

FINAL DRAWING

UNITOR

LOCAL APPLICATION

FIRE FIGHTING

SYSTEM

**SAMSUNG HEAVY INDUSTRIES
CO., LTD. KOREA**


HULL NO.: H2074
170.000 CBM LNG
FSRU

CLASS: DNV
IMO NO.: 9684495

ORDER NO.:	DATE:	REV. NO.:
KPS20017	03.APR.15	00

DOCUMENT REVISION HISTORY

Rev. no.	Description of Revision	Date	Issued by	Checked by	Approved by
00	Drawing Submission to Shipyard for Working Drawing Submission to Class for Approval	25.APR.13	XYA	LPA	LYU

DRAWING LIST		
PAGE	DRAWING NO.	TITLE
1.1~1.2	N/A	Material Specification Sheet
2	KPS6479-1-55-01	Schematic Drawing
3~4	N/A	Calculation Form
5.0~5.8	KPS6479-1-55-04G	Connection Diagram Diesel Engine Pump Starter Cabinet
5.8A~5.10	KPS6479-1-55-04H	Installation Dimension Diesel Engine Pump Starter Cabinet
5.11~5.15	KPS6479-1-55-04I	Battery Box and Junction Box
6.1~6.20	KPS6479-1-55-04A	Connection Diagram Main Control Cabinet
7.1~7.4	KPS6479-1-55-04B	Installation Dimension Main Control Cabinet
8.1~8.4	KPS6479-1-55-04C	Connection Diagram Remote Control Cabinet in W/H
9	N/A	N/A
10.1~10.3	KPS6479-1-55-04D	Installation Dimension Remote Control Cabinet
11	KPS6479-1-55-04E	Manual Release Box
12.1~12.2	KPS6479-1-55-04F	Parts and Spare Parts List for MCC
12.3~12.4	KPS6479-1-55-04J	Parts and Spare Parts List for Diesel Engine Starter Cabinet
12.5	KPS6479-1-55-04K	Parts and Spare Parts List for Remote Control Cabinet
13	KPS6479-1-55-06A	Piping & Nozzle Arrangement B & Upper Deck Plan
14	KPS6479-1-55-06B	Piping & Nozzle Arrangement 2ND Deck Plan
15	KPS6479-1-55-06C	Piping & Nozzle Arrangement 3RD Deck Plan
16	KPS6479-1-55-06D	Piping & Nozzle Arrangement 4TH Deck Plan
17	KPS6479-1-55-07	Instruction Plan
18	KPS6479-1-55-08	Pump & Valve Unit
19	KPS6479-1-55-10	Spare Part & Tool List
20	53-03-061	Valve 3-Way 1/2" for Pressure Gauge PN16
21	53-04-005	Flange PN16 DIN 2633
22	53-11-006	Pressure Gauge 0-25 Bar / 0-2.5 MPa
23	53-11-007	Pressure Vacuum Gauge -0.1~2.4MPa
24	55-03-002	Solenoid Valve DN15~50 PN16 with Coil and Plug
 Wilhelmsen Technical Solutions		SAMSUNG HEAVY INDUSTRIES CO., LTD. HULL NO.: H-2074
		Document No.

	DRAWING LIST	
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PAGE	DRAWING NO.	TITLE
25	KPS6479-1-55-05	Diesel Engine Driven Fresh Water Pump
26	N/A	Water Pump Capacity Curve
27	53-10-013	Pressure Switch KANT 802-10-2331 1/4" BSP
28	55-08-541	Manual Release Box
29	55-09-302A	Water Mist Nozzle Type 1/4" HHSJ-9007 with Flange
30	PUSAN	Pipe Table
31	N/A	Weight List
32	53-03-062	TWT YG41-16 Flanged Strainer DN50
33	53-03-071	Globe Non-return Valve, DN50 PN16

QUOTATION SPECIFICATION (2a) (INTERNAL)



Customer name: SAMSUNG HEAVY INDUSTRIES CO LTD
PO.no/ref.: POS / Mr. H.W.Woo
Yard: SAMSUNG HEAVY INDUSTRIES CO LTD
Owner: SAMSUNG HEAVY INDUSTRIES CO LTD
Hull No/Vessel: 2031 /
Project Id.: KPS6479
Prepared by: NN
Number of Ships: 1

Expiry date: 2011-08-15
Currency: USD
Vessel Type: LN
Vessel Size: 170000
Flag/Class: BM / DNV

QUOTATION SPECIFICATION (2a)

Quote No. KPS6479-1
Product Group: 550 - LOCAL FIRE-FIGHTING SYSTEM

Page no: 1
Rev. Date: 2013-03-22
Rev. No: 7

Item	Qty	Unit	Prod.no	Description	Data Sheet No.
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LOCAL APPLICATION FI FI COMPONENTS

01	1	PCS	G53030	UNIT INSTALLATION LAFF SKID	KPS6479-1-55-08
02.1	1	PCS	720144	PRESS GAUGE 0-25BAR/2.5MPA,DIA100MM 1/2"BSPT MALE CONN	5311006
02.2	1	PCS	767038	PRESS VACUUM GAUGE	5311007
03	2	PCS	740290	VALVE 3-WAY 1/2" FOR PRESSURE GAUGE PN16, BRASS	5303061
04	3	PCS	762542	SOLENOID VALVE BRASS DN32	5503002
05	5	PCS	762518	SOLENOID VALVE BRASS DN15	5503002
06	40	PCS	G55009	WATER MIST NOZZLE TYPE 1/4" TYPE HHSJ-9007 WITH FLANGE	5509302A
07	1	PCS	G55008	DIESEL ENGINE DRIVEN PUMP	KPS6479-1-55-05
08	2	PCS	605709	FLANGE DN50 PN16 DIN2633	5304005
09	1	PCS	G55008	MAIN CONTROL CABINET 7 ZONES	KPS6479-1-55-04B
10	1	PCS	G55008	REMOTE CONTROL CABINET 7 ZONES	KPS6479-1-55-04D
11	7	PCS	G55008	MANUAL RELEASE CABINET	KPS6479-1-55-04E
13	1	PCS	758987	GLOBE VALVE NON-RETURN DN50 PN16 NODULAR CAST IRON	5303071
14	1	PCS	764432	TWT YG41-16 STRAINER FLANGED DN50 MESH WIDTH 0.6MM	5303062
15.1	1	PCS	G55008	DIESEL ENGINE WATER PUMP STARTER CABINET	KPS6479-1-55-04H
15.2	1	PCS	G55008	BATTERY BOX	KPS6479-1-55-04I1/2
15.3	1	PCS	G55008	JUNCTION BOX	KPS6479-1-55-04I3
16	1	PCS	G55003	MANUAL GLOBE VALVE 20A	
17	1	PCS	G55003	MANUAL GLOBE VALVE 15A	
18	1	PCS	G55003	MANUAL GLOBE VALVE 32A	
19	1	PCS	764639	KANT PRESSURE SWITCH 802-10-2331 PRE-SETTING PRESSURE 4BAR	5310013
20	1	PCS	G55003	GLOBE/ANGLE VALVE FOR ITEM19	

SPARE PARTS

QUOTATION SPECIFICATION (2a)

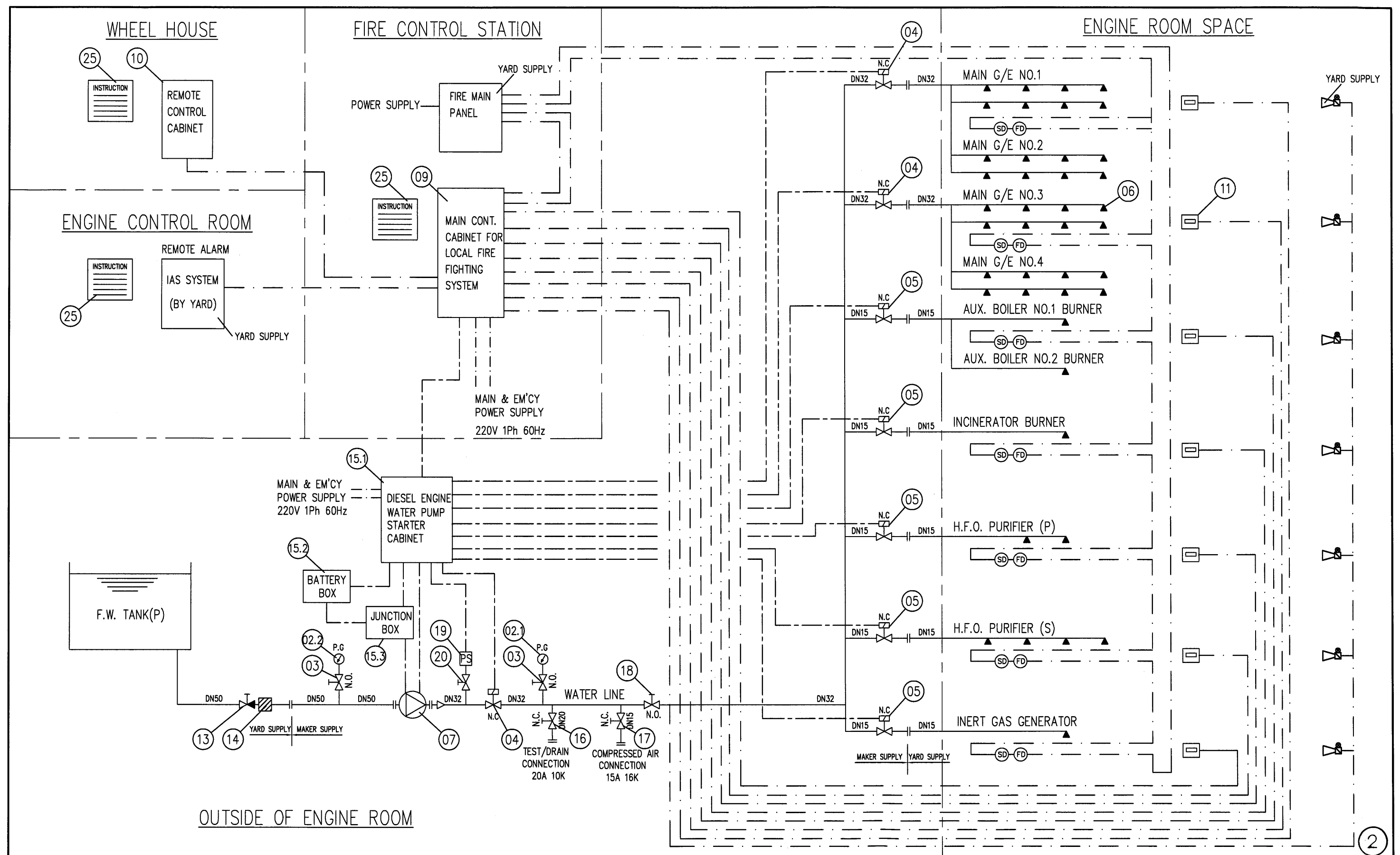
Quote No. KPS6479-1
Product Group: 550 - LOCAL FIRE-FIGHTING SYSTEM

Page no: 2
Rev. Date: 2013-03-22
Rev. No: 7

Item	Qty	Unit	Prod.no	Description	Data Sheet No.
21	1	PCS	575142	SPARE PART BOX GREY STEEL 600X230X230	
22	10	PCS	769646	WATER MIST NOZZLE TYPE 1/4" TYPE 1/4" HHSJ-9007	5509302
23	1	SET	G55030	ELEC. SPARE PARTS FOR MCC, RCC & DIESEL ENGINE PUMP STARTER CABINET	KPS6479-1-55-04F/I/J

SIGN BOARD

25	3	PCS	L676312	INSTRUCTION PLATE SUS	
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SYMBOL	DESCRIPTION	REMARK	SYMBOL	DESCRIPTION	REMARK	SYMBOL	DESCRIPTION	REMARK	Customer:	Date of issue:	Issued by:	Scale:	Place of issue:	
	ALARM			FILTER			MANUAL VALVE		SAMSUNG HEAVY INDUSTRIES CO., LTD.	25.APR.13	XYA	N.T.S.	SHA	
	FLAME DETECTOR (YARD)			MANUAL RELEASE BOX			REDUCER		Hull no.: H-2074	Date of check: 25.APR.13	Checked by: LPA	Orig. size: A3		
	SMOKE DETECTOR (YARD)			SOLENOID VALVE			DIESEL ENGINE DRIVEN WATER PUMP		Order no: KPS 20017	Date of approval: 25.APR.13	Approved by: LYU			
										Description:			Drawing no.:	
										SCHEMATIC DRAWING			KPS6479-1-55-01	
										System: UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM			Rev.no.: 00	
										Date: 25.APR.13			Issued by: [Signature]	
										Checked by: [Signature]			Approved by: [Signature]	

CALCULATION FORM

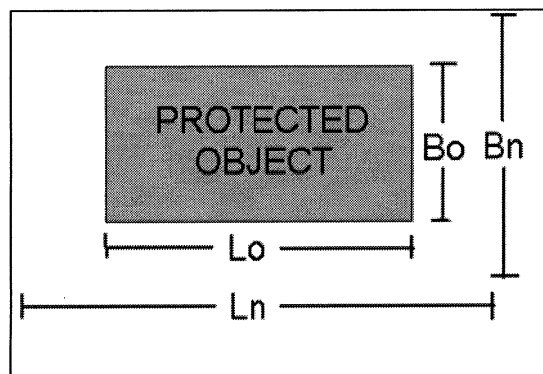
UNITOR FIXED LOCAL APPLICATION FIRE-FIGHTING SYSTEM - LOW PRESSURE

7 ZONES

according to SOLAS Reg.II-2.10.5.6, IMO MSC/Circ.913 and IACS SC217

1 YARD/OWNER: SAMSUNG HEAVE INDUSTRIES CO., LTD.
HULL NO/NAME: 2074
SIZE & TYPE OF SHIP: 170,000 M3 LNG CARRIER
AUTHORITY: Bermuda
CLASS: DNV
UNITOR PLANT NO.: KPS 20017
IMO NO.:
DATE: 25.APR.13
SIGN.: XYA
REV.: 00
REV. DATE: 25.APR.13

2



Object - number of object(s)

"S" or "R" - coverage, half maximum nozzle spacing for individual nozzle ("S") or nozzle row ("R")

Name of Object - name of object to be protected, part of a zone

Bo - breadth of protected object [m]

Lo - length of protected object [m]

H - height above protected object [m]

Ns - maximum nozzle spacing [m]

Bn - maximum breadth for nozzle location, $Bo \leq Bn$ [m] (When nozzle(s) arranged by single line, $Bn=0$)

Ln - maximum length for nozzle location, $Lo \leq Ln$ [m]

Row - number of nozzle rows

Column - number of nozzle columns

Nozzle/object - number of nozzles for protection of object #n

Zone No. - zone number (one or more objects in one zone)

Nozzle/zone - number of nozzles for protection of zone #n

Cap - water capacity for the protected Zone [l/min]

Distributed pipes size - recommended size of distribution pipes of each protected zone, PN16 DN

Valve size - recommended size of valve, PN16 DN

Name of zone - name of Zone, one or up to 5 objects included

3 Characteristics of system:

Fire-fighting medium: **WATER**

Cap./Press. at nozzle: **8.4 [l/min] @ 7 [bar]**

Ns = 3,0

at heights from 1,5 meter to 6.9 meter above protected object, for grid pattern.

Ns = 2,0

at height from 0,5 meter up to 1,5 meter above protected object, for grid pattern.

Ns = 1,5

at heights from 1,5 meter to 6.9 meter above protected object, for single (S) or row (R) of nozzles.

Ns = 1,0

at height from 0,5 meter up to 1,5 meter above protected object, for single (S) or row (R) of nozzles.

Total	7	40
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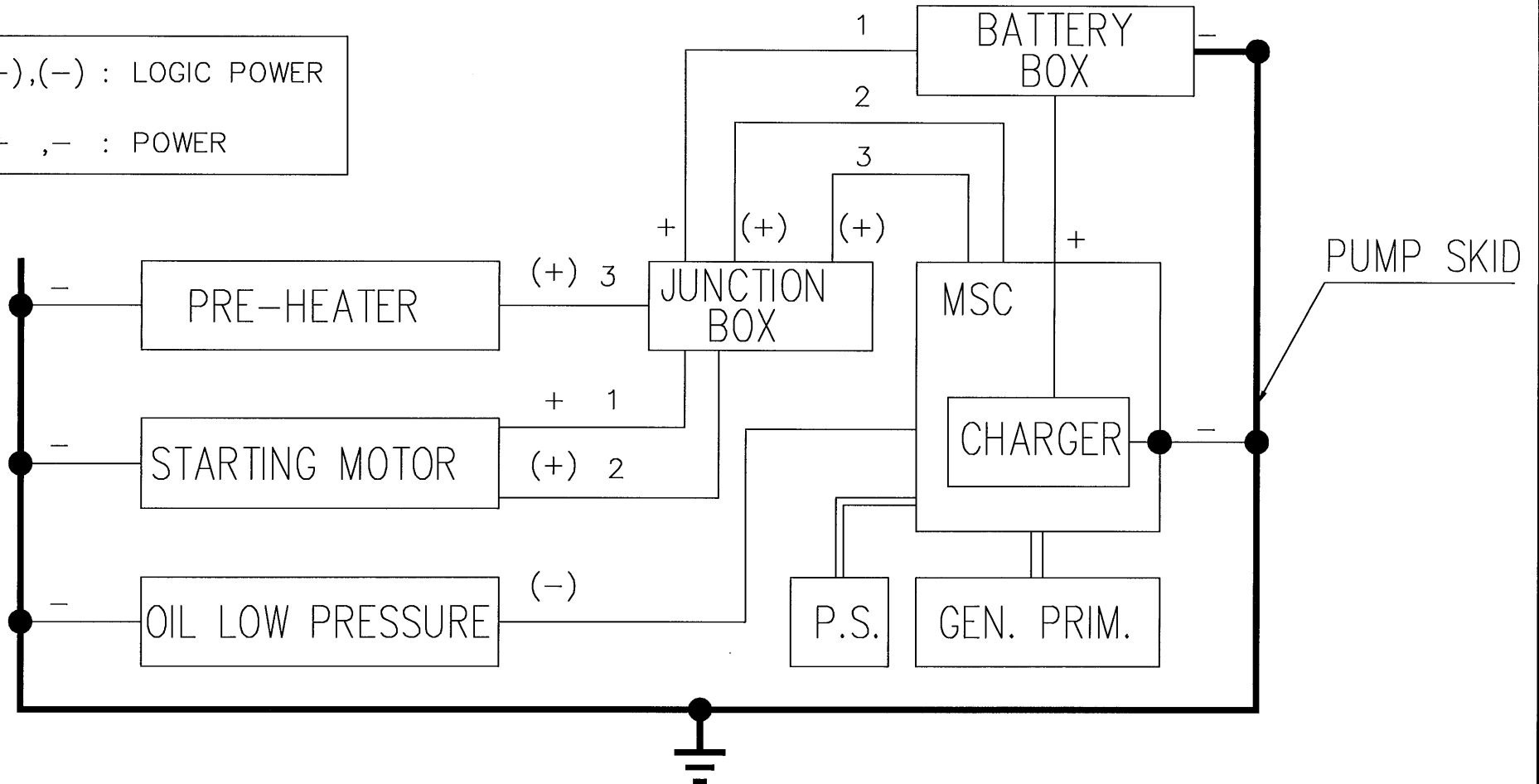
- ④

NB! Total water pump capacity, volume of water tank and pipe dimensions will be verified by the actual hydraulic calculation for the project.

DIESEL PUMP WORKING SCHEMATIC

(+),(-) : LOGIC POWER

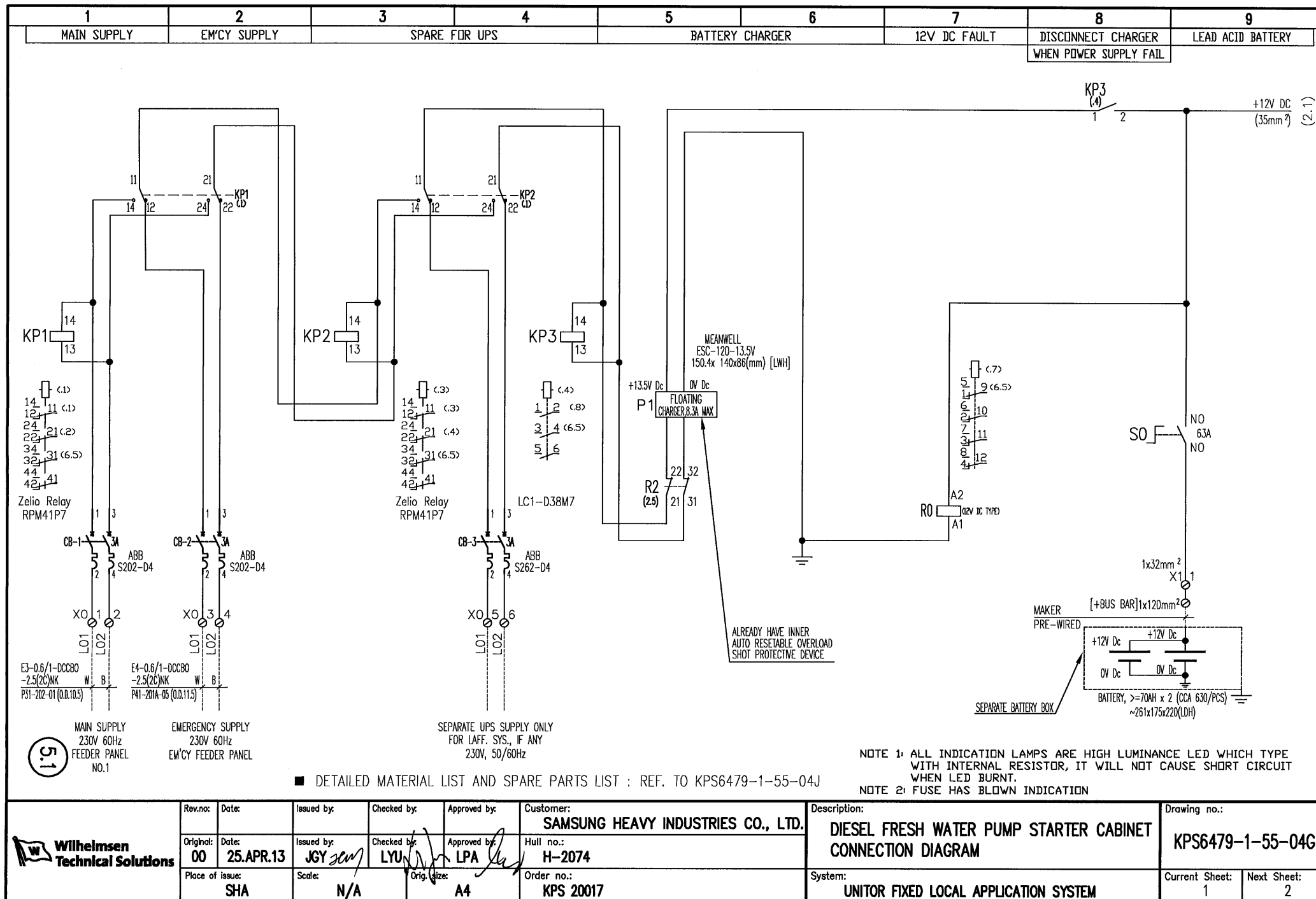
+ , - : POWER

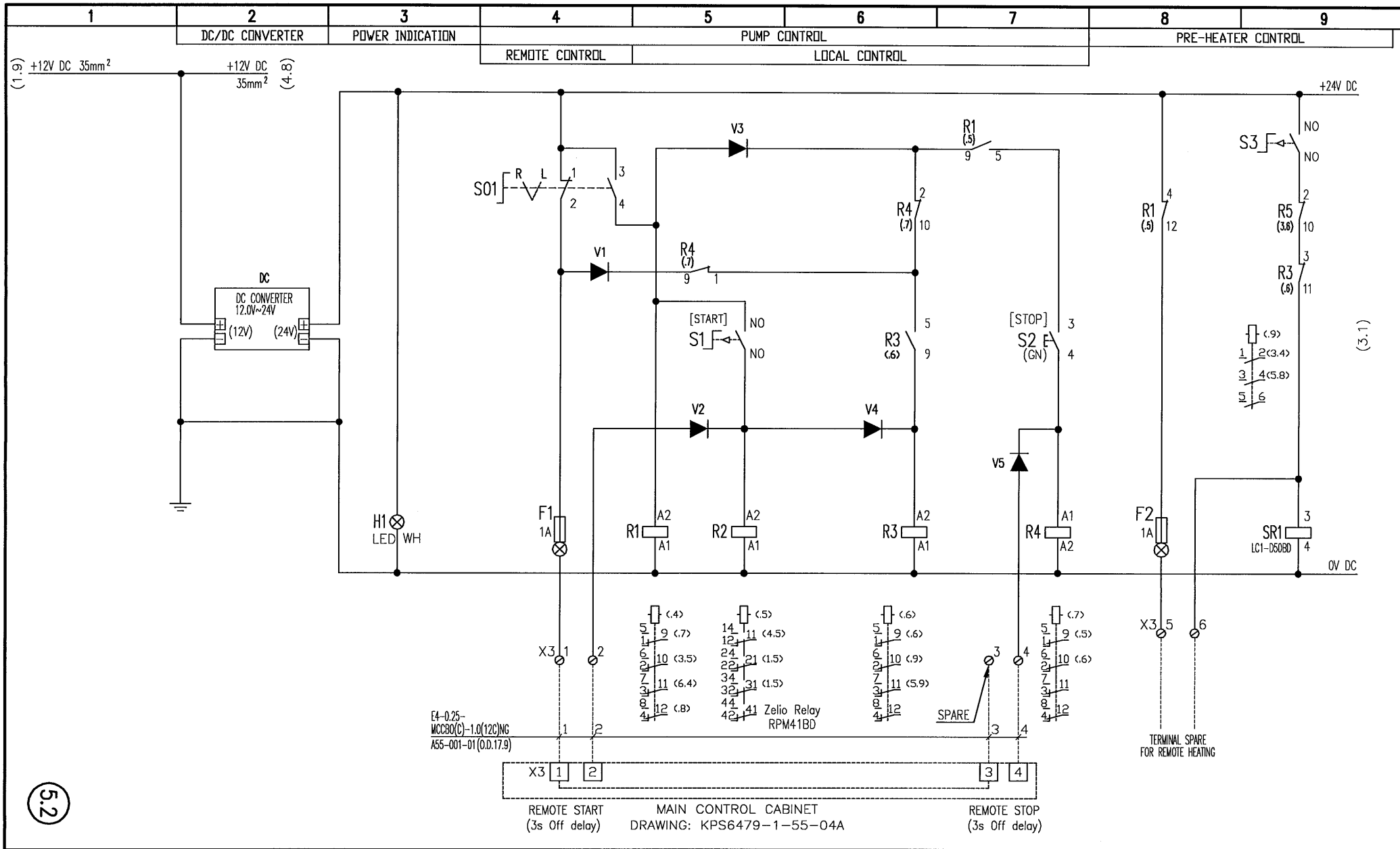


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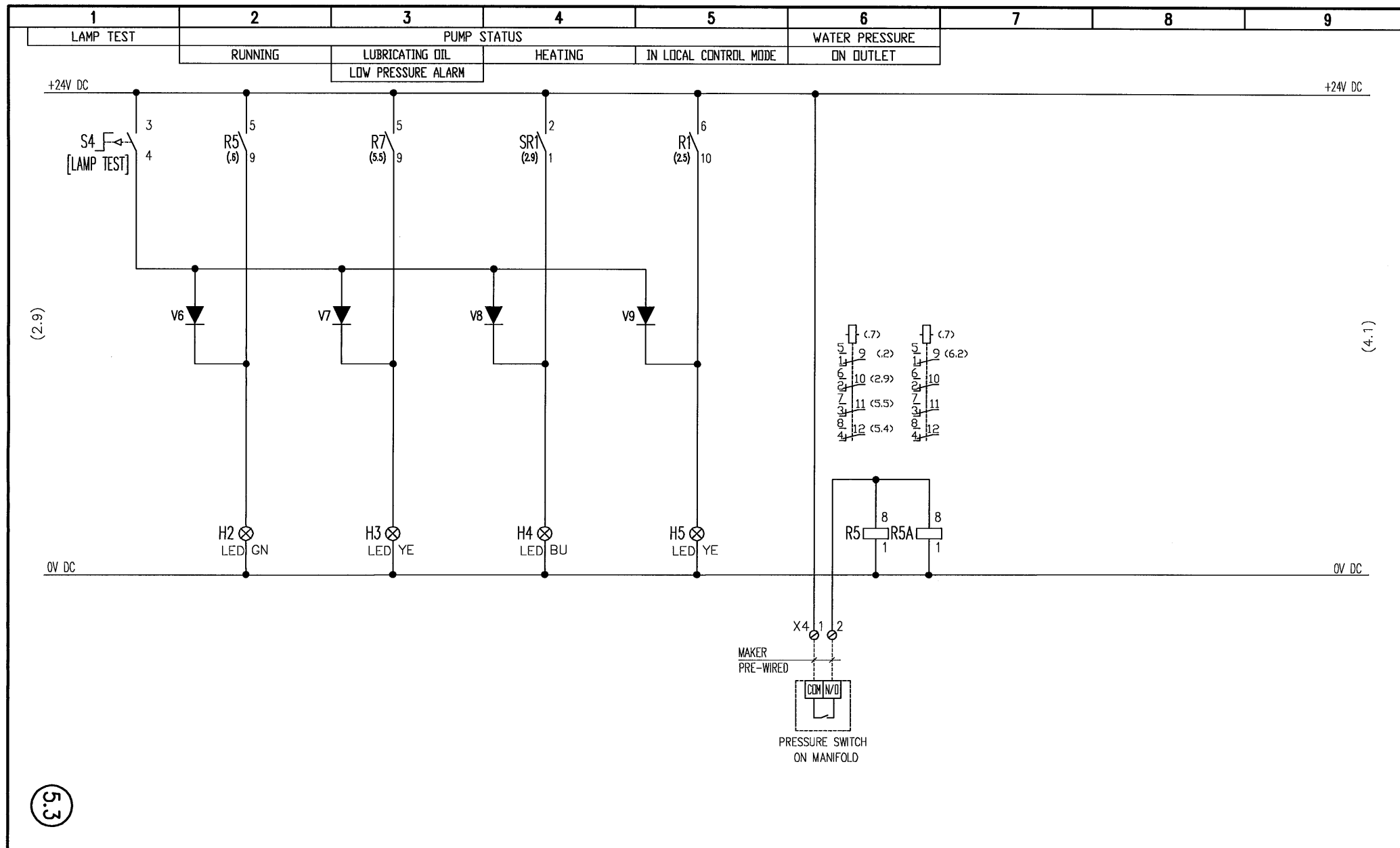
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Technical Solutions

Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:	DIESEL FRESH WATER PUMP STARTER CABINET CONNECTION DIAGRAM	KPS6479-1-55-04G
00	25.APR.13	JGY	LYU	LPA	H-2074		
Place of issue:	Scale:	Orig. size:	Order no.:	System:	Current Sheet:	Next Sheet:	
SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	0	1	

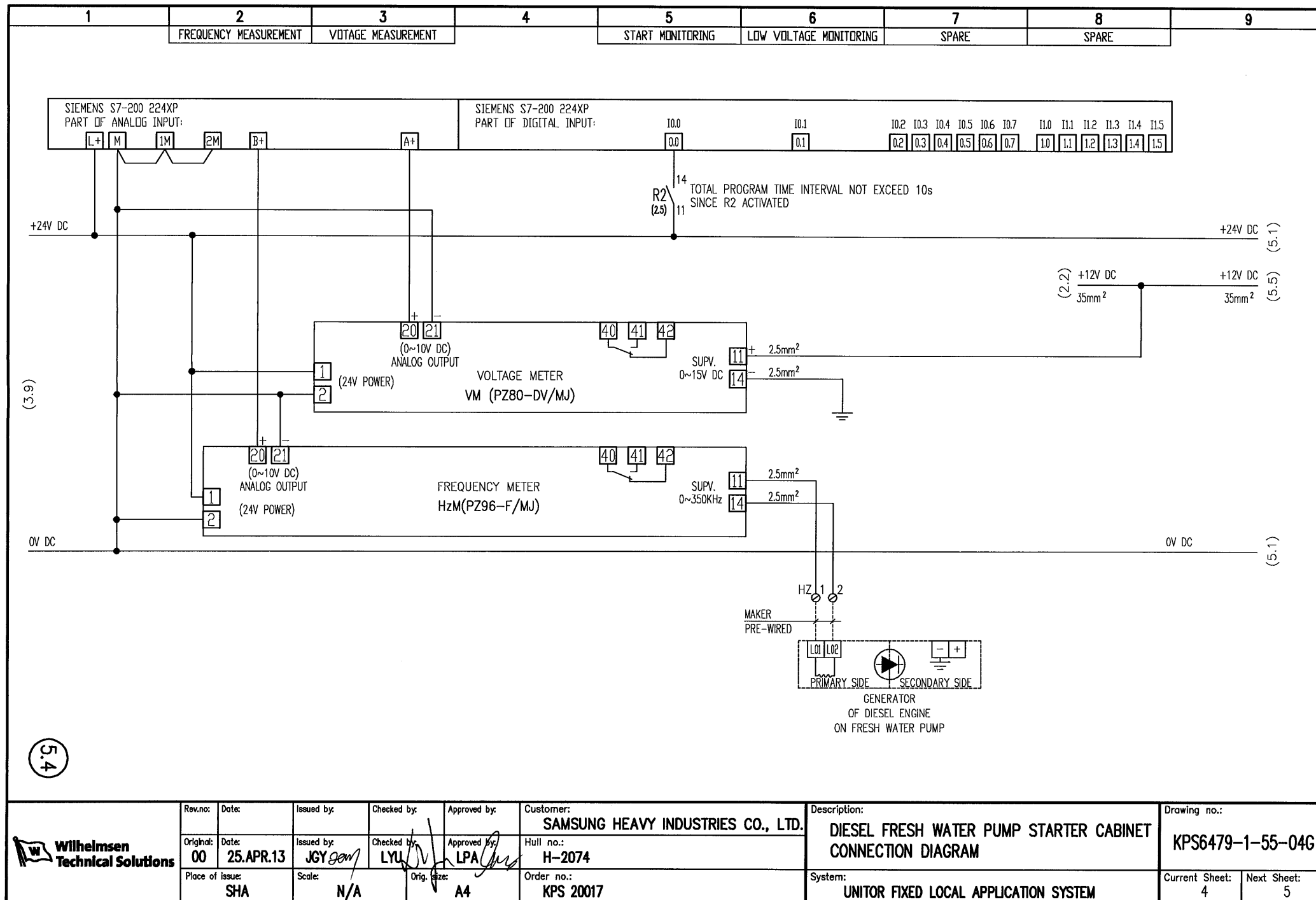


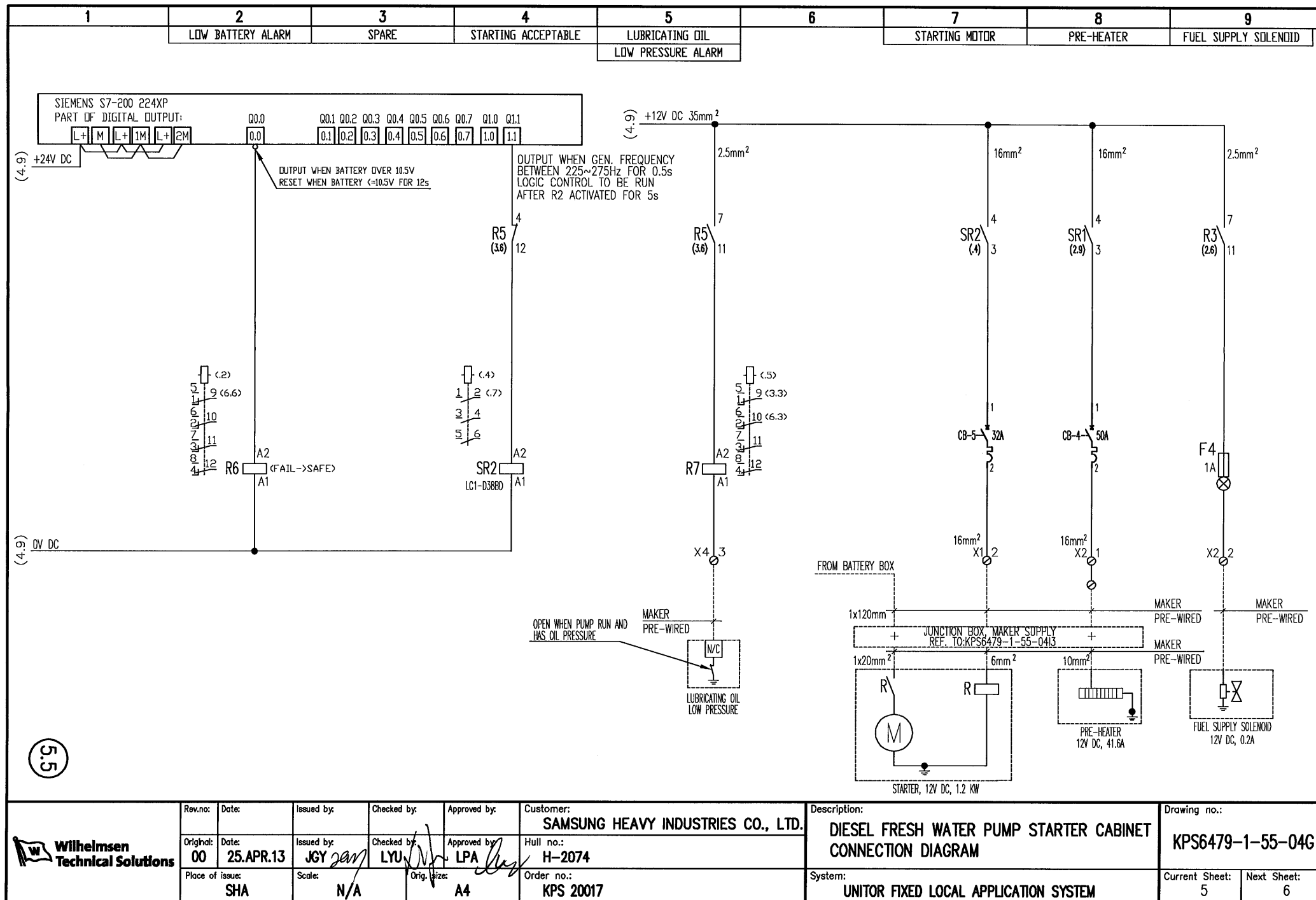


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	Place of issue:	Scale:	Orig. size:	Order no.:	System:	UNITOR FIXED LOCAL APPLICATION SYSTEM	Current Sheet:	Next Sheet:	
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5.3



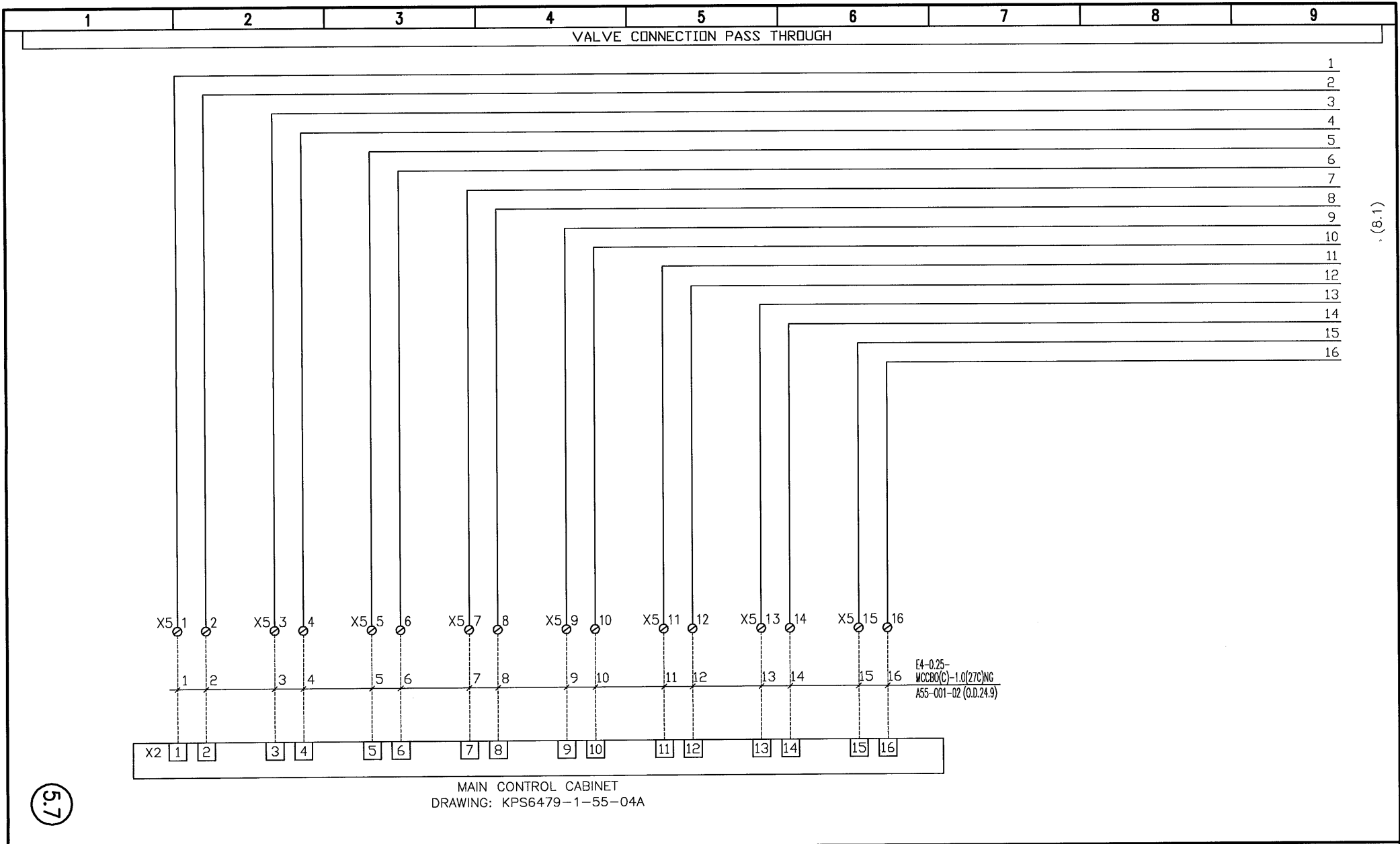


5.5

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Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:
00	25.APR.13	JGY	LYU	LPA	H-2074
Place of issue:	Scale:	Orig. size:	Order no.:		
SHA	N/A	A4	KPS 20017		

