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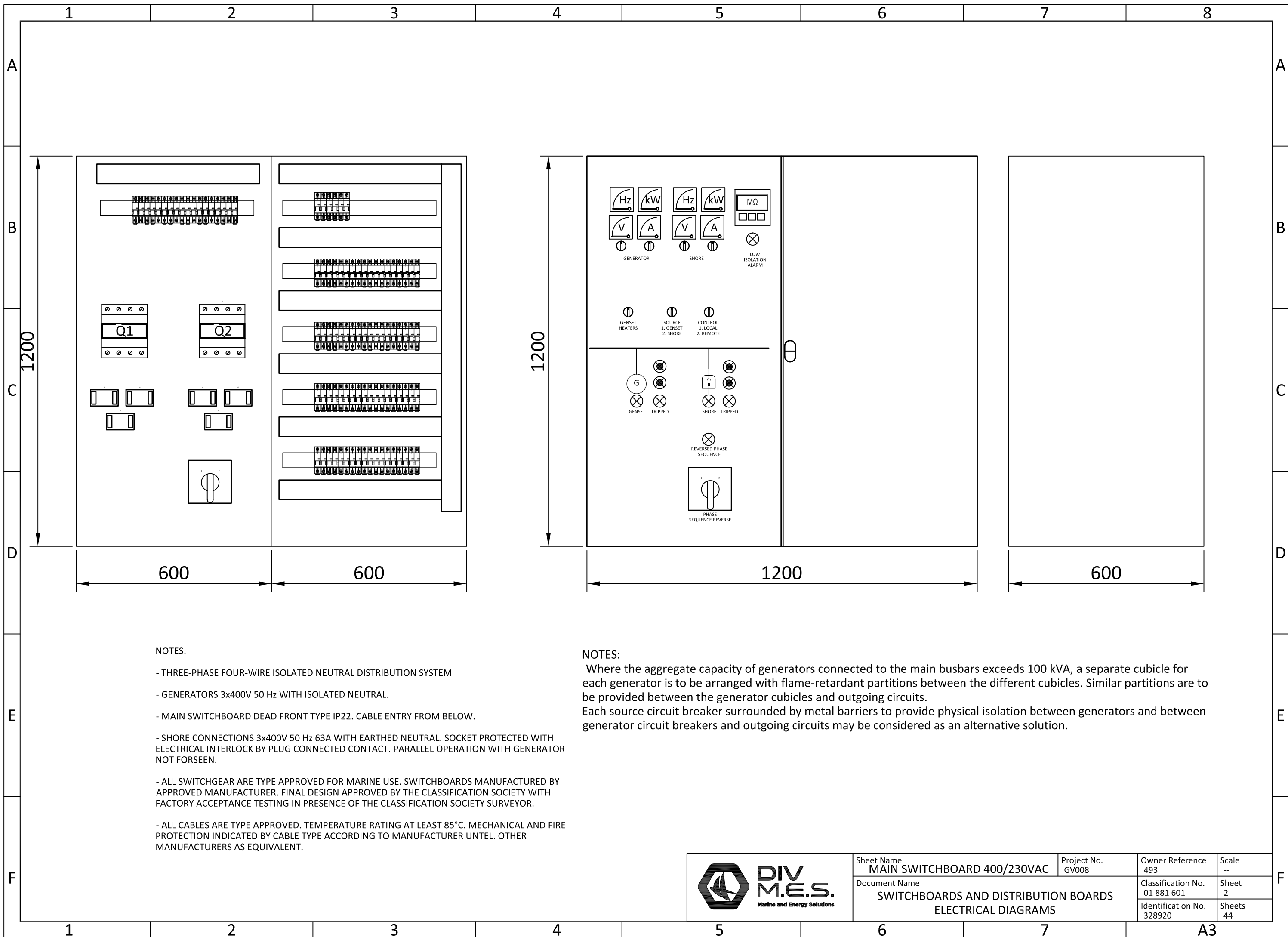
1	I.Rutnik	Updated according to comments		2023-09-14	
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Rev.	Prepared by	Description	Date		
Customer BRODOGRAĐEVNA INDUSTRIJA SPLIT d.d.		File GV008-E-881-601-Switchboards and distribution boards	Prepared by I. Rutnik, El.Eng.	Date 2023-07-25	
Company Marine and Energy Solutions DIV d.o.o. HR-10020 Zagreb, Froudeova 5 mes@divgroup.eu		Project <b>AUTONOMOUS UNMANNED SHIP</b> CLASS DESIGN	Checked by P. Miloš Mech.Eng.	Date 2023-07-25	
			Approved by M. Brlić, Nav.Arch.	Date 2023-07-25	
	Sheet Name	-	Project No. GV008	Owner Reference 493	Scale --
	Document Name <b>SWITCHBOARDS AND DISTRIBUTION BOARDS</b> <b>ELECTRICAL DIAGRAMS</b>		Classification No. 01 881 601		Sheet 1
			Identification No. 328920		Sheets 44

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NOTES:


- THREE-PHASE FOUR-WIRE ISOLATED NEUTRAL DISTRIBUTION SYSTEM
- GENERATORS 3x400V 50 Hz WITH ISOLATED NEUTRAL.
- MAIN SWITCHBOARD DEAD FRONT TYPE IP22. CABLE ENTRY FROM BELOW.
- SHORE CONNECTIONS 3x400V 50 Hz 63A WITH EARTHED NEUTRAL. SOCKET PROTECTED WITH ELECTRICAL INTERLOCK BY PLUG CONNECTED CONTACT. PARALLEL OPERATION WITH GENERATOR NOT FORSEEN.
- ALL SWITCHGEAR ARE TYPE APPROVED FOR MARINE USE. SWITCHBOARDS MANUFACTURED BY APPROVED MANUFACTURER. FINAL DESIGN APPROVED BY THE CLASSIFICATION SOCIETY WITH FACTORY ACCEPTANCE TESTING IN PRESENCE OF THE CLASSIFICATION SOCIETY SURVEYOR.
- ALL CABLES ARE TYPE APPROVED. TEMPERATURE RATING AT LEAST 85°C. MECHANICAL AND FIRE PROTECTION INDICATED BY CABLE TYPE ACCORDING TO MANUFACTURER UNTEL. OTHER MANUFACTURERS AS EQUIVALENT.

NOTES:

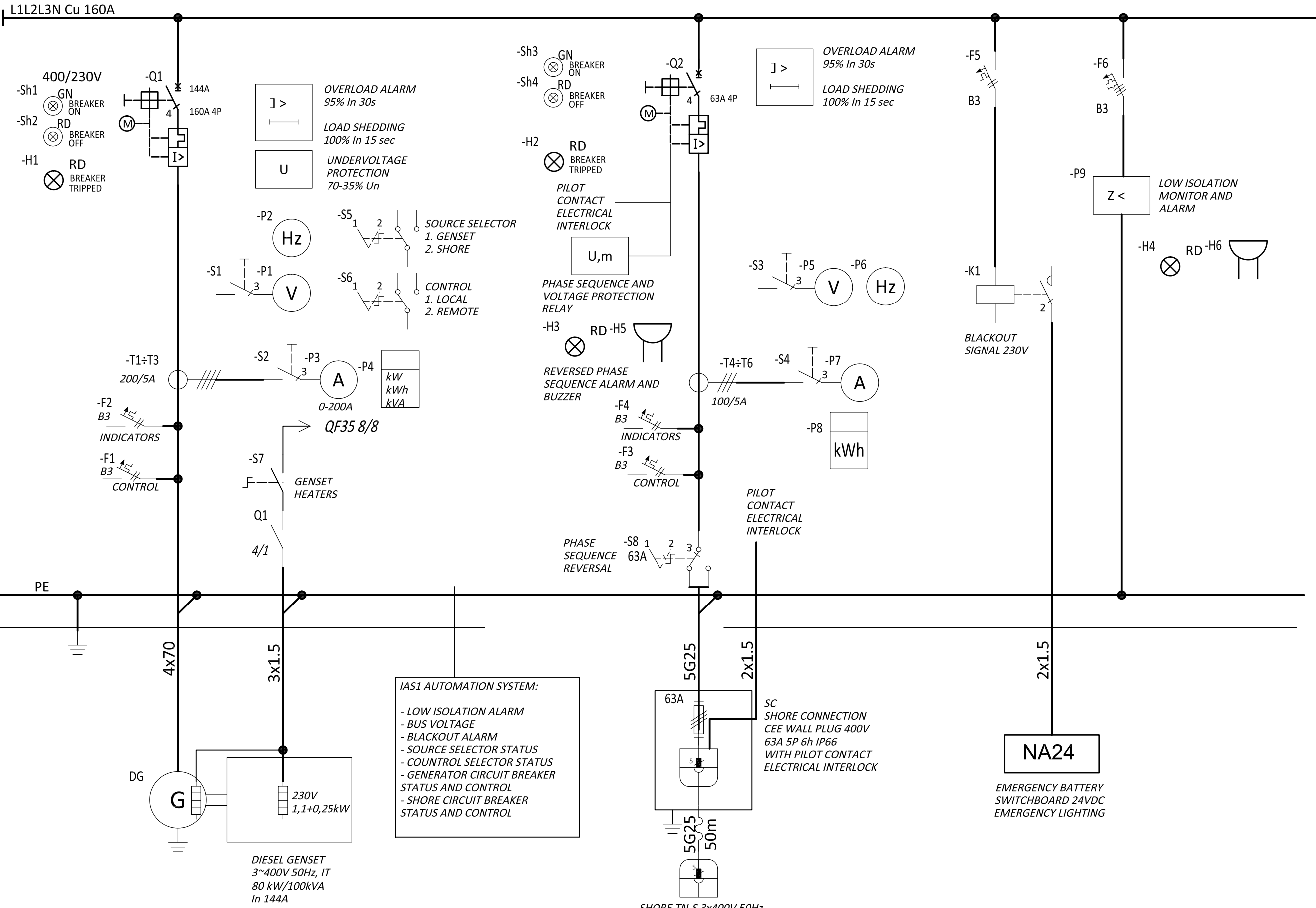
Where the aggregate capacity of generators connected to the main busbars exceeds 100 kVA, a separate cubicle for each generator is to be arranged with flame-retardant partitions between the different cubicles. Similar partitions are to be provided between the generator cubicles and outgoing circuits. Each source circuit breaker surrounded by metal barriers to provide physical isolation between generators and between generator circuit breakers and outgoing circuits may be considered as an alternative solution.

	Sheet Name <b>MAIN SWITCHBOARD 400/230VAC</b>	Project No. GV008	Owner Reference 493	Scale --
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			Identification No. 328920	Sheets 44



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MSB MAIN SWITCHBOARD



**IAS1 AUTOMATION SYSTEM:**

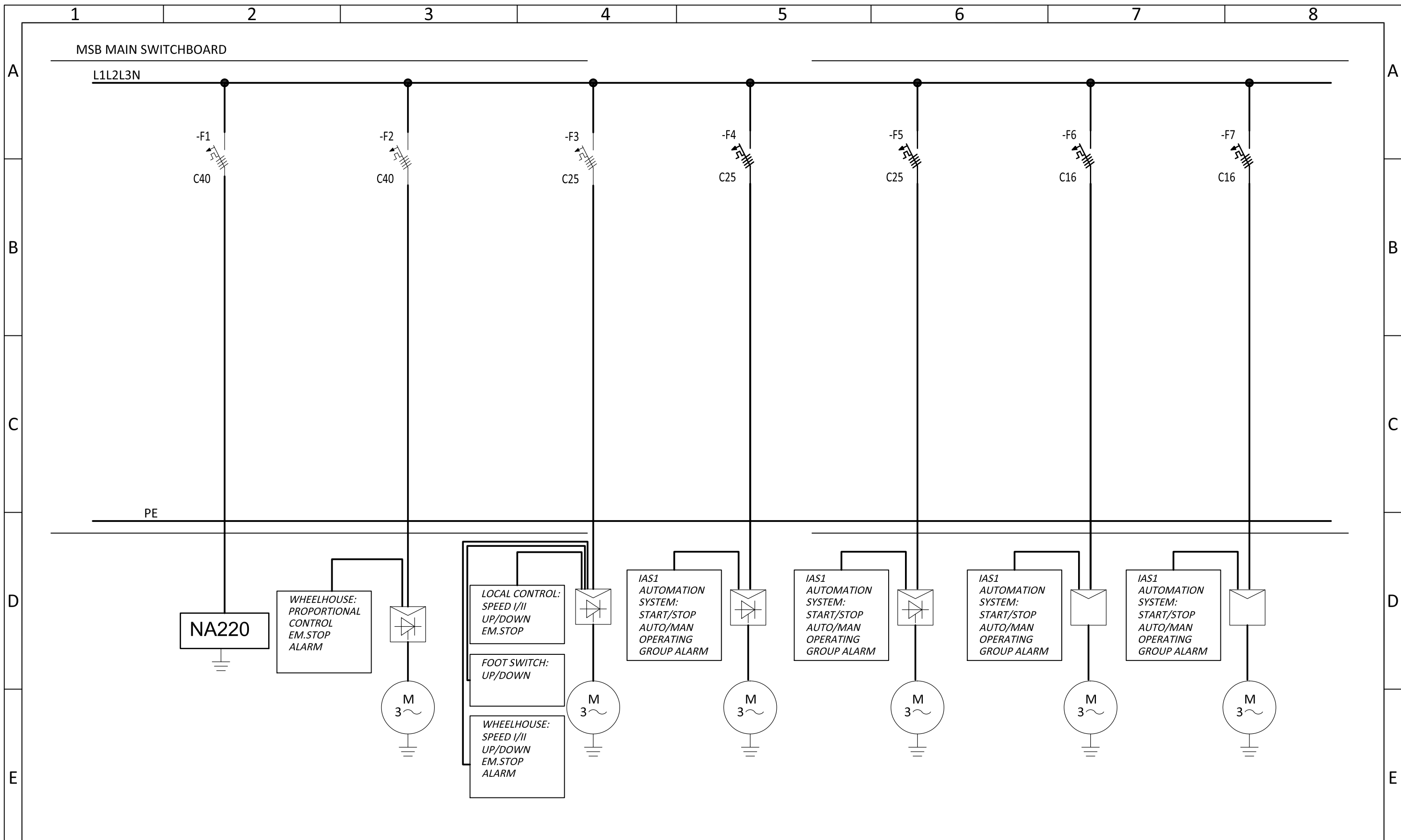
- LOW ISOLATION ALARM
- BUS VOLTAGE
- BLACKOUT ALARM
- SOURCE SELECTOR STATUS
- CONTROL SELECTOR STATUS
- GENERATOR CIRCUIT BREAKER STATUS AND CONTROL
- SHORE CIRCUIT BREAKER STATUS AND CONTROL

**DIESEL GENSET**  
 3~400V 50Hz, IT  
 80 kW/100kVA  
 In 144A

SHORE TN-S 3x400V 50Hz

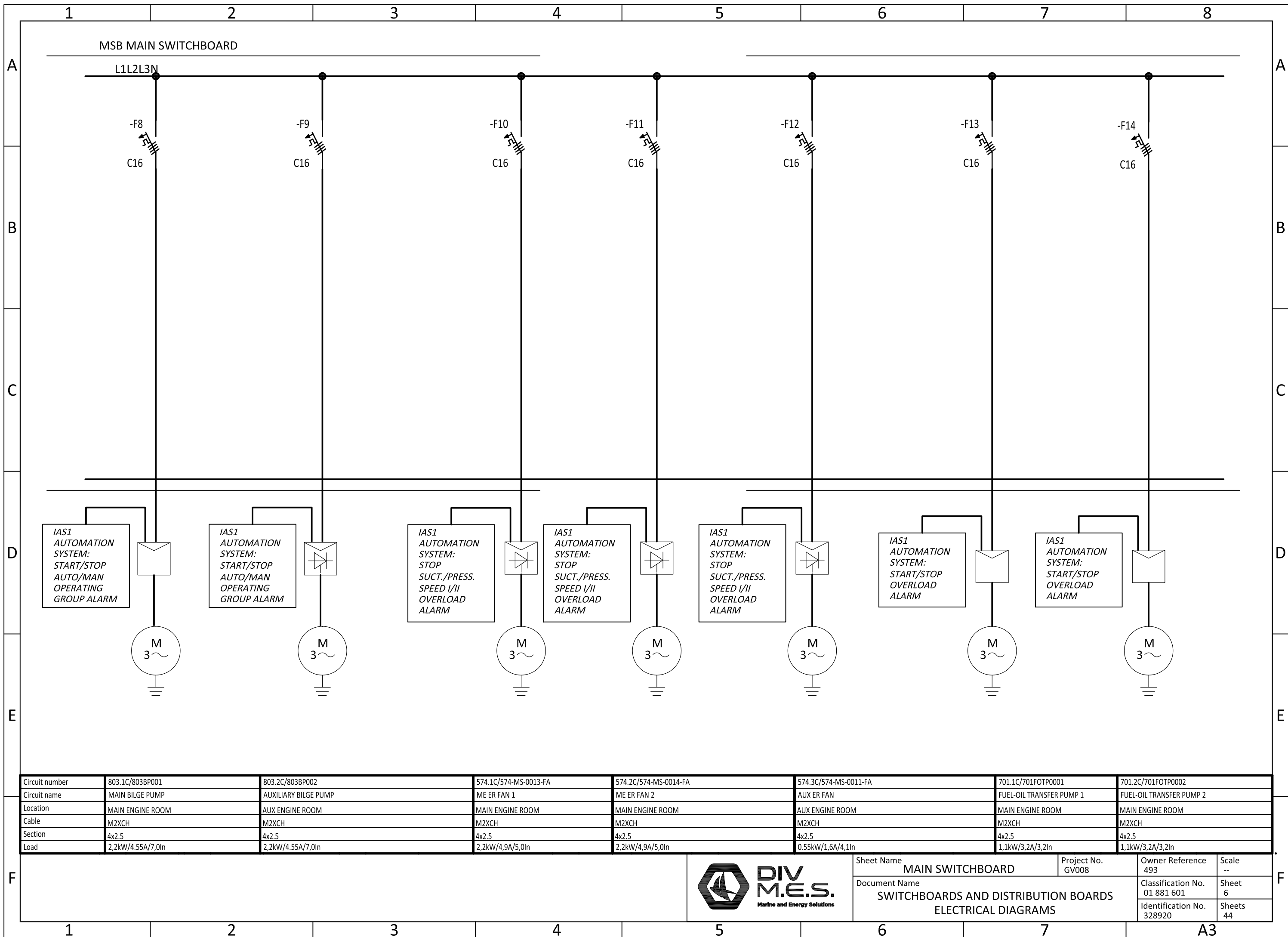


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			Identification No.	328920		Sheets	44



Circuit number	NA220	404.C	403.C	813.1C/813FP001	813.2C/813FP002	813.3C	813.4C
Circuit name	BRIDGE DISTRIBUTION BOARD 3x400/230V	BOW THRUSTER	ANCHOR-MOORING WINCH	FI-FI / GENERAL SERVICE PUMP 1	FI-FI / GENERAL SERVICE PUMP 2	ME FI-FI WITH PRIMING PUMP 1	ME FI-FI WITH PRIMING PUMP 2
Location	WHEELHOUSE	BOW THR CMPT	BOW THR COMPT	MAIN ENGINE ROOM	MAIN ENGINE ROOM	MAIN ENGINE ROOM	MAIN ENGINE ROOM
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH
Section	4x10	4x10	4x4	4x4	4x4	4x2.5	4x2.5
Load	66kW/max 32A	18.5kW 38A	1.5/2.5kW	7.5kW/13,9A/7,0In	7.5kW/13,9A/7,0In	2,2kW/3,35A/5,5In	2,2kW/3,35A/5,5In

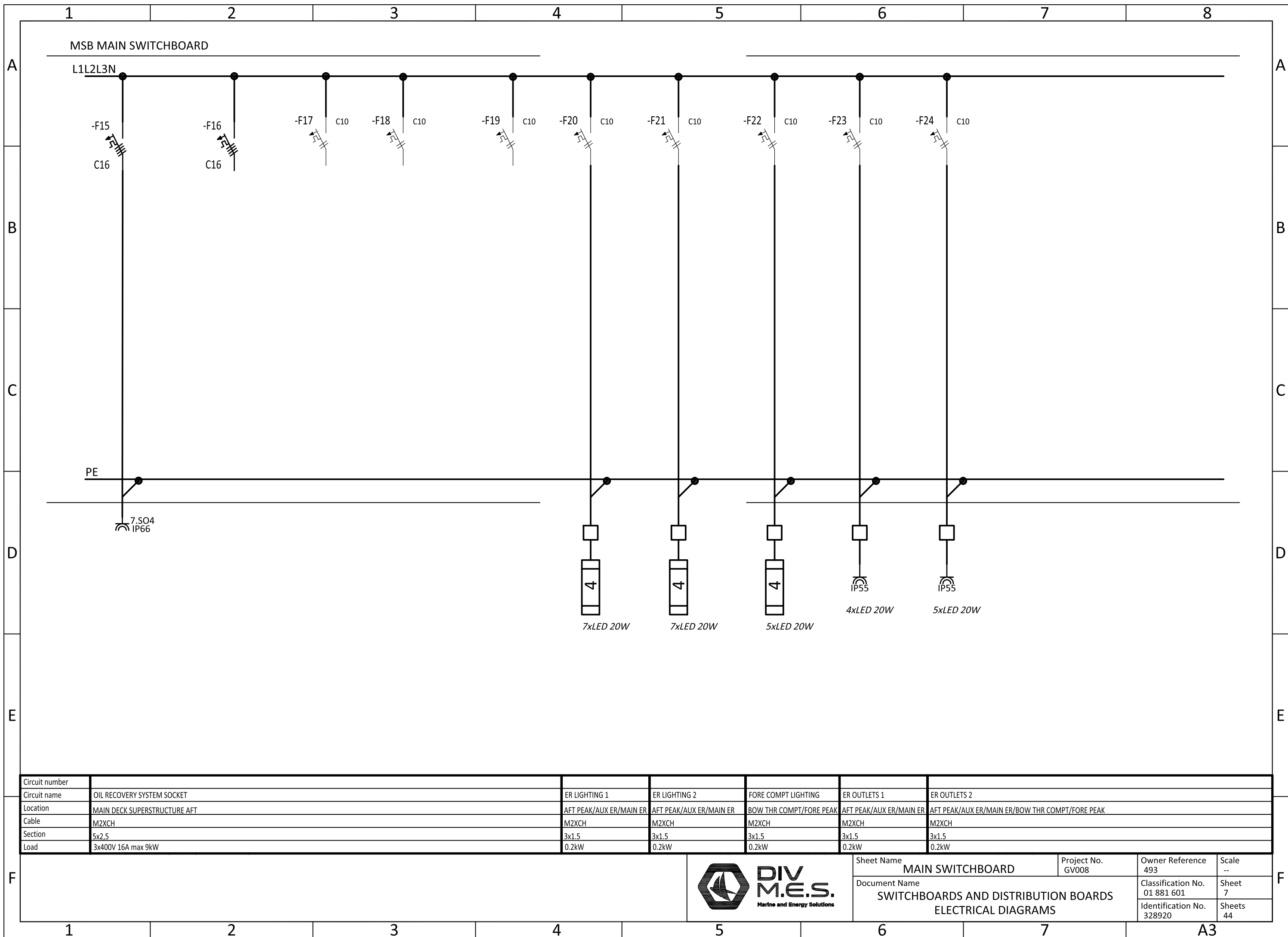
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	SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No.	Sheet	
		Identification No.	Sheets		
		328920	44		



Circuit number	803.1C/803BP001	803.2C/803BP002	574.1C/574-MS-0013-FA	574.2C/574-MS-0014-FA	574.3C/574-MS-0011-FA	701.1C/701FOTP0001	701.2C/701FOTP0002
Circuit name	MAIN BILGE PUMP	AUXILIARY BILGE PUMP	ME ER FAN 1	ME ER FAN 2	AUX ER FAN	FUEL-OIL TRANSFER PUMP 1	FUEL-OIL TRANSFER PUMP 2
Location	MAIN ENGINE ROOM	AUX ENGINE ROOM	MAIN ENGINE ROOM	MAIN ENGINE ROOM	AUX ENGINE ROOM	MAIN ENGINE ROOM	MAIN ENGINE ROOM
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH
Section	4x2.5	4x2.5	4x2.5	4x2.5	4x2.5	4x2.5	4x2.5
Load	2,2kW/4.55A/7,0In	2,2kW/4.55A/7,0In	2,2kW/4,9A/5,0In	2,2kW/4,9A/5,0In	0.55kW/1,6A/4,1In	1,1kW/3,2A/3,2In	1,1kW/3,2A/3,2In



