF INSULATION SHALL BE SUITABLY TERMINATED TO PERMIT FREE REMOVAL OF BOLTS AND TO ALLOW MOVEMENT OF PIPE HANGERS.
15. S.W PIPING RUNNING ABOVE ELECTRIC EQUIPMENT SHALL HAVE FIBERGLASS WOOL CLOTH SWEAT PROTECTION.

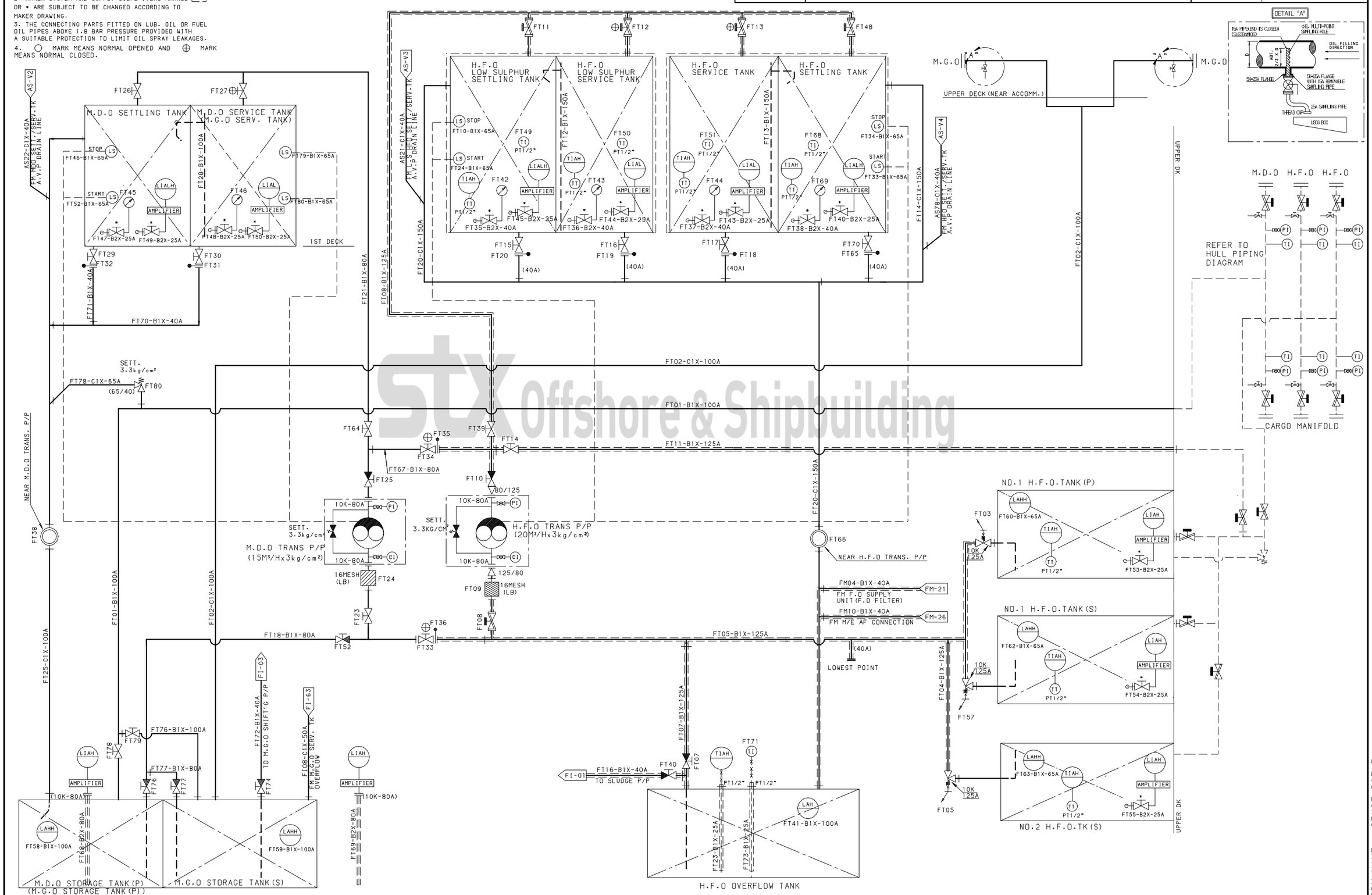
LINE NO. : FT01~FT80
VALVE NO. : FT01~FT80

-NOTE-

1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. THE CONNECTING PARTS FITTED ON LUB. OIL OR FUEL OIL PIPES ABOVE 1.8 BAR PRESSURE PROVIDED WITH A SUITABLE PROTECTION TO LIMIT OIL SPRAY LEAKAGES.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

F.O FILLING & TRANSFER SYSTEM

PAGE	15/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-FT



F.O PURIFYING SYSTEM

PAGE	16/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-FP

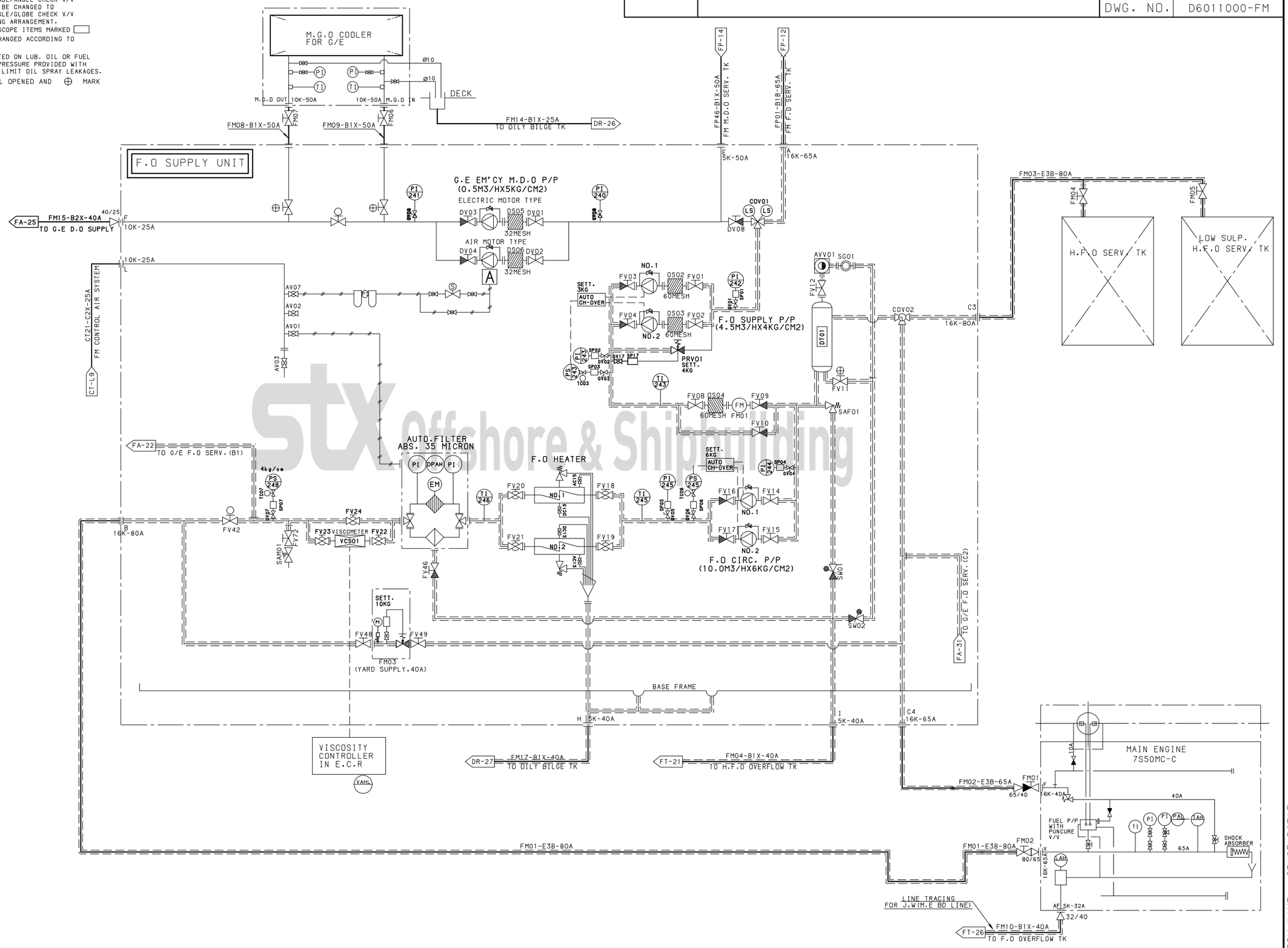
-NOTE-
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. THE CONNECTING PARTS FITTED ON LUB. OIL OR FUEL OIL PIPES ABOVE 1.8 BAR PRESSURE PROVIDED WITH A SUITABLE PROTECTION TO LIMIT OIL SPRAY LEAKAGES.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK

F.O SERVICE SYSTEM FOR M/E

PAGE	17/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-FM

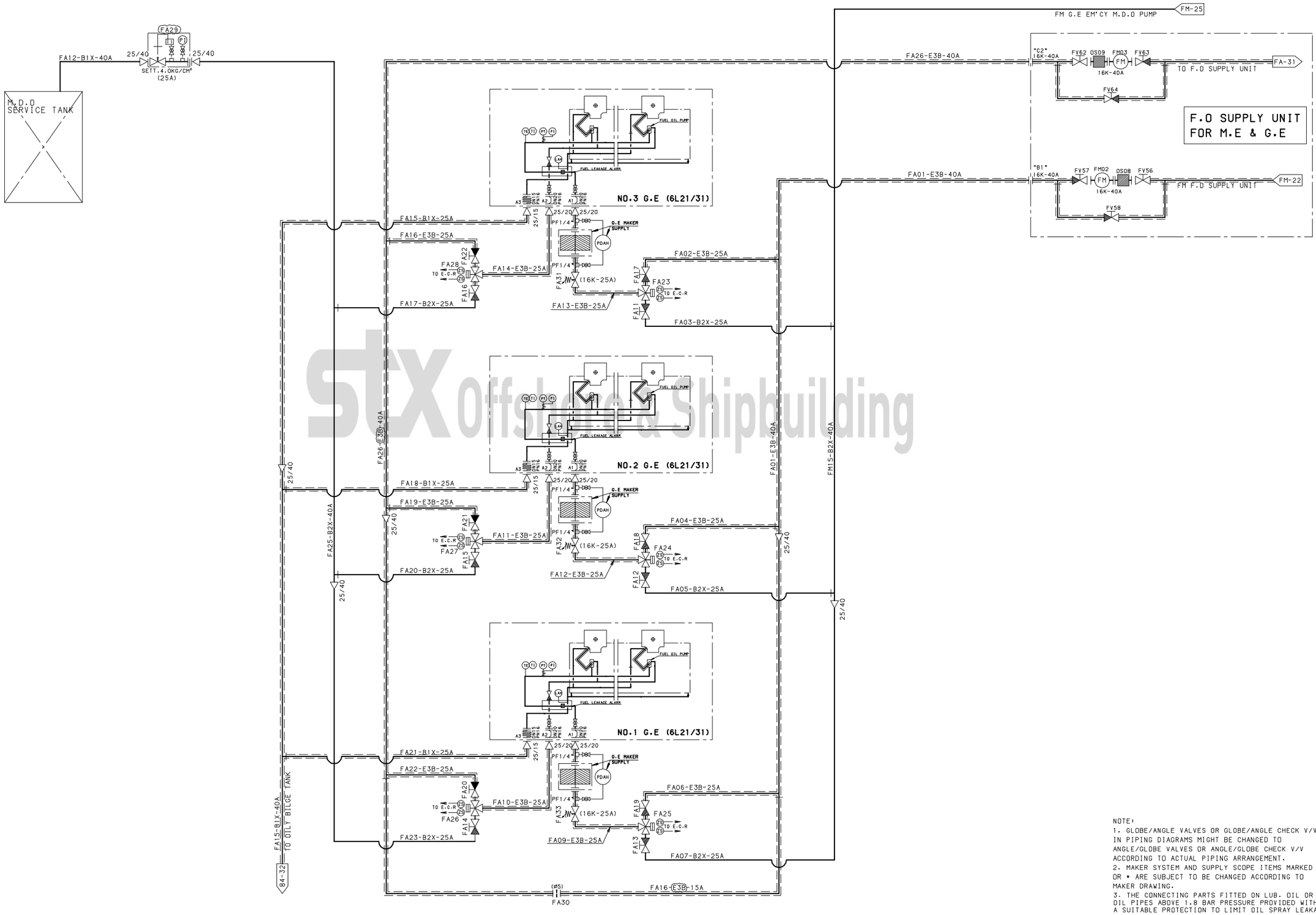
-NOTE-

1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. THE CONNECTING PARTS FITTED ON LUB. OIL OR FUEL OIL PIPES ABOVE 1.8 BAR PRESSURE PROVIDED WITH A SUITABLE PROTECTION TO LIMIT OIL SPRAY LEAKAGES.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.



F.O SERVICE SYSTEM FOR G.E

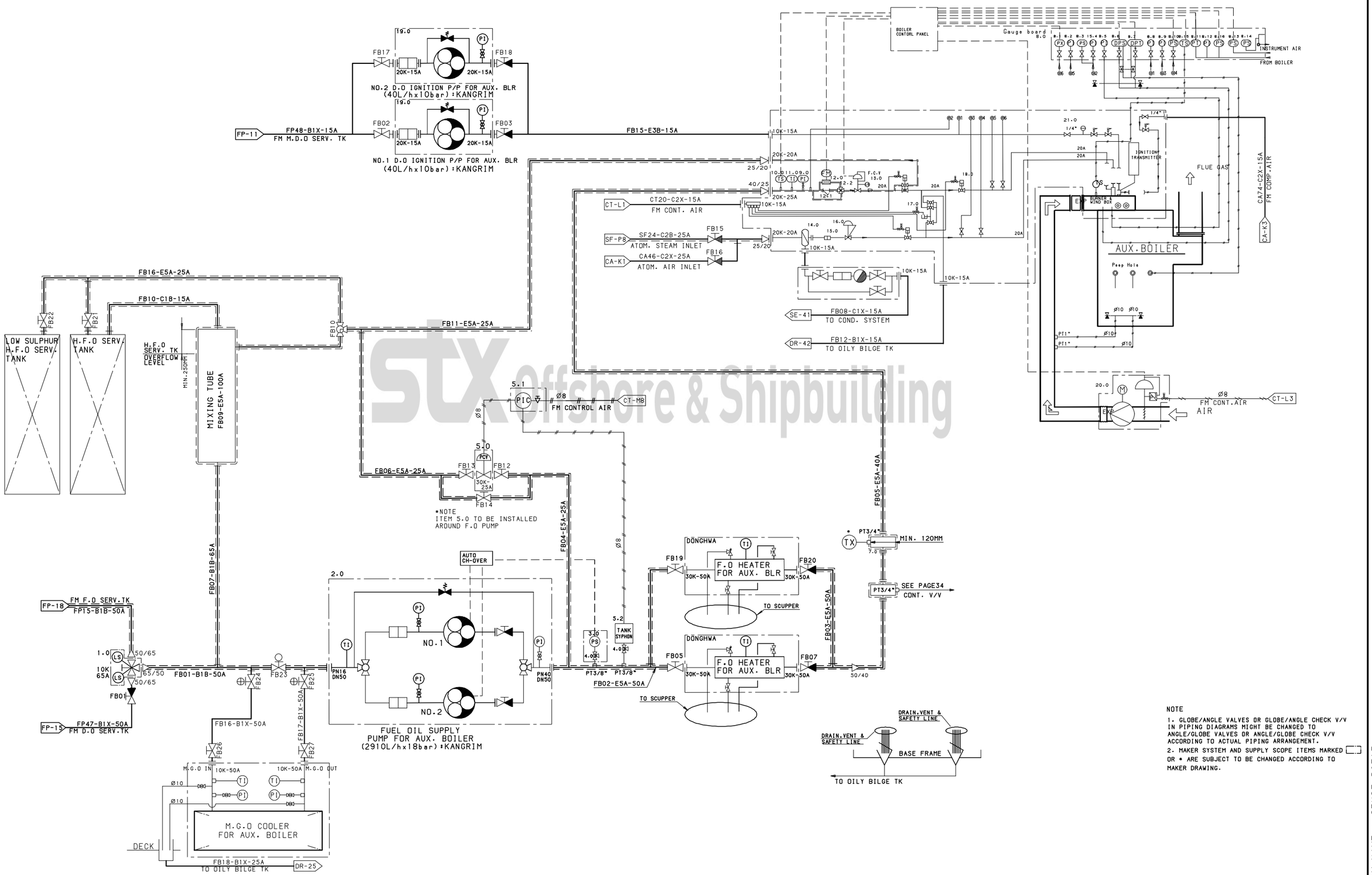
PAGE	18/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-FA



NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. THE CONNECTING PARTS FITTED ON LUB. OIL OR FUEL OIL PIPES ABOVE 1.8 BAR PRESSURE PROVIDED WITH A SUITABLE PROTECTION TO LIMIT OIL SPRAY LEAKAGES.