Description:	Drawing no.:
DIESEL FRESH WATER PUMP STARTER CABINET CONNECTION DIAGRAM	KPS6479-1-55-04G
System:	Current Sheet:
UNITOR FIXED LOCAL APPLICATION SYSTEM	5
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	6



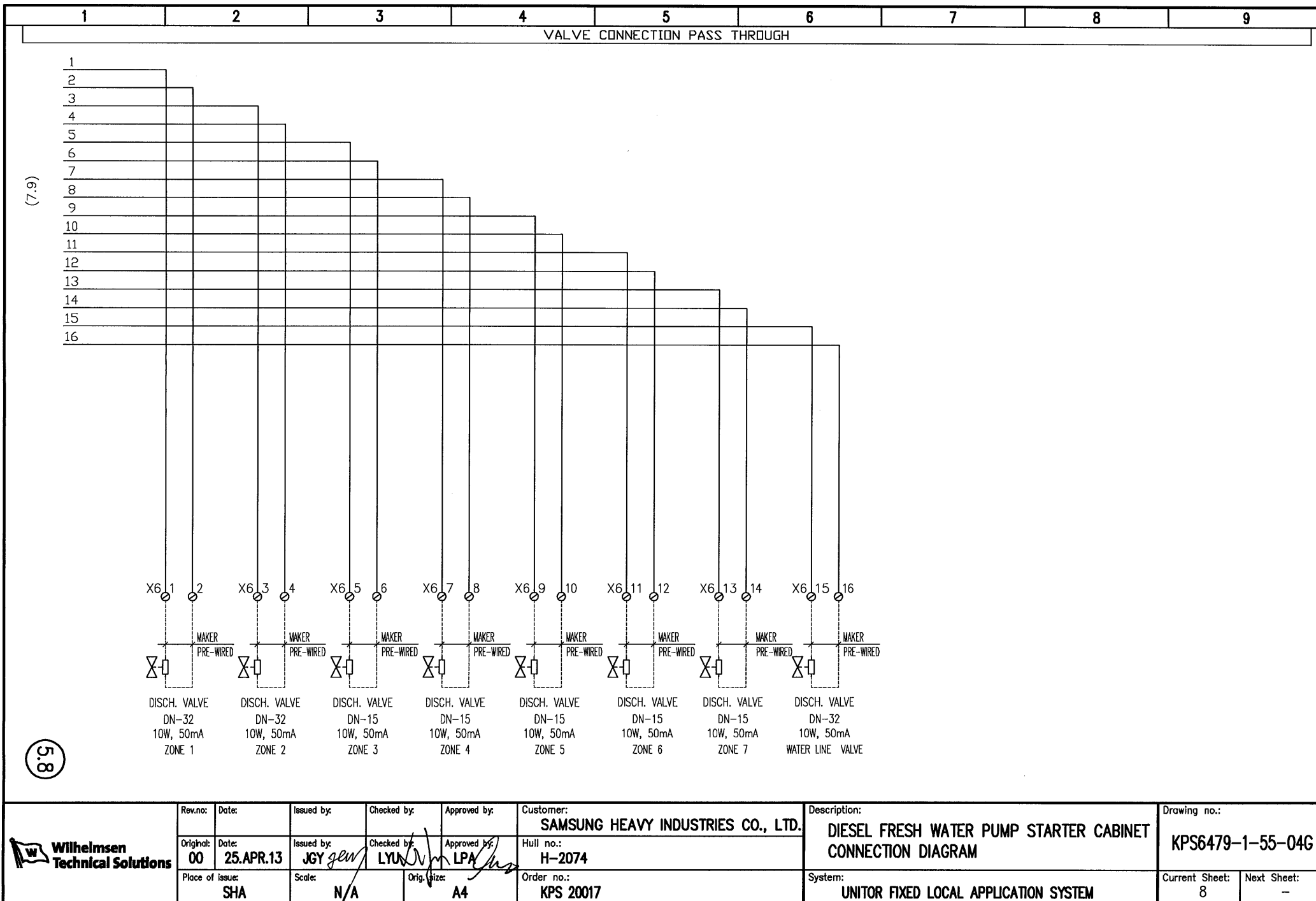
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00	25.APR.13	JGY	LYU	LPA
Place of issue:	Scale:	Orig. size:		
SHA	N/A	A4		

Customer: SAMSUNG HEAVY INDUSTRIES CO., LTD.
Hull no.: H-2074
Order no.: KPS 20017

Description: DIESEL FRESH WATER PUMP STARTER CABINET CONNECTION DIAGRAM
System: UNITOR FIXED LOCAL APPLICATION SYSTEM

Drawing no.: KPS6479-1-55-04G	
Current Sheet: 7	Next Sheet: 8



 Wilhelmsen Technical Solutions	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:	
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:	DIESEL FRESH WATER PUMP STARTER CABINET CONNECTION DIAGRAM	KPS6479-1-55-04G	
	Place of issue:	Scale:	Orig. size:	Order no.:	System:			Current Sheet:	Next Sheet:
	00	25.APR.13	JGY gen	LYUN	LPA	H-2074	UNITOR FIXED LOCAL APPLICATION SYSTEM	8	-

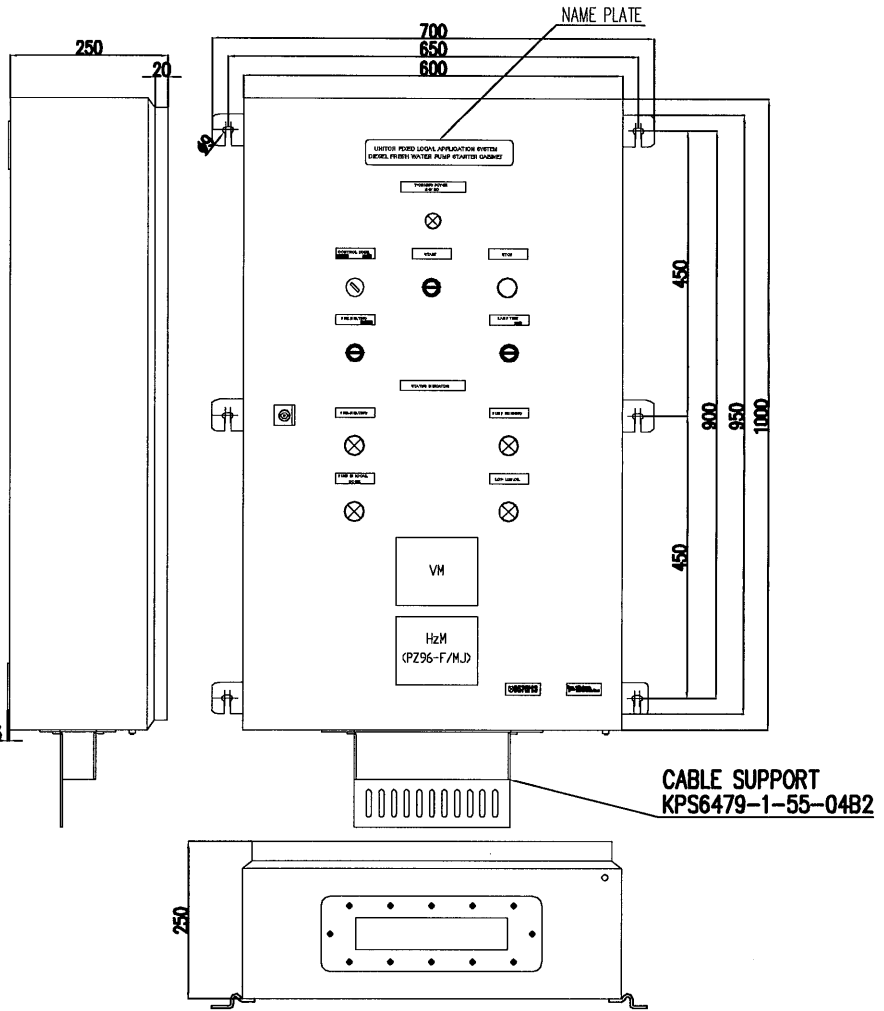
■ CABLE GLANDS:(COAMING TYPE)

CABLE TYPE	Q'TY	OUT DIA.(mm)	COND.SIZE(mm)	CABLE GLAND
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—

■ TERMINAL BLOCK SHOULD BE SUITABLE FOLLOWING CABLE TYPE:

SUIT.CABLE TYPE	TERMINAL COND. SIZE (mm ²)
POWER CABLE	2.5
OTHER CABLE	2.5
CABLE FOR START MOTOR POWER POLE	120
CABLE FOR START MOTOR CONTROL AND HEATER	16

- EQUIPMENT TAG : TAG OF EACH EQUIPMENT SHOULD BE PROVIDED
TAG OF BREAKERS SHOULD INCLUDE CAPACITY
- CONNECTION SPACE : TERMINAL BLOCK SHALL BE ARRANGED WITH A DISTANCE AT LEAST 250mm BETWEEN THE TERMINAL BLOCK AND THE BOTTOM OF THE CABINET
- MATERIAL OF NAME PLATE : SUS 316
- MATERIAL : STEEL
- SURFACE TREATMENT : PAINTED RAL 3000, RED
- MOUNTING : 6 SCREWS M8,
NOT INCLUDED IN PORIDUCT NO.
- DOOR STOPPER : INCLUDED
- EARTH BOLT : INCLUDED, EARTH WIRE BETWEEN CABINET BODY AND DOOR
- POWER SUPPLY : 220V, AC 60 Hz FROM MIAN & EM'CY SUPPLY
- DEGREE OF PROTECTION : IP 54
- WEIGHT : 100 KG
- ELEC.DRAWING : REF. KPS6479-1-55-04G

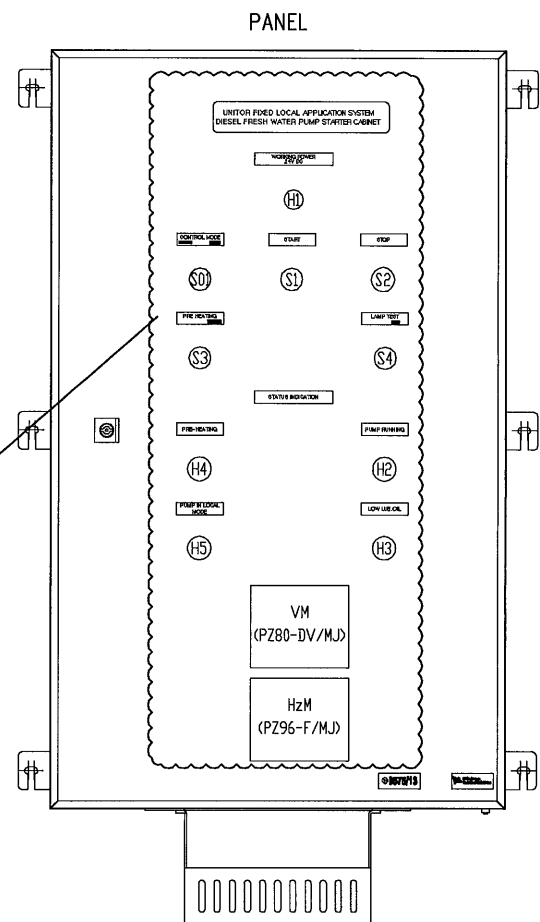
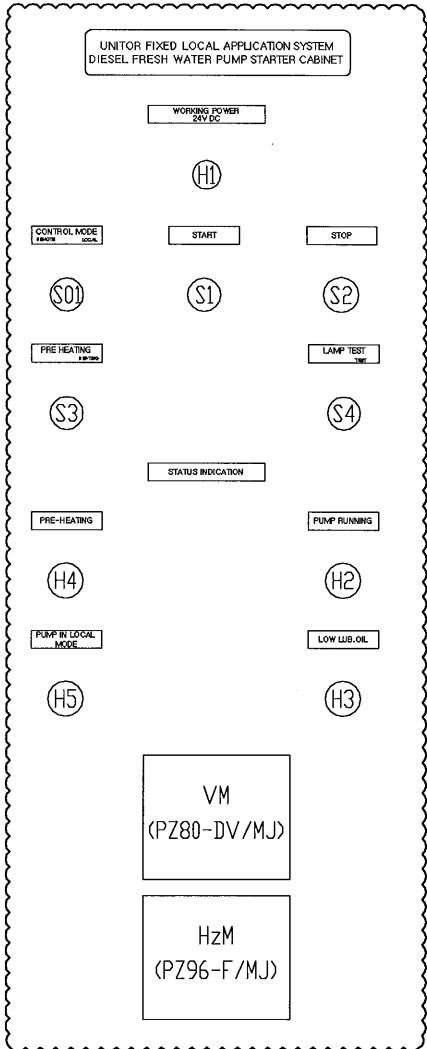
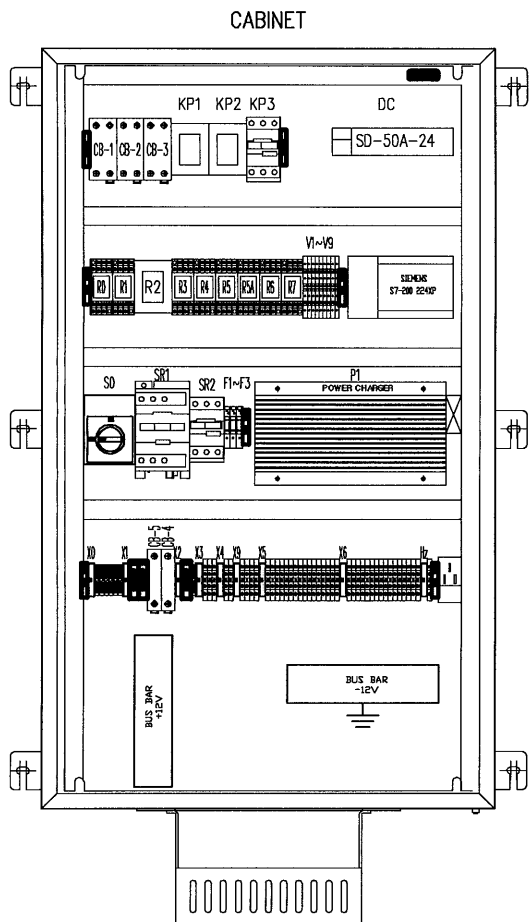


5.8A

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Place of issue:	Scale:	Orig. size:	Order no.:		
SHA	N/A	A4	KPS 20017		

Description:
DIESEL FRESH WATER PUMP STARTER CABINET INSTALLATION DIMENSION
System:
UNITOR FIXED LOCAL APPLICATION SYSTEM

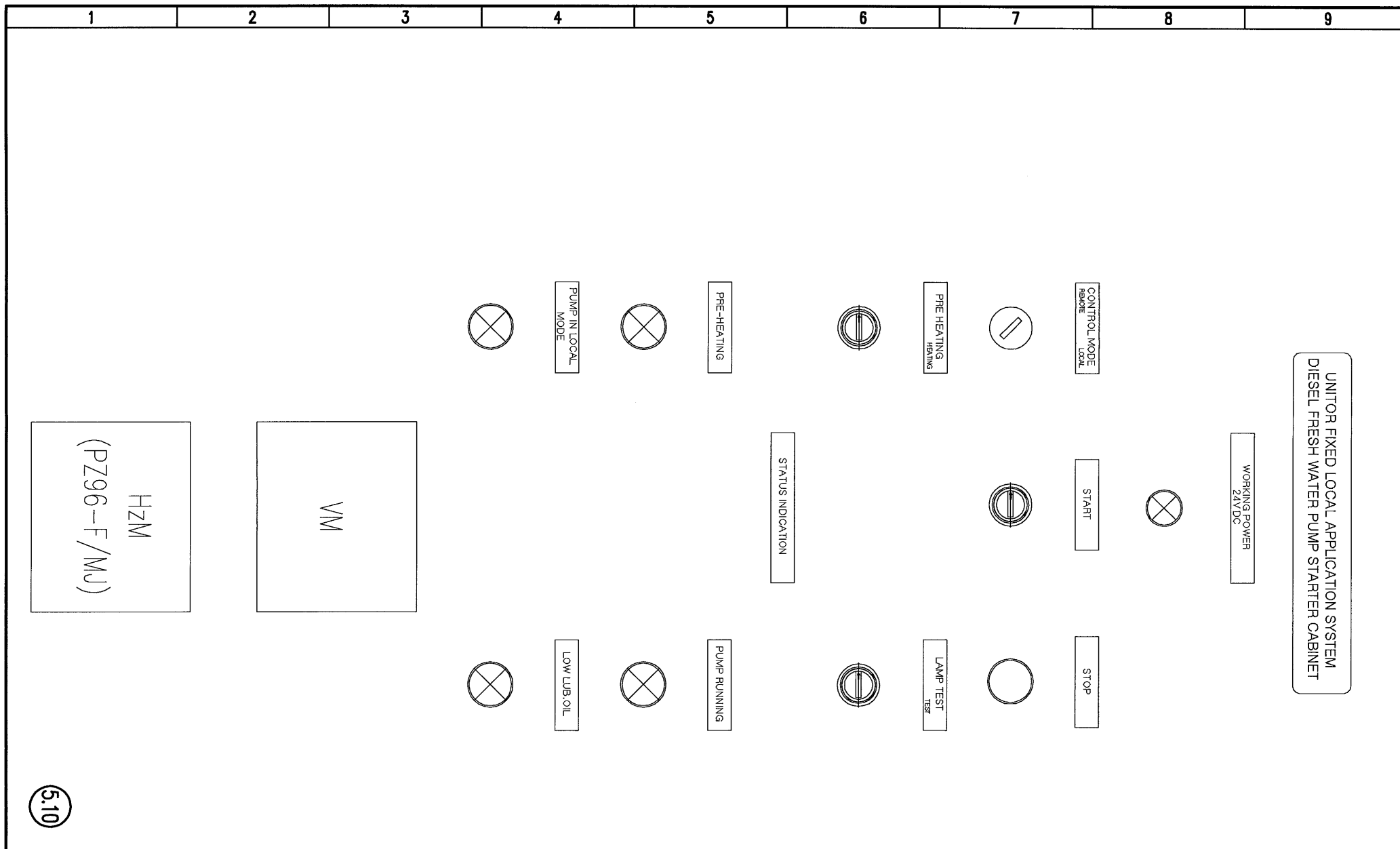
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KPS6479-1-55-04H1	
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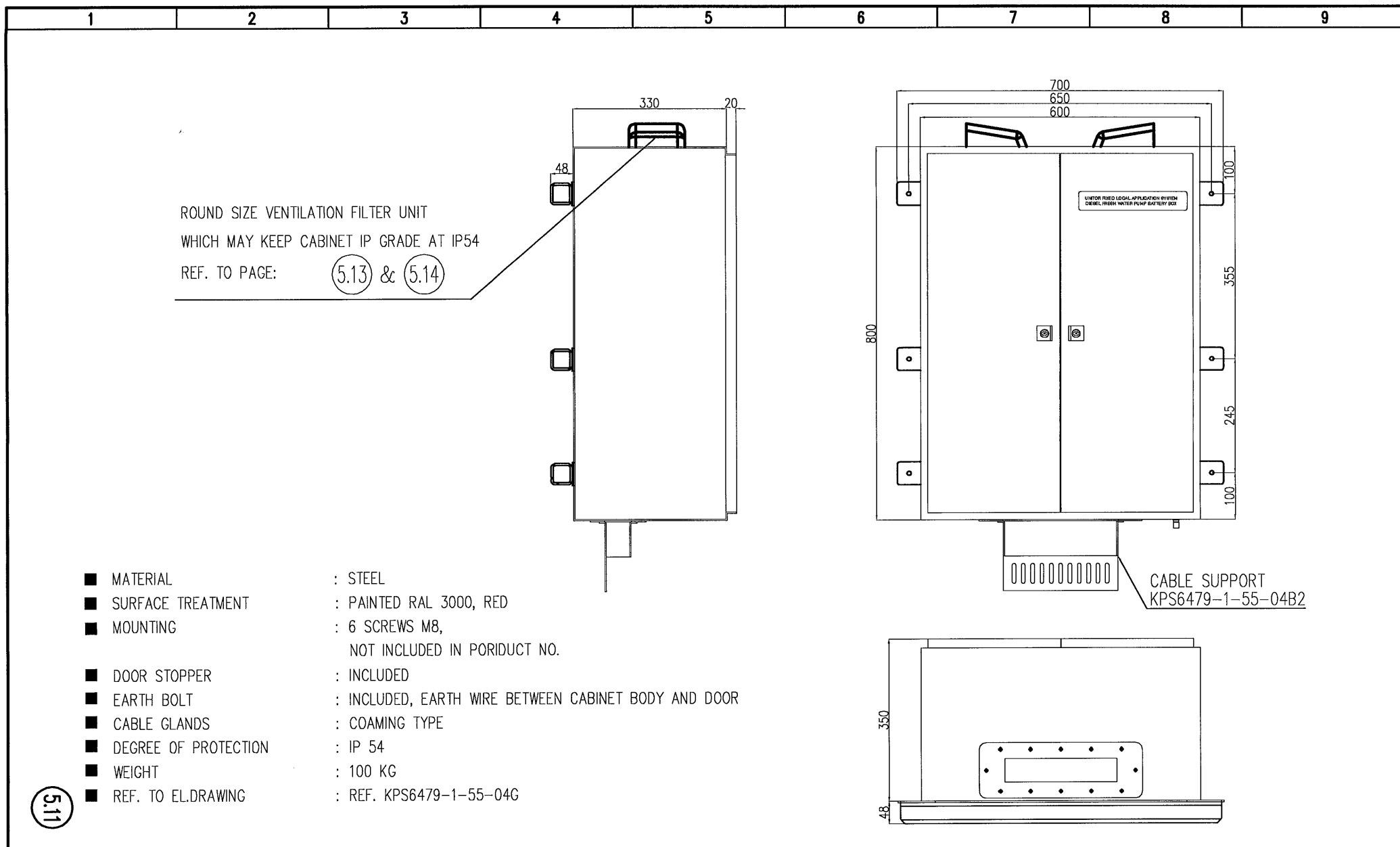
- PART LIST AND SPARE PARTS LIST : KPS6479-1-55-04I
- ELEC.DRAWING : KPS6479-1-55-04G

NOTE : THE FINAL ARRANGEMENT WILL BE DECIDED BY THE CABNET MANUFACTURER

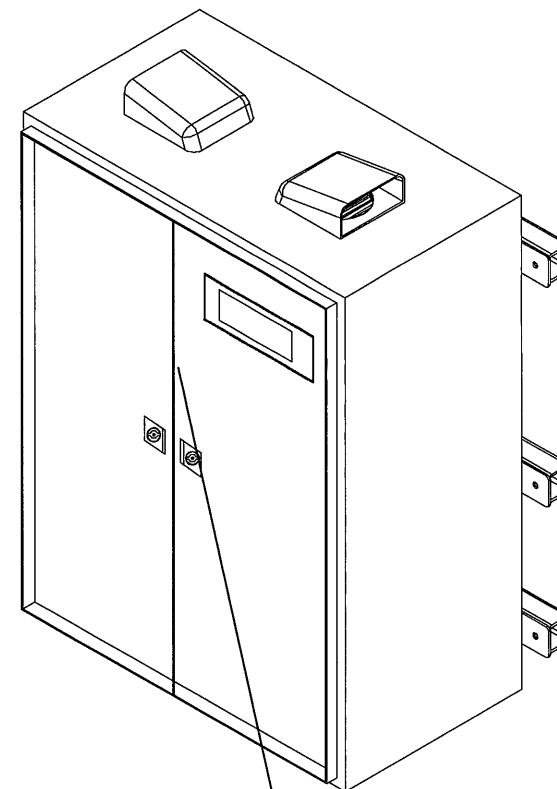
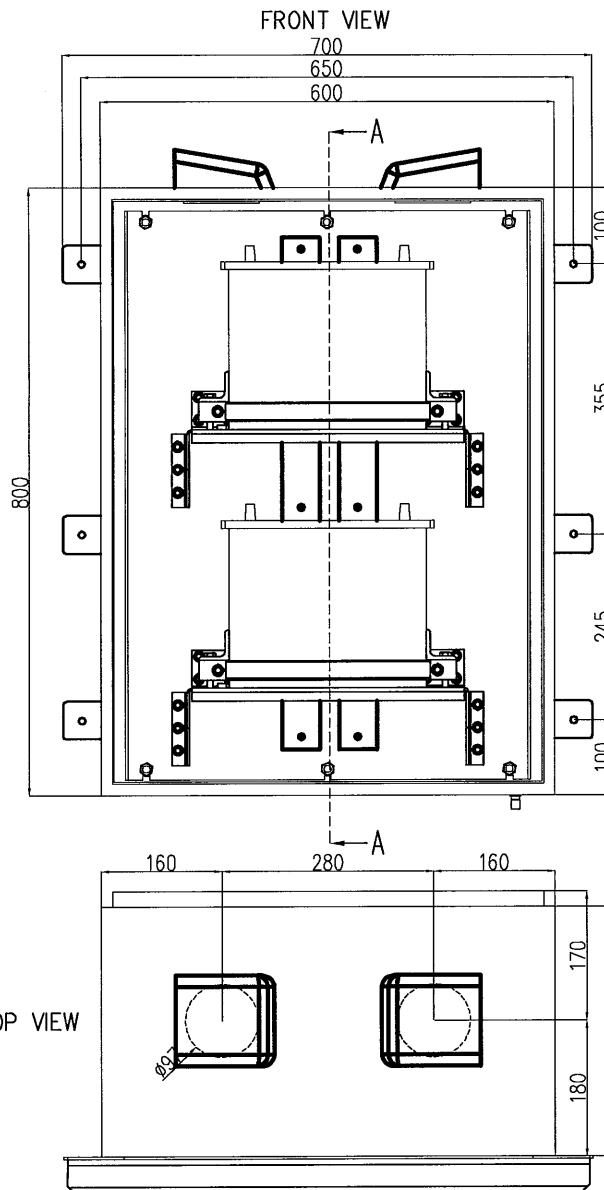
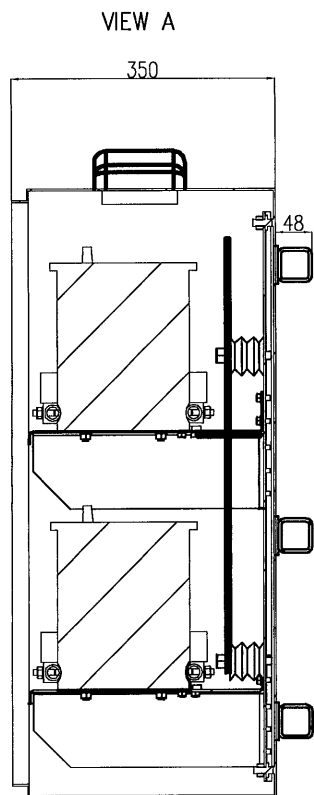
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	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:	DIESEL FRESH WATER PUMP STARTER CABINET DEVICE ARRANGEMENT		
	00	25.APR.13	JGY	LYU	LPA	H-2074	UNITOR FIXED LOCAL APPLICATION SYSTEM	Current Sheet:	Next Sheet:
	Place of issue:	Scale:	Orig. Size:	Order no.:				1	-



	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:	
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:	DIESEL FRESH WATER PUMP STARTER CABINET PANEL ARRANGEMENT	KPS6479-1-55-04H3	
	Place of issue:	Scale:	Original size:	Order no.:	System:	Current Sheet:			
	00	25.APR.13	JGY	LYU	LPA	H-2074	UNITOR FIXED LOCAL APPLICATION SYSTEM	1	-



	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	BATTERY BOX INSTALLATION DIMENSION	Drawing no.: KPS6479-1-55-04H
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:		
	00	25.APR.13	JGY	LYU	LPA	H-2074		
	Place of Issue:	Scale:	Orig. size:	Order no.:			System:	Current Sheet:
	SHA	N/A	A4	KPS 20017			UNITOR FIXED LOCAL APPLICATION SYSTEM	1
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UNITOR FIXED LOCAL APPLICATION SYSTEM
DIESEL FRESH WATER PUMP BATTERY BOX

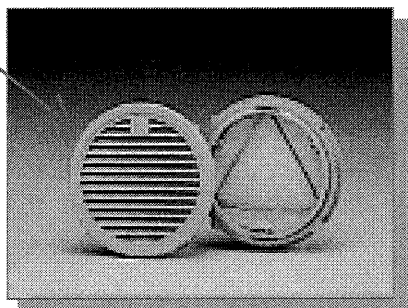
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Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:
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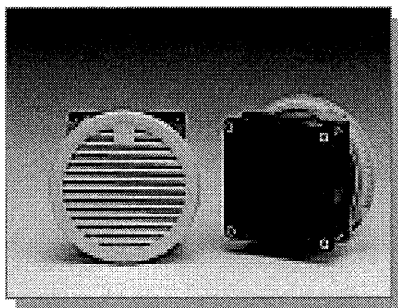
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BATTERY BOX OVERVIEW ARRANGEMENT	KPS6479-1-55-0412
System:	Current Sheet: Next Sheet:
UNITOR FIXED LOCAL APPLICATION SYSTEM	1 -

圓型通風過濾網組
Round Size Ventilator Filter Unit

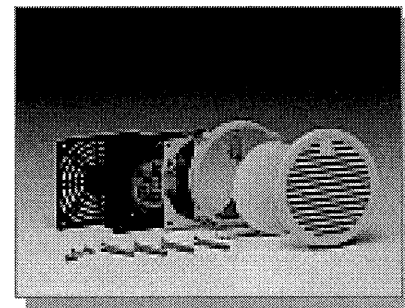
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FU-9801C-1(2) FU-9802C-1(2)



FU-9801A FU-9802A

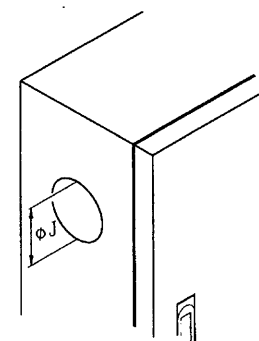
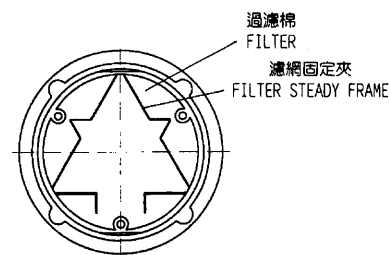
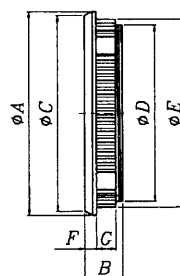
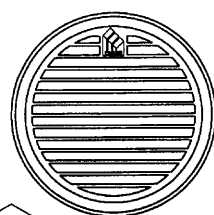
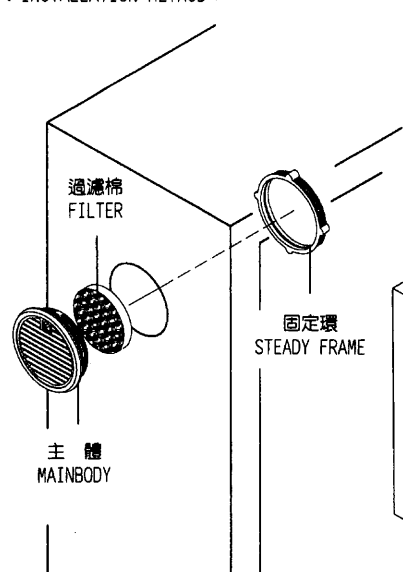


FU-9801C FU-9802C



FU-9801C FU-9802C

(按裝方法)
(INSTALLATION METHOD)



尺寸對照表 (Specification)

型號 Model	尺寸(mm)					Sizes			包裝數量 Package quantity	備 注 Notification
	ϕA	B	ϕC	ϕD	ϕE	F	G	ϕJ		
FU-9801A	105	22.5	101	88.8	97	6	10	90	2PC	保護等級 IP44 Protected classification IP44
FU-9802A	120	22.5	116	100.8	109	6	10	102	2PC	保護等級 IP44 Protected classification IP44

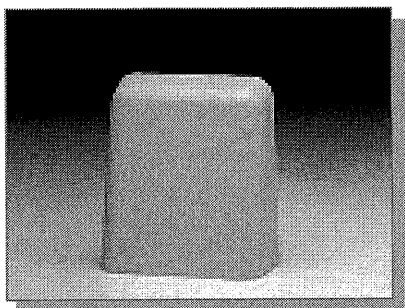
圓型通風過濾網組用防雨罩
Rain-Resistance Hood

FU-9801B
FU-9802B

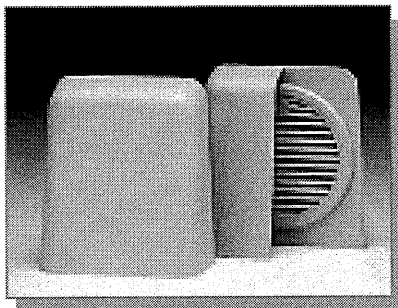
※材質採用 AES(Use AES materials)

可提升 IP 等級，亦可防止因氣候所導致之劣化現象。

It promotes IP grade, also Prevents the defaults caused by bad weather.



FU-9801B

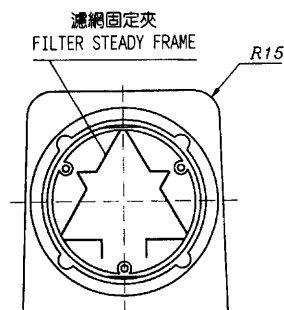
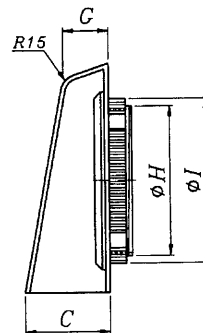
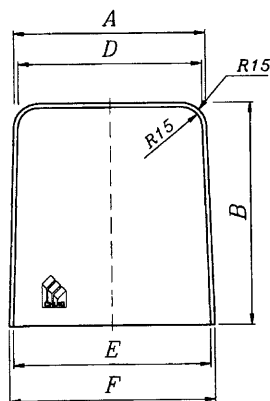
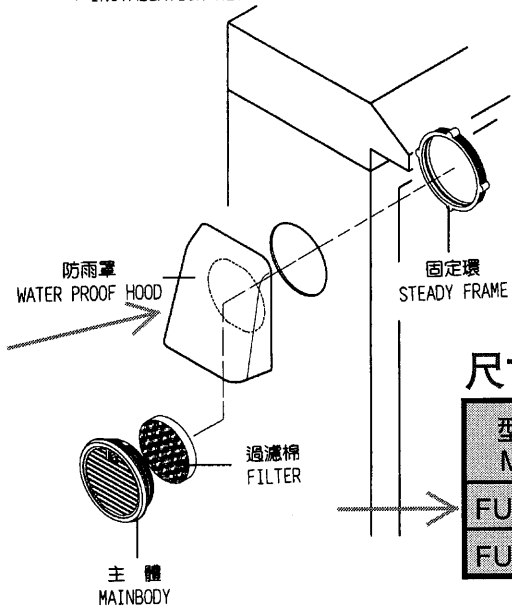


FU-9802B

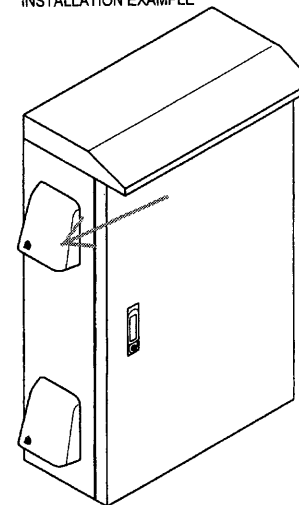
FU-9801B

FU-9802B

(按裝方法)
(INSTALLATION METHOD)

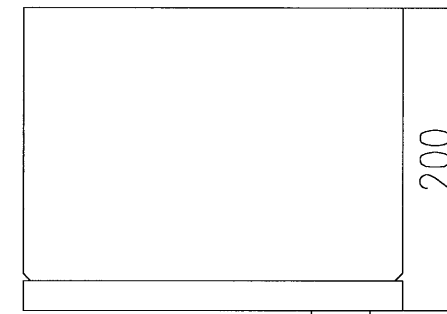
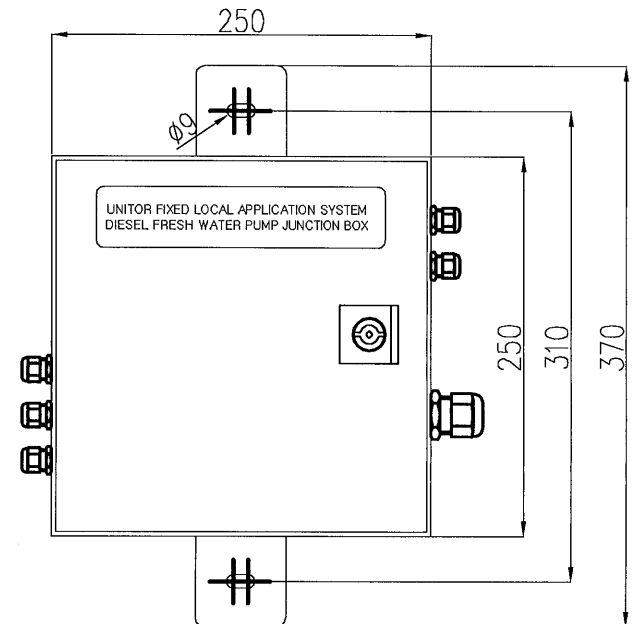
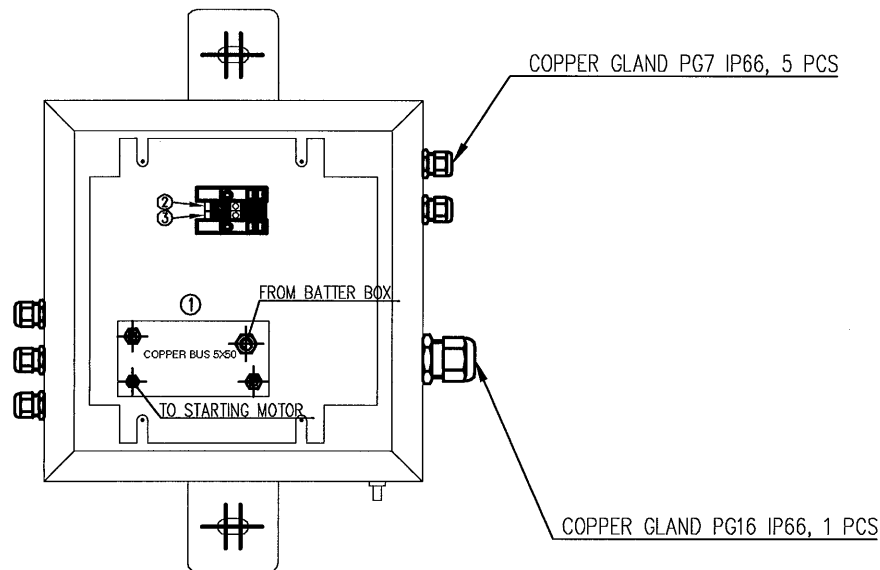


(裝置例)
INSTALLATION EXAMPLE



尺寸對照表 (Specification)