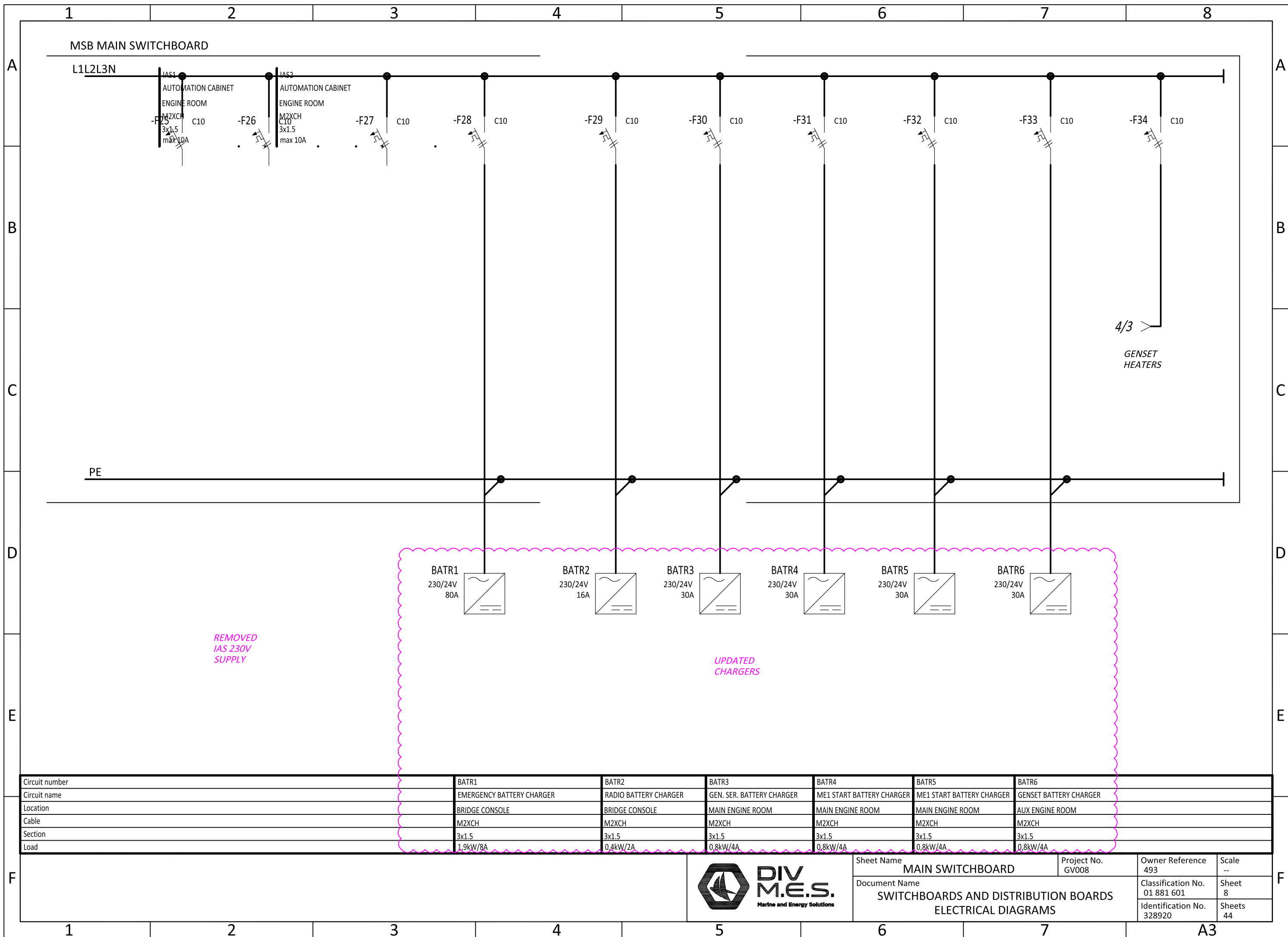
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Document Name	SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS			Classification No.	01 881 601	Sheet	6
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Circuit number						
Circuit name	OIL RECOVERY SYSTEM SOCKET	ER LIGHTING 1	ER LIGHTING 2	FORE COMPT LIGHTING	ER OUTLETS 1	ER OUTLETS 2
Location	MAIN DECK SUPERSTRUCTURE AFT	AFT PEAK/AUX ER/MAIN ER	AFT PEAK/AUX ER/MAIN ER	BOW THR COMPT/FORE PEAK	AFT PEAK/AUX ER/MAIN ER	AFT PEAK/AUX ER/MAIN ER/BOW THR COMPT/FORE PEAK
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH
Section	5x2,5	3x1.5	3x1.5	3x1.5	3x1.5	3x1.5
Load	3x400V 16A max 9kW	0.2kW	0.2kW	0.2kW	0.2kW	0.2kW



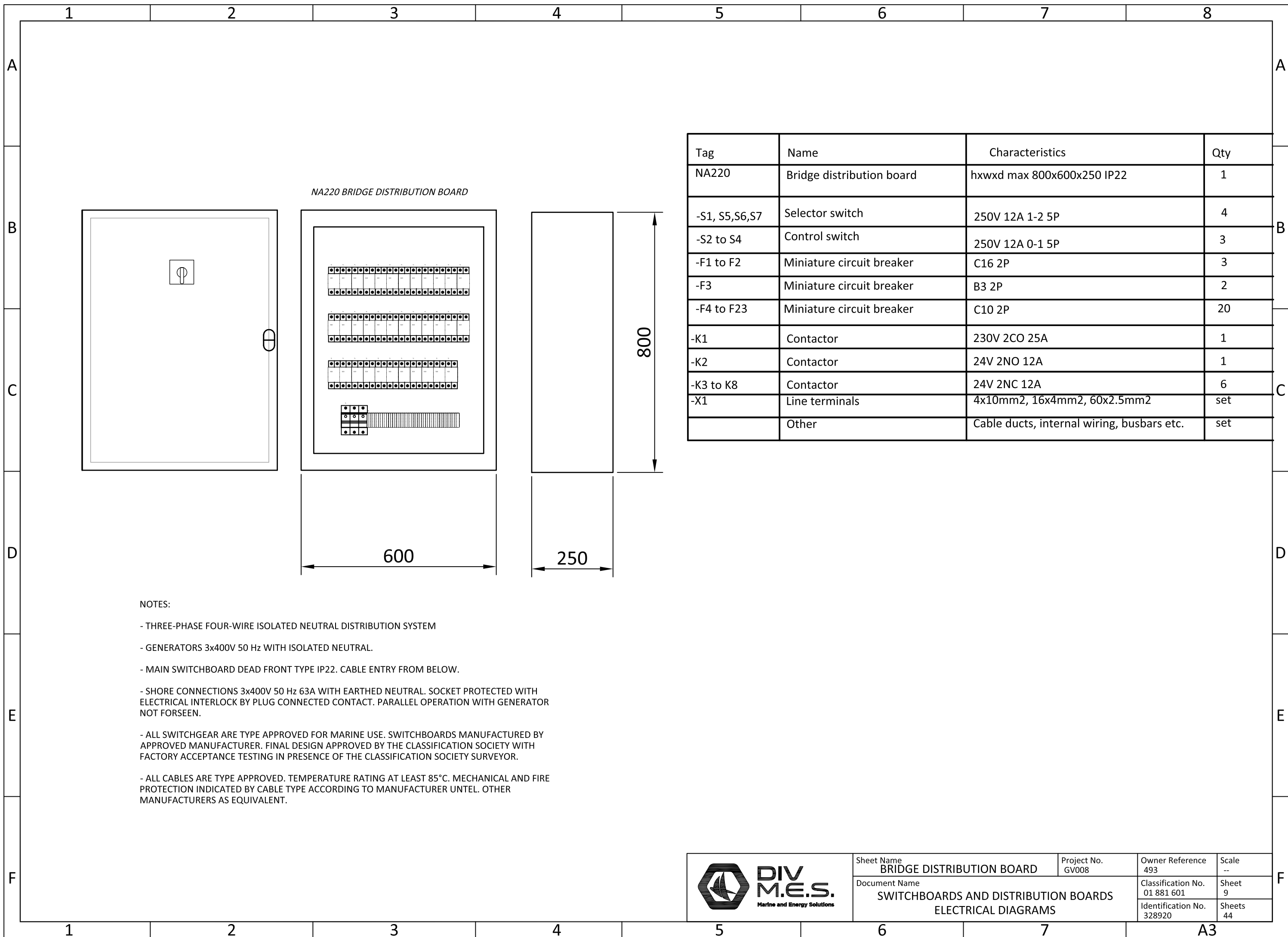
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Circuit number	BATR1	BATR2	BATR3	BATR4	BATR5	BATR6
Circuit name	EMERGENCY BATTERY CHARGER	RADIO BATTERY CHARGER	GEN. SER. BATTERY CHARGER	ME1 START BATTERY CHARGER	ME1 START BATTERY CHARGER	GENSET BATTERY CHARGER
Location	BRIDGE CONSOLE	BRIDGE CONSOLE	MAIN ENGINE ROOM	MAIN ENGINE ROOM	MAIN ENGINE ROOM	AUX ENGINE ROOM
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH
Section	3x1.5	3x1.5	3x1.5	3x1.5	3x1.5	3x1.5
Load	1,9kW/8A	0,4kW/2A	0,8kW/4A	0,8kW/4A	0,8kW/4A	0,8kW/4A



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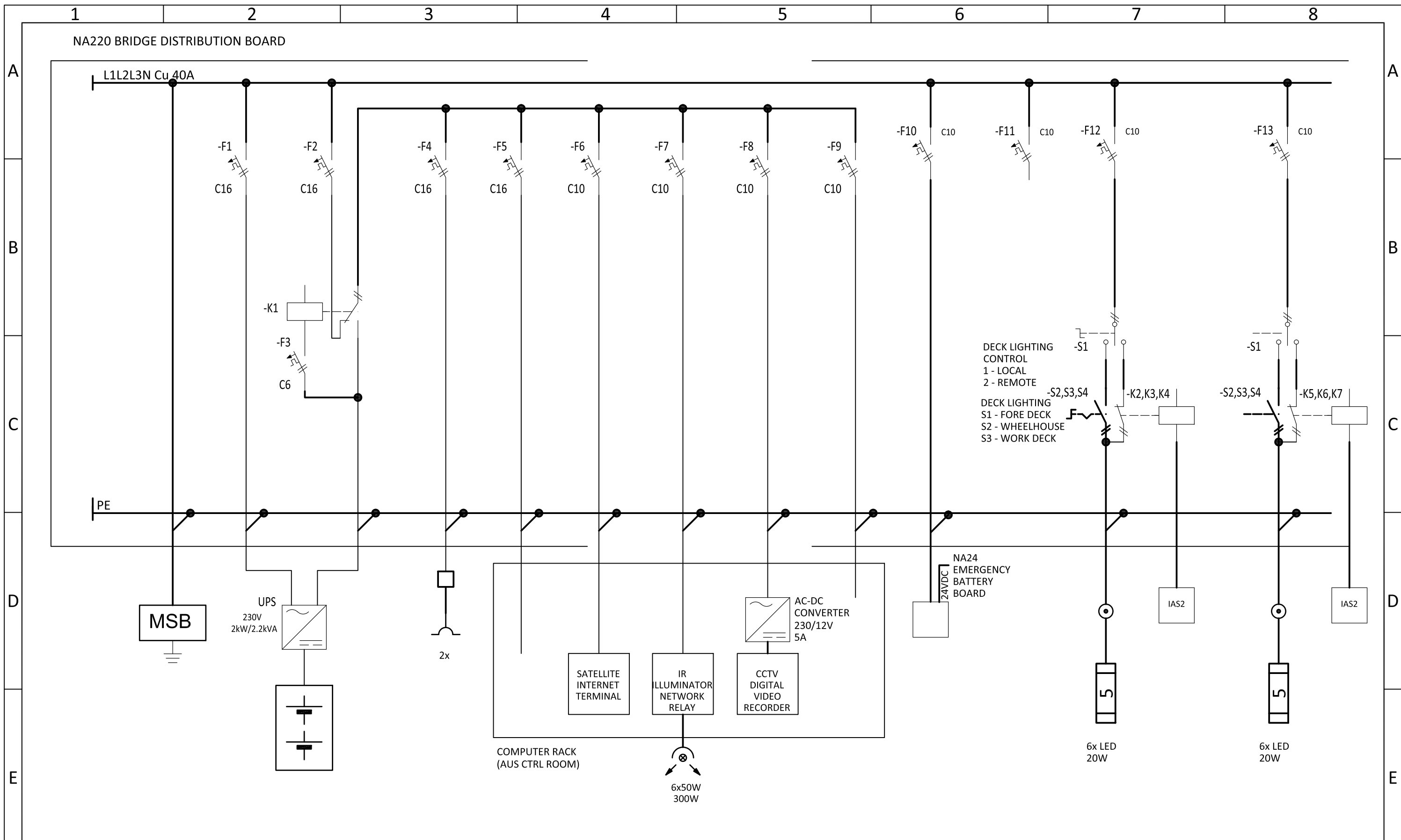
NA220 BRIDGE DISTRIBUTION BOARD

Tag	Name	Characteristics	Qty
NA220	Bridge distribution board	hxwxd max 800x600x250 IP22	1
-S1, S5,S6,S7	Selector switch	250V 12A 1-2 5P	4
-S2 to S4	Control switch	250V 12A 0-1 5P	3
-F1 to F2	Miniature circuit breaker	C16 2P	3
-F3	Miniature circuit breaker	B3 2P	2
-F4 to F23	Miniature circuit breaker	C10 2P	20
-K1	Contactor	230V 2CO 25A	1
-K2	Contactor	24V 2NO 12A	1
-K3 to K8	Contactor	24V 2NC 12A	6
-X1	Line terminals	4x10mm <sup>2</sup> , 16x4mm <sup>2</sup> , 60x2.5mm <sup>2</sup>	set
	Other	Cable ducts, internal wiring, busbars etc.	set

NOTES:

- THREE-PHASE FOUR-WIRE ISOLATED NEUTRAL DISTRIBUTION SYSTEM
- GENERATORS 3x400V 50 Hz WITH ISOLATED NEUTRAL.
- MAIN SWITCHBOARD DEAD FRONT TYPE IP22. CABLE ENTRY FROM BELOW.
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			Identification No. 328920	Sheets 44



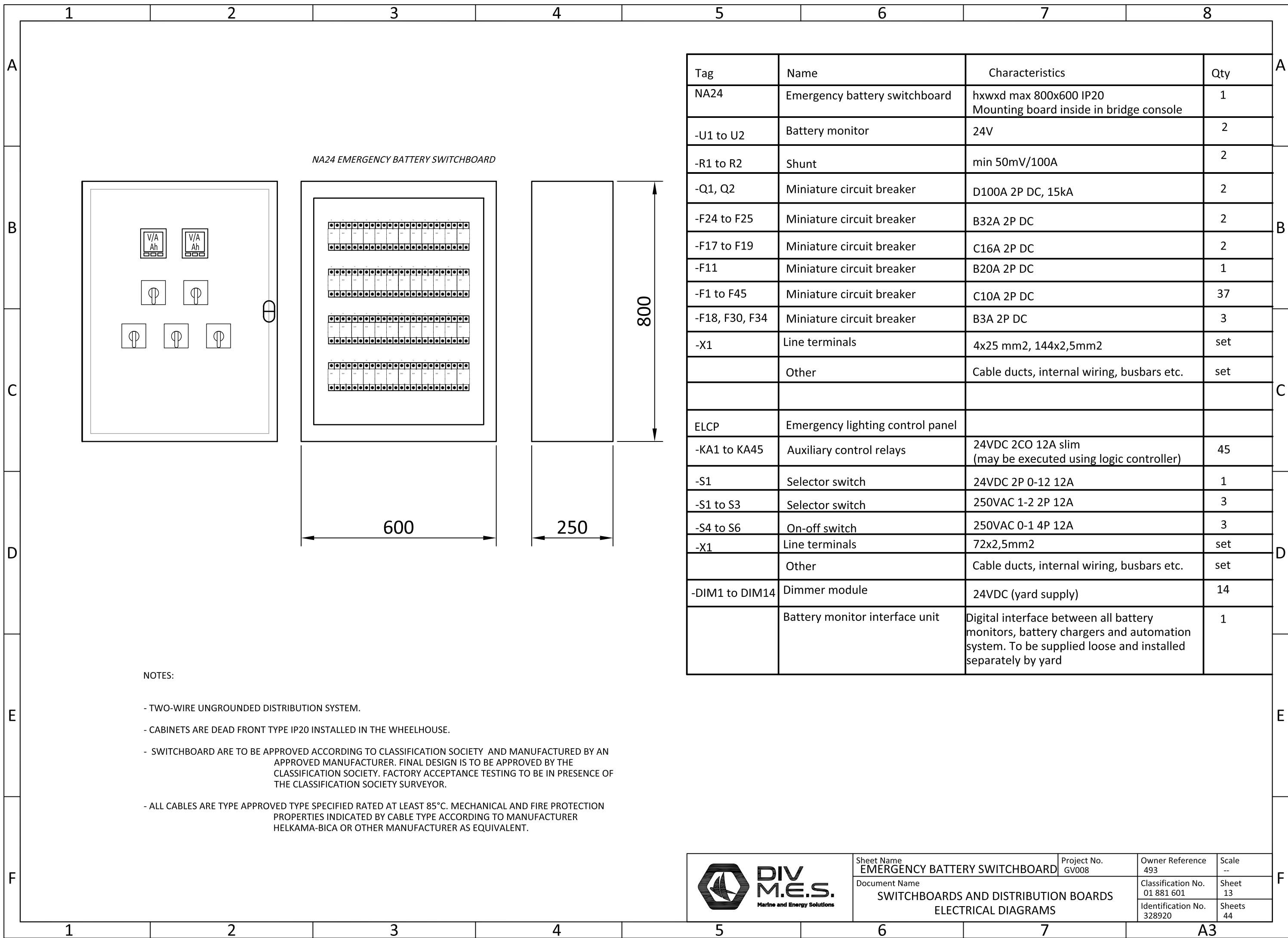
Circuit number	MSB	UPS	WHEELHOUSE OUTLETS 1	IR ILLUIMINATOR	FIRE DETECTION SYSTEM	DECK LIGHTING 1	DECK LIGHTING 2
Circuit name	MAIN SWITCHBOARD 3x400/230V						
Location	AUX. ENGINE ROOM	BRIDGE CONSOLE	WHEELHOUSE	WHEELHOUSE ROOF	BRIDGE CONSOLE	WORK DECK/WH ROOF/FORE DECK	WORK DECK/WH ROOF/FORE DECK
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH
Section	4x10	3x2.5	3x2.5	3x1.5	3x1.5	3x1.5	3x1.5
Load	66kW/max 32A	2kW/2.2kVA	0.2kW	300W	max 140W/5A	1.5kW/5A	1.5kW/5A



Sheet Name	BRIDGE DISTRIBUTION BOARD	Project No.	GV008	Owner Reference	493	Scale	--
Document Name	SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No.	01 881 601		Sheet	10
			Identification No.	328920		Sheets	44








NA24 EMERGENCY BATTERY SWITCHBOARD

Tag	Name	Characteristics	Qty
NA24	Emergency battery switchboard	hwxwd max 800x600 IP20 Mounting board inside in bridge console	1
-U1 to U2	Battery monitor	24V	2
-R1 to R2	Shunt	min 50mV/100A	2
-Q1, Q2	Miniature circuit breaker	D100A 2P DC, 15kA	2
-F24 to F25	Miniature circuit breaker	B32A 2P DC	2
-F17 to F19	Miniature circuit breaker	C16A 2P DC	2
-F11	Miniature circuit breaker	B20A 2P DC	1
-F1 to F45	Miniature circuit breaker	C10A 2P DC	37
-F18, F30, F34	Miniature circuit breaker	B3A 2P DC	3
-X1	Line terminals	4x25 mm <sup>2</sup> , 144x2,5mm <sup>2</sup>	set
	Other	Cable ducts, internal wiring, busbars etc.	set
ELCP	Emergency lighting control panel		
-KA1 to KA45	Auxiliary control relays	24VDC 2CO 12A slim (may be executed using logic controller)	45
-S1	Selector switch	24VDC 2P 0-12 12A	1
-S1 to S3	Selector switch	250VAC 1-2 2P 12A	3
-S4 to S6	On-off switch	250VAC 0-1 4P 12A	3
-X1	Line terminals	72x2,5mm <sup>2</sup>	set
	Other	Cable ducts, internal wiring, busbars etc.	set
-DIM1 to DIM14	Dimmer module	24VDC (yard supply)	14
	Battery monitor interface unit	Digital interface between all battery monitors, battery chargers and automation system. To be supplied loose and installed separately by yard	1

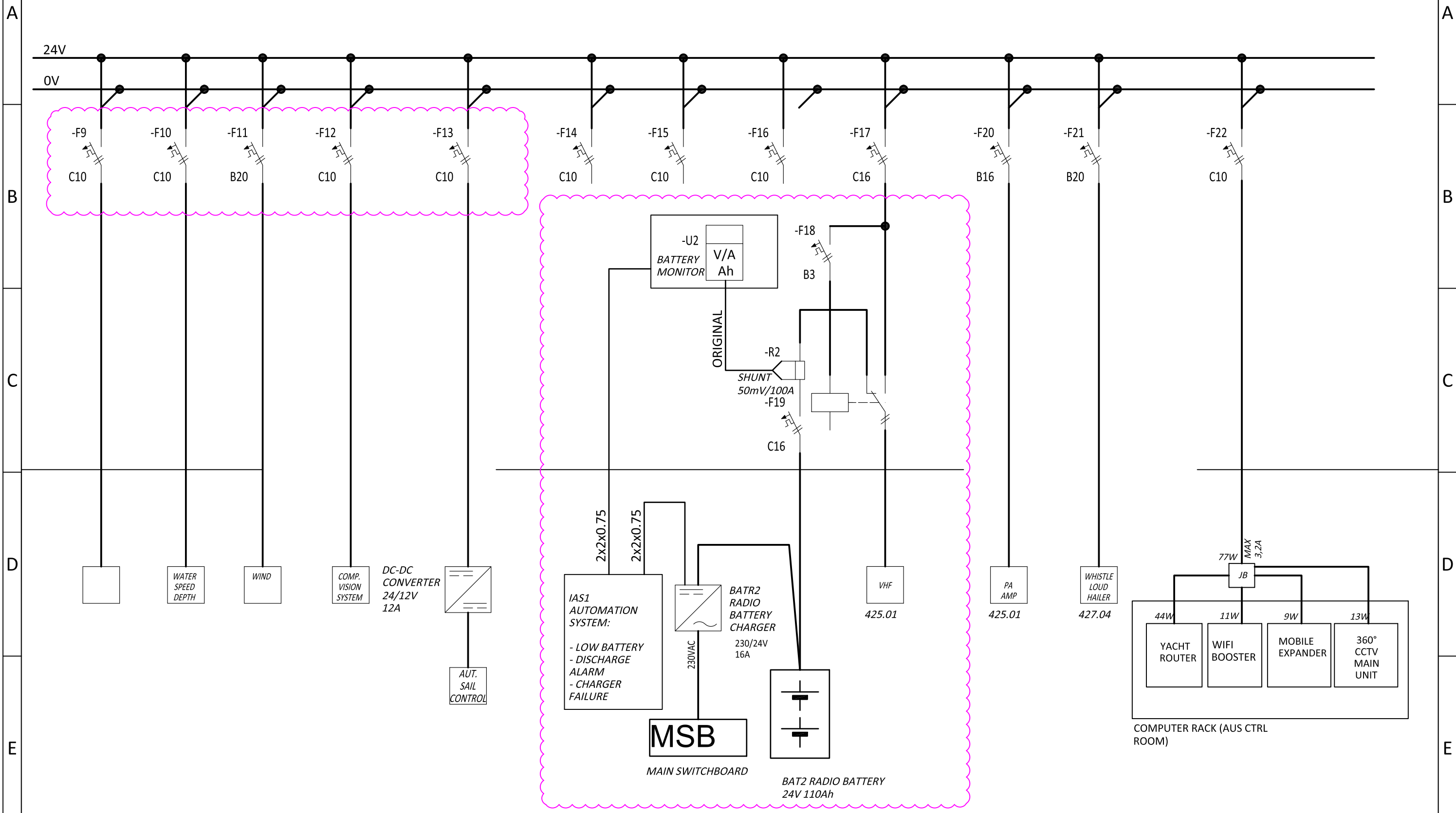
NOTES:

- TWO-WIRE UNGROUNDED DISTRIBUTION SYSTEM.
- CABINETS ARE DEAD FRONT TYPE IP20 INSTALLED IN THE WHEELHOUSE.
- SWITCHBOARD ARE TO BE APPROVED ACCORDING TO CLASSIFICATION SOCIETY AND MANUFACTURED BY AN APPROVED MANUFACTURER. FINAL DESIGN IS TO BE APPROVED BY THE CLASSIFICATION SOCIETY. FACTORY ACCEPTANCE TESTING TO BE IN PRESENCE OF THE CLASSIFICATION SOCIETY SURVEYOR.
- ALL CABLES ARE TYPE APPROVED TYPE SPECIFIED RATED AT LEAST 85°C. MECHANICAL AND FIRE PROTECTION PROPERTIES INDICATED BY CABLE TYPE ACCORDING TO MANUFACTURER HELKAMA-BICA OR OTHER MANUFACTURER AS EQUIVALENT.