F.O SERVICE SYSTEM FOR AUX.BLR

PAGE	19/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-FB



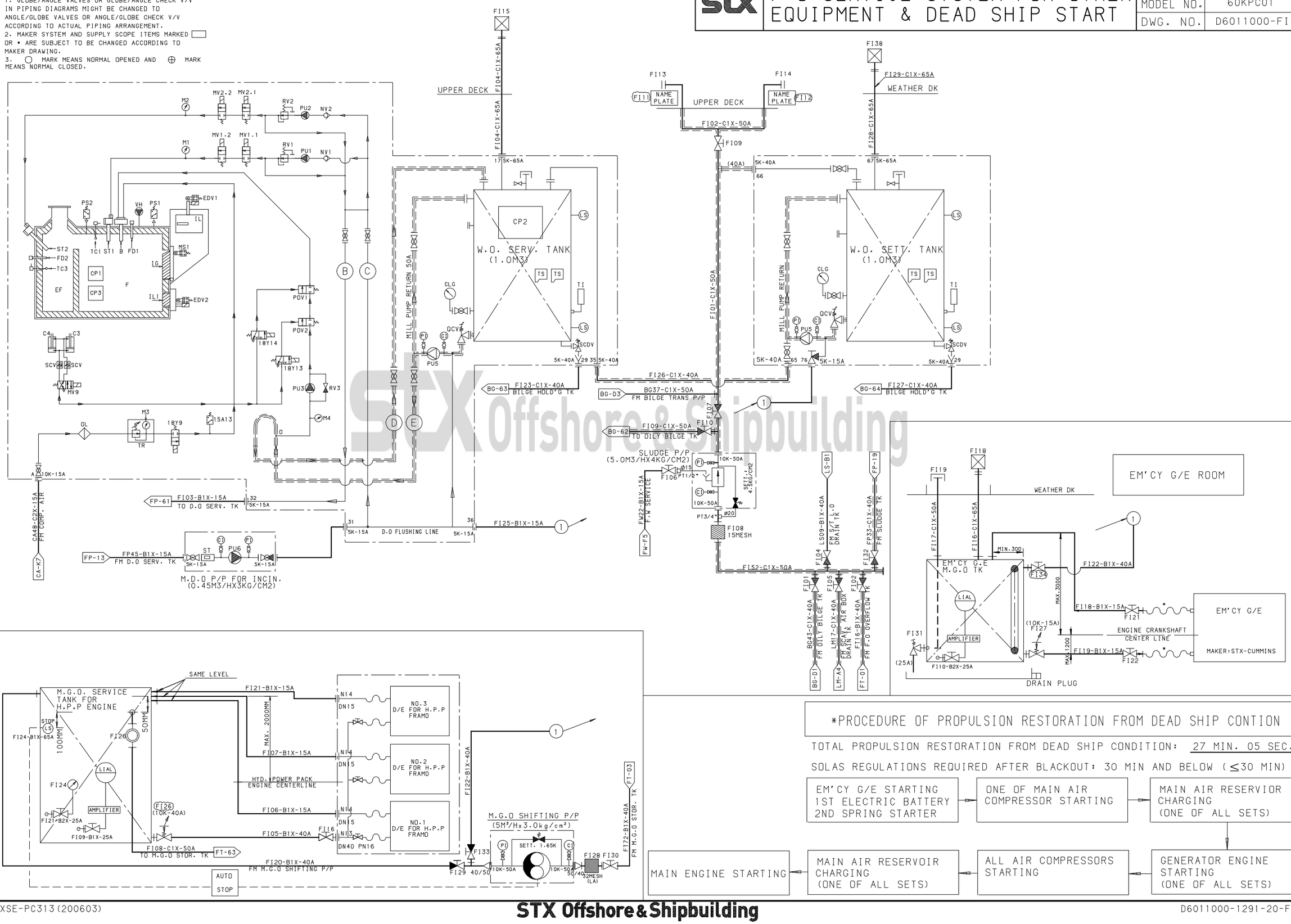
NOTE

1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR • ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

F.O SERVICE SYSTEM FOR OTHER EQUIPMENT & DEAD SHIP START

PAGE	20/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-FI



*PROCEDURE OF PROPULSION RESTORATION FROM DEAD SHIP CONTION

TOTAL PROPULSION RESTORATION FROM DEAD SHIP CONDITION: 27 MIN. 05 SEC.

SOLAS REGULATIONS REQUIRED AFTER BLACKOUT: 30 MIN AND BELOW (≤30 MIN)

EM'CY G/E STARTING
1ST ELECTRIC BATTERY
2ND SPRING STARTER
→ ONE OF MAIN AIR COMPRESSOR STARTING
→ MAIN AIR RESERVIOR CHARGING (ONE OF ALL SETS)
→ GENERATOR ENGINE STARTING (ONE OF ALL SETS)
→ ALL AIR COMPRESSORS STARTING
→ MAIN AIR RESERVOIR CHARGING (ONE OF ALL SETS)
→ MAIN ENGINE STARTING

L.O FILLING & TRANSFER SYSTEM

PAGE	21/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-LF

FILLING CAP
LF58
GEAR OIL DAILY TANK
LF57 (25A)
DRAIN PLUG

LF05(P) LF03(P) LF01(P) NAME PLATE
LF02(S) LF04(S) LF06(S) NAME PLATE
WEATHER DECK
LF01-B1X-50A
LF07-B1X-50A
LF08-B1X-50A
LF07 (10K-50A)
LF09-B1B-50A
LF10-B1B-50A
LF08 (10K-50A)
LF12 LF10 LF11 LF09
LF01-B1X-50A

NO.3 G.E (6L21/31:STX)
NO.2 G.E (6L21/31:STX)
NO.1 G.E (6L21/31:STX)
FILTER
EL. DRIVEN PRE LUB. OIL P/P
L.O COOLER
CYL-1 CYL-2 CYL-6
TO ROCKER ARMS FORCED OIL
END-DRIVEN L.O P/P
C30 PN10-DN40
C13 PN10-DN80
C4 PN10-DN25
C3 PN10-DN25

LF46-C1X-40A TO MIST CHAMBER AS-82
LF40-C1X-80A TO MIST CHAMBER AS-79
SEE NOTE NO.5
LF45-C1X-40A TO MIST CHAMBER AS-81
LF39-C1X-80A TO MIST CHAMBER AS-78
SEE NOTE NO.5
LF44-C1X-40A TO MIST CHAMBER AS-80
LF38-C1X-80A TO MIST CHAMBER AS-77
SEE NOTE NO.5

LF37 25/40
LF22 25/40
LF37-B1B-40A
LF35-B1X-40A
LF36 25/40
LF21 25/40
LF36-B1B-40A
LF34-B1X-40A
LF35 25/40
LF20 25/40
LF27-B1B-40A
LF33-B1X-40A

DETAIL A
WIRE NET

LAH
LF13-B1X-65A
G.E L.O SETT. TANK
LF34 TI PT1/2"
LF43-B1X-65A
G.E L.O STOR. TANK
LF15-B1X-65A
M.E L.O SETT. TANK
LF33 TI PT1/2"
LF16-B1X-65A
M.E L.O STOR. TANK
LM42 LM17-B2X-25A
LM43 LM18-B2X-25A
LM48 LM19-B2X-25A
LM49 LM20-B2X-25A
(10K-40A)
LF24 LF15 LF23 LF16

LF25-B1X-40A LF13
LF26-B1X-25A TO NO.2 L.O PURI. SUPPLY P/P LP-72
LF21-B1X-40A LF14
LF22-B1X-25A TO NO.1 L.O PURI. SUPPLY P/P LP-71
LF27-B1B-40A LF19
LP22-B1B-25A FM NO.2 L.O PURIFIER LP-92
LP24-B1B-25A FM NO.1 L.O PURIFIER LP-94
LP21-B1B-25A FM NO.2 L.O PURIFIER LP-91
LF28-B1X-40A TO S/T L.O DRAIN TANK LS-73
LF50 LF31 LF32 LF30
LF42-B1X-40A
LF43-B1X-40A TO OILY BILGE TANK DR-83
10K-40A P1 C1
L.O TRANS P/P (5M3/H x 3.0 kg/cm2)
SETT. 3.3 kg/cm2
40/50
LF45 32MESH
LF41-B1X-50A
LF29 LF28 LF27 LF26 LF25
LF29-B1X-40A
LF24-B1X-40A
LF30-B1X-40A
LF31-B1X-25A TO NO.1 L.O PURI. SUPPLY P/P LP-74
LF32-B1X-25A TO NO.2 L.O PURI. SUPPLY P/P LP-76
LS16-B1X-40A FM S/T L.O DRAIN TK LS-82
LF56-B1X-25A LF55
G/E L.O DAILY TANK
LF56 (25A) DRAIN PLUG
LF23-B1X-40A
LF29-B1X-40A
LF17
LP-95 LP25-B1B-25A FM NO.1 L.O PURIFIER
LF30
M.E L.O SUMP TANK
LF35-B1X-40A

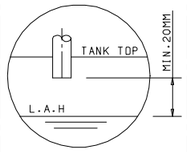
"A" LF47 LF04-C1X-65A
"A" LF53 LF49-C1X-65A
2ND DECK
LAH LF57-B1X-100A
LF44 LF05-B1X-100A
LF52 LF47-B1X-100A
LF18 LF39 LF59 LF54
HYD. OIL STORAGE TANK FOR CARGO P/P H.P.P.
CLEAN HYD. OIL STOR. TK FOR CARGO P/P H.P.P.
LF39/54 TO BE LOCATED AT A CONVENIENT POSITION TO OPERATE
LF48-B1X-25A
LF06-B1X-25A TO OILY BILGE TANK DR-75

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR • ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. THE CONNECTING PARTS FITTED ON LUB. OIL OR FUEL OIL PIPES ABOVE 1.8 BAR PRESSURE PROVIDED WITH A SUITABLE PROTECTION TO LIMIT OIL SPRAY LEAKAGES.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.
5. VENT PIPES FOR G.E. CRANKCASE SHALL HAVE SUITABLE INCLINATION TO AVOID BACK PRESSURE IN CRANKCASE FROM ACCUMULATION OF OIL IN PIPING.

L.O. PURIFYING SYSTEM

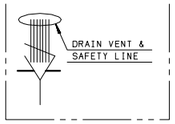
PAGE	22/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-LP

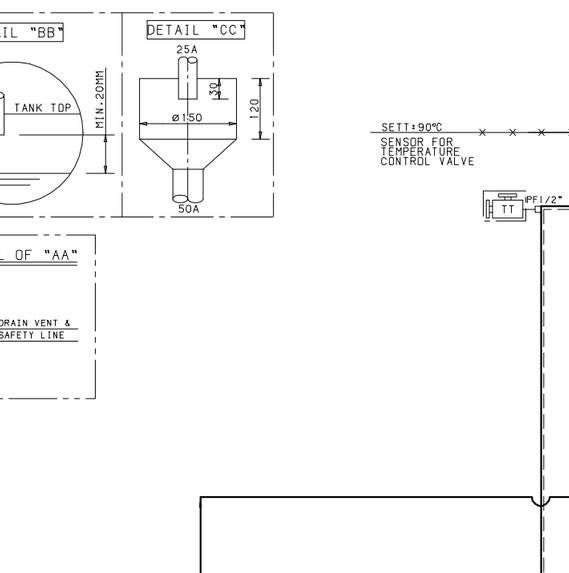
DETAIL "BB"

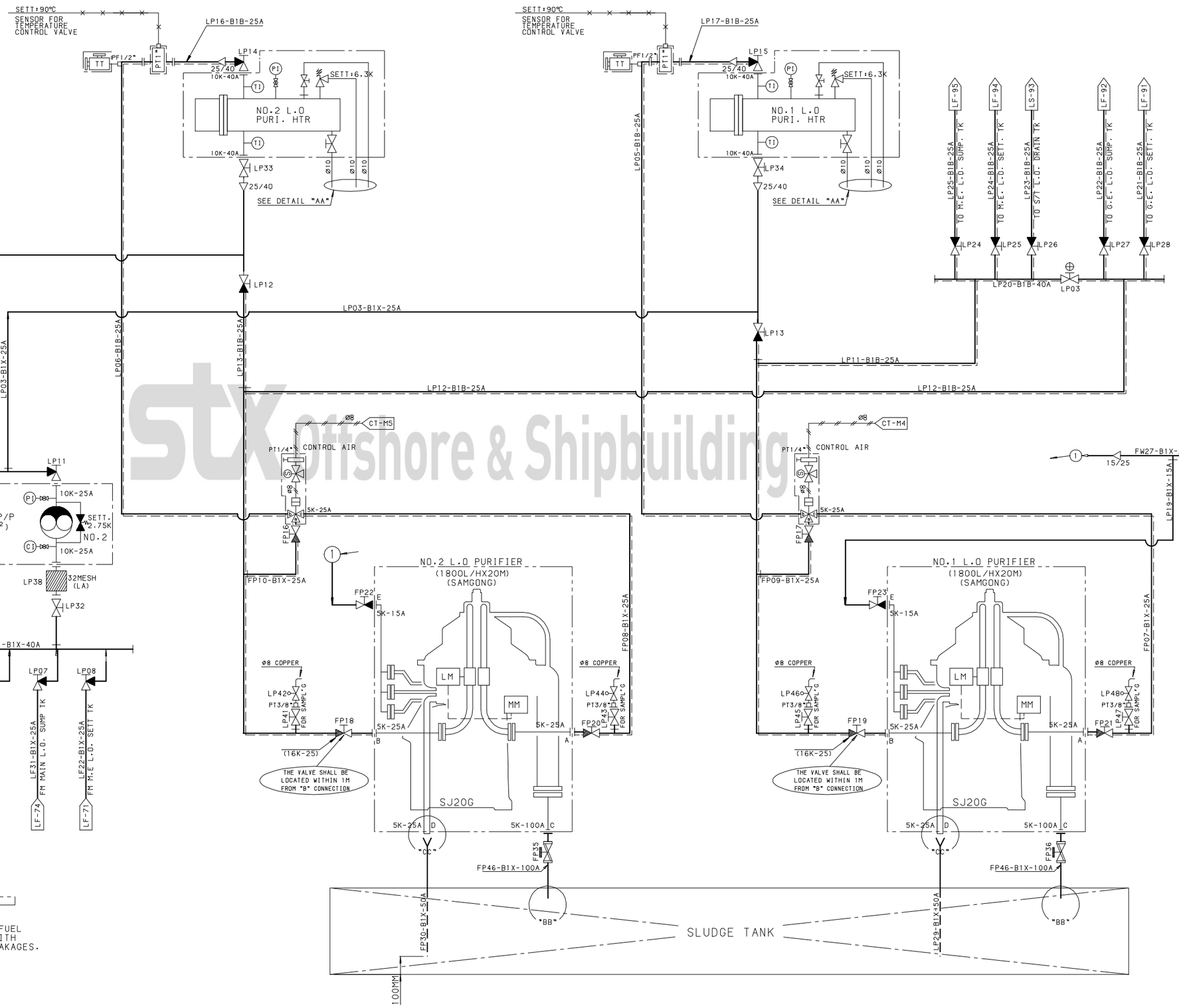


DETAIL "CC"

DETAIL OF "AA"