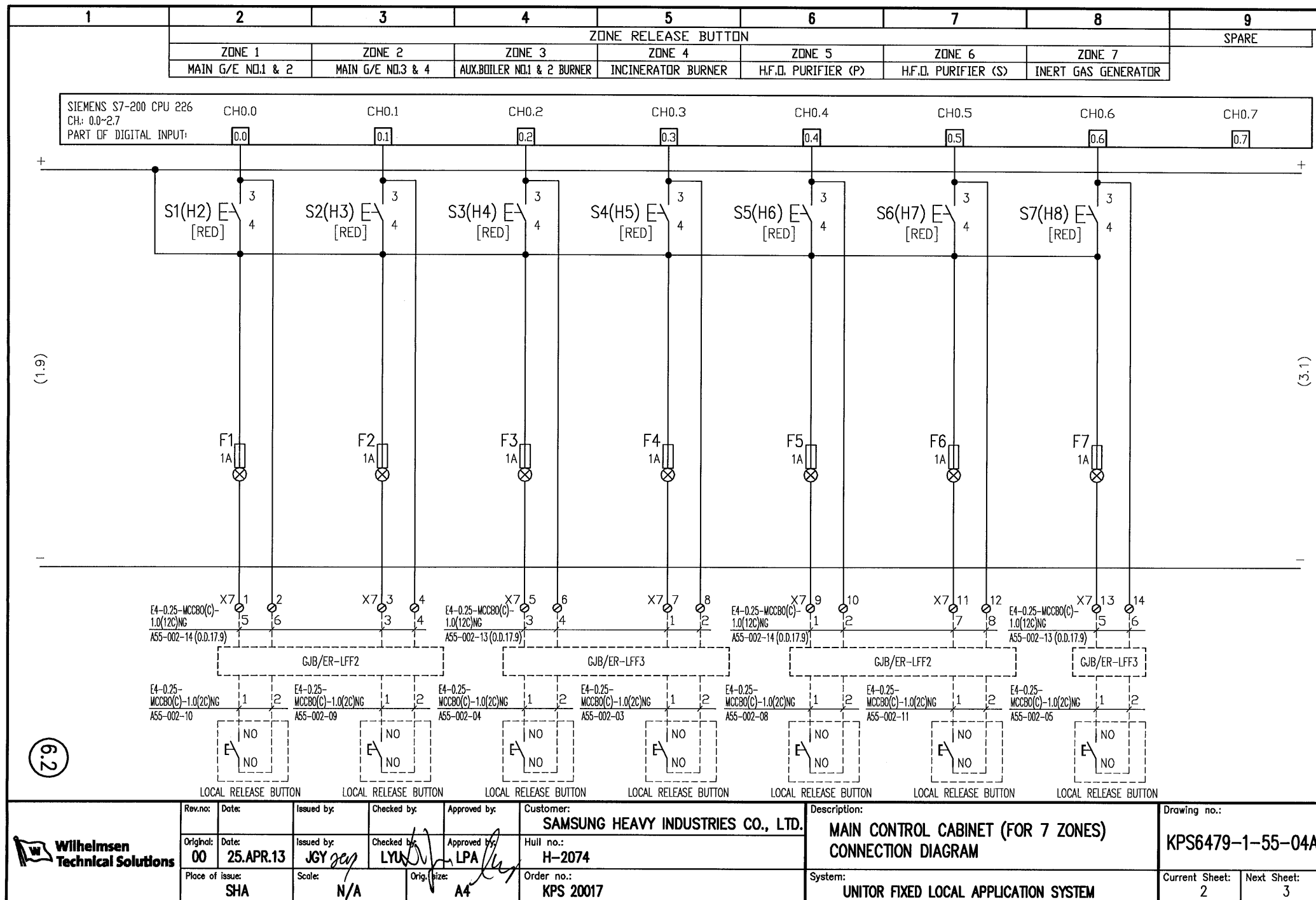
型號 Model	尺寸(mm) Sizes										包裝數量 Package quantity	備注 Notification
	A	B	C	D	E	F	G	ϕH	ϕI	ϕJ		
FU-9801B	110	130	50	100	110	120	30	88.8	97	90	2PC	保護等級 IP54 Protected classification IP54
FU-9802B	125	140	50	115	125	135	30	100.8	109	102	2PC	保護等級 IP54 Protected classification IP54

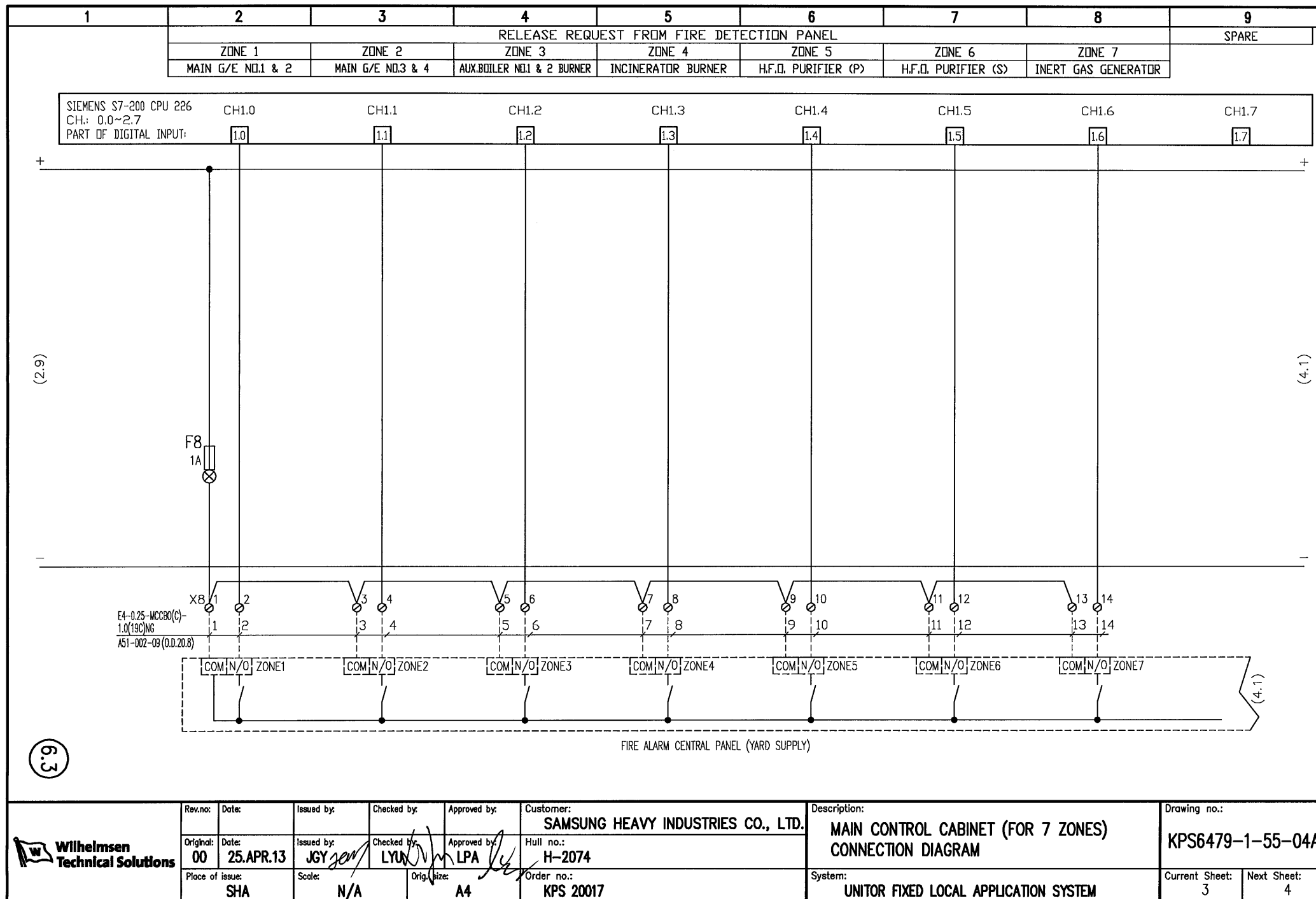


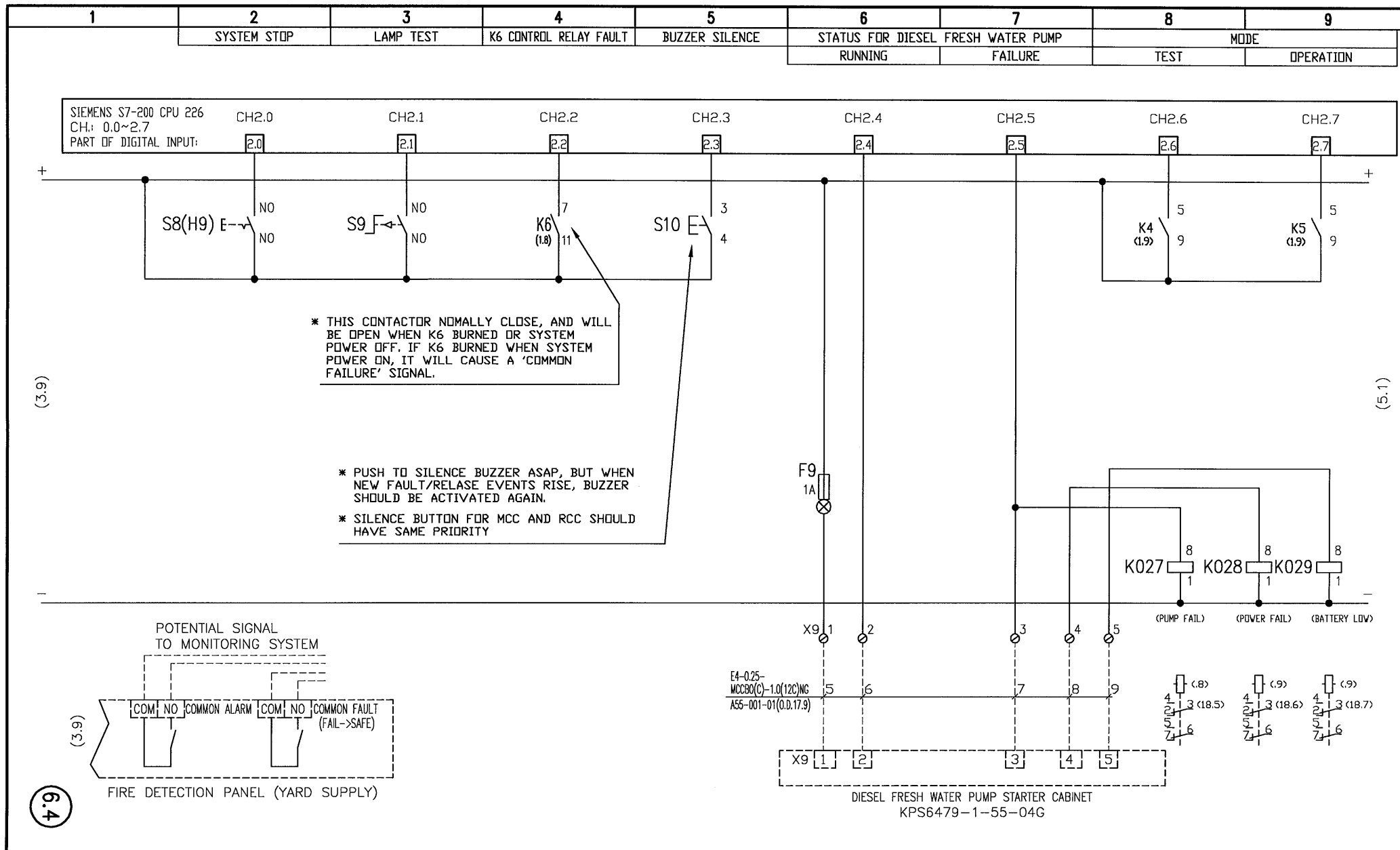
- MATERIAL : STEEL
- SURFACE TREATMENT : PAINTED RAL 3000, RED
- MOUNTING : 2 SCREWS M8,
NOT INCLUDED IN PORIDUCT NO.
- DOOR STOPPER : INCLUDED
- EARTH BOLT : INCLUDED, EARTH WIRE BETWEEN CABINET BODY AND DOOR
- CABLE GLANDS : COPPER GLAND PG16x1, PG7x5
- DEGREE OF PROTECTION : IP 54
- WEIGHT : 10 KG
- REF. TO EL.DRAWING : REF. KPS6479-1-55-04G

5.15

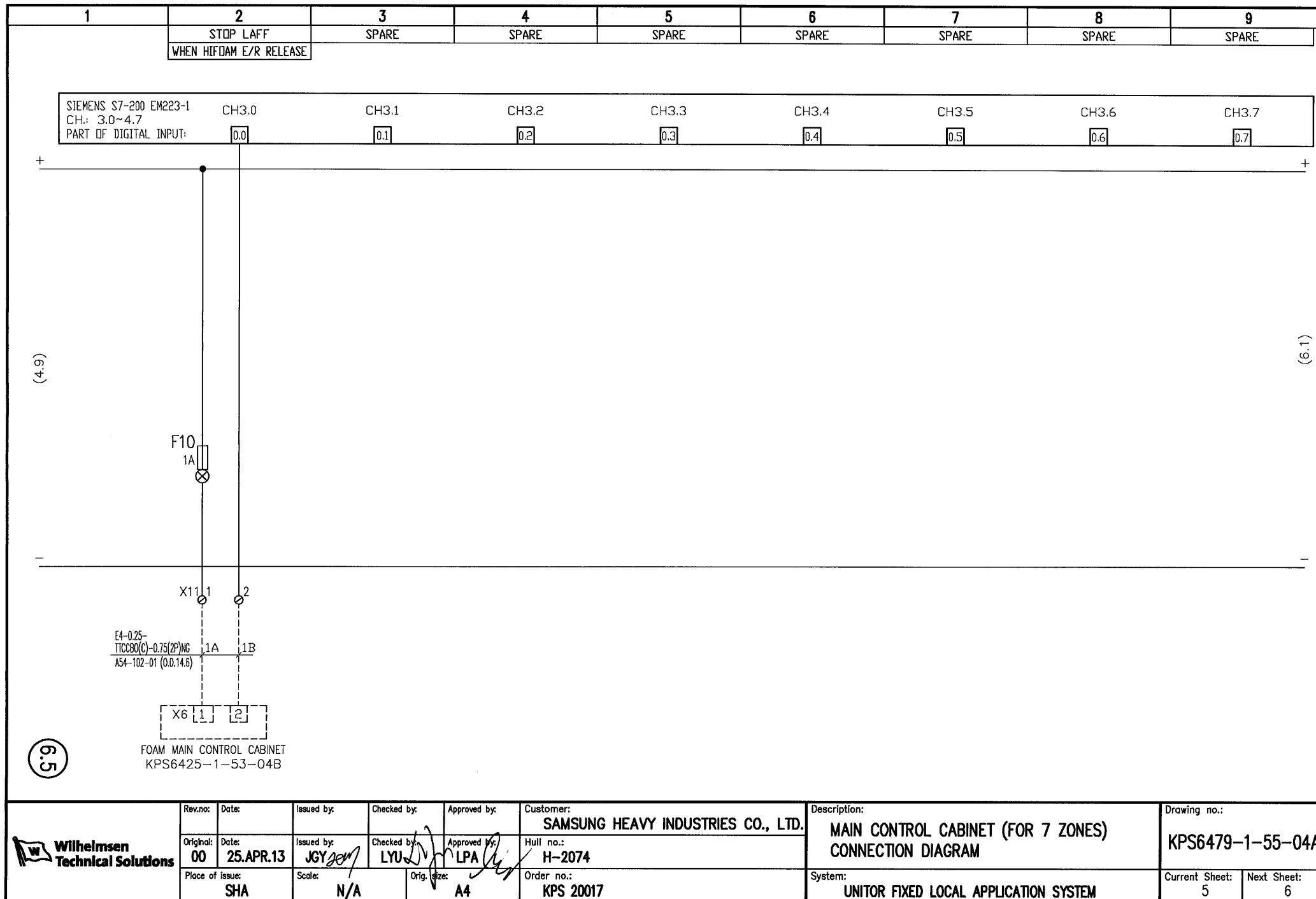
Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
00	25.APR.13	JGY	LYU	LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD.	JUNCTION BOX INSTALLATION DIMENSION	KPS6479-1-55-0413
Place of issue:	Scale:	Orig. size:	Order no.:	System:	Current Sheet:	Next Sheet:	
SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	1	-	

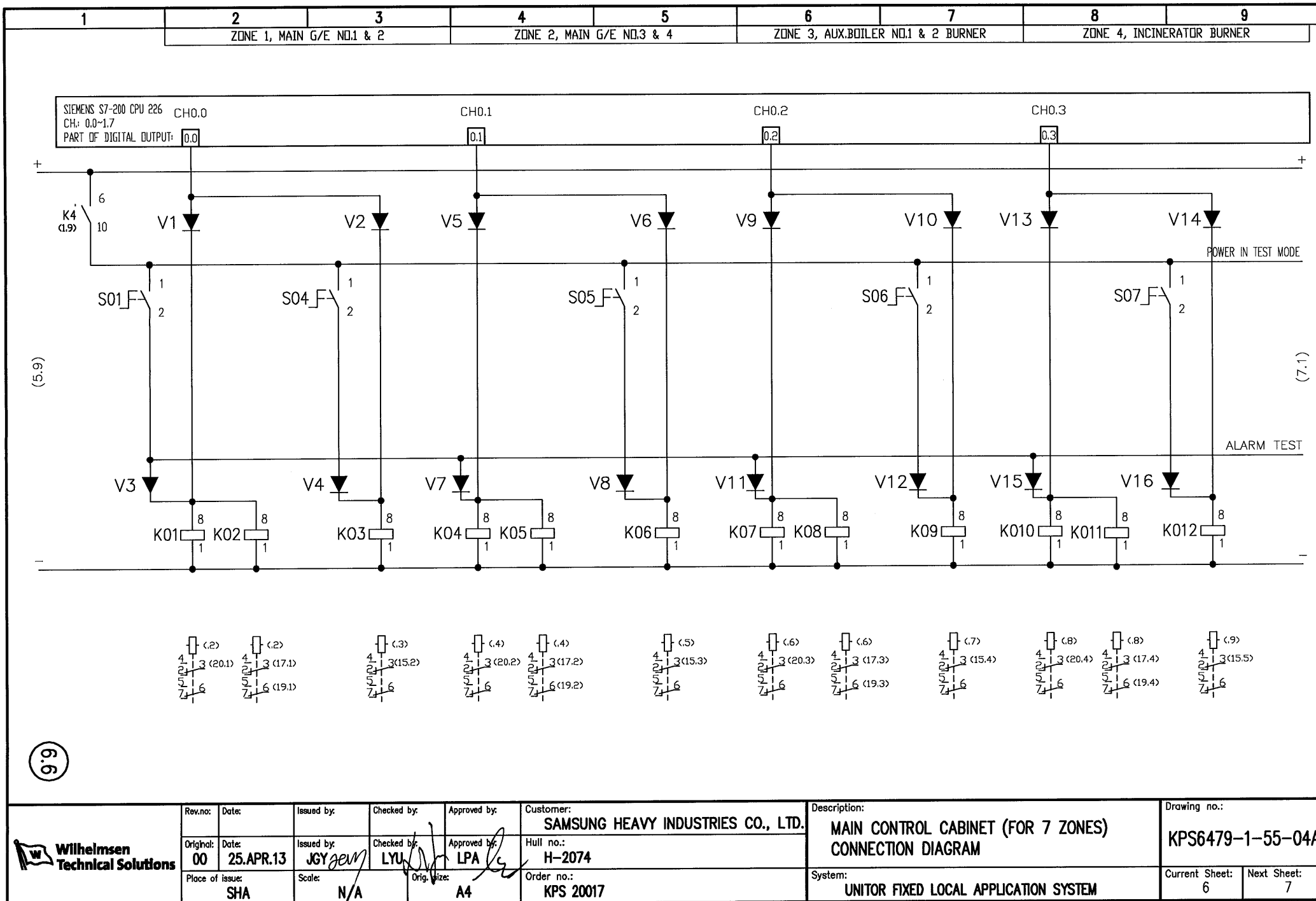





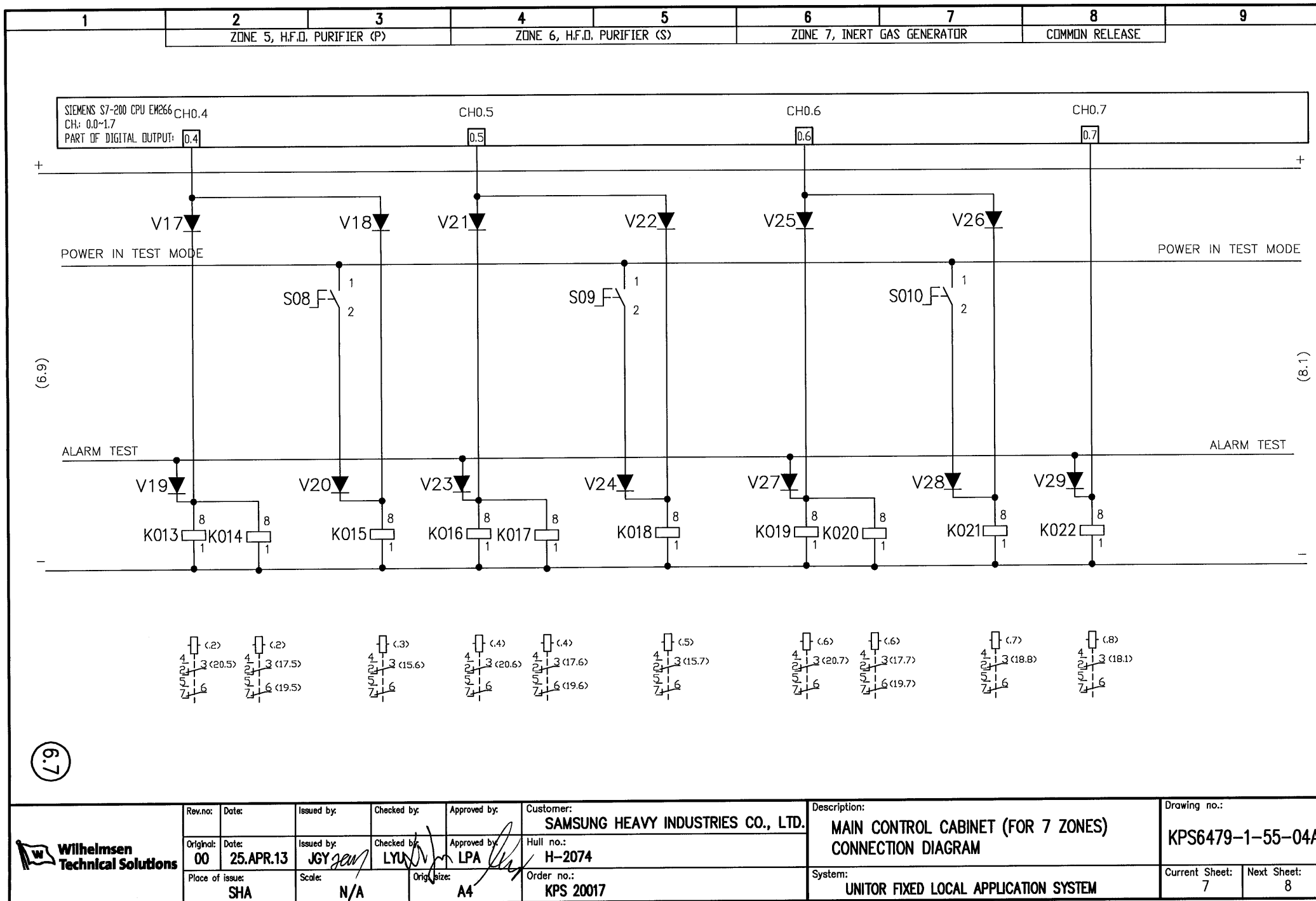


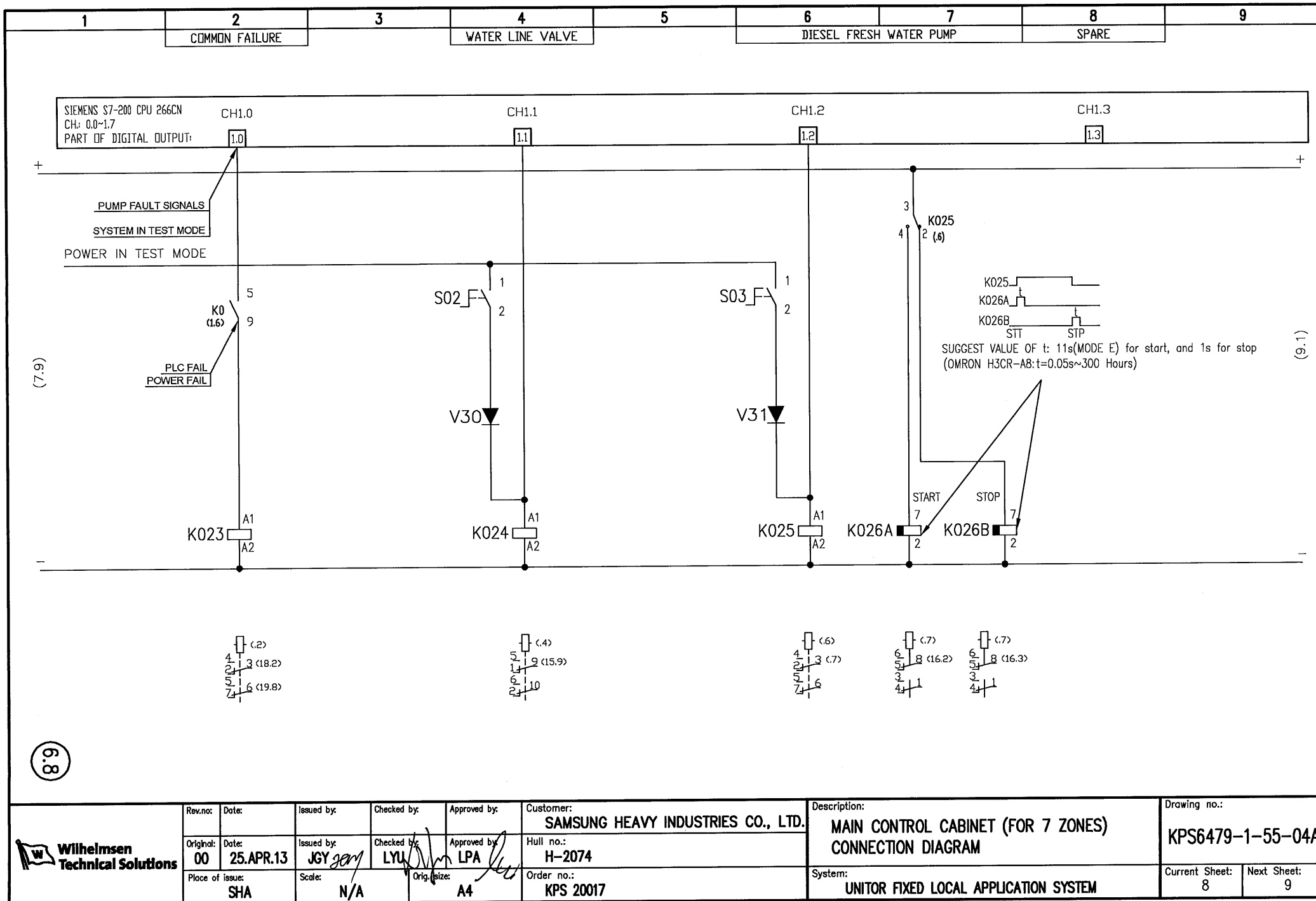
	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
	Original:	00	25.APR.13	JGY	LYU	LPA	H-2074	KPS6479-1-55-04A
	Place of issue:	SHA	Scale:	N/A	Orig. size:	A4	System:	UNITOR FIXED LOCAL APPLICATION SYSTEM
								Current Sheet: 4 Next Sheet: 5

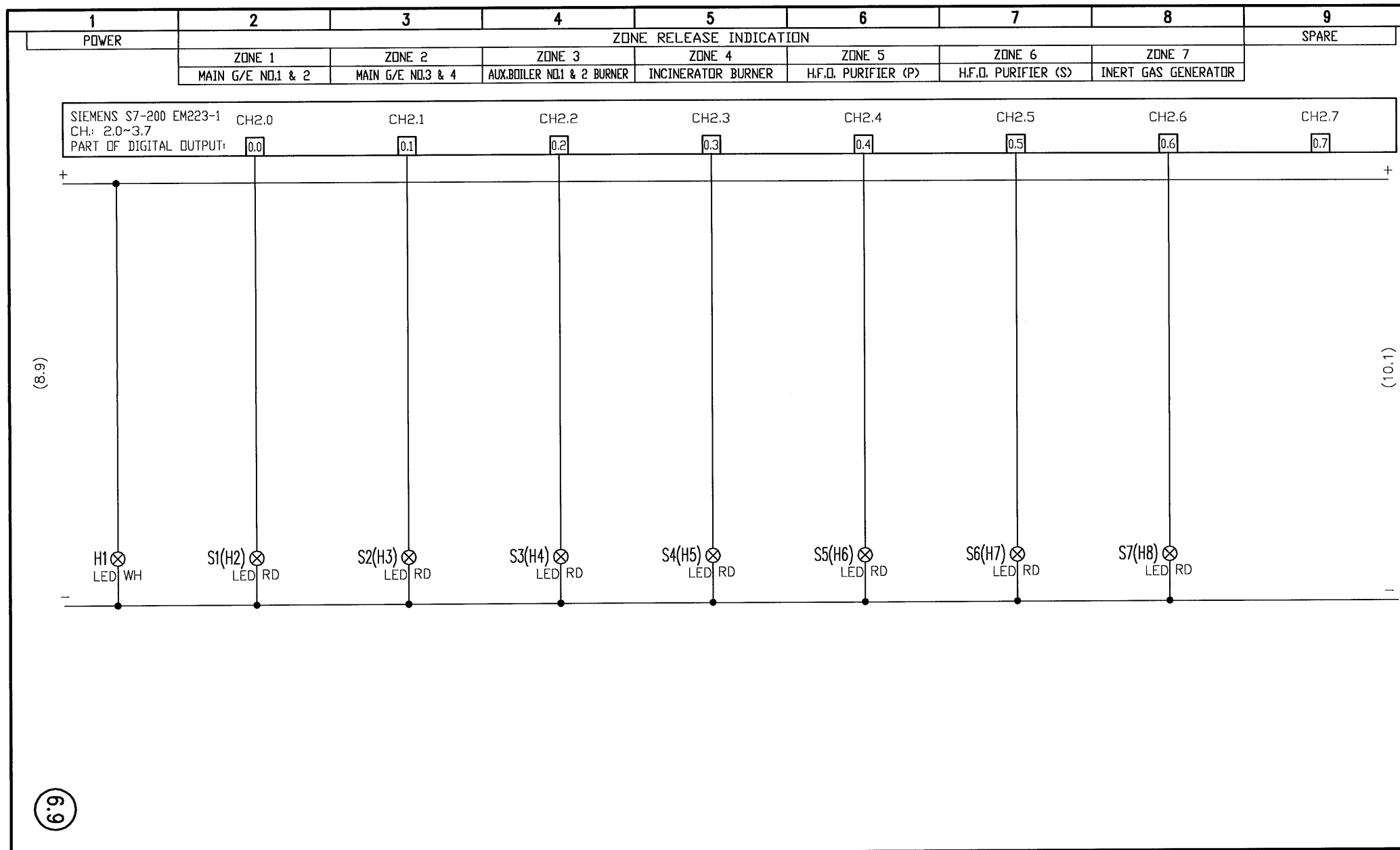




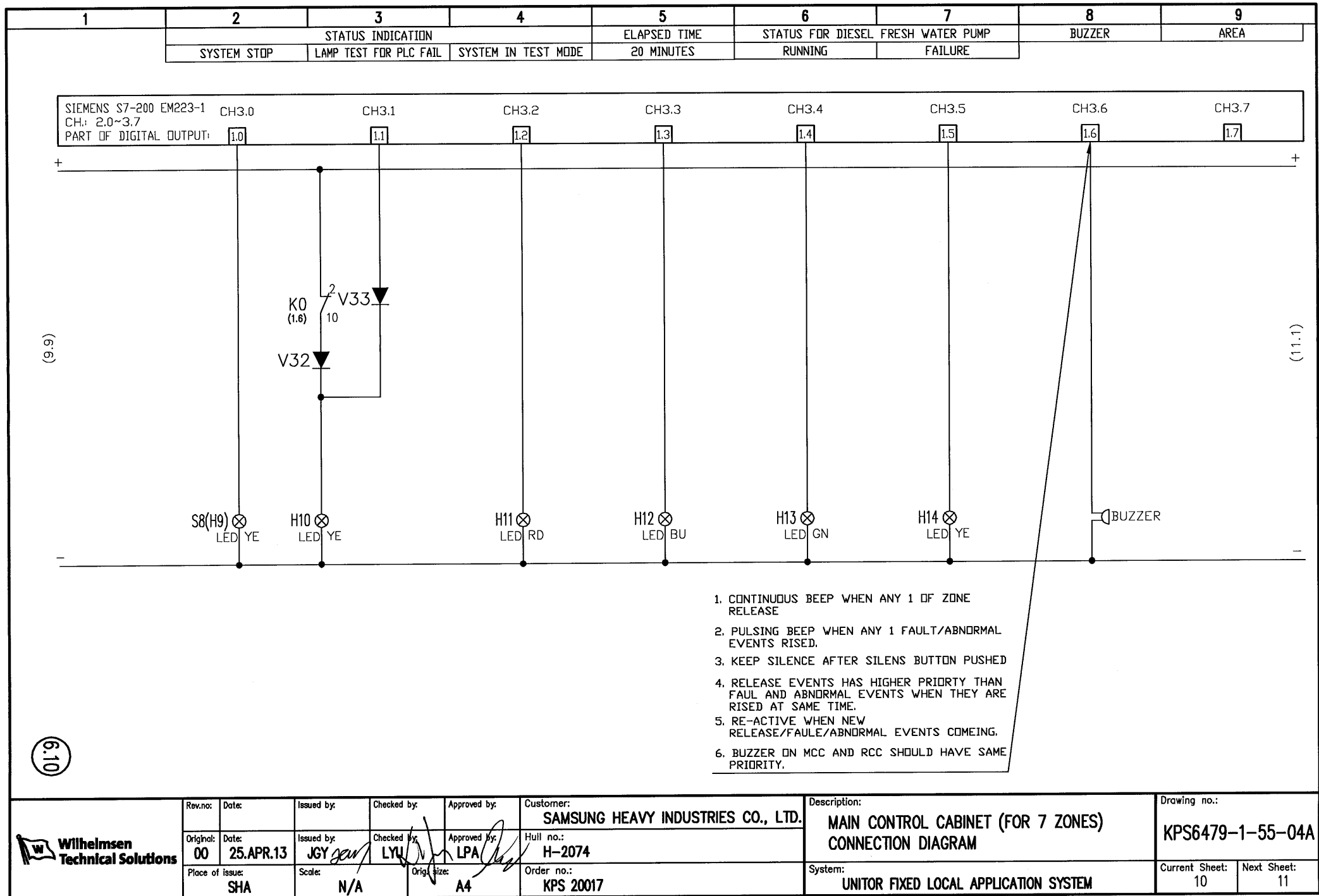
 Wilhelmsen Technical Solutions	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:	
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:	MAIN CONTROL CABINET (FOR 7 ZONES) CONNECTION DIAGRAM	KPS6479-1-55-04A	
	Place of issue:	Scale:	Orig. size:	Order no.:	System:	Current Sheet:			
	00	25.APR.13	JGY	LYU	LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD. H-2074 KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	6	7

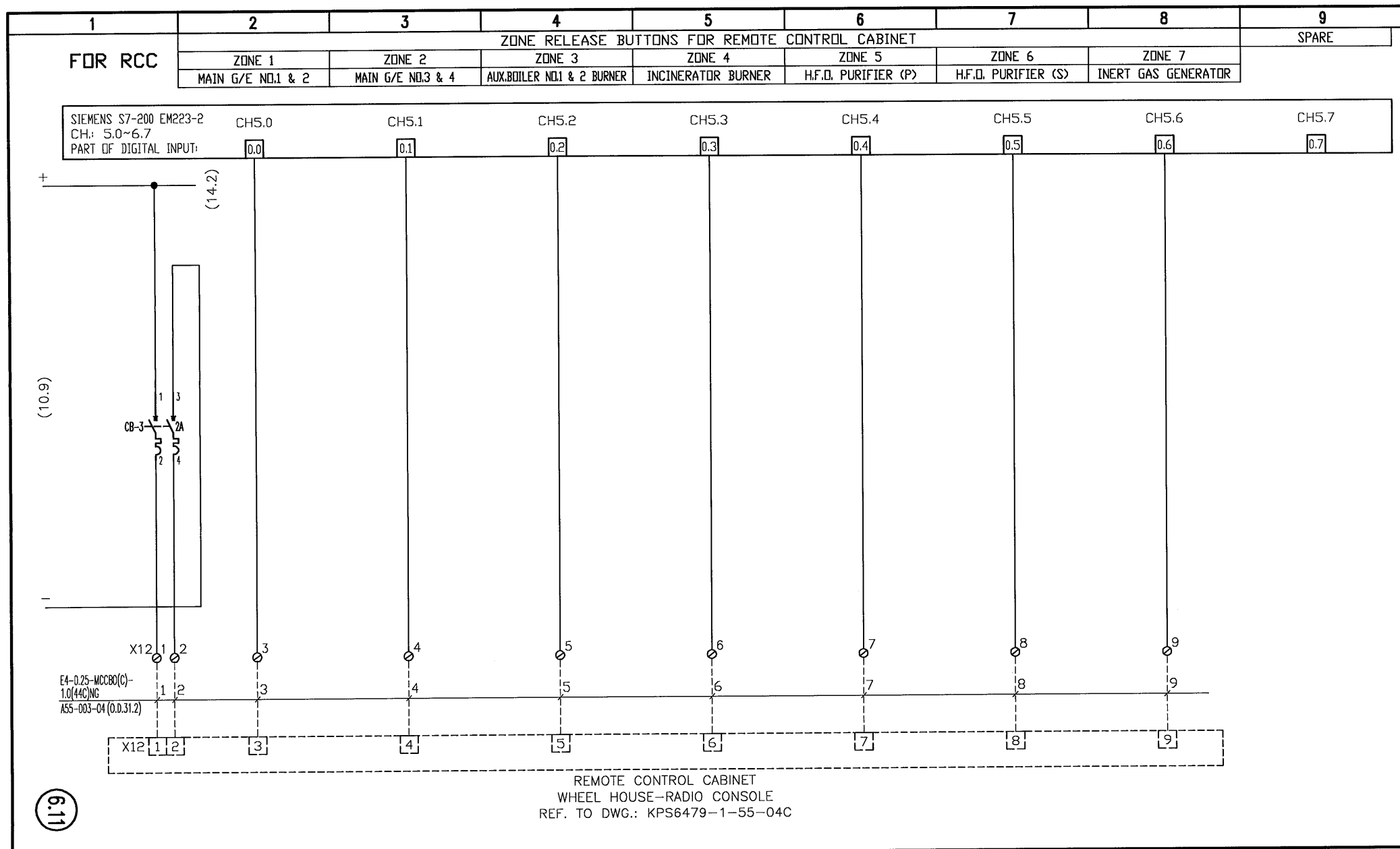






6.9

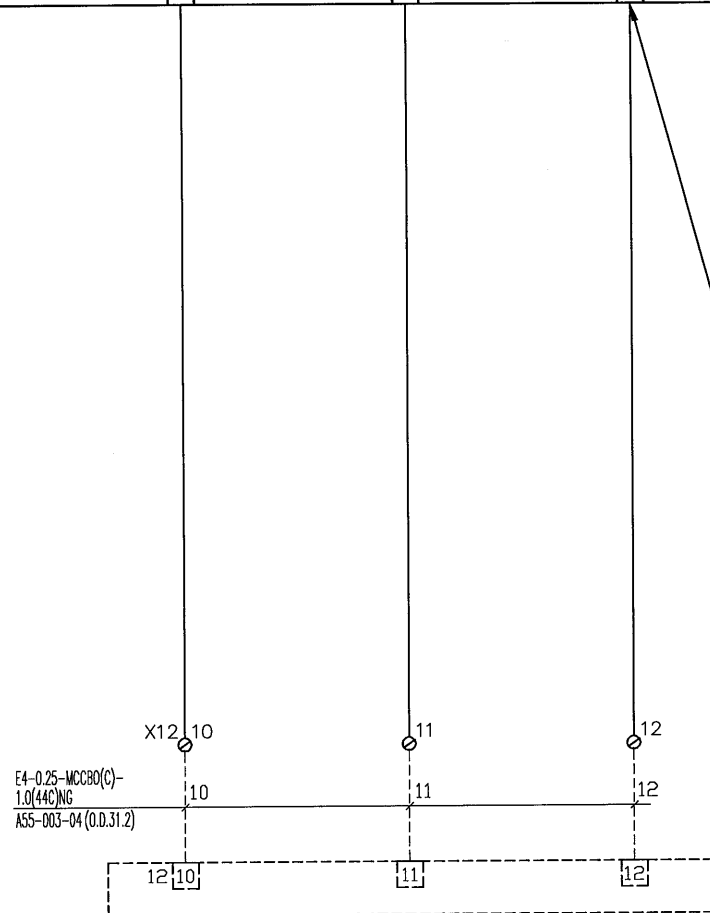




	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description: MAIN CONTROL CABINET (FOR 7 ZONES) CONNECTION DIAGRAM	Drawing no.: KPS6479-1-55-04A	
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:			
	Place of Issue:	Scale:	Orig. Size:	Order no.:		System:	Current Sheet:	Next Sheet:	
	00	25.APR.13	JGY	LYU	LPA	H-2074	UNITOR FIXED LOCAL APPLICATION SYSTEM	11	12
			N/A	A4		KPS 20017			