	Sheet Name EMERGENCY BATTERY SWITCHBOARD	Project No. GV008	Owner Reference 493	Scale --
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			Identification No. 328920	Sheets 44



NA24 EMERGENCY BATTERY SWITCHBOARD

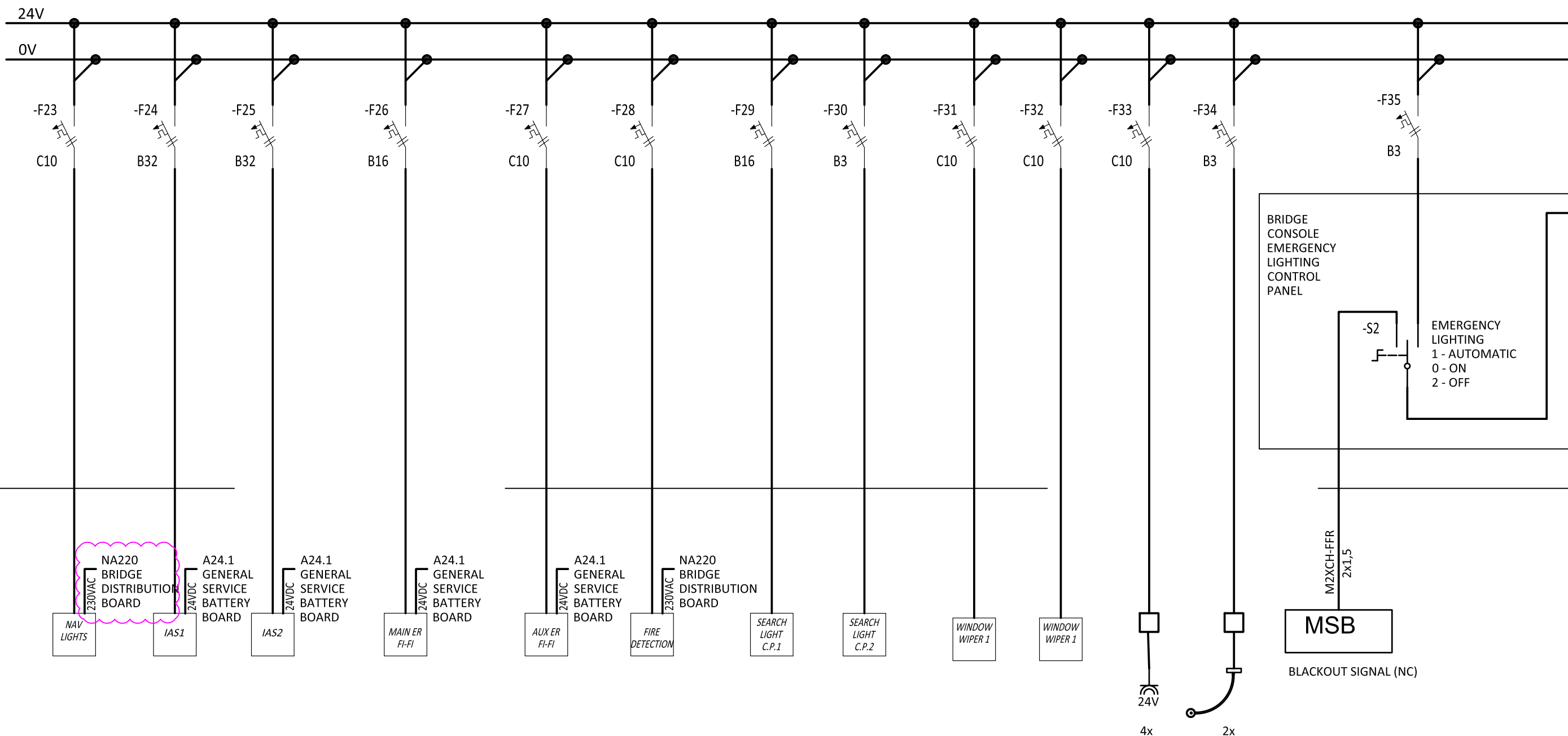


Circuit number						BATR2	425.02.01	425.01	427.04	
Circuit name	SOUND RECEPTION SYSTEM	WATER SPEED/DEPTH	WIND SENSOR	COMPUTER VISION SYSTEM	AUTONOMOUS NAVIGATION SYSTEM	RADIO BATTERY CHARGER	VHF DSC RADIO	PUBLIC ADDRESS	SHIP WHISTLE/LOUDHAILER	COMPUTER NETWORK
Location	BRIDGE CONSOLE	BRIDGE CONSOLE	BRIDGE CONSOLE	BRIDGE CONSOLE	WHEELHOUSE	BRIDGE CONSOLE	BRIDGE CONSOLE	BRIDGE CONSOLE	BRIDGE CONSOLE	AUS CTRL ROOM
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	LKSM-HF
Section	2x1.5	2x1.5	2x1.5	2x4	2x4	2x6	2x1.5	2x1.5	2x4	2x4 25m
Load	5W/0,2A	5W/0,2A	1W/0,05A	300W/15A	144W/6A	2kW / 80A	20W/1A	20W/1A	100W/4A	max 6,3A



Sheet Name	EMERGENCY BATTERY SWITCHBOARD	Project No.	GV008	Owner Reference	493	Scale	--
Document Name	SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No.	01 881 601		Sheet	15
			Identification No.	328920		Sheets	44

NA24 EMERGENCY BATTERY SWITCHBOARD

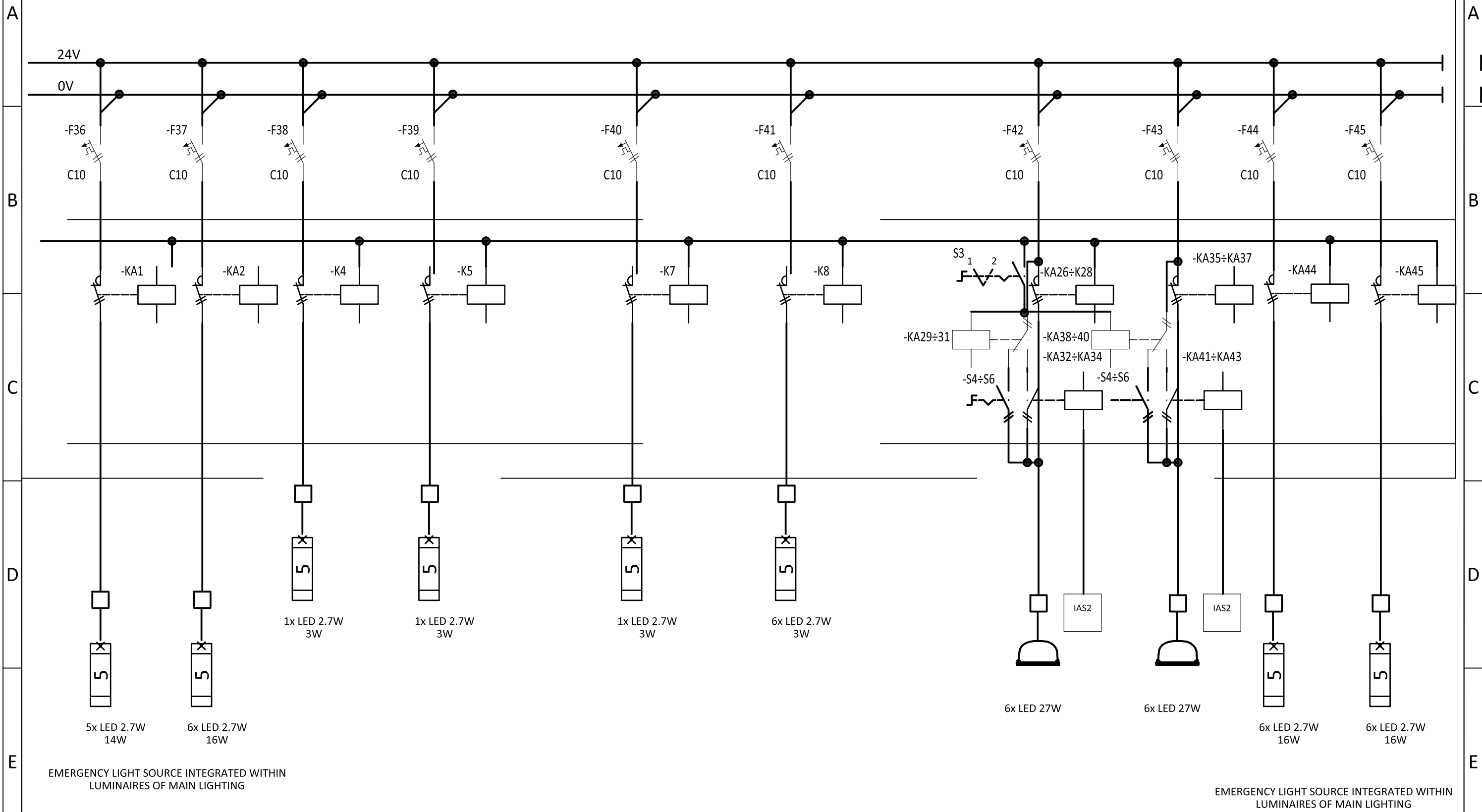


Circuit number	427.40	IAS1	IAS2	815.1CB	815.2CB	811.CP	427.51	427.51	515.CP1	515.CP2	
Circuit name	NAVIGATION LIGHTS	AUTOMATION CABINET	AUTOMATION CABINET	FI-FI SYSTEM	FI-FI SYSTEM	FIRE DETECTION SYSTEM	SEARCHLIGHT CONTROL 1	SEARCHLIGHT CONTROL 2	WIPERS	WIPERS	CHARTLIGHTS
Location	BRIDGE CONSOLE	ENGINE ROOM	ENGINE ROOM	MAIN ENGINE ROOM	MAIN ENGINE ROOM	BRIDGE CONSOLE	BRIDGE CONSOLE	BRIDGE CONSOLE	BRIDGE CONSOLE	BRIDGE CONSOLE	BRIDGE CONSOLE
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	INT.WIRING
Section	2x6	2x4 (30m)	2x4 (30m)	2x1.5	2x1.5	2x1.5	2x2.5	2x2.5	2x2.5	2x2.5	2x2.5
Load	760W/31A	164W/7A	164W/7A	10W/0.5-2A	10W/0.5-2A	10W/0.5-2A	250W/11A	250W/11A	200W/8A	200W/8A	10W/0.5A



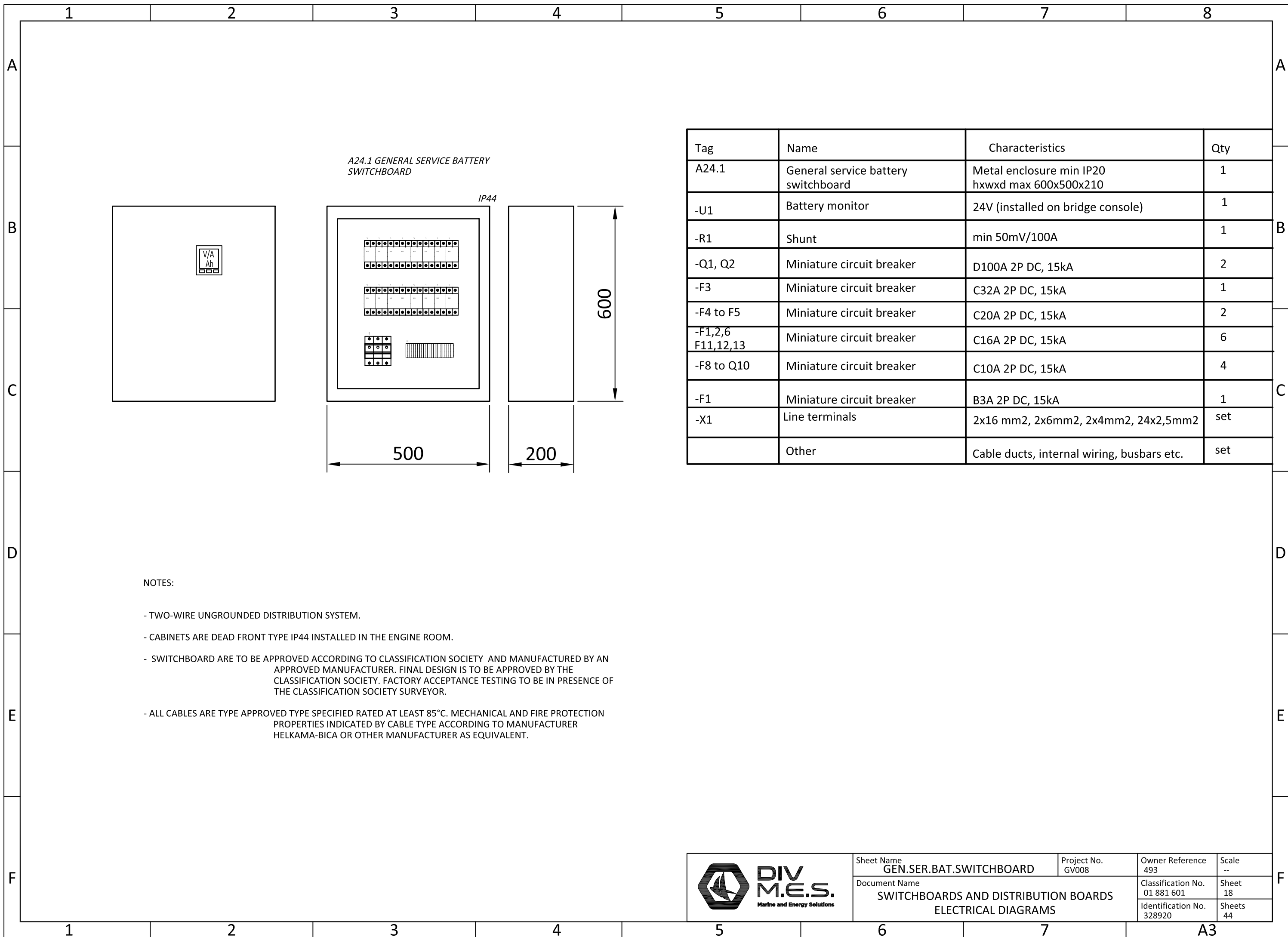
Sheet Name	EMERGENCY BATTERY SWITCHBOARD	Project No.	GV008	Owner Reference	493	Scale	--
Document Name	SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No.	01 881 601		Sheet	16
			Identification No.	328920		Sheets	44

NA24 EMERGENCY BATTERY SWITCHBOARD



Circuit number										
Circuit name	MACHINERY EMERGENCY LIGHTING 1	MACHINERY EMERGENCY LIGHTING 2	AUS CTRL ROOM EM. LIGHTING 1	AUS CTRL ROOM EM. LIGHTING 2	WHEELHOUSE EM. LIGHTING 1	WHEELHOUSE EM. LIGHTING 2	MAIN/EM. FLOODLIGHTS 1	MAIN/EM. FLOODLIGHTS 2	MAIN DECK EMERGENCY LIGHTING 1	MAIN DECK EMERGENCY LIGHTING 2
Location	AFT P./AUX. E.R./MAIN E.R./BOW TH.	AFT P./AUX. E.R./MAIN E.R./FORE P.	AUS CONTROL ROOM	AUS CONTROL ROOM/BATHROOM	WHEELHOUSE	WHEELHOUSE	MAIN DECK	MAIN DECK	MAIN DECK	MAIN DECK
Cable	M2XCH-FFR	M2XCH-FFR	M2XCH-FFR	M2XCH-FFR	M2XCH-FFR	M2XCH-FFR	M2XCH-FFR	M2XCH-FFR	M2XCH-FFR	M2XCH-FFR
Section	2x2,5	2x2,5	2x2,5	2x2,5	2x2,5	2x2,5	2x2,5	2x2,5	2x2,5	2x2,5
Load	14W	16W	3W	3W	2W	2W	162W	162W	16W	16W

Sheet Name EMERGENCY BATTERY SWITCHBOARD	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 17
		Identification No. 328920	Sheets 44



A24.1 GENERAL SERVICE BATTERY SWITCHBOARD

IP44

600

500

200

NOTES:

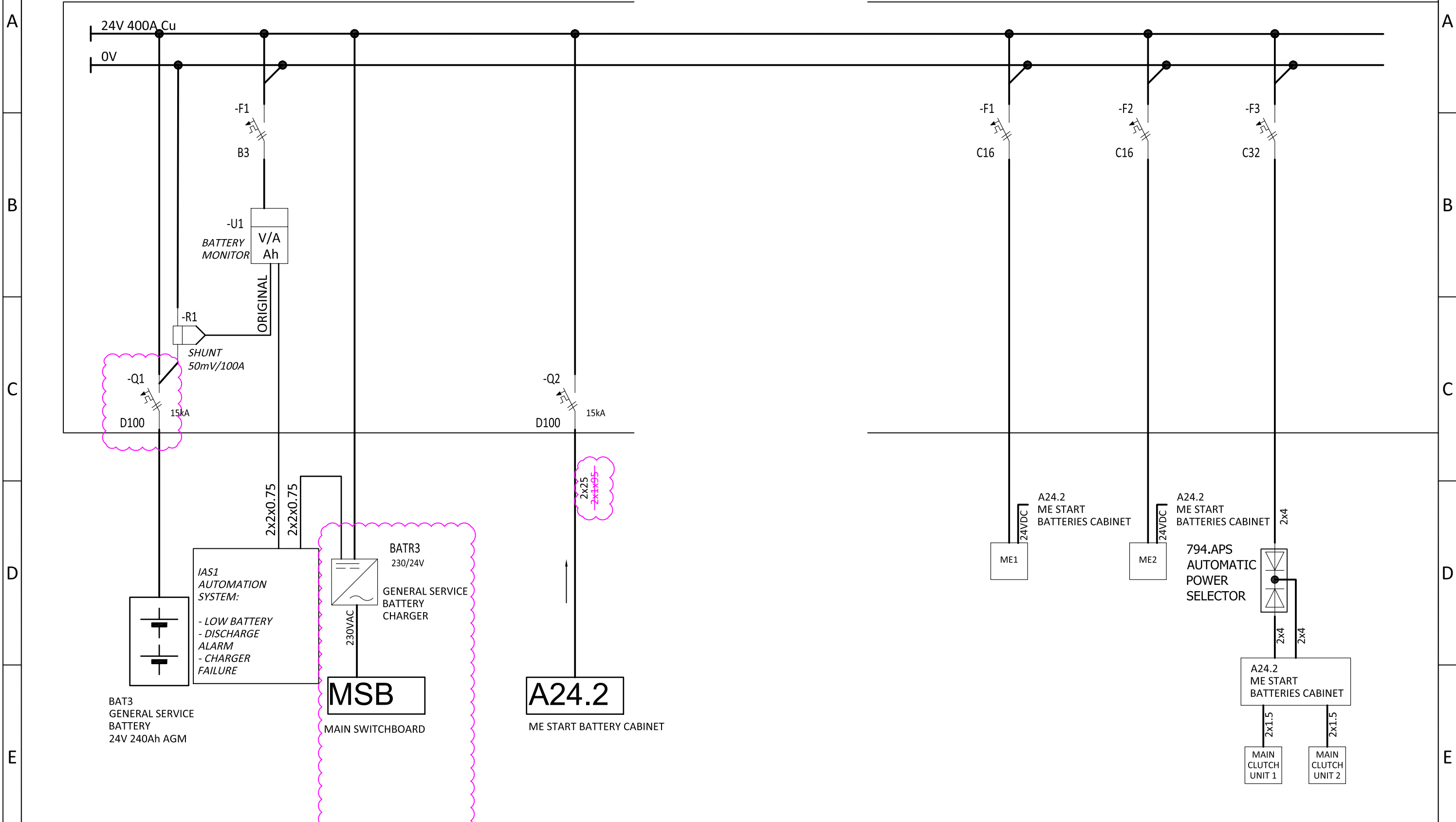
- TWO-WIRE UNGROUNDED DISTRIBUTION SYSTEM.
- CABINETS ARE DEAD FRONT TYPE IP44 INSTALLED IN THE ENGINE ROOM.
- SWITCHBOARD ARE TO BE APPROVED ACCORDING TO CLASSIFICATION SOCIETY AND MANUFACTURED BY AN APPROVED MANUFACTURER. FINAL DESIGN IS TO BE APPROVED BY THE CLASSIFICATION SOCIETY. FACTORY ACCEPTANCE TESTING TO BE IN PRESENCE OF THE CLASSIFICATION SOCIETY SURVEYOR.
- ALL CABLES ARE TYPE APPROVED TYPE SPECIFIED RATED AT LEAST 85°C. MECHANICAL AND FIRE PROTECTION PROPERTIES INDICATED BY CABLE TYPE ACCORDING TO MANUFACTURER HELKAMA-BICA OR OTHER MANUFACTURER AS EQUIVALENT.