NOTE

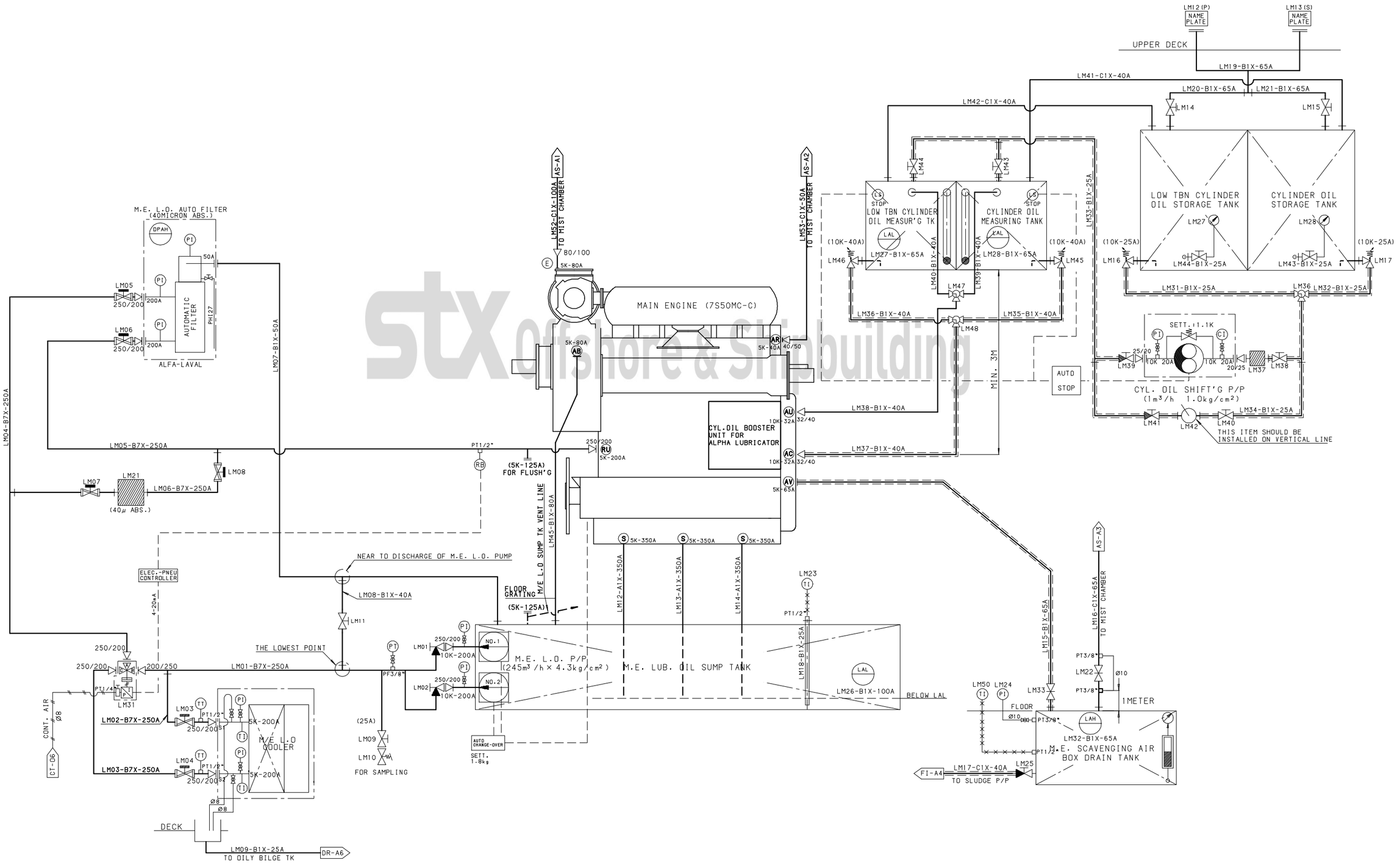
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED □ OR ✳ ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER'S DRAWING.
3. THE CONNECTING PARTS FITTED ON LUB. OIL OR FUEL OIL PIPES ABOVE 1.8 BAR PRESSURE PROVIDED WITH A SUITABLE PROTECTION TO LIMIT OIL SPRAY LEAKAGES.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

NOTE

1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR ✳ ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER'S DRAWING.
3. THE CONNECTING PARTS FITTED ON LUB. OIL OR FUEL OIL PIPES ABOVE 1.8 BAR PRESSURE PROVIDED WITH A SUITABLE PROTECTION TO LIMIT OIL SPRAY LEAKAGES.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

M.E.L.O.SERVICE SYSTEM

PAGE	23/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-LM



STERN TUBE L.O SERVICE SYSTEM

PAGE	24/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-LS

NOTE 1:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR • ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. THE CONNECTING PARTS FITTED ON LUB. OIL OR FUEL OIL PIPES ABOVE 1.8 BAR PRESSURE PROVIDED WITH A SUITABLE PROTECTION TO LIMIT OIL SPRAY LEAKAGES.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

NOTE 2:
AIR SUPPLY LINE FROM AIR CONTROL UNIT TO AFT SEAL AND DRAIN LINE FROM AFT SEAL TO DRAIN COLLECTION UNIT, SHOULD BE LAID WITH ADEQUATE INCLINATION TO KEEP SMOOTH DRAINAGE INTO DRAIN COLLECTION UNIT WHEN PIPING FLUSHING AND/OR SEA WATER AND/OR L.O. ENTERING THE LINE.
REVERSE "U-SHAPE" PIPING IS TO BE AVOIDED.

THE BOTTOM PART OF AIR CONTROL UNIT TO BE LOCATED HIGHER THAN UPPER PART OF L.O. TANK UNIT TO PREVENT BACKWARD FLOW FROM L.O. TANK UNIT.

FWD SEAL CONNECTION

AIR CONTROL UNIT (JMT)

FWD S/T SEAL

PRESS. GAUGE BOARD

DRAIN COLLECTION UNIT (JMT)

S/T L.O CIRC. PUMP (1.0M3/H X 3.0KG/CM2)

S/T L.O COOLER

S/T L.O TK

S/T L.O DRAIN TK

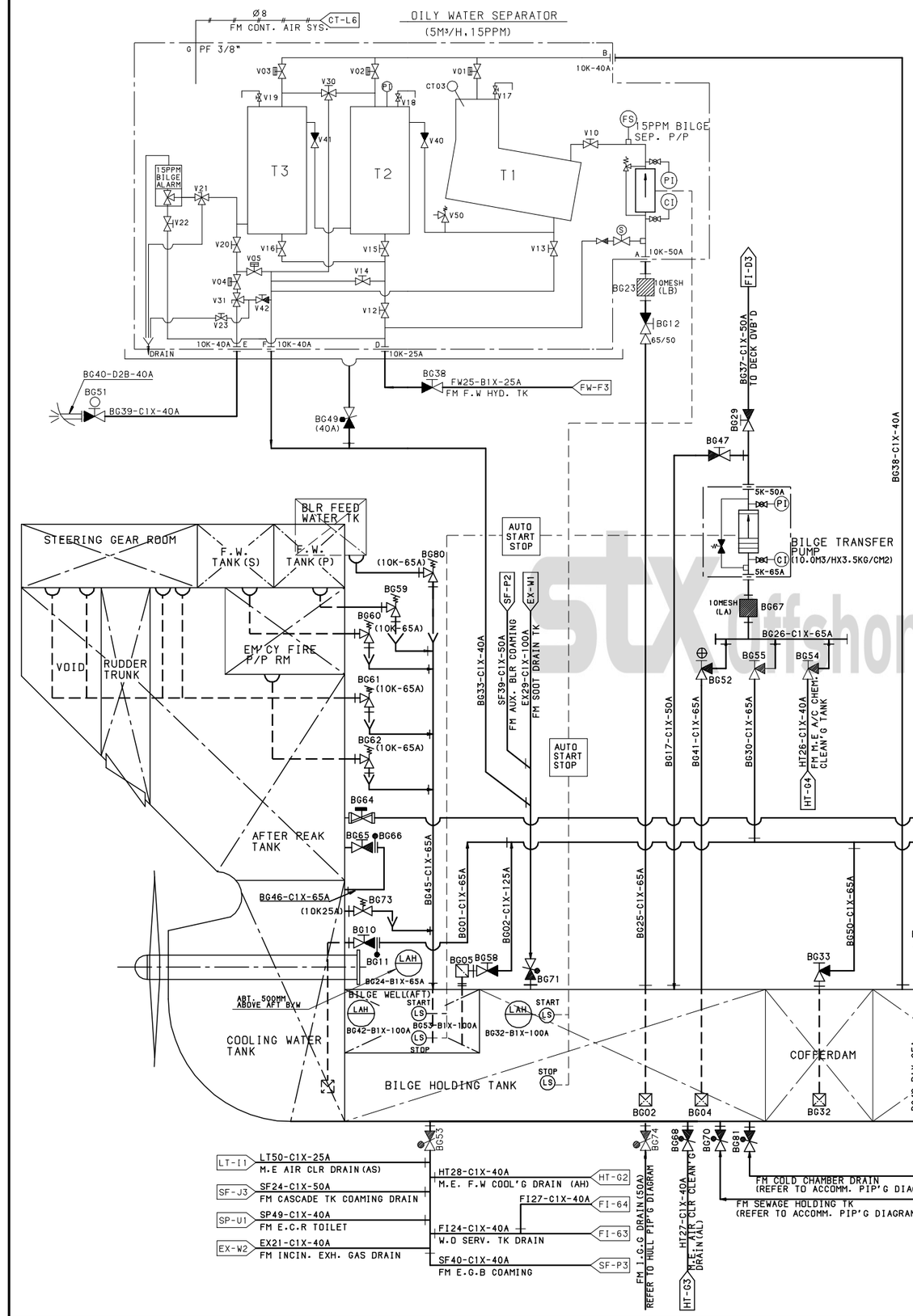
FOR PIPE FLUSHING COUPLER

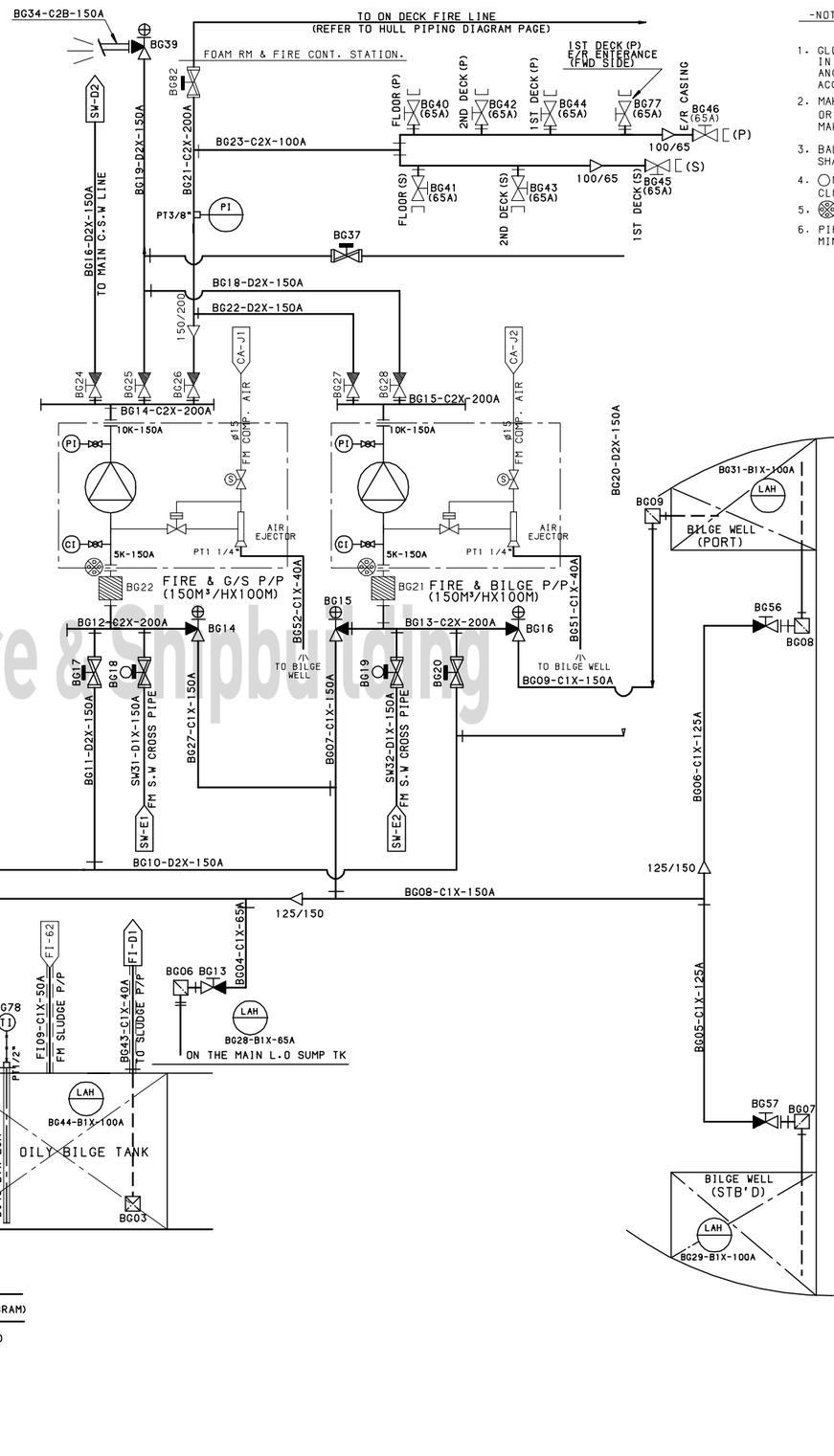
VIEW "D"-"D"

• CAUTION PLATE •
S/T & AFT.SEAL L.O SAMPLING POSITION

BILGE & FIRE, G.S SYSTEM

PAGE	25/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-BG

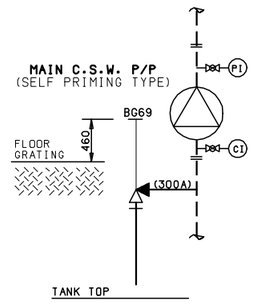




-NOTE-

1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. BALLAST AND DEBALLAST PIPES FOR A.P.TK SHALL BE TAR FREE EPOXY COATING.
4. ◯MARK MEANS NORMAL OPEND AND ⊕MARK MEANS NORMAL CLOSED.
5. ⊗MARK IS SACRIFICIAL FLANGE WITH EARTH WIRE.
6. PIPING SHALL BE LED DIRECTLY AS POSSIBLE WITH MINIMUM NUMBER OF BENDS.

EM'CY BILGE SUCTION



CALCULATION OF BILGE LINE

1.BRANCH BILGE LINE

$d_B = 2.15\sqrt{C(B+D)} + 25$

WHERE, d_B IS THE DIAMETER OF BRANCH BILGE LINE.
C IS THE LENGTH OF ENGINE ROOM.
B IS THE GREATEST MOULDED BREADTH.
D IS MOULDED DEPTH.

CALCULATION

$d_B = 2.15\sqrt{24.8(32.24+20.65)} + 25$

$= 102.86MM$

N.D=125A(I.D.=120.8MM)

2.MAIN BILGE LINE & DIRECT BILGE LINE

$d_M = \sqrt{2}\, d_B$

WHERE, d_M IS THE DIAMETER OF MAIN BILGE LINE.
d_B IS THE DIAMETER OF BRANCH BILGE LINE.

CALCULATION

$d_M = \sqrt{2} \times 102.86$

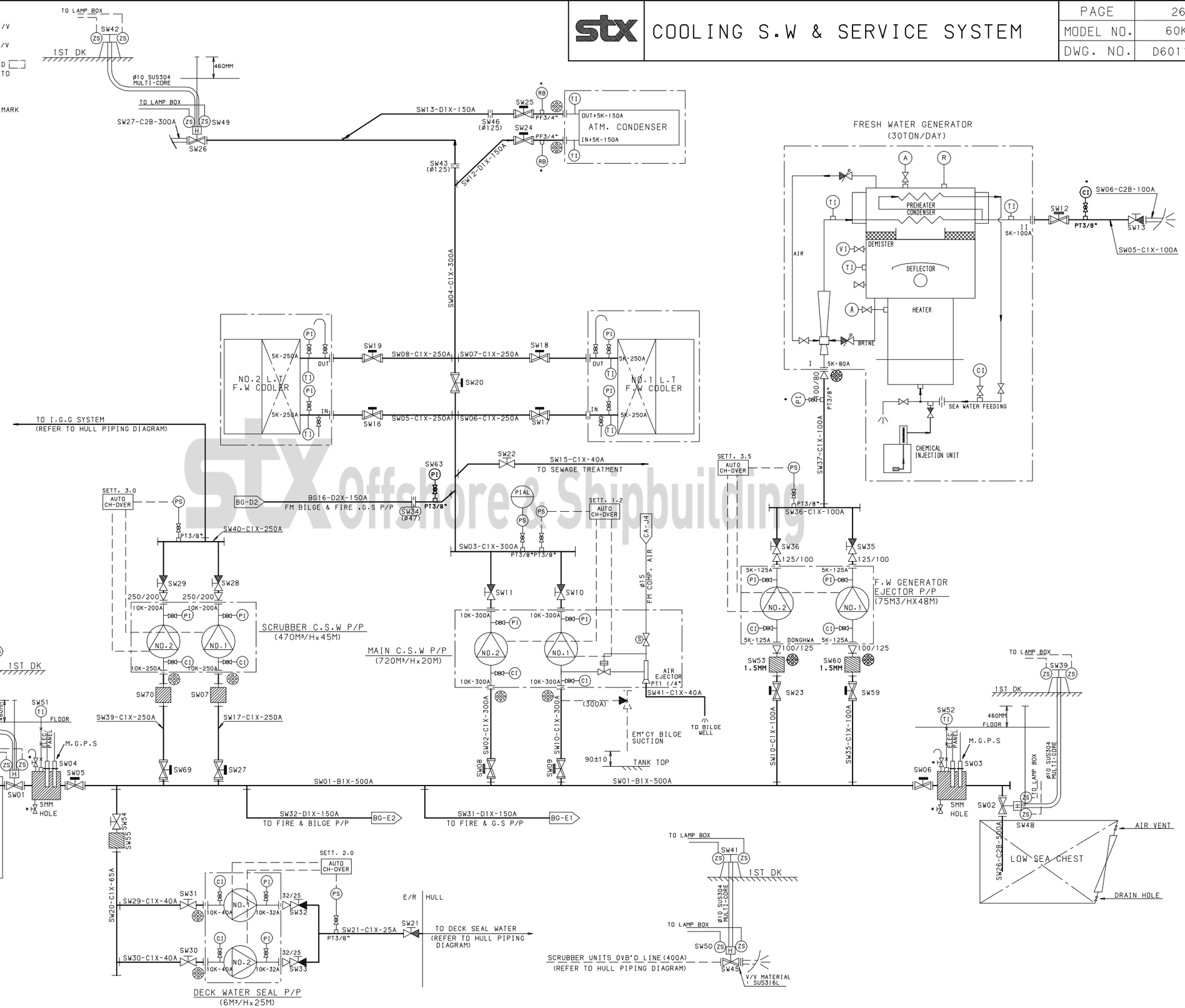
$= 145.48MM$

N.D=150A(I.D.=151MM)

COOLING S.W & SERVICE SYSTEM

PAGE	26/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-SW

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ⊗ MARK IS SACRIFICIAL FLANGE.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.
5. BUTTERFLY VALVES OF SEA INLET & SHIPSIDE USE TO FLANGE TYPE.