1	2	3	4	5	6	7	8	9
FOR RCC	FUNCTION BUTTONS			SPARE	SPARE	SPARE	SPARE	SPARE
	SYSTEM STOP	LAMP TEST	BUZZER SILENCE					

SIEMENS S7-200 EM223-2 CH.: 5.0~6.7 PART OF DIGITAL INPUT:	CH6.0	CH6.1	CH6.2	CH6.3	CH6.4	CH6.5	CH6.6	CH6.7
	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7



- * PUSH TO SILENCE BUZZER ASAP, BUT WHEN NEW FAULT/RELEASE EVENTS RISE, BUZZER SHOULD BE ACTIVATED AGAIN.
- * SILENCE BUTTON FOR MCC AND RCC SHOULD HAVE SAME PRIORITY

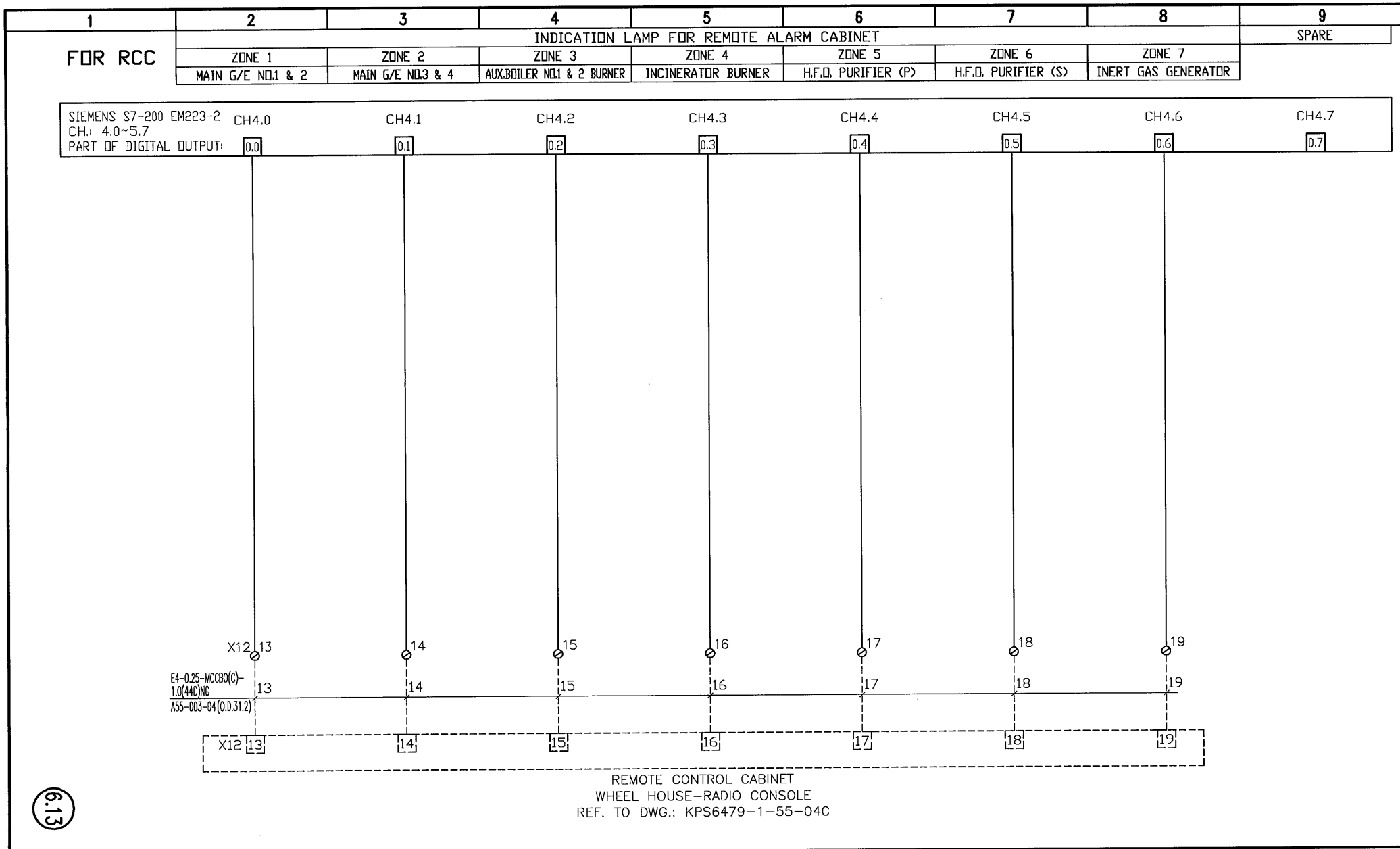
E4-0.25-MCC80(C)-
1.0(44C)NG
A55-003-04 (0.D.31.2)

REMOTE CONTROL CABINET
WHEEL HOUSE-RADIO CONSOLE
REF. TO DWG.: KPS6479-1-55-04C

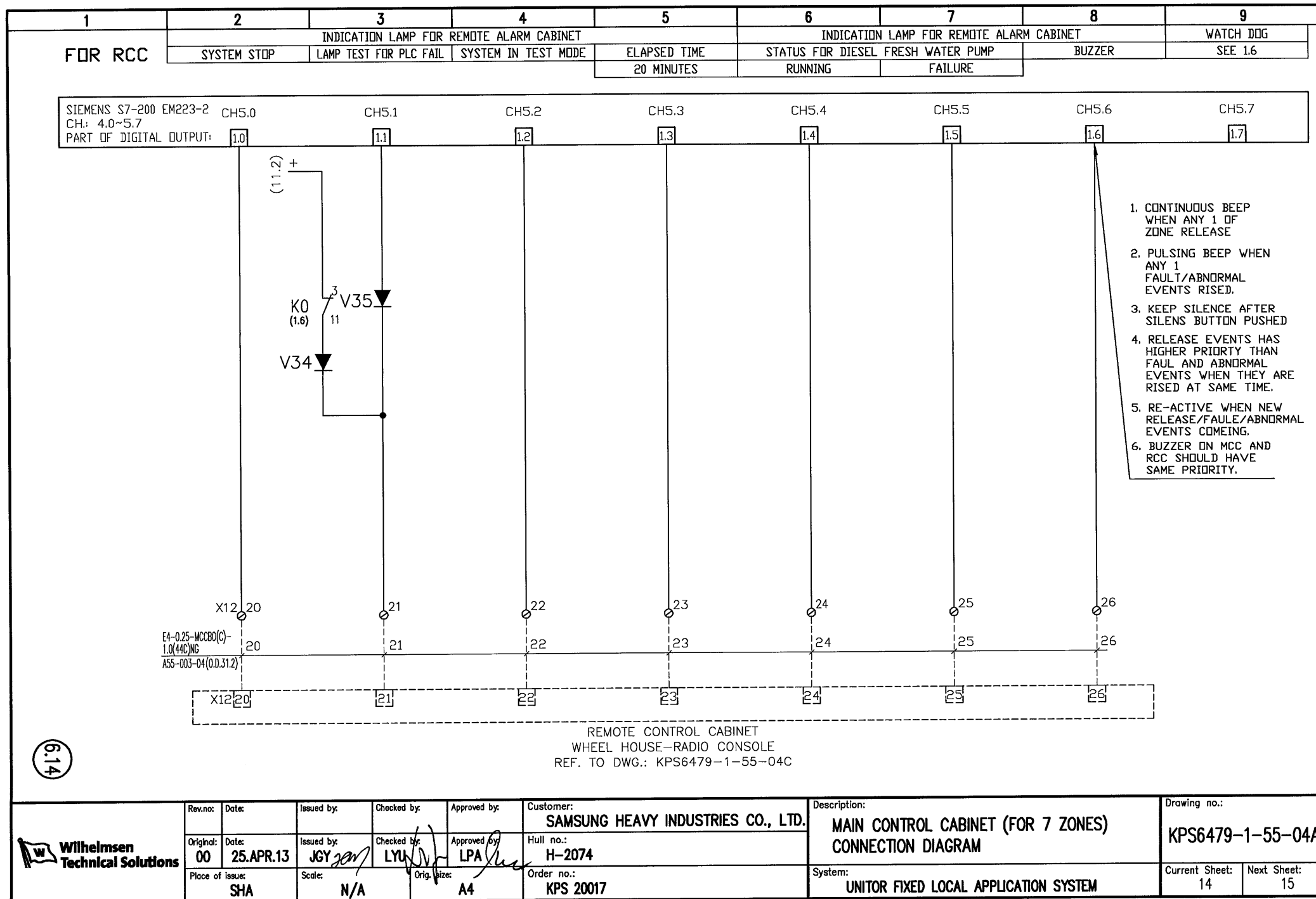
6.12

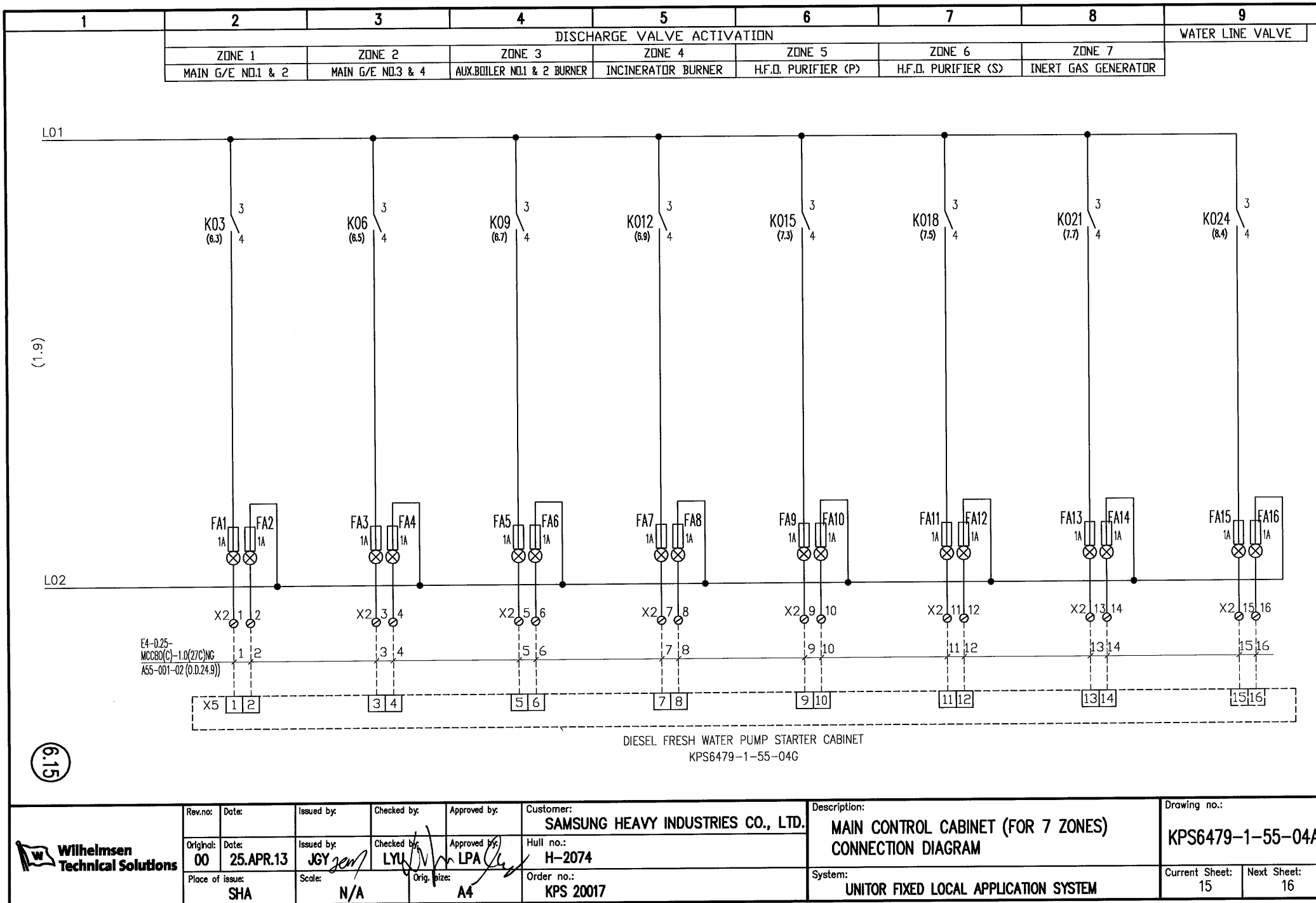


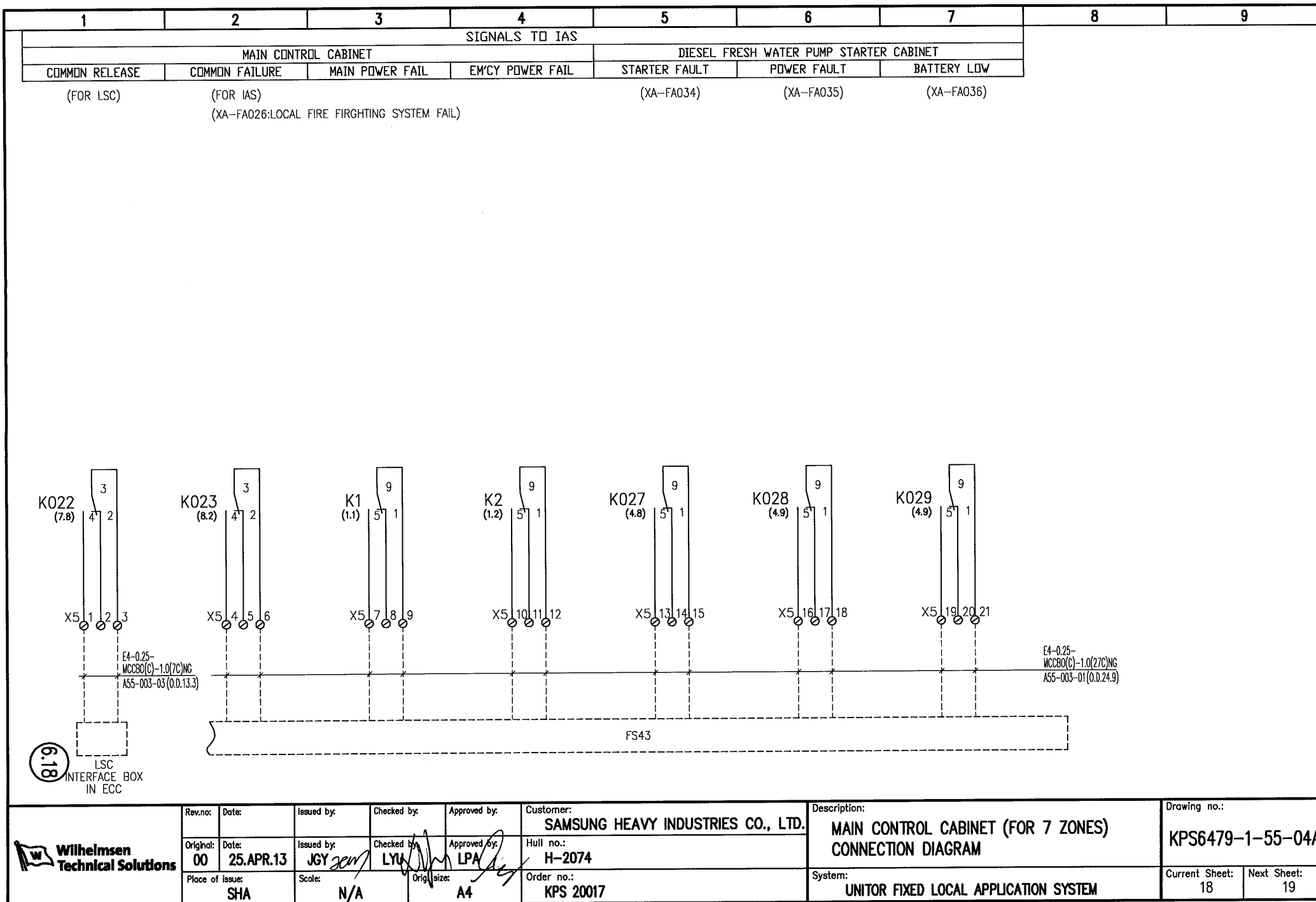
Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
00	25.APR.13	JGY	LYW	LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD.	MAIN CONTROL CABINET (FOR 7 ZONES) CONNECTION DIAGRAM	KPS6479-1-55-04A
Place of issue:	Scale:	Original size:	Order no.:	System:	Current Sheet:	Next Sheet:	
SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	12	13	



Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
00	25.APR.13	JGY	LYU	LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD.	MAIN CONTROL CABINET (FOR 7 ZONES) CONNECTION DIAGRAM	KPS6479-1-55-04A
Place of issue:	Scale:	Original size:	Order no.:				
SHA	N/A	A4	KPS 20017		System:	UNITOR FIXED LOCAL APPLICATION SYSTEM	Current Sheet: 13 Next Sheet: 14





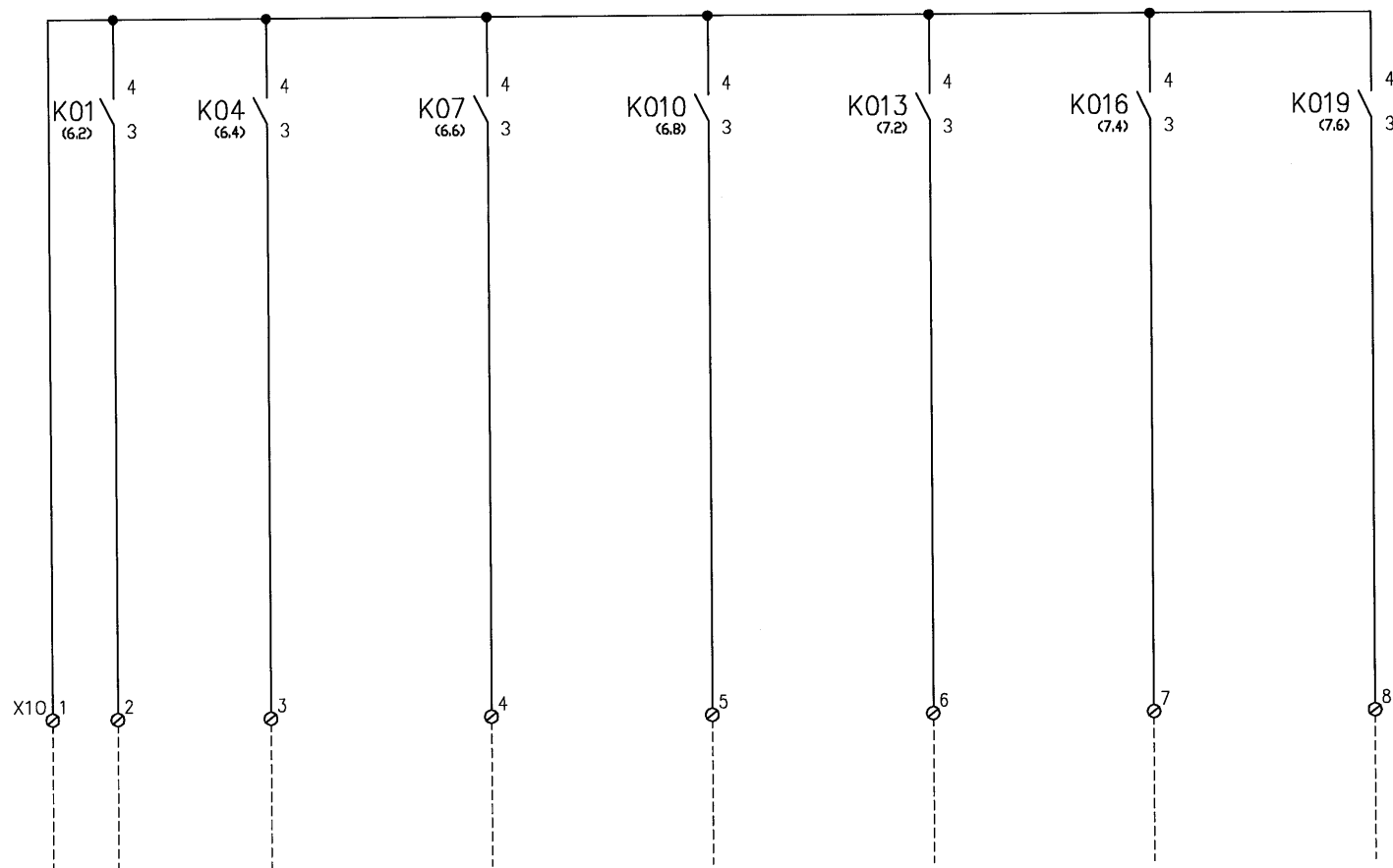


Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:
Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:
00	25.APR.13	JGY	LYU	LPA	H-2074
Place of issue:	Scale:	Original size:	Order no.:		
SHA	N/A	A4	KPS 20017		

Description:	
MAIN CONTROL CABINET (FOR 7 ZONES) CONNECTION DIAGRAM	
System:	UNITOR FIXED LOCAL APPLICATION SYSTEM

Drawing no.:	
KPS6479-1-55-04A	
Current Sheet:	Next Sheet:
18	19

1	2	3	4	5	6	7	8	9
SIGNALS TO IAS IN E.C.R								
ZONE RELEASE SIGNAL								
ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7		
MAIN G/E NO.1 & 2	MAIN G/E NO.3 & 4	AUX. BOILER NO.1 & 2 BURNER	INCINERATOR BURNER	H.F.O. PURIFIER (P)	H.F.O. PURIFIER (S)	INERT GAS GENERATOR		



6.20

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Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
00	25.APR.13	JGY	LYU	LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD.	MAIN CONTROL CABINET (FOR 7 ZONES) CONNECTION DIAGRAM	KPS6479-1-55-04A
Place of issue:	Scale:	Original size:	Order no.:	System:	Current Sheet:	Next Sheet:	
SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	20	-	

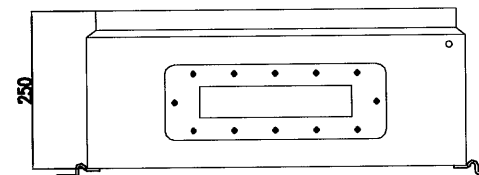
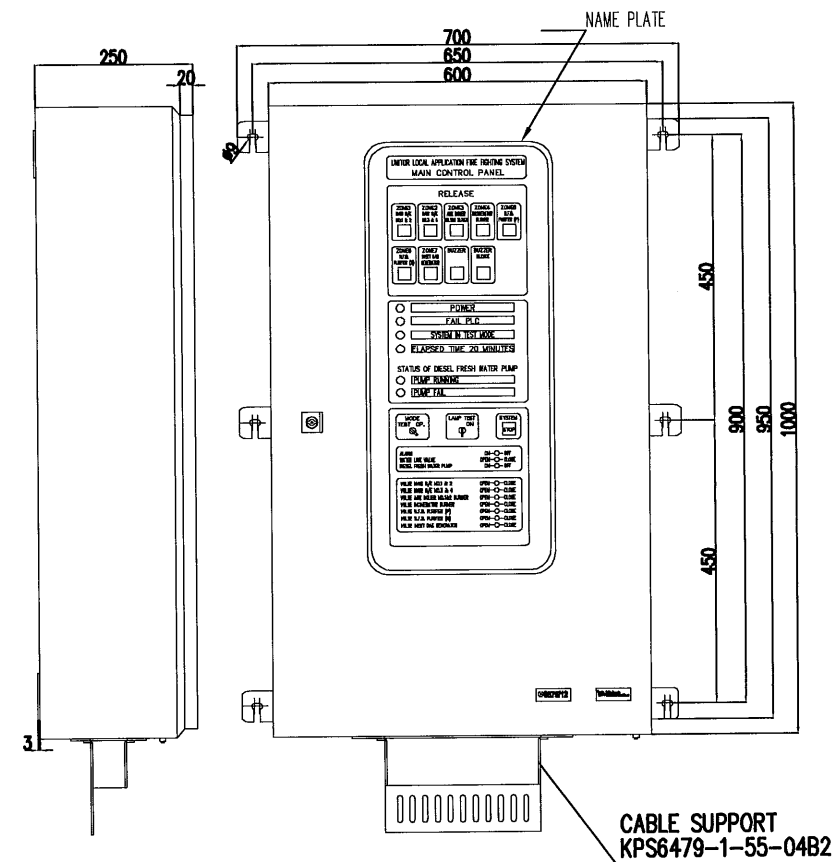
■ CABLE GLANDS: (COAMING TYPE)

CABLE TYPE	Q'TY	OUT DIA.(mm)	COND.SIZE(mm)	CABLE GLAND
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—


■ TERMINAL BLOCK SHOULD BE SUITABLE FOLLOWING CABLE TYPE:

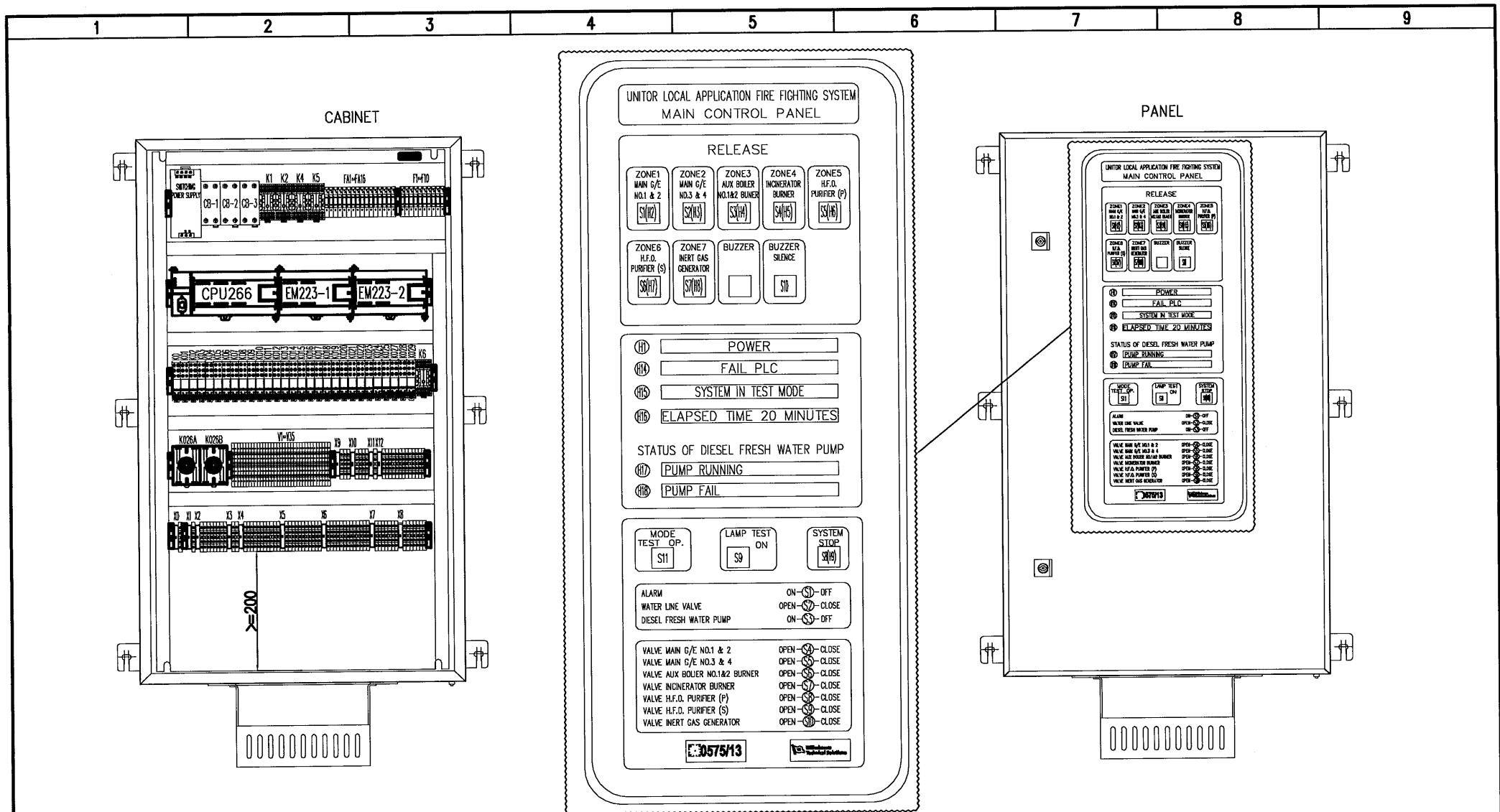
SUIT.CABLE TYPE	TERMINAL COND. SIZE (mm ²)
POWER CABLE	2.5
OTHER CABLE	2.5

- EQUIPMENT TAG : TAG OF EACH EQUIPMENT SHOULD BE PROVIDED
TAG OF BREAKERS SHOULD INCLUDE CAPACITY
- MATERIAL OF NAME PLATE : SUS 316
- MATERIAL : STEEL
- SURFACE TREATMENT : PAINTED RAL 3000, RED
- MOUNTING : 6 SCREWS M8,
NOT INCLUDED IN PORIDUCT NO.
- DOOR STOPPER : INCLUDED
- EARTH BOLT : INCLUDED, EARTH WIRE BETWEEN CABINET BODY AND DOOR
- POWER SUPPLY : 220V, AC 60 Hz FROM MIAN & EM'CY SUPPLY
- DEGREE OF PROTECTION : IP 56
- WEIGHT : 100 KG
- ELEC.DRAWING : REF. KPS6479-1-55-04A




7.1

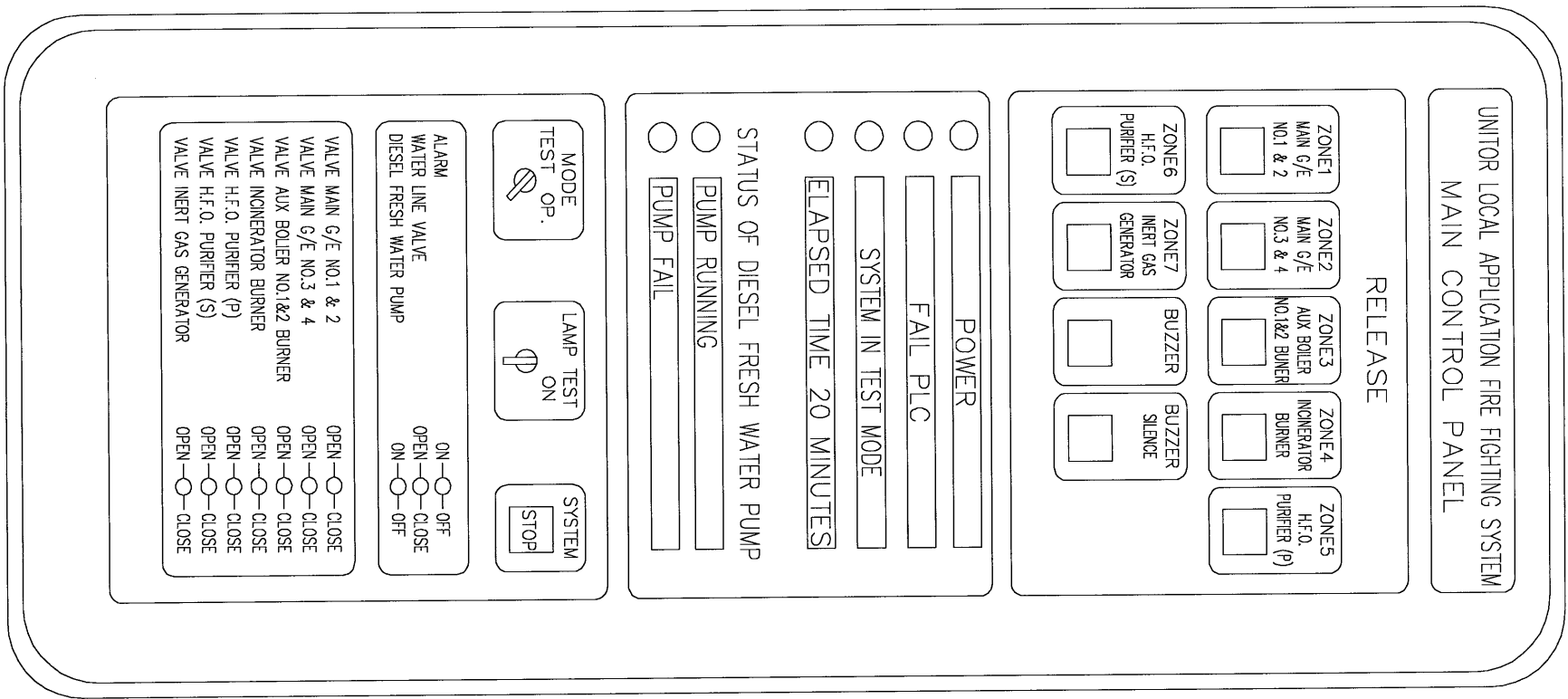
	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:			
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:					
	00	25.APR.13	JGY	LYU	LPA	H-2074	MAIN CONTROL CABINET (FOR 7 ZONES) INSTALLATION DIMENSION	KPS6479-1-55-04B1			
	Place of issue:	Scale:	Original size:	Order no.:							
SHA	N/A	A4	KPS 20017								
							System:	Current Sheet:	Next Sheet:		
							UNITOR FIXED LOCAL APPLICATION SYSTEM	1	-		



- PART LIST AND SPARE PARTS LIST : KPS6479-1-55-04F
 ■ ELEC.DRAWING : KPS6479-1-55-04A
 ■ LOCATION OF TERMINAL BLOCK TO BE DISTANT MIN.200mm FROM BOTTOM LINE OF THE CABINET

NOTE : THE FINAL ARRANGEMENT WILL BE DECIDED BY THE CABNET MANUFACTURER

	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:			
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:	MAIN CONTROL CABINET (FOR 7 ZONES) DEVICE ARRANGEMENT	KPS6479-1-55-04B2			
	00	25.APR.13	JGY	LYU	LPA	H-2074					
	Place of issue:	Scale:	Orig. size:	Order no.:	System:					Current Sheet:	Next Sheet:
	SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM					1	-



MODE
TEST OP.

LAMP TEST
ON

SYSTEM
STOP

ALARM

WATER LINE VALVE

DIESEL FRESH WATER PUMP

ON — ☐ — OFF

OPEN — ☐ — CLOSE

ON — ☐ — OFF

OPEN — ☐ — CLOSE

VALVE MAIN G/E NO.1 & 2

VALVE MAIN G/E NO.3 & 4

VALVE AUX BOILER NO.1&2 BURNER

VALVE INCINERATOR BURNER

VALVE H.F.O. PURIFIER (P)

VALVE H.F.O. PURIFIER (S)

VALVE INERT GAS GENERATOR

OPEN — ☐ — CLOSE

OPEN — ☐ — CLOSE

OPEN — ☐ — CLOSE

OPEN — ☐ — CLOSE

OPEN — ☐ — CLOSE

OPEN — ☐ — CLOSE

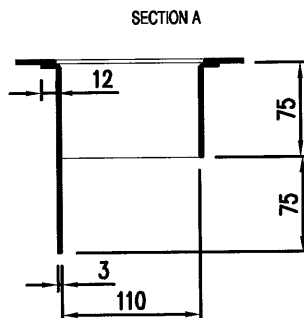
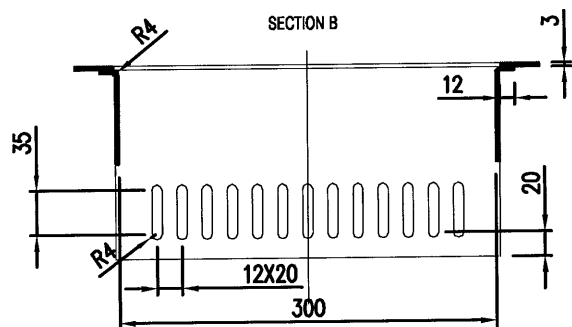
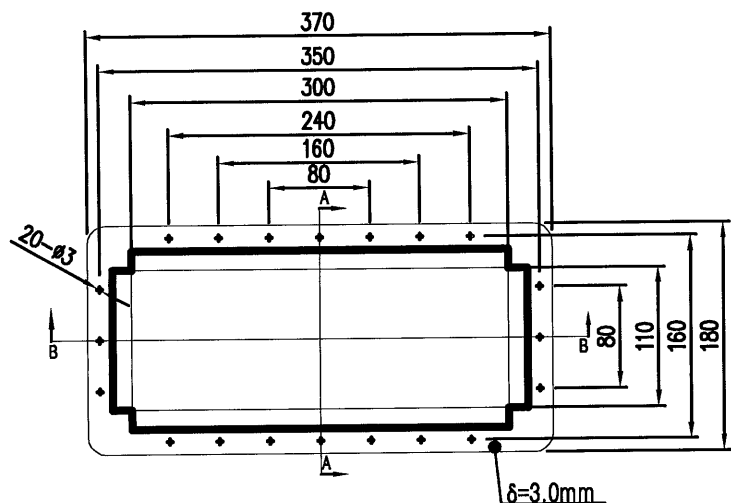
OPEN — ☐ — CLOSE

7.3

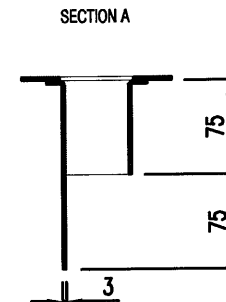
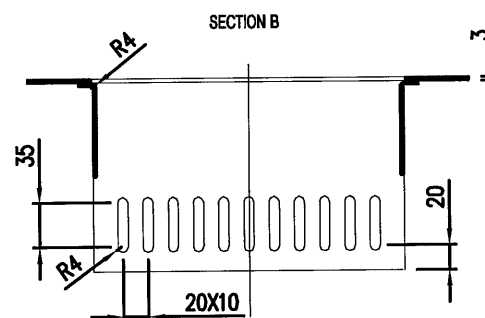
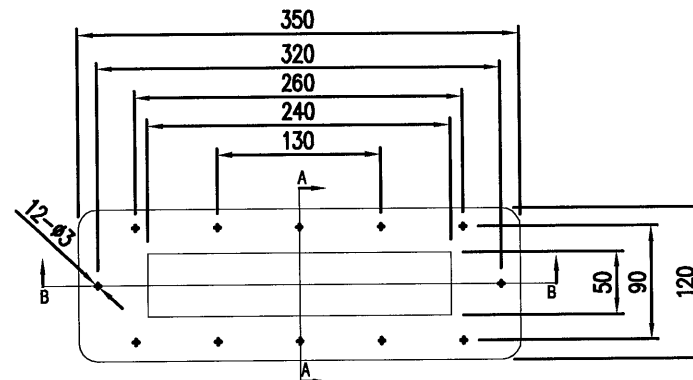


Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
Original: 00	25.APR.13	JGY	LYU	LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD.	MAIN CONTROL CABINET (FOR 7 ZONES) PANEL ARRANGEMENT	KPS6479-1-55-04B3
Place of Issue:	Scale:	Size:	Order no.:	System:	Current Sheet:	Next Sheet:	
SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	1	-	