Tag	Name	Characteristics	Qty
A24.1	General service battery switchboard	Metal enclosure min IP20 hxwd max 600x500x210	1
-U1	Battery monitor	24V (installed on bridge console)	1
-R1	Shunt	min 50mV/100A	1
-Q1, Q2	Miniature circuit breaker	D100A 2P DC, 15kA	2
-F3	Miniature circuit breaker	C32A 2P DC, 15kA	1
-F4 to F5	Miniature circuit breaker	C20A 2P DC, 15kA	2
-F1,2,6 F11,12,13	Miniature circuit breaker	C16A 2P DC, 15kA	6
-F8 to Q10	Miniature circuit breaker	C10A 2P DC, 15kA	4
-F1	Miniature circuit breaker	B3A 2P DC, 15kA	1
-X1	Line terminals	2x16 mm <sup>2</sup> , 2x6mm <sup>2</sup> , 2x4mm <sup>2</sup> , 24x2,5mm <sup>2</sup>	set
	Other	Cable ducts, internal wiring, busbars etc.	set



Sheet Name GEN.SER.BAT.SWITCHBOARD	Project No. GV008	Owner Reference 493	Scale --
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		Identification No. 328920	Sheets 44

A24.1 GENERAL SERVICE BATTERY SWITCHBOARD

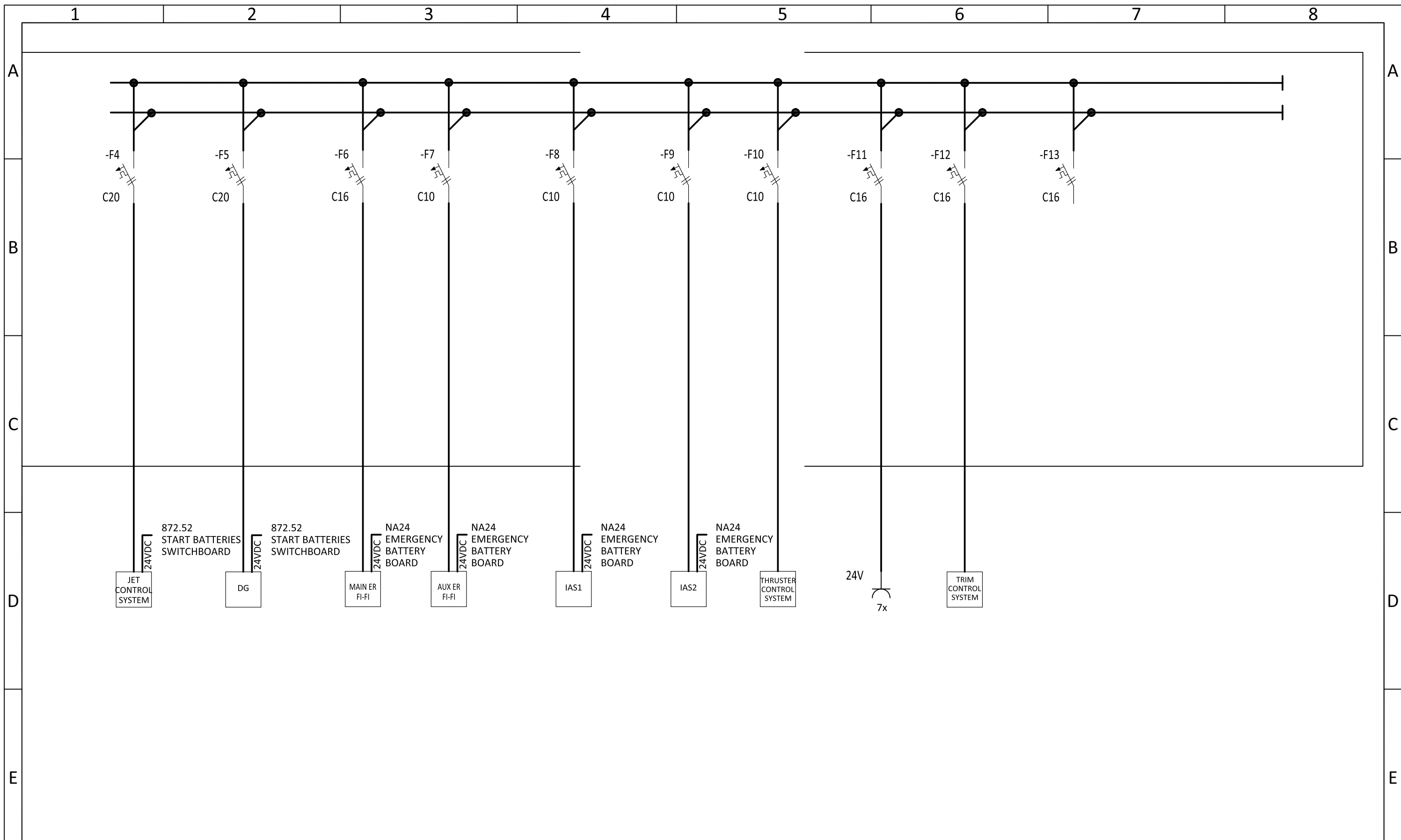


Circuit number	866.02	BATR3	794.ME1	794.ME2	794.APS
Circuit name	GENERAL SERVICE BATTERY	GENERAL SERVICE BATTERY CHARGER	CONTROL CABINET ME1	CONTROL CABINET ME2	GEARBOX AUT.POW.SELECTOR
Location	ENGINE ROOM	ENGINE ROOM	ENGINE ROOM	ENGINE ROOM	ENGINE ROOM
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH
Section	2x25	2x16	2x2.5	2x2.5	2x4
Load	450W/60A	0,6kW / 30A	300W	300W	



Sheet Name	GEN.SER.BAT.SWITCHBOARD	Project No.	GV008	Owner Reference	493	Scale	--
Document Name	SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS			Classification No.	01 881 601	Sheet	19
				Identification No.	328920	Sheets	44

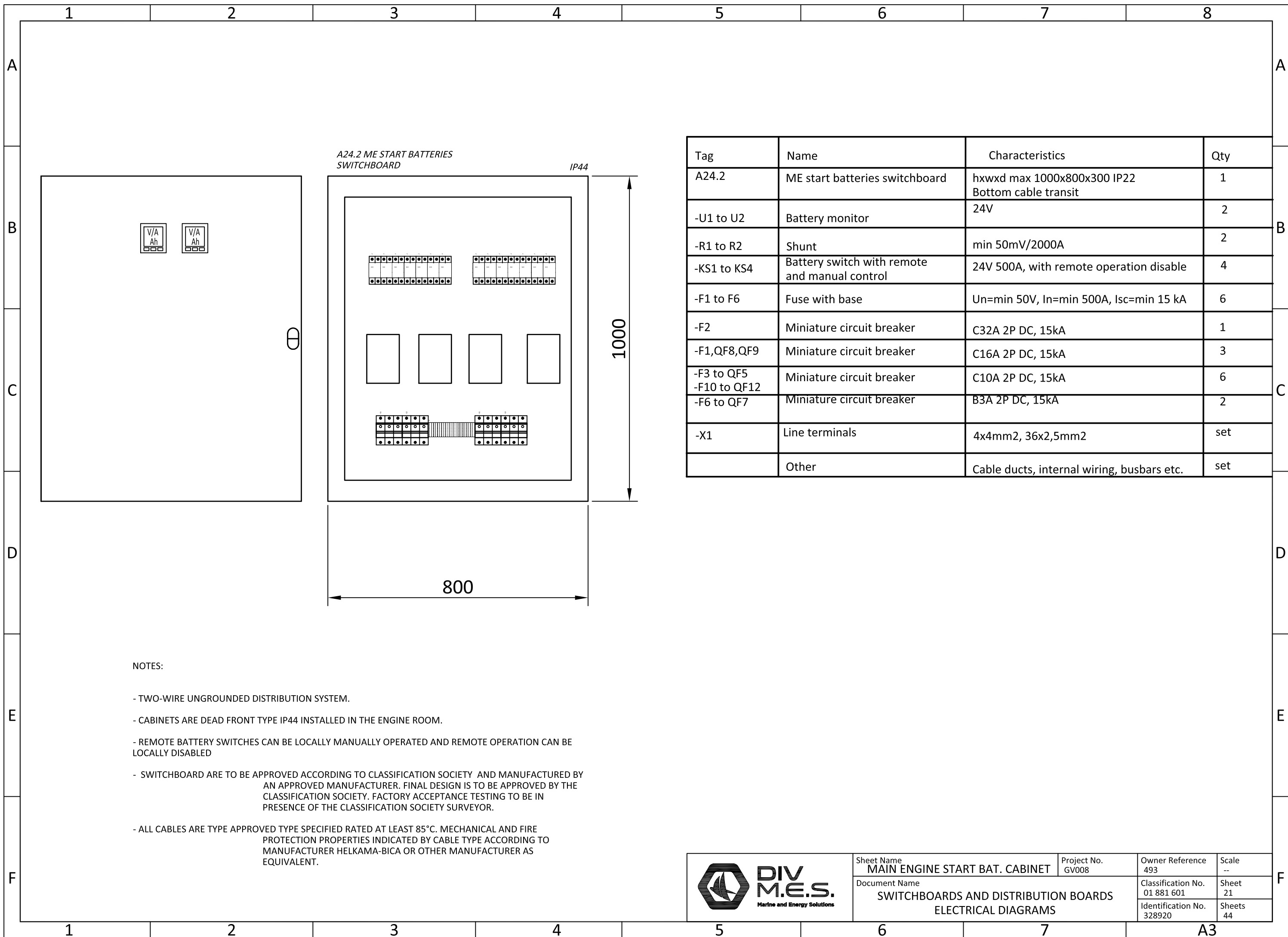




Circuit number	815.1CB	815.2CB	IAS1	IAS1			
Circuit name	MAIN ER FI-FI SYSTEM CABINET	AUX ER FI-FI SYSTEM CABINET	AUTOMATION CABINET	AUTOMATION CABINET	THRUSTER CONTROL SYSTEM	OUTLETS 24V	TRIM CONTROL SYSTEM
Location	AUS CTRL ROOM	AUS CTRL ROOM	ENGINE ROOM	ENGINE ROOM	BOW THRUSTER COMPARTMENT	MACHINERY SPACES	ENGINE ROOM
Cable	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH	M2XCH
Section	2x1.5	2x1.5	2x4 (30m)	2x4 (30m)	2x2.5	2x2.5	2x2.5
Load	10W/0.5-2A	10W/0.5-2A	164W/7A	164W/7A	20W	20W	20W



Sheet Name GEN.SER.BAT.SWITCHBOARD	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 20
		Identification No. 328920	Sheets 44



A24.2 ME START BATTERIES SWITCHBOARD IP44


1000

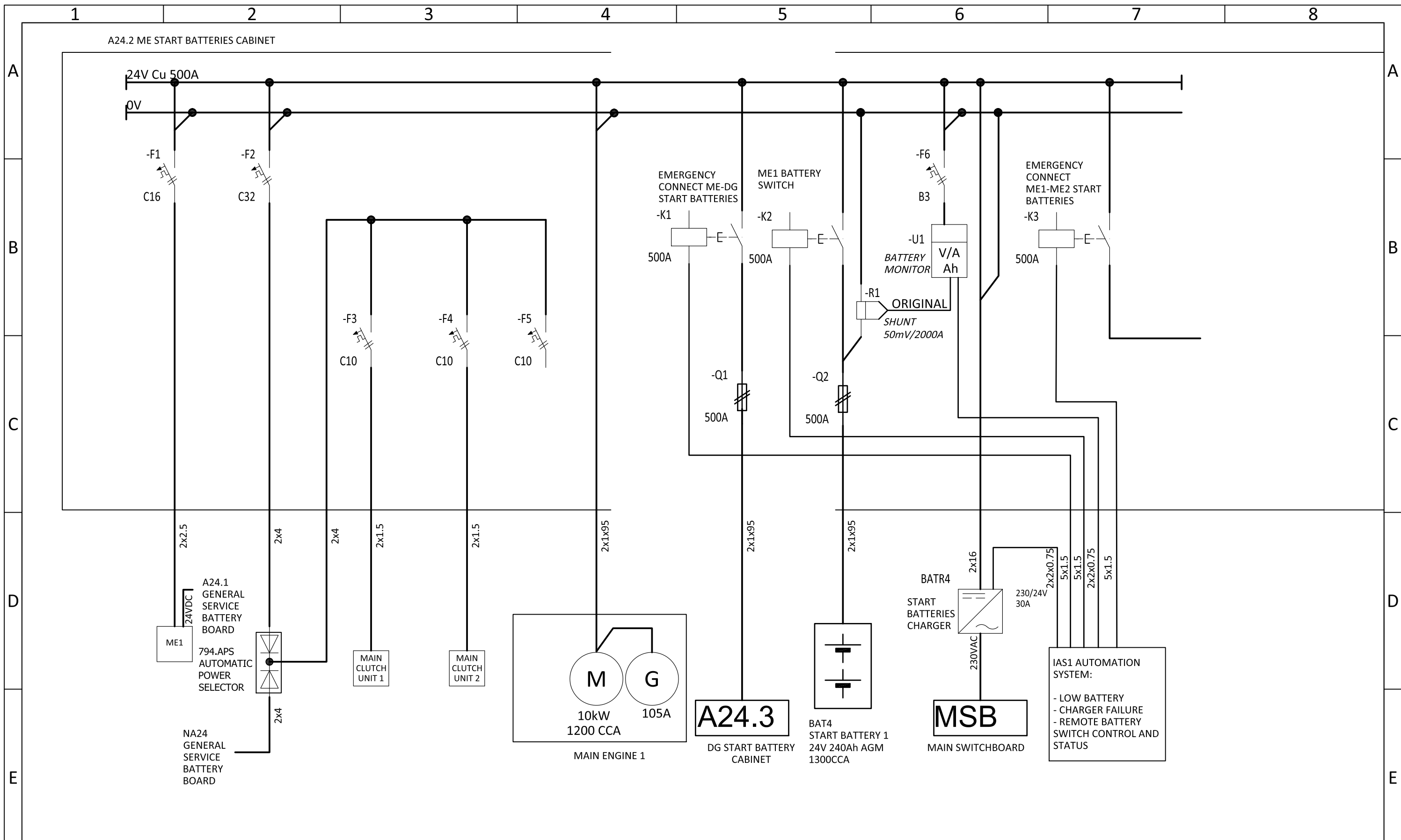
800

NOTES:

- TWO-WIRE UNGROUNDED DISTRIBUTION SYSTEM.
- CABINETS ARE DEAD FRONT TYPE IP44 INSTALLED IN THE ENGINE ROOM.
- REMOTE BATTERY SWITCHES CAN BE LOCALLY MANUALLY OPERATED AND REMOTE OPERATION CAN BE LOCALLY DISABLED
- SWITCHBOARD ARE TO BE APPROVED ACCORDING TO CLASSIFICATION SOCIETY AND MANUFACTURED BY AN APPROVED MANUFACTURER. FINAL DESIGN IS TO BE APPROVED BY THE CLASSIFICATION SOCIETY. FACTORY ACCEPTANCE TESTING TO BE IN PRESENCE OF THE CLASSIFICATION SOCIETY SURVEYOR.
- ALL CABLES ARE TYPE APPROVED TYPE SPECIFIED RATED AT LEAST 85°C. MECHANICAL AND FIRE PROTECTION PROPERTIES INDICATED BY CABLE TYPE ACCORDING TO MANUFACTURER HELKAMA-BICA OR OTHER MANUFACTURER AS EQUIVALENT.

Tag	Name	Characteristics	Qty
A24.2	ME start batteries switchboard	hwxwd max 1000x800x300 IP22 Bottom cable transit	1
-U1 to U2	Battery monitor	24V	2
-R1 to R2	Shunt	min 50mV/2000A	2
-KS1 to KS4	Battery switch with remote and manual control	24V 500A, with remote operation disable	4
-F1 to F6	Fuse with base	Un=min 50V, In=min 500A, Isc=min 15 kA	6
-F2	Miniature circuit breaker	C32A 2P DC, 15kA	1
-F1,QF8,QF9	Miniature circuit breaker	C16A 2P DC, 15kA	3
-F3 to QF5 -F10 to QF12	Miniature circuit breaker	C10A 2P DC, 15kA	6
-F6 to QF7	Miniature circuit breaker	B3A 2P DC, 15kA	2
-X1	Line terminals	4x4mm <sup>2</sup> , 36x2,5mm <sup>2</sup>	set
	Other	Cable ducts, internal wiring, busbars etc.	set

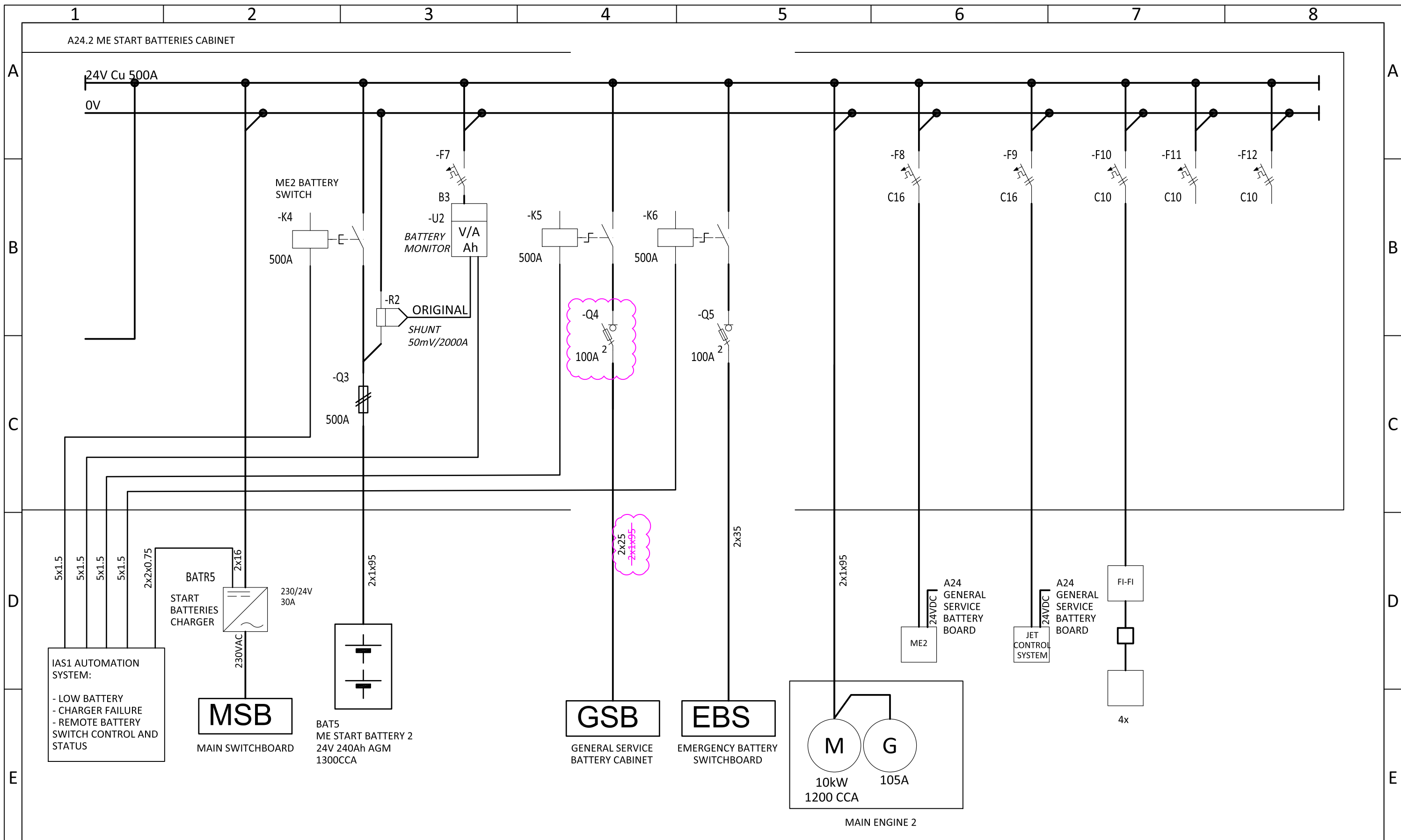
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	Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 21
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Circuit number	794.ME1	794.GB1	794.GB2	BATR4
Circuit name	CONTROL CABINET ME1	GEARBOX 1 PROCESSOR	GEARBOX 2 PROCESSOR	ME START BATTERY 1 CHARGER
Location	ENGINE ROOM	ENGINE ROOM	ENGINE ROOM	ENGINE ROOM
Cable	M2XCH	M2XCH	M2XCH	M2XCH
Section	2x2.5	2x1.5	2x1.5	3x1.5
Load	300W			0,6kW / 25A

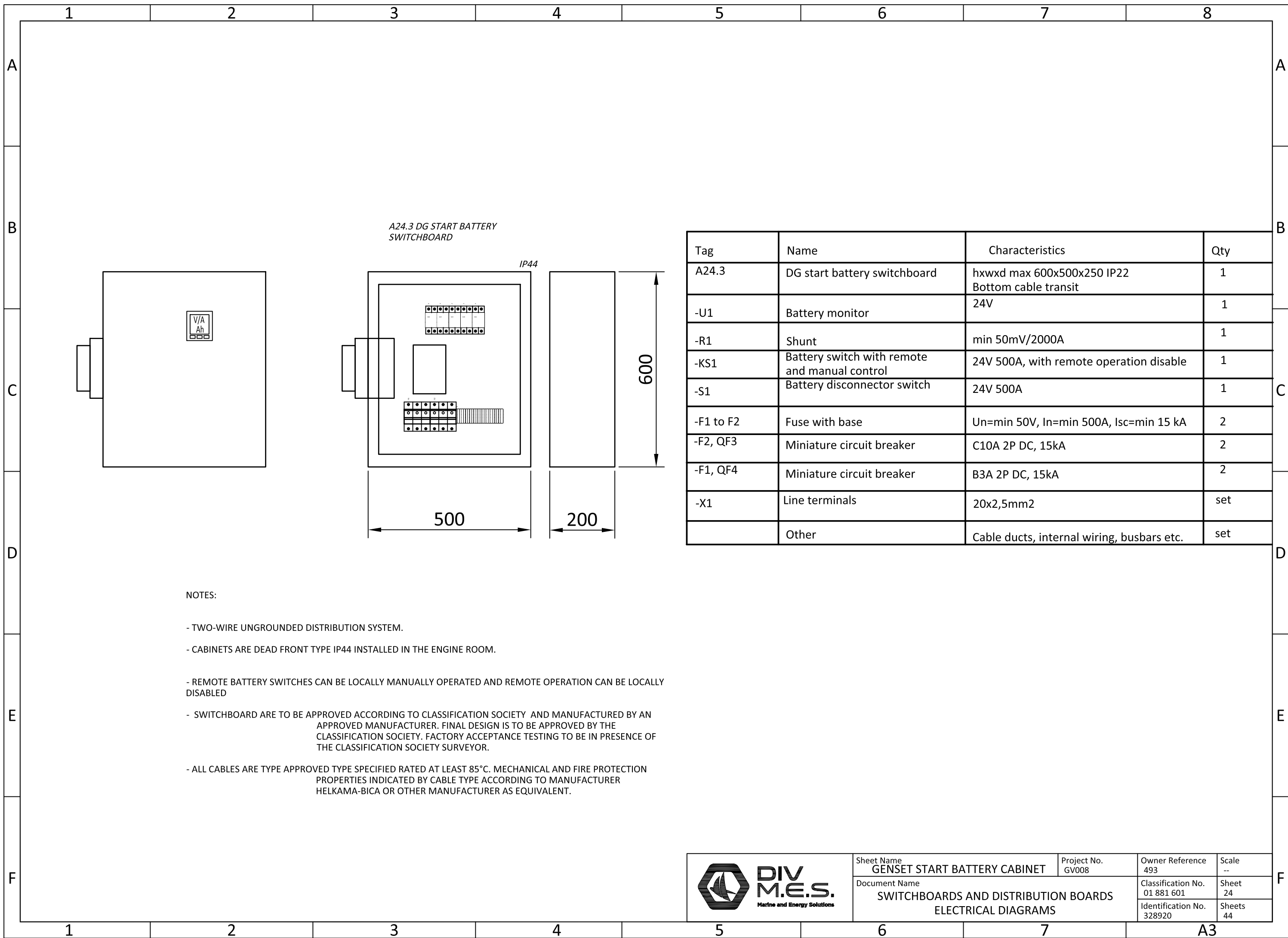
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	Document Name <b>SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS</b>		Classification No. 01 881 601	Sheet 22
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A3



Circuit number	BATR5	574-MS-0013-AFD TO 574-MS-0016-AFD
Circuit name	ME START BATTERY 2 CHARGER	MAIN ER FIRE DAMPERS
Location	ENGINE ROOM	ENGINE ROOM
Cable	M2XCH	M2XCH-FFR
Section	3x1.5	2x2.5
Load	0,6kW / 25A	300W

	Sheet Name	Project No.	Owner Reference	Scale
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	Document Name	Classification No.		Sheet
SWITCHBOARDS AND DISTRIBUTION BOARDS		01 881 601		23
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A24.3 DG START BATTERY SWITCHBOARD

IP44

Tag	Name	Characteristics	Qty
A24.3	DG start battery switchboard	hxwxd max 600x500x250 IP22 Bottom cable transit	1
-U1	Battery monitor	24V	1
-R1	Shunt	min 50mV/2000A	1
-KS1	Battery switch with remote and manual control	24V 500A, with remote operation disable	1
-S1	Battery disconnect switch	24V 500A	1
-F1 to F2	Fuse with base	Un=min 50V, In=min 500A, Isc=min 15 kA	2
-F2, QF3	Miniature circuit breaker	C10A 2P DC, 15kA	2
-F1, QF4	Miniature circuit breaker	B3A 2P DC, 15kA	2
-X1	Line terminals	20x2,5mm2	set
	Other	Cable ducts, internal wiring, busbars etc.	set