LINE NO. :FW01~FW64
VALVE NO.:FW01~FW54

F.W SERVICE SYSTEM

PAGE	27/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-FW

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

F.W TANK (P)
BOILER FEED WATER TANK
F.W TANK (S)
FW01 FW02 FW03 FW04 FW05 FW06 FW07
FW01-X1X-25A
FW02-X1X-25A
FW03-X1X-25A
FW04-B1X-25A TO CASCADE TK
FW05-X1X-50A
FW58-X1X-25A
FW60-B1X-25A
FW53
C.W. TK
SF-E1
FW06-X1X-40A

F.W HYDROPHORE UNIT
SETT. 4.5Kg/Cm²
CA41-C2X-15A FM COMP. AIR SYS.
CA-K5
NO.1
NO.2
10K-40A
FW11 FW13 FW12 FW14
F.W HYD. TANK (1.0M³)
F.W PUMP (5M³/Hx40m)
FW15 FW16

FW61-B1X-15A TO FOAM RM
FW59-B1X-25A TO ACCOMM.
TO ACCOMM.
TO ACCOMM.
FW54 FW52 FW50

WATER FOUNTAIN
FW23
FW14-X1X-15A
FW62-X1X-15A
MINERALIZER FILTER (1000L/H)
SAMKUN
FW13-X1X-40A
40/25
5K-25A
HOT W. CIRC. P/P (1M³/Hx5M)
10K-40A
10K-32A
FW25 40/32
FW29
FM ACCOMM.
TO ACCOMM.
FW26
FW27
FW08-X1X-40A
FW12-X1X-40A
FW11-X1X-40A
STERILIZER (1,000L/H)
FW20 40/25
FW19 25/40
FW21
FW10-X1X-40A
FW18
FW07-X1X-40A
FW24
FW15-X1X-40A
FW16-X1X-40A
FW18-X1X-15A

CALORIFIER (200L/Hx15KW)
5K-40A
SETT. (6.0Kg/Cm²)
(200L)
(15A)

E.C.R
HOT WATER BOILER
3/4"
SINK
FW64-X1X-15A
SP-F9
FW63-X1X-15A

FW22
FW28
FW30
FW21-B1X-40A
FW28-B1X-15A NEAR SLUDGE P/P
FW22-B1X-15A SLUDGE P/P PRIMING
FW33 F1-F5
FW23-B1X-15A 2ND DK(P) F.W SERVICE
FW31
FW24-B1X-25A TO CASCADE TANK
SF-E2
FW25-B1X-25A TO 15PPM B.W SEPA.
BG-F3
FW26-B1X-15A PURI. RM F.W SERVICE
FW32
FW27-B1X-25A L.O PURI. F.W SERVICE
LP-F7
FW29-B1X-25A H.F.O PURI. F.W SERVICE
FP-F6
FW30-B1X-15A FLOOR(P) F.W SERVICE
FW34
FW41-B1X-40A
25/40

FW43-B1X-15A TO E.C.R TOILET WASH BASIN
FW44-B1X-15A TST DK(P) F.W SERVICE
FW45-B1X-15A TO BLR CHEM. DOSING TK
PT3/8"
FW42 FW51
FW46-B1X-15A TO AUX. BLR SAMPLING CLR
SF-E6
FW47-B1X-15A STEERING GEAR ROOM
FW43
FW48-B1X-15A NEAR AUX. BOILER
FW44
FW49-B1X-15A TO I.G.G(REFER TO HULL PIP'G DIAGRAM)
FW42-B1X-40A
25/40
FW50-B1X-25A TO H.T EXP. TK
HT-E3
FW51-B1X-25A TO L.T EXP. TK
LT-E4
FW52-B1X-15A B-DECK F.W SERVICE
FW46
FW57-B1X-15A TO E.G.B SAMPLING CLR
SF-B6
FW53-B1X-15A EM'CY GEN. RM F.W SERVICE
FW47
FW54-B1X-15A C-DECK F.W SERVICE
FW48

WORK SHOP
WASH BASIN
FW34-B1X-15A
FW55-C1X-32A
FW18-X1X-15A
SP-F4

E.C.R TOILET
WASH BASIN
FW43-B1X-15A
FW56-C1X-32A
FW19-X1X-15A
FW19-X1X-20A
SP-F8

FW31-B1X(25A) TO SOOT DRAIN TK
EX-F1
FW32-B1X-15A TO G.E T/C CLEANING
FW36
FW33-B1X-15A WORK SHOP F.W SERVICE
FW37
FW34-B1X-15A TO WORK SHOP WASH BASIN
FW35-B1X-15A NEAR BOILER W. TEST SPACE
FW38
FW36-B1X-15A TST DK(S) F.W SERVICE
FW39
FW37-B1X-15A 2ND DK(S) F.W SERVICE
FW40
FW38-B1X-15A TO M.E AIR CLR CHEM CLEAN'G TK
HT-E5
FW39-B1X-15A FLOOR(S) F.W SERVICE
FW41
FW40-B1X-15A TO F.W GENERATOR
HT-F2
FW55-B1X-40A
25/15

FRESH WATER GENERATOR (30TON/DAY)
DEMISTER
DEFLECTOR
HEATER
V8
SALINITY INDICATOR
ALARM
POWER SUPPLY
I.V 5K-25A
V4 V13 V1 V6
FM SC
DISTILLATE PUMP

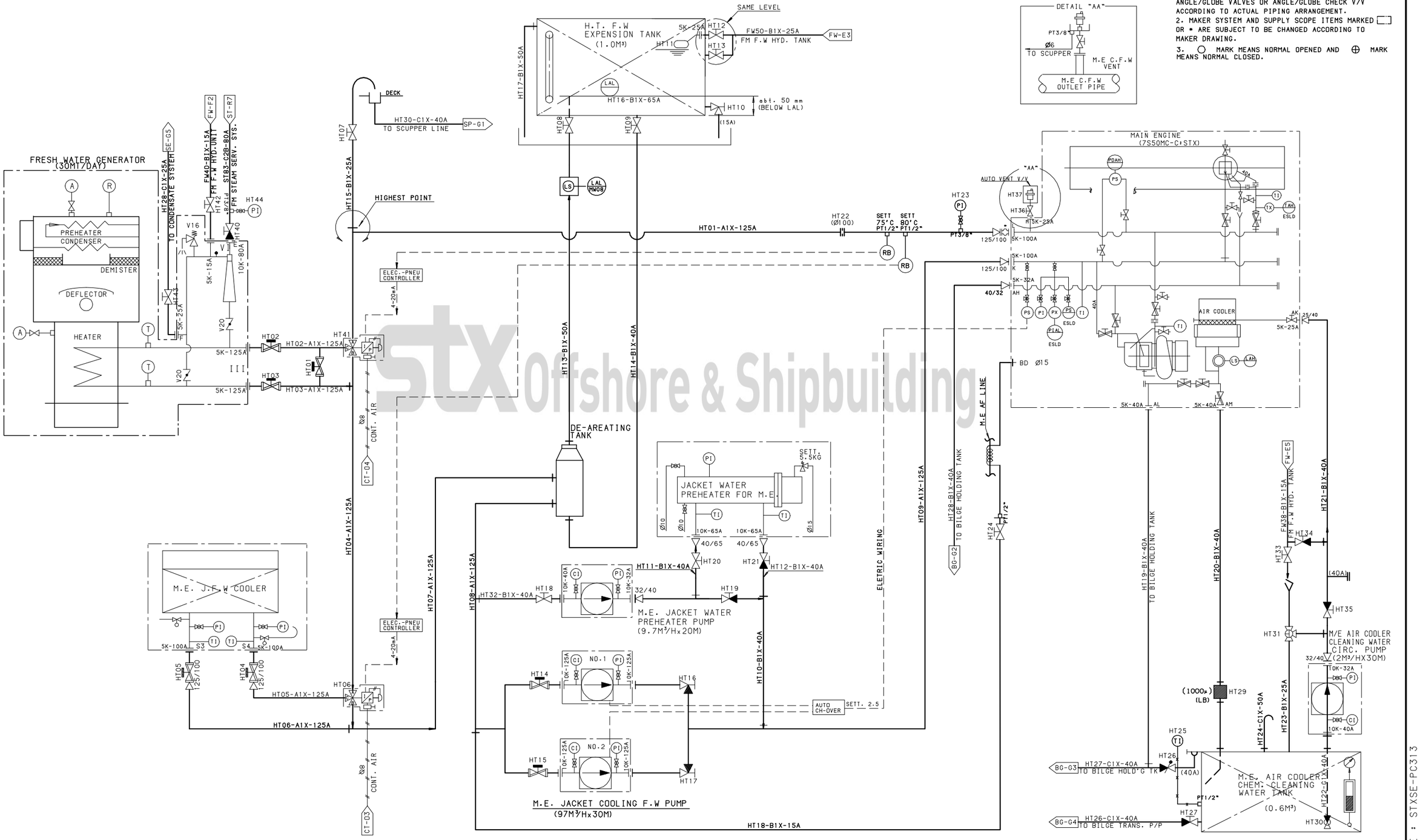
FORM NAME : STXSE-PC313

LINE NO. : HT01~HT33
VALVE NO.: HT01~HT41

PAGE	28/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-HT

HIGH TEMPERATURE COOLING F.W SYSTEM

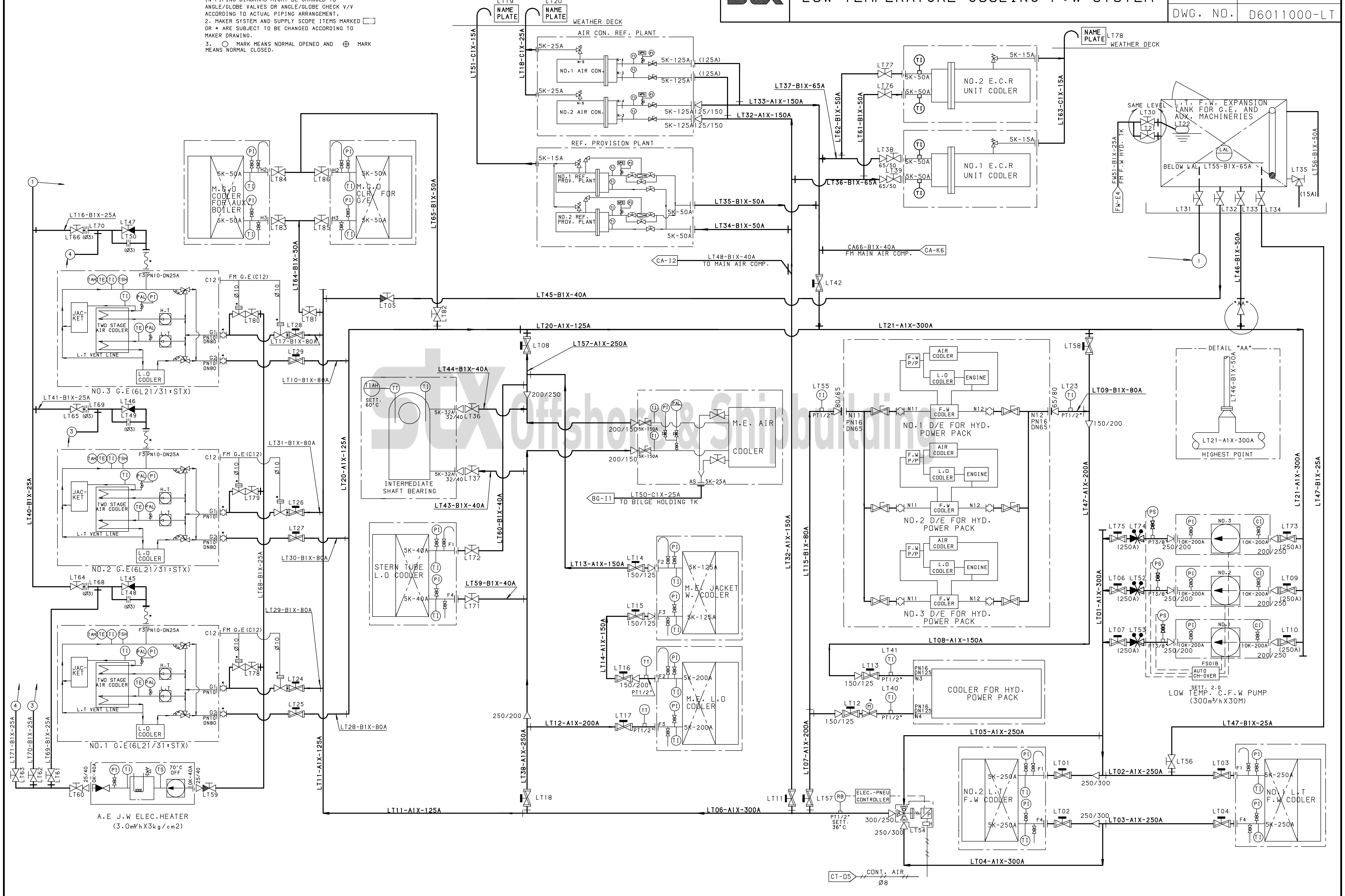
NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR • ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.



PAGE	29/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-LT

LOW TEMPERATURE COOLING F.W SYSTEM

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.



COMP. AIR SERVICE SYSTEM

PAGE	30/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-CA

NO.3 G.E (6L21/31:STX)

NO.2 G.E (6L21/31:STX)

NO.1 G.E (6L21/31:STX)

FUNNEL TOP

CA72-C1X-65A

CT02-C1X-25A
FM CONT. AIR RESERVOIR
SAFETY VENT LINE
CT-M9

KUMKANG

SETT. 33KG/CM²

NO.1 MAIN AIR RESERVOIR (5.0M³)

NO.2 MAIN AIR RESERVOIR (5.0M³)

30K-20/25A

30K-15A

G.E MAKER SUPPLY

CA05-F5B-50A

CA06 AUTO VENT V/V
HIGHEST POINT

CA66-B1X-40A
TO L.T C.F.W SYS.
LT-K6

NO.2 MAIN AIR COMPRESSOR (150M³/Hx30kg/cm²)

NO.1 MAIN AIR COMPRESSOR (150M³/Hx30kg/cm²)

TOPPING-UP AIR COMPRESSOR (100M³/Hx30kg/cm²)

BACKFLOW PREVENTER VALVE

CA01-F5B-40A

CA02-F5B-40A

CA03-F5B-32A

CA04-F5B-40A

OIL & WATER SEPA.

COOL'G WATER P/P

TEST PIECE

CA17-C1X-25A

CA16-C1X-25A

CA19-C1X-25A

CA18-C1X-40A
TO OILY BILGE TK
DR-J6

CA20-C1X-40A
TO OILY BILGE TK
DR-J7

LT-12 LT48-C1X-40A
FM L.T C.F.W SYS.

CA12-C1X-15A

CA13-C1X-15A

CA14-C1X-15A

CA15-C1X-40A
TO OILY BILGE TANK
DR-J5

LOWEST POINT

CA07-C2X-40A

CA21-F5B-25A
TO M.E CONT. AIR SYS.
CT-K8

CA08 CA25-C2X-25A
TO RADAR MAST HORN
(REFER TO HULL PIPING DIA.)