SUPPORT FOR MAIN CONTROL CABINET



SUPPORT FOR MOTOR STARTER CABINET & BATTERY BOX



7.4

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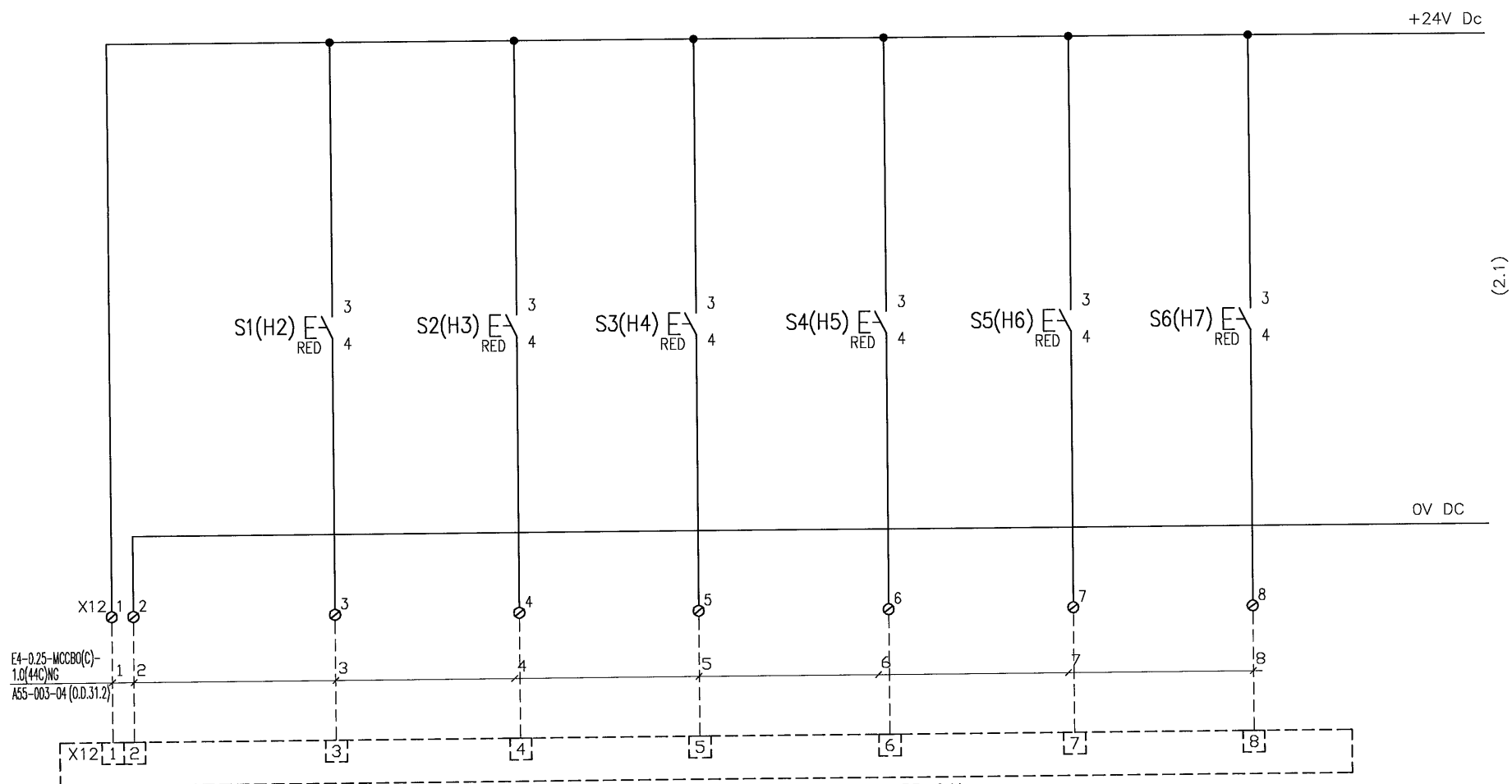
Rev.no:	Date:	Issued by:	Checked by:	Approved by:
00	25.APR.13	JGY	LYU	LPA
Place of Issue:	Scale:	Orig. Size:		
SHA	N/A	A4		

Customer:	SAMSUNG HEAVY INDUSTRIES CO., LTD.
Hull no.:	H-2074
Order no.:	KPS 20017

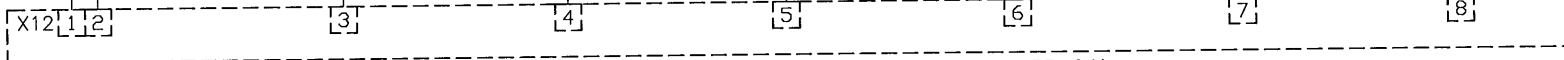
Description:	CABLE SUPPORT FOR MCC, MSC & BATT. BOX AND DIESEL WATER PUMP STARTER CABINET
System:	UNITOR FIXED LOCAL APPLICATION SYSTEM

Drawing no.:	KPS6479-1-55-04B4
Current Sheet:	1
Next Sheet:	-

1	2	3	4	5	6	7	8	9
	SOURCE	ZONE RELEASE BUTTONS FOR REMOTE CONTROL CABINET						
		ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	
		MAIN G/E NO.1 & 2	MAIN G/E NO.3 & 4	AUX. BOILER NO.1 & 2 BURNER	INCINERATOR BURNER	H.F.O. PURIFIER (P)	H.F.O. PURIFIER (S)	



E4-0.25-MCCBO(C)-
1.0(44C)WG
A55-003-04 (O.D.31.2)



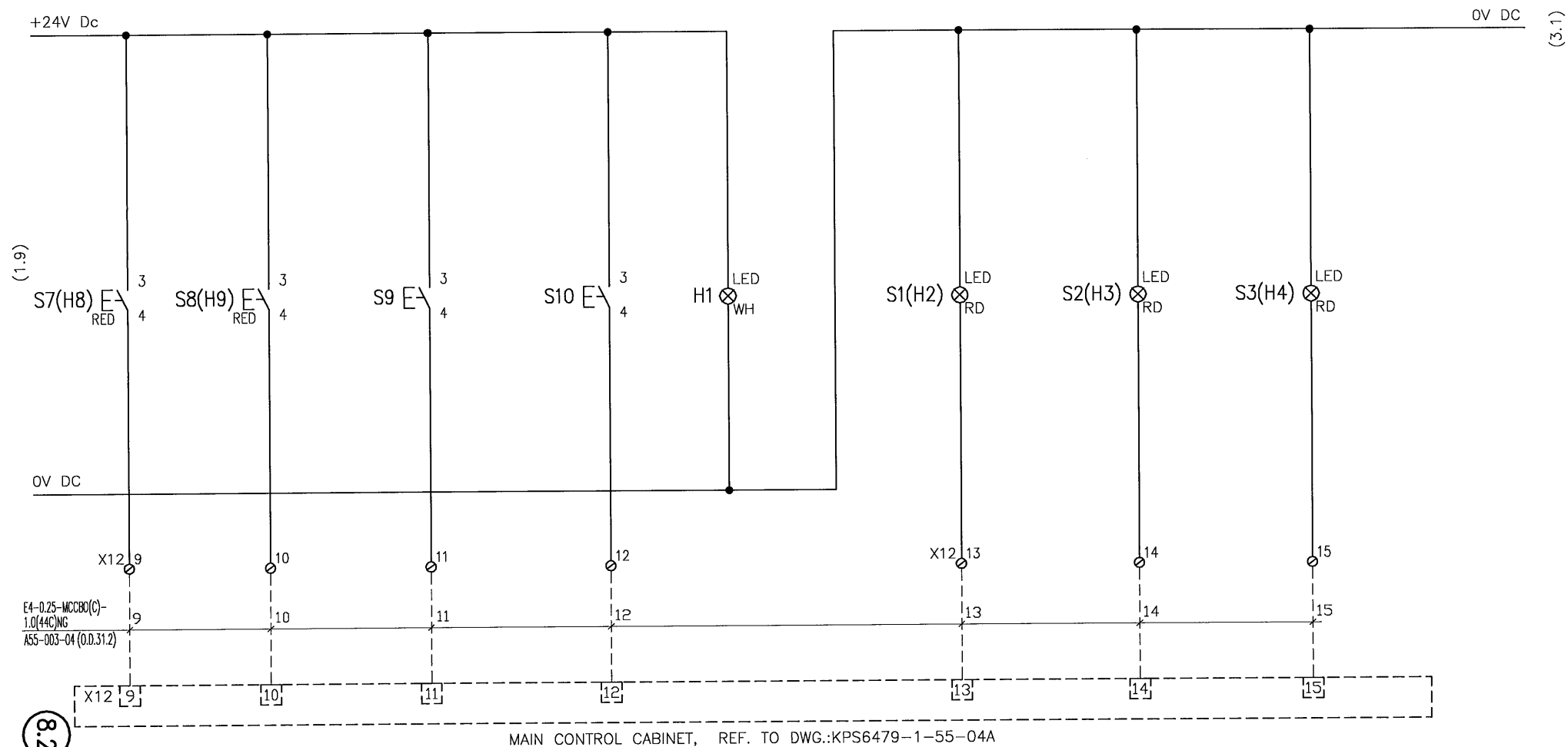
MAIN CONTROL CABINET, REF. TO DWG.:KPS6479-1-55-04A

NOTE 1: ALL INDICATION LIGHT SHOULD BE HIGH LUMINANCE LED WHICH WITH INTERNAL RESISTOR, IT WILL NEVER CAUSE SHORT CIRCUIT WHEN LED BURNT

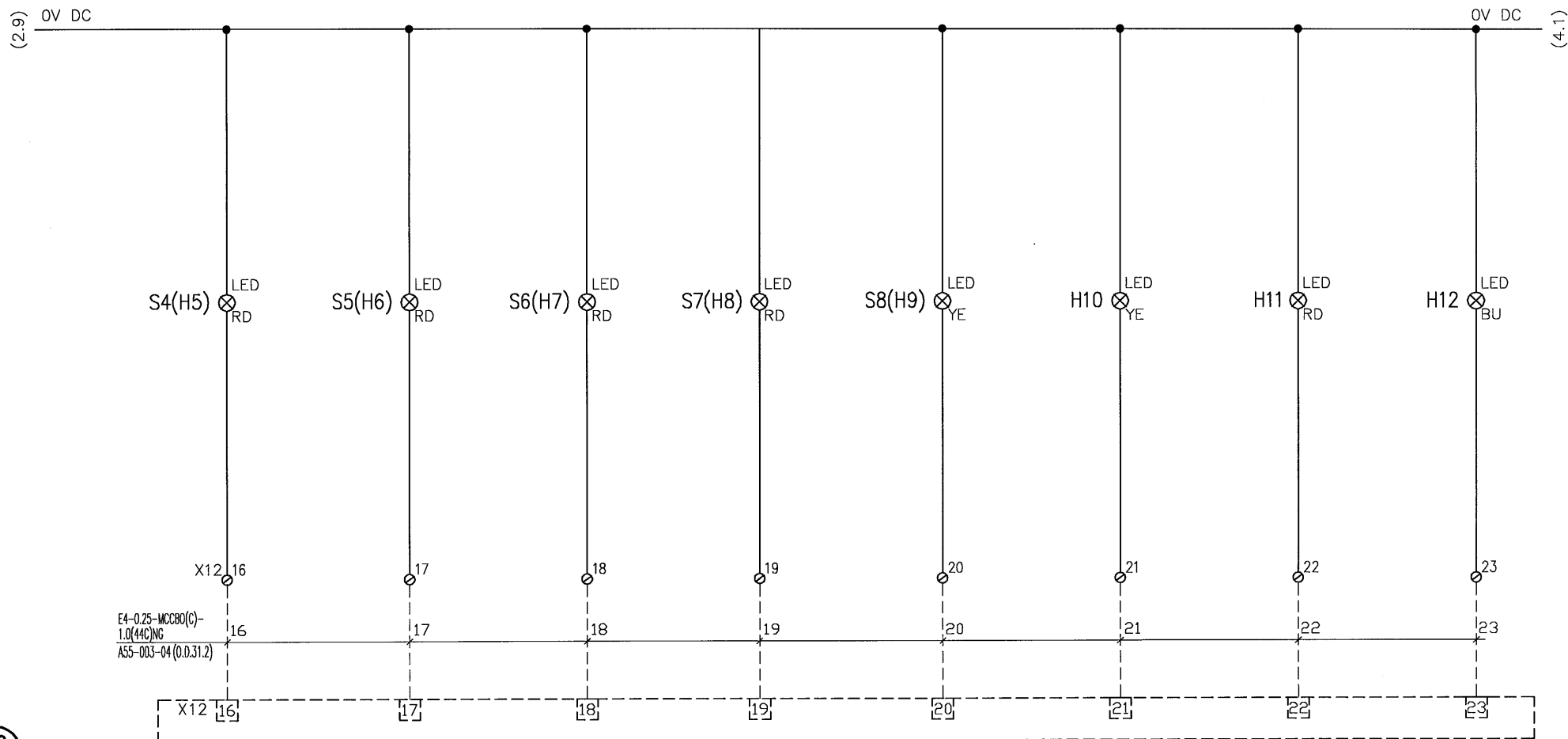
Wilhelmsen
Technical Solutions

Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:	REMOTE CONTROL CABINET (FOR 7 ZONES)	KPS6479-1-55-04C
00	25.APR.13	JGY	LYU	LPA	H-2074	CONNECTION DIAGRAM	
Place of issue:	Scale:	Orig. size:	Order no.:	System:	Current Sheet:	Next Sheet:	
SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	1	2	

1	2	3	4	5	6	7	8	9
ZONE RELEASE BUTTONS FOR REMOTE CONTROL CABINET	FUNCTION BUTTONS			SOURCE INDICATION	INDICATION LAMP FOR REMOTE ALARM CABINET			
ZONE 7	SYSTEM STOP	LAMP TEST	BUZZER SILENCE		ZONE 1	ZONE 2	ZONE 3	
INERT GAS GENERATOR					MAIN G/E NO.1 & 2	MAIN G/E NO.3 & 4	AUX. BOILER NO.1 & 2 BURNER	



1	2	3	4	5	6	7	8	9
	INDICATION LAMP FOR REMOTE ALARM CABINET				INDICATION LAMP FOR REMOTE ALARM CABINET			
	ZONE 4	ZONE 5	ZONE 6	ZONE 7	SYSTEM STOP	LAMP TEST FOR PLC FAIL	SYSTEM IN TEST MODE	ELAPSED TIME
	INCINERATOR BURNER	H.F.D. PURIFIER (P)	H.F.D. PURIFIER (S)	INERT GAS GENERATOR				20 MINUTES



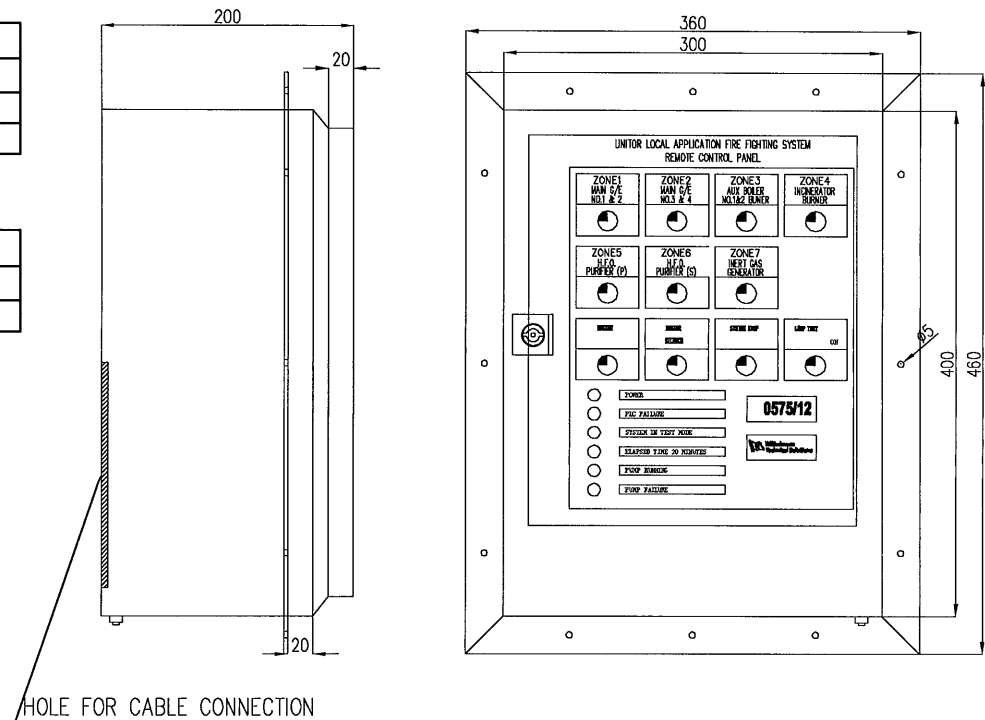
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	00	25.APR.13	JGY	LYU	LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD.	REMOTE CONTROL CABINET (FOR 7 ZONES) CONNECTION DIAGRAM	KPS6479-1-55-04C
	Place of issue:	Scale:	Orig. size:	Order no.:	System:			Current Sheet: Next Sheet:
	SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM			3 4

■ CABLE GLANDS:(COAMING TYPE)

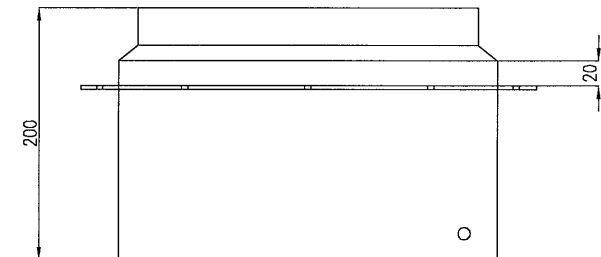
CABLE TYPE	Q'TY	OUT DIA.(mm)	COND.SIZE(mm)	CABLE GLAND
—	—	—	—	—
—	—	—	—	—
—	—	—	—	—

■ TERMINAL BLOCK SHOULD BE SUITABLE FOLLOWING CABLE TYPE:

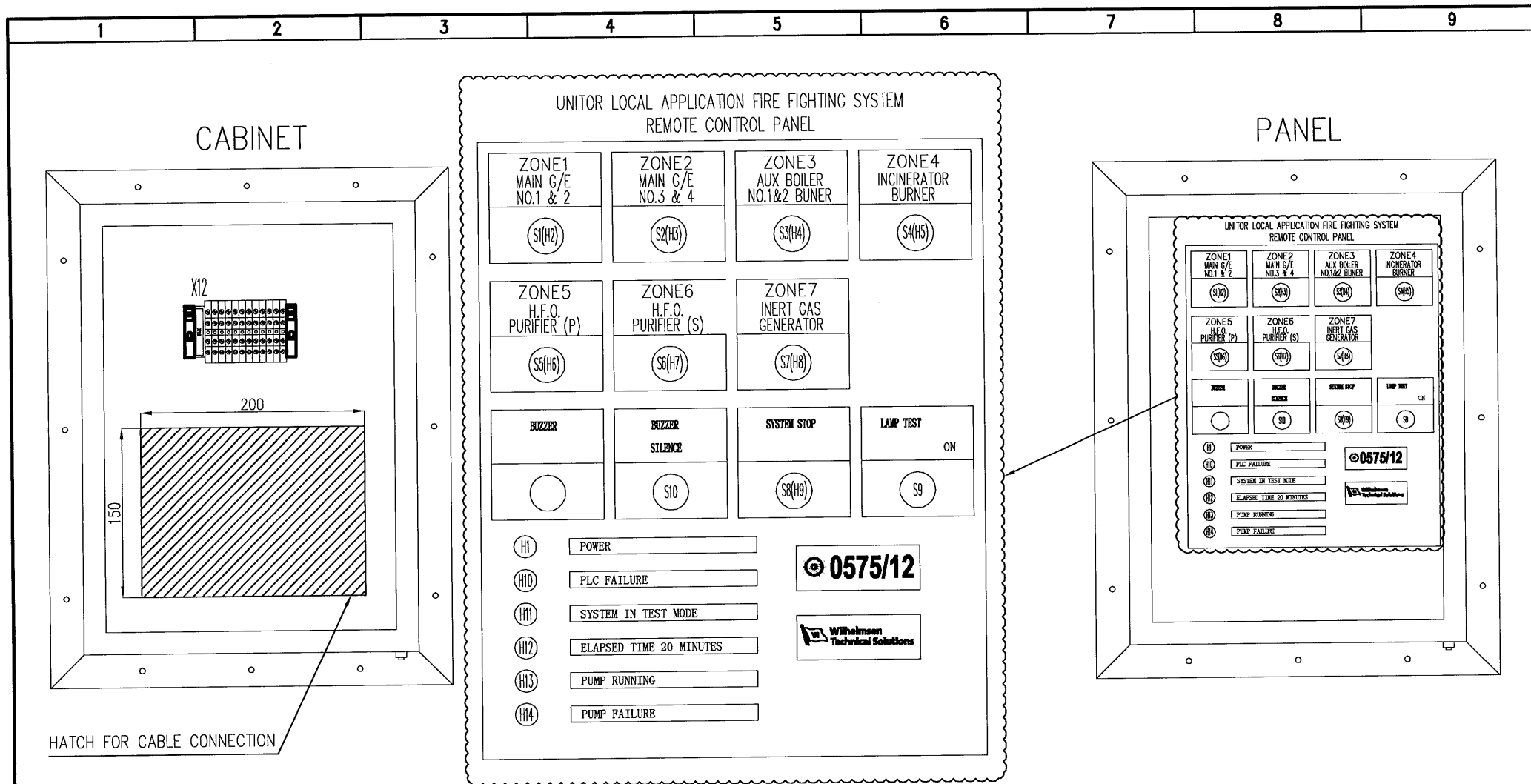
SUIT.CABLE TYPE	TERMINAL COND. SIZE (mm ²)
POWER CABLE	2.5
OTHER CABLE	2.5



- MATERIAL OF NAME PLATE : PLASTIC
- MATERIAL : STEEL
- SURFACE TREATMENT : PAINTED RAL 3000, RED
- MOUNTING : 12 SCREWS M5,
NOT INCLUDED IN PORIDUCT NO.
- DOOR STOPPER : INCLUDED
- EARTH BOLT : INCLUDED, EARTH WIRE BETWEEN CABINET BODY AND DOOR
- POWER SUPPLY : 24V, DC FROM MIAN CONTROL CABINET
- DEGREE OF PROTECTION : IP 22
- WEIGHT : 20 KG
- ELEC.DRAWING : REF. KPS6479-1-55-04C



10.1



- PART LIST AND SPARE PARTS LIST : KPS6479-1-55-04J
- ELEC.DRAWING : KPS6479-1-55-04C
- LOCATION OF TERMINAL BLOCK TO BE DISTANT MIN.200mm FROM BOTTOM LINE OF THE CABINET

NOTE : THE FINAL ARRANGEMENT WILL BE DECIDED BY THE CABINET MANUFACTURER

Wilhelmsen
Technical Solutions

Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:
Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:
00	25.APR.13	JGY	LYU	LPA	H-2074
Place of issue:	Scale:	Original size:			Order no.:
SHA	N/A	A4			KPS 20017












Description:
**REMOTE CONTROL CABINET (FOR 7 ZONES)
DEVICE ARRANGEMENT**

System:
UNITOR FIXED LOCAL APPLICATION SYSTEM



Drawing no.:
KPS6479-1-55-04D2

Current Sheet: 1
Next Sheet: -

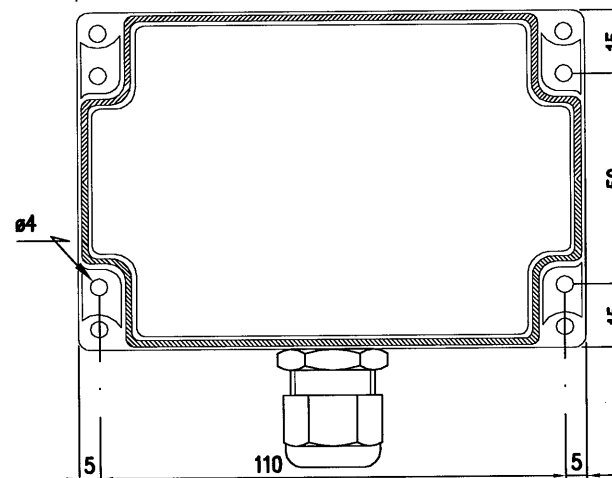
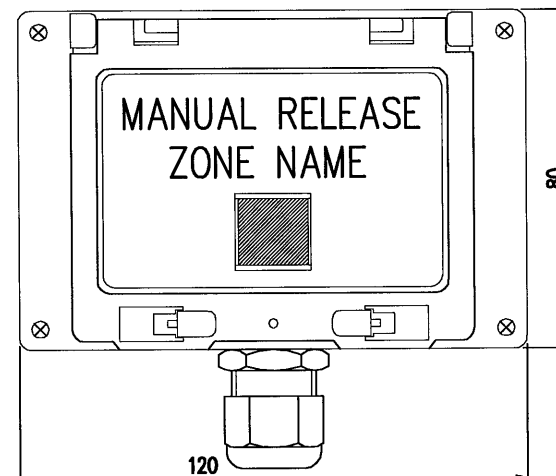
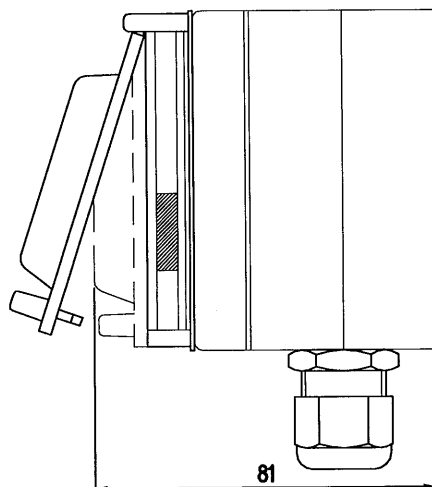
UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM
REMOTE CONTROL PANEL

ZONE1 MAIN G/E NO.1 & 2 	ZONE2 MAIN G/E NO.3 & 4 	ZONE3 AUX BOILER NO.1&2 BUNER 	ZONE4 INCINERATOR BURNER 
ZONE5 H.F.O. PURIFIER (P) 	ZONE6 H.F.O. PURIFIER (S) 	ZONE7 INERT GAS GENERATOR 	
BUZZER 	BUZZER SILENCE 	SYSTEM STOP 	LAMP TEST ON 

☐ POWER
☐ PLC FAILURE
☐ SYSTEM IN TEST MODE
☐ ELAPSED TIME 20 MINUTES
☐ PUMP RUNNING
☐ PUMP FAILURE

 **0575/12**
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 Technical Solutions

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TOTAL 7 SETS THE LOCATION AS FOLLOWING:

- 1 : MAIN G/E NO.1 & 2
- 2 : MAIN G/E NO.3 & 4
- 3 : AUX. BOILER NO.1 & 2 BURNER
- 4 : INCINERATOR BURNER
- 5 : H.F.O. PURIFIER (P)
- 6 : H.F.O. PURIFIER (S)
- 7 : INERT GAS GENERATOR

INSTALLATION : 4 HOLES $\phi 4$
 MATERIAL : POLYCARBONATE
 COLOR : GRAY
 IP GRADE : IP66
 WEIGHT : 0.5 KG
 CABLE GLAND : PG13.5 (SUITABLE FOR 9.0 ± 0.4 CABLE)
 ZONE NAME REFERENCE : SEE ABOVE



Wilhelmsen
Ships Equipment


Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
Original: 00	Date: 25.APR.13	Issued by: JGY	Checked by: LYU	Approved by: LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD.	MANUAL RELEASE BOX	KPS6479-1-55-04E
Place of issue: SHA	Scale: N/A	Original size: A4	Order no.: KPS 20017	Hull no.: H-2074	System: UNITOR FIXED LOCAL APPLICATION SYSTEM	Current Sheet: 1	Next Sheet: -

1	2	3	4	5	6	7	8	9
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No.	DEVICE	BRAND	TYPE	SUPPLY PER SHIP		DRAWING	REMARKS
				MAIN	SPARE		
01	AC/DC SWITCHING POWER SUPPLY	WITH CE MARK	5A	1	0	KPS6479-1-55-04A	220VAC -24V DC
02	CIRCUIT BREAKER	SCHNEIDER-MERLIN GERIN	C65N-C10/C65H-DC 2 C2	2/1	0/0	KPS6479-1-55-04A	CB-1,CB-2/CB-3
03	RELEASE BUTTON WITH LAMP(RED)	SCHNEIDER-TELMECANIQUE	N/O BUTTON W/HIGH LUMINANCE LED	7	1	KPS6479-1-55-04A	S1(H2)~S7(H8)
04	LAMP TEST SWITCH	SCHNEIDER-TELMECANIQUE	ROTATING SWITCH(AUTO RESET)	1	1	KPS6479-1-55-04A	S9
05	STOP BUTTON WITH LAMP (YELLOW)	SCHNEIDER-TELMECANIQUE	N/O BUTTON (LATCH TYPE) W/HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	S8(H9)
06	MODE SWITCH	SCHNEIDER-TELMECANIQUE	SELECT SWITCH WITH KEY LOCK	1	0	KPS6479-1-55-04A	S11
07	POWER LAMP(WHITE)	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	H1
08	RED LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	H11
09	GREEN LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	H13
10	YELLOW LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	2	1	KPS6479-1-55-04A	H10/H14
11	BLUE LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	H12
12	TOGGLE-SWITCH		TOGGLE-SWITCH	10	1	KPS6479-1-55-04A	S01-S010
13	DC FUSE, 1A		WITH BLOWN INDICATION	10	10	KPS6479-1-55-04A	F1~F10
14	AC-FUSE 1A		WITH BLOWN INDICATION	16	16	KPS6479-1-55-04A	FA1~FA16
15	DIODE BLOCK			35	4	KPS6479-1-55-04A	V1~35
16	DC RELAY WITH SOCKET	IDEC	RH4B-ULDC24(4P DC24V 10A)	2	1	KPS6479-1-55-04A	K6, K0
17	AC RELAY WITH SOCKET	IDEC	RH4B-ULAC220(4P AC220V 10A)	4	1	KPS6479-1-55-04A	K1,K2,K4,K5
18	DC RELAY WITH SOCKET	IDEC	RJ2S-CLD24(2P DC24V 8A)	28	3	KPS6479-1-55-04A	K01~K025, K027~K029

(12.1)


NOTE: ALL SPARE PARTS WILL BE PROVIDED WITH CABINET AND IN A SEPARATED PACKAGE

	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:		
	00	25.APR.13	JGY	LYU	LPA	H-2074	MAIN CONTROL CABINET PARTS LIST AND SPARE PARTS LIST FOR EL.PART	KPS6479-1-55-04F
Place of issue:	Scale:	Original size:	Order no.:	System:	Current Sheet:	Next Sheet:		
SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	1	2		

12.2

1	2	3	4	5	6	7	8	9
No.	DEVICE	BRAND	TYPE	SUPPLY PER SHIP		DRAWING	REMARKS	
				MAIN	SPARE			
19	PLC MAIN BOARD	SIEMENS S7-200 CPU 226		1 (SET)	0	KPS6479-1-55-04A		
20	PLC SLAVE BOARD	SIEMENS S7-200 EM223 16 DI/DO		2 (SET)	0	KPS6479-1-55-04A		
21	TERMINAL BLOCK	WEIDMULLER DOUBLE LEVEL	2.5 MM2 SPRING TYPE	82	9	KPS6479-1-55-04A	X0~X12	
22	FUSE SOCKET	WEIDMULLER	WITH FUSE BLOWN INDICATION	26	3	KPS6479-1-55-04A	F1~F10, FA1~FA16	
23	TIMER RELAY	OMRON	H3CR-A8	2	1	KPS6479-1-55-04A	K026A,K026B	
24	SILENCE BUTTON	SCHNEIDER-TELMECANIQUE	N/O PUSH BUTTON	1	0	KPS6479-1-55-04A	S10	
25	BUZZER	-	-	1	0	KPS6479-1-55-04A	BUZZER	


12.2

	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description:	Drawing no.:
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:		
	Place of issue:	Scale:	Orig. size:	Order no.:	System:	Current Sheet:	Next Sheet:	
	00	25.APR.13	JGY	LYU	LPA	SAMSUNG HEAVY INDUSTRIES CO., LTD.	MAIN CONTROL CABINET PARTS LIST AND SPARE PARTS LIST FOR EL.PART	KPS6479-1-55-04F
	SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	2	—	

123

1	2	3	4	5	6	7	8	9
No.	DEVICE	BRAND	TYPE	SUPPLY PER SHIP		DRAWING	REMARKS	
				MAIN	SPARE			
01	FLOAT BATTERY CHARGER	MEANWELL	PB-360P-12	1	0	KPS6479-1-55-04G	MEET CE STANDARD	
02	DC/DC	MEANWELL	SD-50A-24 (12V->24V DC)	1	0	KPS6479-1-55-04G	MEET CE STANDARD	
03	CIRCUIT BREAKER	ABB	ABB S262-D3	3	0	KPS6479-1-55-04G	CB-1,CB-2,CB-3	
04	CIRCUIT BREAKER	SCHNEIDER-TELMECANIQUE	C65H-DC 1 C50/C65H-DC 1 C32	1/1	0	KPS6479-1-55-04G	CB4/CB5	
05	ROTATING SWITCH	SCHNEIDER-TELMECANIQUE	AUTO RESET	3	1	KPS6479-1-55-04G	S1/S3/S4	
06	STOP BUTTON	SCHNEIDER-TELMECANIQUE	MOMENTARY PUSH BUTTON	1	1	KPS6479-1-55-04G	S2	
07	MODE SWITCH	SCHNEIDER-TELMECANIQUE	SELECT SWITCH	1	0	KPS6479-1-55-04G	S01	
08	POWER LAMP(WHITE)	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED(12V DC)	1	1	KPS6479-1-55-04G	H1	
09	GREEN LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04G	H2	
10	YELLOW LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	2	1	KPS6479-1-55-04G	H3,H5	
11	BLUE LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04G	H4	
12	DC FUSE, 1A		WITH BLOWN INDICATION	3	3	KPS6479-1-55-04G	F1~F3	
13	DIODE BLOCK			9	1	KPS6479-1-55-04G	V1~V9	
14	AC POWER RELAY WITH SOCKET	SCHNEIDER-ZELIO	RPM41P7+RPZF4	2	1	KPS6479-1-55-04G	KP1~KP2(220V AC 60Hz COIL)	
15	DC POWER RELAY WITH SOCKET	SCHNEIDER-ZELIO	RPM41BD+RPZF4	2	1	KPS6479-1-55-04G	R2(24V DC COIL)	
16	AC CONTACTOR	SCHNEIDER-TELMECANIQUE	LC1-D38M7	1	0	KPS6479-1-55-04G	KP3 (220V AC 60Hz COIL)	
17	DC RELAY WITH SOCKET	OMRON	MY4N (12V DC) 4PDT	1	1	KPS6479-1-55-04G	R0	
18	DC RELAY WITH SOCKET	OMRON	MY4N (24V DC) 4PDT	8	1	KPS6479-1-55-04G	R1~R7,R5A	
19	PLC	SIEMENS	S7-200 224XP	1	0	KPS6479-1-55-04G		

12.3

	Rev.no:	Date:	Issued by:	Checked by:	Approved by:	Customer:	Description: DIESEL FRESH WATER PUMP STARTER CABINET PARTS AND SPARE PARTS LIST FOR EL.PART	Drawing no.: KPS6479-1-55-04J	
	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:			
	Place of issue:	Scale:	Original size:	Order no.:	System:	Current Sheet:			
	00	25.APR.13	JGY	LYU	LPA	H-2074		1	2
	SHA	N/A		A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM			

12.4

1	2	3	4	5	6	7	8	9
No.	DEVICE	BRAND	TYPE	SUPPLY PER SHIP		DRAWING	REMARKS	
				MAIN	SPARE			
20	VOLTAGE MEASUREMENT METER	—	PZ80-DV/MJ	1	0	KPS6479-1-55-04G	VM (24V DC POWER)	
20	FREQUENCY MEASUREMENT METER	—	PZ96-F/MJ, 0~350Hz	1	0	KPS6479-1-55-04G	HzM (24V DC POWER)	
21	FUSE SOCKET	WEIDMULLER/PHOENIX	WITH FUSE BLOWN INDICATION	3	1	KPS6479-1-55-04G	F1~F3	
22	BUS BAR FOR POSITIVE	—	50x200x5	2	1	KPS6479-1-55-04G	BUS BAR	
23	TERMINAL	WEIDMULLER SINGLE LEVEL	35 MM2 SPRING TYPE	1	1	KPS6479-1-55-04G	X1-1	
24	TERMINAL	WEIDMULLER SINGLE LEVEL	16 MM2 SPRING TYPE	2	1	KPS6479-1-55-04G	X1-2, X2-1	
25	TERMINAL	WEIDMULLER SINGEL LEVEL	2.5 MM2 SPRING TYPE	6	1	KPS6479-1-55-04G	X0	
26	TERMINAL	WEIDMULLER DOUBLE LEVEL	2.5MM2 SPRING TYPE	42	4	KPS6479-1-55-04G	OTHER THAN ITEM 23,24	
27	CAR BATTERY	MEET CE REQUEST	12V, >=70AH, CCA 630 DIMENTION CLOSE TO 261x175x220(LDH)	2	0	KPS6479-1-55-04G	CAR START TYPE,12V	
28	DISCONNECT SWITCH	—	63A, 1 POLE	1	0	KPS6479-1-55-04G	S0	
29	AC CONTACTOR	SCHNEIDER-TELMECANIQUE	LC1-D50BD	1	0	KPS6479-1-55-04G	SR1	
30	AC CONTACTOR	SCHNEIDER-TELMECANIQUE	LC1-D38BD	1	0	KPS6479-1-55-04G	SR2	
31	—	—	—	—	—	—	—	


12.4

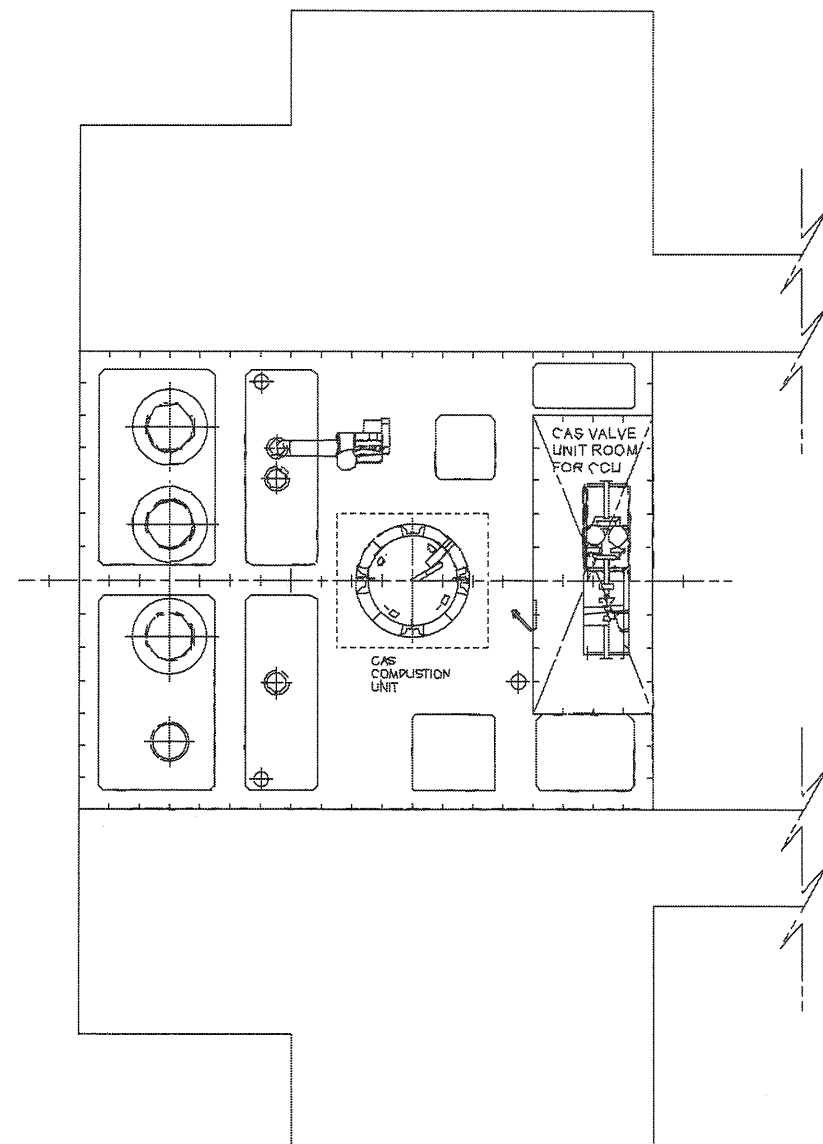
1	2	3	4	5	6	7	8	9
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No.	DEVICE	BRAND	TYPE	SUPPLY PER SHIP		DRAWING	REMARKS
				MAIN	SPARE		
01	RELEASE BUTTON WITH LAMP(RED)	SCHNEIDER-TELMECANIQUE	N/O BUTTON W/HIGH LUMINANCE LED	7	1	KPS6479-1-55-04A	S1(H2)~S7(H8)
02	LAMP TEST SWITCH	SCHNEIDER-TELMECANIQUE	ROTATING SWITCH(AUTO RESET)	1	1	KPS6479-1-55-04A	S9
03	STOP BUTTON WITH LAMP (YELLOW)	SCHNEIDER-TELMECANIQUE	N/O BUTTON (LATCH TYPE) W/HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	S8(H9)
04	MODE SWITCH	SCHNEIDER-TELMECANIQUE	SELECT SWITCH WITH KEY LOCK	1	0	KPS6479-1-55-04A	S11
05	POWER LAMP(WHITE)	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	H1
06	RED LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	H11
07	GREEN LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	H13
08	YELLOW LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	2	1	KPS6479-1-55-04A	H10/H14
09	BLUE LAMP	SCHNEIDER-TELMECANIQUE	HIGH LUMINANCE LED	1	1	KPS6479-1-55-04A	H12
10	TERMINAL BLOCK	WEIDMULLER DOUBLE LEVEL	2.5 MM2 SPRING TYPE	13	2	KPS6479-1-55-04A	X12
11	SILENCE BUTTON	SCHNEIDER-TELMECANIQUE	N/O PUSH BUTTON	1	0	KPS6479-1-55-04A	S10
12	BUZZER	-	-	1	0	KPS6479-1-55-04A	BUZZER

12.5

NOTE: ALL SPARE PARTS WILL BE PROVIDED WITH CABINET AND IN A SEPARATED PACKAGE

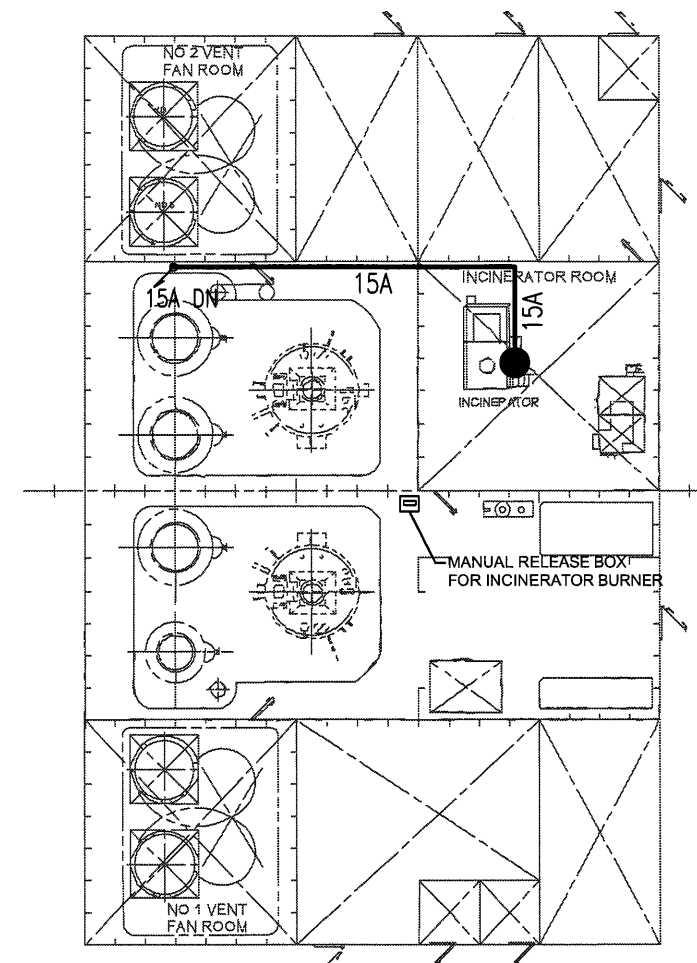
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	Original:	Date:	Issued by:	Checked by:	Approved by:	Hull no.:		
	Place of issue:	Scale:	Original size:	Order no.:	System:	Current Sheet:	Next Sheet:	
	SHA	N/A	A4	KPS 20017	UNITOR FIXED LOCAL APPLICATION SYSTEM	1	-	



"B" DECK PLAN





NOTE: NOZZLE HEIGHT FROM PROTECTED OBJECT.