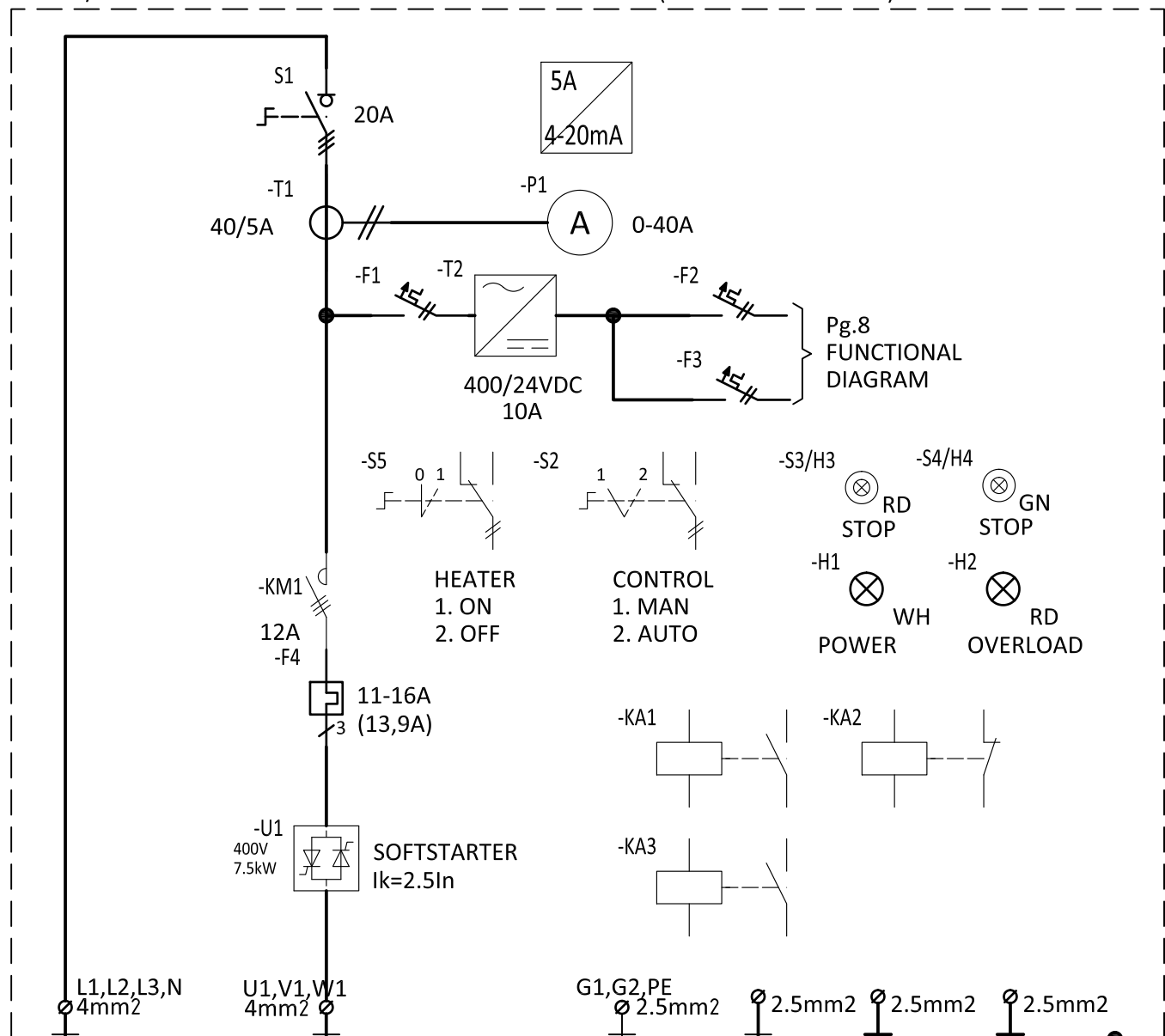
NOTES:

- TWO-WIRE UNGROUNDED DISTRIBUTION SYSTEM.
- CABINETS ARE DEAD FRONT TYPE IP44 INSTALLED IN THE ENGINE ROOM.
- REMOTE BATTERY SWITCHES CAN BE LOCALLY MANUALLY OPERATED AND REMOTE OPERATION CAN BE LOCALLY DISABLED
- SWITCHBOARD ARE TO BE APPROVED ACCORDING TO CLASSIFICATION SOCIETY AND MANUFACTURED BY AN APPROVED MANUFACTURER. FINAL DESIGN IS TO BE APPROVED BY THE CLASSIFICATION SOCIETY. FACTORY ACCEPTANCE TESTING TO BE IN PRESENCE OF THE CLASSIFICATION SOCIETY SURVEYOR.
- ALL CABLES ARE TYPE APPROVED TYPE SPECIFIED RATED AT LEAST 85°C. MECHANICAL AND FIRE PROTECTION PROPERTIES INDICATED BY CABLE TYPE ACCORDING TO MANUFACTURER HELKAMA-BICA OR OTHER MANUFACTURER AS EQUIVALENT.

	Sheet Name GENSET START BATTERY CABINET	Project No. GV008	Owner Reference 493	Scale --
	Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 24
			Identification No. 328920	Sheets 44



813.1C/EL. CABINET FI-FI GENERAL SERVICE PUMP 1 STARTER (MAIN ENGINE ROOM)

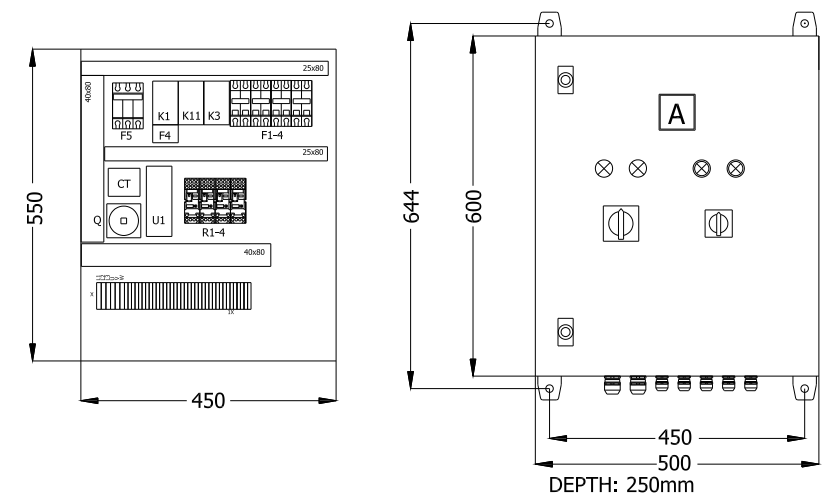


MSB  
-F4, D25  
MAIN SWITCHBOARD  
(AUX ENGINE ROOM)

813FP001  
FI-FI GENERAL SERVICE PUMP 1  
(MAIN ENGINE ROOM)  
2900 rpm  
132 S1/2  
Y400/D230V  
7.5kW/13.9A/7.0In  
 $\eta$  85%/cos $\phi$  0,83

IAS1 (MAIN ENGINE ROOM)

Pg.8  
FUNCTIONAL  
DIAGRAM



Tag	Name	Characteristics	Qty
	Housing with cable glands	hxwxh 500x400x210 IP44, 4xM16, 2xM20	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	11-16A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1	Motor Contactor 3P	400V 3P 18A AC-1 Auxiliary contacts 3NO+1NC	1
-KA1 -KA3	Control relay	24V 1NO	2
-KA2	Control relay	24V 1NC	1
-P1	AC Ammeter	0-40A	1
-S1	Main switch	400V 3P 20A 0-1	1
-S2	Selector switch	250V 4P 3A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4	Pushbutton/indicator	24V 2NO GREEN	1
-S5	Heater switch	250V 2P 3A 0-1	1
-T1	Current transformer	40/5A	1
-T2	Control supply	400/24V 10A	1
	Line terminals	4mm <sup>2</sup>	6
	Line terminals	2.5mm <sup>2</sup>	25
-U1	Soft starter	3x400V 50Hz 7.5kW IP44	1

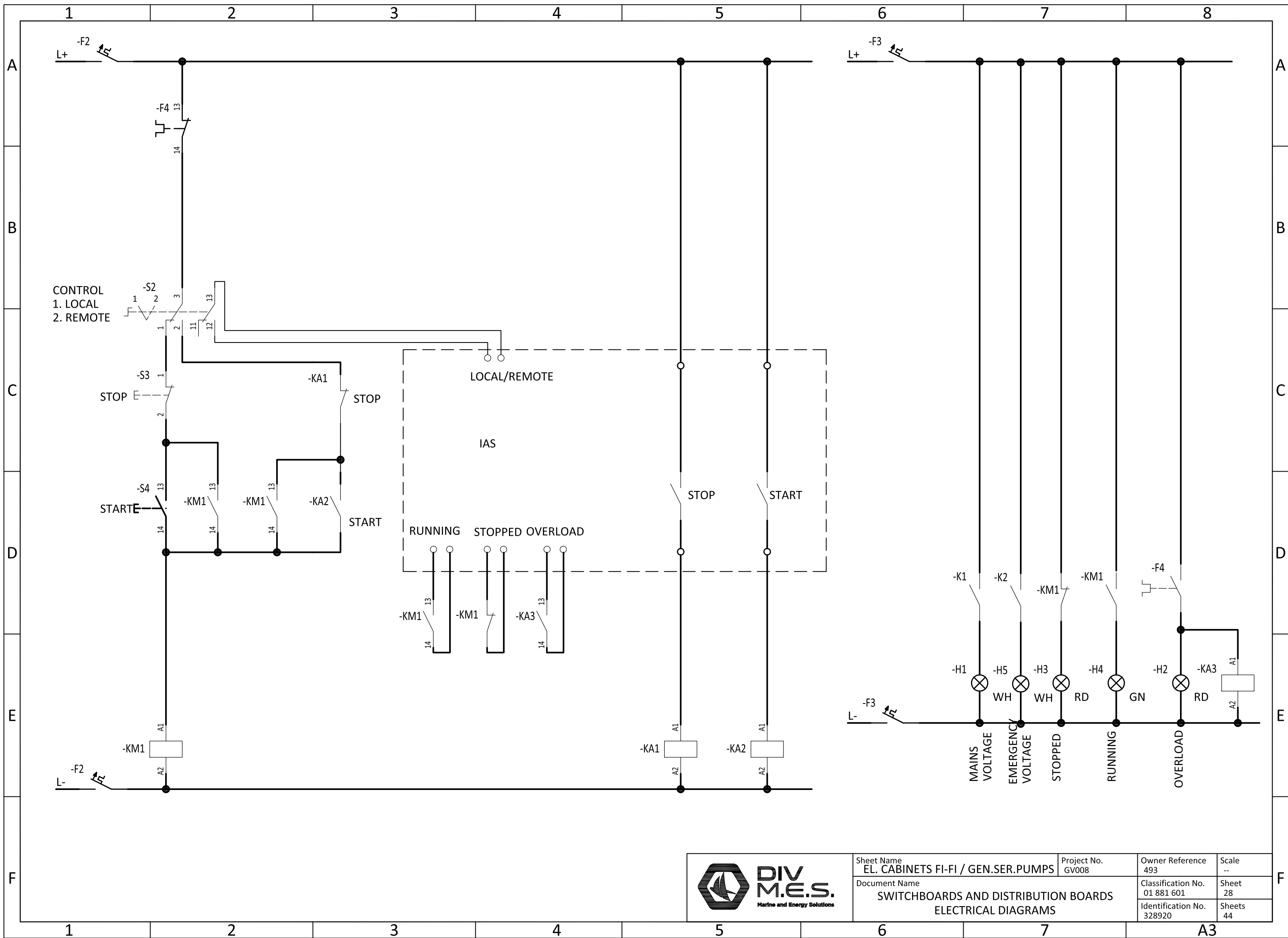
DIV  
M.E.S.

Marine and Energy Solutions

Sheet Name EL. CABINETS FI-FI / GEN.SER.PUMPS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 26
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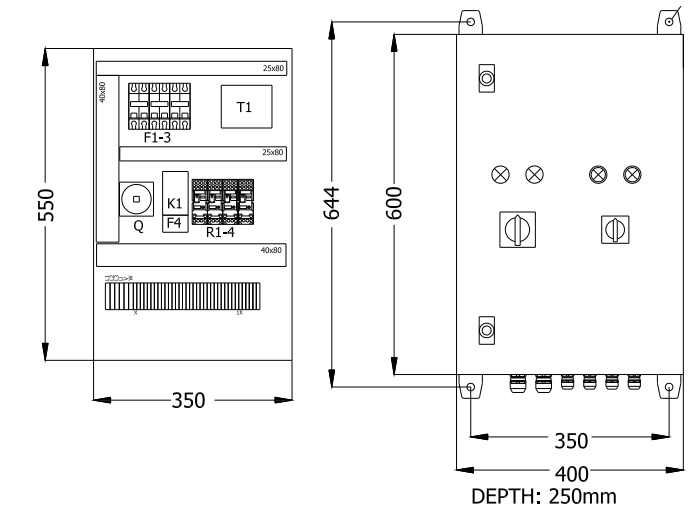
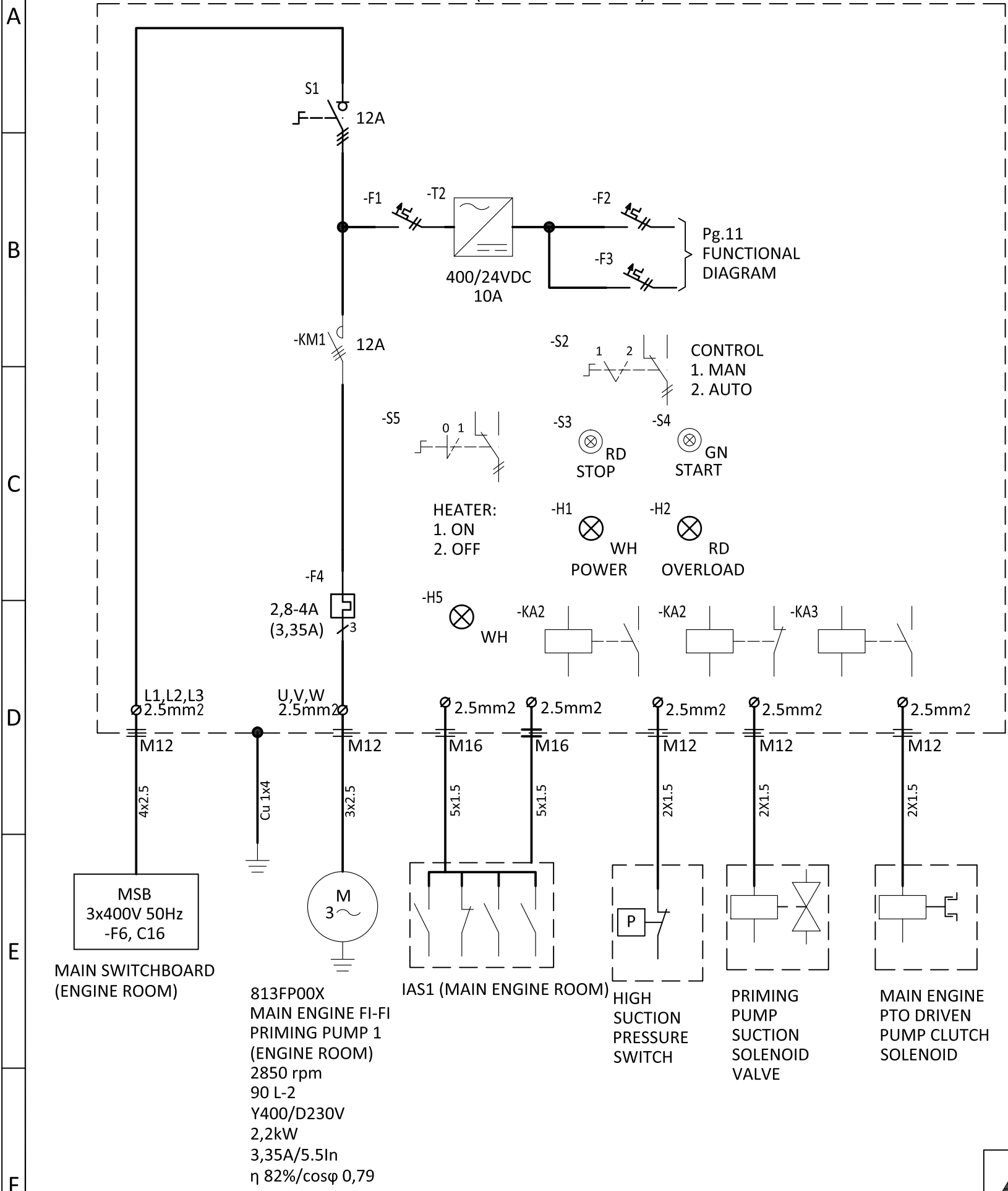




Sheet Name EL. CABINETS FI-FI / GEN.SER.PUMPS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 28
		Identification No. 328920	Sheets 44

A3

813.3C ME FI-FI WITH PRIMING PUMP 1 STARTER (MAIN ENGINE ROOM)

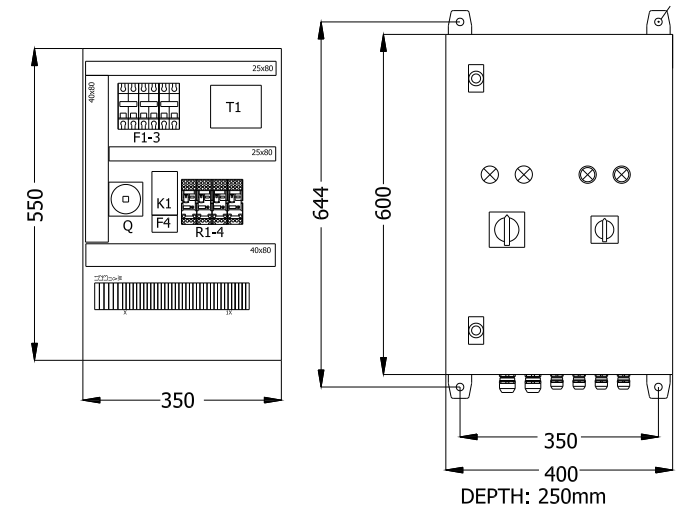
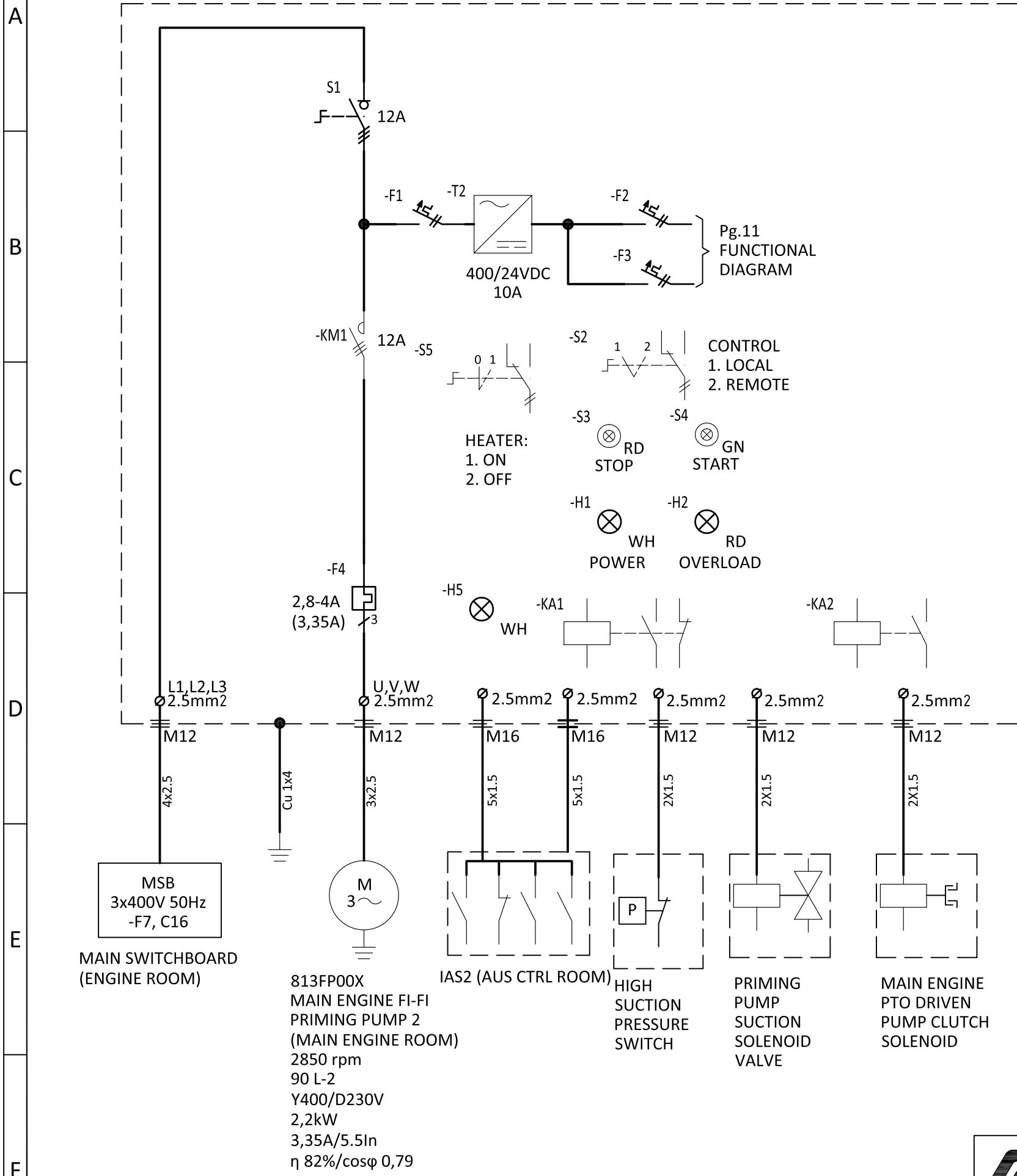


Tag	Name	Characteristics	Qty
	Housing with cable glands	hxwxh 400x300x210 IP44, 2xM16, 2xM20 3xM12	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	2,8-4A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1	Motor contactor 3P	400V 3P 12A AC-3 Auxiliary contacts 3NO+1NC	1
-KA1, -KA3	Control relay	24V 1NO	2
-KA2	Control relay	24V 1NC	1
-KA2	Control relay	24V 1NC	1
-S1	Main switch	400V 3P 12A 0-1	1
-S2	Selector switch	250V 4P 12A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4	Pushbutton/indicator	24V 2NO GREEN	1
-S5	Heater switch	250V 2P 12A 0-1	1
-T1	Control supply 400/24VDC	400/24V 10A	1
	Line terminals	2.5mm <sup>2</sup>	38