CA09 CA24-C2X-25A
TO EM'CY SHUT OFF VALVE SYSTEM
RC-K3

CA10 CA23-C2X-40A
TO CONTROL AIR SYSTEM
CT-K4

CA22-C2X-40A

CA57

CA76-C2X-40A
TO D/E FOR H.P.P START'G AIR

CA26-C2X-40A

CA16

CA17

CA18

CA19

ACCOM. SERVICE AIR(P)
CA35-C2X-25A

DECK SERVICE AIR (P)
CA34-C2X-40A

ACCOM. SERVICE AIR(S)
CA33-C2X-25A

TO FORM ROOM
CA31-C2X-15A
25/15
TO AIR COND. ROOM
CA75-C2X-15A

CA30-C2X-25A

CA65-C2X-15A
FLOOR AIR SERVICE(AFT)
CA64-C2X-15A
NEAR HIGH SEA CHEST
CA62-C2X-15A
NEAR LOW SEA CHEST
CA61-C2X-25A

CA42 CA41 CA40 CA25

SERVICE AIR CHAMBER PT3/8"

CA54

CA51 Ø15 NO.1 C.S.W P/P AIR EJECTOR
SW-J4

CA52 Ø15 FIRE/G.S P/P AIR EJECTOR
BG-J1

CA53 Ø15 FIRE/BILGE P/P AIR EJECTOR
BG-J2

CA06-F5B-100A

LOWEST POINT

CA15

CA24-C1X-15A

30K-15A

SERVICE AIR COMPRESSOR (200M3/HX7KG/CM2)

10K-25A

CA27-C2X-40A
25/40

SETT. 7.7Kg/Cm²

CA70-C1X-25A

10K-20/25A

SERVICE AIR RESERVOIR (0.5M³)

CA28-C2X-40A

CA71-C1X-40A

KUMKANG

DR-J8 CA69-C1X-40A
TO OILY BILGE TANK

MAIN ENGINE (7S50MC-C:STX)

STRAIGHT VALVE

BURSTING CAP

BLOW OFF

MAIN STARTING VALVE

STARTING AIR DISTRIBUTOR

CA29-C2X-40A

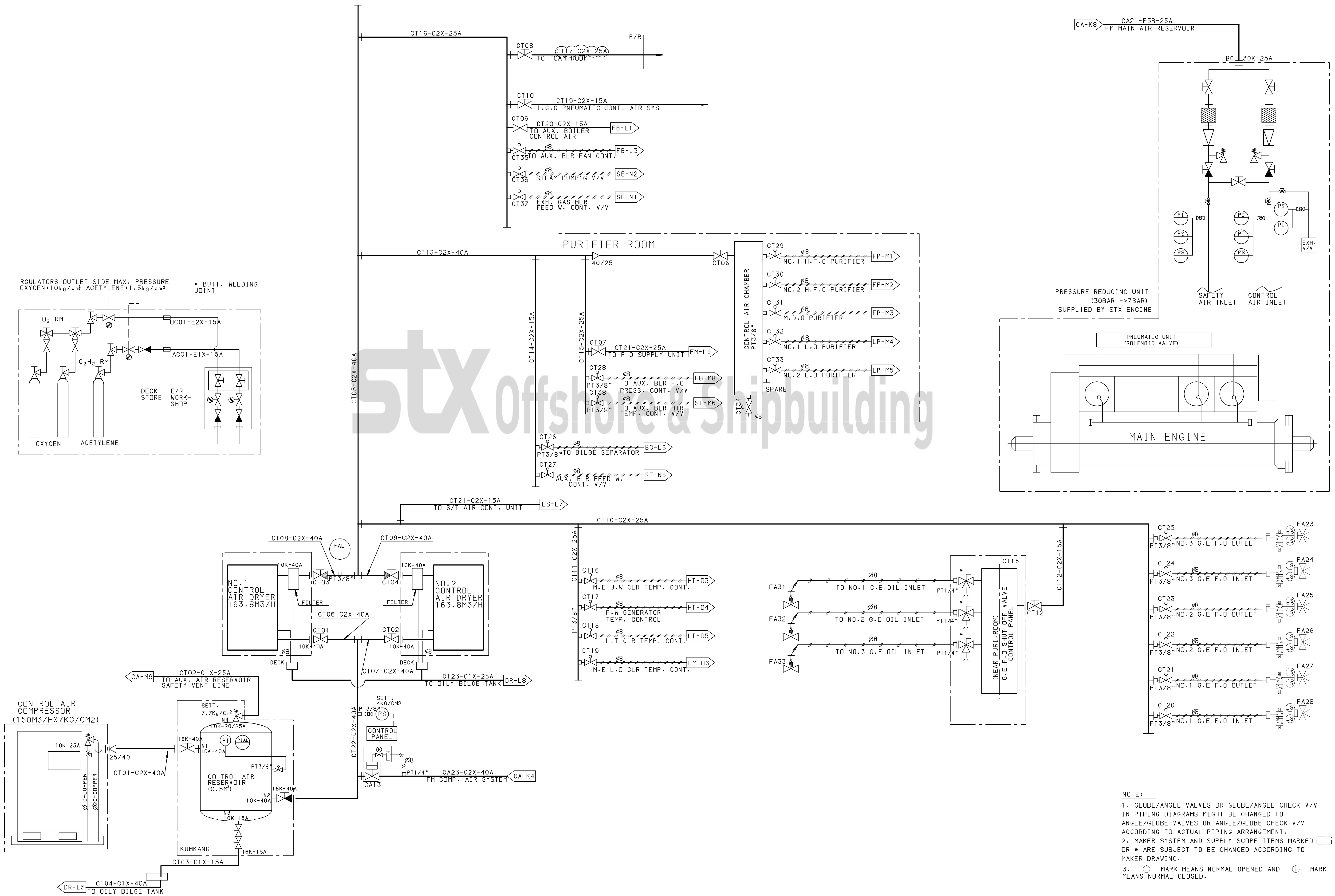
CA36-C2X-15A
H.P.P ROOM AIR SERVICE
CA37-C2X-15A
PURIFIER ROOM AIR SERVICE
CA38-C2X-15A
2ND DECK AIR SERVICE (P)
CA39-C2X-15A
1ST DECK AIR SERVICE (P)
CA40-C2X-15A
ELEC. WORK SHOP
CA41-C2X-15A
TO F.W HYD. TANK
FW-K5
CA42-C2X-15A
EM'CY D.G ROOM
CA43-C2X-15A
A DECK AIR SERVICE
CA73-C2X-15A
EGB SOOT RELEASE
EX-K9
CA44-C2X-15A
NEAR EXH. GAS BLR
CA45-C2X-15A
NEAR AUX. BOILER
CA74-C2X-15A
AUX. BLR BURNER
FB-K3
CA46-C2X-25A
AUX. BLR ATOM. AIR
FB-K1
CA47-C2X-15A
NEAR NO.2 G.E (T/C CLEAN)
CA63-C2X-15A
TO M.E T/C
CA55 DRY CLEAN'G
AP 10K-20A
M/E T/C
CA48-C2X-15A
TO W.O INCINERATOR
FI-K7
CA53-C2X-15A
WORK SHOP AIR SERVICE
CA54-C2X-15A
NEAR FUEL VALVE TEST DEVICE (EXH. VALVE GRIND MACHINE)
CA55-C2X-15A
1ST DECK AIR SERVICE (S)
CA56-C2X-15A
2ND DK AIR SERVICE (S)

CA50-C2X-15A
TO LOCAL FIRE EXT. SYS.
EF-K8
(REFER TO HULL PIPING DIA.)
TO S/G ROOM
CA49-C2X-25A
E.R S/G ROOM

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

PAGE	31/42
MODEL NO.	6OKPC01
DWG. NO.	D6011000-CT

CONTROL AIR SYSTEM


CT16-C2X-25A
CT08
CT17-C2X-25A
TO FOAM ROOM
E/R
CT10
CT19-C2X-15A
I.G.G PNEUMATIC CONT. AIR SYS
CT06
CT20-C2X-15A
TO AUX. BOILER CONTROL AIR
FB-L1
CT35
TO AUX. BLR FAN CONT.
FB-L3
CT36
STEAM DUMP'G V/V
SE-N2
CT37
EXH. GAS BLR FEED W. CONT. V/V
SF-N1
CT13-C2X-40A
PURIFIER ROOM
40/25
CT06
CONTROL AIR CHAMBER PT3/8"
CT29
NO.1 H.F.O PURIFIER
FP-M1
CT30
NO.2 H.F.O PURIFIER
FP-M2
CT31
M.D.O PURIFIER
FP-M3
CT32
NO.1 L.O PURIFIER
LP-M4
CT33
NO.2 L.O PURIFIER
LP-M5
SPARE
CT34
CT14-C2X-15A
CT15-C2X-25A
CT07
CT21-C2X-25A
TO F.O SUPPLY UNIT
FM-L9
CT28
TO AUX. BLR F.O PRESS. CONT. V/V
FB-M8
CT38
TO AUX. BLR HTR TEMP. CONT. V/V
ST-M6
CT26
TO BILGE SEPARATOR
BG-L6
CT27
AUX. BLR FEED W. CONT. V/V
SF-N6
CT05-C2X-40A
RGULATORS OUTLET SIDE MAX. PRESSURE
OXYGEN:10kg/cm² ACETYLENE:1.5kg/cm²
* BUTT. WELDING JOINT
O2 RM
C2H2 RM
OC01-E2X-15A
AC01-E1X-15A
DECK STORE
E/R WORK-SHOP
OXYGEN
ACETYLENE
CA-K8
CA21-F5B-25A
FM MAIN AIR RESERVOIR
BC 30K-25A
PI
PS
PT
EXH. V/V
SAFETY AIR INLET
CONTROL AIR INLET
PRESSURE REDUCING UNIT
(30BAR ->7BAR)
SUPPLIED BY STX ENGINE
PNEUMATIC UNIT (SOLENOID VALVE)
MAIN ENGINE
CT21-C2X-15A
TO S/T AIR CONT. UNIT
LS-L7
CT10-C2X-25A
CT08-C2X-40A
CT09-C2X-40A
PAL
NO.1 CONTROL AIR DRYER 163.8M3/H
NO.2 CONTROL AIR DRYER 163.8M3/H
10K-40A
FILTER
CT03
CT04
CT06-C2X-40A
CT01
CT02
DECK
CT07-C2X-40A
CT23-C1X-25A
TO OILY BILGE TANK
DR-L8
CA-M9
CT02-C1X-25A
TO AUX. AIR RESERVOIR SAFETY VENT LINE
SETT. 7.7Kg/Cm²
CONTROL AIR COMPRESSOR (150M3/HX7KG/CM2)
10K-25A
Ø10-COPPER
Ø20-COPPER
25/40
CT01-C2X-40A
16K-40A
COLTROL AIR RESERVOIR (0.5M³)
PIAL
KUMKANG
16K-15A
CT03-C1X-15A
CT04-C1X-40A
DR-L5
TO OILY BILGE TANK
CT22-C2X-40A
SETT. 4KG/CM2
PS
CONTROL PANEL
CA13
CA23-C2X-40A
FM COMP. AIR SYSTEM
CA-K4
CT11-C2X-25A
CT16
M.E J.W CLR TEMP. CONT.
HT-03
CT17
F.W GENERATOR TEMP. CONTROL
HT-04
CT18
L.T CLR TEMP. CONT.
LT-05
CT19
M.E L.O CLR TEMP. CONT.
LM-06
FA31
TO NO.1 G.E OIL INLET
FA32
TO NO.2 G.E OIL INLET
FA33
TO NO.3 G.E OIL INLET
CT15
(NEAR PURI.ROOM) G.E F.O SHUT OFF VALVE CONTROL PANEL
CT12
CT12-C2X-15A
CT25
NO.3 G.E F.O OUTLET
FA23
CT24
NO.3 G.E F.O INLET
FA24
CT23
NO.2 G.E F.O OUTLET
FA25
CT22
NO.2 G.E F.O INLET
FA26
CT21
NO.1 G.E F.O OUTLET
FA27
CT20
NO.1 G.E F.O INLET
FA28

NOTE:

1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ⌐⌐ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

FORM NAME : STXSE-PC313

EM'CY SHUT OFF VALVE CONTROL SYSTEM

PAGE	32/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-RC

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

* LOCATION:FIRE CONTROL STATION

CONTROL PANEL FOR FIRE DAMPER

RC03

RC06-C2X-25A

PAL

PT3/8"

RC06-C2X-25A

TO FAN DAMPER(FUNEL) Ø10 — PT3/8"
TO FAN DAMPER(FUNEL) Ø10 — PT3/8"
TO SUPPLY FAN (FAN ROOM) Ø10 — PT3/8"
TO SUPPLY FAN (FAN ROOM) Ø10 — PT3/8"
TO SUPPLY FAN (FAN ROOM) Ø10 — PT3/8"
TO SUPPLY FAN (FAN ROOM) Ø10 — PT3/8"
TO PURI. EXHAUST FAN Ø10 — PT3/8"

(REFER TO ARR'T OF VENTILATION DUCT IN E/R)

SETT.: 7.7Kg/Cm²

PI

PS

PAL

AIR RESERVIOR (140L)

GROUP 1 10K-15A

GROUP 2 10K-15A

RC01-C2X-15A

RC05-C2X-25A

(15A)

RC01

EM'CY SHUT OFF V/V CONTROL PANEL

RC04

(15A)

TO DRAIN

RC04-C2X-15A

CA24-C2X-25A FM COMP. AIR SYSTEM

CA-K3

M.E L.O STOR. TK — Ø8 — PT1/4" — LF16

M.E L.O SETT. TK — Ø8 — PT1/4" — LF23

H.F.O SERV. TK — Ø8 — PT1/4" — FP52

H.F.O SETT. TK — Ø8 — PT1/4" — FP53

RC07-C2X-15A

EM'CY G/E ROOM

RC02

Ø4 WIRE

M.G.O TK FOR EM'CY G/E

FI27

10K-15A

OPERATING BOX ROOM OUTSIDE

RC02-C2X-15A

PT1/4" — Ø8 — WASTE OIL SETT. TANK
PT1/4" — Ø8 — WASTE OIL SERV. TANK
PT1/4" — Ø8 — LM46 — LOW TBN CYL. OIL MEAS. TK
PT1/4" — Ø8 — LM45 — CYL. OIL MEASURING TK
PT1/4" — Ø8 — LM16 — LOW TBN CYL. OIL STOR. TK
PT1/4" — Ø8 — LM17 — CYLINDER OIL STOR. TK
PT1/4" — Ø8 — FT05 — NO.2 H.F.O TANK(S)
PT1/4" — Ø8 — FT57 — NO.1 H.F.O TANK(S)

RC01-C2X-15A

PT1/4" — Ø8 — FP51 — M.D.O SETT. TK
PT1/4" — Ø8 — FP50 — M.D.O SERV. TK
PT1/4" — Ø8 — FP11 — LOW SULPHUR H.F.O SETT. TK
PT1/4" — Ø8 — FP54 — LOW SULPHUR H.F.O SERV. TK
PT1/4" — Ø8 — FI26 — M.G.O SERV. TK FOR H.P.P ENGINE
PT1/4" — Ø8 — FT03 — NO.1 H.F.O TANK(P)
PT1/4" — Ø8 — LF24 — G.E L.O SETT. TK
PT1/4" — Ø8 — LF15 — G.E L.O STOR. TK

LINE NO. : SF01~SF40
VALVE NO. : SF01~SF54

BOILER FEED WATER SYSTEM

PAGE	33/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-SF

DETAIL "AA"
SAME LEVEL
SF36
SF37
SF38
5K-25A

DETAIL "BB"
OIL DETECTOR EQUIPMENT L7
ODAH
10K-50A
OBSER. TK

SF15-C2X-200A
SF16-C2X-200A
FUNNEL TOP
SF16-C2X-200A
SF15-C2X-200A
SF18-C2X-100A
SF17-C2X-100A
FUNNEL TOP
SF18-C2X-100A
SF17-C2X-100A
80/100
80/100

AL8
DPT
AL9
AL11
AL10
SF28-C2B-250A
TO STEAM SERVICE SYS.
ST-J4
SF27-C2B-100A
STRAIGHT PIPE
MIN. 5M
MIN. 1.25M
AC 440V. 60Hz. 3PH

EXAUST GAS BOILER
1,400KG/HR x 7KG/CM²
EV2
EV3
EV12
EG8
EV15
EV11
EV13
EV1
EV1
EG5
EG9
EV15
EV14
EV14
EV8EV9
EG1
EG2
EG10
EV16
EV16
To. bottom