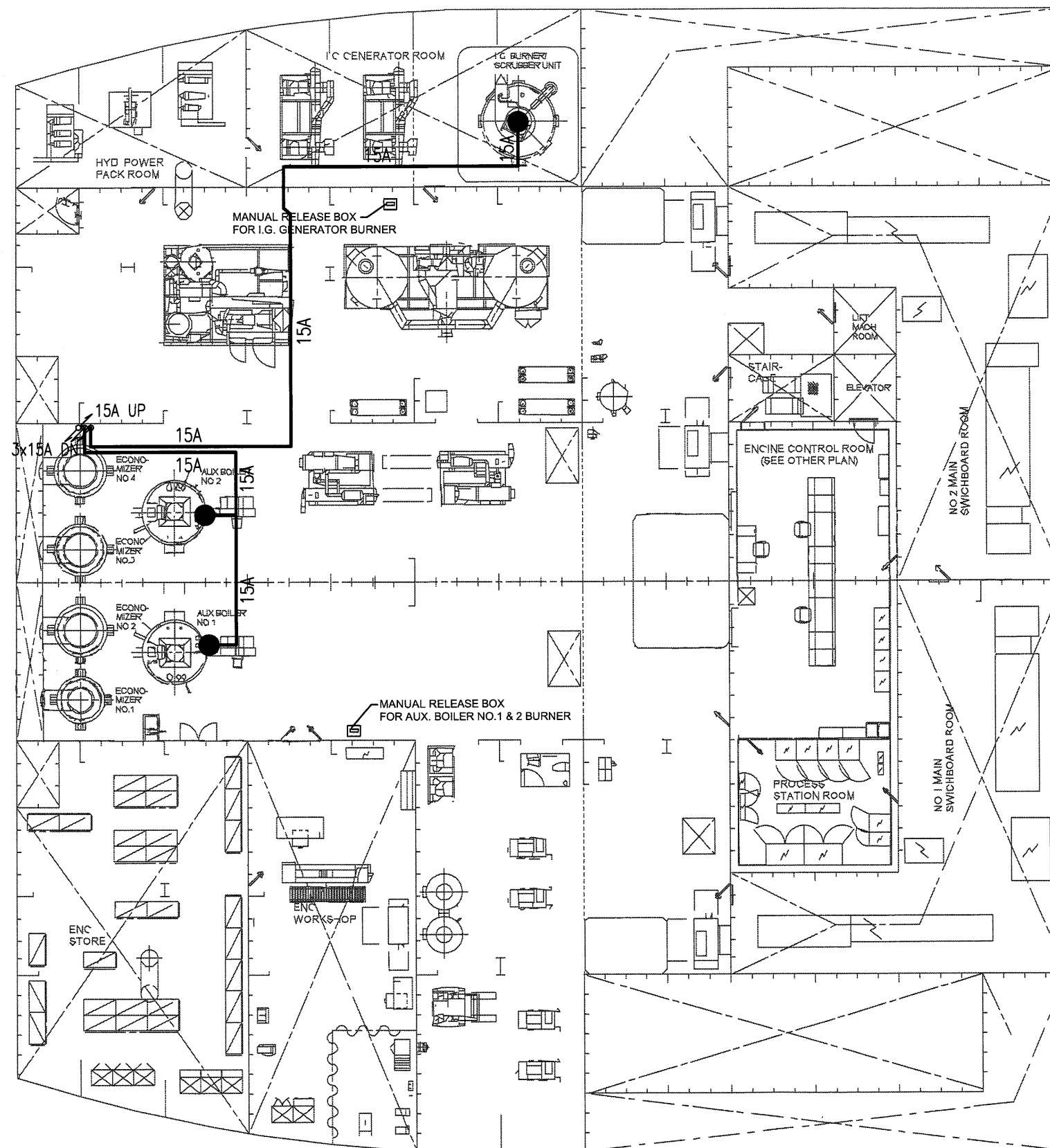
NOZZLE HEIGHT	0.5 m ~ 1.5 m	1.5 m ~ 6.9 m
NOZZLE SPACING	1.0 m	1.5 m



UPPER DECK PLAN

13





Customer: SAMSUNG HEAVY INDUSTRIES CO., LTD.	Date of issue: 25.APR.13	Issued by: XYA	Scale: N.T.S.	Place of issue: SHA	 Wilhelmsen Technical Solutions	
	Date of check: 25.APR.13	Checked by: LPA	Orig. size: A3			
	Date of approval: 25.APR.13	Approved by: LYU				
	Description: PIPING & NOZZLE ARRANGEMENT "B" & UPPER DECK PLAN					
Hull no.: H-2074				Drawing no.: KPS6479-1-55-06A		
Order no.: KPS 20017	System: UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM	Rev.no.: 00	Date: 25.APR.	Issued by: 	Checked by: 	Approved by: 

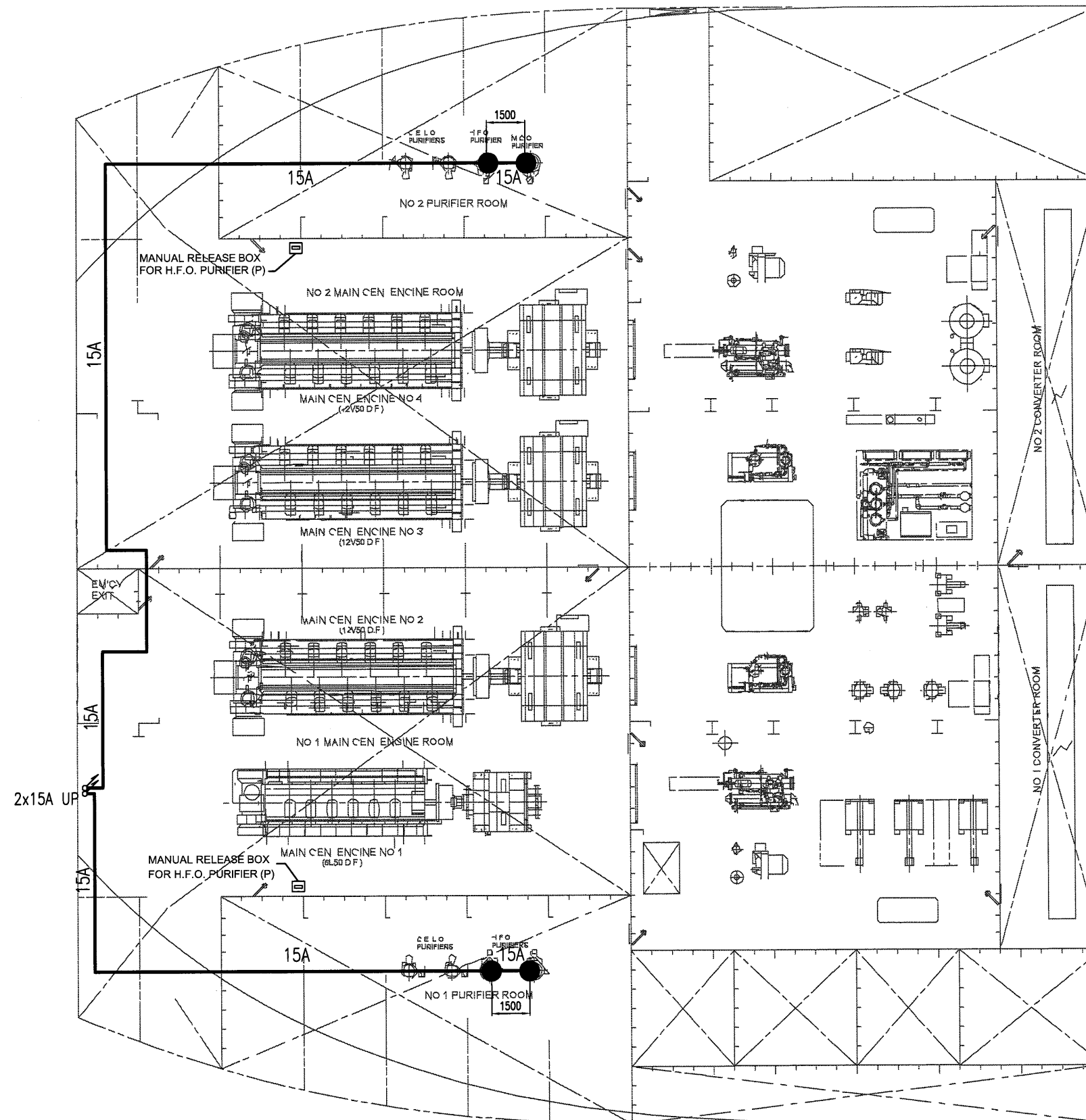


2ND DECK PLAN

NOTE: NOZZLE HEIGHT FROM PROTECTED OBJECT.

NOZZLE HEIGHT	0.5 m ~ 1.5 m	1.5 m ~ 6.9 m
NOZZLE SPACING	1.0 m	1.5 m

Customer: SAMSUNG HEAVY INDUSTRIES CO., LTD.	Date of issue: 25.APR.13	Issued by: XYA	Scale: N.T.S.	Place of issue: SHA	 Wilhelmsen Technical Solutions
	Date of check: 25.APR.13	Checked by: LPA	Orig. size: A3		
	Date of approval: 25.APR.13	Approved by: LYU			
	Description: PIPING & NOZZLE ARRANGEMENT 2ND DECK PLAN				
Hull no.: H-2074				Drawing no.: KPS6479-1-55-06B	
Order no.: KPS 20017	System: UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM			Rev.no.: 00	Date: 25.APR.13
				Issued by: 	Checked by: 
				Approved by: 	

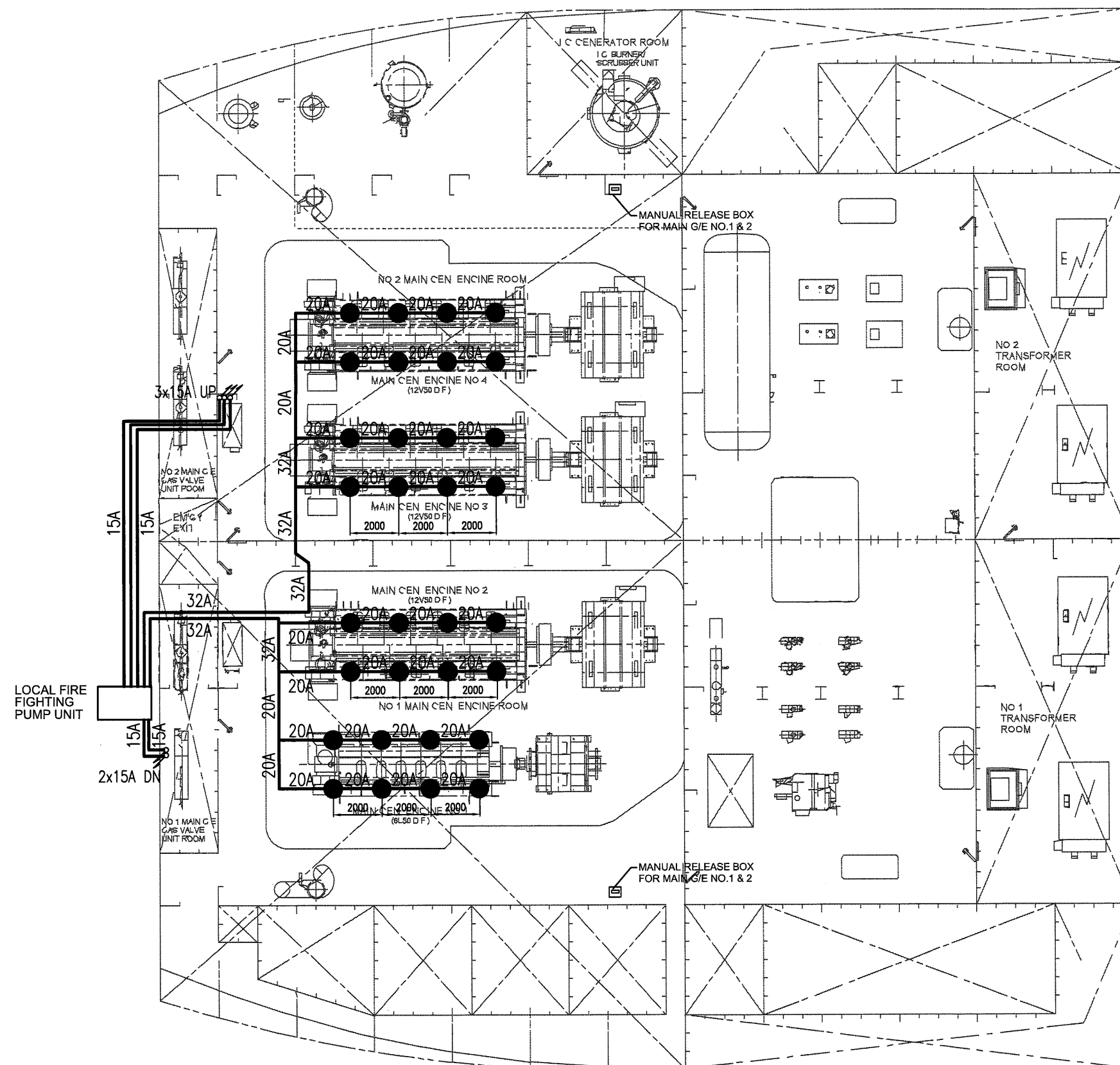


4TH DECK PLAN

NOTE: NOZZLE HEIGHT FROM PROTECTED OBJECT.

NOZZLE HEIGHT	0.5 m ~ 1.5 m	1.5 m ~ 6.9 m
NOZZLE SPACING	1.0 m	1.5 m

Customer: SAMSUNG HEAVY INDUSTRIES CO., LTD.	Date of issue: 25.APR.13	Issued by: XYA	Scale: N.T.S.	Place of issue: SHA		
	Date of check: 25.APR.13	Checked by: LPA	Orig. size: A3			
	Date of approval: 25.APR.13	Approved by: LPA				
Hull no.: H-2074	Description: PIPING & NOZZLE ARRANGEMENT 4TH DECK PLAN				Drawing no.: KPS6479-1-55-06D	
Order no.: KPS 20017	System: UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM				Rev.no.: 00 Date: 25.APR.13 Issued by: Checked by: Approved by:	



3RD DECK PLAN

NOTE: NOZZLE HEIGHT FROM PROTECTED OBJECT.

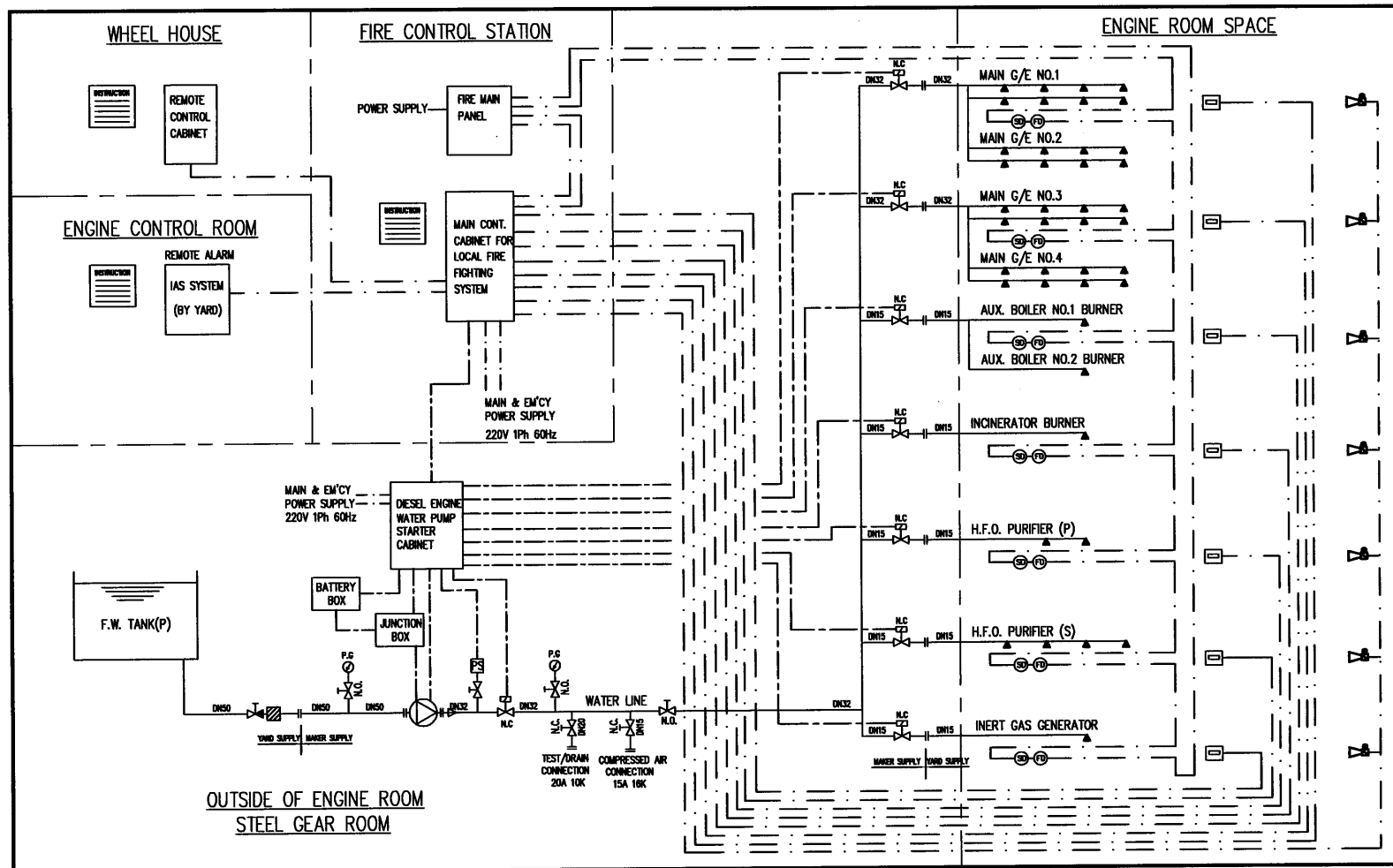
NOZZLE HEIGHT	0.5 m ~ 1.5 m	1.5 m ~ 6.9 m
NOZZLE SPACING	1.0 m	2.0 m

Customer: SAMSUNG HEAVY INDUSTRIES CO., LTD.	Date of issue: 25.APR.13	Issued by: XYA	Scale: N.T.S.	Place of issue: SHA	
	Date of check: 25.APR.13	Checked by: LPA	Orig. size: A3		
	Date of approval: 25.APR.13	Approved by: LPA			
	Description: PIPING & NOZZLE ARRANGEMENT 3RD DECK PLAN				
Hull no.: H-2074	Drawing no.: KPS6479-1-55-06C				Rev.no.: 00 Date: 25.APR.13 Issued by: <i>[Signature]</i> Checked by: <i>[Signature]</i> Approved by: <i>[Signature]</i>
Order no.: KPS 20017	System: UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM				

OPERATING INSTRUCTION

UNITOR FIXED WATER BASED LOCAL FIRE FIGHTING SYSTEM

SHI H-2074



ENGINE ROOM SPACES - LOCAL FLOODING (ENGINE ROOM LOCAL FIRE FIGHTING SYSTEM)

IN CASE OF FIRE

FOR 'AUTOMATIC RELEASE' SYSTEMS, A DETECTION SIGNAL WILL INITIATE THE ACTIVATION OF THE SYSTEM.

IF BY ANY REASON THE AUTOMATIC RELEASE IS NOT WORKING OR MANUAL OVERRIDE IS PREFERRED, PLEASE FOLLOW 'REMOTE OPERATION'.

REMOTE OPERATION

(FIRE CONTROL STATION OR LOCAL PROTECTED ZONE ENTRANCE)

PRESS THE 'ON' BUTTON FOR THE RESPECTIVE PROTECTED ZONE, EITHER CENTRALLY AT THE MAIN CONTROL CABINET FOR LOCAL FIRE FIGHTING SYSTEM OR AT THE LOCALLY POSITIONED CABINET. (MANUAL RELEASE BOX)

IF NOT, PLEASE FOLLOW THE 'REMOTE EMERGENCY OPERATION'

REMOTE EMERGENCY OPERATION (FIRE CONTROL STATION)

IN CASE OF FAILURE IN THE OPERATION OF THE 'OP' MODE ON THE MAIN CONTROL CABINET FOR LOCAL FIRE FIGHTING SYSTEM, THE SYSTEM CAN BE OPERATED BY 'TEST' MODE ACCORDING TO THE FOLLOWING PROCEDURE.

1. TOGGLE SWITCH "ON" FOR ALARM.
2. BE SURE THAT ALL PERSONNEL IS EVACUATED FROM THE PROTECTED ZONE.
3. TOGGLE SWITCH "OPEN" FOR WATER LINE VALVE.
4. TOGGLE SWITCH "ON" FOR LOCAL DIESEL F/F FW PUMP.
5. TOGGLE SWITCH "OPEN" FOR VALVE SEPARATE ZONE.
6. THE SYSTEM IS NOW OPERATING, WITH IMMEDIATE WATER MIST DISCHARGE.
7. WHEN THE FIRE IS EXTINGUISHED, PRESS THE 'STOP' BUTTON AT THE CONTROL CABINET.

NOTE) THE FRESH WATER PUMP MUST BE TESTED BY SHIP'S STAFF REGULARLY IN ORDER TO AVOID ANY PROBLEM IN OPERATIONS.

MANUAL EMERGENCY OPERATION (STEERING GEAR ROOM)

IN CASE OF FAILURE IN THE OPERATION AS ABOVE REMOTE OPERATION SUCH AS LOSING POWER, THE SYSTEM CAN ALSO BE OPERATED FROM THE PUMP AND VALVES UNIT LOCALLY IN STEERING GEAR ROOM.

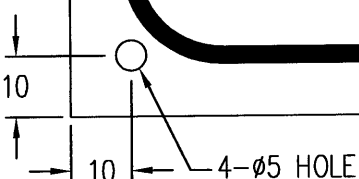
1. BE SURE THAT ALL PERSONNEL IS EVACUATED FROM THE PROTECTED ZONE.
2. OPEN THE WATER LINE VALVE FOR PROTECTED ZONE WHICH ON FIRE.
3. MAKE SURE ALL VALVES BETWEEN WATER TANK AND WATER LINE VALVE OPEN.
4. ON MOTOR STARTER CABINET, CHANGE-OVER SWITCH OF CONTROL MODE TO LOCAL.
5. SWITCH OVER THE START SWITCH, THE SYSTEM IS NOW OPERATING.
* THE PUMP WILL BE STARTED AFTER ABOUT 5 SECONDS.
6. WHEN THE FIRE IS EXTINGUISHED, PRESS THE 'STOP' BUTTON AT THE CONTROL CABINET.

NUMBER OF ZONE	PROTECTED ZONE
ZONE 1	MAIN G/E NO.1 & 2
ZONE 2	MAIN G/E NO.3 & 4
ZONE 3	AUX. BOILER NO.1 & 2 BURNER
ZONE 4	INCINERATOR BURNER
ZONE 5	H.F.O. PURIFIER (P)
ZONE 6	H.F.O. PURIFIER (S)
ZONE 7	INERT GAS GENERATOR

AFTER USING THE LOCAL FIRE FIGHTING SYSTEM

1. DRAIN PIPING.
2. REVERT ALL VALVES TO THE STAND-BY POSITION.
3. RE-FILL FRESH WATER TANK AS SOON AS POSSIBLE.

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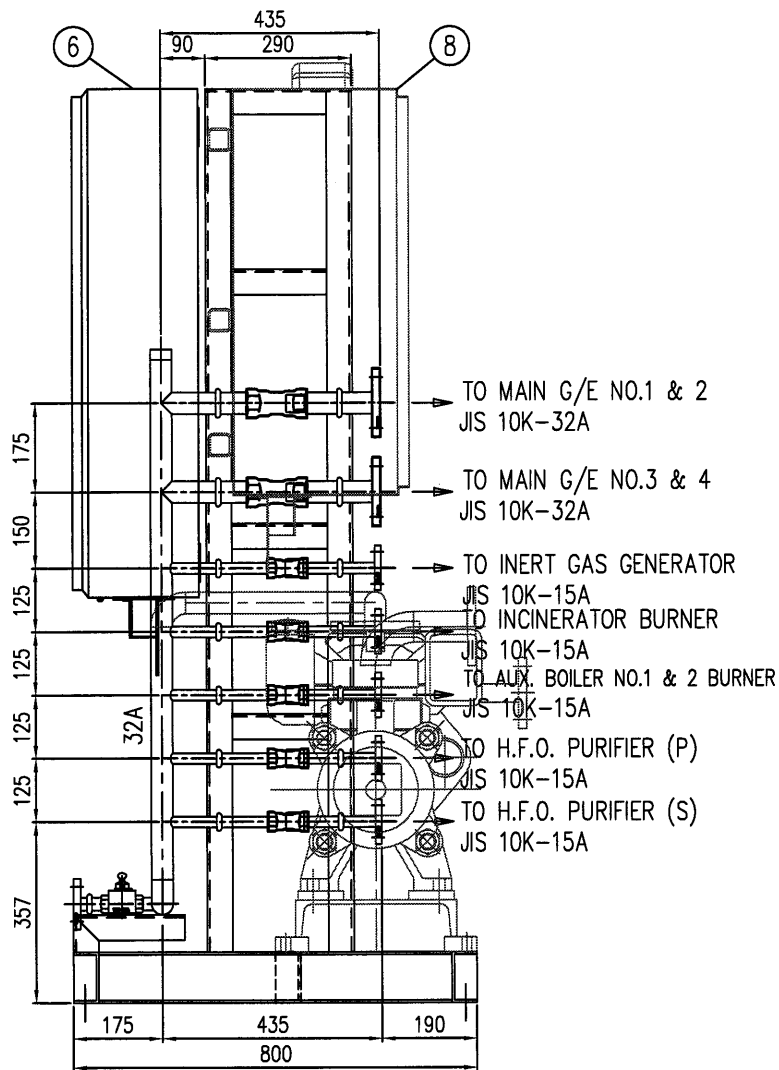
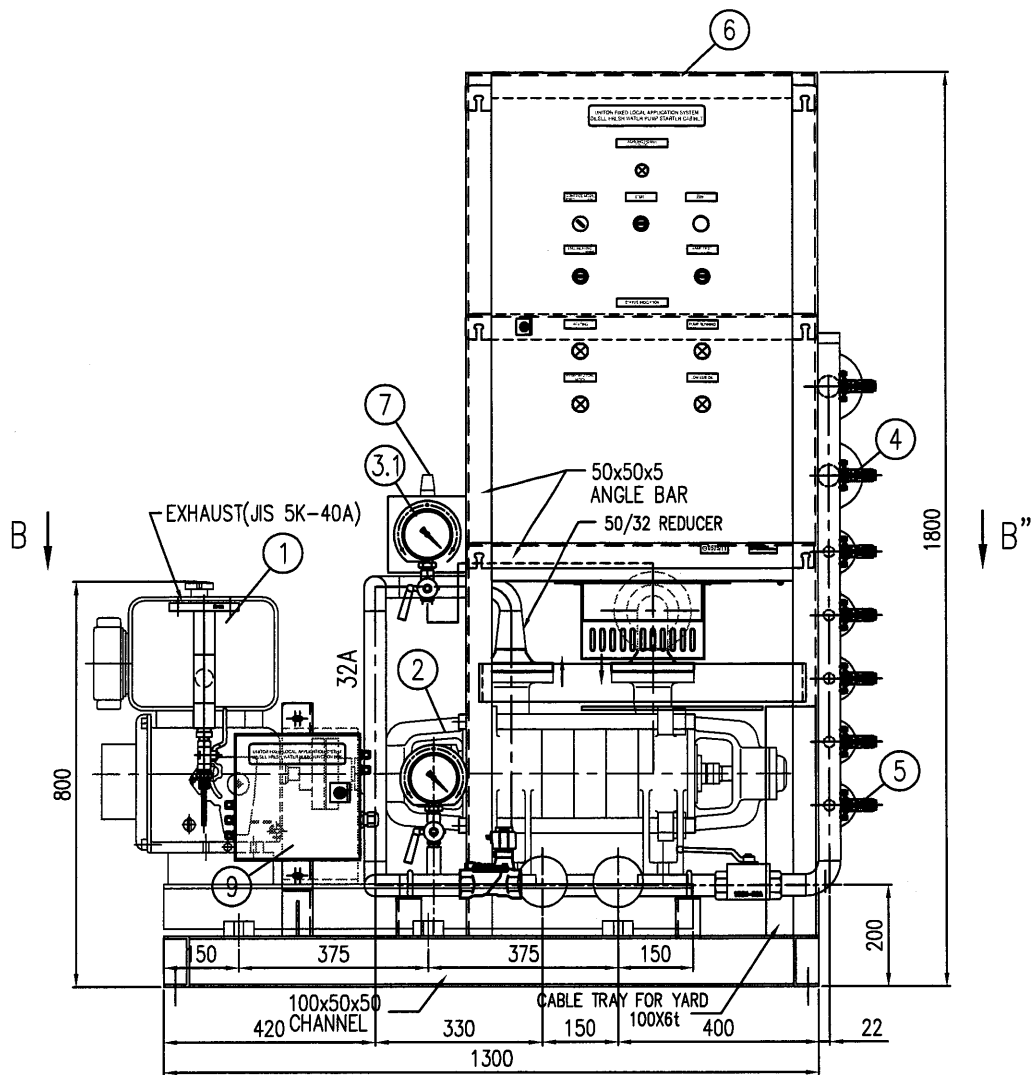


SPECIFICATION

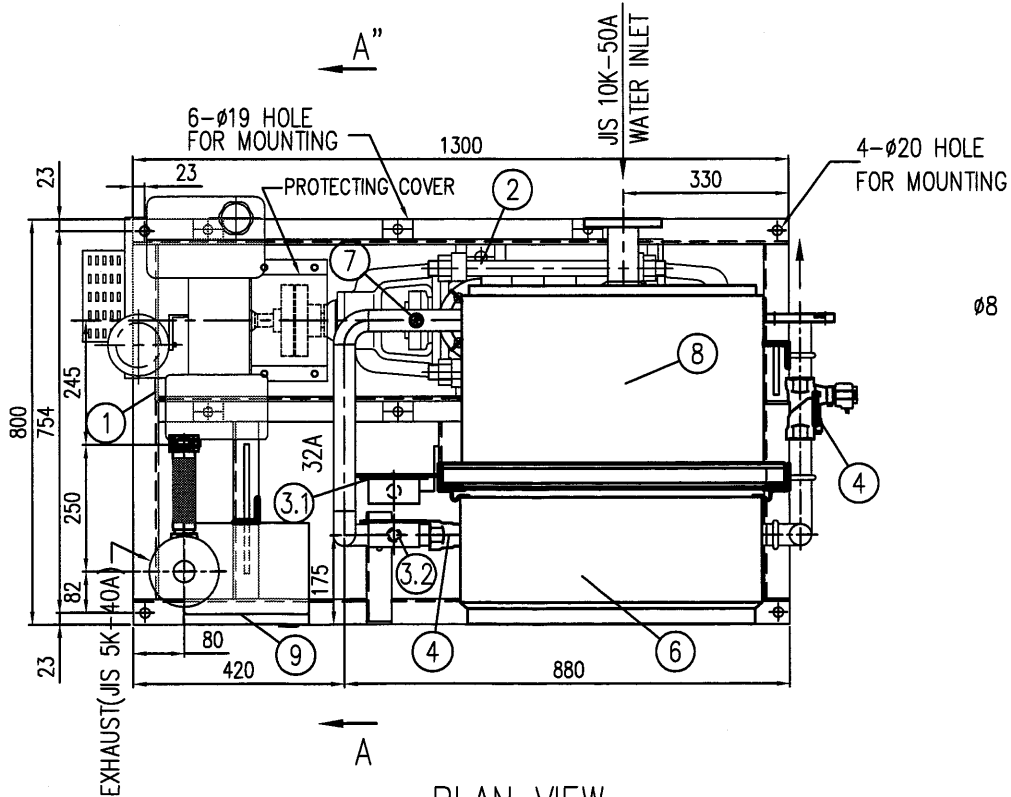
- MATERIAL : SUS
- SIZE : 400 x 300 mm
- COLOR : BASE - NATURAL
: LETTER - BLACK

Customer: SAMSUNG HEAVY INDUSTRIES CO., LTD.	Date of issue: 25.APR.13	Issued by: XYA	Scale: N.T.S.	Place of issue: SHA	
	Date of check: 25.APR.13	Checked by: LPA	Orig. size: A3		
Hull no.: H-2074	Date of approval: 25.APR.13	Approved by: LYU	Description: INSTRUCTION PLAN		
Order no.: KPS 20017	System: UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM			Drawing no.: KPS6479-1-55-07	
Rev.no.: 00			Date: 25.APR.13	Issued by: 	Checked by:
				Approved by: 	

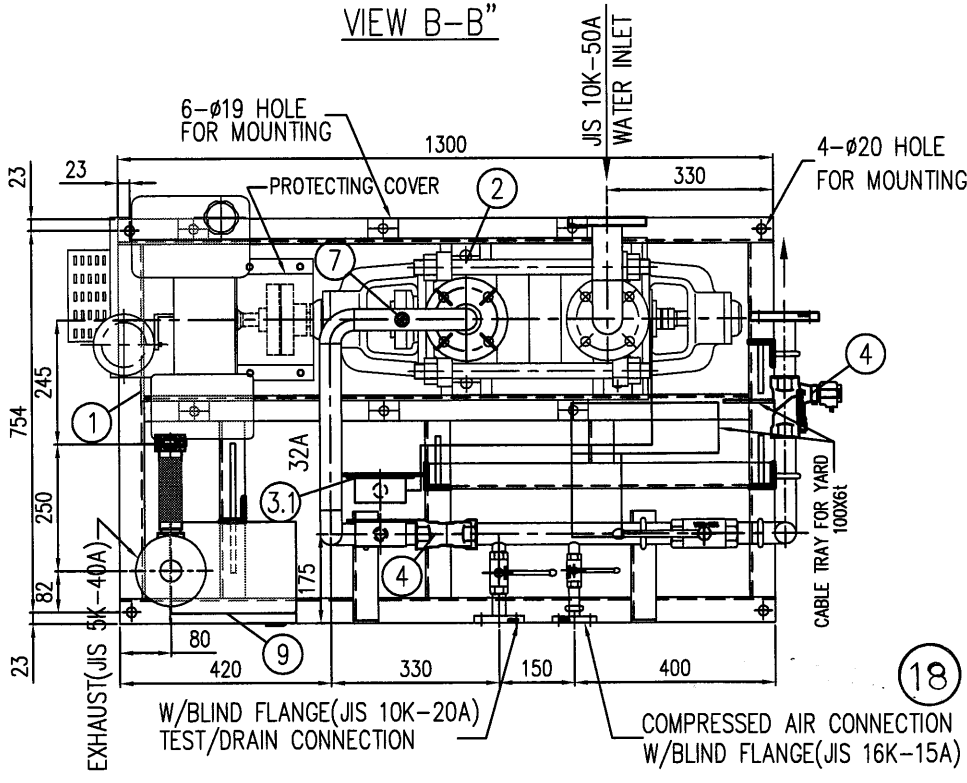
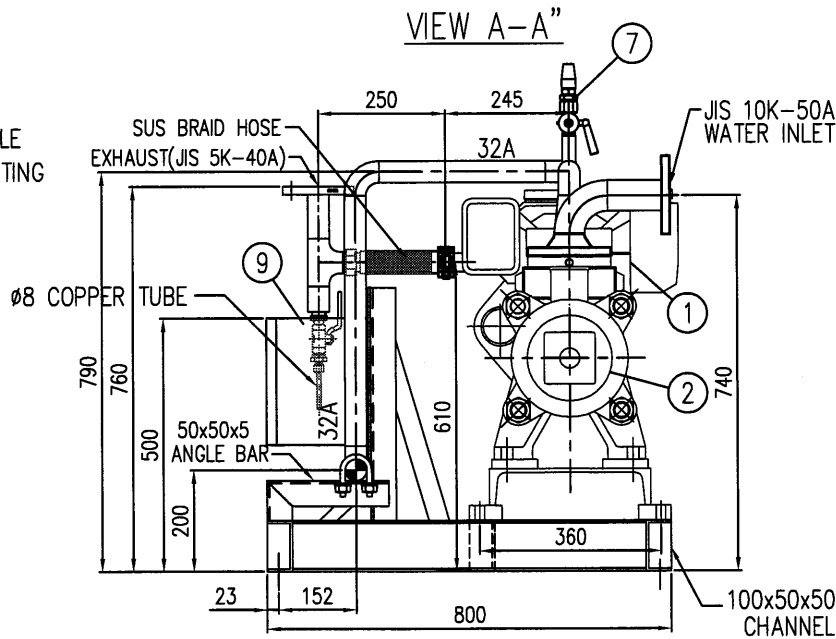
NO.	DESCRIPTION	Q'TY	REMARK
1	DIESEL ENGINE	1	
2	WATER PUMP	1	
3.1	PRESSURE GAUGE	1	1/2" BSP
3.2	PRESSURE VACUUM GAUGE	1	1/2" BSP
4	SOLENOID VALVE	3	DN32
5	SOLENOID VALVE	5	DN15
6	DIESEL ENGINE PUMP STARTER CABINET	1	
7	PRESSURE SWITCH	1	1/4" BSP
8	BATTERY BOX	1	
9	JUNCTION BOX	1	



VIEW B-B"



PLAN VIEW

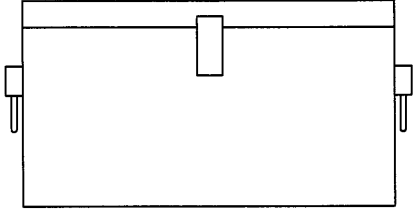



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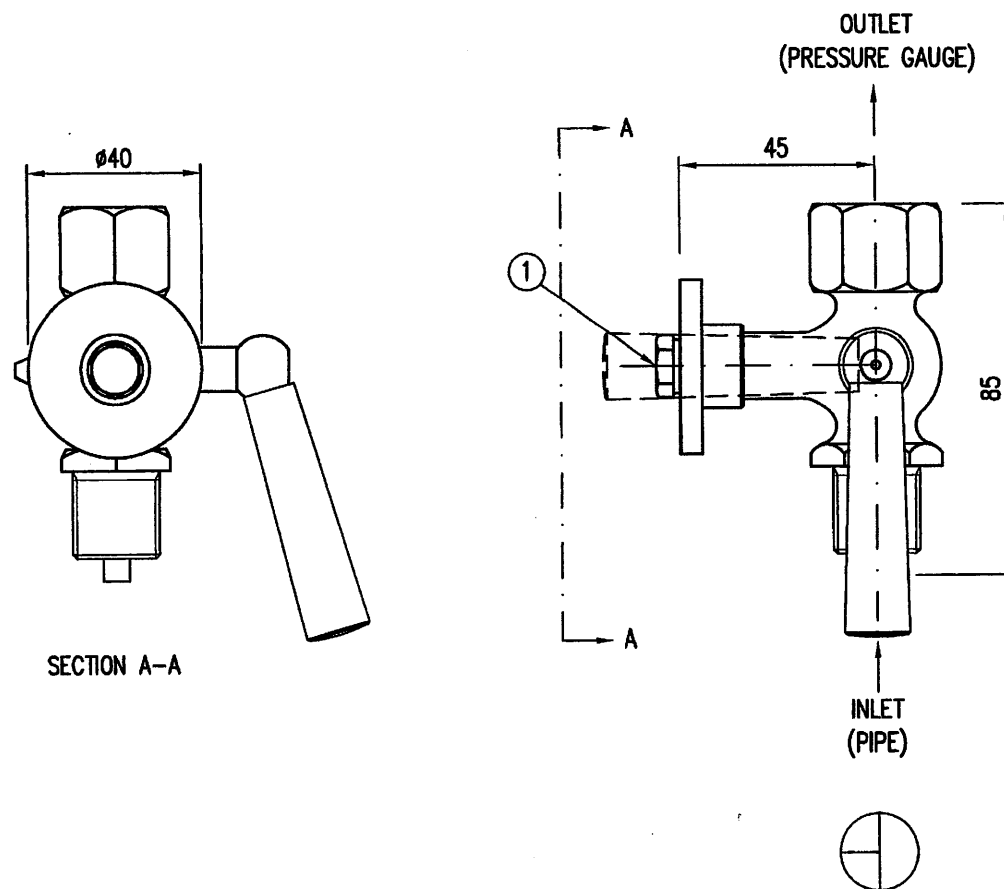
NOTE:
1. MATERIAL : STPG 370 SCH 40 ERW PIPE
2. FINISH : HOT DIP GALVANIZED

Customer: SAMSUNG HEAVY INDUSTRIES CO., LTD.	Date of issue: 25.APR.13	Issued by: XYA	Scale: N.T.S.	Place of issue: SHA					
	Date of check: 25.APR.13	Checked by: LPA	Orig. size: A3						
	Date of approval: 25.APR.13	Approved by: LYU							
	Description: PUMP & VALVE UNIT					Drawing no.: KPS6479-1-55-08			
Hull no.: H-2074	System: UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM				Rev.no.: 00	Date: 25.APR.13	Issued by: 	Checked by: 	Approved by:
Order no.: KPS 20017									

SPARE PART & TOOL LIST

POS	NAME PART NO.	SKETCH	Q'TY
1	SPARE PART BOX EDP NO. 575142		1
2	WATER MIST NOZZLE EDP NO. 769646		10
3	ELEC. SPARE PARTS FOR MAIN CONTROL CABINET, DIESEL ENGINE PUMP STARTER CABINET & REMOTE CONTROL CABINET.		1

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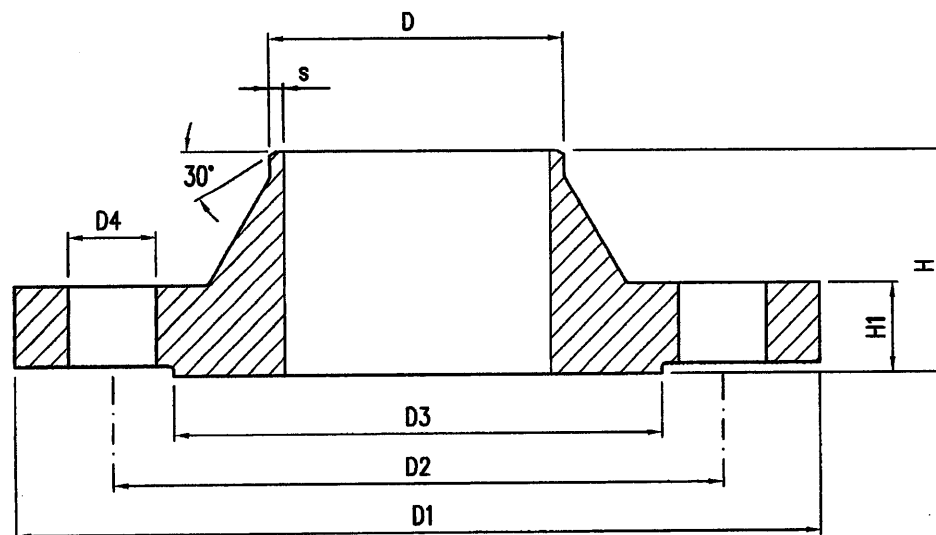
MATERIAL : BRASS
 PRESSURE RATING : PN 16
 CONNECTION OUTLET : 1/2" BSP FEMALE
 INTLET : 1/2" BSP MALE
 WEIGHT : ~0.5 KG

■ ITEM 1, SCREW M8, TO BE DISMANTLED AFTER INSTALLATION.