**DIV M.E.S.**  
Marine and Energy Solutions

Sheet Name EL.CABINETS ME FI-FI PUMPS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 29
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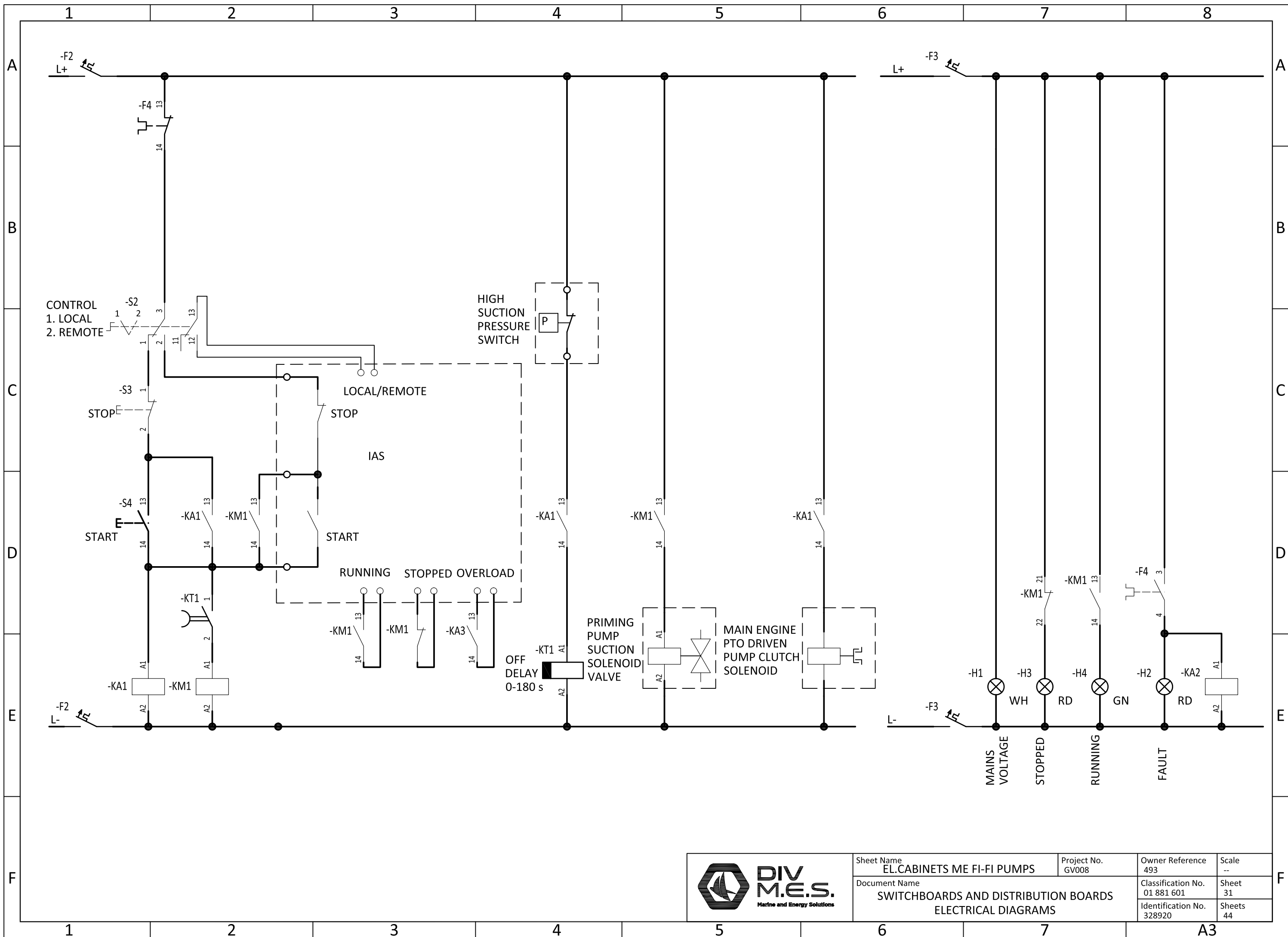
8134C ME FI-FI WITH PRIMING PUMP 2 STARTER (MAIN ENGINE ROOM)



Tag	Name	Characteristics	Qty
	Housing with cable glands	hwxwd 400x300x210 IP44, 2xM16, 2xM20, 3xM12	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	2,8-4A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1	Motor contactor 3P	400V 3P 12A AC-3 Auxiliary contacts 3NO+1NC	1
-KA1, -KA3	Control relay	24V 1NO	2
-KA2	Control relay	24V 1NC	1
-S1	Main switch	400V 3P 12A 0-1	1
-S2	Selector switch	250V 4P 12A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4	Pushbutton/indicator	24V 2NO GREEN	1
-S5	Heater switch	250V 2P 12A 0-1	1
-T1	Control supply	400/24VDC	1
	Line terminals	2.5mm2	38

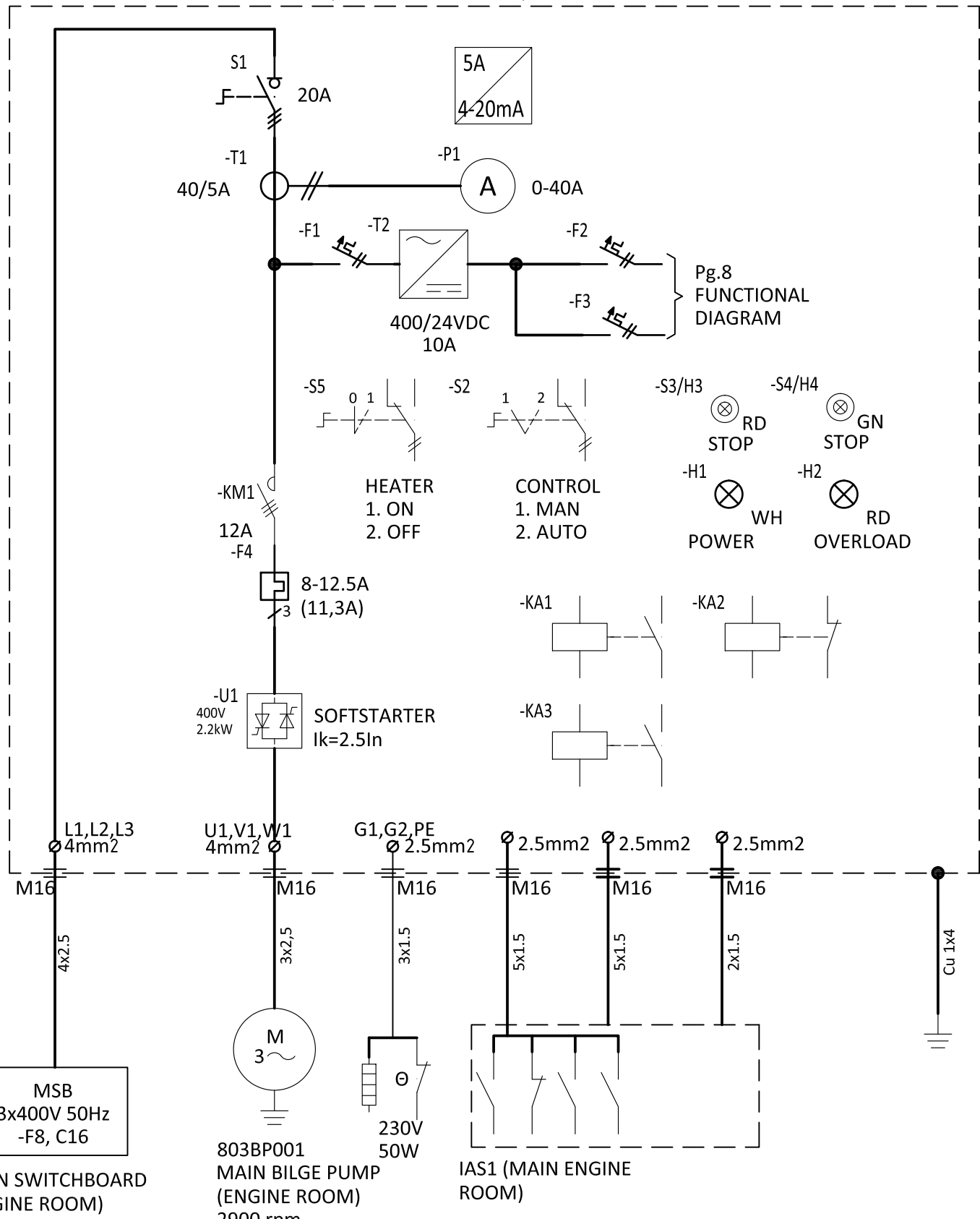
**DIV  
M.E.S.**  
Marine and Energy Solutions

Sheet Name	EL.CABINETS ME FI-FI PUMPS	Project No.	GV008	Owner Reference	493	Scale	--
Document Name	SWITCHBOARDS AND DISTRIBUTION BOARDS		Classification No.	01 881 601	Sheet	30	
	ELECTRICAL DIAGRAMS		Identification No.	328920	Sheets	44	



Sheet Name EL.CABINETS ME FI-FI PUMPS	Project No. GV008	Owner Reference 493	Scale --
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803.1C MAIN BILGE PUMP STARTER (MAIN ENGINE ROOM)

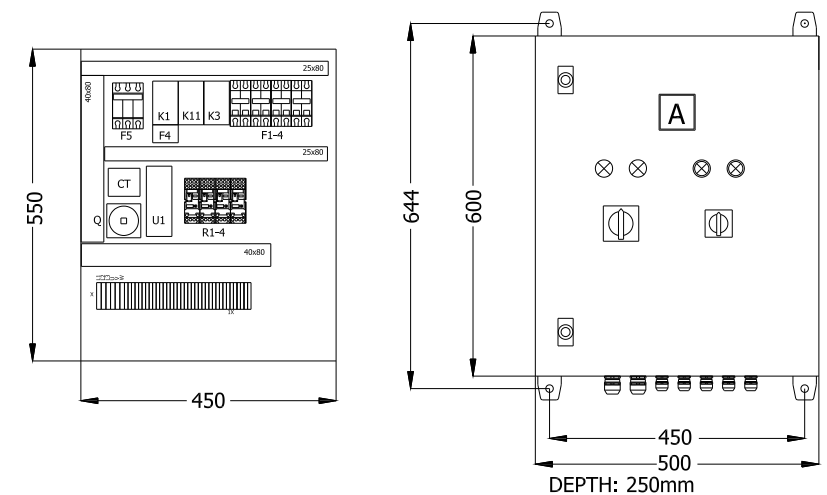


MSB  
3x400V 50Hz  
-F8, C16  
MAIN SWITCHBOARD  
(ENGINE ROOM)

803BP001  
MAIN BILGE PUMP  
(ENGINE ROOM)  
2900 rpm  
132 S1/2  
Y400/D230V  
2,2kW  
4,55A/7,0In  
 $\eta$  85%/cos $\phi$  0,83

IAS1 (MAIN ENGINE ROOM)

Pg.8  
FUNCTIONAL  
DIAGRAM

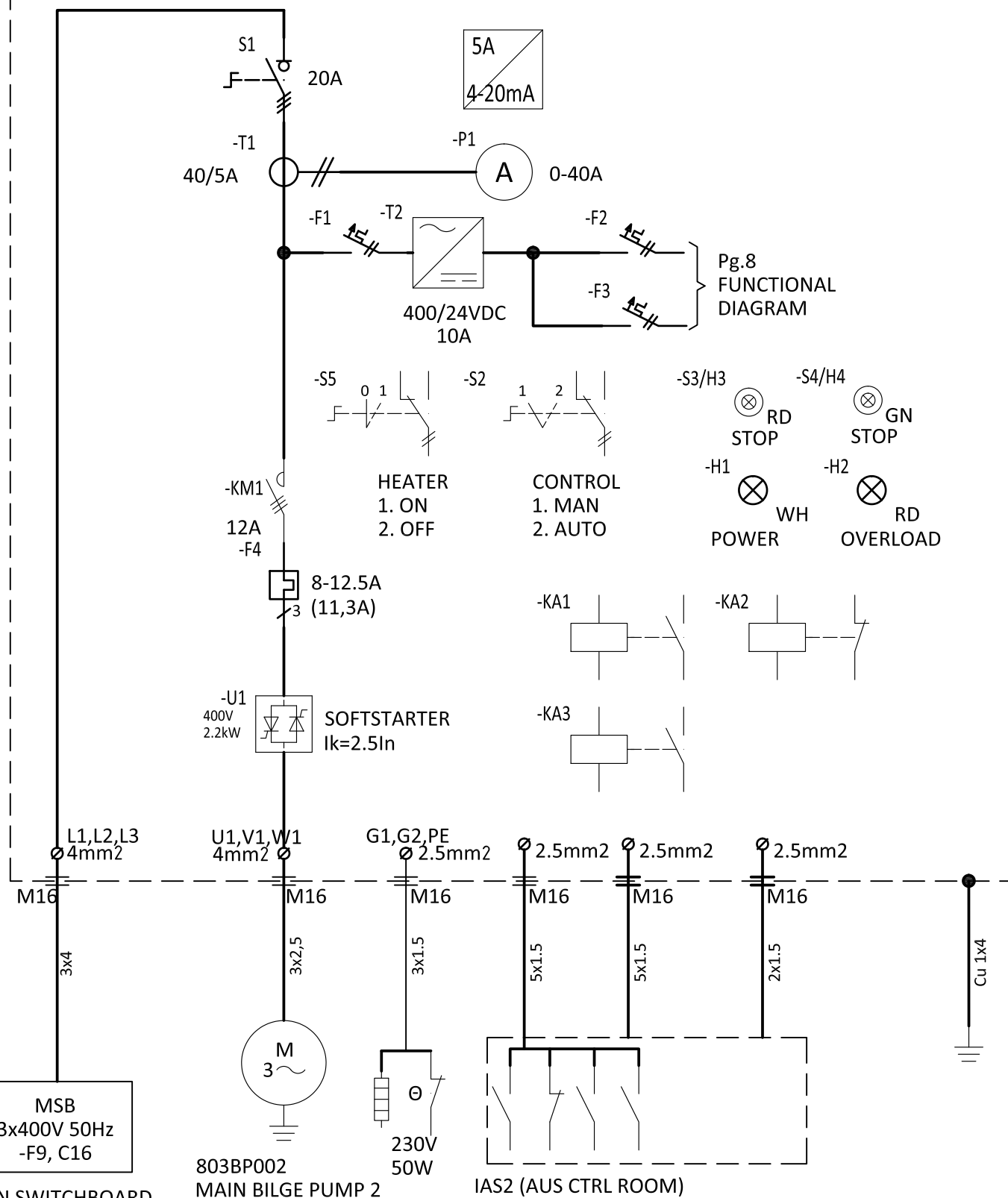


Tag	Name	Characteristics	Qty
	Housing with cable glands	hxwxh 500x400x210 IP44, 4xM16, 2xM20	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	8-12.5A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1	Motor Contactor 3P	400V 3P 12A AC-1 Auxiliary contacts 3NO+1NC	1
-KA1 -KA3	Control relay	24V 1NO	2
-KA2	Control relay	24V 1NC	1
-P1	AC Ammeter	0-40A	1
-S1	Main switch	400V 3P 20A 0-1	1
-S2	Selector switch	250V 4P 3A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4	Pushbutton/indicator	24V 2NO GREEN	1
-S5	Heater switch	250V 2P 3A 0-1	1
-T1	Current transformer	40/5A	1
-T2	Control supply	400/24VDC	1
	Line terminals	4mm <sup>2</sup>	6
	Line terminals	2.5mm <sup>2</sup>	25
-U1	Soft starter	3x400V 50Hz 2.2kW	1



Sheet Name EL.CABINETS BILGE PUMPS	Project No. GV008	Owner Reference 493	Scale --
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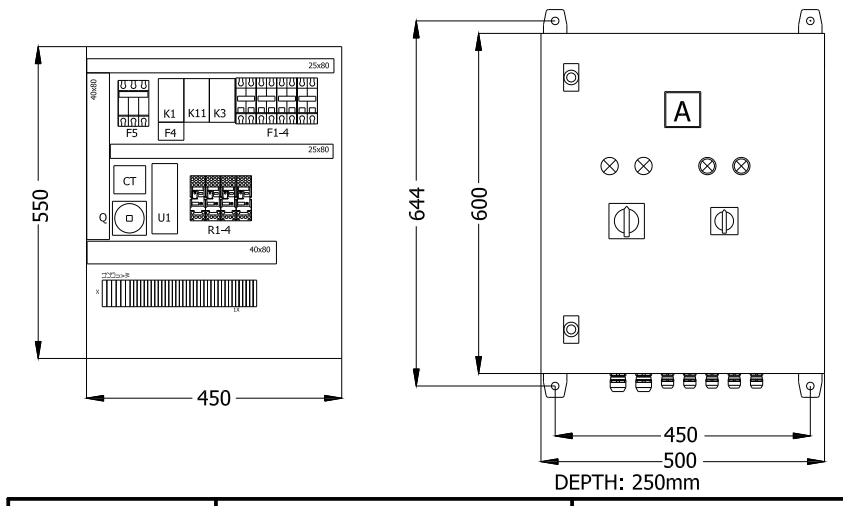
803.2C AUXILIARY BILGE PUMP STARTER (AUX ENGINE ROOM)



MSB  
3x400V 50Hz  
-F9, C16  
MAIN SWITCHBOARD  
(ENGINE ROOM)

803BP002  
MAIN BILGE PUMP 2  
(ENGINE ROOM)  
2900 rpm  
132 S1/2  
Y400/D230V  
2,2kW  
4,55A/7,0In  
η 85%/cosφ 0,83

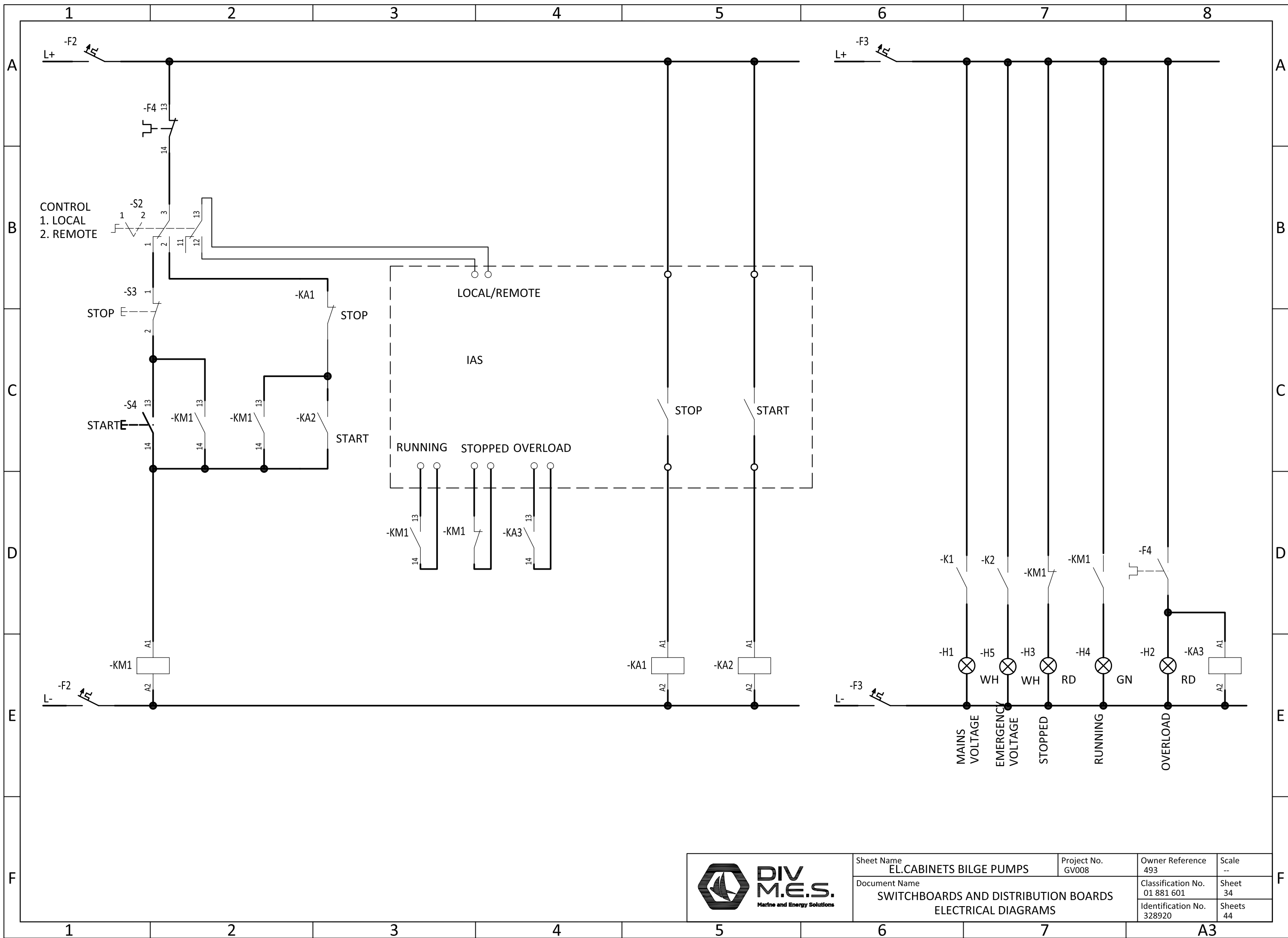
IAS2 (AUS CTRL ROOM)




Tag	Name	Characteristics	Qty
	Housing with cable glands	hwxwx 500x400x210 IP44, 4xM16, 2xM20	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	8-12.5A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1	Motor Contactor 3P	400V 3P 12A AC-1 Auxiliary contacts 3NO+1NC	1
-KA1 -KA3	Control relay	24V 1NO	2
-KA2	Control relay	24V 1NC	1
-P1	AC Ammeter	0-40A	1
-S1	Main switch	400V 3P 20A 0-1	1
-S2	Selector switch	250V 4P 3A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4	Pushbutton/indicator	24V 2NO GREEN	1
-S5	Heater switch	250V 2P 3A 0-1	1
-T1	Current transformer	40/5A	1
-T2	Control supply	400/24VDC	1
	Line terminals	4mm2	6
	Line terminals	2.5mm2	25
-U1	Soft starter	3x400V 50Hz 2.2kW	1



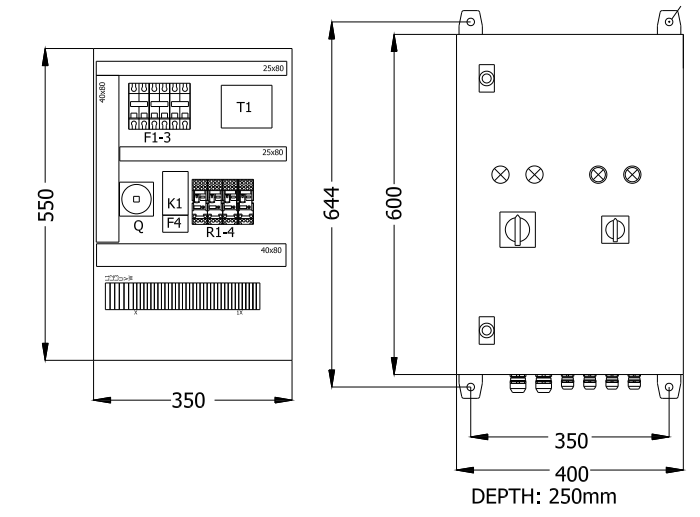
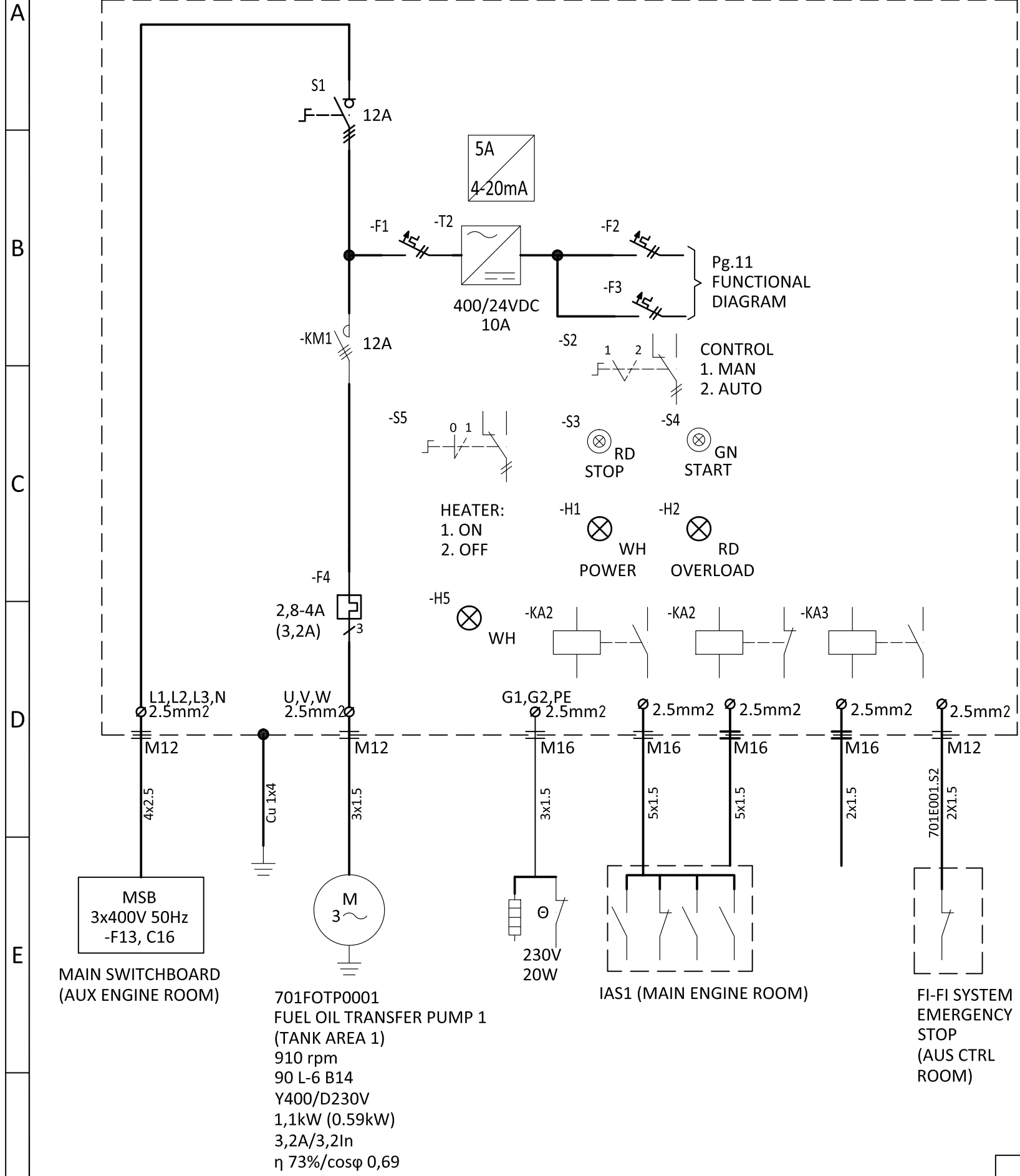
Sheet Name EL.CABINETS BILGE PUMPS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 33
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	Sheet Name EL.CABINETS BILGE PUMPS	Project No. GV008	Owner Reference 493	Scale --
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A3