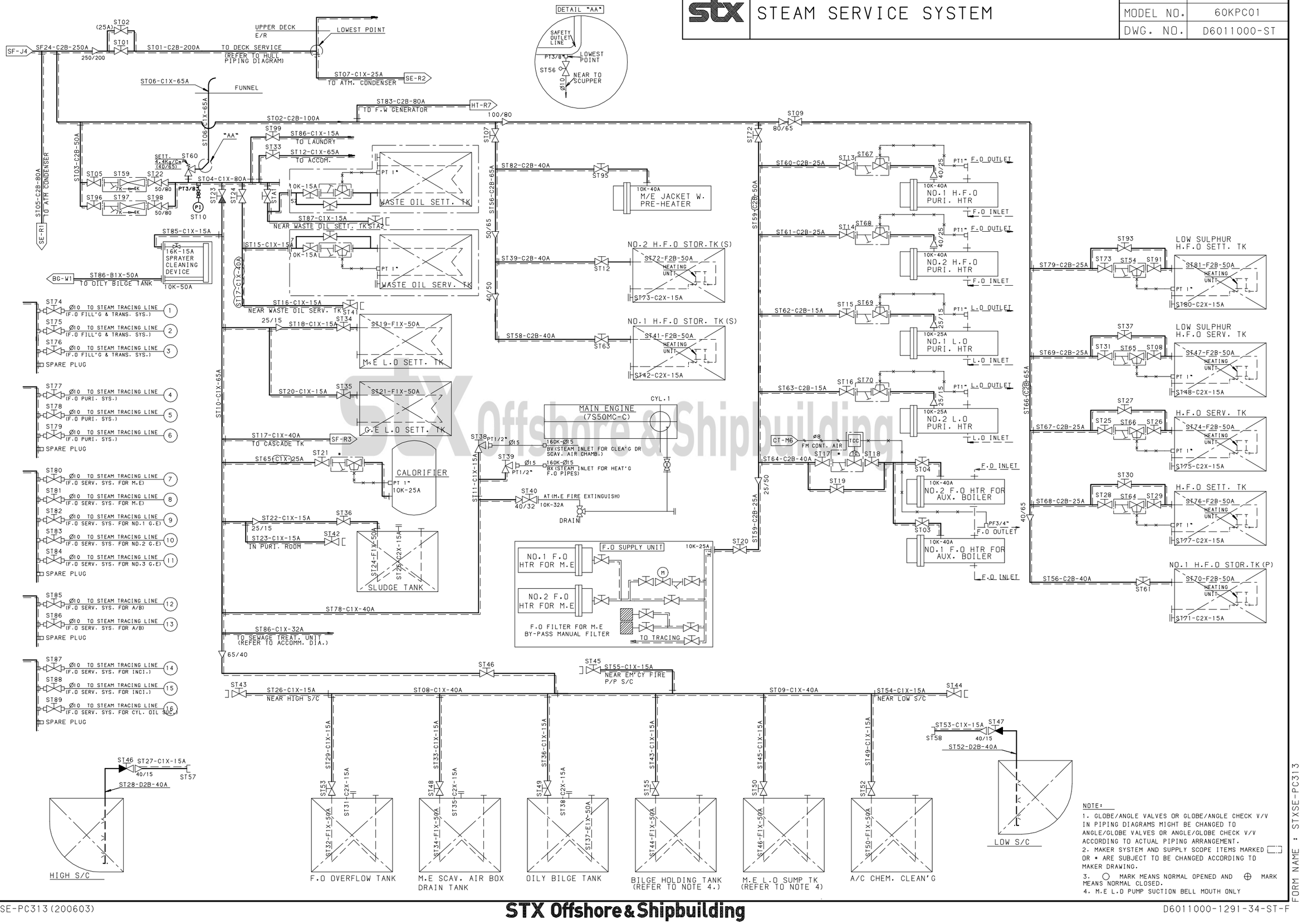
AUX. BOILER
25T/H x 7KG/CM²
25A
V28
20K-250A
V2 V22
250/200
V5 V5-1
V1
V11 V10
V3 V4
PS PI PX PS
SF24-C2B-25A
TO BURNER
FB-P8
SF52
V3 V4
SF35-C2B-65A
P1
BOILER CONTROL PANEL
L2 L1
E.C.R
AC220V. 60Hz. 1PH
EA5
EA6
EA7
EGB F.W
control panel
ECR
EV4
EV5
40/32
EV5
EV4
EV10
EV6EV7
EV6EV7
SUS304-Ø6
PT1/4"
PT1/2"
SAMPLING COOLER
SF25-B1X-15A
TO NEAR SCUPPER
Ø6
PT1/2"
SUS304-Ø6
PT1/4"
PT1/2"
SAMPLING COOLER
SF25-B1X-15A
TO NEAR SCUPPER
SF26-B1X-15A
Ø6
PT1/2"
FW57-B2X-15A
FM F.W HYD. UNIT
FW-B6

A3
V7
V7
V13
V6
A2
V13
V6
V13
V13
A2
V6
80A
80A
V26
V25
V25
SF51
SF50
SF37-C1X-25A
TO CONDENSATE
SE-J5
SF29-C2B-25A
SF07-C2B-40A
V9
EG5
DPT
SUS304-Ø6
V15
25A
BOILER HEATING STEAM
V8 V8-1
V8 V8-1
SF08-C2B-40A
SF09-C2B-40A
V16
25A
SF45 SF46
SF38-C1X-25A
TO CONDENSATE
SE-J6
CT-N1
FM CONT. AIR SYS.
Ø8
EG6
40/32
32/40
(16K-32A)
PT1/2"
EG11
M
DOSING PUMP
SF40-C1X-40A
TO BILGE HOLDING TK
BG-P3
SF12-C2B-40A
SF11-C2B-40A
SF10-C2B-40A
FW-E6
FW46-X2X-15A
FM F.W HYD. UNIT
BG-P2
SF39-C1X-50A
TO BILGE HOLDING TK
SF25
SF26
SF05-E3X-40A
SF06-E3X-40A
SF14-D2B-40A
SF28 SF27
SF13-C2B-40A
L3
Ø8
PT1/2"
80/50
50/80
FM CONT. AIR SYS.
CT-N6
L5
M
DOSING PUMP
SF22
SF24
SF20
40/32
40K-32A
NO.2
10K-50A
SF08
SF19
PT3/8"
SF54
PS
SF23
SF17
40/32
40K-32A
NO.1
10K-50A
SF07
AUTO CH-OVER
FS15 SETT. 9.5KG/CM2
FEED W. P/P FOR EXH. GAS BLR
(4.0M3/HX120M)
SF02-E3X-15A
SF01-B1X-100A
SF14
SF16
SF12
80/65
40K-65A
NO.2
10K-80A
SF06
SF11
SF53
PT3/8"
PS
SF15
SF09
80/65
40K-65A
NO.1
10K-80A
SF05
AUTO CH-OVER
FS15 SETT. 8.5KG/CM2
FEED W. P/P FOR AUX. BLR
(32.0M3/HX120M)
SF03-E3X-80A
SF04-E3X-80A
SF02-E3X-15A
SF02-E3X-15A
SF36-B1X-80A
TO BLR CONTROL PANEL
"BB"
TO BLR CONTROL PANEL
SF29
"AA"
SF38
SF35
SF34
FW24-B1X-25A
FM F.W HYD. TK
FW04-B1X-25A
FM F.W TANK
FW-E2
FW-E1
ST-R3
FM STEAM SERV.
SF19-B1X-25A
ABOVE THE WATER LEVEL OF CASCADE TANK
SF36
SF42
SF43
SF37
SF41
SF40
SF39
SAH IND.
SF30
SF22-B1X-150A
CASCADE TANK
(5.0M3)
SF21-B1X-150A
SF31
T1
PT1/2"
PT1"
LAL
SF10-B1X-65A
STEAM INJECTION
SF44
SF01
10K-40A
OBSERVATION TANK
SF01-B1X-100A
SF32
(25A)
SF33
(25A)
SF20-C1X-40A
L6
SAH
*1
PT1 1/4"
SF24-C1X-50A
TO BILGE HOLDING TK
BG-J3
SF23-B1X-40A
TO OILY BILGE TANK
DR-J2

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ▭ OR ▪ ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. TWO(2) LAYERS OF FIBER GLASS CLOTH TO THE FEED WATER LINES TO BE PROVIDED. WHERE THE LINES ARE EXPOSED TO PASSAGE WAY.
4. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

STEAM SERVICE SYSTEM

PAGE	34 /42
MODEL NO.	60KPC01
DWG. NO.	D6011000-ST



NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.
4. M.E L.O PUMP SUCTION BELL MOUTH ONLY

LINE NO.: SE01~SE42
VALVE NO.: SE01~SE98

CONDENSATE SYSTEM

PAGE	35/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-SE

NOTE:
1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED ☐ OR • ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.

ELEC.-PNEU CONTROLLER 4-20mA
CT-N2 Ø8 FM CONT. AIR
PT SETT. 7.7KG/CM2
ST-R1 PF3/8" ST05-C2B-80A
80/50 SE01 SE02 50A 50/80 SE01-C1X-80A
LOWEST POINT
SE02-C1X-50A
SE04
SE03 SE5 SE21 PT Ø8 COPPER PT3/8" (AT CASC. TK)
SE08-C1X-15A
80/125 SE06
SE28 10K-125A TI CI TI 10K-150A
10K-32A
ATM. CONDENSER
SE27-C2X-32A Ø10 Ø10 Ø10 TI 10K-150A
SE07 RB PF3/8"
SE42-C1X-25A FM AHU. SE04-C1X-150A SE98
SE05-C1X-150A SE08

FB08-C1X-15A FM AUX. BLR ATOMIZ'G FB-41
SF37-C1X-25A FM AUX. BLR SOOT BLOW LINE SF-J5
FB38-C1X-25A FM AUX. BLR HEAT'G STEAM SF-J6

SE42-C1X-15A 10K-15A 58 WASTE OIL SETT. TK
SE98 SE80 SE79 ST07-C1X-25A FM DECK SERV. STEAM DRAIN ST-R2
SE15 SE10-C1X-125A FM DECK SERVICE (REFER TO HULL PIPING DIAGRAM)
SE16 SE11-C1X-25A FM ACCOM. AIR CON. ROOM
SE03-C1X-150A
SE11 SE12 SE13 SE14

SE13-C1X-15A 10K-15A 8 WASTE OIL SERV. TK
SE34-C1X-15A SE22 SE52 G.E L.O SETT. TK
SE14-C1X-15A SE23 SE53 M.E L.O SETT. TK
SE15-C1X-65A
SE12-C1X-40A
SE06-C1X-65A
SE26-C1X-50A

NO.1 H.F.O PURI. HTR 10K-25A
SE28-C1X-25A SE28 SE63
NO.2 H.F.O PURI. HTR 10K-25A
SE29-C1X-25A SE29 SE64
40/65
NO.1 L.O PURI. HTR 10K-25A
SE30-C1X-25A SE30 SE65
NO.2 L.O PURI. HTR 10K-25A
SE31-C1X-25A SE31 SE66
25/40
NO.1 H.F.O PURI. HTR FOR AUX. BLR 10K-25A
SE32-C1X-25A SE32 SE67
NO.2 H.F.O PURI. HTR FOR AUX. BLR 10K-25A
SE20-C1X-25A SE33 SE68
SE38-C1X-15A SE34 SE69
SLUDGE TANK

H.F.O LOW SULPHUR SETT. TK
SE35-C1X-25A SE42 SE71 HEAT'G UNIT TI TI
H.F.O LOW SULPHUR SERV. TK
SE36-C1X-25A SE43 SE72 HEAT'G UNIT TI TI
H.F.O SERV. TK
SE21-C1X-25A SE44 SE73 HEAT'G UNIT TI TI
H.F.O SETT. TK
SE25-C1X-25A SE45 SE74 HEAT'G UNIT TI TI
CYL.
SE17-C1X-25A SE46 SE75 Ø15 PT1/2" BF 160K-Ø15 MAIN ENGINE (7S50MC-C)
NO.1 H.F.O TK(P)
SE39-C1X-25A SE47 SE76 HEAT'G UNIT TI TI

SE81 Ø10 FM STEAM TRACING LINE (F.O FILL'G & TRANS. SYS.) 1
SE82 Ø10 FM STEAM TRACING LINE (F.O FILL'G & TRANS. SYS.) 2
SE83 Ø10 FM STEAM TRACING LINE (F.O FILL'G & TRANS. SYS.) 3
SPARE PLUG
SE84 Ø10 FM STEAM TRACING LINE (F.O PURI. SYS.) 4
SE86 Ø10 FM STEAM TRACING LINE (F.O PURI. SYS.) 5
SE87 Ø10 FM STEAM TRACING LINE (F.O PURI. SYS.) 6
SPARE PLUG
SE88 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR M.E) 7
SE89 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR M.E) 8
SE90 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR NO.1 G.E) 9
SE91 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR NO.2 G.E) 10
SE92 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR NO.3 G.E) 11
SPARE PLUG
SE93 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR A/B) 12
SE94 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR A/B) 13
SPARE PLUG
SE95 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR INCI.) 14
SE96 Ø10 FM STEAM TRACING LINE (F.O SERV. SYS. FOR INCI.) 15
SE97 Ø10 FM STEAM TRACING LINE (L.O SERV. SYS. FOR CYL.OIL SUC.) 16
SPARE PLUG

CASCADE TK SE04-C1X-150A OBSER. TK
CALORIFIER
M.E J.W PREHEATER 10K-25A
SE54 SE25 SE33-C1X-25A
SE16-C1X-15A SE24 10K-15A
SE18 HT28-C1X-25A FM F.W GENERATOR HT-G5
SE17

NO.2 H.F.O TK(S) HEAT'G UNIT SE55 SE26 SE18-C1X-25A
NO.1 H.F.O TK(S) HEAT'G UNIT SE56 SE27 SE19-C1X-25A

F.O SUPPLY UNIT 5K-25AN
NO.1 F.O HTR FOR M.E & G.E
NO.2 F.O HTR FOR M.E & G.E
F.O FILTER FOR M.E BY-PASS MANUAL FILTER
FM TRACING

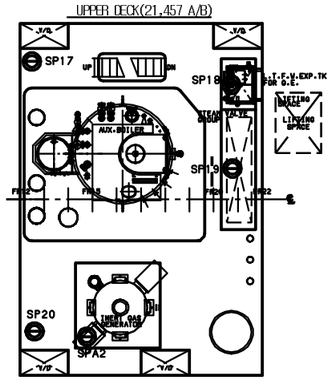
SE37-C1X-40A
15/40 40/15
SE07-C1X-15A SE57 SE35 H.F.O OVERFLOW TK
SE23-C1X-15A SE58 SE36 M.E SCAV. AIR BOX DRAIN TANK
SE24-C1X-15A SE59 SE37 OILY BILGE TK
SE41-C1X-15A SE60 SE38 BILGE HOLD'G TK
SE22-C1X-15A SE61 SE39 M.E L.O SUMP TK
SE27-C1X-15A SE62 SE40 M.E AIR COOLER CHEMICAL TANK

NOTE:
1. THE LOCATION OF SCUPPERS MIGHT BE CHANGED TO OTHER POSITON SUBJECT TO ACTUAL PIPING ARRANGEMENT

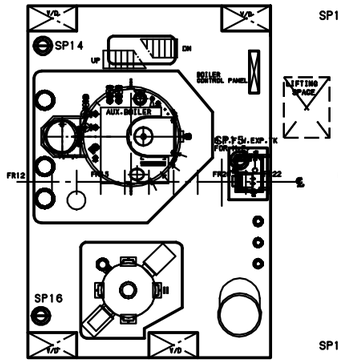
SCUPPER SYSTEM

PAGE	36/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-SP1

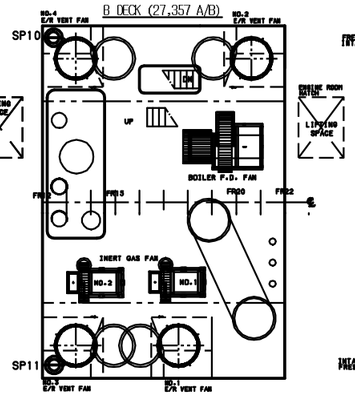
UPPER DECK(21,457 A/B)



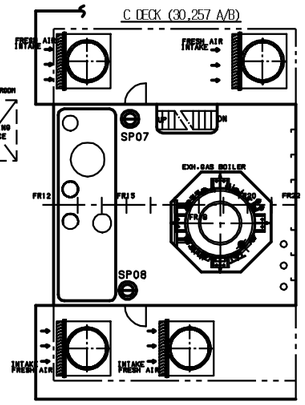
A DECK(24,457 A/B)



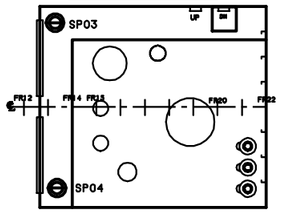
B DECK (27,357 A/B)



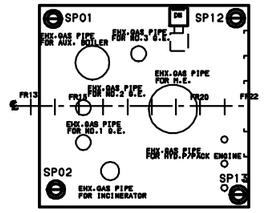
C DECK (30,257 A/B)