Product no. 740290	00	Drawn by/date JYU 23.08.06	Drawn by/date JYU 23.08.06	System	Component	DATA SHEET
		Issued by/date DMO 23.08.06	Issued by/date DMO 23.08.06	UNITOR FIXED FOAM FIRE FIGHTING SYSTEM	VALVE 3-WAY 1/2" FOR PRESSURE GAUGE, PN 16	Date sheet no.
		Approved by/date DAA 23.08.06	Approved by/date DAA 23.08.06			53-03-061

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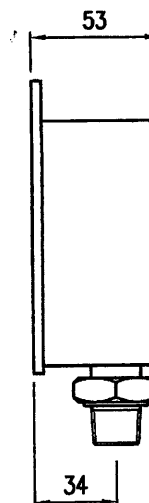
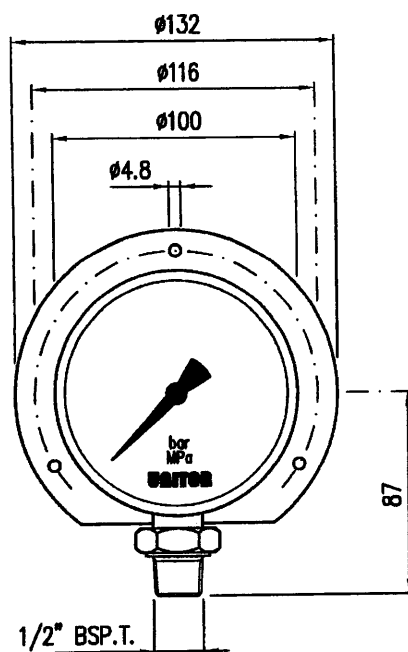
MATERIAL : STEEL, RSt 37-2
STANDARD : DIN 2633
PRESSURE CLASS : PN 16

WELDING NECK FLANGES	D	D1	D2	D3	D4	H	H1	s	NO OF BOLT HOLES	WEIGHT KG	PROD NO
DN 25	ø33.7	ø115	ø85	ø68	ø14	38	16	2.6	4	1.14	605733
DN 32	ø42.4	ø140	ø100	ø78	ø18	40	16	2.6	4	1.69	605725
DN 40	ø48.3	ø150	ø110	ø88	ø18	42	16	2.6	4	1.86	605717
DN 50	ø60.3	ø165	ø125	ø102	ø18	45	18	2.9	4	2.53	605709
DN 65	ø76.1	ø185	ø145	ø122	ø18	45	18	2.9	4	3.06	605691
DN 80	ø88.9	ø200	ø160	ø138	ø18	50	20	3.2	8	3.70	605683
DN 100	ø114.3	ø220	ø180	ø158	ø18	52	20	3.6	8	4.62	605675
DN 125	ø139.7	ø250	ø210	ø188	ø18	55	22	4.0	8	6.30	605659
DN 150	ø168.3	ø280	ø240	ø212	ø22	55	22	4.5	8	7.75	605642
DN 200	ø219.1	ø340	ø295	ø268	ø22	62	24	6.3	12	11.00	605667
DN 250	ø273.0	ø405	ø355	ø320	ø26	70	26	6.3	12	15.60	605634
DN 300	ø323.9	ø460	ø410	ø378	ø26	78	28	7.1	12	22.00	605626

Product no. SEE TABLE	04	Drawn by/date JYU 30.03.06	Drawn by/date DS 14.07.86	System UNITOR FIXED FOAM AND WATER-BASED SYSTEMS	Component FLANGE PN 16, DIN 2633	DATA SHEET
		Issued by/date DMO 30.03.06	Issued by/date DS 14.07.86			Data sheet no. 53-04-005
		Approved by/date DAA 30.03.06	Approved by/date 14.07.86			


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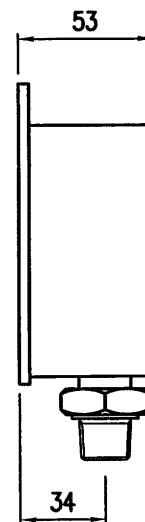
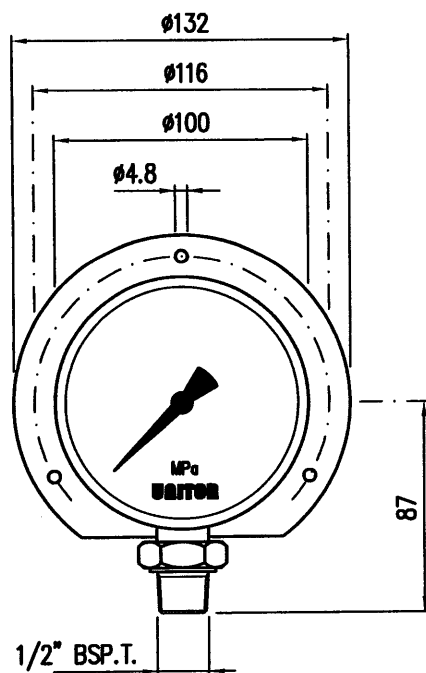


ACCURACY : $\pm 1.6\%$ OF FULL SCALE DEFLECTION
 TEMPERATURE : $+60^{\circ}\text{C}$ (MAX)
 SCALE READING : 0 – 25 BAR & 0 – 2.5 MPa
 INLET PRESSURE CONNECTION : $1/2$ " BSP.T. MALE
 MATERIAL : HOUSING : STAINLESS STEEL
 BODY & CONNECTION : BRASS
 WEIGHT : 0,6 KG
 MISC : GLYCERINE FILLED

■ NOTE:
 THE 3-WAY VALVE FOR PRESSURE GAUGE TO BE ORDERED SEPARATELY.
 REF. DATASHEET NO.53-03-061


Product no. 720144	03	Drawn by/date JYU 17.08.06	ORIGINAL	Drawn by/date JYU 01.04.04	System UNITOR FIXED FOAM AND WATER-BASED SYSTEMS	Component PRESSURE GAUGE 0-25 BAR / 0-2.5 MPa	DATA SHEET
	Rev. no.	Issued by/date DMO 17.08.06		Issued by/date DMO 01.04.04			Data sheet no. 53-11-006
		Approved by/date DAA 17.08.06		Approved by/date DMO 01.04.04			

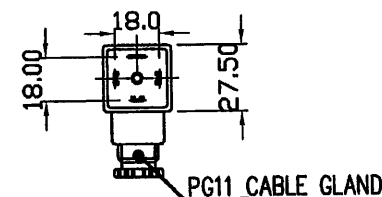
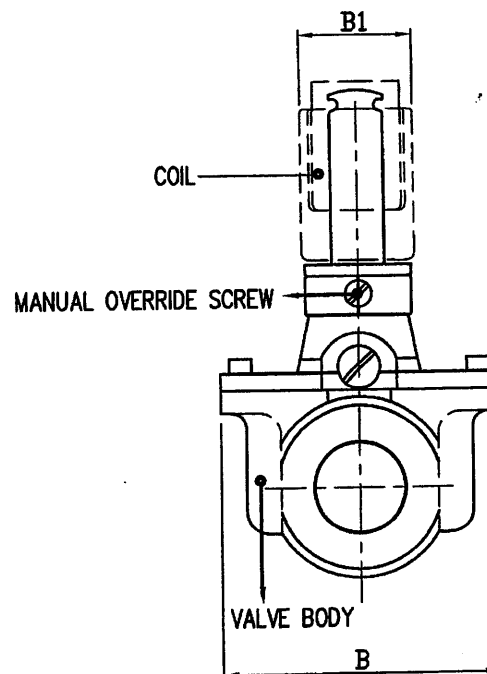
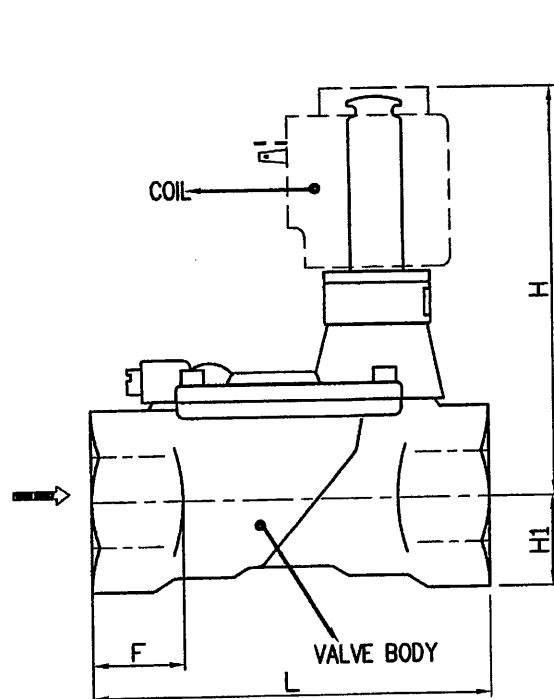
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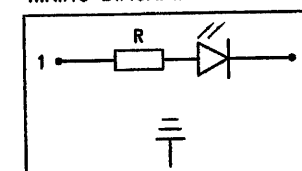
ACCURACY : $\pm 1.6\%$ OF FULL SCALE DEFLECTION
 TEMPERATURE : $+60^{\circ}\text{C}$ (MAX)
 SCALE READING : $-0.1 - 2.4 \text{ MPa}$
 INLET PRESSURE CONNECTION : $1/2''$ BSPT MALE
 MATERIAL : HOUSING : STAINLESS STEEL
 BODY & CONNECTION : BRASS
 WEIGHT : 0,6 KG
 MISC : GLYCERINE FILLED

■ NOTE:
 THE 3-WAY VALVE FOR PRESSURE GAUGE TO BE ORDERED SEPARATELY.
 REF. DATASHEET NO.53-03-061

Product no. 767038 	00 Rev. no.	Drawn by/date FHE 28.01.10	ORIGINAL	Drawn by/date FHE 28.01.10	System UNITOR FIXED FOAM AND WATER-BASED SYSTEMS	Component PRESSURE VACUUM GAUGE $-0.1 - 2.4 \text{ MPa}$	DATA SHEET Data sheet no. 53-11-007
		Issued by/date BYE 28.01.10		Issued by/date BYE 28.01.10			
		Approved by/date CZB 28.01.10		Approved by/date CZB 28.01.10			



WIRING DIAGRAM FOR PLUG

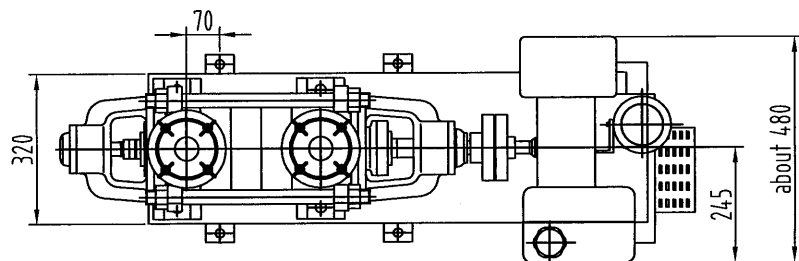
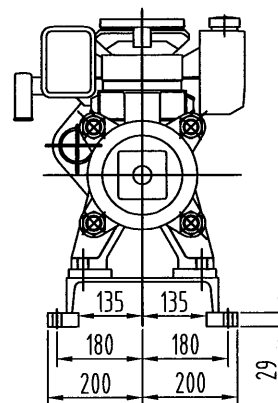
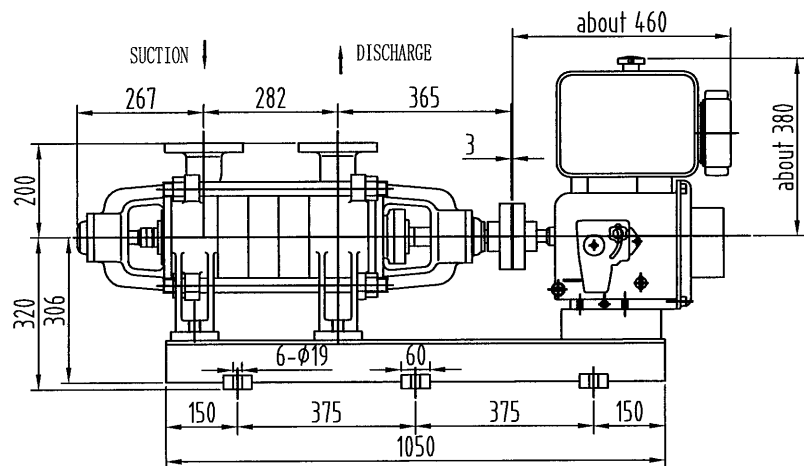
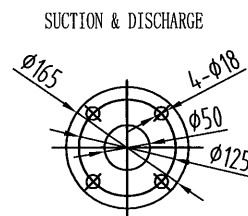


TYPE : EV220B NC
 MATERIAL : VALVE BODY: BRASS
 ARMATURE UNIT: STAINLESS STEEL 304
 SPRINGS: STAINLESS STEEL 304
 O-RINGS/VALVE PLATE/DIAPHRAGM: EDPM
 COIL WITH PLUG : 220-230V, 50/60Hz, 10W, IP65
 AMBIENT TEMPERATURE : -40 - +80°C
 MEDIUM TEMPERATURE : -30 - +120°C
 PRESSURE RANGE : 0.3 - 16BAR
 MAX. TEST PRESSURE : 25BAR

NOTE: 1. THE FLOW DIRECTION IS INDICATED ON THE BOTTOM OF VALVE BODY.
 2. THE PLUG IS EQUIPPED WITH LIGHT DIODE INDICATOR.
 3. THE VALVE IS DELIVERED WITH OPENING KEY.

NOMINAL DIAMETER	CONNECTION BSP (FEMALE)	L (mm)	B (mm)	B1 (mm)	H1 (mm)	H (mm)	F (mm)	WEIGHT (KG)	PRODUCT NUMBER
DN 15	1/2"	80.0	52.0	46.0	15.0	115.0	12.0	1.1	762518
DN 20	3/4"	90.0	58.0	46.0	18.0	120.0	14.0	1.3	762526
DN 25	1"	109.0	70.0	46.0	22.0	130.0	16.0	1.7	762534
DN 32	1 1/4"	120.0	82.0	46.0	27.0	136.0	18.0	2.3	762542
DN 40	1 1/2"	130.0	95.0	46.0	32.0	145.0	20.0	3.5	762559
DN 50	2"	162.0	113.0	46.0	37.0	150.0	22.0	4.6	762567

Product no.	SEE TABLE	02	Drawn by/date FHE 11.08.09	ORIGINAL	Drawn by/date FHE 06.11.08	System UNITOR FIXED LOCAL APPLICATION FIRE FIGHTING SYSTEM	Component SOLENOID VALVE, DN15 - 50, PN16 WITH COIL AND PLUG	DATA SHEET
Rev. no.			Issued by/date BYE 11.08.09		Issued by/date BYE 06.11.08			Data sheet no. 55-03-002
			Approved by/date CZB 11.08.09		Approved by/date CZB 06.11.08			



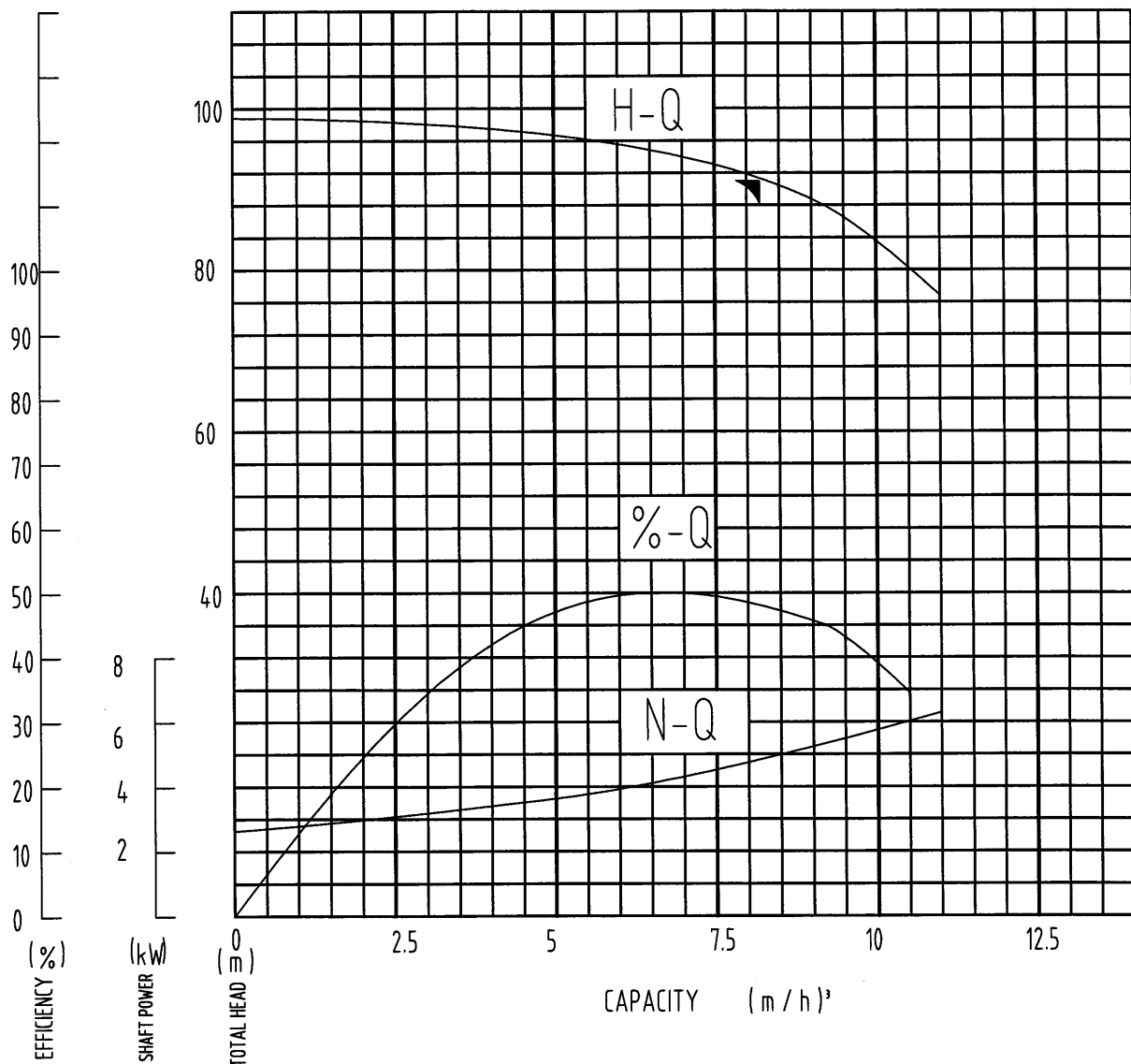
		ITEMS			
		BORE	DISCHARGE	mm	50
			SUCTION	mm	50
FITTING(1PUMP)		DISCHARGE PRESSURE		MPa	0.9
NAME OF PART	REQ.NO.	SUCTION HEAD		mAq	
PRESSURE GAUGE	1	TOTAL HEAD		MPa	0.9
COMPOUND GAUGE	1	CAPACITY		m³/h	8.1
GAUGE JOINT	2	SERVICE			
GAUGE ROOT VALVE	2	DIESEL ENGINE	OUT PUT	kW	6.6
COUPLING	1				
		NO.OF REVOLUTION		r/min	3000

521	MECHANICAL SEAL COVER	S.STEEL	304	2
520	MECHANICAL SEAL		SIC+SIC	2
502	NECK BUSH	S.STEEL	304	2
302	COUPLING	FC200	CAST IRON	1
301	COUPLING	FC200	CAST IRON	1
209-2	BEARING COVER	FC200	CAST IRON	1
209-1	BEARING COVER	FC200	CAST IRON	1
205-2	BEARING HOUSING	FC200	CAST IRON	1
205-1	BEARING HOUSING	FC200	CAST IRON	1
202	BALL BEARING		BEARING STEEL	1
201	BALL BEARING		BEARING STEEL	2
190	PING	S.STEEL	304	4
150	BEARING NUT	C.STEEL	45	2
125	SLEEVE NUT	S.STEEL	304	2
115	BALANCE DISK	BC3	BRONZE	1
114	BALANCE DRUM SEAT	BC3	BRONZE	1
110	O-RING		RUBBER	4
106	SLEEVE	S.STEEL	304	1
105	SLEEVE	S.STEEL	304	1
104	KEY	C.STEEL	45	1
103	KEY	S.STEEL	304	1
102	KEY	S.STEEL	304	1
101	SHAFT	S.STEEL	304	1
027	GUIDE VANE	BC3	BRONZE	3
022	STAGE BUSH	BC3	BRONZE	3
020	CASING RING	BC3	BRONZE	4
003	IMPELLER	BC3	BRONZE	4
002	DISCHARGE COVER	BC3	BRONZE	1
001-2	DISCHARGE CASING	BC3	BRONZE	1
001-1	SUCTION CASING	BC3	BRONZE	1
NO.	NAME	SYMBOL	NAME OF MATERIAL	REQ.N 1PUM

W.T.P.		REQ NO.			
TYPE		HDS-50G5		PUMP	
NAME		FRESH WATER PUMP		MOTOR	
				Kg	
SCALE		3rd. ANGLE PROJECT		HEAD	
				CHIEF	
				SUB CHIEF	
				CHECKER	
				DRAWER	
DATE		DRAW NO.			
NINGBO RED-SUN MANUFACTURE CO, LTD., CHINA					

EXPECTED PERFORMANCE CURVES

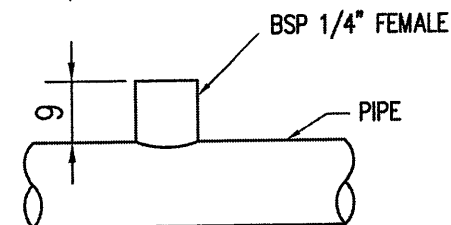
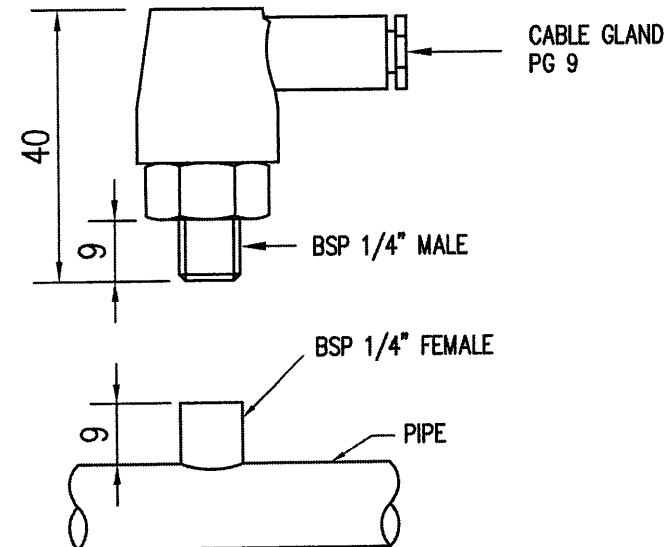
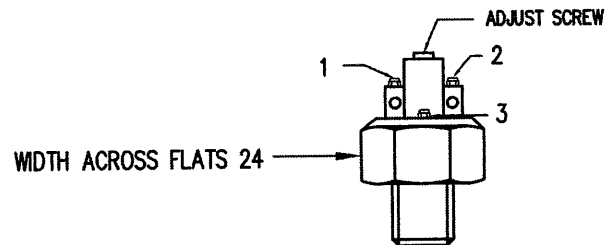
TYPE <u>HDS-50G5</u>	FREQUENCY _____ (Hz)	LIQUID <u>Fresh Water</u>
CAPACITY <u>8.1</u> (m ³ /h)	VOLTAGE _____ (V)	VISCOSITY _____ ()
TOTAL HEAD <u>90</u> (m)	OUTPUT <u>6.6</u> (kW)	TEMPERATURE _____ ()
DIS. PRESS _____ (MPa)	No.OF REVO. <u>3000</u> (r/min)	SP. GR. _____
SUC. PRESS _____ (MPa)	BORE SIZE <u>50mmX 50mm</u>	



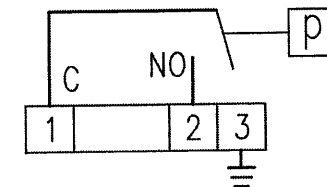
APPROVED BY _____

DATE OF DWG. _____

DRAWN BY _____

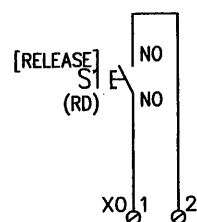
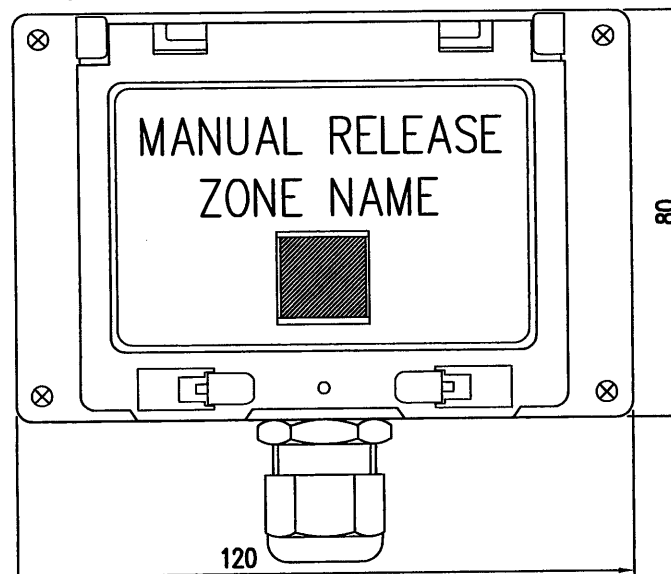
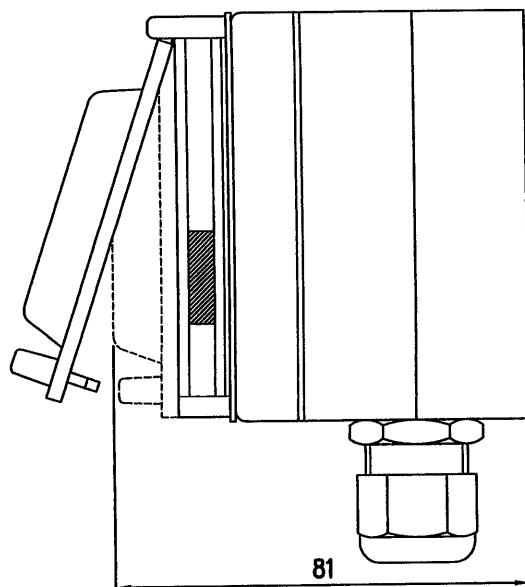


MATERIAL : HOUSING: BRASS 60
 DIAPHRAGM: EDPM
 CONTACT: GOLD PLATED
MAX POWER SUPPLY : 24 V DC OR 250 V AC
MAX CURRENT : 24 V DC: 2A
 250 V AC: 2A
SET PRESSURE : 4 BAR
ADJUSTMENT RANGE : 1 – 10 BAR
MAX WORKING PRESSURE : 24 BAR
TEMPERATURE RANGE : -20 TO +100 °C
DEGREE OF PROTECTION : IP 65
CABLE GLAND : PG 9
WEIGHT : 0.09 KG



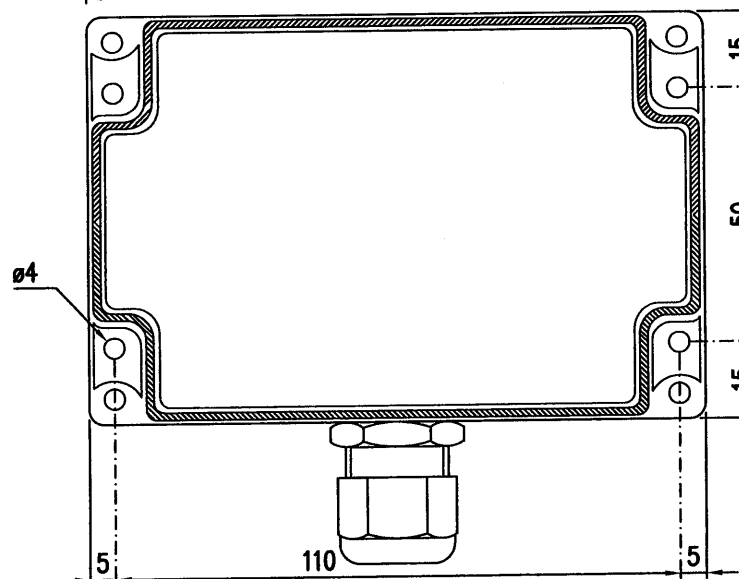
Product no. 764639	00	Drawn by/date FHE 06.05.09	Drawn by/date FHE 06.05.09	System UNITOR FIXED FOAM AND WATER-BASED SYSTEMS	Component PRESSURE SWITCH KANT 802-10-2331 NO TYPE WITH BSP 1/4" MALE THREAD	DATA SHEET
	Rev. no.	Issued by/date BYE 06.05.09	Issued by/date BYE 06.05.09			Data sheet no.
		Approved by/date CZB 06.05.09	Approved by/date CZB 06.05.09			53-10-013

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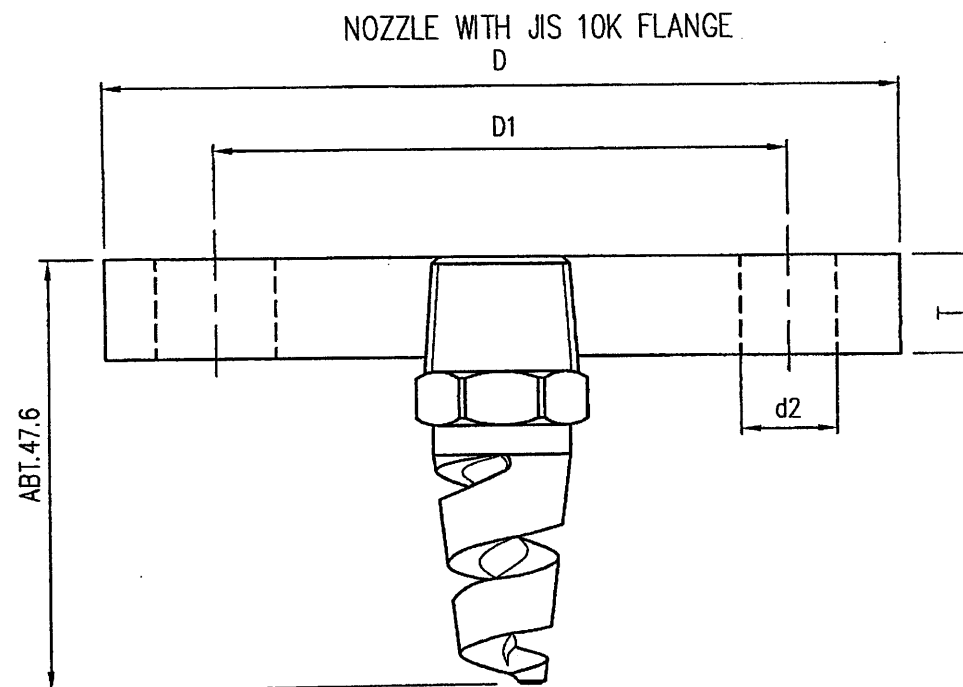
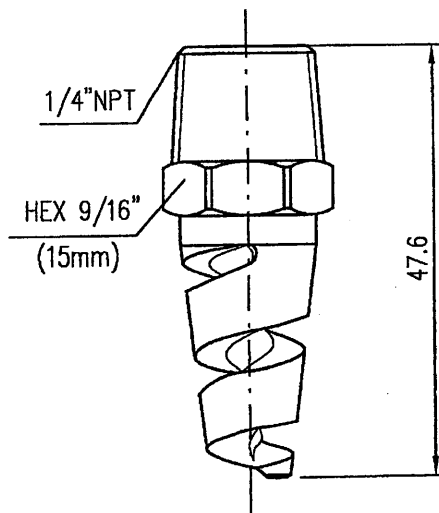


WIRING

INSTALLATION : 4 HOLES $\varnothing 4$
 MATERIAL : POLYCARBONATE
 COLOUR : GREY
 IP GRADE : IP66
 WEIGHT : 0.5 KG
 CABLE GLAND : PG 13.5
 BUTTON SIZE : $\varnothing 16$



Product no. 739862	03	Drawn by/date IWA 15.02.12	Drawn by/date JYU 07.08.06	System	Component	DATA SHEET
	Rev. no.	Issued by/date KWA 15.02.12	Issued by/date DMO 07.08.06	UNITOR FIXED LOCAL APPLICATION FIRE FIGHTING SYSTEM	MANUAL RELEASE BOX	Data sheet no.
		Approved by/date CZB 15.02.12	Approved by/date DAA 07.08.06			55-08-541
		ORIGINAL				



FOR G/E

FOR OTHERS

FLANGE SIZE	WEIGHT(Kg)	D	D1	d2	T	NO OF BOLT HOLE	BOLT SIZE	QUANTITY
20A	0.78	100	75	15	14	4	M12	32
15A	0.62	95	70	15	12	4	M12	8

MATERIAL : BRASS(ASTM B16)
 THREADS : 1/4" MALE NPT
 WEIGHT : 0.05 KG (WITHOUT FLANGE)
 MARKING : 1/4" HHSJ-9007

REFER TO DATASHEET 55-09-302.