701.1C FO PUMP 1 STARTER (MAIN ENGINE ROOM)

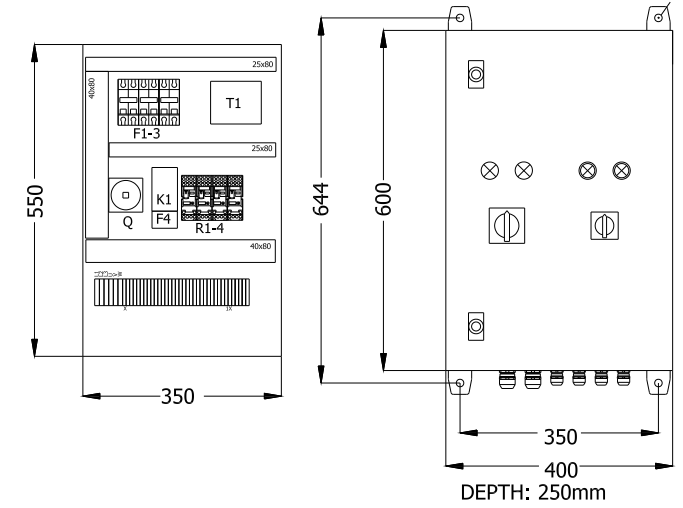
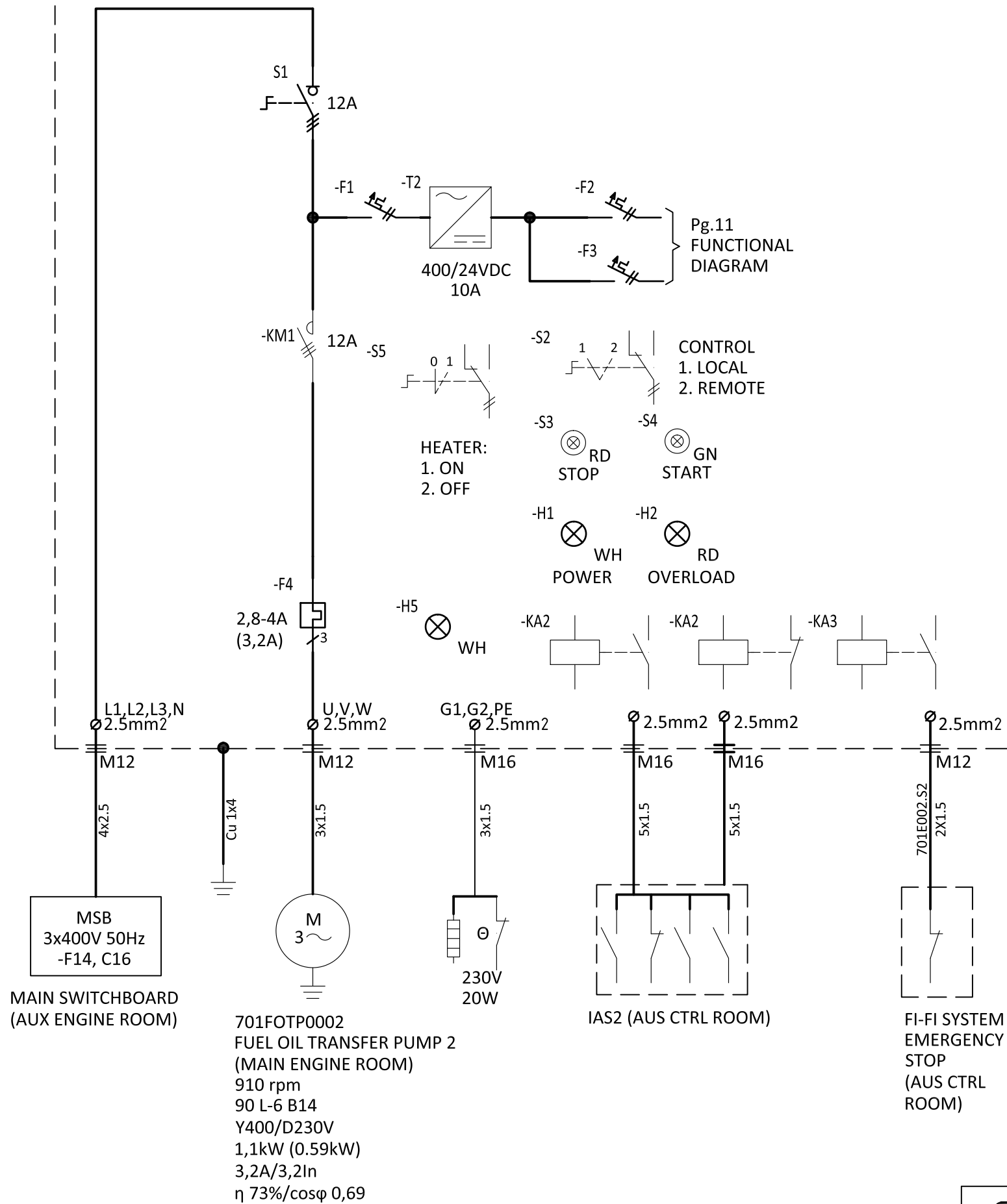


Tag	Name	Characteristics	Qty
	Housing with cable glands	hxwxh 400x300x210 IP44, 2xM16, 2xM20 3xM12	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	2,8-4A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1	Motor contactor 3P	400V 3P 12A AC-3 Auxiliary contacts 3NO+1NC	1
-KA1, -KA3	Control relay	24V 1NO	2
-KA2	Control relay	24V 1NC	1
-S1	Main switch	400V 3P 12A 0-1	1
-S2	Selector switch	250V 4P 12A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4	Pushbutton/indicator	24V 2NO GREEN	1
-S5	Heater switch	250V 2P 12A 0-1	1
-T1	Control supply	400/24VDC	1
	Line terminals	2.5mm <sup>2</sup>	38

Sheet Name EL.CABINET FUEL OIL TRANS. PUMPS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 35
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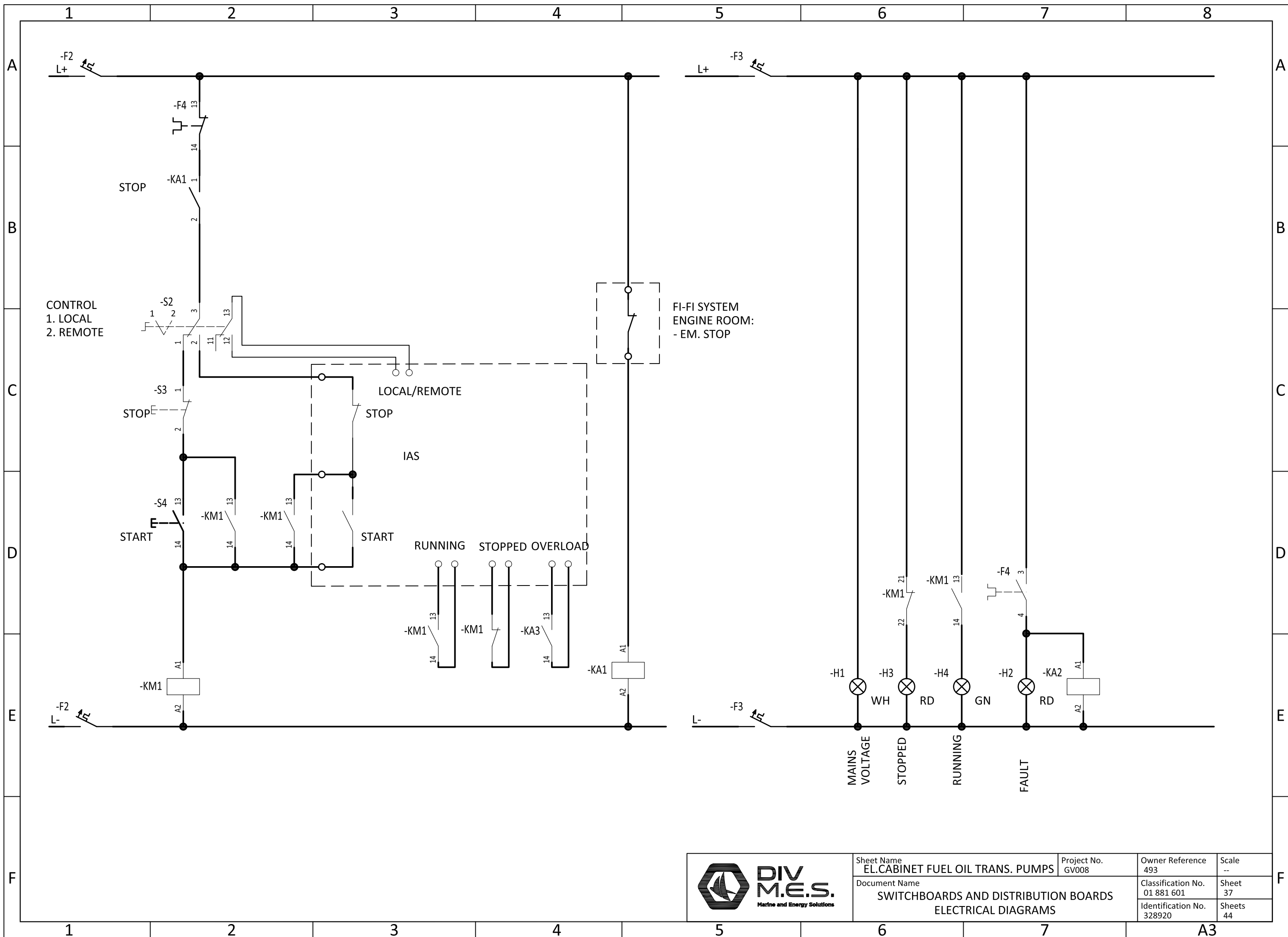


701.2C FO PUMP 2 STARTER (MAIN ENGINE ROOM)



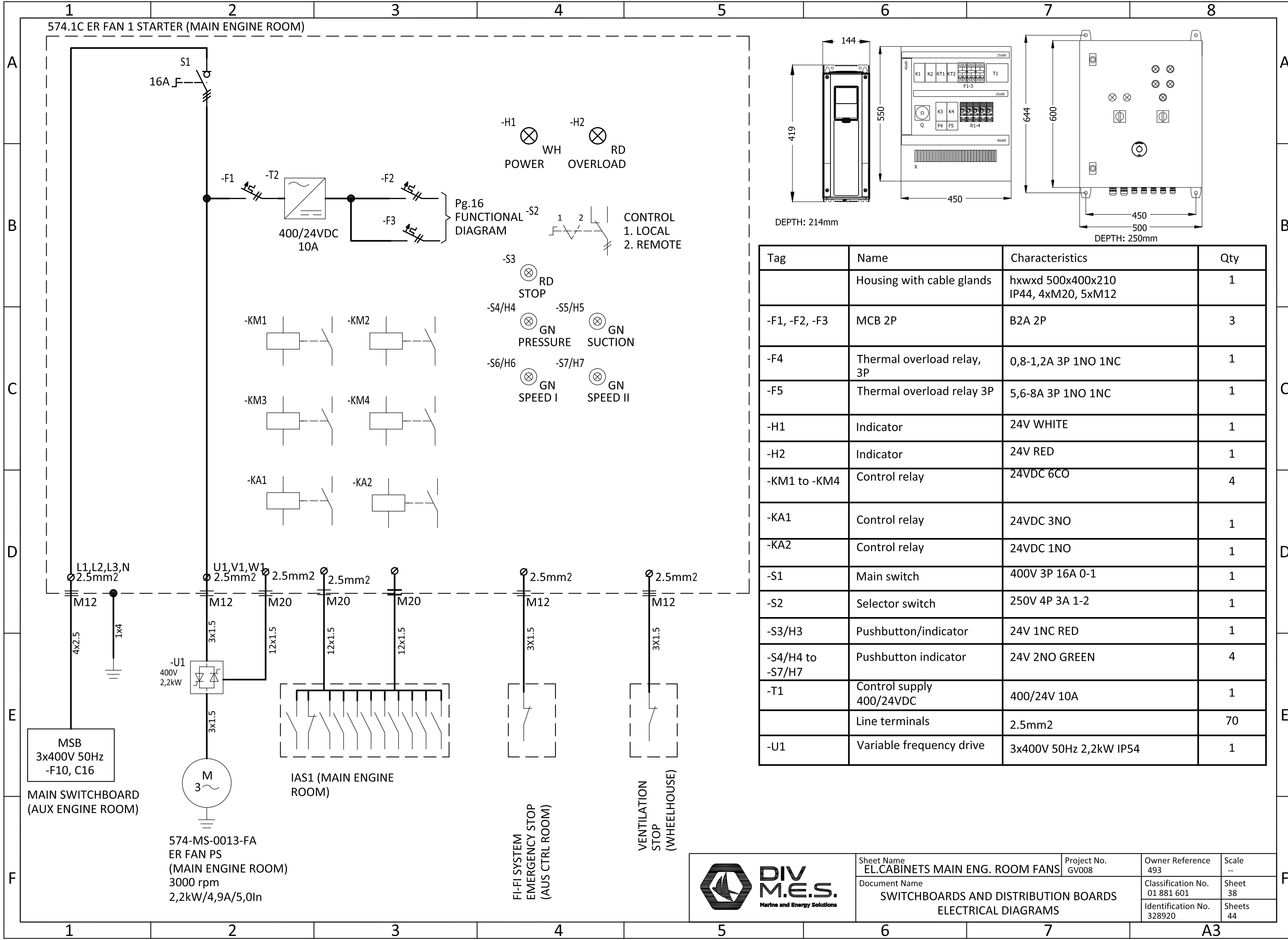
Tag	Name	Characteristics	Qty
	Housing with cable glands	hxwxh 400x300x210 IP44, 2xM16, 2xM20, 3xM12	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	2,8-4A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1	Motor contactor 3P	400V 3P 12A AC-3 Auxiliary contacts 3NO+1NC	1
-KA1, -KA3	Control relay	24V 1NO	2
-KA2	Control relay	24V 1NC	1
-S1	Main switch	400V 3P 12A 0-1	1
-S2	Selector switch	250V 4P 12A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4	Pushbutton/indicator	24V 2NO GREEN	1
-S5	Heater switch	250V 2P 12A 0-1	1
-T1	Control supply	400/24VDC	1
	Line terminals	2.5mm2	38

Sheet Name EL.CABINET FUEL OIL TRANS. PUMPS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 36
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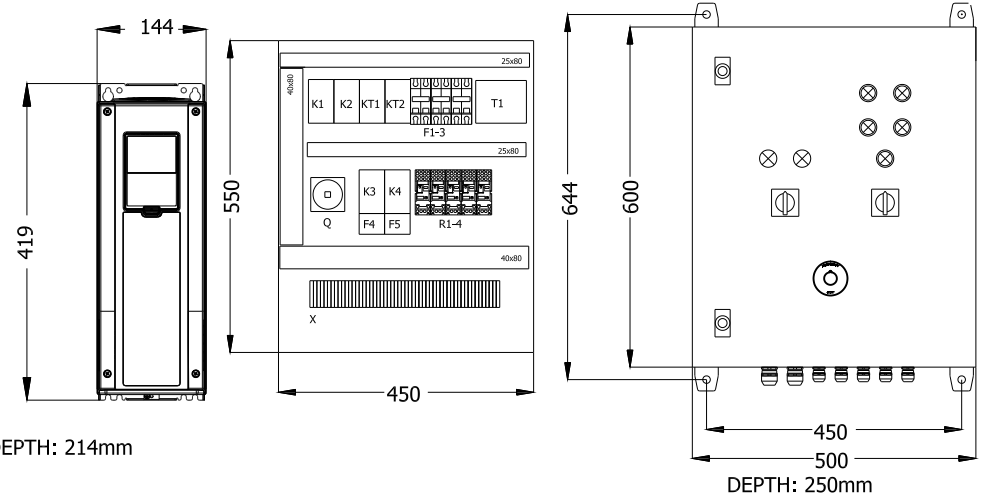
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574.1C ER FAN 1 STARTER (MAIN ENGINE ROOM)



Pg.16  
FUNCTIONAL  
DIAGRAM

CONTROL  
1. LOCAL  
2. REMOTE



Tag	Name	Characteristics	Qty
	Housing with cable glands	hxwxh 500x400x210 IP44, 4xM20, 5xM12	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	0,8-1,2A 3P 1NO 1NC	1
-F5	Thermal overload relay 3P	5,6-8A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1 to -KM4	Control relay	24VDC 6CO	4
-KA1	Control relay	24VDC 3NO	1
-KA2	Control relay	24VDC 1NO	1
-S1	Main switch	400V 3P 16A 0-1	1
-S2	Selector switch	250V 4P 3A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4 to -S7/H7	Pushbutton indicator	24V 2NO GREEN	4
-T1	Control supply 400/24VDC	400/24V 10A	1
	Line terminals	2.5mm <sup>2</sup>	70
-U1	Variable frequency drive	3x400V 50Hz 2,2kW IP54	1

MSB  
3x400V 50Hz  
-F10, C16  
MAIN SWITCHBOARD  
(AUX ENGINE ROOM)

U1  
400V  
2,2kW  
M  
3  
574-MS-0013-FA  
ER FAN PS  
(MAIN ENGINE ROOM)  
3000 rpm  
2,2kW/4,9A/5,0In

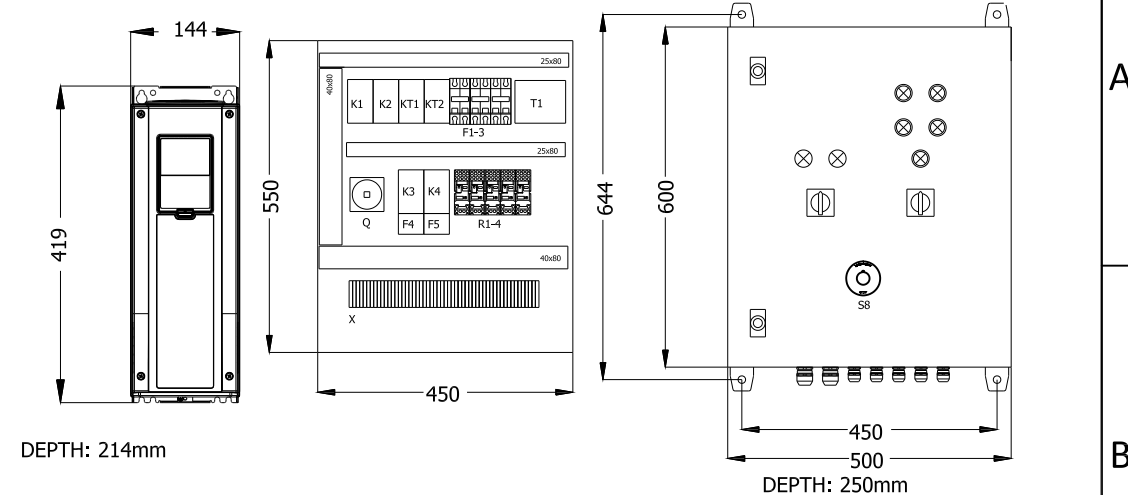
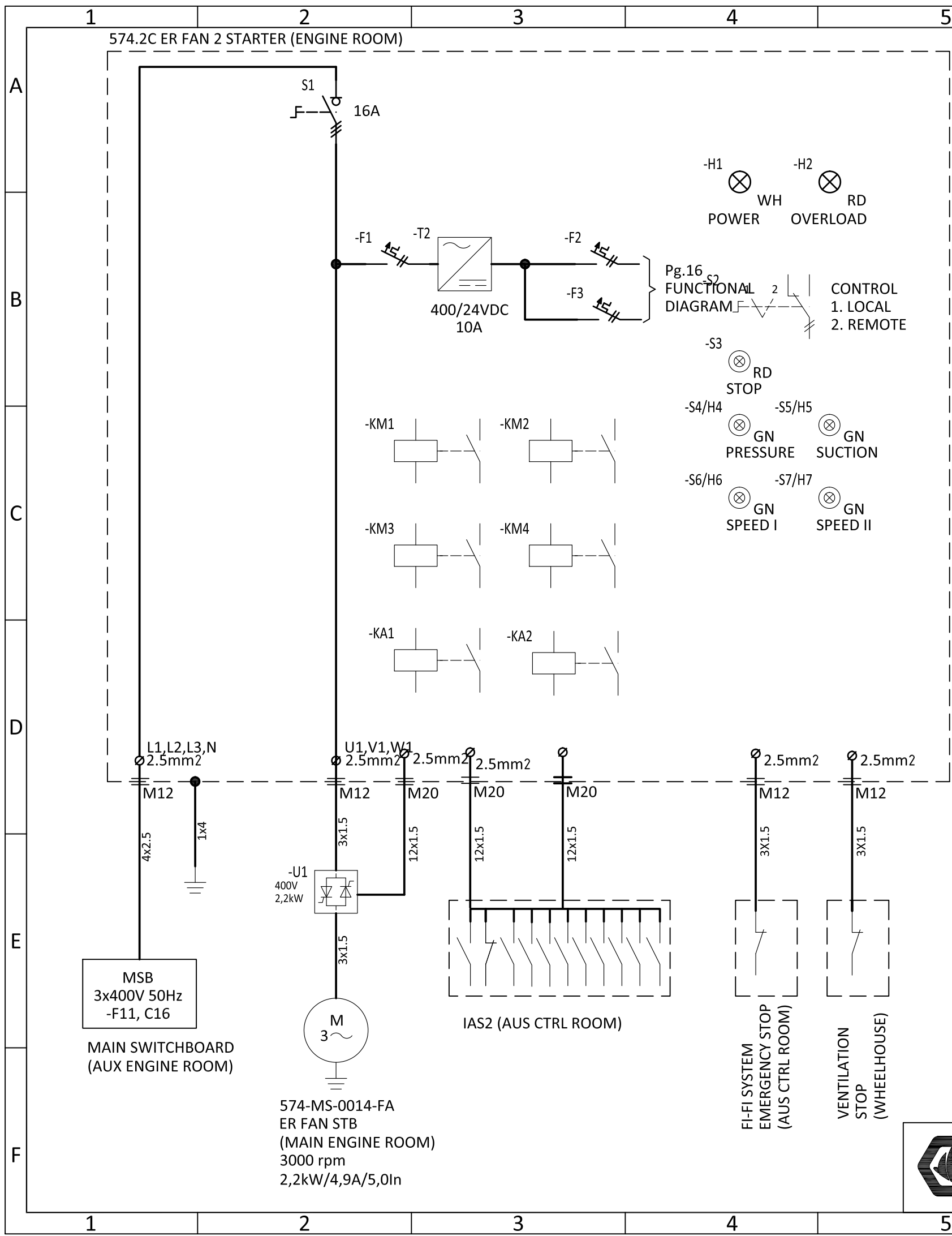
IAS1 (MAIN ENGINE ROOM)

FI-FI SYSTEM  
EMERGENCY STOP  
(AUS CTRL ROOM)

VENTILATION  
STOP  
(WHEELHOUSE)

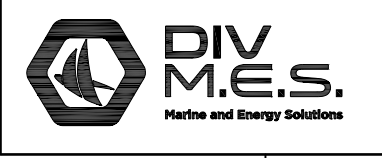
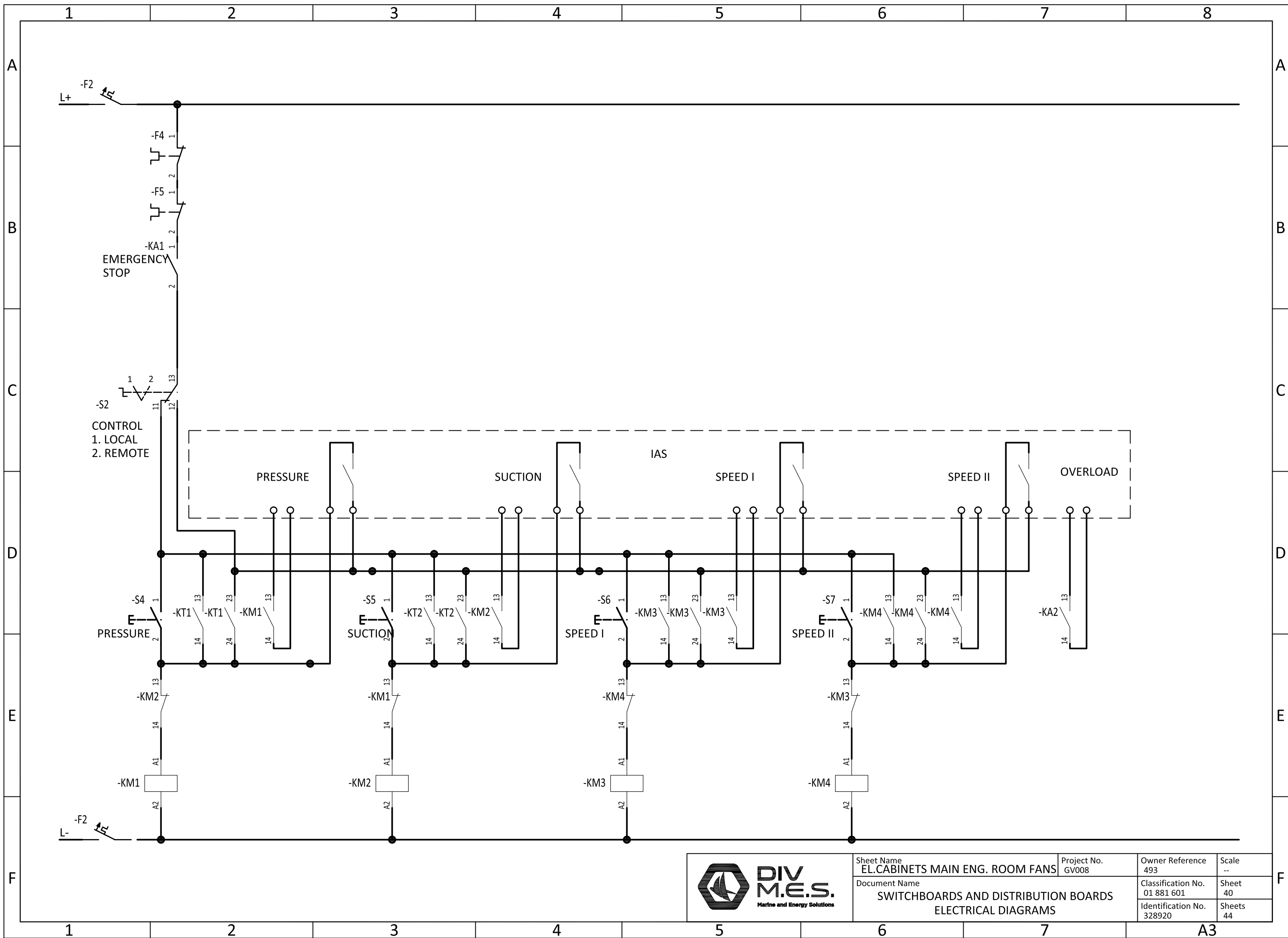


Sheet Name EL.CABINETS MAIN ENG. ROOM FANS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 38
		Identification No. 328920	Sheets 44

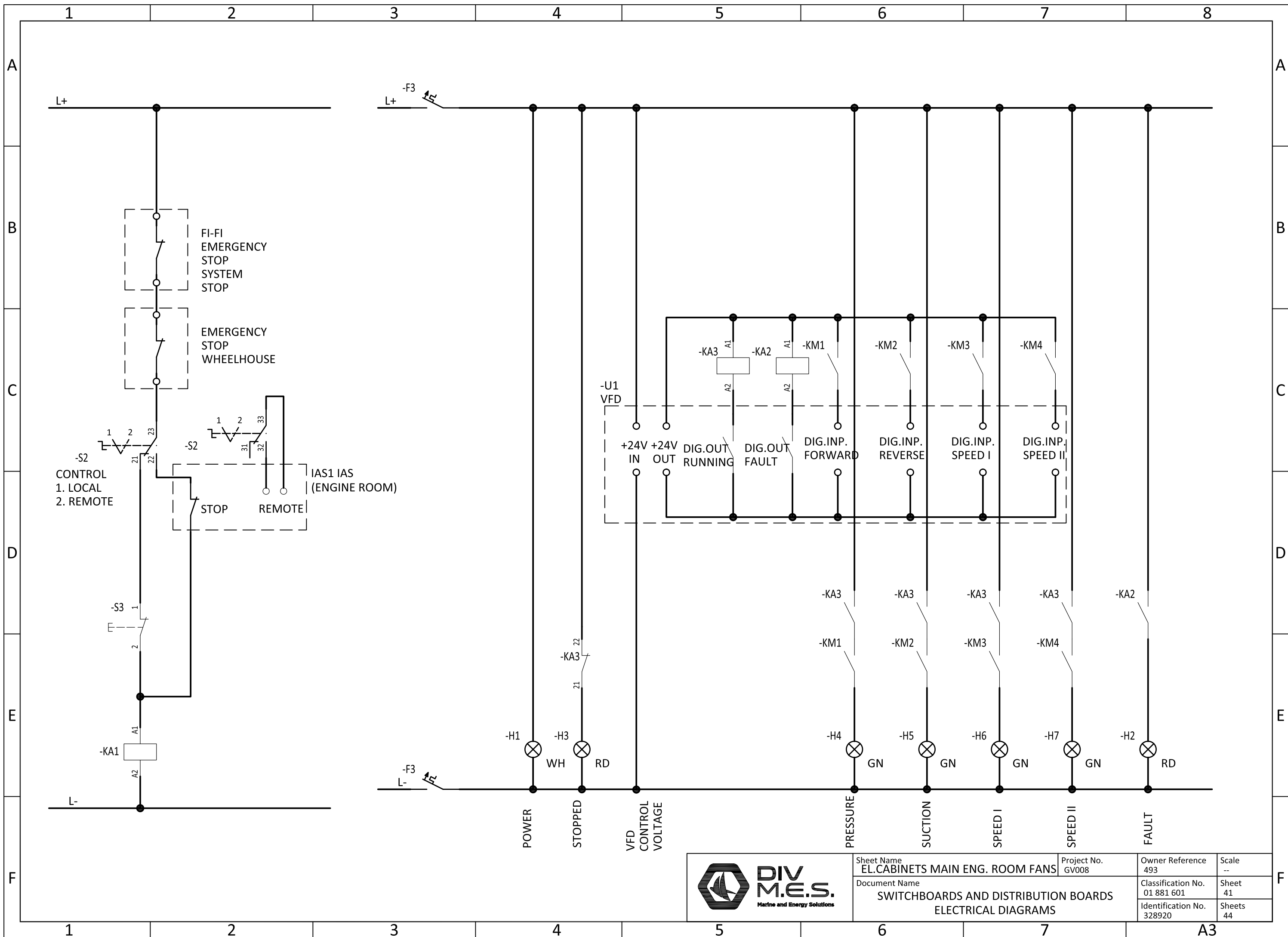


Tag	Name	Characteristics	Qty
	Housing with cable glands	hxwxh 500x400x210 IP44, 4xM20, 5xM12	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	0,8-1,2A 3P 1NO 1NC	1
-F5	Thermal overload relay 3P	5,6-8A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1 to -KM4	Control relay	24VDC 6CO	4
-KA1	Control relay	24VDC 3NO	1
-KA2	Control relay	24VDC 1NO	1
-S1	Main switch	400V 3P 16A 0-1	1
-S2	Selector switch	250V 4P 3A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4 to -S7/H7	Pushbutton indicator	24V 2NO GREEN	4
-T1	Control supply	400/24V 10A	1
	Line terminals	2.5mm <sup>2</sup>	70
-U1	Variable frequency drive	3x400V 50Hz 2,2kW IP54	1

Sheet Name EL.CABINETS MAIN ENG. ROOM FANS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 39
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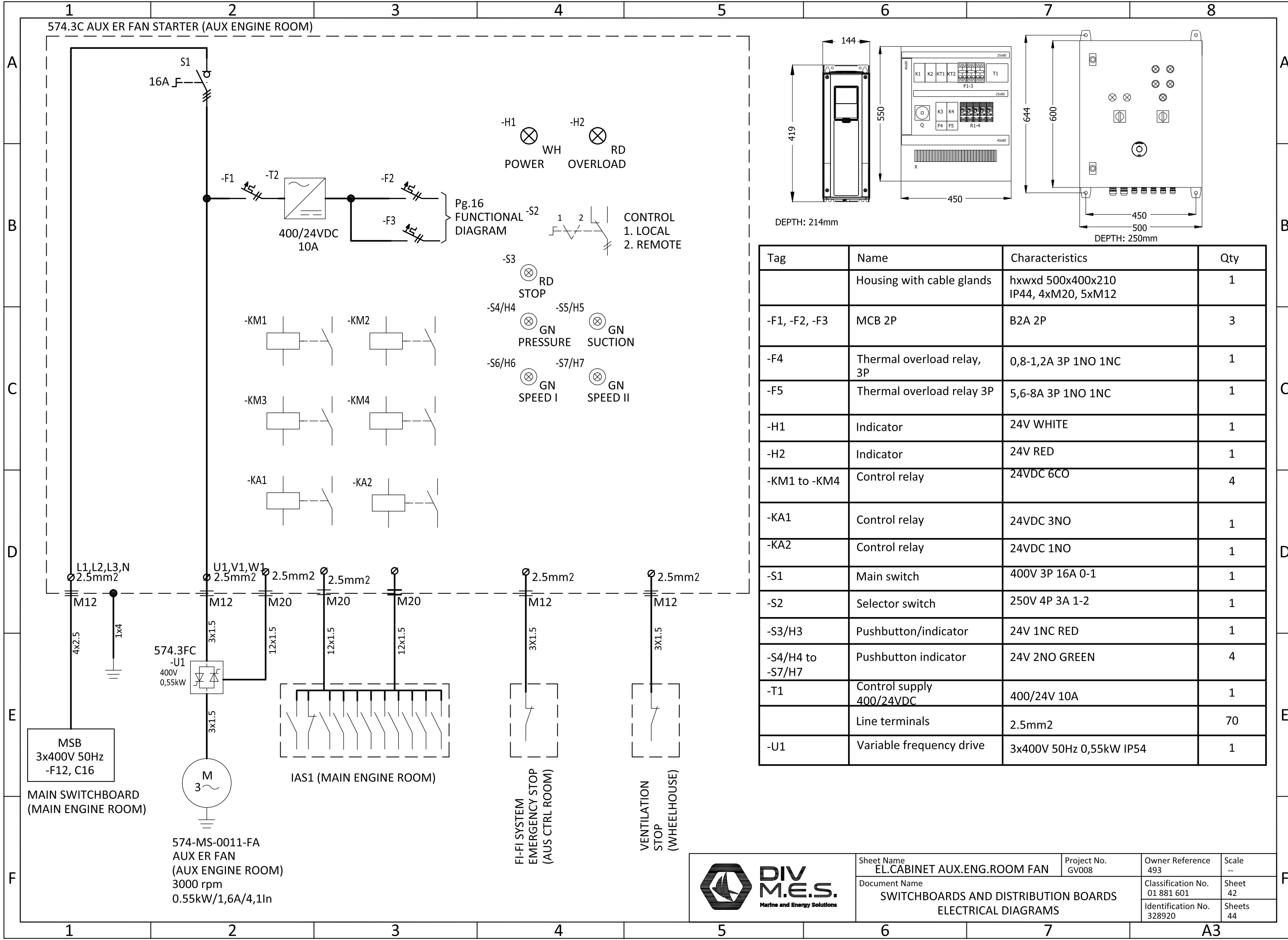


Sheet Name EL.CABINETS MAIN ENG. ROOM FANS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 40
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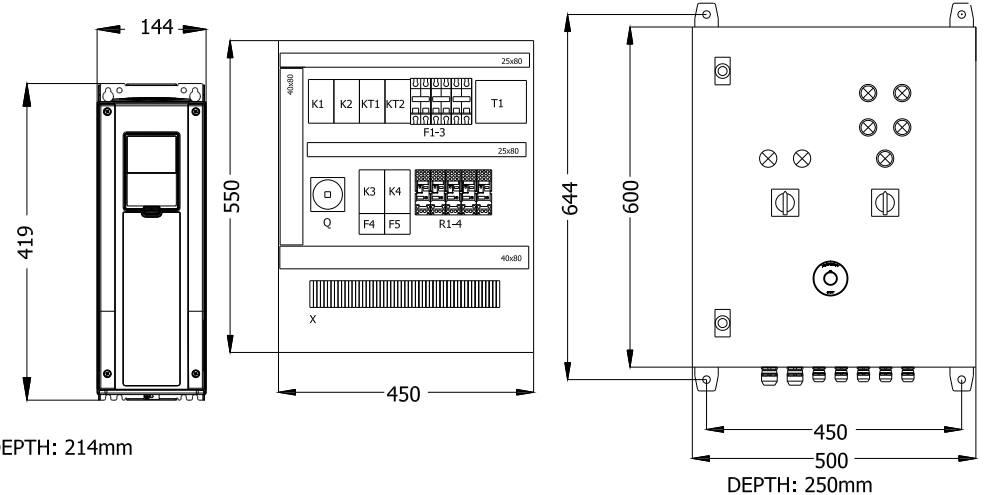
Sheet Name EL.CABINETS MAIN ENG. ROOM FANS	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 41
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574.3C AUX ER FAN STARTER (AUX ENGINE ROOM)



Pg.16  
FUNCTIONAL  
DIAGRAM

CONTROL  
1. LOCAL  
2. REMOTE



Tag	Name	Characteristics	Qty
	Housing with cable glands	hxwxh 500x400x210 IP44, 4xM20, 5xM12	1
-F1, -F2, -F3	MCB 2P	B2A 2P	3
-F4	Thermal overload relay, 3P	0,8-1,2A 3P 1NO 1NC	1
-F5	Thermal overload relay 3P	5,6-8A 3P 1NO 1NC	1
-H1	Indicator	24V WHITE	1
-H2	Indicator	24V RED	1
-KM1 to -KM4	Control relay	24VDC 6CO	4
-KA1	Control relay	24VDC 3NO	1
-KA2	Control relay	24VDC 1NO	1
-S1	Main switch	400V 3P 16A 0-1	1
-S2	Selector switch	250V 4P 3A 1-2	1
-S3/H3	Pushbutton/indicator	24V 1NC RED	1
-S4/H4 to -S7/H7	Pushbutton indicator	24V 2NO GREEN	4
-T1	Control supply 400/24VDC	400/24V 10A	1
	Line terminals	2.5mm <sup>2</sup>	70
-U1	Variable frequency drive	3x400V 50Hz 0,55kW IP54	1

MSB  
3x400V 50Hz  
-F12, C16  
MAIN SWITCHBOARD  
(MAIN ENGINE ROOM)

574.3FC  
-U1  
400V  
0,55kW  
574-MS-0011-FA  
AUX ER FAN  
(AUX ENGINE ROOM)  
3000 rpm  
0.55kW/1,6A/4,1In

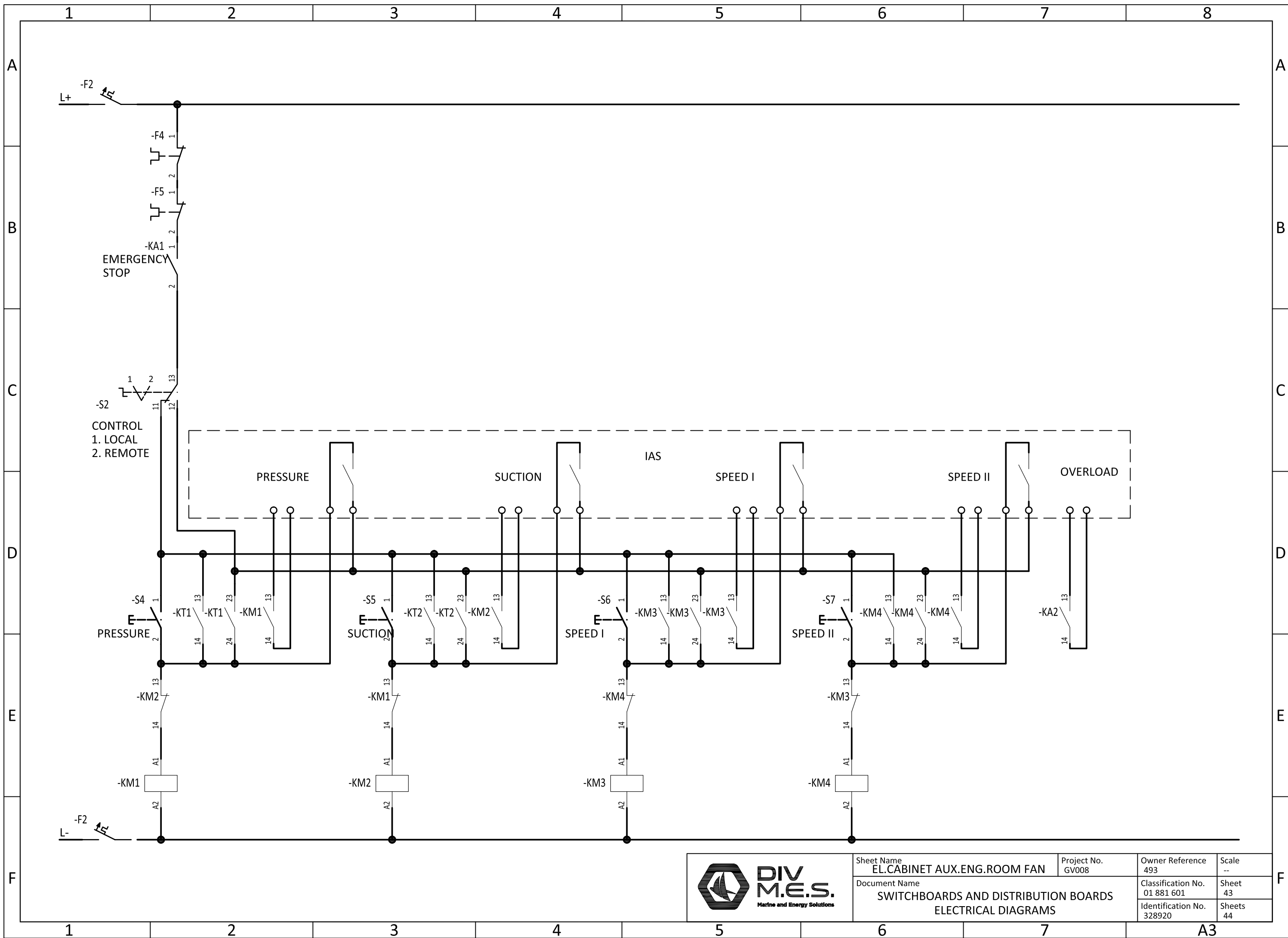
IAS1 (MAIN ENGINE ROOM)

FI-FI SYSTEM  
EMERGENCY STOP  
(AUS CTRL ROOM)

VENTILATION  
STOP  
(WHEELHOUSE)

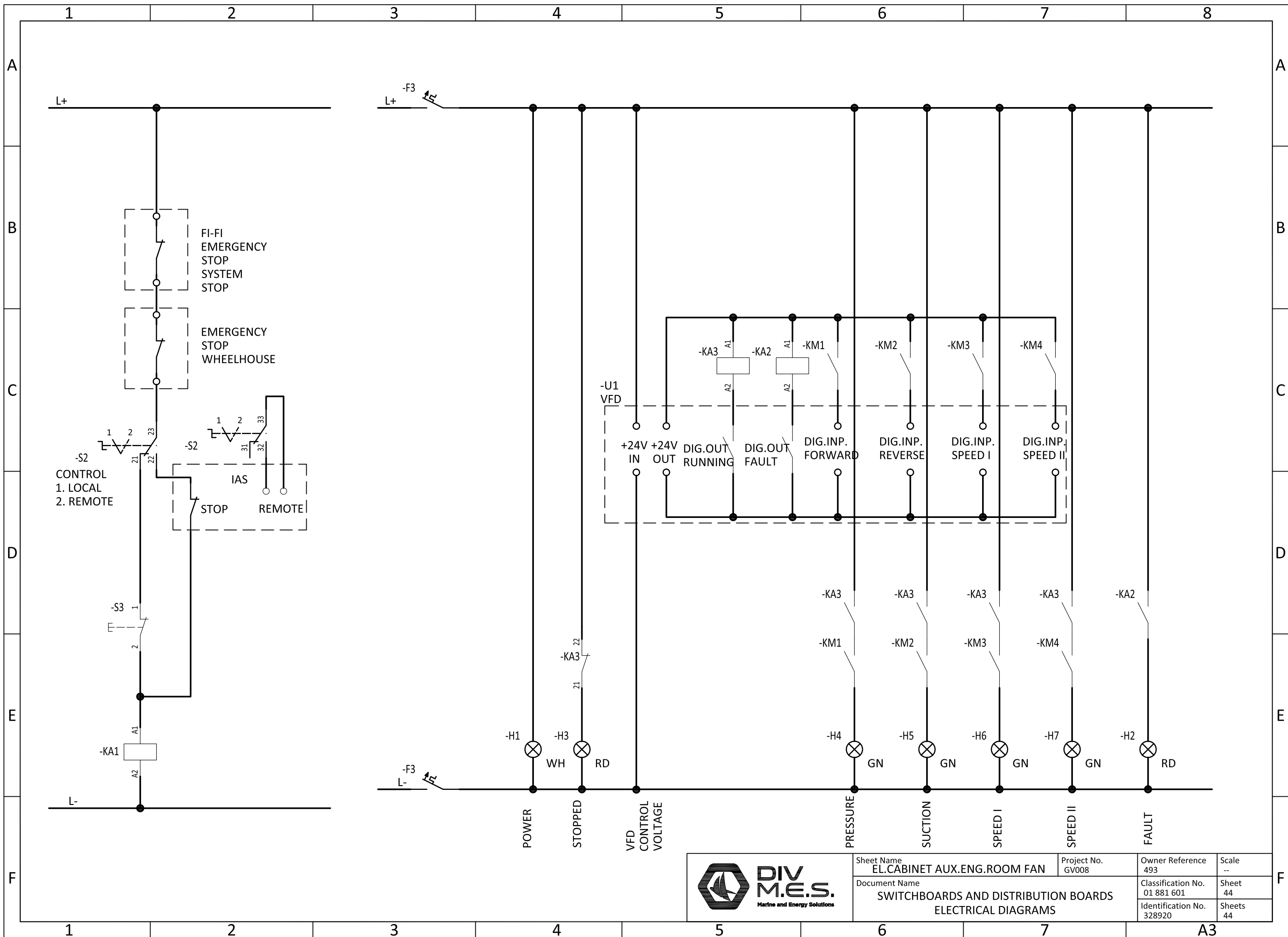


Sheet Name EL.CABINET AUX.ENG.ROOM FAN	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 42
		Identification No. 328920	Sheets 44



Sheet Name EL.CABINET AUX.ENG.ROOM FAN	Project No. GV008	Owner Reference 493	Scale --
Document Name SWITCHBOARDS AND DISTRIBUTION BOARDS ELECTRICAL DIAGRAMS		Classification No. 01 881 601	Sheet 43
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Sheet Name EL. CABINET AUX. ENG. ROOM FAN	Project No. GV008	Owner Reference 493	Scale --
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		Identification No. 328920	Sheets 44