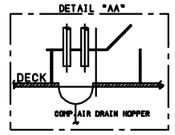


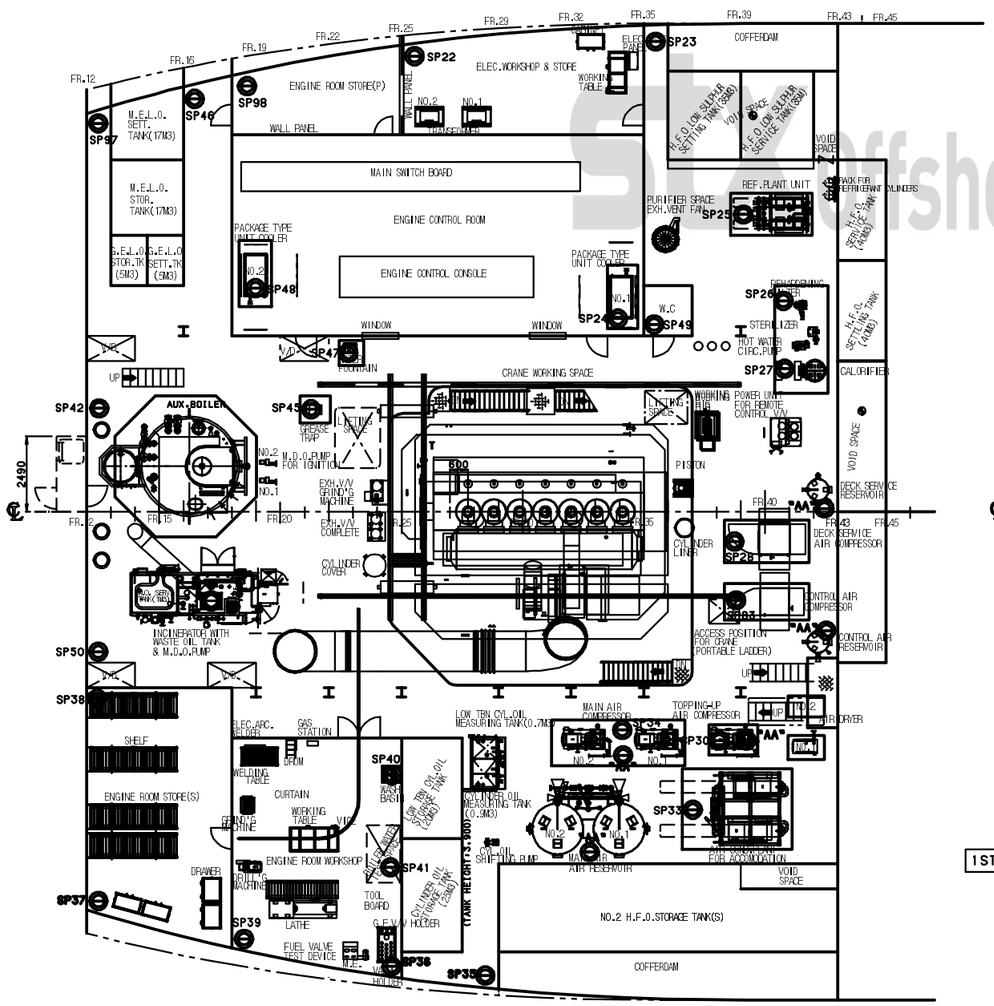
2ND STRINGER(38,907 A/B)

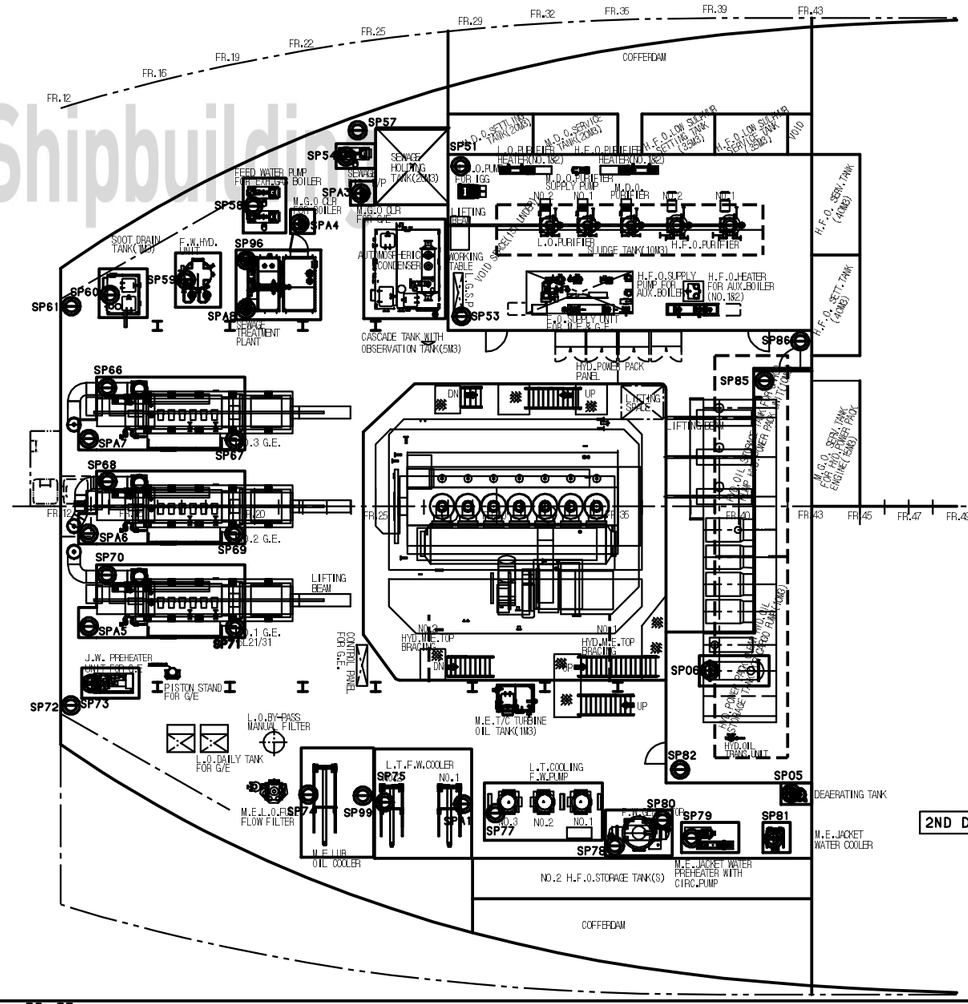


FUNNEL TOP(41,707 A/B)







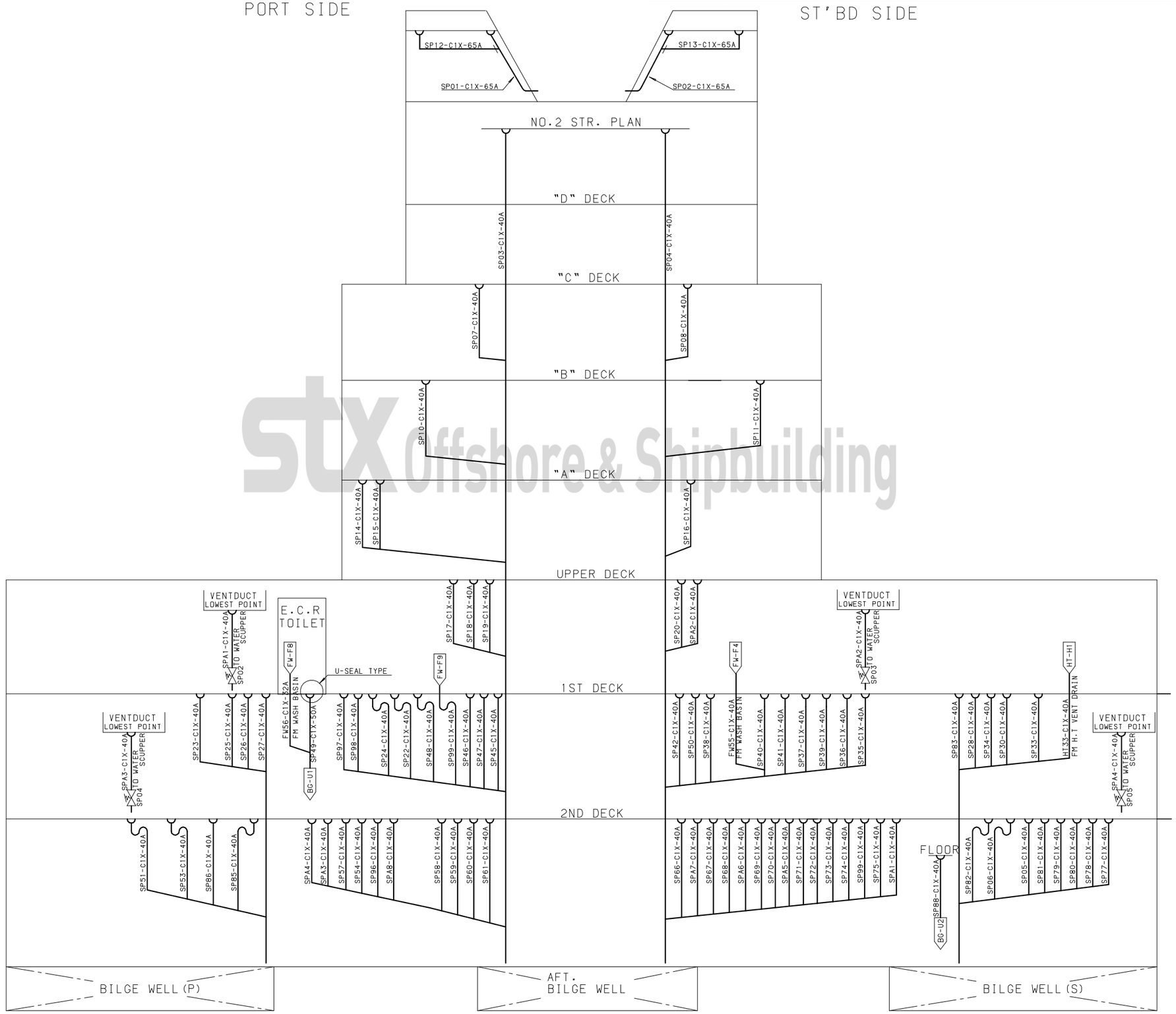


PAGE	37/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-SP2

SCUPPER SYSTEM(2/2)

PORT SIDE

ST'BD SIDE

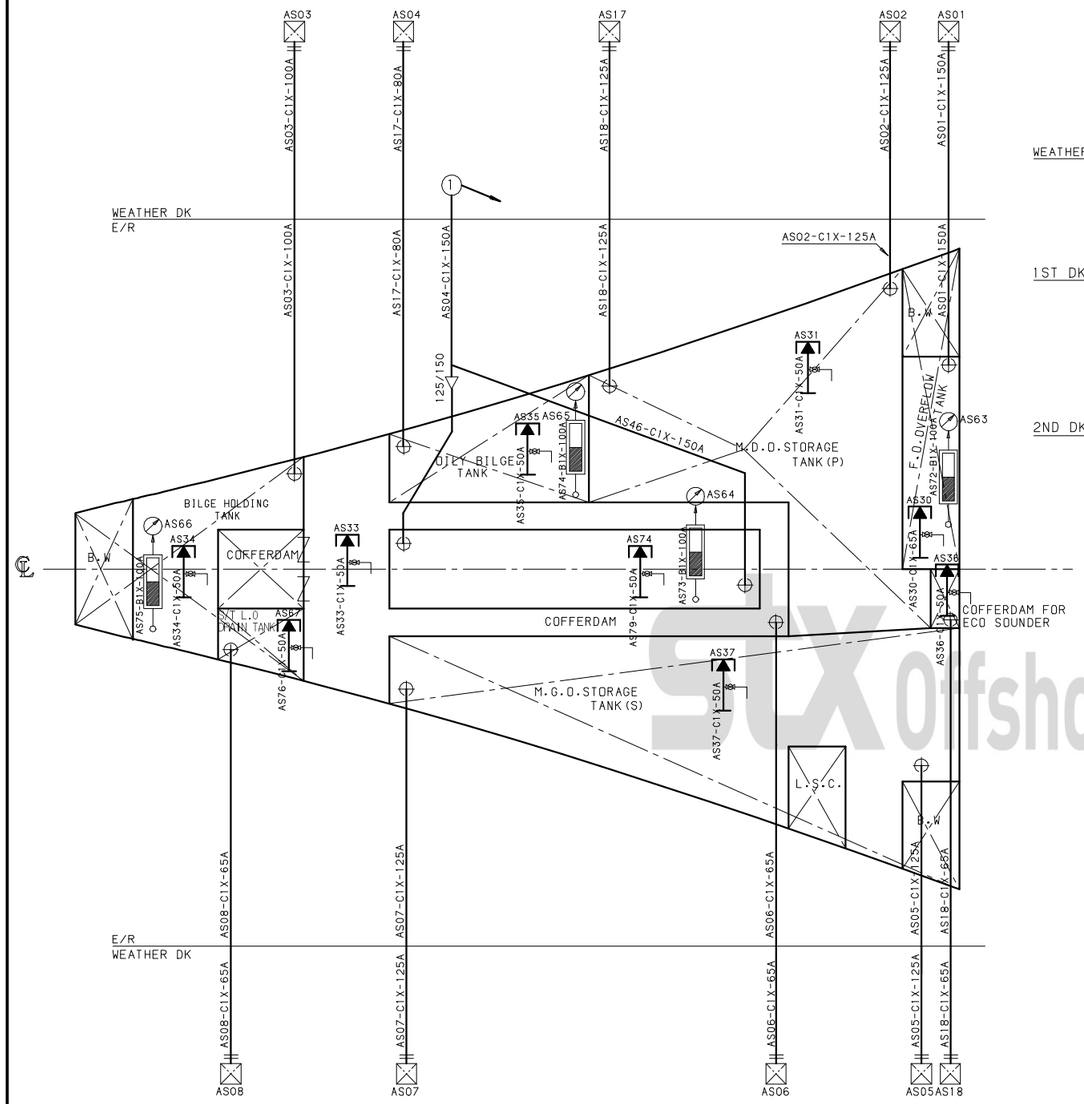


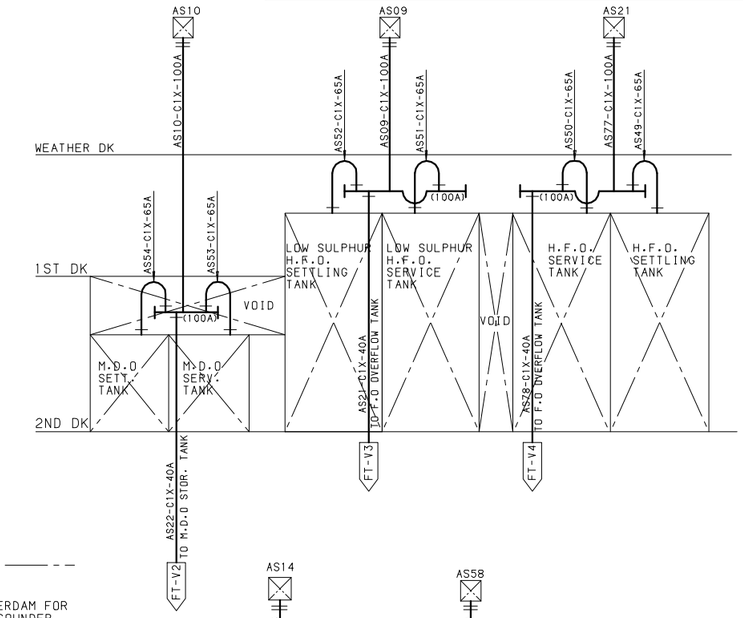
LINE NO.: AS01~AS79
VALVE NO.: AS01~AS74

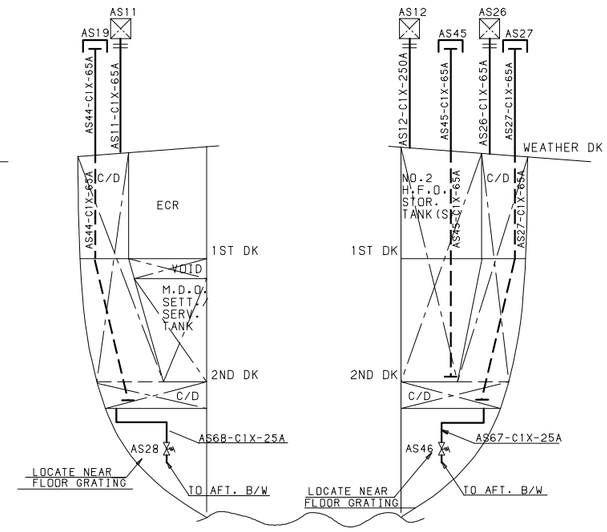
AIR VENT & SOUND'G SYSTEM

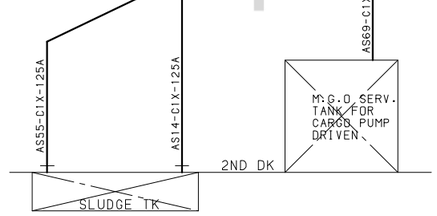
PAGE	38/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-AS

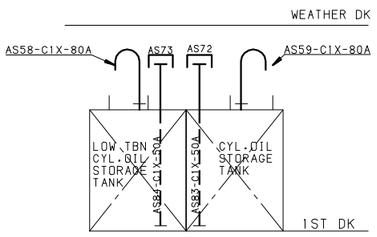
NOTE
1. AIR VENT & SOUNDING OF INDEPENDENT TANK. PLEASE REFERANCE TO EACH SYSTEM DIAGRAM.
2. STRIKING PLATES SHALL BE FITTED AT THE END OF SOUNDING PIPES FOR ALL TANKS.
3. THE U.S.C.G BOXES AROUND ALL OIL AIR VENTS EXPOSED ON WEATHER DECK SHOULD BE INSTALLED.
4. **THE SHORT SOUNDING PIPE ON D/B TANK TO BE FOOT PUSHING TYPE**

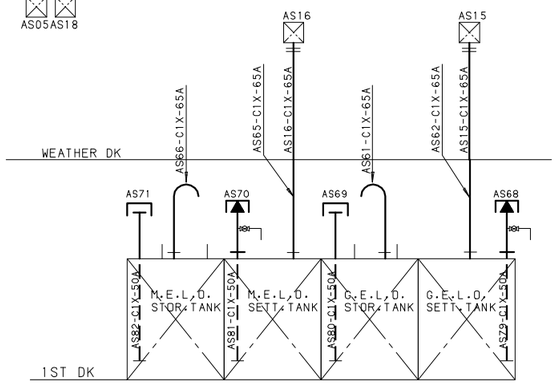


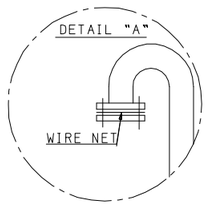


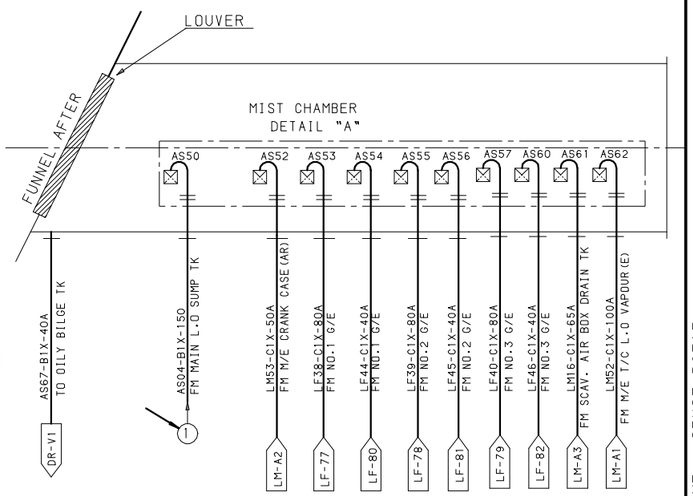












FORM NAME : STXSE-PC313

LINE NO. : EX01~EX38
VALVE NO. : EX01~EX16

EXHAUST GAS SYSTEM

PAGE	39/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-EX

-NOTE-

1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENTS.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. **THE QUANTITY AND LOCATION OF EXPANSION JOINT SHALL BE ADJUSTED AFTER DETAIL EXH. GAS PIPE ARRANGEMENT.**
4. PIPING SHALL BE LED DIRECTLY AS POSSIBLE WITH MINIMUM NUMBER OF BENDS.
5. **EXHAUST GAS PIPE IN E/R SHALL BE INSULATED UPTO FUNNEL TOP LEVEL.**
6. **EXHAUST GAS PIPE SIZE MAY BE CHANGED ACCORDING TO THE AMOUNT OF EXHAUST GAS AND ACTUAL ARRANGEMENT. THIS IS ONLY REFERENCE.**

STPG370 #80-E(G)

EM'CY D/G RM

SILENCER

EX28-B1X-125A

5K-15A

EX10

125/100

EX30-C1X-15A

TO WATRER COAMING

EM'CY G/E

DETAIL "AA"

130 65 120 99 47 47 ø12 160 35

NOx FLANGE DETAIL

DETAIL "BB"

CENTERED IN EXHAUST PIPE 1". 90 ELBOW

1" PIPE

EXHAUST PIPE

EX09-A1X-XXXA

EX16

EX19-C1X-40A

ABT. 1.5 ~ 2.4M

TS

PT3/4"

"AA"

450A

INCINERATOR(HMMCO)
(500,000Kcal/h)

5K-40A B.F

200 200 MIN. 800 200

EX22-A1X-XXXA EX21-A1X-XXXA EX20-A1X-XXXA

SILENCER WITH SPARK ARRESTOR

EX07 EX09 EX11

EX34-C1X-40A EX33-C1X-40A EX31-C1X-40A

EX32-A1X-XXXA EX23-A1X-XXXA EX06-A1X-XXXA

BG-W2 EX21-C1X-40A TO BILGE HOLD'G TK

EX22-C1X-40A 1

EX12-A1X-XXXA EX11-A1X-XXXA EX36-A1X-XXXA

EX14 EX13 EX12

EX18-C1X-40A EX17-C1X-40A EX37-C1X-40A

EX08-A1X-XXXA EX07-A1X-XXXA EX35-A1X-XXXA

EX22-C1X-40A 2

DN150 PN16

NO.1 D/E FOR HYD. POWER PACK

NO.2 D/E FOR HYD. POWER PACK

NO.3 D/E FOR HYD. POWER PACK

EX05-XXXA

TIAH TX M33x2

V27

AUX. BLR (25000Kg/H) KANGRIM

V14

EX13-C1X-50A EX14-C1X-50A

EX03-XXXA

M33x2 TIAH

EXHAUST GAS BLR (1400Kg/H) KANGRIM

EV17

EG4 TI TI

EG3

1.5~2.5M

0.5~3M

EG12

10K-25A

"BB"

EX15

10K-15A

I.T SOOT REMOVER

EX10-C1X-100A

EX01-XXXA

CA73-C2X-15A

FM COMP. AIR SYS.

CA-K9

EX04-XXXA

"AA"

EX15-C1X-50A EX16-C1X-100A

FW-F1 FM F.W HYD. TK FW31-B1X-25A

EX02 EX03 EX01

SOOT DRAIN TANK (1.0M3)

EX20-C1X-80A

MIN. 500MM

AT 100MM

SAG BAG TYPE FILTER

EX06 EX08

EX24-C1X-40A EX38-C1X-40A

1 2

EX29-C1X-100A TO BILGE HOLDING TANK BG-W1

TAH TX PF3/4" PF3/4" TI

D

TURBO CHARGER

EXHAUST RECEIVER

MAIN ENGINE (7S50MC-C)

"AA"

P7 P2 5K-400A

EXH. GAS TO T/C

CHARGING AIR FROM T/C

M6

WATER SCUPPER WATER SCUPPER

NO.3 G.E(6L21/31)

NO.2 G.E(6L21/31)

NO.1 G.E(6L21/31)

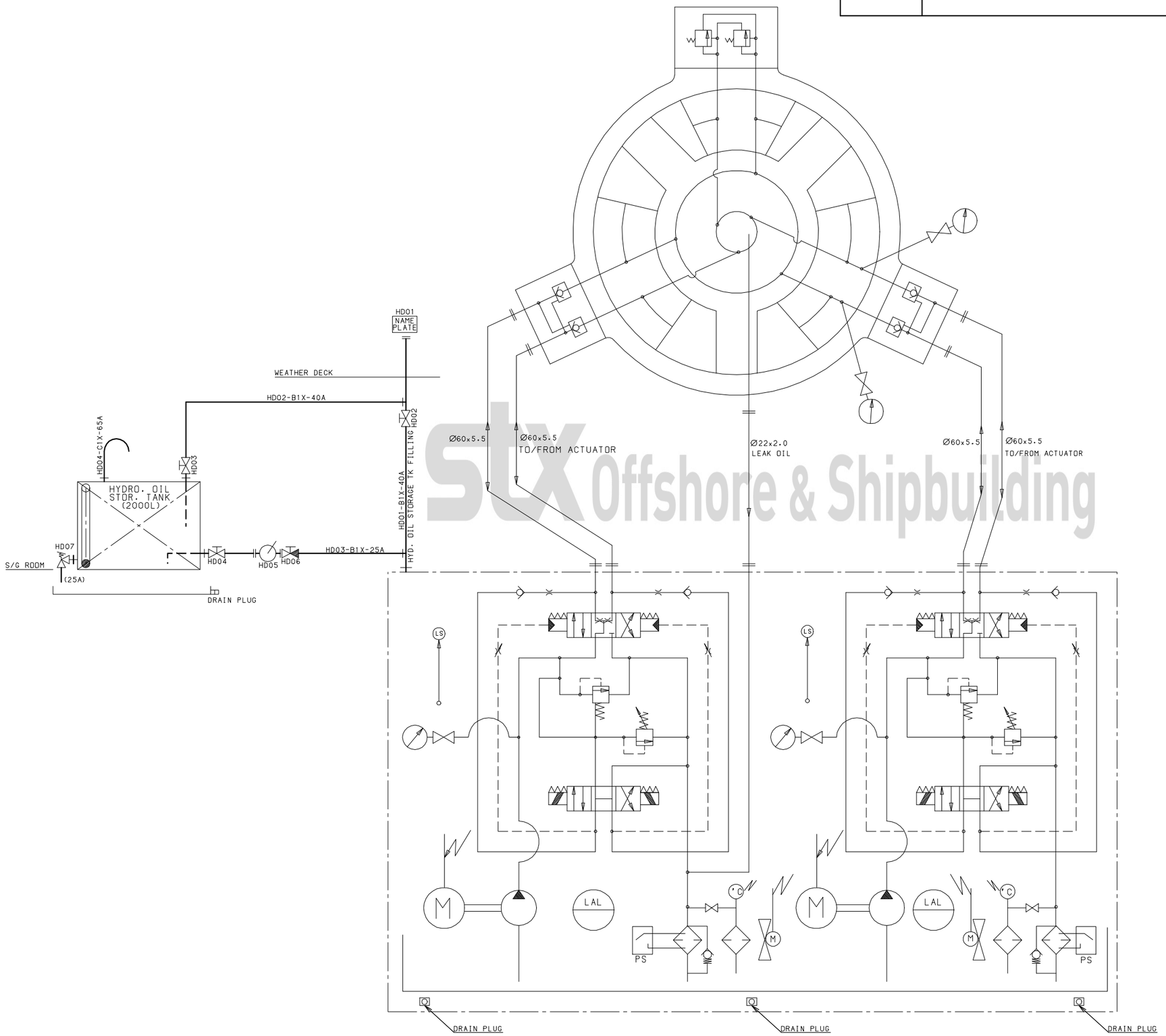
FORM NAME : STXSE-PC313

F.O & L.O DRAIN SYSTEM

PAGE	40/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-DR

G.E LUB. OIL STORAGE TANK
G.E LUB. OIL SETTLING TANK
M.E LUB. OIL SETTLING TANK
M.E LUB. OIL STORAGE TANK
WASTE OIL SETT. TK
WASTE OIL SERV. TK
INCINERATOR
CYL. OIL MEAS. TK
LOW TBN CYL. OIL MEAS. TK
CYL. OIL SHIFT'G PUMP
M.E CYL. OIL STORAGE TANK
LOW TBN CYL. OIL STORAGE TANK
POWER UNIT FOR REMOTE CONT. VALVE
AUX. BOILER BURNER UNIT
SPRAYER CLEAN'G DEVICE
FB12-B1X-15A BLR BURNER PISTON V/V DRAIN
AS67-B1X-40A FM MIST OIL CHAMBER
FB-42
AS-V1
ST86-B1X-50A FM SPRAYER CLEAN'G DEVICE
DR58-C1X-50A
WS91-B1X-25A FM CABINET ROOM FOR VRC (REFER TO ACCOM. PIPING DIAGRAM)
DR01-B1X-40A
DR02-B1X-40A
NO.1 H.F.O PURI. HTR
NO.2 H.F.O PURI. HTR
M.E L.O PURI. HTR
G.E L.O PURI. HTR
NO.1 F.O HTR FOR AUX. BLR
NO.2 F.O HTR FOR AUX. BLR
M.G.O SERV. TK FOR CARGO PUMP DRIVEN
H.F.O SETT. TANK
H.F.O SERV. TANK
LOW SULPHUR H.F.O SERV. TANK
LOW SULPHUR H.F.O SETT. TANK
M.D.O PURI. SUPPLY P/P
H.P.P FOR CARGO P/P UNIT
NO.1 F.O PURIFIER
NO.2 F.O PURIFIER
M.D.O PURIFIER
NO.1 L.O PURIFIER
NO.2 L.O PURIFIER
F.O SUPPLY P/P FOR A/B
M.D.O PUMP FOR I.G.G
M.D.O SETTLING TANK
M.D.O SERVICE TANK
L.O FULL FLOW FILTER FOR M/E
AUTOMATIC FILTER
DR03-B1X-25A
DR04-B1X-25A
DR05-B1X-25A
DR06-B1X-25A
DR07-B1X-25A
DR08-B1X-25A
DR09-B1X-25A
DR10-B1X-25A
DR11-B1X-25A
DR12-B1X-25A
DR13-B1X-25A
DR14-B1X-25A
DR15-B1X-25A
DR16-B1X-40A
DR17-C1X-50A
DR18-B1X-40A
DR19-B1X-25A
DR20-B1X-40A
DR21-B1X-40A
DR23-B1X-25A
DR24-B1X-25A
DR25-B1X-25A
DR26-B1X-25A
DR27-B1X-25A
DR28-B1X-40A
DR29-B1X-40A
DR30-B1X-40A
DR31-B1X-40A
DR32-B1X-40A
DR33-B1X-40A
DR34-B1X-40A
DR35-B1X-40A
DR36-B1X-25A
DR37-B1X-40A
DR38-B1X-25A
DR39-B1X-25A
DR40-B1X-40A
DR41-B1X-25A
DR42-B1X-40A
DR43-B1X-25A
DR44-B1X-10A
DR45-B1X-40A
DR46-B1X-40A
DR47-B1X-40A
DR48-B1X-25A
DR49-B1X-25A
DR50-B1X-40A
DR51-B1X-40A
DR52-B1X-40A
DR53-B1X-40A
DR54-B1X-40A
DR55-B1X-40A
DR56-B1X-25A
DR57-B1X-25A
10K-40A
5K-50A
5K-32A
32/40
(AE-1)
(AE-2)
NO.2 M.D.O IGNI.P/P FOR AUX. BOILER
NO.1 M.D.O IGNI.P/P FOR AUX. BOILER
M.D.O PUMP FOR INCIN.
FM-27
FM17-B1X-40A FM F.O SUPPLY UNIT
FM19-B1X-25A
SF-J2
SF23-B1X-40A FM OBSERVATION TANK
FM-26
FM14-B1X-25A M.G.O CLR FOR G.E
FB-25
FB18-B1X-25A M.G.O CLR FOR BLR
LM-A6
LM09-B1X-25A FM M.E L.O COOLER
CA-J5
CA15-C1X-40A FM MAIN AIR RES.
CA-J6
CA18-C1X-40A FM MAIN AIR COMP.
CA-J7
CT20-C1X-40A FM TOPP-UP AIR COMP.
CT-L5
CT04-C1X-40A FM CONT. AIR RES.
CA-J8
CA69-C1X-40A FM SERV. AIR RES.
CT-L8
CT23-C1X-25A FM AIR DRYER
DR34
LF-75
LF06-B1X-25A FM HYD. OIL STOR. TK FOR CARGO PUMP H.P.P
FA-33
FA15-B1X-40A FM G.E DRAIN (A3)
LF-83
LF43-B1X-40A FM G.E L.O SETT TK
BILGE TRANS. P/P
SLUDGE PUMP
L.O PURI SUPPLY P/P
M.D.O TRANS P/P
H.F.O TRANS P/P
M.G.O SHIFT'G P/P
L.O TRANS PUMP
DRAIN PLUG
STUFFING BOX DRAIN (AG)
MAIN ENGINE (7S50MC)
OILY BILGE TANK
DETAIL "A"
TK
DR01~DR13
DR14~DR27

	HYD. OIL SYSTEM FOR STEERING GEAR	PAGE	41/42
		MODEL NO.	60KPC01
		DWG. NO.	D6011000-HD



LOCAL FIRE EXTINGUISHING SYSTEM

PAGE	42/42
MODEL NO.	60KPC01
DWG. NO.	D6011000-EF

NOTE:

1. GLOBE/ANGLE VALVES OR GLOBE/ANGLE CHECK V/V IN PIPING DIAGRAMS MIGHT BE CHANGED TO ANGLE/GLOBE VALVES OR ANGLE/GLOBE CHECK V/V ACCORDING TO ACTUAL PIPING ARRANGEMENT.
2. MAKER SYSTEM AND SUPPLY SCOPE ITEMS MARKED [ ] OR * ARE SUBJECT TO BE CHANGED ACCORDING TO MAKER DRAWING.
3. ○ MARK MEANS NORMAL OPENED AND ⊕ MARK MEANS NORMAL CLOSED.
4. REGARDING DETAIL DRAWING FOR SMOKE & FIRE DETECTOR, PLEASE REFER TO "CABLE DIAGRAM OF FIRE DETECTION & GENERAL ALARM SYS." (DRW NO. D8004000).