TYPE	NOZZLE INLET	K-FACT.	ORIFICE DIA.(MM)	MAX FREE PASSAGE DIA.(MM)	CAPACITY (L/MIN)			SPRAY ANGEL	
					1.5bar	3bar	7bar	0,7bar	7bar
HHSJ-9007	1/4"	3.2	2.4	2.4	3.9	5.5	8.4	90°	112°

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Rev.no.:	Date:	Issued by:	Checked by:	Approved by:
00	04.MAY.12	XYA	LYL	LPA
Place of issue:	Scale:	Orig. size:		
SHA	N.T.S.	A4		

UNITOR FIXED LOCAL APPLICATION
FIRE FIGHTING SYSTEM

Description:

WATER SPRAY NOZZLE
TYPE 1/4"HHSJ-9007, W/FLANGE 10K

DRAWING

Drawing no.:

55-09-302A

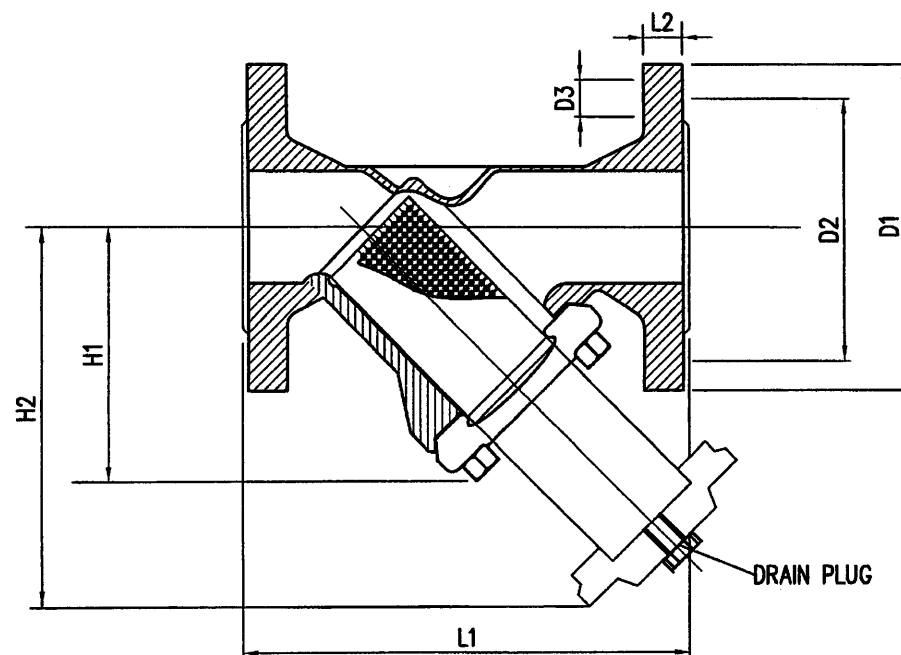
DEFINITION OF PIPING	NORMINAL BORE (mm)	OUTSIDE DIA. (mm)	THICKNESS (mm)	PIPE MATERIAL	CONNECTION	FLANGE PRESSURE RATING	TEST PRESSURE	
							SHOP FABRICATION STAGE	ON-BOARD AFTER INSTALLATION
FROM FRESH WATER TANK TO MAIN DISTRIBUTION VALVE	15	21.7	2.8	JIS G3454	FLANGE (15A~100A), SCREW OR FLANGE (10A~20A)	JIS B2220 (10K) OR DIN 2633 (16 BAR)	MAKER'S STANDARD	LEAKAGE TEST COMPRESSED AIR 6 bar OR EQUIVALENT AND BLOWING THROUGH WITH COMPRESSED AIR 6 bar
	20	27.2	2.9	STPG370 Sch. 40 ERW				
	25	34	3.4					
	32	42.7	3.6					
	40	48.6	3.7	GALVANIZED (INSIDE & OUTSIDE)				
	50	60.5	3.9					
	65	76.3	5.2					
	80	89.1	5.5					
100	114.3	6.0						
FROM MAIN DISTRIBUTION VALVE TO WATER MIST NOZZLE	15	21.7	2.8	JIS G3454	FLANGE (15A~100A) SCREW OR FLANGE (10A~20A)	JIS B2220 (10K) OR DIN 2633 (16 BAR)	—	
	20	27.2	2.9	STPG370 Sch.40 ERW				
	25	34	3.4					
	32	42.7	3.6					
	40	48.6	3.7					
	50	60.5	3.9					
	65	76.3	5.2					
	80	89.1	5.5					
100	114.3	6.0						

WEIGHT LIST (LAFF SYSTEM)

SHI H-2074

NO	DESCRIPTION	Q'TY	UNIT WEIGHT(kg)	TOTAL WEIGHT(kg)
1	LAFF PUMP SKID(without pump unit, starter cabinet, battery box, junction box and valves)	1	95.75	95.75
2.1	PRESSURE GAUGE 0~25BAR/0~2.5MPa	1	0.6	0.6
2.2	PRESSURE VACUUM GAUGE	1	0.6	0.6
3	VALVE 3-WAY 1/2"	2	0.5	1
4	SOLENOID VALVE DN32	3	2.3	6.9
5	SOLENOID VALVE DN15	5	1.1	5.5
6	SPRAY NOZZLE HHSJ-9007 10K 20A Flange	32	0.78	24.96
7	SPRAY NOZZLE HHSJ-9007 10K 15A Flange	8	0.62	4.96
8	DIESEL ENGINE FRESH WATER PUMP	1	158	158
9	FLANGE DN50	2	2.53	5.06
10	MAIN CONTROL CABINET	1	100	100
11	REMOTE CONTROL CABINET	1	20	20
12	MANUAL RELEASE BOX	7	0.5	3.5
13	GLOBE NON-RETURN VALVE DN50	1	11.7	11.7
14	GLOBE/ANGLE VALVE	1	0.85	0.85
15	INSTRUCTION PLATE SUS	3	0.5	1.5
16.1	DIESEL ENGINE PUMP STARTER CABINET	1	100	100
16.2	BATTERY BOX	1	100	100
16.3	JUNCTION BOX	1	100	100
17	STRAINER DN50	1	14	14
18	BRONZE GLOBE VALVE 32A	1	4.56	4.56
19	BRONZE GLOBE VALVE 20A	1	3.72	3.72
20	BRONZE GLOBE VALVE 15A	1	2.76	2.76
21	PRESSURE SWITCH	1	0.09	0.09
22	GLOBE/ANGLE VALVE	1	0.5	0.5
	SPARE PARTS			
23	SPRAY NOZZLE HHSJ-9007	10	0.05	0.5
24	SPARE PARTS BOX	1	5	5

TOTAL : About 772.01 kg
(TOTAL OF SKID UNIT : 585.89)



- DISTANCE H2 REQUIRED TO REMOVE SCREEN SHOULD BE CONSIDERED DURING DESIGN PERIOD.
- SPARE SCREEN PLEASE REFER TO DATA SHEET 53-19-008.

MATERIAL:

BODY, COVER AND PLUG: CAST IRON

SCREEN: STAINLESS STEEL 304

SEALING GASKET: BLUE GARLOCK #3000

HEX.BOLT AND SPACER: CARBON STEEL

INSIDE TREATMENT: EXPOXY PANIT -200u THICKNESS

COLOUR: BLUE

FLANGES: PN16, DIN2501

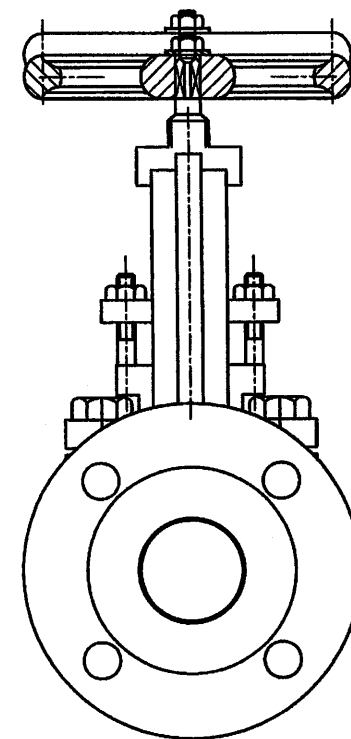
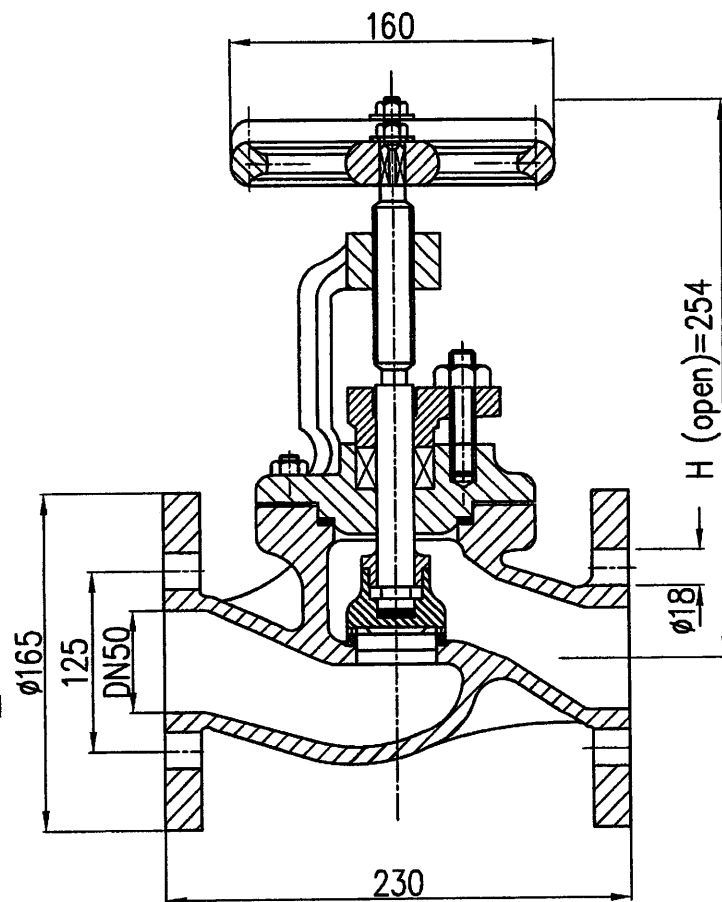
PRESSURE RANGE: PN16

WORKING TEMPERATURE: -10 - 80°C

SIZE	D1[mm]	D2[mm]	D3[mm]	H1[mm]	H2[mm]	L1[mm]	L2[mm]	WEIGHT[KG]	MESH WIDTH[mm]	PRODUCT NO.
DN40	150	110	4x18	122	276	200	18	12.0	0.6	764431
DN50	165	125	4x18	168	317	230	20	14.0	0.6	764432
DN65	185	145	4x18	180	384	290	20	16.0	1.2	764433
DN80	200	160	8x18	160	343	310	22	18.0	1.2	764434
DN100	220	180	8x18	185	375	350	24	30.0	1.2	764435
DN125	250	210	8x18	253	478	400	26	48.0	1.2	764436
DN150	285	240	8x22	282	534	480	26	65.0	1.2	764437
DN200	340	295	12x22	340	672	600	30	120.0	1.5	764438
DN250	405	350	12x22	540	1044	730	32	200.0	1.5	764439

Product no. SEE TABLE	00	Drawn by/date FHE 10.04.09	ORIGINAL	Drawn by/date FHE 10.04.09	System	Component	DATA SHEET
		Issued by/date BYE 10.04.09		Issued by/date BYE 10.04.09	UNITOR FIXED FOAM AND WATER-BASED SYSTEMS	TWT YG41-16 FLANGED STRAINER DN40-DN250	Data sheet no. 53-03-062
		Approved by/date CZB 10.04.09		Approved by/date CZB 10.04.09			

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MATERIAL : BODY: NODULAR CAST IRON
 DISC: BRASS
 SEAT: BRASS
 SHAFT: BRASS
 GLAND PACKING: GRAPHITE
 HANDWHEEL: CAST IRON

COLOUR : LIGHT BLUE

INSIDE TREATMENT : EXPOXY PANIT-200 μ THICKNESS


SIZE : DN 50 OR 2"

FLANGE STANDARD : DIN 2633

PRESSURE RATING : PN 16

Product no. 758987	00	Drawn by/date FHE 31.07.08	Drawn by/date FHE 31.07.08	System	Component	DATA SHEET
		Issued by/date BYE 31.07.08	Issued by/date BYE 31.07.08	UNITOR FIXED FOAM FIRE FIGHTING SYSTEM	GLOBE NON-RETURN VALVE DN50 PN16	Data sheet no.
		Approved by/date CZB 31.07.08	Approved by/date CZB 31.07.08			53-03-071

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 Wilhelmsen Technical Solutions	Type of Document INSTALLATION PROCEDURE				Document No. 55-00-999-3-E	
	Issued by SWA	Date of Issue 05.04.10	Rev. No. 01	Rev. date 17.08.11	Approved by CZB	Page 1 OF 1
System FIXED LOCAL APPLICATION	Subject INSTALLATION DETAILS OF PIPING				Ref. 53-04-XXX	

GENERAL

According to the requirements from IMO MSC/Circ.913 Annex 3.6, the system and its components should be suitably designed to withstand ambient temperature changes, vibrations, humidity, shock, impact, clogging and corrosion normally encountered in machinery spaces.

INSTALLATION

Considering the pipe lines in the system they are dry pipe in standby status, the following requirements must be followed as below:

1. Pipe Material

Pipelines in the system and components within the protected spaces should be designed to be able to withstand the elevated temperatures which could occur during a fire. Piping also should be of corrosion resistant material (i.e. galvanized inside/outside)

Note: Materials of gaskets for the sealing of flanges should be fire resistant type.

2. Pipe Routing

Pipes in protected spaces shall be fitted with slight (about 3%) slope towards to the nozzles in order to remove the possibility of water traps in the piping lines from electric valves to the nozzles. Water traps should be avoided. Pipes should not prevent access to engine or machinery for routine maintenance and operation.

3. Drainage outlets

One drainage outlet should be designed in lowest point of the main water line, and necessary drainage outlets should be fitted in distribution pipes towards nozzles on lowest points, if water traps can occur.

ALL PIPING TO BE CLEANED PROPERLY BEFORE INSTALLING COMPONENTS (i.e. nozzles, valves, pump, etc.) TO AVOID PARTICLES OR DIRT/DEBRIS REMAIN IN ANY PIPE SECTIONS.



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UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM

Shipyard pre-commissioning check list

Doc. No. 55-00-901-4-E

Rev:01 Date:26.12.08

Shipyard/customer:	Hull no/Name:
Unitor plant no:	IMO no:

The following work is completed and confirmed by shipyard prior to commissioning performed by Unitor

Item	Sub item	Description	Yes	No	Comments
1		System installed according to approved drawings			
	A	Pipe line diameters and position of nozzles are consistent with drawings			
	B	Control cabinets (i.e. MSC, MCC, MRB, RAP) installed, and cables are connected			
	C	Water pump can supply water			
	D	Alarms installed			
	E	Electric cabling to all alarms installed			
	F	All signs and instruction plan mounted			
2		System tested prior to commissioning			
	A	Pipes blown through with air			
	B	Pipes leak tested			
	C	Electric alarms function tested			
	D	Start water pump, flush through test connection to safe area			
	E	Record pressure in water line before distribution valves Water line: _____ [bar]			
3		Equipment available for testing during commissioning			
	A	Electric power, main and emergency supply			
	B	One person available to assist during commissioning			
4		If missing parts/back orders, please list below			
5		If damaged parts, please list below			

Uncompleted items/waiting time will be charged in addition to contract

Please return this form completed to Unitor Contract Manager

Date: _____ Sign: _____

INSPECTION CHART

UNITOR LOCAL APPLICATION FIRE FIGHTING SYSTEM

Date:	Name of ship / unit:	Yard:	Hull No:	IMO no.:
Owner representative:		Yard representative:	Flag:	Class:
Maker office and representative:		Class representative:	Gross ton:	Maker Plant no:

Paragraphs are described in document 55-00-101-4-E.

No	Description	Carried out	Not carried out	Not applicable
1	Preparation prior to testing			
2	Installation according to drawings			
2.1	Water pump (If supplied)			
2.2	Strainer (If supplied)			
2.3	Main water line valve (If supplied)			
2.4	Water line service valve			
2.5	Distribution piping			
2.6	Piping and valve dimensions			
2.7	Nozzles			
3	Electrical			
3.1	Main Control Cabinet- wiring and Remote Control Cabinet- wiring if have			
3.2	Detection Panel, detectors, Remote Alarm Panel (RAP), Manual Release boxes (MRB), alarms, valves and pump-wiring			
3.3	Detection panel configuration			
3.4	Alarm(s)			
3.5	Water pump			
3.6	Water line valve			
3.7.1	Discharge valve 1			
3.7.2	Discharge valve 2			
3.7.3	Discharge valve 3			
3.7.4	Discharge valve 4			
3.7.5	Discharge valve 5			
3.7.6	Discharge valve 6			
3.7.7	Discharge valve 7			
3.7.8	Discharge valve 8			
3.7.9	Discharge valve 9			
3.7.10	Discharge valve 10			

No	Description	Carried out	Not carried out	Not applicable
4	Instruction plates			
5	System function test			
5.1	Manual Function test			
5.1.1	Prepare for testing			
5.1.2	Test the operation			
5.1.3	Nozzle test			
5.2	Remote and Automatic function test			
5.2.1	Prepare for testing			
5.2.2	Test the operation: "MANUAL RELEASE"			
5.2.3	Nozzle test			
5.2.4	Test the operation: "STOP"			
5.2.5	Test of Remote Control Cabinet (RCC) if have			
5.2.6	Test of Manual Release Boxes (MRB)			
5.2.7	Test of Remote Alarm Panel (RAP)			
5.2.8	Test of detectors			
6	Reset system			
6.1	Valve positions			
6.2	Purging			
6.3	Main Control Cabinet (MCC)			
6.4	Detection Panel			

Person in charge for commissioning must see to that this report is signed by involved parties after completion. System malfunctions/complaints will not be accepted if this report remains unsigned.

Remark:


Date:

Sign Yard

Sign Owner

Sign Class

Sign Maker

 Wilhelmsen Technical Solutions	Type of document TEST PROCEDURE				Document No. 55-00-101-4-E	
	Issued by JYU	Date of issue 19.04.06	Rev. No. 03	Rev. date 24.10.11	Approved by CZB	Page Page 1 of 6
System FIXED LOCAL APPLICATION	Subject COMMISSIONING PROCEDURE LOCAL APPLICATION FIRE FIGHTING SYSTEM				Ref. 55-00-101/ 121/122/151/152/153/ 154	

GENERAL

The intention with this document is to give a brief explanation to the enclosed inspection chart, Appendix 55-00-101-4-E. Copy the inspection chart and fill in as the test progresses.

PROCEDURE

1. Preparation prior to testing

- All relevant drawings for the system must be available for the test, including the drawings for the pipe work.
- The complete system should be inspected visually and be in accordance with approved Unitor plant drawings.
- Check that the workmanship is of good quality.

Important notice; Please do not turn any EL. Power on before all equipment and all wiring connections have been checked!

2. Check installation according to drawings

Water line valve, piping and nozzles (and water pump if supplied)

Water pump (If supplied)

Only required if the system uses fresh water.

Correct type of water pump according to specification and installed with support to structure. Pump house arrow mark pointing in direction downstream of pump.

Strainer (If supplied)

Only required if the system uses sea water and it should be installed in the pipeline upstream of main water line valve.

Correct type of strainer according to specification and installed.

Main water line valve (If supplied)

Only required if water pump isn't dedicated to the local application fire fighting system.

Main valve water line correctly installed. Valve to be in closed position.


Water line service valve

Water line service valve correctly installed. Valve to be in open position.

Distribution piping

Use pressurised air to check distribution piping and nozzles.

(Piping should have been blown through before installation of nozzles).

 Wilhelmsen Technical Solutions	Type of document TEST PROCEDURE				Document No. 55-00-101-4-E	
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System FIXED LOCAL APPLICATION	Subject COMMISSIONING PROCEDURE LOCAL APPLICATION FIRE FIGHTING SYSTEM				Ref. 55-00-101/ 121/122/151/152/153/ 154	

Piping and valve dimensions
Dimensions in accordance with plant drawings and distribution valves correctly installed and to be in closed position.

High velocity nozzles
Check that the installation is properly carried out and that correct quantity and position of the nozzles are according to drawings (ref. nozzle spacing and height above object). Check that nozzles are free from dirt and debris.

3. Electrical

Note: Do not turn any EL. Power on before all wiring and especially connections at electrical equipment have been checked and found OK.

Main control cabinet(MCC=Main Control Cabinet/RCC=Remote Control Cabinet).
Check that all external wiring connected to Main Control Cabinet is according to El. Drawings.
Check that all external wiring connected to Remote Control Cabinet is according to El. Drawings if have.

Detection panel, Detectors, Remote Alarm panel, Manual release boxes, Alarms, Valves, and Pump(s).
Check that all wiring between Main Control Cabinet, Detection panel, Detectors, Remote Alarm panel, Manual release box(s), Alarms, Valves and Pump(s) are according to El. Drawings.
Check that pump motor(s) Star/Delta connection are acc. to specified Voltage.


When all wiring connections are found OK, turn the El. Power on. Lamp test for MSC and MCC, Lamp and buzzer test for RAP.

For function test of valve and pump motors, the mode switch (insert key to operate) at the MCC must be in "Test" position.

Detection Panel configuration
The LAFF system is supplied either with a Conventional or an Addressable detection system. The Conventional Detection panel shall be configured based on project Info for the actual installation with regard to zone names etc.
The Addressable Detection panel shall be configured based on a std. program that must be edited with the similar project info.
Please ref User/Instruction Manual for respective detection panel types.

Alarm(s)
Check that alarm(s) sounds when activating test switch in cabinet.

Water pump
Check that the power supply voltage and frequency for water pump is correct and correspond to the nameplate of the electric motor. Start the pump either from the motor start cabinet. Observe that the direction of rotation is correct (see arrow at footplate on pump house).

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	Issued by JYU	Date of issue 19.04.06	Rev. No. 03	Rev. date 24.10.11	Approved by CZB	Page Page 3 of 6
System FIXED LOCAL APPLICATION	Subject COMMISSIONING PROCEDURE LOCAL APPLICATION FIRE FIGHTING SYSTEM				Ref. 55-00-101/ 121/122/151/152/153/ 154	

Note! Do not run the pump for more than 2-3 (two-three) seconds, because dry run will cause damage to the pump.

Main water line valve

Check that main water line valve open/close properly if installed when activating test switch in MCC.

Distribution valve(s)

Check that distribution valve(s) open(s)/close(s) properly when activating test switch(es) in MCC.

Note! Using compressed control air to connect to 3-way pressure gauge valve, and check the air come out from nozzles in each protect space to verify the valves (main water line valve if have, distribution valves) open and close function.

4. Instruction plate

Correct quantity, installation and text.

5. System function test

Arrangements may be necessary, to protect 'object' from water spray by covering it with plastic sheets or individual drainage hoses from each nozzles to be tested.
Pressure gauge is recommended to be installed to verify correct pressure and application rate in the protected area.

Manual function test

Prepare for testing

- Check water from nozzles will do no damage
- Check mode switch is in 'Test' position at Main Control Cabinet.

Test the operation


- Run the system by using the switches to open/close valves and start/stop pump(s).
 - Check that all valves and pump operate correctly.
 - Check pipe system for possible leakage.

Nozzle test

- Check that all nozzles work properly (homogenous spray pattern).
- Check that pressure is within the design limit, proving correct application rate in the protected area.

Remote and Automatic function test

Remote operation is carried out by pressing buttons at Main Control Cabinet or at the Manual

 Wilhelmsen Technical Solutions	Type of document TEST PROCEDURE				Document No. 55-00-101-4-E	
	Issued by JYU	Date of issue 19.04.06	Rev. No. 03	Rev. date 24.10.11	Approved by CZB	Page Page 4 of 6
System FIXED LOCAL APPLICATION	Subject COMMISSIONING PROCEDURE LOCAL APPLICATION FIRE FIGHTING SYSTEM				Ref. 55-00-101/ 121/122/151/152/153/ 154	

release boxes situated close to the protected objects.
Automatic operation is activated by means of detection signals.

Prepare for testing

- Check water from the nozzle will do no damage
- Check mode switch is in 'OP' position (operation) at Main Control Cabinet.

Test the operation 'MANUAL RELEASE'

- Press the 'Zone' button for the object to be tested and check that alarm sounds
- Check that water pump start and correct distribution valve(s) open.
For Electric butterfly valve: see indication mark on top of valve actuator.
For Solenoid valve: see indication light on the valve plug

Nozzle test

- Check that water is discharged through the test nozzle.
- Check that pressure is within the design limit, proving correct application rate in the protected area.

Test the operation: 'STOP'

- Press the 'STOP' button at the MCC and check that all valves close, pump stops and alarms are silenced.
- Press the 'STOP' button once more to go out the stop light.

Test of Remote Control Cabinet if have

- Start from 5.2.2 through 5.2.4 above
- System is Ok

Test of manual release box for each zone (object) protected

- Start from 5.2.2 through 5.2.4 above
- System is OK

Test of Remote Alarm Panel


- Check the light and buzzer during the test from 5.2.2 to 5.2.6.
- System is OK

For systems with automatic release by means of detection, follow 5.2.8

Test of detectors in the protected area(s)

Preparations acc. to 5.2.1

- Each zone is equipped with minimum one Flame detector and one Optical Smoke detector (GL systems = Flame detectors only, ABS systems = One heat detector and one smoke detector)
- For each zone, activate the Smoke detector by using a special spray(smoke detector tester) and the Flame detector by using e.g. a battery torch or a lighter.
- Check that the correct zone/info comes up at the Detection panel.
- Check that Main Control cabinet is activated and that the release sequence is correct acc. to 5.2.2 – from (paragraph 2) through 5.2.4 (stop of system) above.
- To silence/acknowledge the Fire alarm at the detection panel do as follows:

 Wilhelmsen Technical Solutions	Type of document TEST PROCEDURE				Document No. 55-00-101-4-E	
	Issued by JYU	Date of issue 19.04.06	Rev. No. 03	Rev. date 24.10.11	Approved by CZB	Page Page 5 of 6
System FIXED LOCAL APPLICATION	Subject COMMISSIONING PROCEDURE LOCAL APPLICATION FIRE FIGHTING SYSTEM				Ref. 55-00-101/ 121/122/151/152/153/ 154	

Conventional Detection System:

- Turn the Access Controls Keyswitch on the panel door to position "1".
- Press the Silence Alarms/Resound button once only.
- The fire alarm sounders will become silent.
- The General Fire LED and the Zone Fire LED will become steady.
- Set the Access Controls Keyswitch back to position "0" to lock the controls.

Addressable Detection System:

- Insert the key into the front panel key switch and turn it clockwise to the 'Enable' position ("1" position).
- Press 'SILENCE/RESOUND'. And then:
 - i. The sounders will be silenced.
 - ii. The "SOUNDER ACTIVATED" LED will extinguish.
 - iii. All other outputs will remain activated.
 - iv. The LCD display will remain showing types of alarm and full zone identification. The general display window will show "Sound SIL"

6. Reset system

Valve positions

Reset all valves according to Operating Instruction. Use below for guidance only.

- Closed: Main water line valve, Distribution and Test valve.
- Open: Pressure gauge valve and water line service valve between test outlet and distribution valve (N.O.)

Purging

Piping flooded with water should be purged with appropriate gas.

Put mode switch at the Main Control cabinet in 'OP' position.


Reset detection panel as follows:

Conventional Detection System:


- Turn the Access Controls Keyswitch on the panel door to position "1".
- Press the "Reset" button.
- Set the Access Controls Keyswitch back to position "0" to lock the controls.

Addressable Detection System:

- Insert key into front panel key switch and turn it clockwise to 'Enable' position ("1" position).
- Press "Reset" button.

 Wilhelmsen Technical Solutions	Type of document				Document No.	
	TEST PROCEDURE				55-00-101-4-E	
System	Issued by	Date of issue	Rev. No.	Rev. date	Approved by	Page
	JYU	19.04.06	03	24.10.11	CZB	Page 6 of 6
FIXED LOCAL APPLICATION	Subject				Ref.	
	COMMISSIONING PROCEDURE LOCAL APPLICATION FIRE FIGHTING SYSTEM				55-00-101/ 121/122/151/152/153/ 154	

- The LCD will display "Reset in Progress...".
 - After 17 to 20 seconds, the LCD will return to the normal display.
- The system is now 'Stand by' for automatic activation.

 Wilhelmsen Technical Solutions	Type of document MAINTENANCE INSTRUCTION				Document No. 55-00-101-6-E	
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System FIXED LOCAL APPLICATION	Subject FIXED LOCAL APPLICATION FIRE-FIGHTING SYSTEM				Ref. 55-00-101/121/122/151/152	

GENERAL

The Unitor Fixed Local Application Fire-Fighting system is designed with the objective of keeping the maintenance level as low as possible. But some maintenance will always be required. The following inspection and maintenance will be recommended annually.

Use the onboard Instruction Manual. The below text is only general guidelines that are meant to cover different system layout/design. Always study the Instruction Manual carefully in order to service the system in a best possible way.

INSTRUCTION

1. Distribution valves and control cabinet

- 1.1. Check the function of all selection valves and lubricate if required.
- 1.2. Check the control cabinet and its operation by doing the following.
- 1.3. Turn "OFF" the contactor element for the fire pump.
- 1.4. If ventilation stop is not acceptable, disconnect signal cabling to fans.
- 1.5. Main Control Cabinet (MCC) in "OP." mode:

Push "ON" button.

- Alarm sounds in protected space(s)
- Water line valve opens
- Fire pump signal is given (measure)
- Respective distribution valve(s) open


System function is OK.

- 1.6. Main Control Cabinet (MCC) in "TEST" mode:

- PLC is overridden.
- All alarm(s), pump(s), valve(s) in the system are able to be tested by use of the small switches located down to the right in front of the cabinet.

- 1.7. Make sure that all wiring connections are put back in its correct positions and that the contactor elements for the pump are turned "ON" after testing.

- 1.8. Make sure that the mode switch is in "OP." mode after final testing.


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2. Protected area

2.1. Inspect piping and all nozzles visually for damage.
Repair or replace if required.

2.2. Check the nozzles are properly installed and in correct position.

2.3. Check all nozzles visually for damage or dirt.
Clean or replace if required.

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System FIXED LOCAL APPLICATION	Subject FIXED LOCAL APPLICATION FIRE FIGHTING SYSTEM				Ref. 55-00-101/121/122/ 151/152/153/154	

GENERAL

This instruction shall be followed when activating the Fixed Local Application Fire Fighting system.

The Local Application Fire Fighting System (LAFF) is normally an 'Automatic Released' system, but can also be manually released.

In the case of a periodically unattended machinery space, the Local Application Fire Fighting System (LAFF) shall have both automatic and manual release capabilities.

In the case of a continuously manned machinery space only a manual release capability is required.

The Local Application Fire Fighting System (LAFF) is a water-based system. It uses either fresh or seawater.

Abbreviations:

MSC – Motor Starter Cabinet
MCC – Main Control Cabinet
MRB – Manual Release Box
RAP – Remote Alarm Panel

INSTRUCTION

1. Activation of System


1.1 Automatic Release:

Signals from two detectors will initiate the activation of the system. An audible and visual alarm will be activated in the vicinity of the protected object and Engine Control Room automatically. Meanwhile the RAP on the Navigation Bridge will be activated automatically.

1.2 Manual Release:

Press the fire "ZONE" button at the MCC or at the MRB in the engine room for the respective zone/object.

An audible and visual alarm will be activated in the vicinity of the protected object and Engine Control Room automatically. Meanwhile the RAP on the Navigation Bridge will be activated automatically.

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1.3 Fire Fighting Area Change During Fire Fighting:

Press the current fire "ZONE" button at the MCC, or at the MRB in the engine room for the respective zone/object.

The current fire zone will be activated and the original fire zone running will close down.

1.4 Manual Emergency Operation in case of Malfunction:

If the system is not released when activated either automatically or manually, do as follows:

Check that water line service valve is open.

If still no release occurs, continue as follows:

Set the "Mode" switch (use key) at the MCC in "Test" position.

Use the toggle switches to operate as below:

Set Alarm to ON,

Set Distribution valve to zone/object on fire to OPEN.

Set Water line valve to OPEN (if applicable).

Set Water pump to ON.

If release still does not occur, continue with:

Check ("that" deleted) the following valve indicators:

Distribution valve to zone/object on fire:

Arrow at butterfly valve motor points is to "Open" position.

Or indicator lamp is in "light" position on the coil of solenoid valve.

Water line valve:

The valve hand is in "O" – open position.

If any valves are closed, open them manually according to the instruction as follows:


For butterfly valve: Refer to documentation 53-03-043-7-E.

SA type actuator: Using an Allen key located on the bottom side of actuator to turn the Allen screw.

NA type actuator: Pulling the lever located beside of hand wheel to release self-locked function, then turn the hand wheel.

For solenoid valve: Refer to documentation 55-03-002-7-E.

Turning the screw which is located just below the coil anticlockwise by use of the key which is located in the key box.

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Check that the water pump is running.

If not, do as follows:

If system is fresh water-based, check integral contactor or fuses in the MSC.

If system is sea water-based, check fuses at the sea water pump main starter panel.

2. Shut down of System

When system is 'Automatic' released or 'Manual remote' released:

2.1 Press the "STOP" button and the lamp on the "STOP" button will light up at the MCC, the system will be stopped and locked.

2.2 To accept the Fire alarm at the Detection panel:

The operation instruction of how to accept the fire alarm at the detection panel is based on a WTS-supplied detection panel (if the detection system is not provided by WTS, please refer to the manufacturer's manual).

Conventional system:

Press the "System Access" button.

Enter the user code "3456" by pressing the button.

Press the "Accept" button.

This silences the panel alarm sounder and the "Fire alarm" LEDs will change from flashing to lit steady.

Addressable system:


Insert the key into the front panel key switch and turn it clockwise to the "Enable" position ("1" position).

Press the "Silence" button. The panel alarm sounder will change to intermittent, pulsing tone and the "Fire zone alarm" LEDs will change from flashing to lit steady.

When system is "Manually Emergency" operated:

2.3 Reset the toggle switches for pumps and alarm back to OFF position.

2.4 Reset the toggle switches for all valves back to CLOSE position.

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3. System reset

3.1 Set the "Mode" switch (use key) at the MCC in "Test" position.

Use the toggle switches and follow below steps:

Close main water line valve at water line (if applicable)

Close the distribution valve(s).

Note: For the solenoid valve, don't forget to recover the manual override unit to close position by turning the screw pointing clockwise by using of key or screw driver as described on documentation 55-03-002-7-E.

3.2 Check that the water line service valve is Open (if applicable).

3.3 Set "Mode" switch in "OP" position, close door at MCC.

3.4 Check the lamp is in dead status on the "STOP" button at MCC; if not, please press the "STOP" button again.

Reset the Detection panel as follows:

The operation instruction of how to reset the fire alarm at the detection panel is based on a WTS-supplied detection panel (if the detection system is not provided by WTS, please refer to manufacturer's manual).

Conventional system:

Turn the Access Controls Keyswitch on the panel door to position "1".

Press the "Reset" button.

Set the Access Controls Keyswitch back to position "0" to lock the controls.


Addressable system:

Insert key into front panel key switch and turn it clockwise to 'Enable' position ("1" position).

Press "Reset" button.

The LCD will display "Reset in Progress..."

After 17 to 20 seconds, the LCD will return to the normal display.

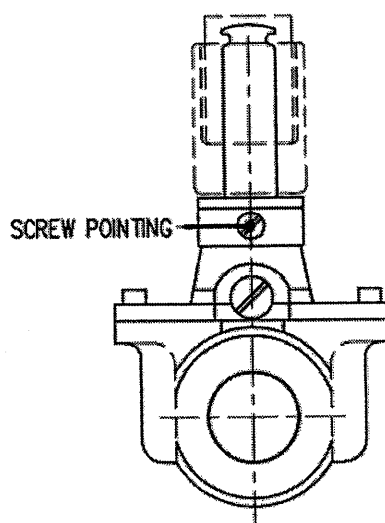
 Wilhelmsen Technical Solutions	Type of document OPERATING INSTRUCTION				Document No. 55-03-002-7-E	
	Issued by BYE	Date of issue 06.11.08	Rev. No. 00	Rev. date 06.11.08	Approved by CZB	Page Page 1 of 1
System FIXED LOCAL APPLICATION	Subject SOLENOID VALVE 2/2 -WAY (NC TYPE) DN15 – 50, PN16				Ref. 55-03-002	

GENERAL

This instruction is to be used when operating the solenoid valve manually, in case of an emergency of coil damaged or power failure.

INSTRUCTION


1. Take the key attached to the valve or remove key from the break-glass box.
2. Turn the screw pointing as shown on below sketch anticlockwise towards by using of key, the valve will be opened manually.



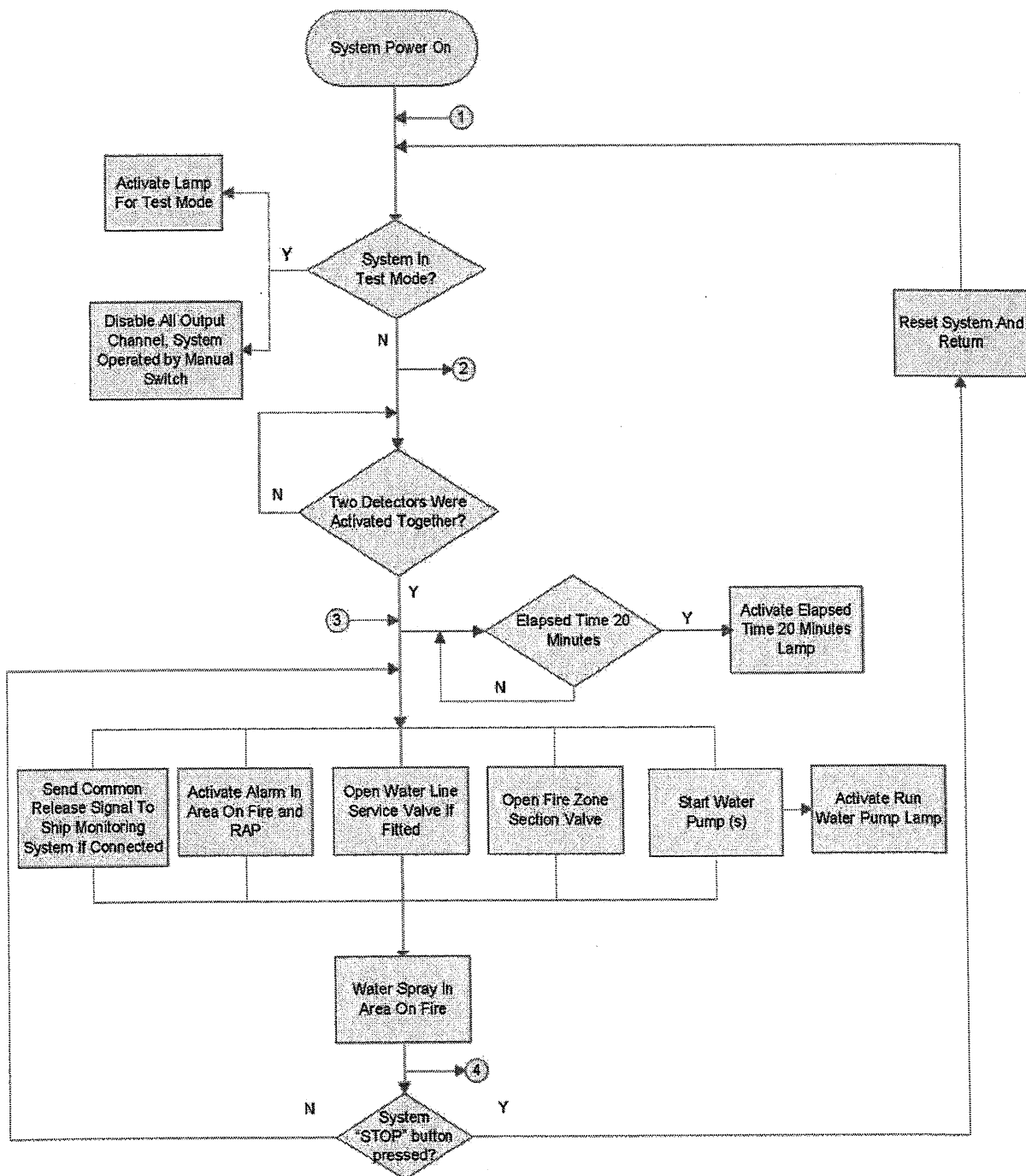
3. After emergency operation, don't forget to recover the manual override unit to close position by turning the screw pointing clockwise towards by using of key.
4. Replace the key (re-attach firmly to the valve or replace in the key box as applicable). Renew the glass in the key box (if used).


Noted:

If the key can not be found, a 6mm X 1 mm screw driver can be used instead.

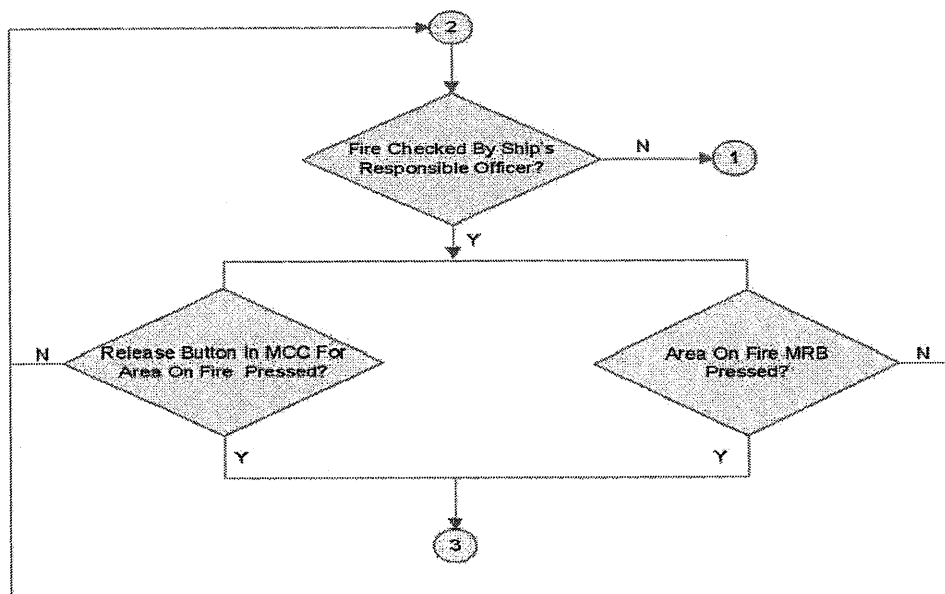
 Wilhelmsen Technical Solutions	Type of Document OPERATING INSTRUCTION				Document No. 55-08-990-7-E	
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AUTOMATIC RELEASE:



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MANUAL RELEASE:



FIRE FIGHTING AREA CHANGE DRUING FIRE FIGHTING:

