



Remote Control System CPP-Basic

INSTRUCTION MANUAL

DMN000227245

Plant: Murueta 307

Date: 2015-01-27

Revision: A



Remote Control System, CPP-Basic

<u>Drawings:</u>	<u>Dwg.No:</u>	<u>Rev.</u>
Electric remote control, System assembly	RRM000233349	B
Part list report	-“-	
Cable drawings	DMN000224637	B
Main bridge control panel, port Layout	RRM200018710	A
Wiring	-“-	
PCB schematic	DMN200002881	A
Main bridge control panel, starboard Layout	RRM200018712	A
Wiring	-“-	
PCB schematic	DMN200002881	A
Wing control panel, port Layout	RRM200018711	A
Wiring	-“-	
PCB schematic	DMN200002881	A
Wing control panel, starboard Layout	RRM200018713	A
Wiring	-“-	
PCB schematic	DMN200002881	A
RPM indicator, bridge Layout	158555	-
Control room, control panel Layout	RRM200018714	A
Wiring	-“-	
PCB schematic	DMN200002975	A
Load control panel layout	RRM000236697	A
wiring	-“-	
RPM indicator, control room Layout	158556	-



Remote Control System, CPP-Basic

Drawings:

Central unit, remote control system

Layout

Wiring

Dimension, (with casing)

Hand terminal

RPM transmitter

Impulse band

Spare parts

User manual

Dwg.No:

RRM000226163

“-“

117320

968530

107009

107127

117018

51032-E

Rev.

B

C

a

D

C

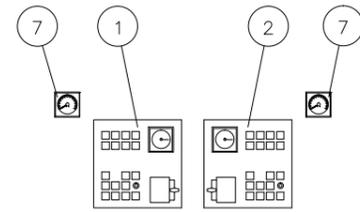
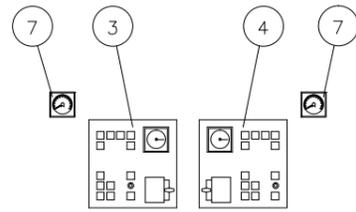
B

a

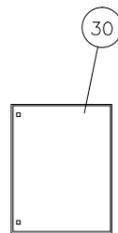
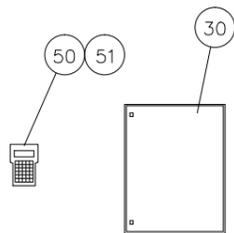
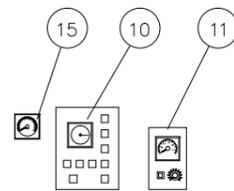
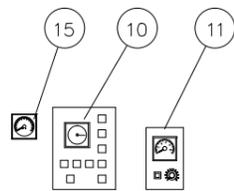
BRIDGE

ANNEX

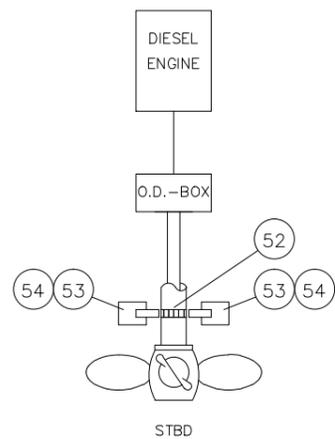
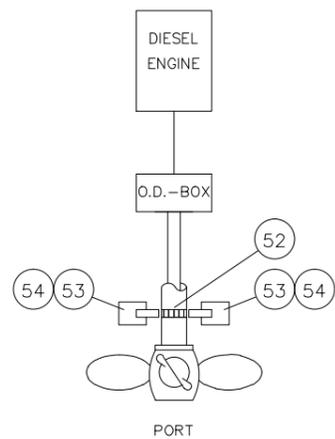
MAIN BRIDGE



ENGINE CONTROL ROOM (ECR)



ENGINE ROOM (ER)



- (100) SPARE PARTS
- (101) PITCH FEEDBACK KIT
- (102) FRENCH TEXT LABELS
- (103) BLACK LENS KIT

NOTES

Item 1,2: Option 1,3,4,5

Item 3,4: Option 1,3, IP65

MURUETA 307

Main Assembly		Checked: KK35	Previous Drg: Standard
Kamewa Basic		Approved: LNJE	Weight kg:
Origin / Date:	Scale:	Format:	Sheet:
KK201 19.08.2014		A2	1 of 1
Drawing no: RRM000233349		Revision: B	
Rolls-Royce Propulsion Kristinehamn			
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Part List Report - External use

Item ID/Rev: RRM000233349/B
Item Name: Sub-System Controller
Item State: Unit

Size:
Weight [kg]: 0
Status: Released

Checked by: janne.lappalainen
Date for check: 20-OCT-2014
Approved by: morgan.wojcik
Date for approval: 20-OCT-2014

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	El Ref	Status
1	1	1	pcs	RRM200018710	A	Control Panel	Assembly	RRM200018710	Released
2	1	1	pcs	F004529	_	Printed Circuit Board	Detail	A1	Released
2	2	1	pcs	R960217A	A	Brake Disc	Detail	B2	Released
2	3	9	pcs	F070455	_	Contact Block	Detail	S10;S11;S12;S14;S16;S18;S21;S7;S9	Released
2	4	4	pcs	K79994	_	Distance	Detail	500	Released
2	5	4	pcs	K79985	_	Distance	Detail	500	Released
2	6	1	pcs	F070569	_	Knob	Detail	RP6	Released
2	7	18	pcs	F070461	_	Lamp	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8;S10;S11;S12;S14;S16;S18;S21;S7;S9	Released
2	8	9	pcs	F070463	_	Lamp Holder	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8	Released
2	9	1	pcs	F070558	_	Lens	Detail	S12	Released
2	10	8	pcs	F070561	A	Lens	Detail	S10;S11;S14;S16;S18;S21;S7;S9	Released
2	11	2	pcs	F070563	A	Lens	Detail	H3;H4	Released
2	12	2	pcs	F070565	A	Lens	Detail	H13;H17	Released
2	13	5	pcs	F070566	A	Lens	Detail	H15;H19;H20;H5;H8	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	14	1	pcs	F004536	B	Lever Unit	Assembly	B2	Released
3	1	1	pcs	R960203A	L	Housing	Detail		Released
3	2	1	pcs	R960204A	F	Disc	Detail		Released
3	3	1	pcs	R960205A	D	Holder	Detail		Released
3	4	2	pcs	R960206A	C	Knob	Detail		Released
3	5	1	pcs	R984340A	D	Shaft	Detail		Released
3	6	1	pcs	R984341A	C	Brake Disc	Detail		Released
3	7	1	pcs	R960210A	A	Tooth Wheel	Detail		Released
3	8	2	pcs	K50018	-	Countersunk Screw	Detail		Released
3	9	1	pcs	R960212A	B	Cover	Detail		Released
3	10	1	pcs	R960213A	D	Cover	Detail		Released
3	11	1	pcs	R960214A	D	Glass	Detail		Released
3	12	1	pcs	F004016	-	Indicator	Detail		Released
3	13	1	pcs	F004532	-	Circuit Board	Detail		Released
3	14	1	pcs	R960230A	C	End Stop	Detail		Released
3	15	1	pcs	RRM200037025	A	Roller Bearing	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	16	1	pcs	F070339	_	Spring Washer	Detail		Released
3	17	1	pcs	F070337	_	Seal Ring	Detail		Released
3	18	1	pcs	F088064	_	O-Ring	Detail		Released
3	19	1	pcs	F088191	_	O-Ring	Detail		Released
3	20	3	pcs	K50022	_	O-Ring	Detail		Released
3	21	2	pcs	RRM200036563	A	Socket Head Screw	Detail		Released
3	22	3	pcs	RRM200032809	A	Screw	Detail		Released
3	23	4	pcs	K124966	_	Screw	Detail		Released
3	24	1	pcs	K50041	_	Stud Bolt	Detail		Released
3	25	2	pcs	K50047	_	Spacer	Detail		Released
3	26	2	pcs	K50061	_	Washer	Detail		Released
3	27	3	pcs	K88809	_	Distance Piece	Detail		Released
3	28	3	pcs	K50069	_	Distance Bolt	Detail		Released
3	29	2	pcs	K50083	_	Screw	Detail		Released
3	30	1	pcs	F004463	D	Printed Circuit Board	Detail		Released
3	31	1	pcs	F081062	_	Synchronous Drive Belt	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	32	6	pcs	K50088	_	Cheese Head Screw	Detail		Released
3	33	3	pcs	F070588	_	Distance	Detail		Released
3	35	1	pcs	F088174	_	O-Ring	Detail		Released
3	39	2	m	RRM200036507	A	Cable	Detail		Released
2	15	9	pcs	F070467	_	Mounting Block	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8	Released
2	16	1	pcs	F070573	_	Nut	Detail	RP6	Released
2	17	4	pcs	F070586	_	Hexagon Nut	Detail	500	Released
2	18	1	pcs	F070570	_	Cover	Detail	RP6	Released
2	19	1	pcs	R156719A	A	Panel Plate	Detail	500	Released
2	20	1	pcs	R158546A	_	Pitch Indicator	Detail	P1	Released
2	21	1	pcs	F073791	_	Potentiometer	Detail	RP6	Released
2	22	1	pcs	F070571	_	Protection Cover	Detail	RP6	Released
2	23	9	pcs	F070466	_	Push Button	Detail	S10;S11;S12;S14;S16;S18;S21;S7;S9	Released
2	24	4	pcs	F070617	_	Screw	Detail	B2	Released
2	25	4	pcs	K80013	_	Screw	Detail	500	Released
2	26	1	pcs	F070647	_	Seal Ring	Detail	RP6	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
1	2	1	pcs	RRM200018712	A	Control Panel	Assembly	RRM200018712	Released
2	1	1	pcs	F004529	-	Printed Circuit Board	Detail	A1	Released
2	2	1	pcs	R960217A	A	Brake Disc	Detail	B2	Released
2	3	9	pcs	F070455	-	Contact Block	Detail	S10;S11;S12;S14;S16;S18;S21;S7;S9	Released
2	4	4	pcs	K79994	-	Distance	Detail	500	Released
2	5	4	pcs	K79985	-	Distance	Detail	500	Released
2	6	1	pcs	F070569	-	Knob	Detail	RP6	Released
2	7	18	pcs	F070461	-	Lamp	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8;S10;S11;S12;S14;S16;S18;S21;S7;S9	Released
2	8	9	pcs	F070463	-	Lamp Holder	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8	Released
2	9	1	pcs	F070558	-	Lens	Detail	S12	Released
2	10	8	pcs	F070561	A	Lens	Detail	S10;S11;S14;S16;S18;S21;S7;S9	Released
2	11	2	pcs	F070563	A	Lens	Detail	H3;H4	Released
2	12	2	pcs	F070565	A	Lens	Detail	H13;H17	Released
2	13	5	pcs	F070566	A	Lens	Detail	H15;H19;H20;H5;H8	Released
2	14	1	pcs	F004537	B	Lever Unit	Assembly	B2	Released
3	1	1	pcs	R960203A	L	Housing	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	2	1	pcs	R960204C	F	Disc	Detail		Released
3	3	1	pcs	R960205A	D	Holder	Detail		Released
3	4	2	pcs	R960206A	C	Knob	Detail		Released
3	5	1	pcs	R984340A	D	Shaft	Detail		Released
3	6	1	pcs	R984341A	C	Brake Disc	Detail		Released
3	7	1	pcs	R960210A	A	Tooth Wheel	Detail		Released
3	8	2	pcs	K50018	_	Countersunk Screw	Detail		Released
3	9	1	pcs	R960212A	B	Cover	Detail		Released
3	10	1	pcs	R960213A	D	Cover	Detail		Released
3	11	1	pcs	R960214A	D	Glass	Detail		Released
3	12	1	pcs	F004016	_	Indicator	Detail		Released
3	13	1	pcs	F004532	_	Circuit Board	Detail		Released
3	14	1	pcs	R960230A	C	End Stop	Detail		Released
3	15	1	pcs	RRM200037025	A	Roller Bearing	Detail		Released
3	16	1	pcs	F070339	_	Spring Washer	Detail		Released
3	17	1	pcs	F070337	_	Seal Ring	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	18	1	pcs	F088064	-	O-Ring	Detail		Released
3	19	1	pcs	F088191	-	O-Ring	Detail		Released
3	20	3	pcs	K50022	-	O-Ring	Detail		Released
3	21	2	pcs	RRM200036563	A	Socket Head Screw	Detail		Released
3	22	3	pcs	RRM200032809	A	Screw	Detail		Released
3	23	4	pcs	K124966	-	Screw	Detail		Released
3	24	1	pcs	K50041	-	Stud Bolt	Detail		Released
3	25	2	pcs	K50047	-	Spacer	Detail		Released
3	26	2	pcs	K50061	-	Washer	Detail		Released
3	27	3	pcs	K88809	-	Distance Piece	Detail		Released
3	28	3	pcs	K50069	-	Distance Bolt	Detail		Released
3	29	2	pcs	K50083	-	Screw	Detail		Released
3	30	1	pcs	F004463	D	Printed Circuit Board	Detail		Released
3	31	1	pcs	F081062	-	Synchronous Drive Belt	Detail		Released
3	32	6	pcs	K50088	-	Cheese Head Screw	Detail		Released
3	33	3	pcs	F070588	-	Distance	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	35	1	pcs	F088174	-	O-Ring	Detail		Released
3	39	2	m	RRM200036507	A	Cable	Detail		Released
2	15	9	pcs	F070467	-	Mounting Block	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8	Released
2	16	1	pcs	F070573	-	Nut	Detail	RP6	Released
2	17	4	pcs	F070586	-	Hexagon Nut	Detail	500	Released
2	18	1	pcs	F070570	-	Cover	Detail	RP6	Released
2	19	1	pcs	R156696A	A	Panel Plate	Detail	500	Released
2	20	1	pcs	R158546A	-	Pitch Indicator	Detail	P1	Released
2	21	1	pcs	F073791	-	Potentiometer	Detail	RP6	Released
2	22	1	pcs	F070571	-	Protection Cover	Detail	RP6	Released
2	23	9	pcs	F070466	-	Push Button	Detail	S10;S11;S12;S14;S16;S18;S21;S7;S9	Released
2	24	4	pcs	F070617	-	Screw	Detail	B2	Released
2	25	4	pcs	K80013	-	Screw	Detail	500	Released
2	26	1	pcs	F070647	-	Seal Ring	Detail	RP6	Released
1	3	1	pcs	RRM200018711	A	Control Panel	Assembly	RRM200018711	Released
2	1	1	pcs	F004529	-	Printed Circuit Board	Detail	A1	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	El Ref	Status
2	2	1	pcs	R960217A	A	Brake Disc	Detail	B2	Released
2	3	4	pcs	F070455	-	Contact Block	Detail	S16;S18;S21;S7	Released
2	4	4	pcs	K79994	-	Distance	Detail	500	Released
2	5	4	pcs	K79985	-	Distance	Detail	500	Released
2	6	1	pcs	F070569	-	Knob	Detail	RP6	Released
2	7	13	pcs	F070461	-	Lamp	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8;S16;S18;S21;S7	Released
2	8	9	pcs	F070463	-	Lamp Holder	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8	Released
2	9	4	pcs	F070561	A	Lens	Detail	S16;S18;S21;S7	Released
2	10	2	pcs	F070563	A	Lens	Detail	H3;H4	Released
2	11	2	pcs	F070565	A	Lens	Detail	H13;H17	Released
2	12	5	pcs	F070566	A	Lens	Detail	H15;H19;H20;H5;H8	Released
2	13	1	pcs	F004536	B	Lever Unit	Assembly	B2	Released
3	1	1	pcs	R960203A	L	Housing	Detail		Released
3	2	1	pcs	R960204A	F	Disc	Detail		Released
3	3	1	pcs	R960205A	D	Holder	Detail		Released
3	4	2	pcs	R960206A	C	Knob	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	5	1	pcs	R984340A	D	Shaft	Detail		Released
3	6	1	pcs	R984341A	C	Brake Disc	Detail		Released
3	7	1	pcs	R960210A	A	Tooth Wheel	Detail		Released
3	8	2	pcs	K50018	-	Countersunk Screw	Detail		Released
3	9	1	pcs	R960212A	B	Cover	Detail		Released
3	10	1	pcs	R960213A	D	Cover	Detail		Released
3	11	1	pcs	R960214A	D	Glass	Detail		Released
3	12	1	pcs	F004016	-	Indicator	Detail		Released
3	13	1	pcs	F004532	-	Circuit Board	Detail		Released
3	14	1	pcs	R960230A	C	End Stop	Detail		Released
3	15	1	pcs	RRM200037025	A	Roller Bearing	Detail		Released
3	16	1	pcs	F070339	-	Spring Washer	Detail		Released
3	17	1	pcs	F070337	-	Seal Ring	Detail		Released
3	18	1	pcs	F088064	-	O-Ring	Detail		Released
3	19	1	pcs	F088191	-	O-Ring	Detail		Released
3	20	3	pcs	K50022	-	O-Ring	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	21	2	pcs	RRM200036563	A	Socket Head Screw	Detail		Released
3	22	3	pcs	RRM200032809	A	Screw	Detail		Released
3	23	4	pcs	K124966	-	Screw	Detail		Released
3	24	1	pcs	K50041	-	Stud Bolt	Detail		Released
3	25	2	pcs	K50047	-	Spacer	Detail		Released
3	26	2	pcs	K50061	-	Washer	Detail		Released
3	27	3	pcs	K88809	-	Distance Piece	Detail		Released
3	28	3	pcs	K50069	-	Distance Bolt	Detail		Released
3	29	2	pcs	K50083	-	Screw	Detail		Released
3	30	1	pcs	F004463	D	Printed Circuit Board	Detail		Released
3	31	1	pcs	F081062	-	Synchronous Drive Belt	Detail		Released
3	32	6	pcs	K50088	-	Cheese Head Screw	Detail		Released
3	33	3	pcs	F070588	-	Distance	Detail		Released
3	35	1	pcs	F088174	-	O-Ring	Detail		Released
3	39	2	m	RRM200036507	A	Cable	Detail		Released
2	14	9	pcs	F070467	-	Mounting Block	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	15	1	pcs	F070573	-	Nut	Detail	RP6	Released
2	16	4	pcs	F070586	-	Hexagon Nut	Detail	500	Released
2	17	1	pcs	F070570	-	Cover	Detail	RP6	Released
2	18	1	pcs	R156723A	A	Panel Plate	Detail	500	Released
2	19	1	pcs	R158546A	-	Pitch Indicator	Detail	P1	Released
2	20	1	pcs	F073791	-	Potentiometer	Detail	RP6	Released
2	21	4	pcs	F070458	-	Protection Cover	Detail	S16;S18;S21;S7	Released
2	22	1	pcs	F070571	-	Protection Cover	Detail	RP6	Released
2	23	4	pcs	F070466	-	Push Button	Detail	S16;S18;S21;S7	Released
2	24	4	pcs	F070617	-	Screw	Detail	B2	Released
2	25	4	pcs	K80013	-	Screw	Detail	500	Released
2	26	1	pcs	F070647	-	Seal Ring	Detail	RP6	Released
1	4	1	pcs	RRM200018713	A	Control Panel	Assembly	RRM200018713	Released
2	1	1	pcs	F004529	-	Printed Circuit Board	Detail	A1	Released
2	2	1	pcs	R960217A	A	Brake Disc	Detail	B2	Released
2	3	4	pcs	F070455	-	Contact Block	Detail	S16;S18;S21;S7	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	El Ref	Status
2	4	4	pcs	K79994	-	Distance	Detail	500	Released
2	5	4	pcs	K79985	-	Distance	Detail	500	Released
2	6	1	pcs	F070569	-	Knob	Detail	RP6	Released
2	7	13	pcs	F070461	-	Lamp	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8;S16;S18;S21;S7	Released
2	8	9	pcs	F070463	-	Lamp Holder	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8	Released
2	9	4	pcs	F070561	A	Lens	Detail	S16;S18;S21;S7	Released
2	10	2	pcs	F070563	A	Lens	Detail	H3;H4	Released
2	11	2	pcs	F070565	A	Lens	Detail	H13;H17	Released
2	12	5	pcs	F070566	A	Lens	Detail	H15;H19;H20;H5;H8	Released
2	13	1	pcs	F004537	B	Lever Unit	Assembly	B2	Released
3	1	1	pcs	R960203A	L	Housing	Detail		Released
3	2	1	pcs	R960204C	F	Disc	Detail		Released
3	3	1	pcs	R960205A	D	Holder	Detail		Released
3	4	2	pcs	R960206A	C	Knob	Detail		Released
3	5	1	pcs	R984340A	D	Shaft	Detail		Released
3	6	1	pcs	R984341A	C	Brake Disc	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	7	1	pcs	R960210A	A	Tooth Wheel	Detail		Released
3	8	2	pcs	K50018	_	Countersunk Screw	Detail		Released
3	9	1	pcs	R960212A	B	Cover	Detail		Released
3	10	1	pcs	R960213A	D	Cover	Detail		Released
3	11	1	pcs	R960214A	D	Glass	Detail		Released
3	12	1	pcs	F004016	_	Indicator	Detail		Released
3	13	1	pcs	F004532	_	Circuit Board	Detail		Released
3	14	1	pcs	R960230A	C	End Stop	Detail		Released
3	15	1	pcs	RRM200037025	A	Roller Bearing	Detail		Released
3	16	1	pcs	F070339	_	Spring Washer	Detail		Released
3	17	1	pcs	F070337	_	Seal Ring	Detail		Released
3	18	1	pcs	F088064	_	O-Ring	Detail		Released
3	19	1	pcs	F088191	_	O-Ring	Detail		Released
3	20	3	pcs	K50022	_	O-Ring	Detail		Released
3	21	2	pcs	RRM200036563	A	Socket Head Screw	Detail		Released
3	22	3	pcs	RRM200032809	A	Screw	Detail		Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
3	23	4	pcs	K124966	-	Screw	Detail		Released
3	24	1	pcs	K50041	-	Stud Bolt	Detail		Released
3	25	2	pcs	K50047	-	Spacer	Detail		Released
3	26	2	pcs	K50061	-	Washer	Detail		Released
3	27	3	pcs	K88809	-	Distance Piece	Detail		Released
3	28	3	pcs	K50069	-	Distance Bolt	Detail		Released
3	29	2	pcs	K50083	-	Screw	Detail		Released
3	30	1	pcs	F004463	D	Printed Circuit Board	Detail		Released
3	31	1	pcs	F081062	-	Synchronous Drive Belt	Detail		Released
3	32	6	pcs	K50088	-	Cheese Head Screw	Detail		Released
3	33	3	pcs	F070588	-	Distance	Detail		Released
3	35	1	pcs	F088174	-	O-Ring	Detail		Released
3	39	2	m	RRM200036507	A	Cable	Detail		Released
2	14	9	pcs	F070467	-	Mounting Block	Detail	H13;H15;H17;H19;H20;H3;H4;H5;H8	Released
2	15	1	pcs	F070573	-	Nut	Detail	RP6	Released
2	16	4	pcs	F070586	-	Hexagon Nut	Detail	500	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	17	1	pcs	F070570	_	Cover	Detail	RP6	Released
2	18	1	pcs	R156700A	A	Panel Plate	Detail	500	Released
2	19	1	pcs	R158546A	_	Pitch Indicator	Detail	P1	Released
2	20	1	pcs	F073791	_	Potentiometer	Detail	RP6	Released
2	21	4	pcs	F070458	_	Protection Cover	Detail	S16;S18;S21;S7	Released
2	22	1	pcs	F070571	_	Protection Cover	Detail	RP6	Released
2	23	4	pcs	F070466	_	Push Button	Detail	S16;S18;S21;S7	Released
2	24	4	pcs	F070617	_	Screw	Detail	B2	Released
2	25	4	pcs	K80013	_	Screw	Detail	500	Released
2	26	1	pcs	F070647	_	Seal Ring	Detail	RP6	Released
1	7	4	pcs	R158555A	_	RPM Indicator	Detail	158555	Released
1	10	2	pcs	RRM200018714	A	Control Panel	Assembly	RRM200018714	Released
2	1	1	pcs	F004530	_	Printed Circuit Board	Detail	A1	Released
2	2	3	pcs	F070455	_	Contact Block	Detail	S1;S3;S5	Released
2	3	1	pcs	F070457	_	Contact Block	Detail	S9	Released
2	4	3	pcs	K79994	_	Distance	Detail	500	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	5	3	pcs	K79985	-	Distance	Detail	500	Released
2	6	8	pcs	F070461	-	Lamp	Detail	H10;H2;H4;H7;H8;S1;S3;S5	Released
2	7	5	pcs	F070463	-	Lamp Holder	Detail	H10;H2;H4;H7;H8	Released
2	8	3	pcs	F070561	A	Lens	Detail	S1;S3;S5	Released
2	9	2	pcs	F070563	A	Lens	Detail	H4;H7	Released
2	10	1	pcs	F070565	A	Lens	Detail	H8	Released
2	11	2	pcs	F070566	A	Lens	Detail	H10;H2	Released
2	12	5	pcs	F070467	-	Mounting Block	Detail	H10;H2;H4;H7;H8	Released
2	13	3	pcs	F070586	-	Hexagon Nut	Detail	500	Released
2	14	1	pcs	R156731A	A	Panel Plate	Detail	500	Released
2	15	1	pcs	R158552A	-	Pitch Indicator	Detail	P6	Released
2	16	3	pcs	F070466	-	Push Button	Detail	S1;S3;S5	Released
2	17	3	pcs	K80013	-	Screw	Detail	500	Released
2	18	1	pcs	F070459	-	Switch	Detail	S9	Released
1	11	2	pcs	RRM000236697	A	Control Panel	Assembly	RRM000236697	Released
2	1	1	pcs	F070573	-	Nut	Detail	RP2	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	2	1	pcs	K130440	A	Knob	Detail	RP2	Released
2	3	2	pcs	F070604	-	Lock Washer	Detail	500	Released
2	4	1	pcs	R158554A	A	FPS Indicator	Detail	P1	Released
2	5	1	pcs	F070463	-	Lamp Holder	Detail	H3	Released
2	6	1	pcs	F070467	-	Mounting Block	Detail	H3	Released
2	7	1	pcs	F070461	-	Lamp	Detail	H3	Released
2	8	1	pcs	F070566	A	Lens	Detail	H3	Released
2	9	4	pcs	F070613	-	Hexagon Head Screw	Detail	500	Released
2	10	2	pcs	K77205	-	Cheese Head Screw	Detail	500	Released
2	11	4	pcs	K79984	-	Washer	Detail	500	Released
2	12	2	pcs	F070074	-	Distance	Detail	500	Released
2	13	4	pcs	F070586	-	Hexagon Nut	Detail	500	Released
2	14	2	pcs	F070593	-	Socket Head Screw	Detail	500	Released
2	15	2	pcs	F070603	-	Screw	Detail	500	Released
2	16	2	pcs	F070608	A	End Stud	Detail	500	Released
2	17	2	pcs	F070673	-	Hexagon Nut	Detail	500	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	18	1	pcs	FD4	_	Terminal Bar	Detail	500	Released
2	19	4	pcs	K80824	_	Distance Piece	Detail	500	Released
2	20	1	pcs	R161819A	A	Panel Plate	Detail	500	Released
2	21	1	pcs	F004263	_	Printed Circuit Board	Detail	A520	Released
2	22	1	pcs	F070576	_	Bracket	Detail	500	Released
2	23	1	pcs	F073792	B	Potentiometer	Detail	RP2	Released
2	24	8	pcs	F070543	_	Connection Terminal	Detail	X1	Released
2	25	1	pcs	F070545	_	Connection Terminal	Detail	X1	Released
2	26	1	pcs	K69573	A	End Plate	Detail	X1	Released
2	27	2	pcs	K70044	_	End Plate	Detail	X1	Released
1	15	2	pcs	R158556A	_	RPM Indicator	Detail	158556	Released
1	30	2	pcs	RRM000226163	B	Control Unit	Assembly	117320	Released
2	1	1	pcs	F070259	_	Connector	Detail	XM1	Released
2	2	1	pcs	F070550	_	Terminal Accessories	Detail	R1	Released
2	3	2	pcs	F070634	_	Set Screw	Detail	XM1	Released
2	4	9	pcs	K113694	A	Crimp Pin	Detail	XM1	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	5	12	pcs	K180025	-	Relay Socket	Detail	K01;K02;K03;K04;K05;K06;K07;K08;K09;K10;K11;K12	Released
2	6	1	pcs	K70044	-	End Plate	Detail	R1	Released
2	7	6	pcs	FD11	-	Cable Duct	Detail	520;521;522;523;524;525	Released
2	8	20	pcs	K82020	-	Terminal Accessories	Detail	500	Released
2	9	2	pcs	F070479	-	Galvanic Isolator	Detail	A14;A15	Released
2	10	1	pcs	K69950	-	Converter	Detail	A25	Released
2	11	2	pcs	RRM000225232	A	Converter Unit	Detail	A10;A11	Released
2	12	1	pcs	F070250	-	Connector	Detail	XM1	Released
2	13	12	pcs	F070477	-	Relay	Detail	K01;K02;K03;K04;K05;K06;K07;K08;K09;K10;K11;K12	Released
2	14	6	pcs	K180029	-	Clamp	Detail	500	Released
2	15	1	pcs	F070335	-	Corrosion Inhibitor	Detail	500	Released
2	16	1	pcs	F070602	-	Holder	Detail	500	Released
2	17	12	pcs	F070645	-	Screw	Detail	500	Released
2	18	2	pcs	K180036	-	Clamp	Detail	500	Released
2	19	9	pcs	K69573	A	End Plate	Detail	VD2;X1;X2;X3;X4;X6;X7;X8;X9	Released
2	20	1	pcs	K70406	-	Clamp	Detail	500	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	21	11	pcs	K70407	_	Terminal Accessories	Detail	500	Released
2	22	1	pcs	K79245	_	Earthing Device	Detail	500	Released
2	23	1	pcs	R117349A	D	Enclosure	Detail	500	Released
2	24	1	pcs	F070540	_	Fuse	Detail	F3	Released
2	25	2	pcs	F070541	_	Fuse	Detail	F2;F4	Released
2	26	1	pcs	K113181	_	Fuse	Detail	F1	Released
2	27	2	pcs	F070549	A	Connection Terminal	Detail	X0	Released
2	28	4	pcs	FD4	_	Terminal Bar	Detail	510;511;512;513	Released
2	29	1	pcs	F004539	_	Printed Circuit Board	Detail	A12	Released
2	30	2	pcs	R952982A	O	Printed Circuit Board	Detail	A21;A22	Released
2	31	1	pcs	RRM200006150	B	Printed Circuit Board	Detail	A13	Released
2	32	1	pcs	RRM200012845	A	Printed Circuit Board	Detail	A23	Released
2	33	2	pcs	RRM200036080	C	Printed Circuit Board	Detail	A20;A24	Released
3	1	1	pcs	RRM200044068	C	Sign	Detail		Released
2	34	1	pcs	K180052	_	Resistor	Detail	R1	Released
2	35	112	pcs	F070546	A	Connection Terminal	Detail	X1;X2;X3;X4;X6;X7;X8;X9	Released

Part List Report - External use



Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
2	36	1	pcs	F070551	B	Connection Terminal	Detail	R1	Released
2	37	2	pcs	F070552	A	Connection Terminal	Detail	VD1;VD2	Released
2	38	20	pcs	F070608	A	End Stud	Detail	X0;X1;X2;X3;X4;X6;X7;X8;X9;XD	Released
2	39	17	pcs	K180057	-	Connection Terminal	Detail	XD	Released
2	40	6	pcs	K69572	-	End Plate	Detail	XD	Released
2	41	1	pcs	K70054	A	End Plate	Detail	X0	Released
1	50	1	pcs	F070492	-	Hand Held Terminal	Detail	968530	Released
1	51	1	pcs	K134069	-	Cable	Detail	*	Released
1	52	2	pcs	RRM000236700	A	Peg Band	Detail	107127	Released
1	53	4	pcs	F070553	-	Transmitter	Detail	107009	Released
1	54	4	pcs	F004546	-	Holder	Detail	107009	Released
1	100	1	pcs	R117018A	B	Spare Parts	Assembly	117018	Released
2	1	15	pcs	F070461	-	Lamp	Detail		Released
2	2	1	pcs	F004463	D	Printed Circuit Board	Detail		Released
2	3	1	pcs	F070541	-	Fuse	Detail		Released
2	4	1	pcs	F070594	-	Tool	Detail		Released

Part List Report - External use

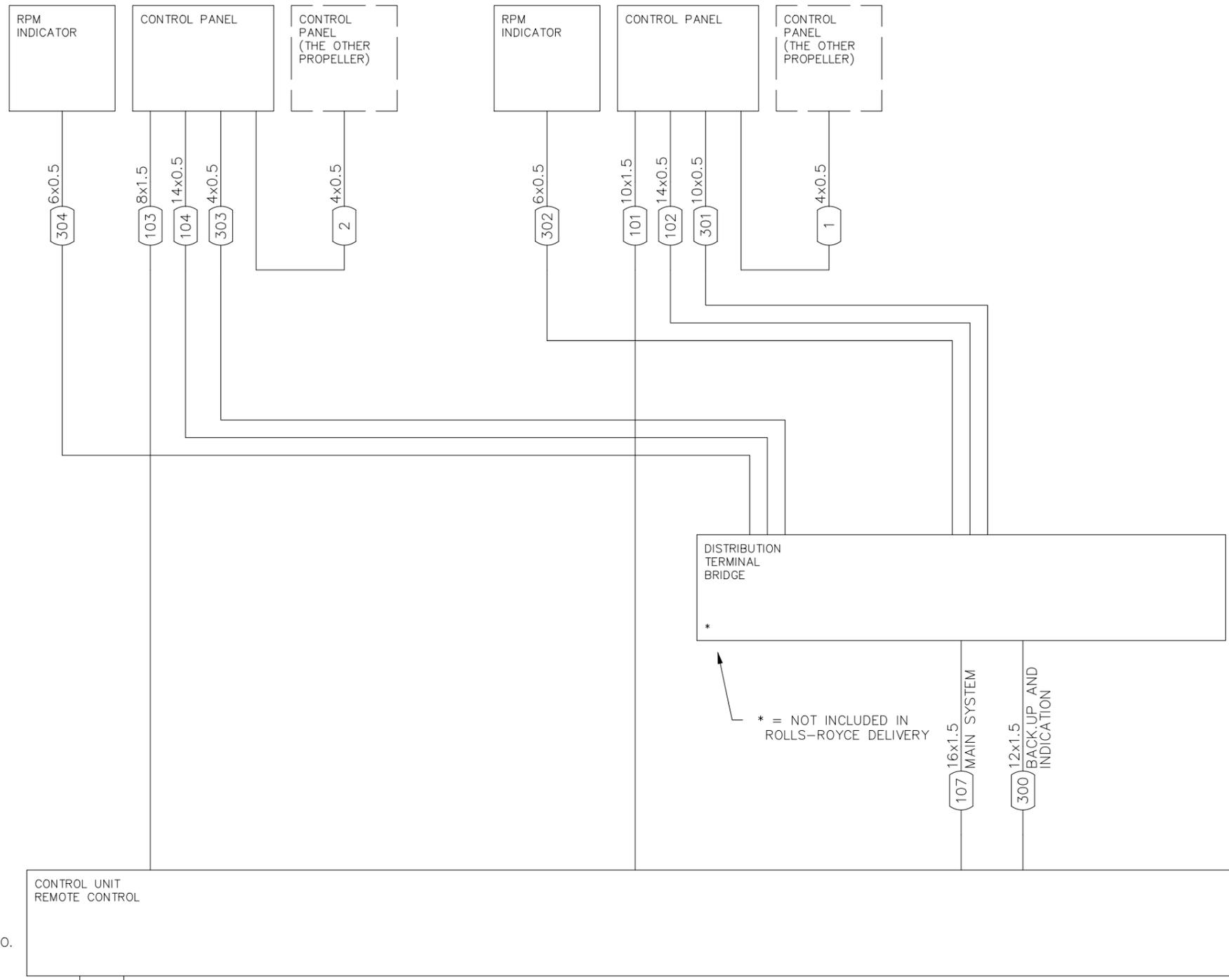


Rolls-Royce

Level	Pos	Qty	UoM	Item ID	Rev	Name	Item state	EI Ref	Status
1	101	2	pcs	RRM200038016	A	Purchase Kit	Assembly	RRM200038016	Released
2	1	1	pcs	F004483	-	Printed Circuit Board	Detail		Released
2	2	1	pcs	F073834	A	Potentiometer	Detail		Released
1	102	2	pcs	RRM000236699	A	Purchase Kit	Assembly	RRM000236699	Released
1	103	2	pcs	RRM000222136	A	Purchase Kit	Assembly	*	Released
2	2	4	pcs	F070562	A	Lens	Detail		Released

ANNEX

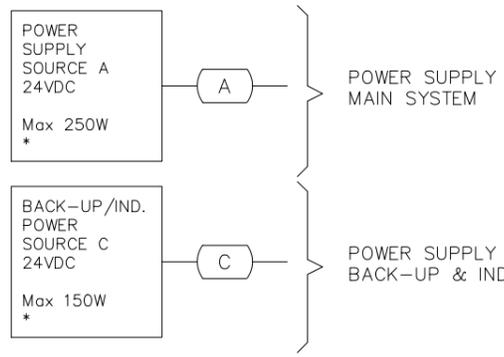
MAIN BRIDGE



* = NOT INCLUDED IN ROLLS-ROYCE DELIVERY

DIRECTIONS FOR CABLES, CABLE LAYING AND CONNECTIONS, SEE INSTALLATION DESCRIPTION NO. 49680-E

POWER SUPPLY SHALL BE ACCORDING TO CLASSIFICATION SOCIETY REGULATIONS

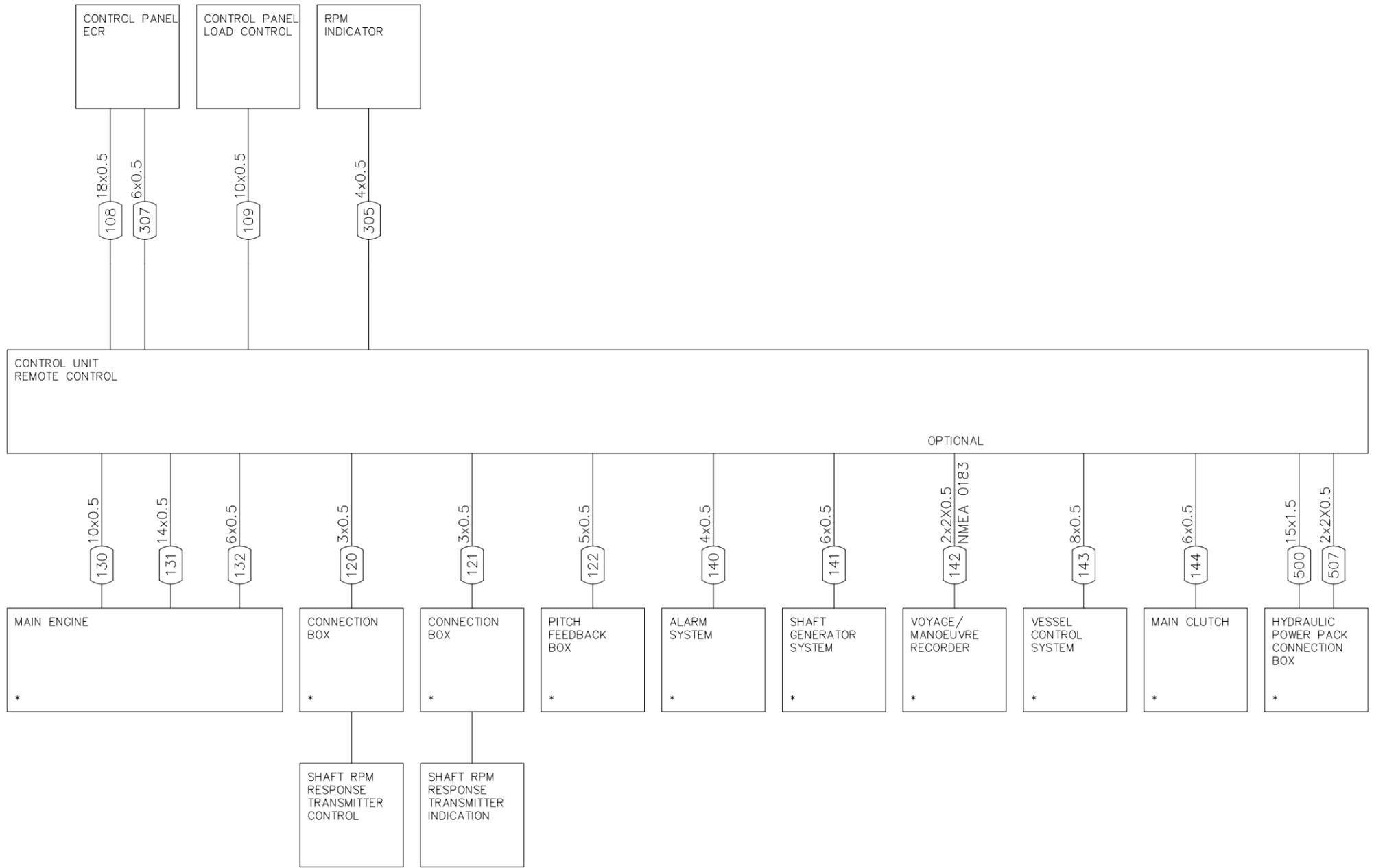


PAGE 1: CONTROL UNIT ECR AND BRIDGE CONTROL STATIONS
PAGE 2: ENGINE AND ENGINE CONTROL ROOM

THIS CABLE DRAWING SHOWS CABLES FOR A SINGLE PROPELLER SYSTEM.
FOR A DOUBLE PROPELLERS SYSTEM, THE PORT AND STBD PROPELLER SYSTEM ARE CONNECTED EQUALLY.

Cable drawing		Checked: LNJE	Previous Drg: DMN200005738
Kamewa Basic		Approved: KK35	Weight kg:
Origin / Date: KK201 23.09.2014	Scale:	Format: A2	Sheet: 1 of 11
 Rolls-Royce AB Propulsion Kristinehamn		Drawing no: DMN000224637 Revision: B	
Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.			

ENGINE CONTROL ROOM



Cable drawing		Checked: LNJE	Previous Drg: DMN200005738
Kamewa Basic		Approved: KK35	Weight kg:
Origin / Date:	Scale:	Format:	Sheet:
KK201 23.09.2014		A2	2 of 11
Drawing no: DMN000224637		Revision: B	
<p>Rolls-Royce AB Propulsion Kristinehamn</p>			
<small>Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.</small>			

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A

B

C

D

E

F

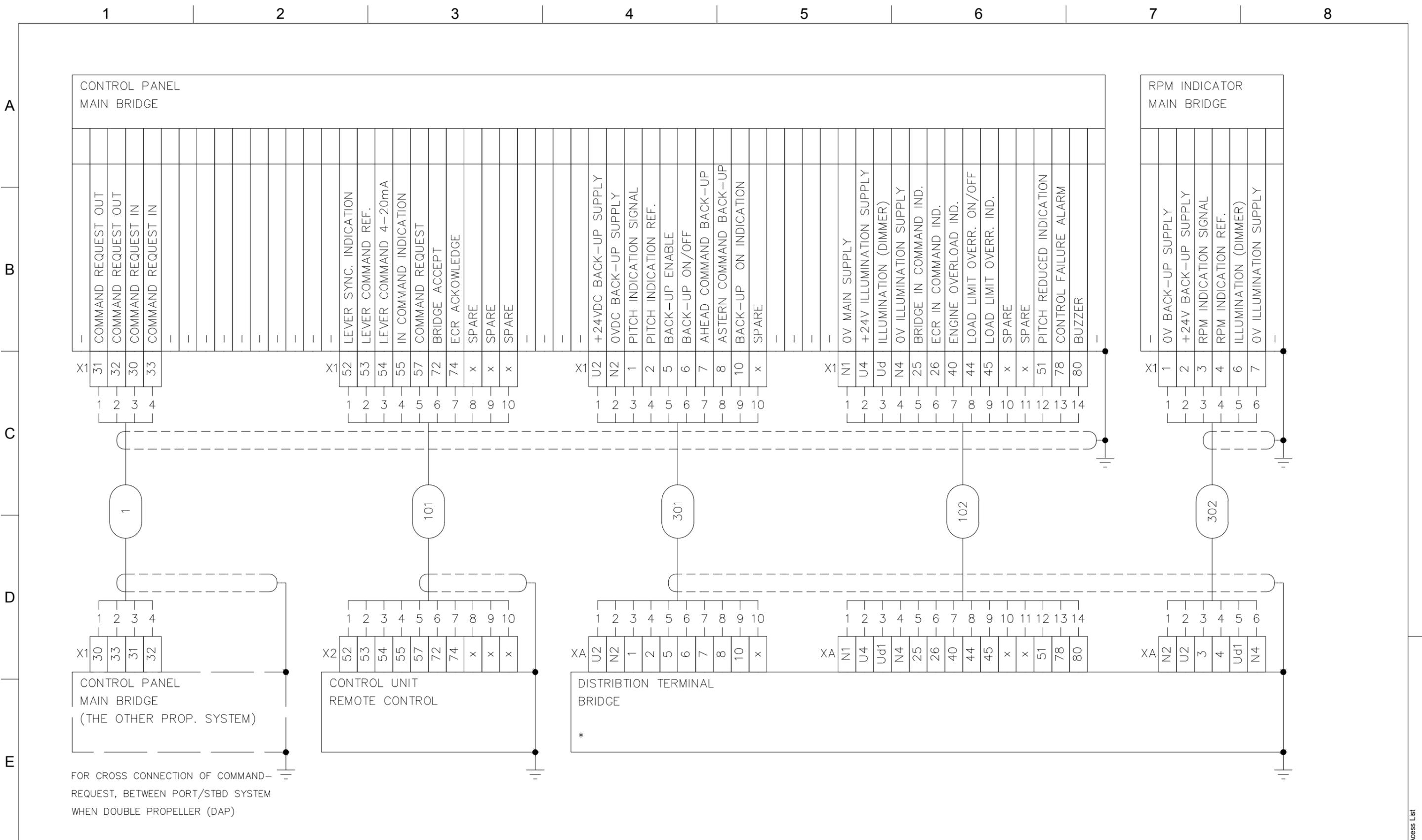
CABLE NUMBER	PAGE
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B	8
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2	5
101	4
102	4
103	5
104	5
107	6
108	7
109	7
120	9
121	9
122	9
130	10
131	10
132	10
140	11
141	11
142	11
143	11
144	11
300	6
301	4
302	4
303	5
304	5
305	7
307	7
500	9
507	9

CABLE OVERVIEW

Cable connection drawing		Checked:	Previous Drg:	
		LNJE	DMN200005738	
Kamewa Basic		Approved:	Weight kg:	
		KK35		
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date:	Scale:	Format:	Sheet:
	KK201 23.09.2014		A3	3 of 11
	Drawing no:		Revision:	
DMN000224637		B		
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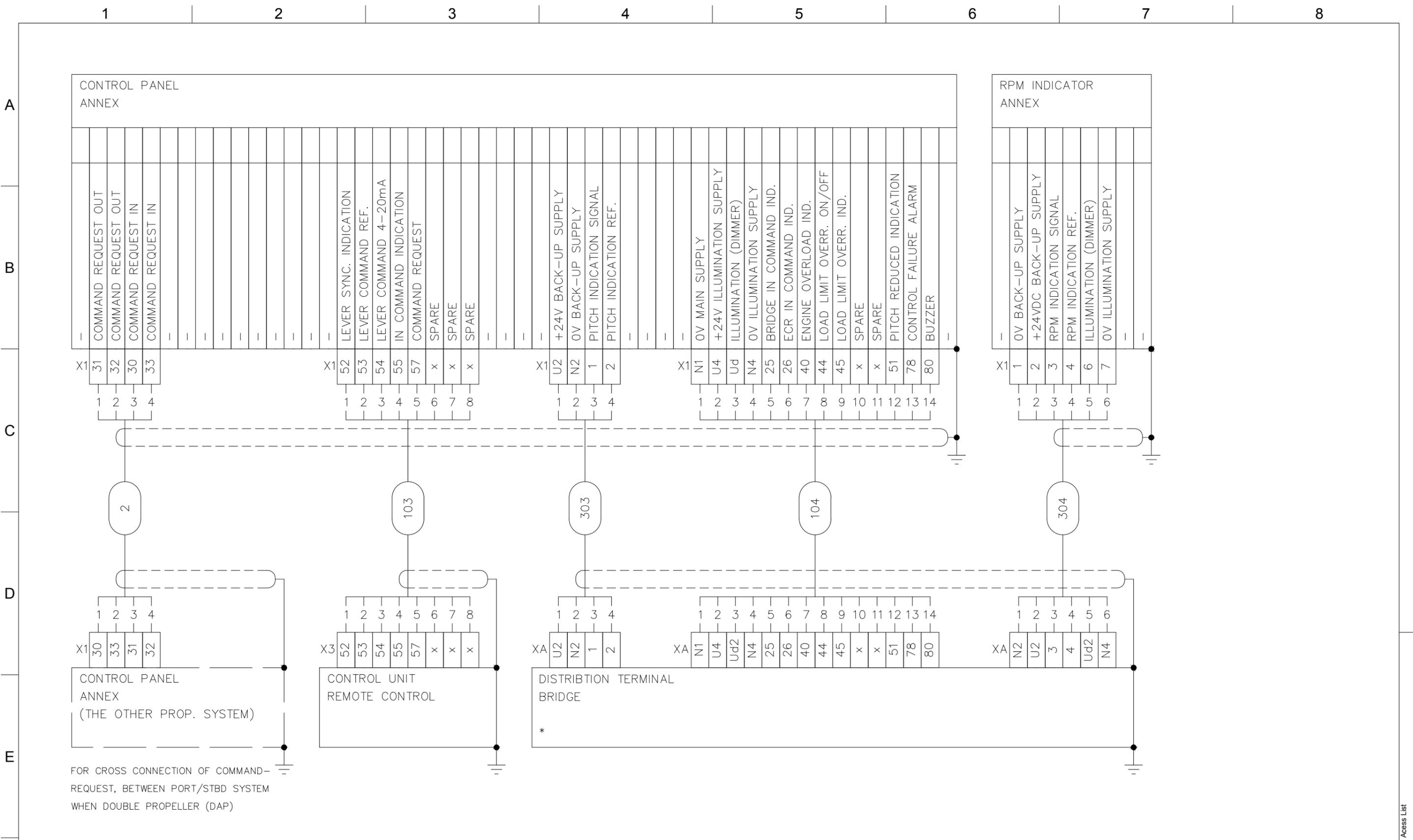
FOR CROSS CONNECTION OF COMMAND-REQUEST, BETWEEN PORT/STBD SYSTEM WHEN DOUBLE PROPELLER (DAP)

CONTROL STATION MAIN BRIDGE

* NOT ROLLS-ROYCE DELIVERY

Cable connection drawing		Checked: LNJE	Previous Drg: DMN200005738
Kamewa Basic		Approved: KK35	Weight kg:
Origin. / Date: KK201 23.09.2014	Scale: A3	Format: A3	Sheet: 4 of 11
Drawing no: DMN000224637		Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.	

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RR AB'S Info. Class:
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FOR CROSS CONNECTION OF COMMAND-REQUEST, BETWEEN PORT/STBD SYSTEM WHEN DOUBLE PROPELLER (DAP)

CONTROL STATION ANNEX

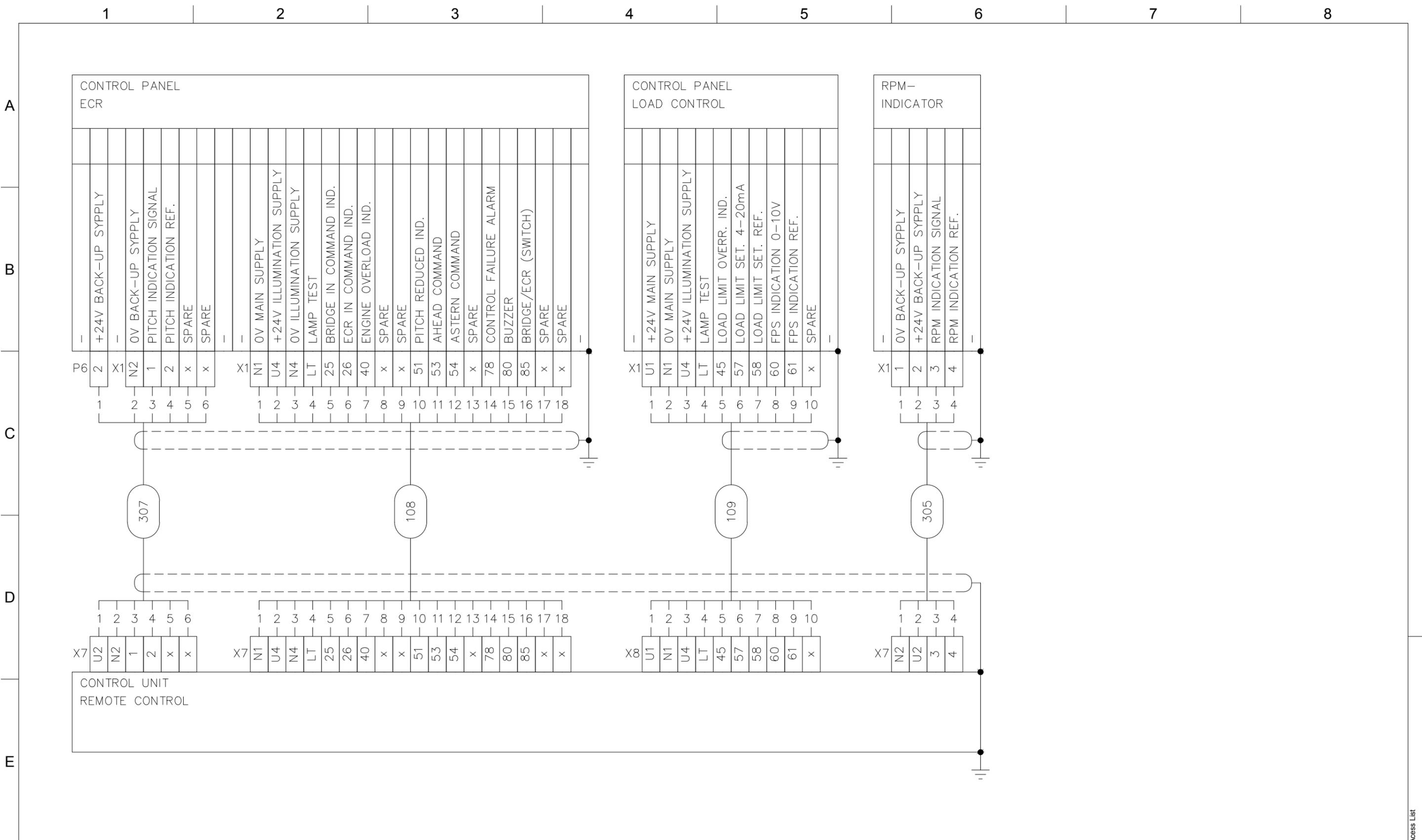
* NOT ROLLS-ROYCE DELIVERY

Cable connection drawing		Checked: LNJE	Previous Drg: DMN200005738
Kamewa Basic		Approved: KK35	Weight kg:
Origin. / Date: KK201 23.09.2014	Scale:	Format: A3	Sheet: 5 of 11
Drawing no: DMN000224637		Revision: B	

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Rolls-Royce AB
Propulsion Kristinehamn

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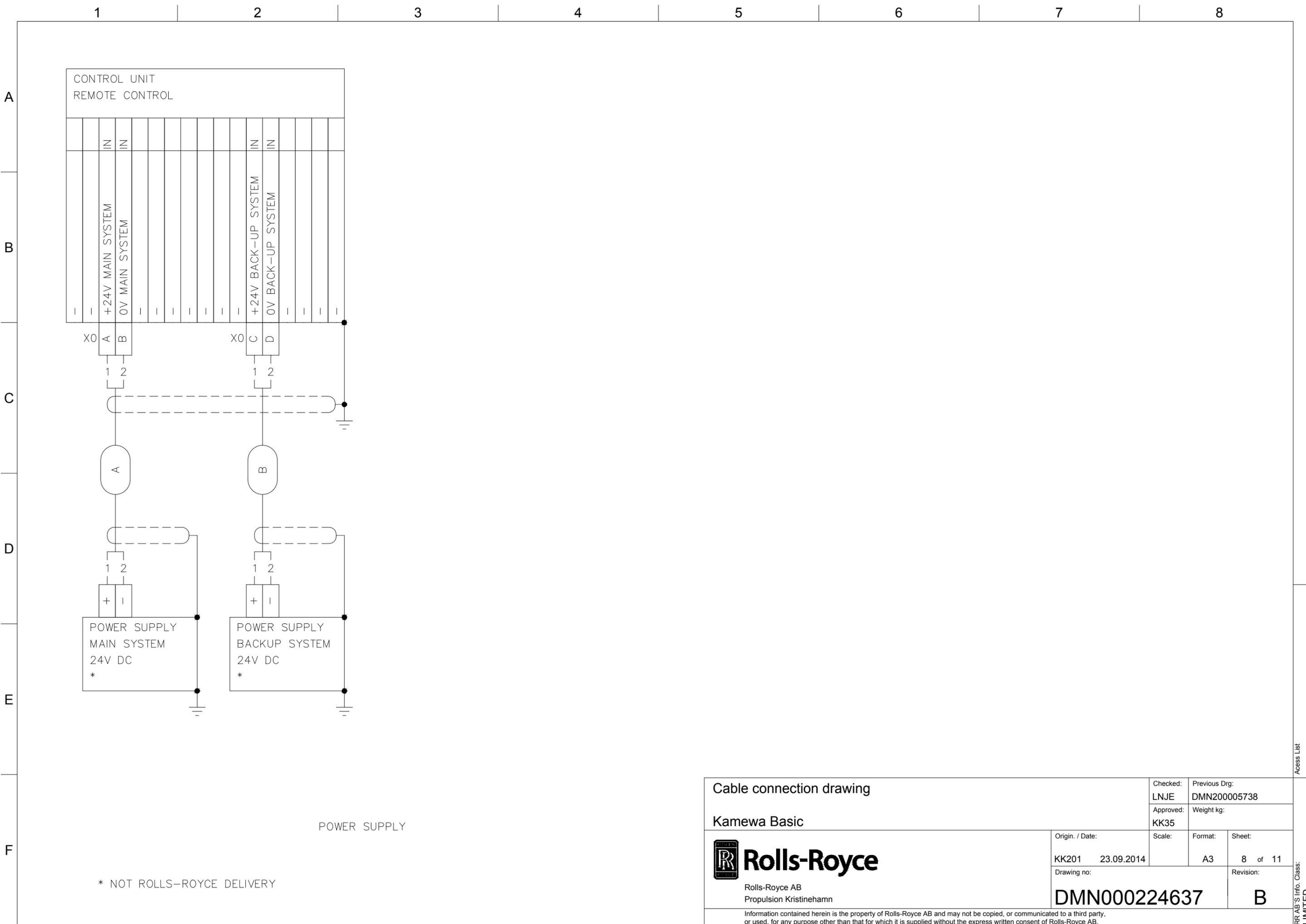


CONTROL STATION ECR

* NOT ROLLS-ROYCE DELIVERY

Cable connection drawing		Checked: LNJE	Previous Drg: DMN200005738	
Kamewa Basic		Approved: KK35	Weight kg:	
Origin. / Date: KK201 23.09.2014		Scale:	Format: A3	Sheet: 7 of 11
Drawing no: DMN000224637			Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.		

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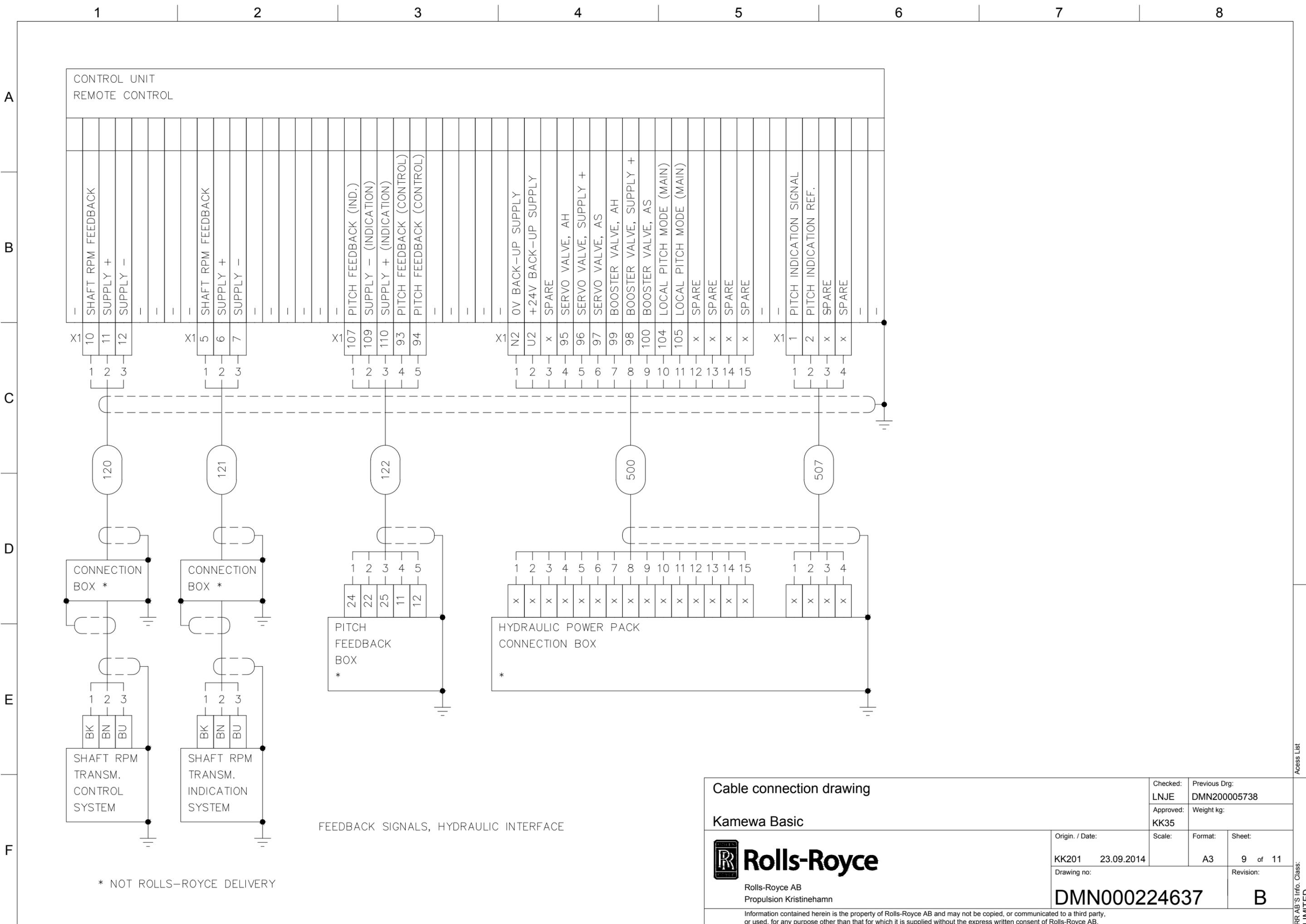
POWER SUPPLY

* NOT ROLLS-ROYCE DELIVERY

Cable connection drawing		Checked:	Previous Drg:		
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Kamewa Basic		Approved:	Weight kg:		
		KK35			
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date:	Scale:	Format:	Sheet:	
	KK201 23.09.2014		A3	8 of 11	
	Drawing no:			Revision:	
DMN000224637			B		
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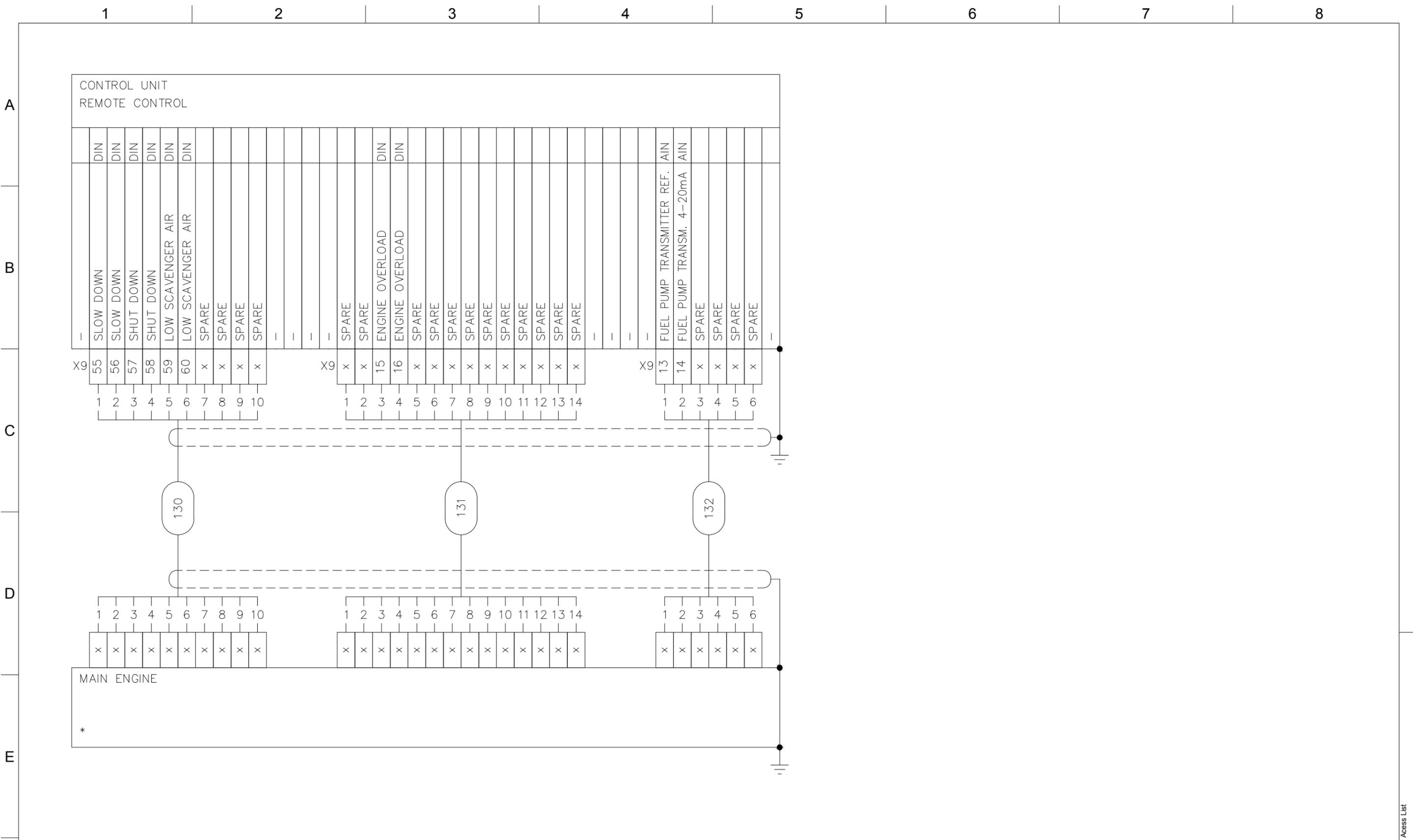
FEEDBACK SIGNALS, HYDRAULIC INTERFACE

Cable connection drawing		Checked: LNJE	Previous Drg: DMN200005738	
Kamewa Basic		Approved: KK35	Weight kg:	
Origin. / Date: KK201 23.09.2014	Scale:	Format: A3	Sheet: 9 of 11	
Drawing no: DMN000224637			Revision: B	

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Rolls-Royce AB
Propulsion Kristinehamn

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Cable connection drawing		Checked:	Previous Drg:		
		LNJE	DMN200005738		
Kamewa Basic		Approved:	Weight kg:		
		KK35			
 Rolls-Royce AB Propulsion Kristinehamn		Origin. / Date:	Scale:	Format:	Sheet:
		KK201 23.09.2014		A3	10 of 11
Drawing no:				Revision:	
DMN000224637				B	
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RR AB'S Info. Class:
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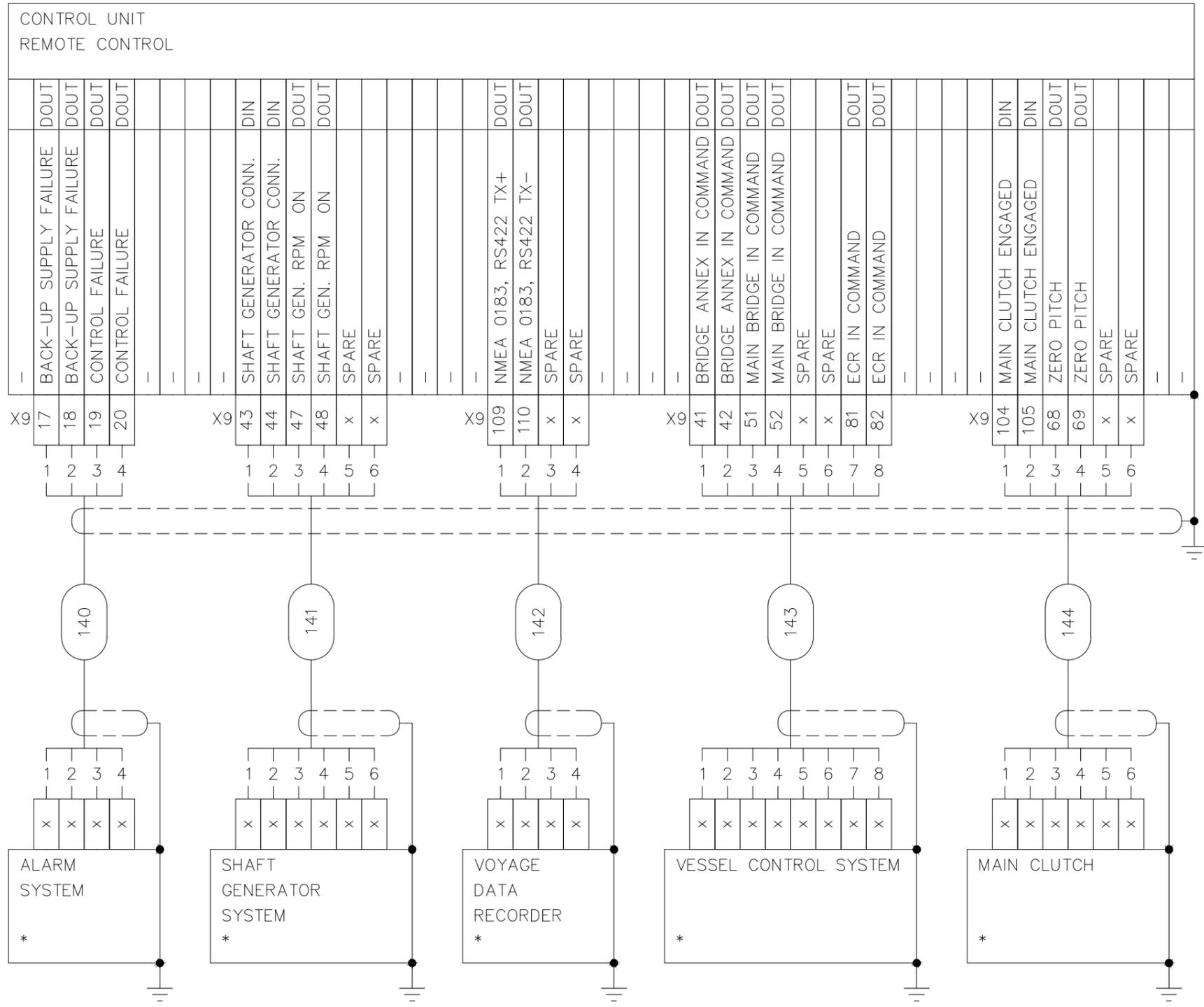
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D

E

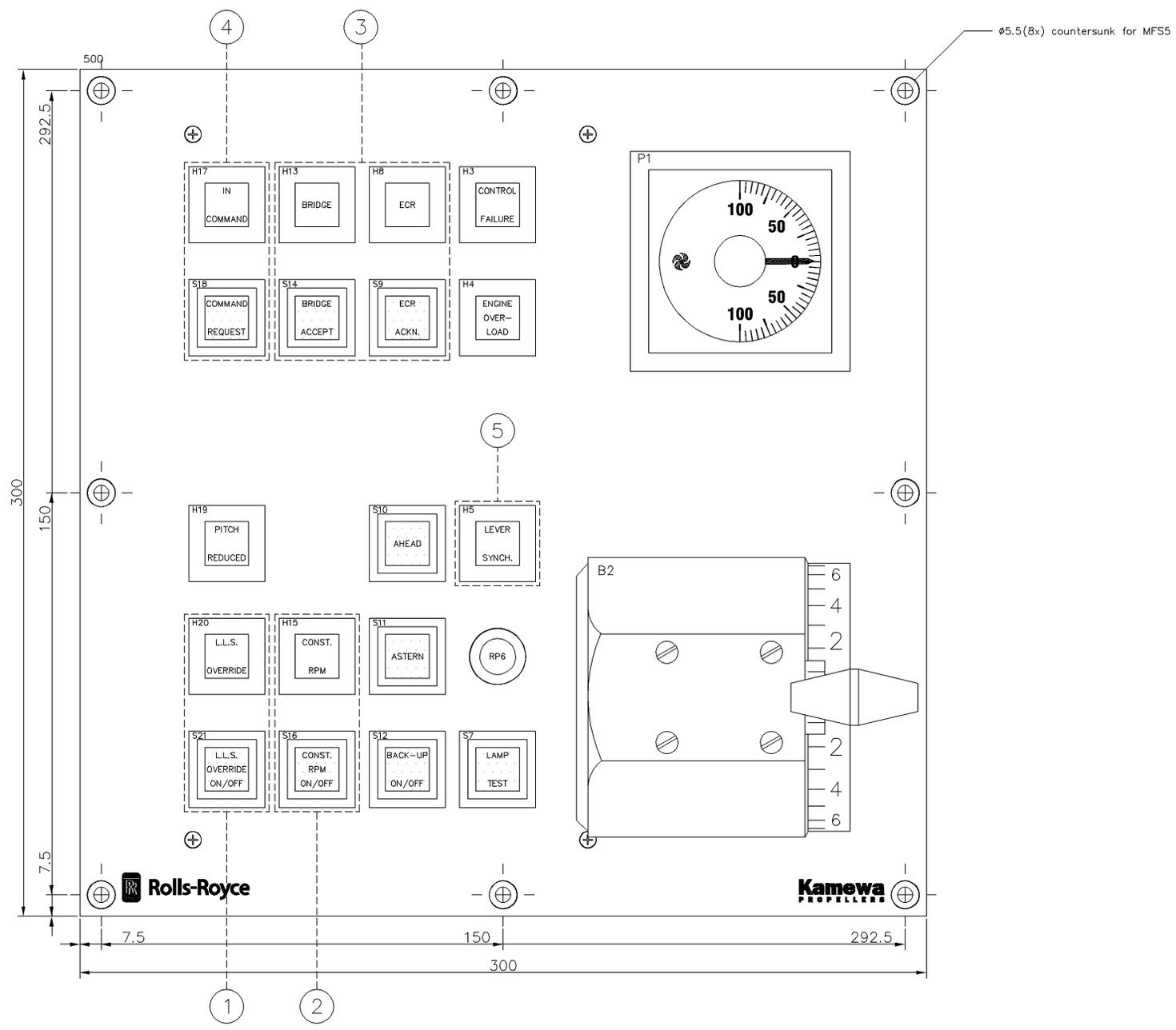
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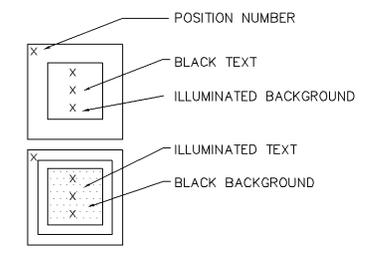
EXTERNAL INTERFACE

* NOT ROLLS-ROYCE DELIVERY

Cable connection drawing		Checked: LNJE	Previous Drg: DMN200005738	
Kamewa Basic		Approved: KK35	Weight kg:	
Origin. / Date: KK201 23.09.2014		Scale:	Format: A3	Sheet: 11 of 11
Drawing no: DMN000224637			Revision: B	
<p>Rolls-Royce AB Propulsion Kristinehamn</p>		<p>Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.</p>		



YELLOW LAMP: H-5,8,15,19,20
 RED LAMP: H-3,4
 BLUE LAMP:
 GREEN LAMP: H-13,17
 TRANSPARENT LAMP:
 YELLOW PUSH-BUTTON:
 RED PUSH-BUTTON:
 BLUE PUSH-BUTTON: S-12
 GREEN PUSH-BUTTON:
 TRANSPARENT PUSH-BUTTON: S-7,9,10,11,14,16,18,21
 BLACK LENS (DUMMY):
 PUSH-BUTTON COVER:
 PROTECTION COVER (SILICON):
 SWITCH:



HEIGHT OVER PANEL: 180mm
 MAX DEPTH: 100mm
 WEIGHT: 3,3Kg
 PROTECTION DEGREE: IP65
 PANEL SURFACE: BLACK ANODIZED
 SCREEN PRINT COLOUR: YELLOW
 LOGO COLOUR: WHITE
 INSTRUMENT COLOUR: BLACK/YELLOW
 CUT OUT IN DESK: 270 x 270 mm(H x W)

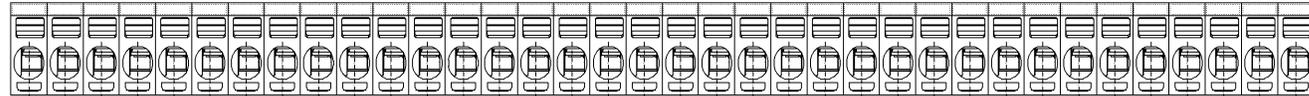
FUNCTIONAL OPTIONS

- ① LOAD CONTROL
- ② CONSTANT RPM, (COMBINATOR)
- ③ MANOEUVRE RESPONSIBILITY, BRIDGE CONTROL ROOM
- ④ MANOEUVRE RESPONSIBILITY, BRIDGE ANNEX
- ⑤ LEVER SYNCHRO LAMP

Only panel plates. Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-f	Sharp edges broken 0.2x0.5	Checked: RK35	Previous Dwg: Standard
Control panel, layout			Approved: LNUE	Weighting:
Kamewa Main Propeller, Basic, Bridge			Scale: A1	Format: A1
			Origin / Date: KK201 17.08.2011	Sheet: 1 of 3
			Drawing no: RRM200018710	Revision: A

PCB CONNECTOR

X1



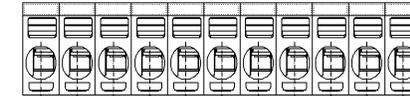
1 2 5 6 7 8 10 25 26 30 31 32 33 40 44 45 46 47 51 52 53 54 55 57 72 74 78 80 N1 U2 N2 U4 U4 N4 N4 Ud

X1:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 5 BACK-UP ENABLE (N2)
- 6 BACK-UP ON/OFF
- 7 AHEAD
- 8 ASTERN
- 10 BACK-UP ON
- 25 BRIDGE INDICATION
- 26 ECR INDICATION
- 30 N1(OUT)
- 31 N1 (IN)
- 32 COMMAND REQUEST OUT (CROSS CONNECTION)
- 33 COMMAND REQUEST IN (CROSS CONNECTION)
- 40 ENGINE OVERLOAD
- 44 LOAD LIMIT OVERRIDE ON/OFF
- 45 LOAD LIMIT OVERRIDE INDICATION
- 46 CONSTANT RPM ON/OFF
- 47 CONSTANT RPM ON INDICATION
- 51 PITCH REDUCED
- 52 LEVER SYNC.
- 53 PITCH COMMAND SIGNAL
- 54 PITCH COMMAND SIGNAL
- 55 IN COMMAND
- 57 COMMAND REQUEST
- 72 BRIDGE ACCEPT
- 74 ECR ACKNOWLEDGE
- 78 CONTROL FAILURE
- 80 BUZZER
- N1 MAIN SUPPLY
- U2 BACK-UP SUPPLY
- N2 BACK-UP SUPPLY
- U4 ILLUMINATION SUPPLY
- U4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- Ud ILLUMINATION SUPPLY (DIMMER)

PCB CONNECTOR

X2



1 2 53 54 N4 N4 Ud Ud CWCCW W

X2:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 53 PITCH COMMAND SIGNAL
- 54 PITCH COMMAND SIGNAL
- N4 CONTROL LEVER
- N4 PITCH INDICATOR
- Ud CONTROL LEVER
- Ud PITCH INDICATOR
- CW DIMMER POTENTIOMETER
- CCW DIMMER POTENTIOMETER
- W DIMMER POTENTIOMETER

Access List

Control panel, wiring		Checked:	Previous Drg:		
		KK35	Standard		
Kamewa Main Propeller, Basic, bridge		Approved:	Weight kg:		
		LNJE			
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date:	Scale:	Format:	Sheet:	
	KK201 17.08.2011		A3	2 of 3	
Drawing no:				Revision:	
RRM200018710				A	

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RR AB'S Info. Class: LIMITED

A

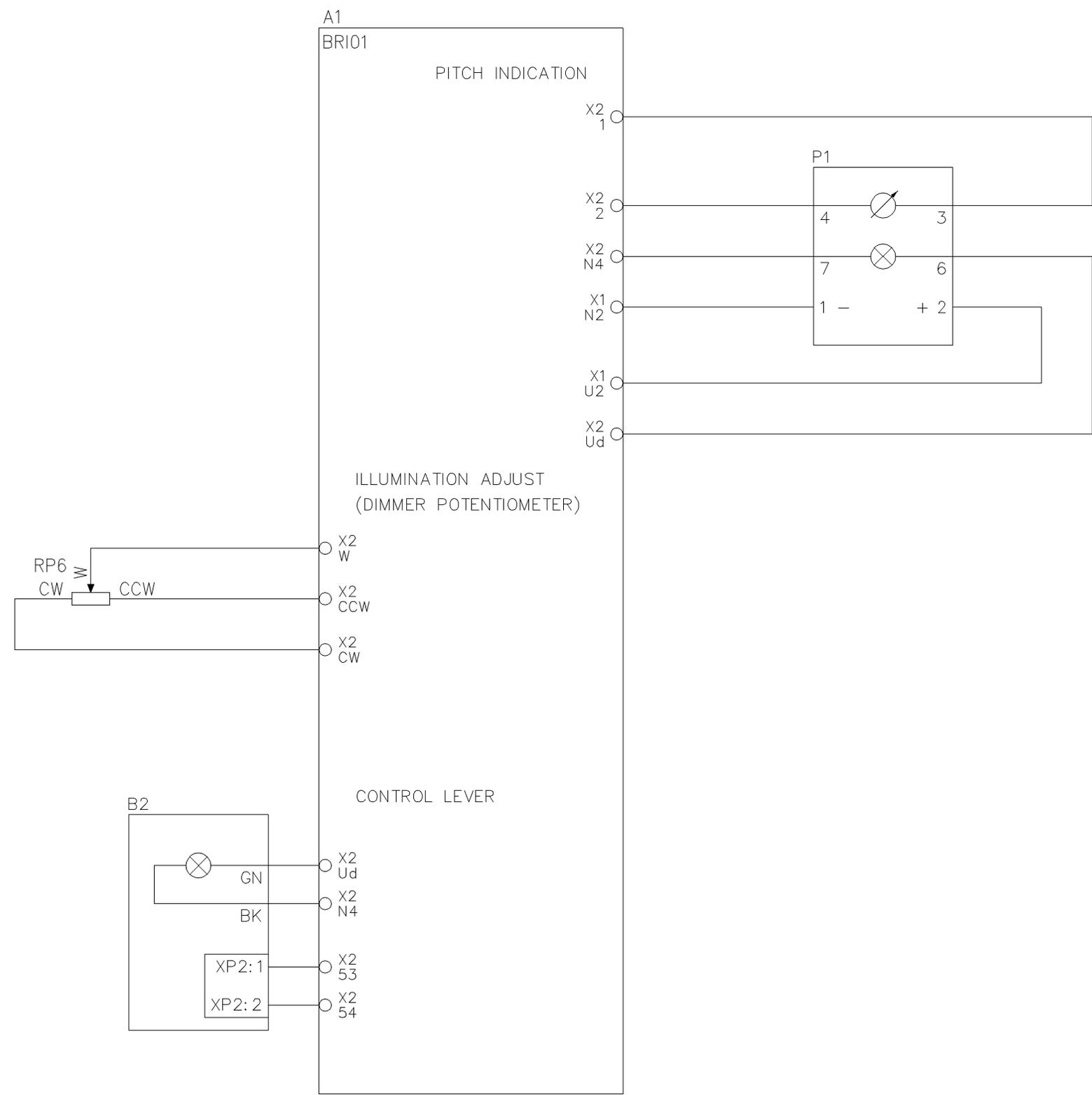
B

C

D

E

F

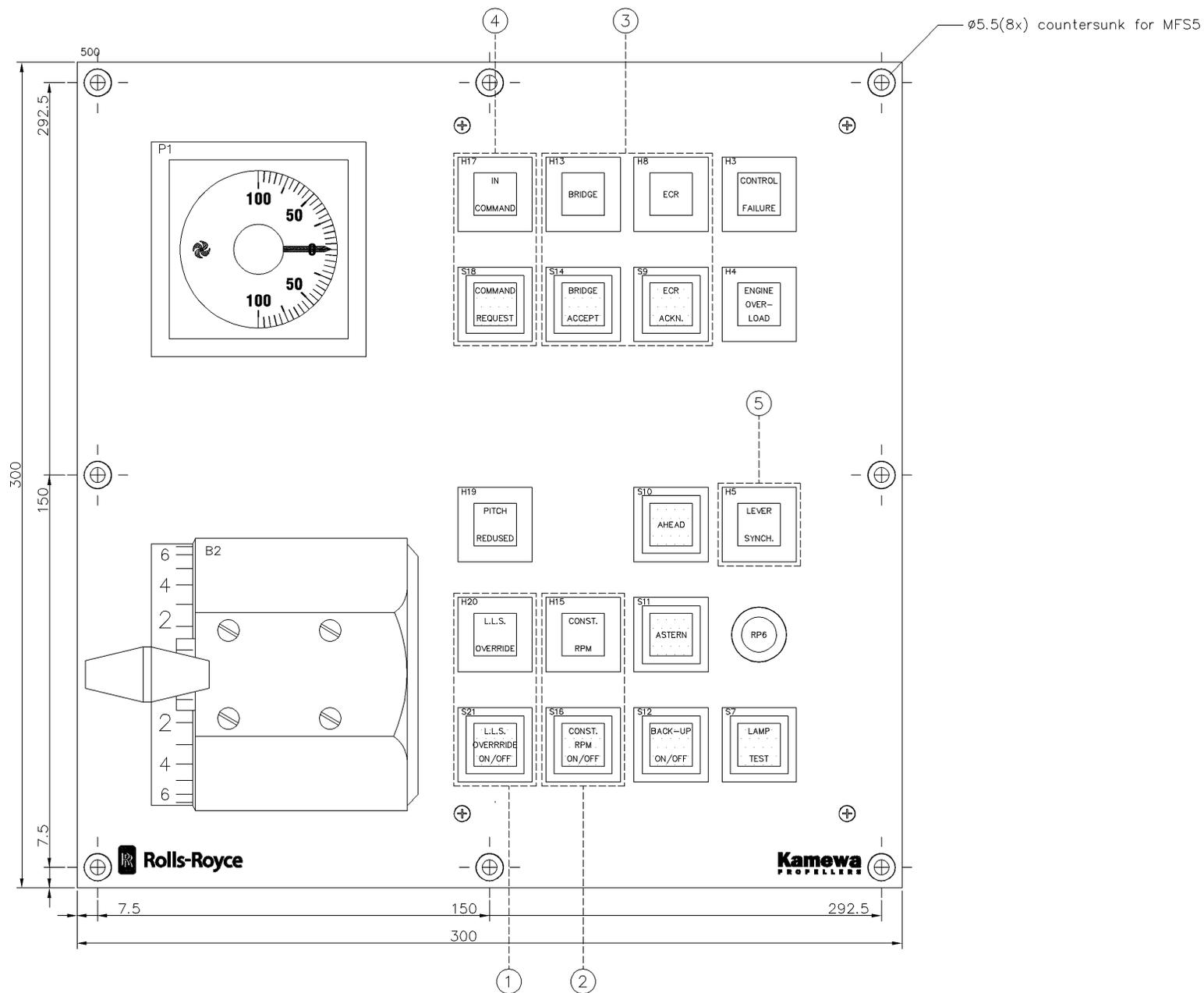


INDICATION, DIMMER, CONTROL LEVER

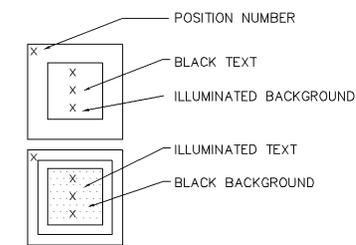
Control panel, wiring				Checked: KK35	Previous Drg: Standard
Kamewa Main Propeller, Basic, Bridge				Approved: LNJE	Weight kg:
Origin. / Date: KK201 17.08.2011		Scale:	Format: A3	Sheet: 3 of 3	
Rolls-Royce AB Propulsion Kristinehamn				Revision: A	
Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.					

Access List

RR AB'S Info. Class:
LIMITED



YELLOW LAMP: H-5,8,15,19,20
 RED LAMP: H-3,4
 BLUE LAMP:
 GREEN LAMP: H-13,17
 TRANSPARENT LAMP:
 YELLOW PUSH-BUTTON:
 RED PUSH-BUTTON:
 BLUE PUSH-BUTTON: S-12
 GREEN PUSH-BUTTON:
 TRANSPARENT PUSH-BUTTON: S-7,9,10,11,14,16,18,21
 BLACK LENS (DUMMY):
 PUSH-BUTTON COVER:
 PROTECTION COVER (SILICON):
 SWITCH:



HEIGHT OVER PANEL: 180mm
 MAX DEPTH: 100mm
 WEIGHT: 3.3Kg
 PROTECTION DEGREE: IP65
 PANEL SURFACE: BLACK ANODIZED
 SCREEN PRINT COLOUR: YELLOW
 LOGO COLOUR: WHITE
 INSTRUMENT COLOUR: BLACK/YELLOW
 CUT OUT IN DESK: 270 x 270 mm(H x W)

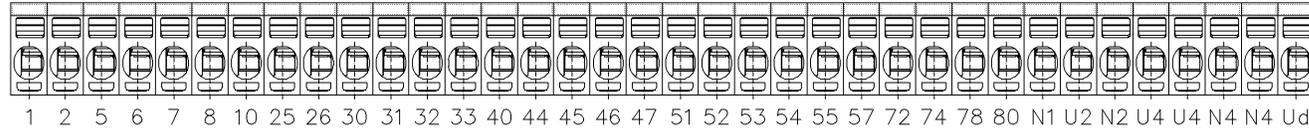
OPTIONAL FUNCTIONS

- ① LOAD CONTROL
- ② CONSTANT RPM, (COMBINATOR)
- ③ MANOEUVRE RESPONSIBILITY, BRIDGE CONTROL ROOM
- ④ MANOEUVRE RESPONSIBILITY, BRIDGE ANNEX
- ⑤ LEVER SYNCHRO LAMP

Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 µm	General Tolerances: SS-ISO 2768-f	Sharp edges broken 0.2x0.5	Checked: KK201	Previous Dwg: Standard
Control panel, layout			Approved: LNUE	Weighting:
Kamewa Main Propeller, Basic, Bridge			Scale: 1:1	Format: A1
 Rolls-Royce AB Propulsion Kvarnshamn Information published herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.			Origin / Date: KK330 10.01.2012	Sheet: 1 of 3
			Drawing no: RRM200018712	Revision: A

PCB CONNECTOR

X1

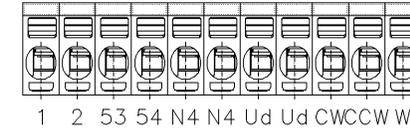


X1:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 5 BACK-UP ENABLE (N2)
- 6 BACK-UP ON/OFF
- 7 AHEAD
- 8 ASTERN
- 10 BACK-UP ON
- 25 BRIDGE INDICATION
- 26 ECR INDICATION
- 30 N1(OUT)
- 31 N1 (IN)
- 32 COMMAND REQUEST OUT (CROSS CONNECTION)
- 33 COMMAND REQUEST IN (CROSS CONNECTION)
- 40 ENGINE OVERLOAD
- 44 LOAD LIMIT OVERRIDE ON/OFF
- 45 LOAD LIMIT OVERRIDE INDICATION
- 46 CONSTANT RPM ON/OFF
- 47 CONSTANT RPM ON INDICATION
- 51 PITCH REDUCED
- 52 LEVER SYNC.
- 53 PITCH COMMAND SIGNAL
- 54 PITCH COMMAND SIGNAL
- 55 IN COMMAND
- 57 COMMAND REQUEST
- 72 BRIDGE ACCEPT
- 74 ECR ACKNOWLEDGE
- 78 CONTROL FAILURE
- 80 BUZZER
- N1 MAIN SUPPLY
- U2 BACK-UP SUPPLY
- N2 BACK-UP SUPPLY
- U4 ILLUMINATION SUPPLY
- U4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- Ud ILLUMINATION SUPPLY (DIMMER)

PCB CONNECTOR

X2



X2:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 53 PITCH COMMAND SIGNAL
- 54 PITCH COMMAND SIGNAL
- N4 CONTROL LEVER
- N4 PITCH INDICATOR
- Ud CONTROL LEVER
- Ud PITCH INDICATOR
- CW DIMMER POTENTIOMETER
- CCW DIMMER POTENTIOMETER
- W DIMMER POTENTIOMETER

Access List

Control panel, wiring		Checked:	Previous Drg:		
		KK201	Standard		
Kamewa Main Propeller, Basic, bridge		Approved:	Weight kg:		
		LNJE			
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date:	Scale:	Format:	Sheet:	
	KK330 10.01.2012		A3	2 of 3	
Drawing no:				Revision:	
RRM200018712				A	

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RR AB'S Info. Class: LIMITED

A

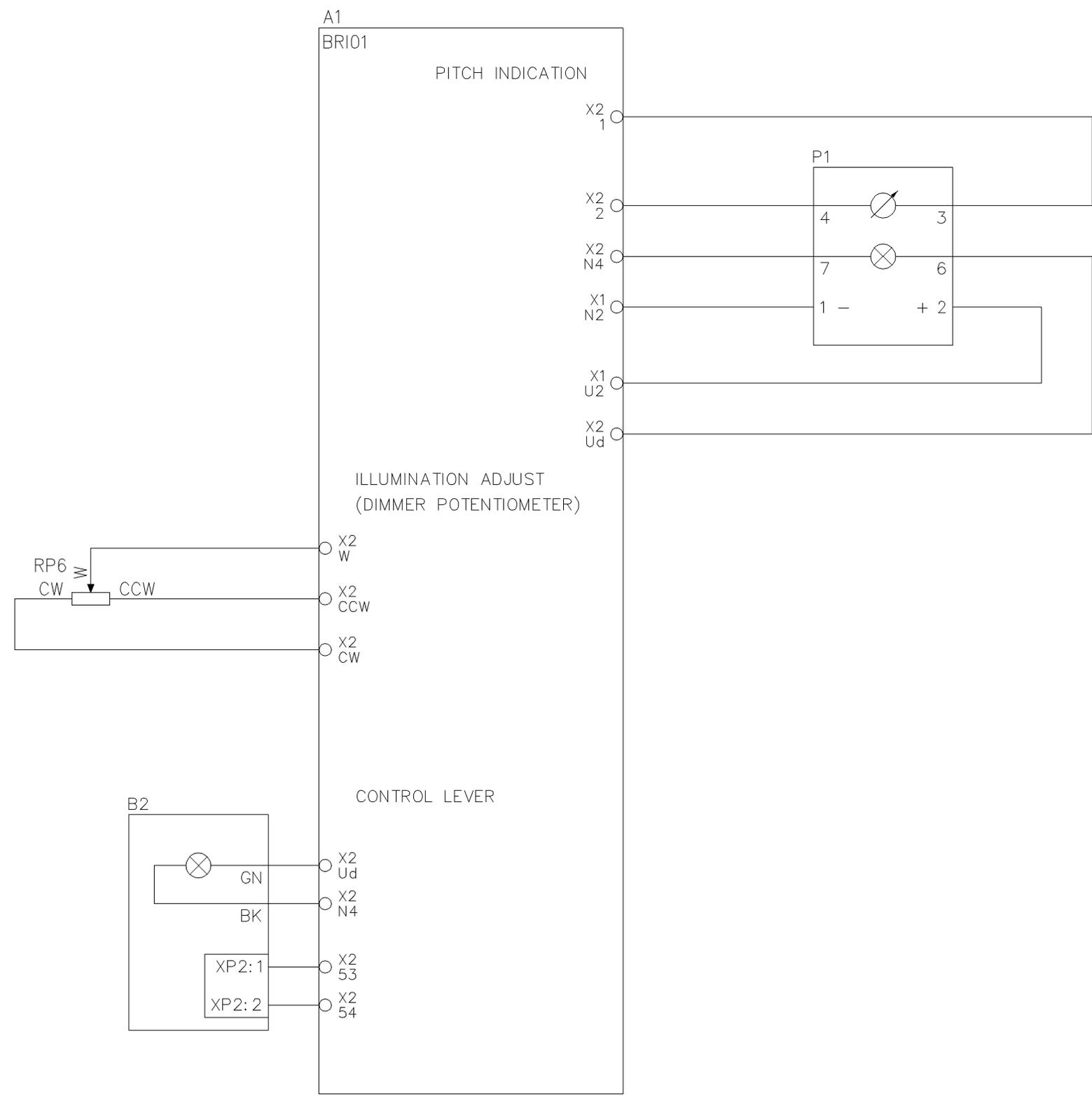
B

C

D

E

F



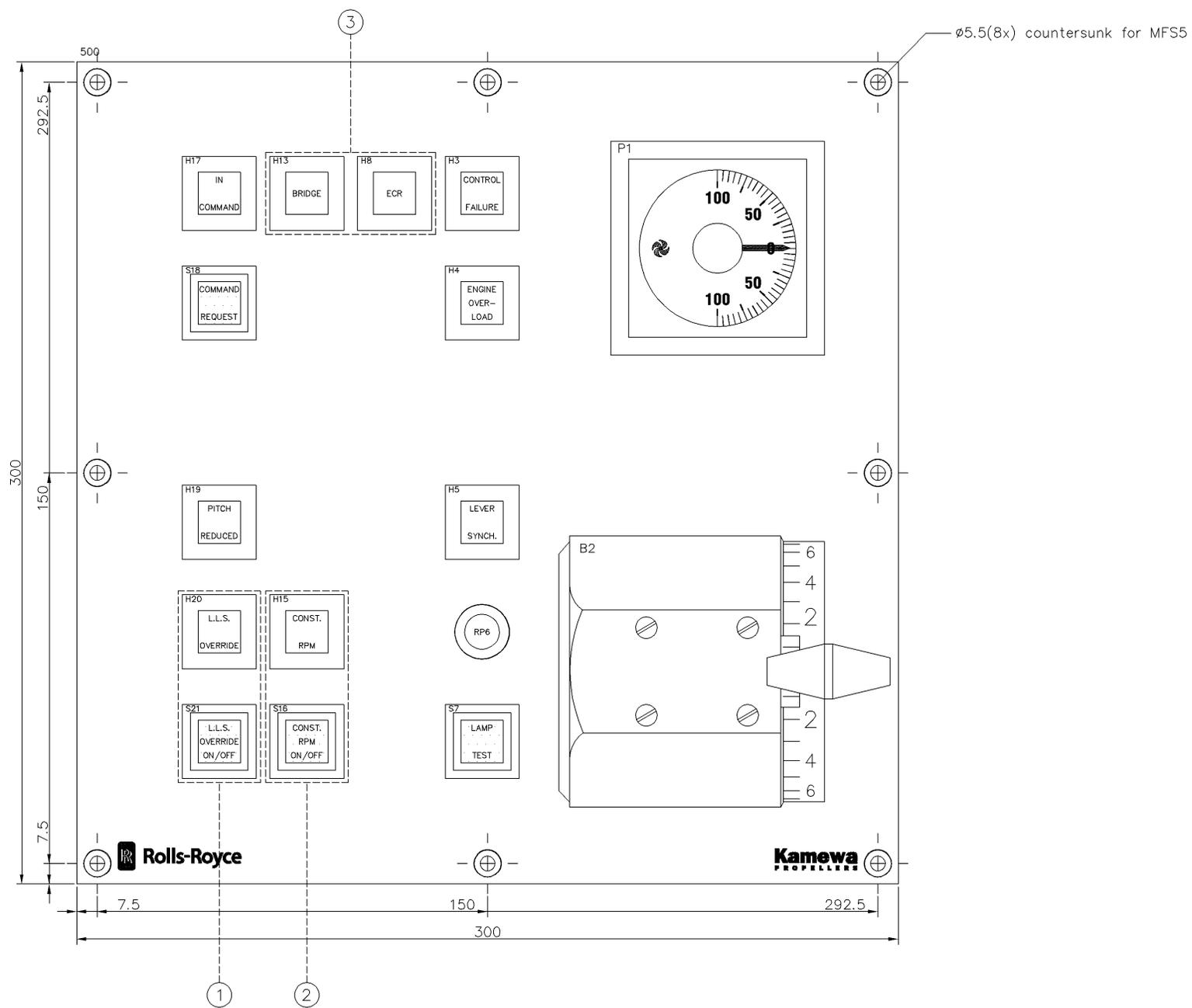
INDICATION, DIMMER, CONTROL LEVER

Control panel, wiring		Checked: KK201	Previous Drg: Standard	
Kamewa Main Propeller, Basic, Bridge		Approved: LNJE	Weight kg:	
 Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date: KK330 10.01.2012	Scale:	Format: A3	Sheet: 3 of 3
	Drawing no: RRM200018712			Revision: A

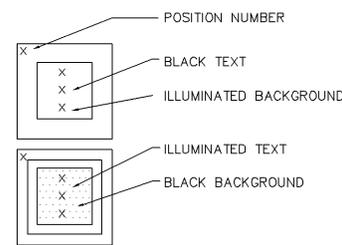
Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.

Access List

RR AB'S Info. Class:
LIMITED



- YELLOW LAMP: H-5,8,15,19,20
- RED LAMP: H-3,4
- BLUE LAMP:
- GREEN LAMP: H-13,17
- TRANSPARENT LAMP:
- YELLOW PUSH-BUTTON:
- RED PUSH-BUTTON:
- BLUE PUSH-BUTTON:
- GREEN PUSH-BUTTON:
- TRANSPARENT PUSH-BUTTON: S-7,16,18,21
- BLACK LENS (DUMMY):
- PUSH-BUTTON COVER:
- PROTECTION COVER (SILICON): S-7,16,18,21
- SWITCH:



HEIGHT OVER PANEL: 180mm
 MAX DEPTH: 100mm
 WEIGHT: 3.2Kg
 PROTECTION DEGREE: IP66
 PANEL SURFACE: BLACK ANODIZED
 SCREEN PRINT COLOUR: YELLOW
 LOGO COLOUR: WHITE
 INSTRUMENT COLOUR: BLACK/YELLOW
 CUT OUT IN DESK: 270 x 270 mm(H x W)

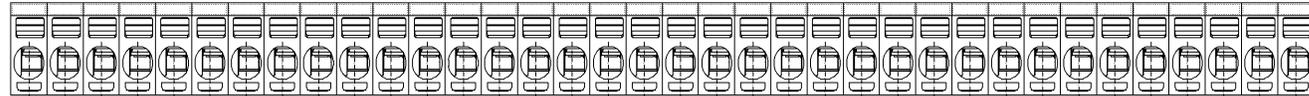
OPTIONAL FUNCTIONS:

- ① LOAD CONTROL
- ② CONSTANT RPM, (COMBINATOR)
- ③ MANOEUVRE RESPONSIBILITY, BRIDGE-CONTROL ROOM

Only panel plates. Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-f	Sharp edges broken 0.2x0.5	Checked: RKKS	Previous Dwg: Standard
Control panel, layout			Approved: LNJE	Weighting:
Kamewa Main Propeller, Basic bridge wing			Scale: 1:1	Format: A1
			Origin / Date: KK201 05.09.2011	Sheet: 1 of 3
			Drawing no: RRM200018711	Revision: A

PCB CONNECTOR

X1



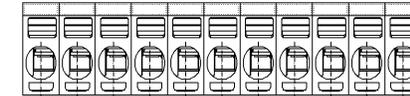
1 2 5 6 7 8 10 25 26 30 31 32 33 40 44 45 46 47 51 52 53 54 55 57 72 74 78 80 N1 U2 N2 U4 U4 N4 N4 Ud

X1:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 5 BACK-UP ENABLE (N2) (NOT USED)
- 6 BACK-UP ON/OFF (NOT USED)
- 7 AHEAD (NOT USED)
- 8 ASTERN (NOT USED)
- 10 BACK-UP ON (NOT USED)
- 25 BRIDGE INDICATION
- 26 ECR INDICATION
- 30 N1(OUT)
- 31 N1 (IN)
- 32 COMMAND REQUEST OUT (CROSS CONNECTION)
- 33 COMMAND REQUEST IN (CROSS CONNECTION)
- 40 ENGINE OVERLOAD
- 44 LOAD LIMIT OVERRIDE ON/OFF
- 45 LOAD LIMIT OVERRIDE INDICATION
- 46 CONSTANT RPM ON/OFF
- 47 CONSTANT RPM ON INDICATION
- 51 PITCH REDUCED
- 52 LEVER SYNC.
- 53 PITCH COMMAND SIGNAL
- 54 PITCH COMMAND SIGNAL
- 55 IN COMMAND
- 57 COMMAND REQUEST
- 72 BRIDGE ACCEPT (NOT USED)
- 74 ECR ACKNOWLEDGE (NOT USED)
- 78 CONTROL FAILURE
- 80 BUZZER
- N1 MAIN SUPPLY
- U2 BACK-UP SUPPLY
- N2 BACK-UP SUPPLY
- U4 ILLUMINATION SUPPLY
- U4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- Ud ILLUMINATION SUPPLY (DIMMER)

PCB CONNECTOR

X2



1 2 53 54 N4 N4 Ud Ud CW CC W W

X2:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 53 PITCH COMMAND SIGNAL
- 54 PITCH COMMAND SIGNAL
- N4 CONTROL LEVER
- N4 PITCH INDICATOR
- Ud CONTROL LEVER
- Ud PITCH INDICATOR
- CW DIMMER POTENTIOMETER
- CCW DIMMER POTENTIOMETER
- W DIMMER POTENTIOMETER

Access List

Control panel, wiring		Checked:	Previous Drg:		
		KK35	Standard		
Kamewa Main Propeller, Basic bridge wing		Approved:	Weight kg:		
		LNJE			
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date:	Scale:	Format:	Sheet:	
	KK201 05.09.2011		A3	2 of 3	
Drawing no:			Revision:		
RRM200018711			A		

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RR AB'S Info. Class: LIMITED

A

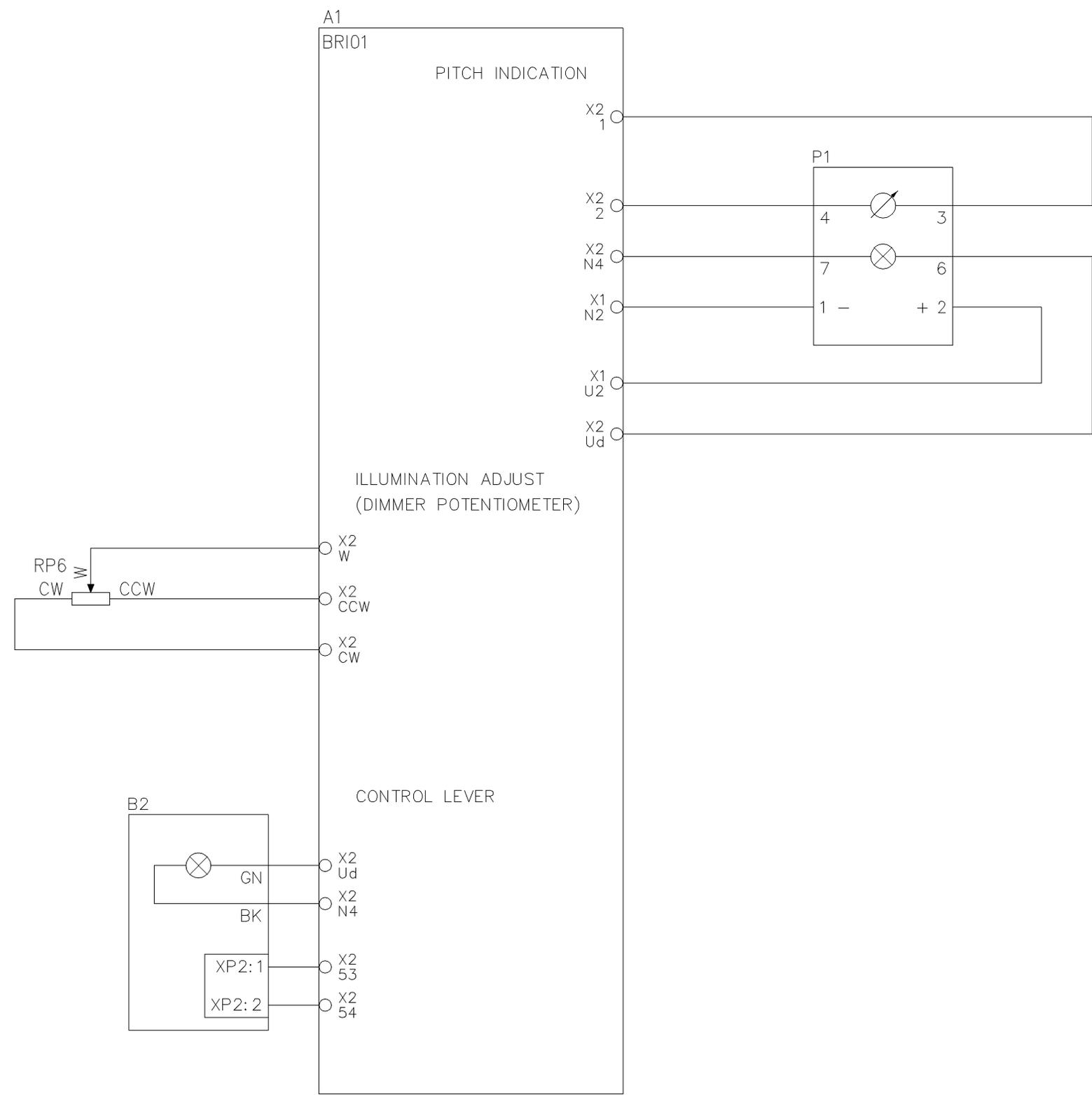
B

C

D

E

F



INDICATION, DIMMER, CONTROL LEVER

Control panel, wiring				Checked: KK35	Previous Drg: Standard
Kamewa Main Propeller, Basic bridge wing				Approved: LNJE	Weight kg:
Origin. / Date: KK201 05.09.2011		Scale:	Format: A3	Sheet: 3 of 3	
Rolls-Royce AB Propulsion Kristinehamn				Revision: A	
RRM200018711					

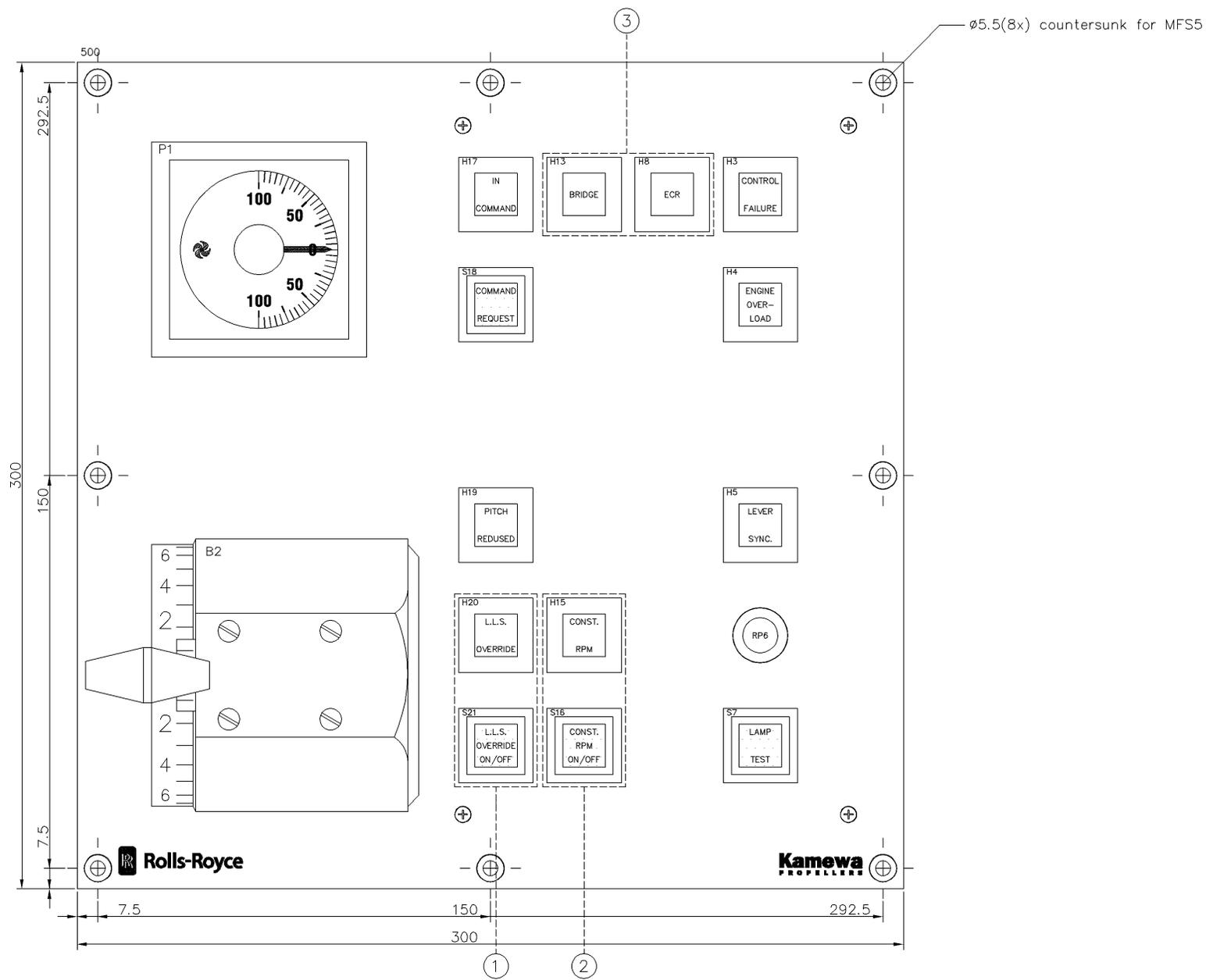


Rolls-Royce AB
Propulsion Kristinehamn

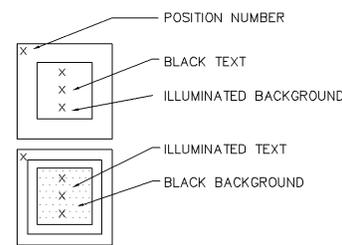
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Access List

RR AB'S Info. Class:
LIMITED



- YELLOW LAMP: H-5,8,15,19,20
- RED LAMP: H-3,4
- BLUE LAMP:
- GREEN LAMP: H-13,17
- TRANSPARENT LAMP:
- YELLOW PUSH-BUTTON:
- RED PUSH-BUTTON:
- BLUE PUSH-BUTTON:
- GREEN PUSH-BUTTON:
- TRANSPARENT PUSH-BUTTON: S-7,16,18,21
- BLACK LENS (DUMMY):
- PUSH-BUTTON COVER:
- PROTECTION COVER (SILICON): S-7,16,18,21
- SWITCH:



HEIGHT OVER PANEL: 180mm
 MAX DEPTH: 100mm
 WEIGHT: 3.2Kg
 PROTECTION DEGREE: IP66
 PANEL SURFACE: BLACK ANODIZED
 SCREEN PRINT COLOUR: YELLOW
 LOGO COLOUR: WHITE
 INSTRUMENT COLOUR: BLACK/YELLOW
 CUT OUT IN DESK: 270 x 270 mm(H x W)

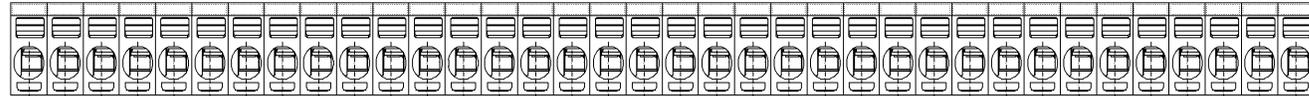
OPTIONAL FUNCTIONS:

- ① LOAD CONTROL
- ② CONSTANT RPM, (COMBINATOR)
- ③ MANOEUVRE RESPONSIBILITY, BRIDGE-CONTROL ROOM

Only panel plates. Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-f	Sharp edges broken: 0.2x0.5	Checked: KK201	Previous Dwg: Standard
Control panel, layout			Approved: LNJE	Weighting:
Kamewa Main Propeller, Basic bridge wing			Origin / Date: KK330 10.01.2012	Scale: 1:1
			Format: A1	Sheet: 1 of 3
			Drawing no: RRM200018713	Revision: A

PCB CONNECTOR

X1



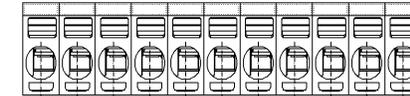
1 2 5 6 7 8 10 25 26 30 31 32 33 40 44 45 46 47 51 52 53 54 55 57 72 74 78 80 N1 U2 N2 U4 U4 N4 N4 Ud

X1:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 5 BACK-UP ENABLE (N2) (NOT USED)
- 6 BACK-UP ON/OFF (NOT USED)
- 7 AHEAD (NOT USED)
- 8 ASTERN (NOT USED)
- 10 BACK-UP ON (NOT USED)
- 25 BRIDGE INDICATION
- 26 ECR INDICATION
- 30 N1(OUT)
- 31 N1 (IN)
- 32 COMMAND REQUEST OUT (CROSS CONNECTION)
- 33 COMMAND REQUEST IN (CROSS CONNECTION)
- 40 ENGINE OVERLOAD
- 44 LOAD LIMIT OVERRIDE ON/OFF
- 45 LOAD LIMIT OVERRIDE INDICATION
- 46 CONSTANT RPM ON/OFF
- 47 CONSTANT RPM ON INDICATION
- 51 PITCH REDUCED
- 52 LEVER SYNC.
- 53 PITCH COMMAND SIGNAL
- 54 PITCH COMMAND SIGNAL
- 55 IN COMMAND
- 57 COMMAND REQUEST
- 72 BRIDGE ACCEPT (NOT USED)
- 74 ECR ACKNOWLEDGE (NOT USED)
- 78 CONTROL FAILURE
- 80 BUZZER
- N1 MAIN SUPPLY
- U2 BACK-UP SUPPLY
- N2 BACK-UP SUPPLY
- U4 ILLUMINATION SUPPLY
- U4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- Ud ILLUMINATION SUPPLY (DIMMER)

PCB CONNECTOR

X2



1 2 53 54 N4 N4 Ud Ud CW CC W W

X2:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 53 PITCH COMMAND SIGNAL
- 54 PITCH COMMAND SIGNAL
- N4 CONTROL LEVER
- N4 PITCH INDICATOR
- Ud CONTROL LEVER
- Ud PITCH INDICATOR
- CW DIMMER POTENTIOMETER
- CCW DIMMER POTENTIOMETER
- W DIMMER POTENTIOMETER

Access List

Control panel, wiring		Checked: KK201	Previous Drg: Standard	
Kamewa Main Propeller, Basic bridge wing		Approved: LNJE	Weight kg:	
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date: KK330 10.01.2012	Scale:	Format: A3	Sheet: 2 of 3
	Drawing no: RRM200018713			Revision: A

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RR AB'S Info. Class. LIMITED

A

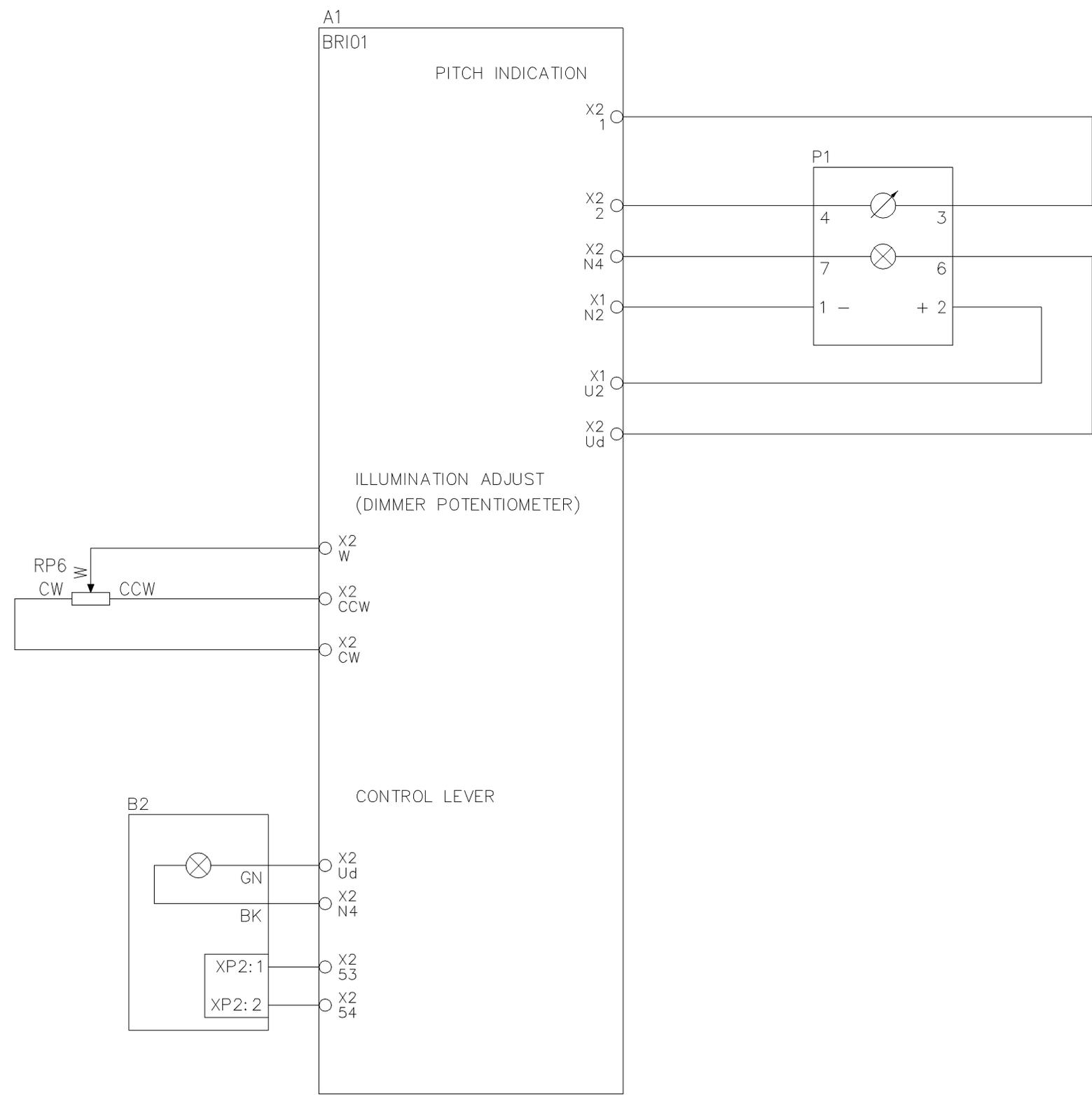
B

C

D

E

F



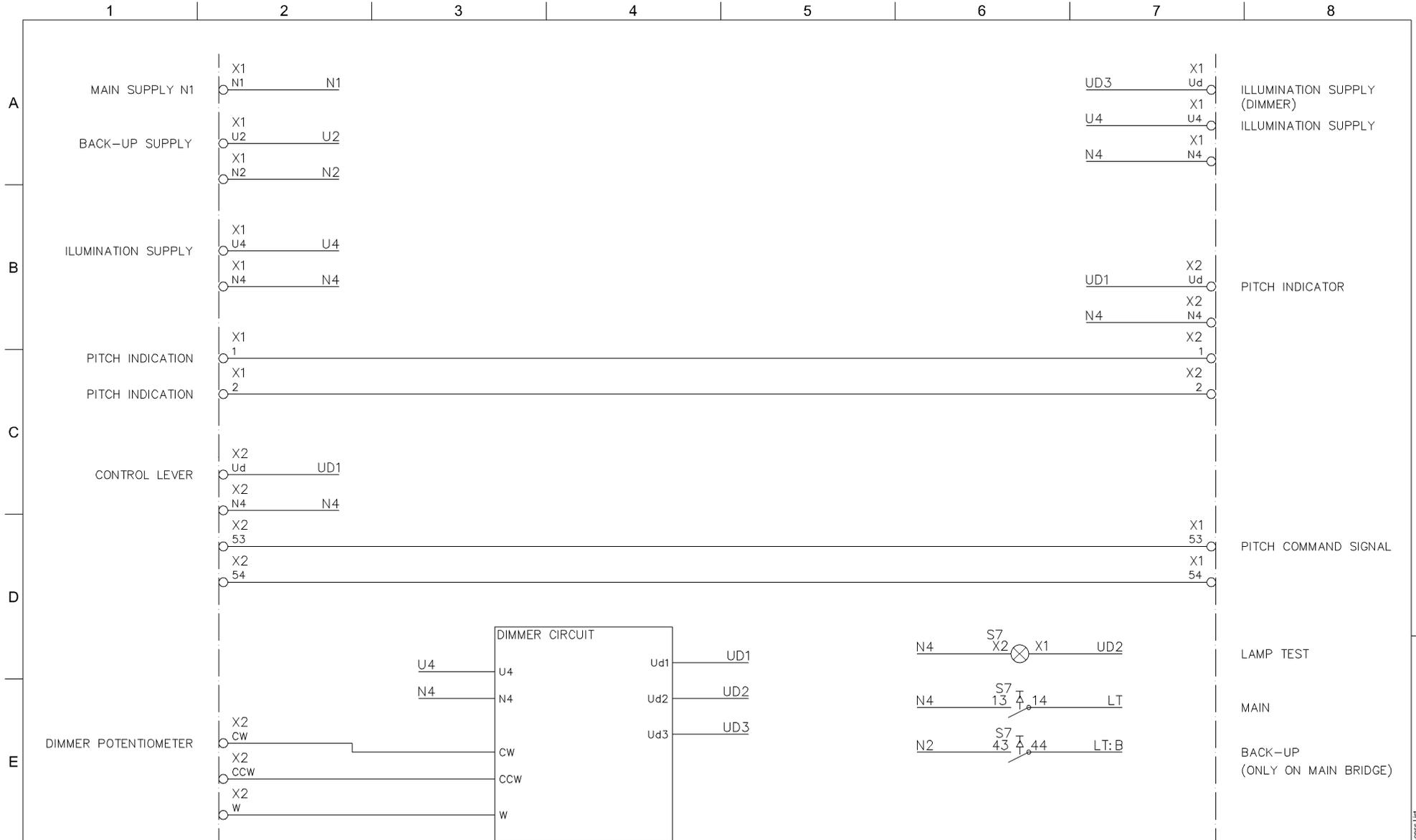
INDICATION, DIMMER, CONTROL LEVER

Control panel, wiring		Checked: KK201	Previous Drg: Standard	
Kamewa Main Propeller, Basic bridge wing		Approved: LNJE	Weight kg:	
 Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date: KK330 10.01.2012	Scale:	Format: A3	Sheet: 3 of 3
	Drawing no: RRM200018713			Revision: A

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Access List

RR AB'S Info. Class:
LIMITED



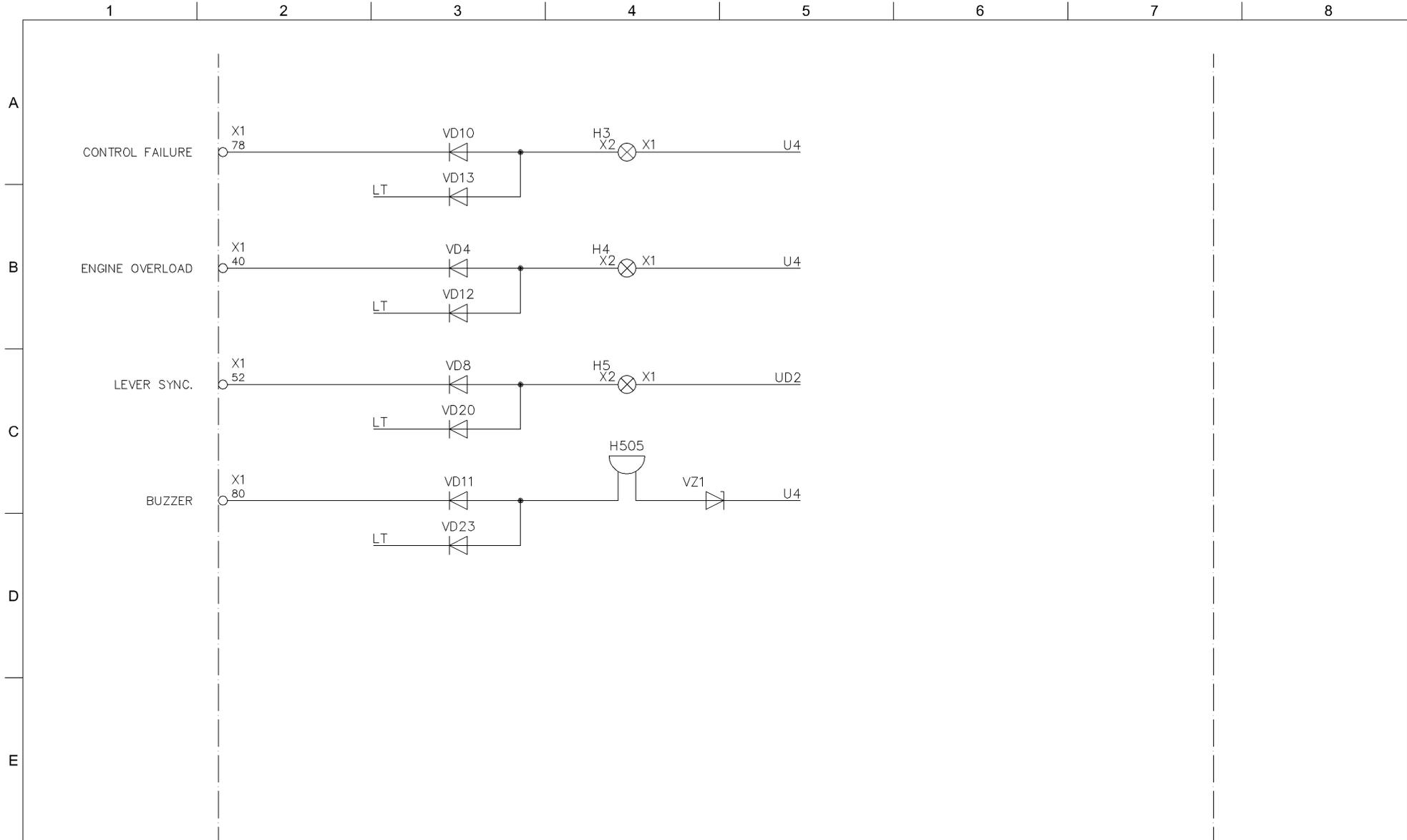
POWER SUPPLY, ILLUMINATION, LAMP TEST, SIGNAL DISTRIBUTION

Control panel, wiring		Checked: KK35	Previous Org:
Kamewa Main Propeller, Printed circuit Board, BRI01		Approved: LNJE	Weight kg:
Origin / Date: KK201 18.08.2011	Scale: A3	Format: A3	Sheet: 1 of 5
Drawing no: DMN200002881	Revision: A		

Rolls-Royce
Rolls-Royce AB
Propulsion Kristinehamn

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Access List LIMITED

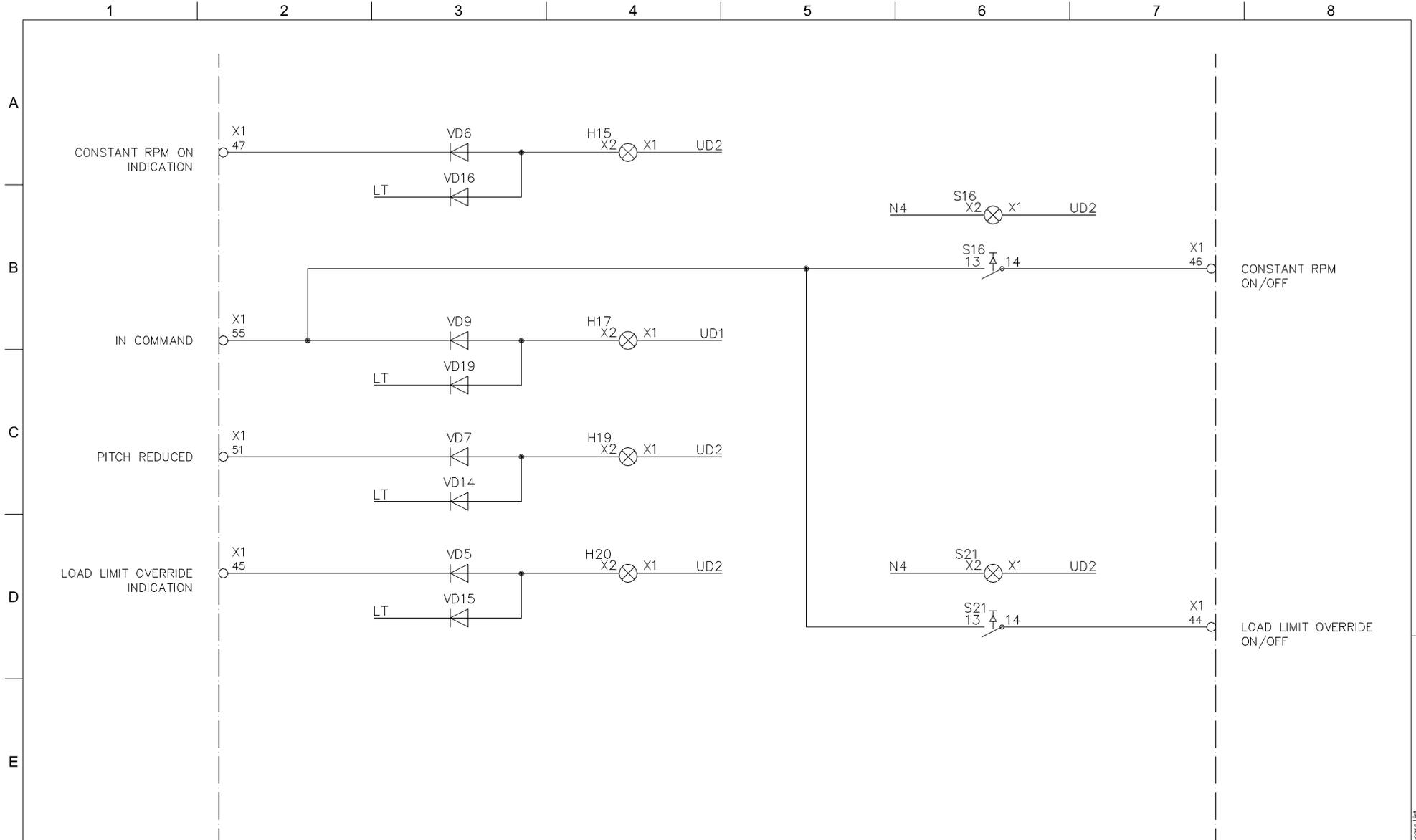


STATUS, ALARM

Control panel, wiring		Checked:	Previous Org:	
		KK35		
Kamewa Main Propeller, Printed circuit Board, BRI01		Approved:	Weight kg:	
		LNJE		
Origin / Date:	Scale:	Format:	Sheet:	
KK201 18.08.2011		A3	2 of 5	
Drawing no:	Revision:			
Rolls-Royce AB Propulsion Kristinehamn	DMN200002881		A	
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Access List

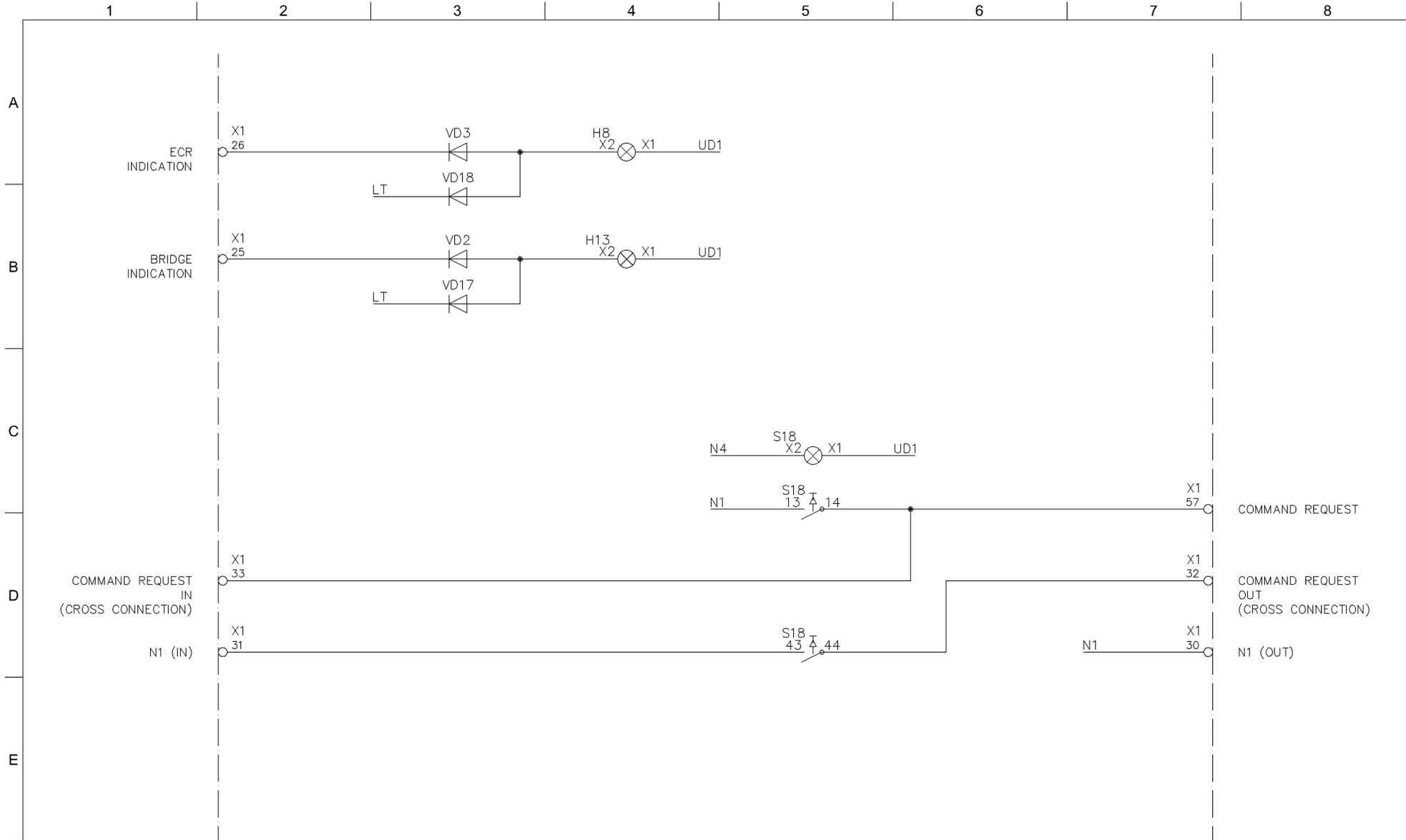
Rolls-Royce AB
LIMITED



OPERATING MODES, LOAD LIMIT, MANOEUVRE RESPONSIBILITY

Control panel, wiring		Checked: KK35	Previous Org:	
Kamewa Main Propeller, Printed circuit Board, BRI01		Approved: LNJE	Weight kg:	
Origin / Date: KK201 18.08.2011	Scale:	Format: A3	Sheet: 3 of 5	
Drawing no: Rolls-Royce AB Propulsion Kristinehamn	Revision: DMN200002881		Revision: A	
<small>Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.</small>				

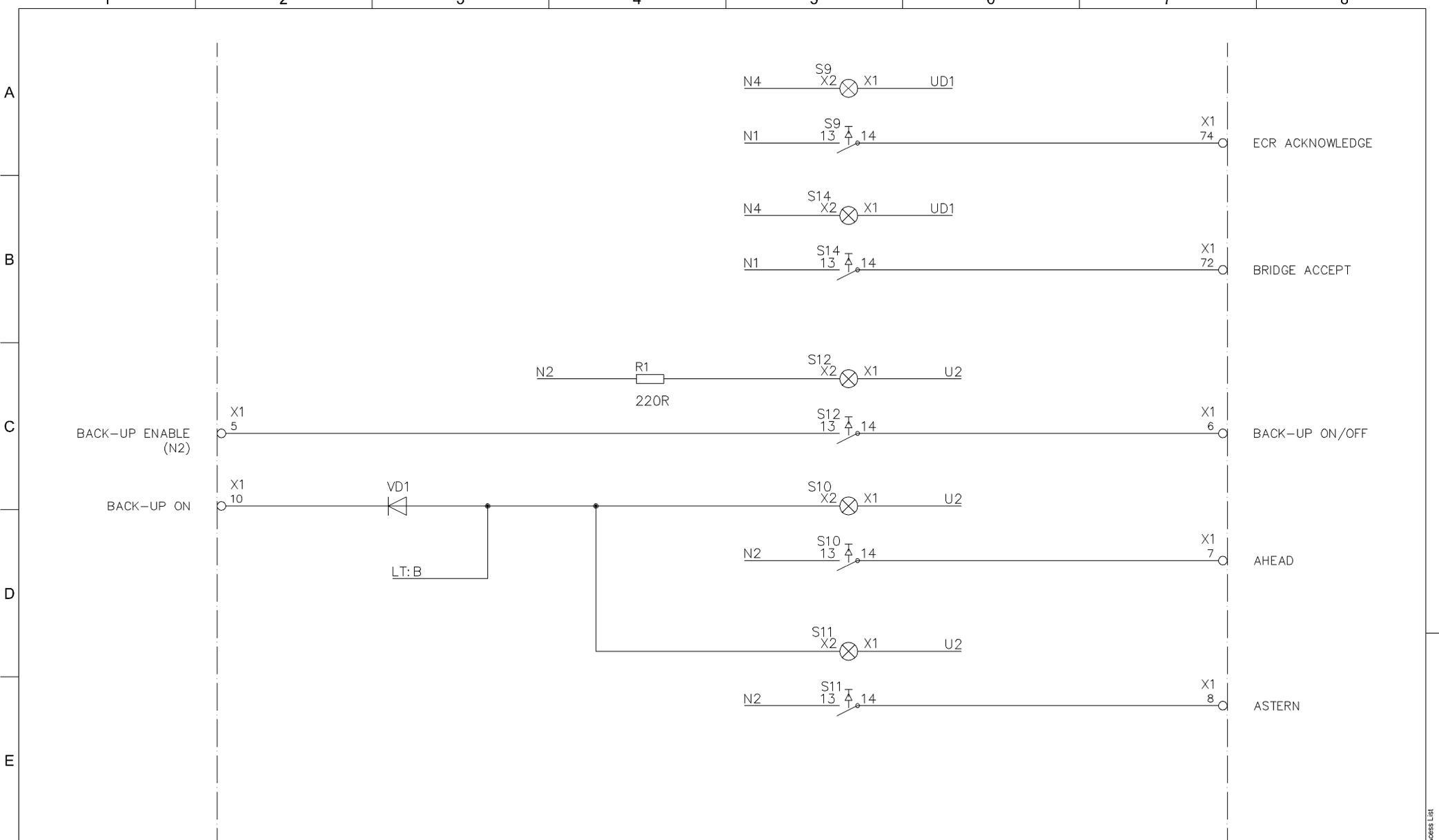
Rolls-Royce AB
LIMITED



Control panel, wiring		Checked:	Previous Org:		
		Approved:	Weight kg:		
Kamewa Main Propeller, Printed circuit Board, BRI01		LNJE			
		Origin / Date:	Scale:	Format:	Sheet:
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn		KK201	18.08.2011	A3	4 of 5
		Drawing no:		Revision:	
		DMN200002881		A	
<small>Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.</small>					

Across List

Rolls-Royce AB is a public limited company



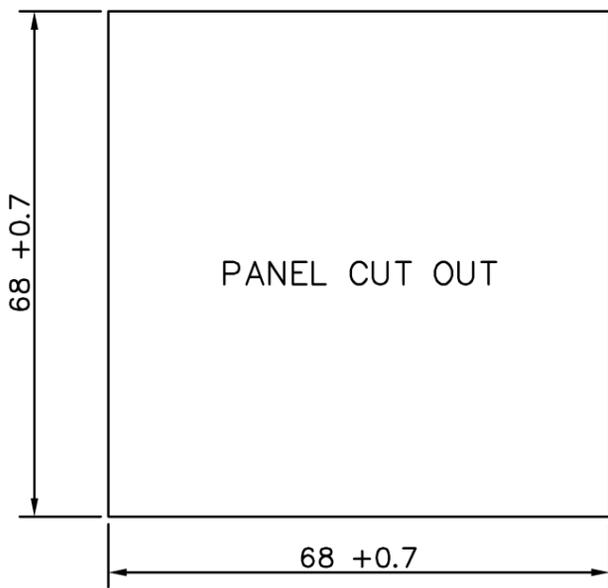
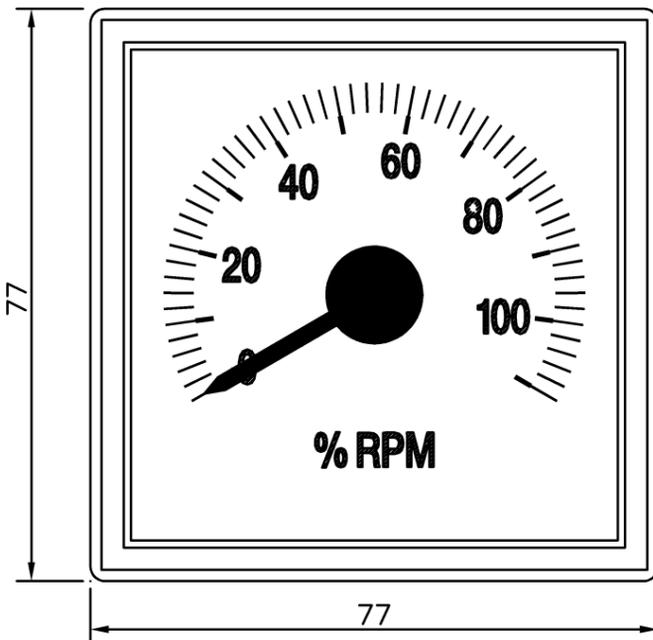
MANOEUVRE RESPONSIBILITY, BACK-UP (ONLY ON MAIN BRIDGE)

Control panel, wiring		Checked: KK35	Previous Drg:	
Kamewa Main Propeller, Printed circuit Board, BRI01		Approved: LNJE	Weight kg:	
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date: KK201 18.08.2011	Scale:	Format: A3	Sheet: 5 of 5
	Drawing no: DMN200002881		Revision: A	
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Access List

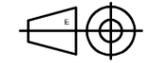
RR AB S. info. Class. LIMITED

Utf. Design	
A	0-110% RPM / scale 4150200043B
B	0-120 RPM / scale 4150200080A
C	0-140 RPM / scale 4150200081A
D	0-150 RPM / scale 4150200082A
E	0-160 RPM / scale 4150200083A
F	0-180 RPM / scale 4150200084A
G	0-200 RPM / scale 4150200085A
H	0-240 RPM / scale 4150200086A
I	0-280 RPM / scale 4150200087A
J	0-500 RPM / scale 4150200088A

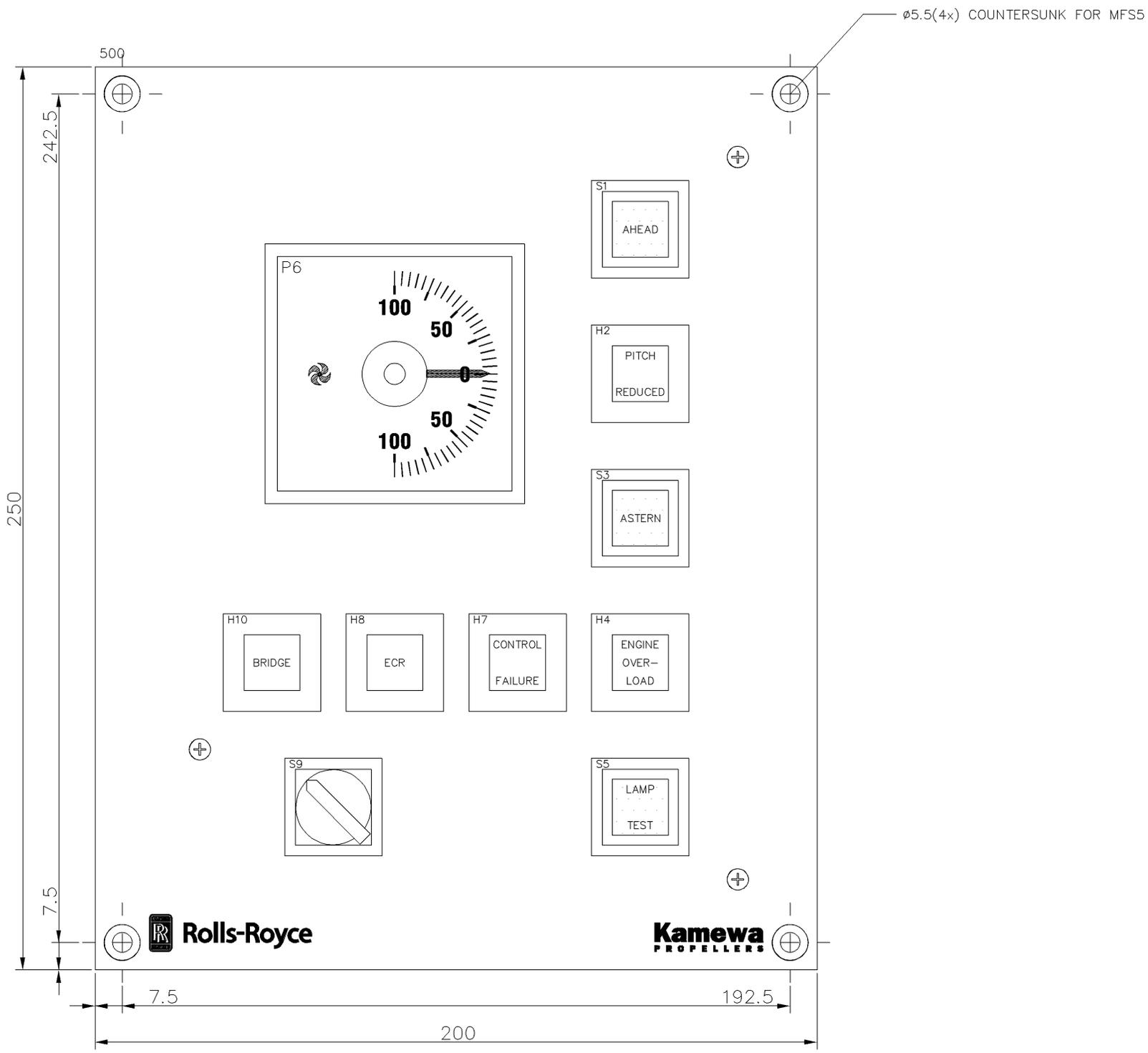


INSTRUMENT: DEIF XL72
 ILLUMINATION: 24VDC
 MEASURING RANGE: 0-10VDC / 0-X RPM (see design)

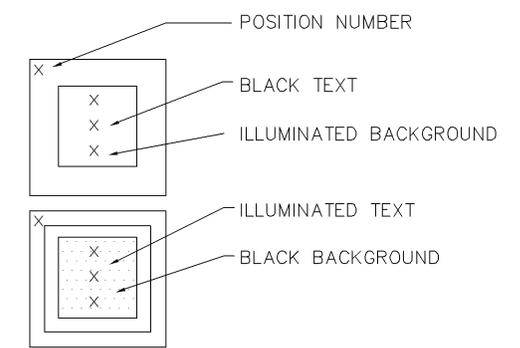
HEIGHT OVER PANEL: 5,5 mm
 MAX DEPTH: 90,5 mm
 WEIGHT: 0.25 Kg
 PROTECTION DEGREE: IP66
 SURFACE: BLACK
 SCALE/TEXT: YELLOW

Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-f	Sharp edges broken: 0.2-0.5			
RPM indicator			Checked: Png	Previous Drg:	
Kamewa Main Propeller			Approved: Png	Weight kg:	
 Rolls-Royce AB Propulsion Kristinehamn		Origin. / Date: ENA 18.09.2008	Scale: 1:1	Format: A3	Sheet: 1 of 1
		Drawing no: 158555		Revision: -	
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Access List
RR-AB'S Info. Class:
LIMITED



- YELLOW LAMP: H-2,10
- RED LAMP: H-4,7
- BLUE LAMP:
- GREEN LAMP: H-8
- TRANSPARENT LAMP:
- YELLOW PUSH-BUTTON:
- RED PUSH-BUTTON:
- BLUE PUSH-BUTTON:
- GREEN PUSH-BUTTON:
- TRANSPARENT PUSH-BUTTON: S-1,3,5
- BLACK LENS (DUMMY):
- PUSH-BUTTON COVER:
- PROTECTION COVER (SILICON):
- SWITCH: S-9



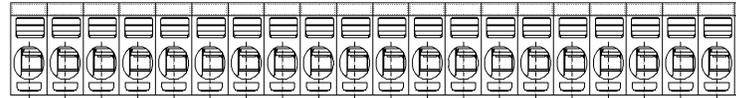
- HEIGHT OVER PANEL: 15mm
- MAX DEPTH: 100mm
- WEIGHT: 3kg
- PROTECTION DEGREE: IP52
- PANEL SURFACE: BLACK ANODIZED
- SCREEN PRINT COLOUR: YELLOW
- LOGO COLOUR: WHITE
- INSTRUMENT COLOUR: WHITE/BLACK
- CUT OUT IN DESK: 220x170mm (HxW)

Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-f	Sharp edges broken: 0.2-0.5				
Control panel, layout			Checked: KK35	Previous Drg: Standard		
Kamewa Main Propeller, Basic ECR			Approved: LNJE	Weight kg:		
			Origin / Date: KK201 06.09.2011	Scale: 1:1	Format: A2	
Rolls-Royce AB Propulsion Kristinehamn			Drawing no: RRM200018714	Sheet: 1 of 3	Revision: A	
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Access List
LIMITED

PCB CONNECTOR

X1



1 2 25 26 38 40 51 53 54 78 80 85 86 N1 N2 U4 U4 N4 N4 LT

X1:

- 1 PITCH INDICATION
- 2 PITCH INDICATION
- 25 BRIDGE INDICATION
- 26 ECR INDICATION
- 38 BRIDGE (BACK-UP MODE)
- 40 ENGINE OVERLOAD
- 51 PITCH REDUCED
- 53 AHEAD
- 54 ASTERN
- 78 CONTROL FAILURE
- 80 BUZZER
- 85 ECR
- 86 BRIDGE
- N1 MAIN SUPPLY
- N2 BACK-UP SUPPLY
- U4 ILLUMINATION SUPPLY
- U4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- N4 ILLUMINATION SUPPLY
- LT LAMP TEST

PCB CONNECTOR

X2



1 2

X2:

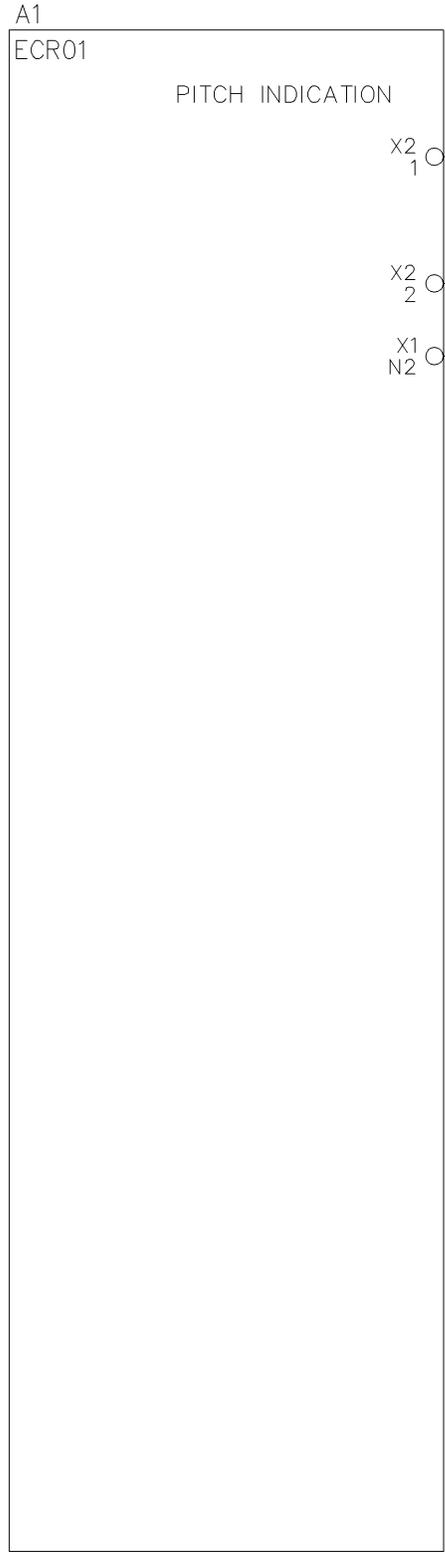
- 1 PITCH INDICATION
- 2 PITCH INDICATION

Control panel, wiring		Checked:	Previous Drg:		
		KK35	Standard		
Kamewa Main Propeller, Basic ECR		Approved:	Weight kg:		
		LNJE			
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date:	Scale:	Format:	Sheet:	
	KK201 06.09.2011		A3	2 of 3	
Drawing no:			Revision:		
RRM200018714			A		

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Access List

RR AB'S Info. Class: LIMITED



INDICATION

Control panel, wiring				Checked: KK35	Previous Drg: Standard
Kamewa Main Propeller, Basic ECR				Approved: LNJE	Weight kg:
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date: KK201 06.09.2011	Scale:	Format: A3	Sheet: 3 of 3	
	Drawing no: RRM200018714			Revision: A	

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1

2

3

4

5

6

7

8

A

MAIN SUPPLY



BACK-UP SUPPLY



ILLUMINATION SUPPLY



PITCH INDICATION



PITCH INDICATION



U4



ILLUMINATION SUPPLY

N4



LT



LAMP TEST

B

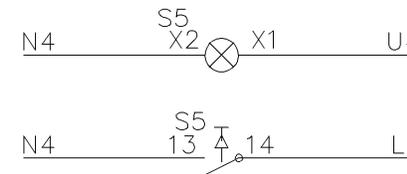
C

D

E

F

POWER SUPPLY, ILLUMINATION, LAMP TEST, SIGNAL DISTRIBUTION



LAMP TEST

MAIN

Control panel, wiring

Kamewa Main Propeller, Printed circuit Board, ECR01



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
KK201 06.09.2011

Drawing no:
DMN200002975

Checked:
KK35

Approved:
LNJE

Previous Drg:
Weight kg:
Format: A3
Sheet: 1 of 4

Revision:
A

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Access List

RR AB'S Info. Class:
LIMITED

1

2

3

4

5

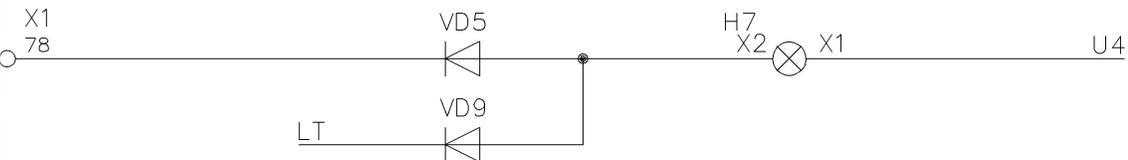
6

7

8

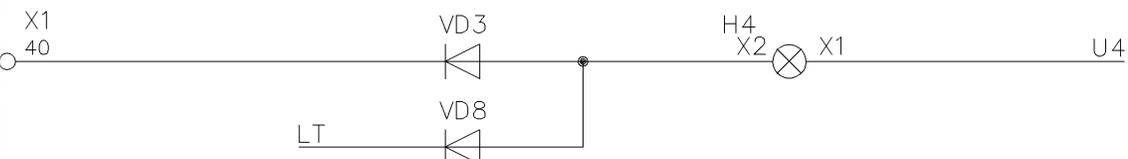
A

CONTROL FAILURE



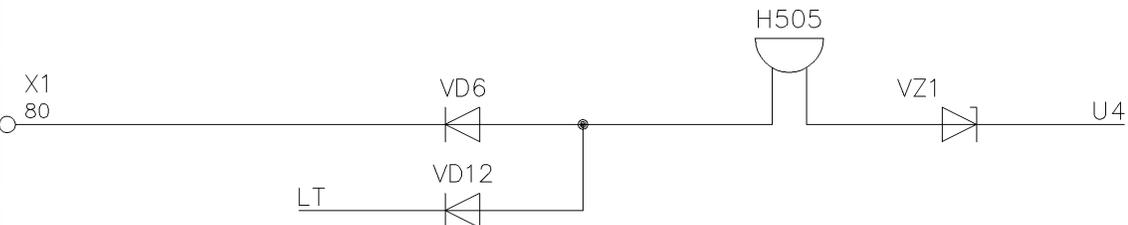
B

ENGINE OVERLOAD



C

BUZZER



D

E

F

STATUS, ALARM

Control panel, wiring

Kamewa Main Propeller, Printed circuit Board, ECR01



Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
KK201 06.09.2011

Drawing no:
DMN200002975

Checked:
KK35

Approved:
LNJE

Previous Drg:
Weight kg:
Format:
A3
Sheet:
2 of 4

Revision:
A

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Access List

RR AB'S Info. Class:
LIMITED

1

2

3

4

5

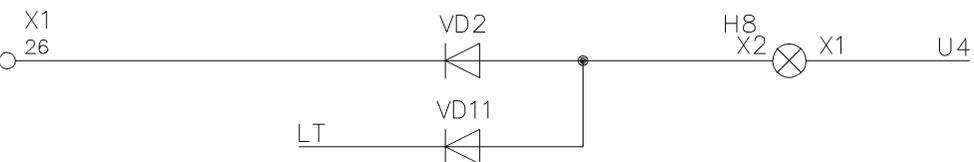
6

7

8

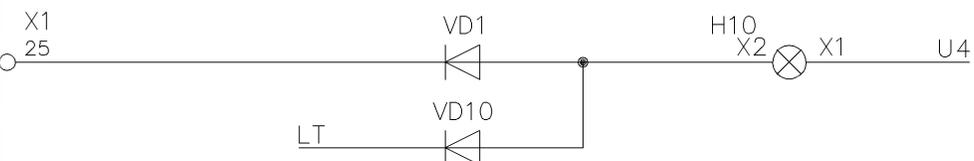
A

ECR INDICATION



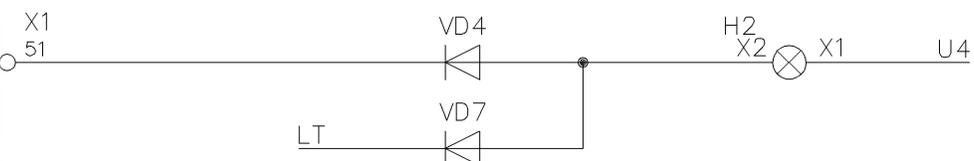
B

BRIDGE INDICATION



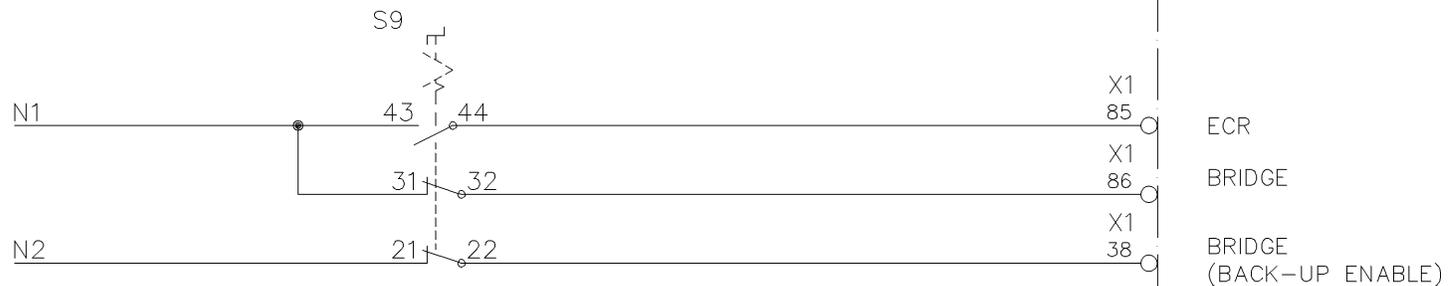
C

PITCH REDUCED



D

E



F

LOAD LIMIT, MANOEUVRE RESPONSIBILITY

Control panel, wiring

Kamewa Main Propeller, Printed circuit Board, ECR01



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
KK201 06.09.2011

Drawing no:
DMN200002975

Checked:
KK35

Approved:
LNJE

Previous Drg:
Weight kg:
Scale: A3 Sheet: 3 of 4

Revision:
A

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Access List

RR AB'S Info. Class:
LIMITED

1

2

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4

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A

B

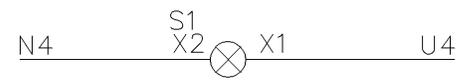
C

D

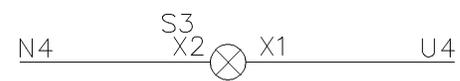
E

F

COMMAND CONTROL



AHEAD



ASTERN

Control panel, wiring

Kamewa Main Propeller, Printed circuit Board, ECR01



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
KK201 06.09.2011

Drawing no:
DMN200002975

Checked:
KK35

Approved:
LNJE

Scale:
A3

Format:
A3

Previous Drg:

Weight kg:

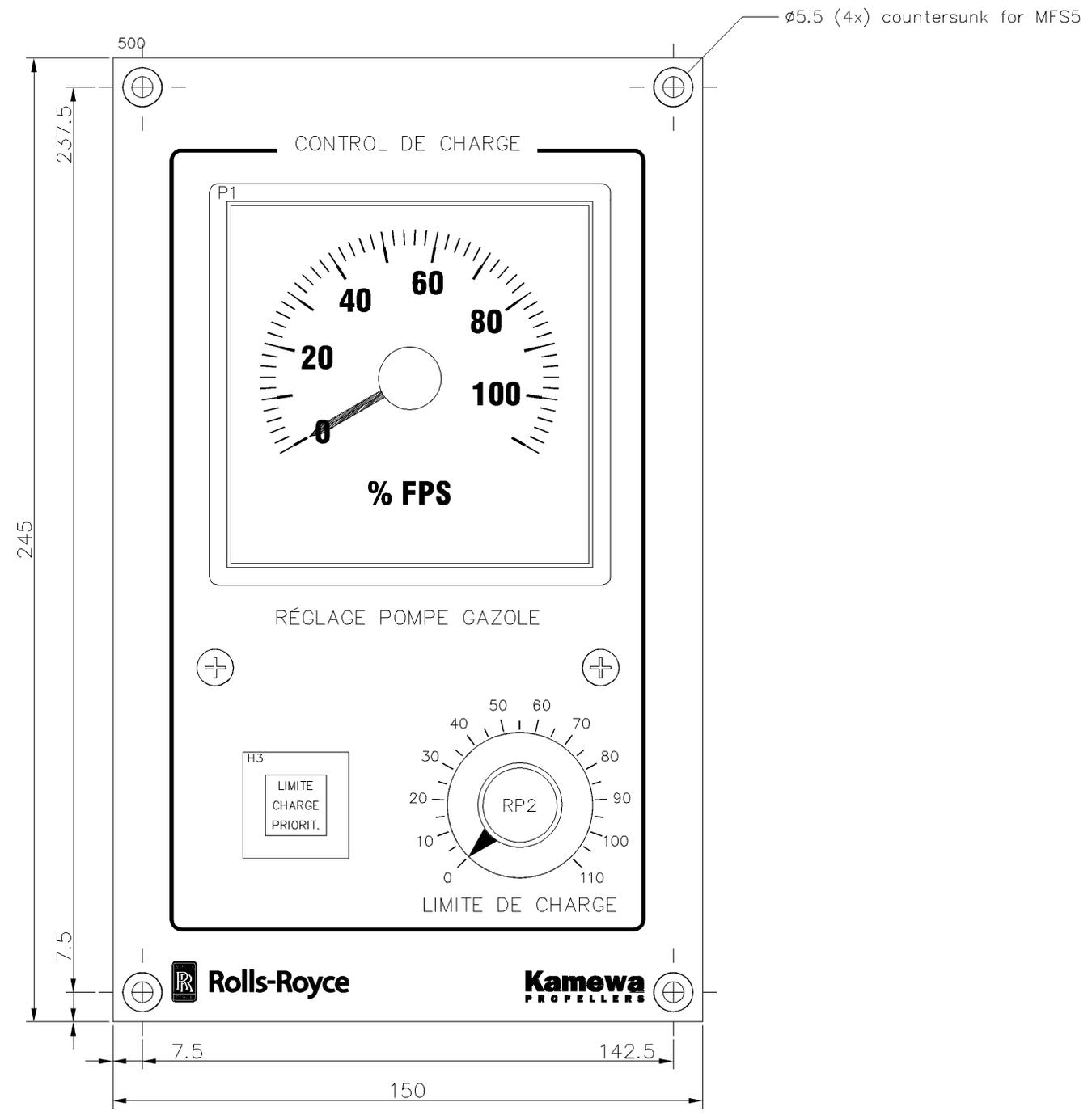
Sheet:
4 of 4

Revision:
A

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Access List

RR AB'S Info. Class:
LIMITED

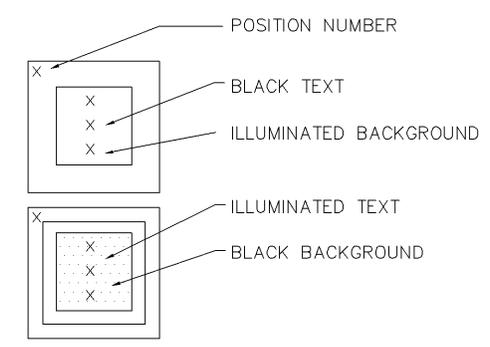


- YELLOW LAMP: H-3
- RED LAMP:
- BLUE LAMP:
- GREEN LAMP:
- TRANSPARENT LAMP:

- YELLOW PUSH-BUTTON:
- RED PUSH-BUTTON:
- BLUE PUSH-BUTTON:
- GREEN PUSH-BUTTON:
- TRANSPARENT PUSH-BUTTON:

- BLACK LENS (DUMMY):
- PUSH-BUTTON COVER:
- PROTECTION COVER (SILICON):

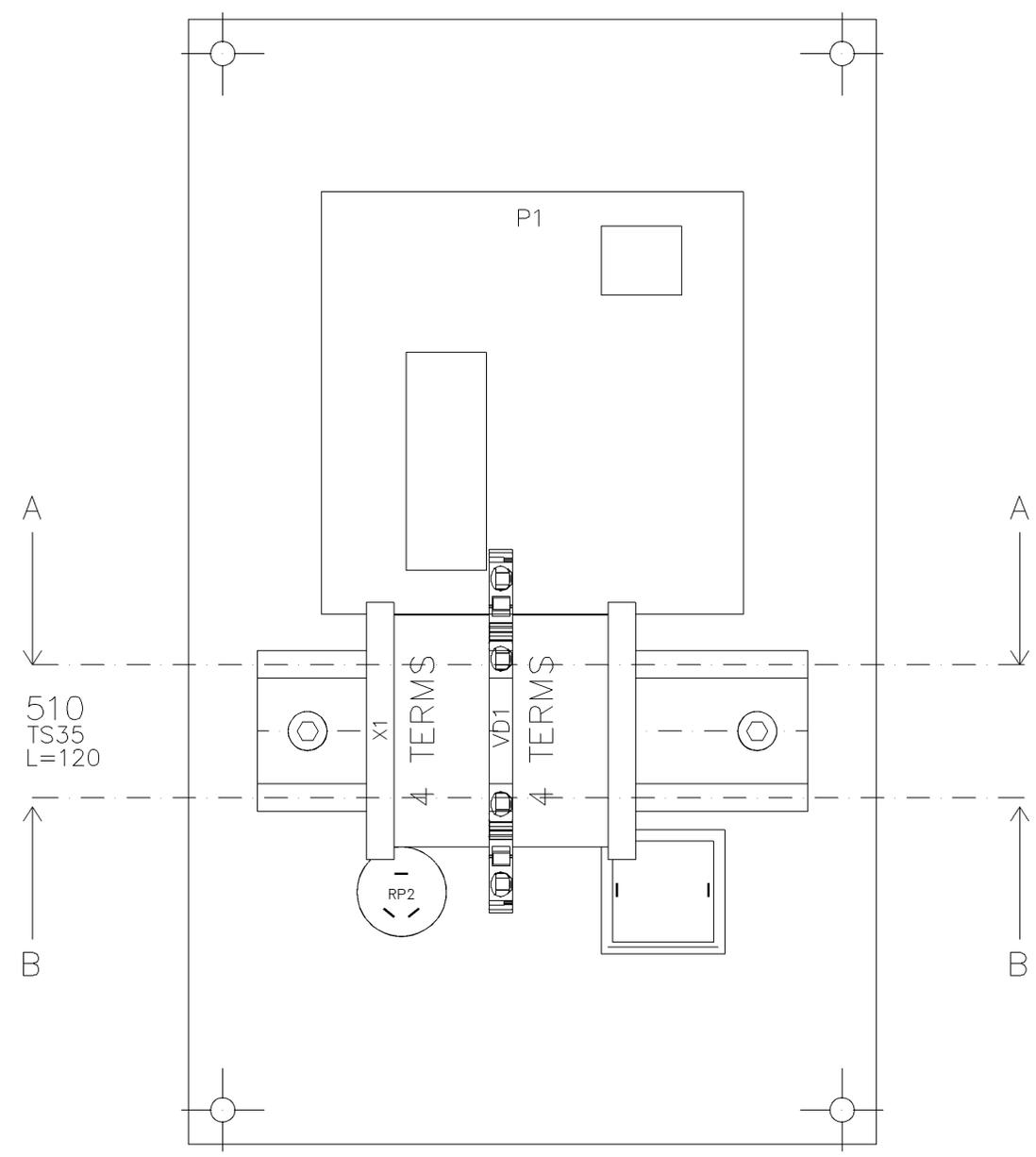
- SWITCH:



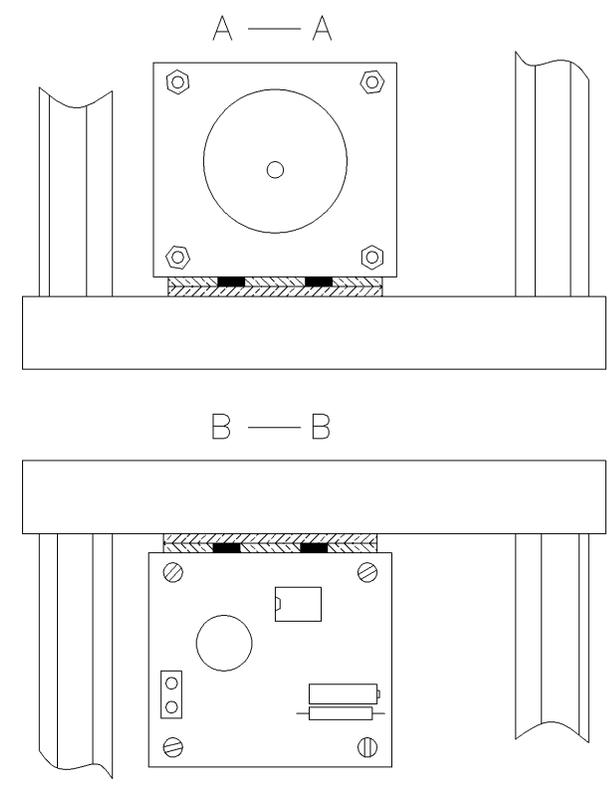
HEIGHT OVER PANEL: 23mm
 MAX DEPTH: 180mm
 WEIGHT: 1kg
 PROTECTION DEGREE: IP52
 PANEL SURFACE: BLACK ANODIZED
 SCREEN PRINT COLOUR: YELLOW
 LOGO COLOUR: WHITE
 INSTRUMENT COLOUR: WHITE/BLACK
 CUT OUT IN DESK: 215 x 120 mm(H x W)

Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-4	Sharp edges broken: 0.2-0.5		
Control panel, layout			Checked: LNJE	Previous Drg: RRM200038019
Kamewa Main Propeller, Basic load control			Approved: KK35	Weight kg:
	Origin / Date:	Scale:	Format:	Sheet:
	Rolls-Royce AB Propulsion Kristinehamn	KK201 12.09.2014	1:1	A2
Drawing no: RRM000236697			Revision: 1 of 4 A	

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Back view



LT01S PCB placement

Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um		General Tolerances: SS-ISO 2768-4		Sharp edges broken: 0.2-0.5		 Across List		
Control panel, back view				Checked: LNJE	Previous Drg: RRM200038019			
Kamewa Main Propeller, Basic load control				Approved: KK35	Weight kg:			
 Rolls-Royce AB Propulsion Kristinehamn		Origin / Date:	Scale:	Format:	Sheet			
		KK201 12.09.2014	1:1	A2	2 of 4			
Drawing no:		Revision:						
RRM000236697		A						
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A

B

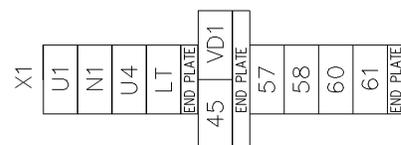
C

D

E

F

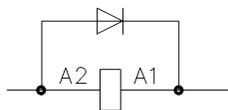
CONNECTION TERMINALS MOUNTED ON POS 510



GENERAL INFORMATION

RELAYS

All relay coils must have a protection diode mounted
 (The diodes are not shown in the wiring dwg)



CABLE AREA

Cable area acc. to QA-manual, instruction no. C-10-006
 Example: 1.0 mm^2
 Cable area 1 mm² required.
 If other area is not specified

Control panel, wiring

Kamewa Main Propeller, Basic load control



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

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Checked: LNJE	Previous Drg: RRM200038019
------------------	-------------------------------

Approved: KK35	Weight kg:
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Origin. / Date: KK201 12.09.2014	Scale:	Format: A3	Sheet: 3 of 4
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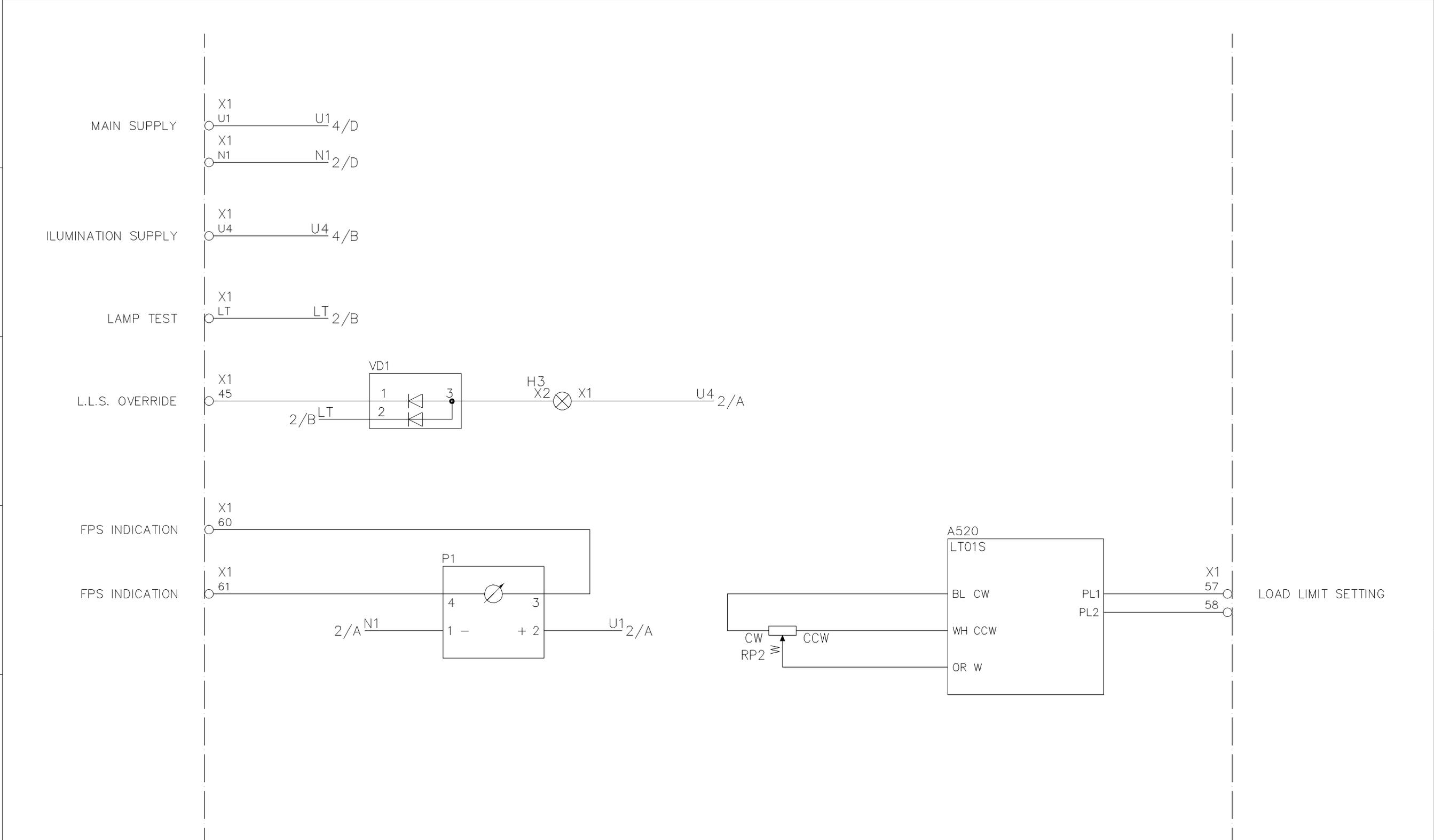
Drawing no: RRM000236697	Revision: A
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Access List

RR-AB 'S Info. Class:
LIMITED

A
B
C
D
E
F

1 2 3 4 5 6 7 8

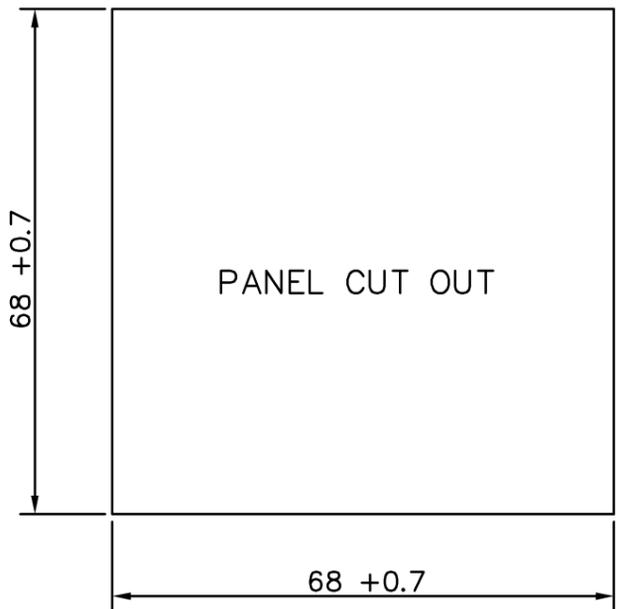
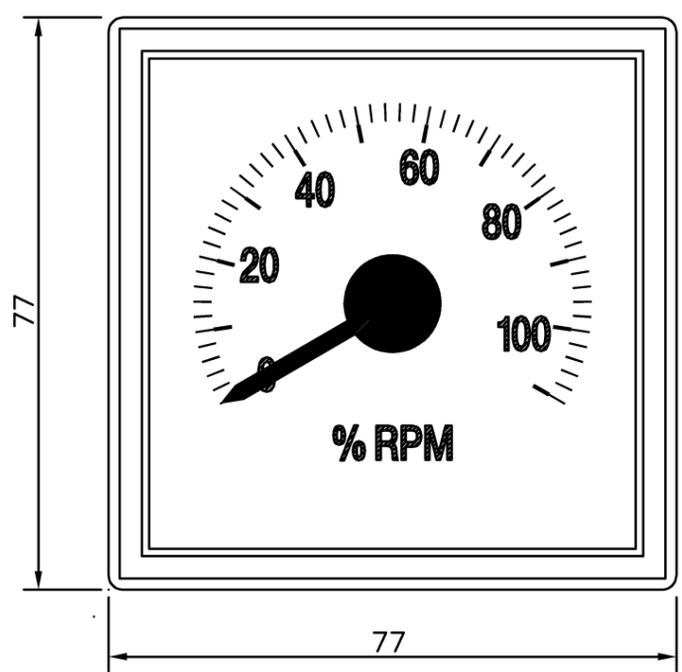


POWER SUPPLY, LLS, FPS INDICATION

Control panel, wiring		Checked: LNJE	Previous Drg: RRM200038019	
Kamewa Main Propeller, Basic load control		Approved: KK35	Weight kg:	
	Origin. / Date: KK201 12.09.2014	Scale:	Format: A3	Sheet: 4 of 4
	Drawing no: RRM000236697			Revision: A
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RR-AB'S Info. Class: LIMITED

Utf. Design	
A	0-110% RPM / scale 4150210015A
B	0-120 RPM / scale 4150210016A
C	0-140 RPM / scale 4150210017A
D	0-150 RPM / scale 4150210018A
E	0-160 RPM / scale 4150210019A
F	0-180 RPM / scale 4150210020A
G	0-200 RPM / scale 4150210021A
H	0-240 RPM / scale 4150210022A
I	0-280 RPM / scale 4150210023A
J	0-500 RPM / scale 4150210024A

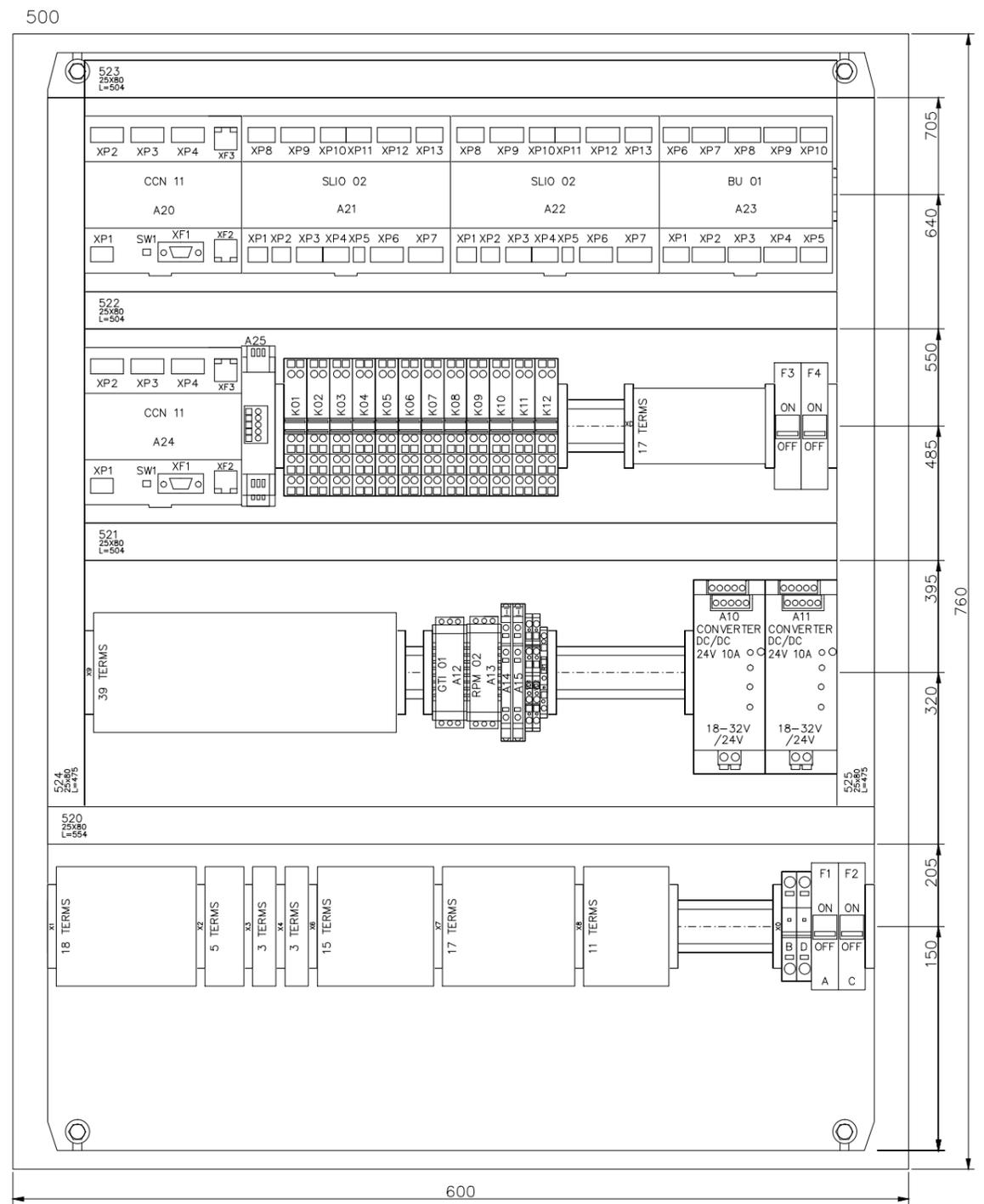


INSTRUMENT: DEIF XL72
 ILLUMINATION: None
 MEASURING RANGE: 0-10VDC / 0-X RPM (see design)

HEIGHT OVER PANEL: 5,5 mm
 MAX DEPTH: 90,5 mm
 WEIGHT: 0.25 Kg
 PROTECTION DEGREE: IP52
 SURFACE: WHITE
 SCALE/TEXT: BLACK

Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-f	Sharp edges broken: 0.2-0.5			
RPM indicator			Checked: Png	Previous Drg:	
Kamewa Main Propeller			Approved: Png	Weight kg:	
		Origin. / Date:	Scale:	Format:	Sheet:
		ENA 18.09.2008	1:1	A3	1 of 1
Rolls-Royce AB Propulsion Kristinehamn		Drawing no:	Revision:		
		158556	-		
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Access List
RR-AB'S Info. Class:
LIMITED



Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-f	Sharp edges broken: 0.2-0.5			
Control unit, layout			Checked: LNJE	Previous Dwg: STANDARD	
Kamewa Main Propeller, Basic			Approved: KK201	Weight kg	
		Origin / Date: ANPE 2014.04.09	Scale: 1:2	Format: A1	Sheet: 1 of 22
Rolls-Royce AB Propulsion Kristinehamn		Drawing no: RRM000226163	Revision: B		
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A

CONNECTION TERMINALS MOUNTED ON POS 512

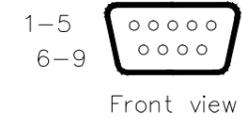
XD	U1:1	U1:2	U1:3	U1:4	END PLATE	N1:1	N1:2	N1:3	N1:4	N1:5	N1:6	END PLATE	U4:1	END PLATE	N4:1	END PLATE	U2:1	U2:2	U2:3	END PLATE	N2:1	N2:2	END PLATE
----	------	------	------	------	-----------	------	------	------	------	------	------	-----------	------	-----------	------	-----------	------	------	------	-----------	------	------	-----------

CONNECTION TERMINALS MOUNTED ON POS 511

X9	U1	N1	U2	N2	1	2	3	4	13	14	15	16	17	18	19	20	21	22	23	24	28	29	31	32	35	36	37	38	41	42	43	44	45	46	47	48	51	52	55	56	57	58	59	60	61	62	65	66	68	69	70	71	72	81	82	83	87	88	89	90	91	96	100	101	102	103	104	105	106	107	109	110	END PLATE
----	----	----	----	----	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----------

CONNECTIONS TO EXTERNAL EQUIPMENT & BACK-UP

D-SUB CONTACT
XM1



B

C

CONNECTION TERMINALS MOUNTED ON POS 510

X6	N1	N2	U4	N4	1	2	3	4	5	6	7	8	10	26	25	40	44	45	46	47	51	78	80	105	END PLATE
	U2	U4	N4	1	3	5	7	10	25	40	45	47	51	78	80	105	END PLATE								

COMMON CONNECTIONS
TO BRIDGE

X7	N1	N2	U4	N4	1	2	3	4	11	12	25	26	40	43	46	47	51	53	54	55	78	80	85	END PLATE
	U2	U4	N4	1	3	11	12	25	40	43	46	47	51	53	54	55	78	80	85	END PLATE				

TO ECR

X8	U1	N1	U4	N4	1	2	3	4	30	31	32	33	45	46	47	57	58	60	61	END PLATE
	N1	U4	N4	1	3	30	31	32	33	45	46	47	57	58	60	61	END PLATE			

LOAD CONTROL
& CONST. FINE PANEL

D

CONNECTION TERMINALS MOUNTED ON POS 510

X1	U1	N1	U2	N2	1	2	5	6	7	10	12	93	94	95	96	97	98	99	100	101	102	103	104	105	107	108	109	110	111	112	207	208	209	210	211	212	END PLATE
----	----	----	----	----	---	---	---	---	---	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----------

ROLLS ROYCE EQUIPMENT

X2	52	53	54	55	57	72	74	155	END PLATE
----	----	----	----	----	----	----	----	-----	-----------

MAIN BRIDGE

X3	52	53	54	55	57	END PLATE
----	----	----	----	----	----	-----------

PORT WING

X4	52	53	54	55	57	END PLATE
----	----	----	----	----	----	-----------

STBD WING

E

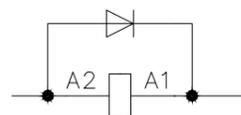
F

GENERAL INFORMATION

RELAYS

All relay coils must have a protection diode mounted

(The diodes are not shown in the wiring dwg)



CABLE AREA

Cable area acc. to QA-manual, instruction no. C-10-006

If other area is not specified

Example:

Cable area 1 mm² required.

Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

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Checked: LNJE
Previous Drg: STANDARD

Approved: KK201
Weight kg:

Origin. / Date: ANPE 2014.04.09
Scale: A3
Format: A3
Sheet: 2 of 22

Drawing no: **RRM000226163**
Revision: **B**

Access List

RR AB'S Info. Class: LIMITED

A

B

C

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RELAY NO.	LOCATION	FUNCTION	REMARK
K01	19	CONTROL FAILURE	2-POLE
K01	19	CONTROL FAILURE	
K01	19	CONTROL FAILURE	
K02	19	CONTROL FAILURE	2-POLE
K02	19	CONTROL FAILURE	
K03	22	ZERO PITCH	2-POLE
K03	17	ZERO PITCH	
K03	22	ZERO PITCH	
K04	15	CONSTANT RPM ON	2-POLE
K04	15	CONSTANT RPM ON	
K04	15	CONSTANT RPM ON	
K05	15	CONSTANT RPM ON	2-POLE
K05	17	CONSTANT RPM ON	
K05	15	CONSTANT RPM ON	
K06	15	CONSTANT RPM ON	2-POLE
K06	15	CONSTANT RPM ON	
K06	15	CONSTANT RPM ON	
K07	11	MAIN BRIDGE IN COMMAND	2-POLE
K07	18	MAIN BRIDGE IN COMMAND	
K07	11	MAIN BRIDGE IN COMMAND	
K08	11	ECR IN COMMAND	2-POLE
K08	17	ECR IN COMMAND	
K08	15	ECR IN COMMAND	
K09	11	ECR IN COMMAND	2-POLE
K09	18	ECR IN COMMAND	
K09	11	ECR IN COMMAND	
K10	12	PORT WING IN COMMAND	2-POLE
K10	18	PORT WING IN COMMAND	
K10	12	PORT WING IN COMMAND	
K11	12	STBD WING IN COMMAND	2-POLE
K11	18	STBD WING IN COMMAND	
K11	12	STBD WING IN COMMAND	
K12	10	BACK-UP ON	2-POLE
K12	10	BACK-UP ON	
K12	19	BACK-UP ON	

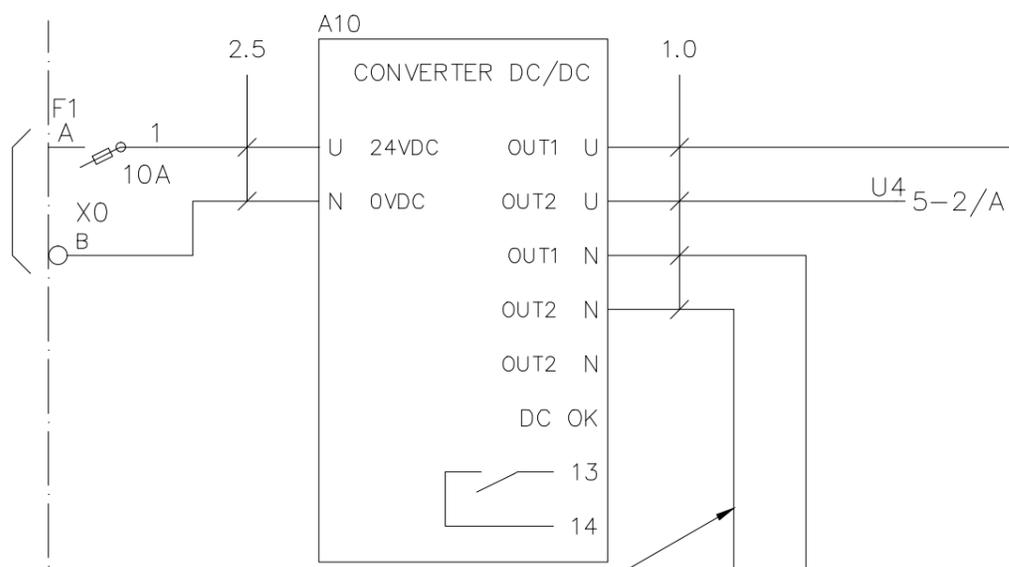
LED (LAMP) ON RELAY INDICATES "RELAY ACTIVATED", ALARM RELAY ACTIVATED = NO ALARM

Control unit, wiring		Checked: LNJE	Previous Drg: STANDARD	
Kamewa Main Propeller, Basic		Approved: KK201	Weight kg:	
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date: ANPE 2014.04.09	Scale:	Format: A3	Sheet: 3 of 22
	Drawing no: RRM000226163			Revision: B
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RR AB'S Info. Class:
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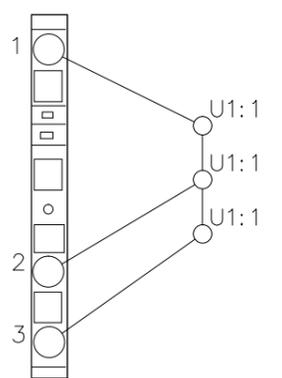
A
B
C
D
E
F



TERMINAL STRAPS BETWEEN TERMINALS

XD U1:1	U1:1/2	5-6/A
U1:1	U1:1/3	6-3/A,6-3/A
U1:2	U1:2/1	6-3/B,6-3/B
U1:2	U1:2/2	6-3/C,6-3/C
U1:2	U1:2/3	21-2/D,22-2/D
U1:3	U1:3/1	6-5/A,6-5/A
U1:3	U1:3/2	6-5/A,20-4/A
U1:3	U1:3/3	6-5/C,6-5/C
U1:4	U1:4/1	15-6/C,15-6/C,15-6/C,19-6/A,19-6/A
U1:4	U1:4/2	11-6/A,11-6/C,11-6/C,12-5/A
U1:4	U1:4/3	12-5/A
XD N1:1	N1:1/2	5-6/A,9-4/D
N1:1	N1:1/3	6-3/A,6-3/A
N1:2	N1:2/2	6-3/B,6-3/B
N1:2	N1:2/3	6-3/B,6-3/B
N1:3	N1:3/1	6-3/C,6-3/C
N1:3	N1:3/2	6-3/D,6-3/D
N1:3	N1:3/3	6-5/A,6-5/A
N1:4	N1:4/1	5-6/C,6-5/A
N1:4	N1:4/2	6-5/C,6-5/C
N1:4	N1:4/3	
N1:5	N1:5/1	10-2/D,13-2/B,13-2/C,13-2/D,22-2/D,22-2/D
N1:5	N1:5/2	14-2/B,15-2/A,15-2/C,15-2/C,15-2/D
N1:5	N1:5/3	14-3/A
N1:6	N1:6/1	17-2/A,17-2/A,17-2/A,17-2/B,17-2/C
N1:6	N1:6/2	17-2/C,17-2/D,20-4/A
N1:6	N1:6/3	22-2/A,22-2/A
N4:1	N4:1/1	7-6/B
N4:1	N4:1/2	11-6/A,11-6/D,12-6/A,15-5/B,15-6/B
N4:1	N4:1/3	12-6/A,19-5/B

DISTRIBUTION TERMINAL EXAMPLE



POWER SUPPLY MAIN SYSTEM

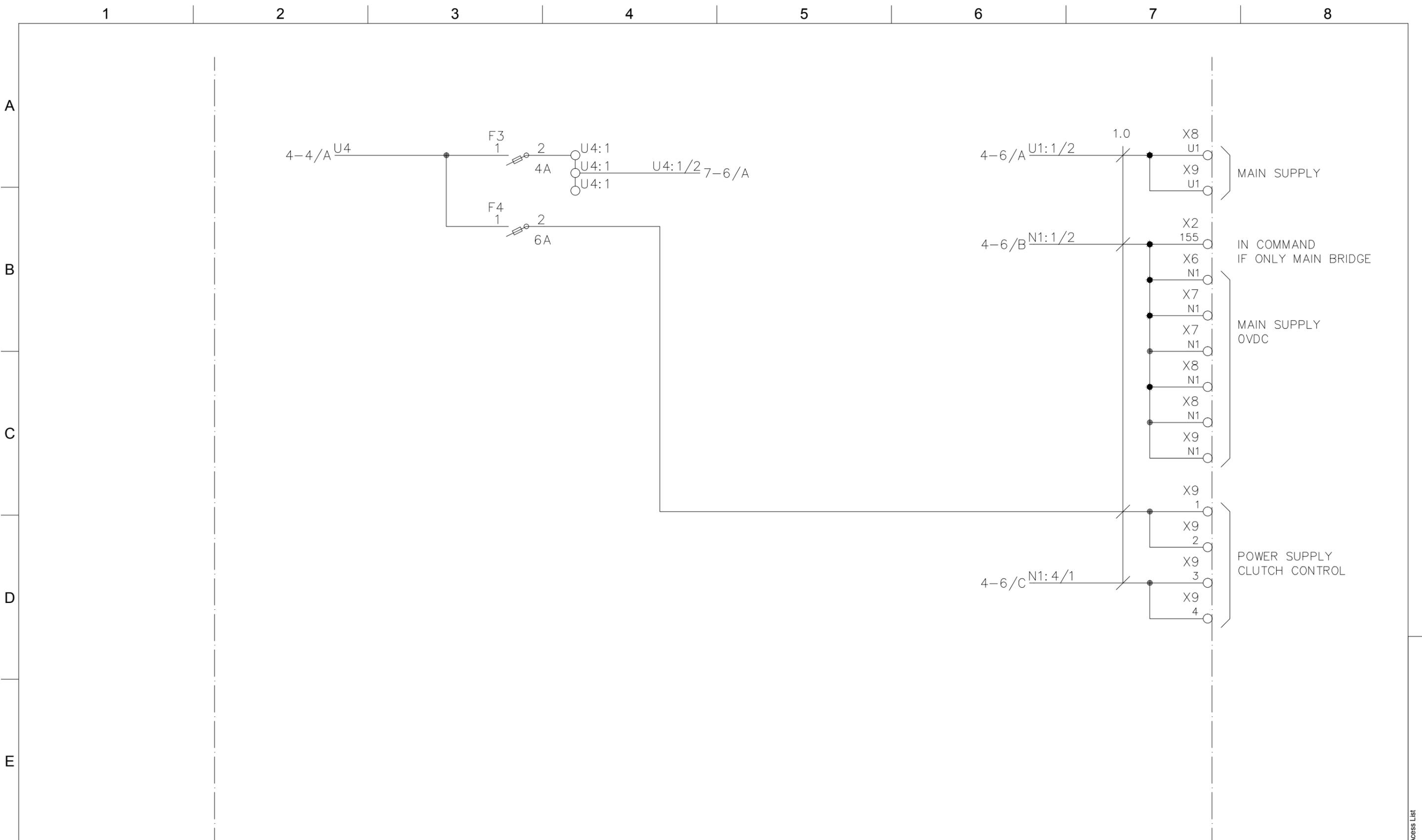
Control unit, wiring

Kamewa Main Propeller, Basic

<p>Rolls-Royce AB Propulsion Kristinehamn</p>	Origin. / Date:	Scale:	Format:	Sheet:
	ANPE 2014.04.09		A3	4 of 22
Drawing no:			Revision:	
RRM000226163			B	

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Access List
RR AB'S Info. Class:
LIMITED



POWER SUPPLY MAIN SYSTEM

Control unit, wiring		Checked:	Previous Drg:	
		LNJE	STANDARD	
Kamewa Main Propeller, Basic		Approved:	Weight kg:	
		KK201		
 Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn	Origin. / Date:	Scale:	Format:	Sheet:
	ANPE 2014.04.09		A3	5 of 22
	Drawing no:		Revision:	
		RRM000226163		B
<small>Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.</small>				

RR AB'S Info. Class: LIMITED

A

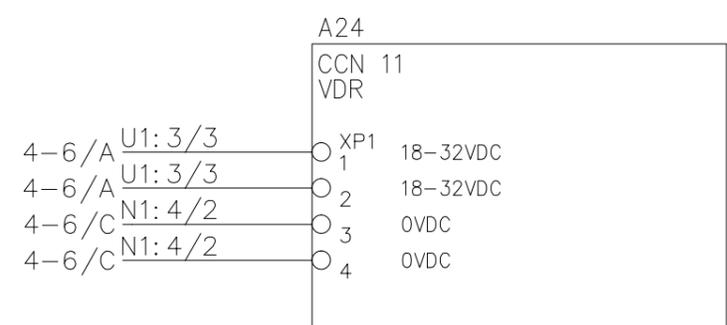
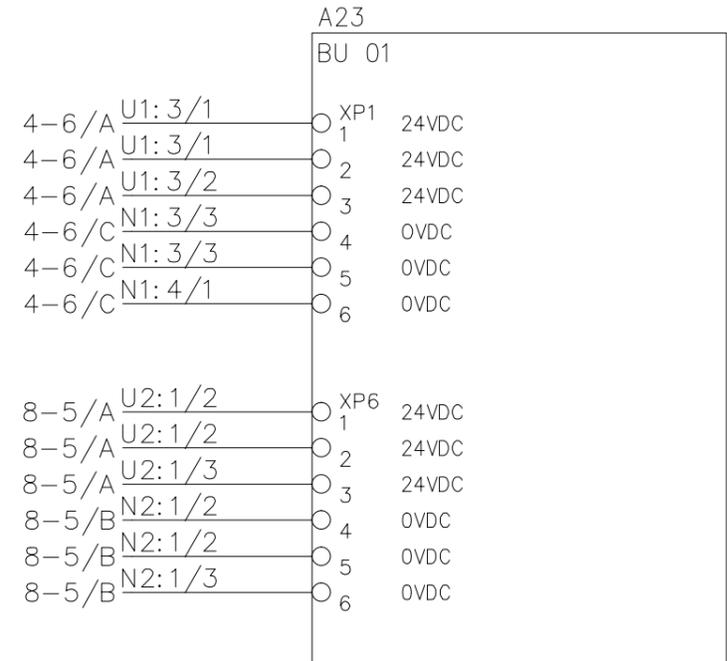
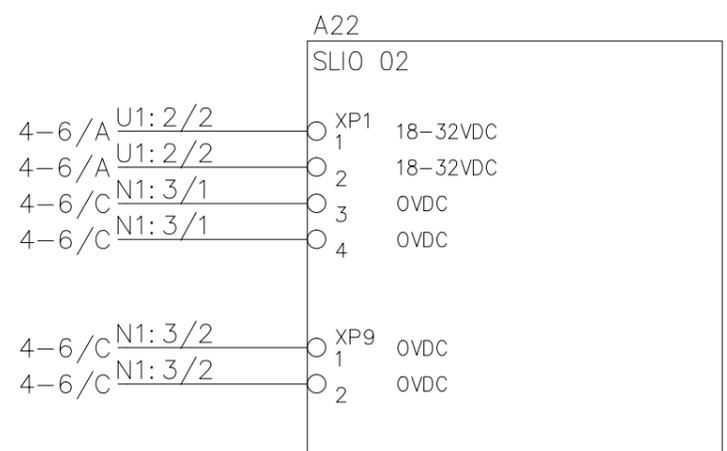
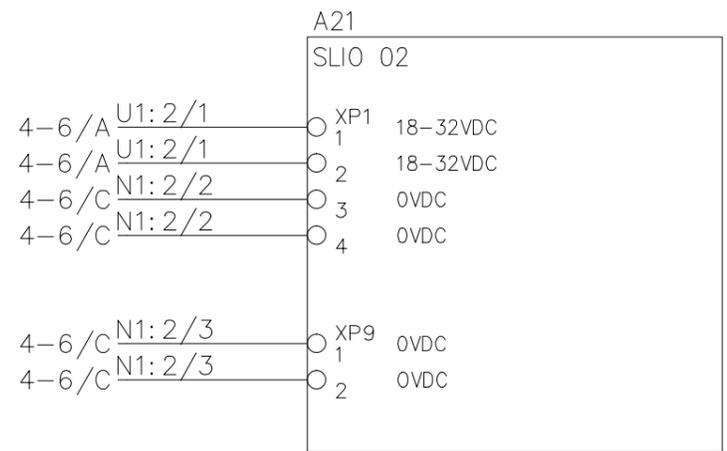
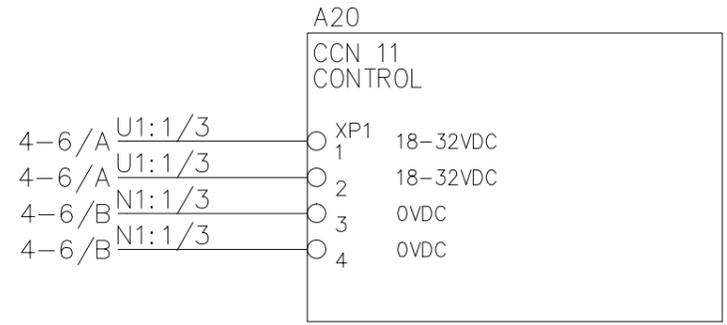
B

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POWER SUPPLY CIRCUIT BOARDS

Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce AB
Propulsion Kristinehamn

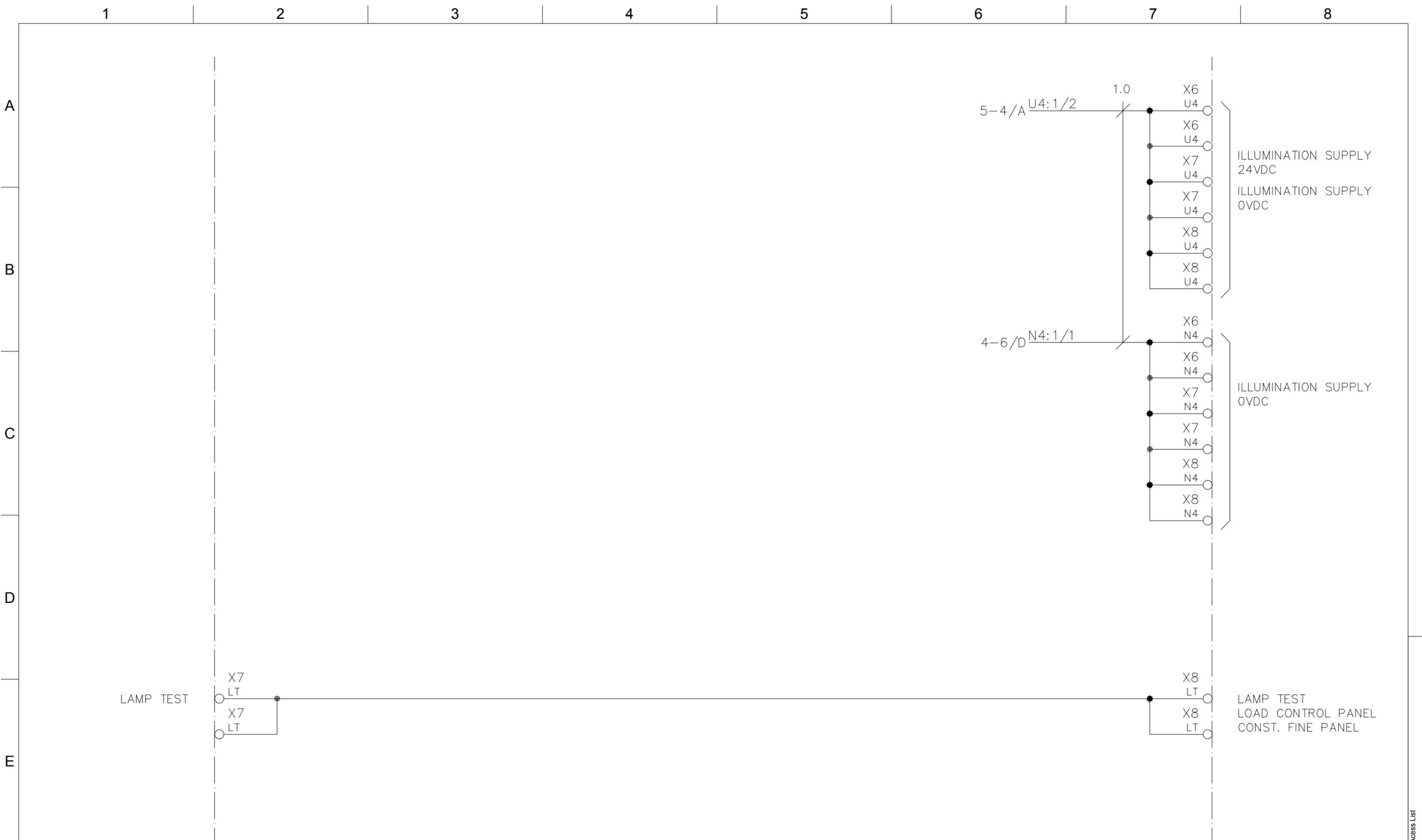
Origin. / Date:	Scale:	Format:	Sheet:
ANPE 2014.04.09		A3	6 of 22

Checked:	Previous Drg:
LNJE	STANDARD
Approved:	Weight kg:
KK201	
Drawing no:	Revision:
RRM000226163	B

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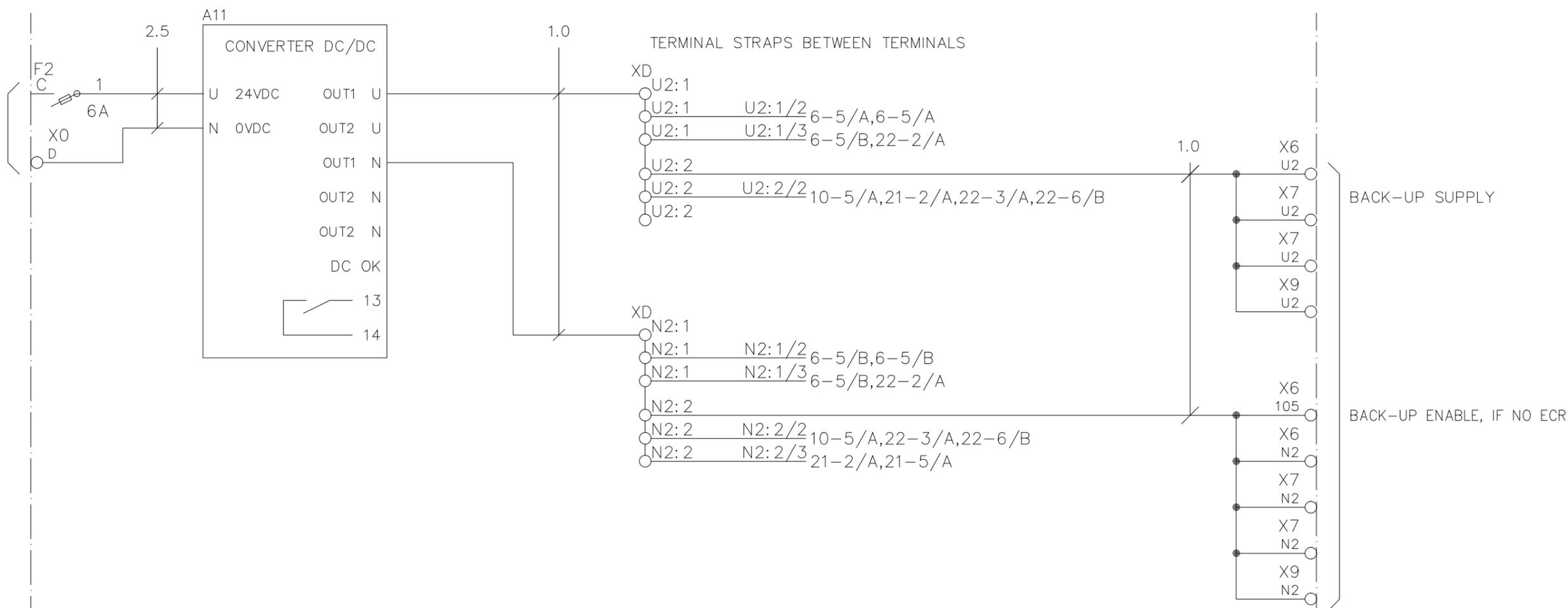
ILLUMINATION AND LAMP TEST

Control unit, wiring		Checked:	Previous Drg:	
		LNJE	STANDARD	
Kamewa Main Propeller, Basic		Approved:	Weight kg:	
		KK201		
Origin. / Date:		Scale:	Format:	Sheet:
ANPE 2014.04.09			A3	7 of 22
Drawing no:			Revision:	
RRM000226163			B	
 Rolls-Royce AB Propulsion Kristinehamn				
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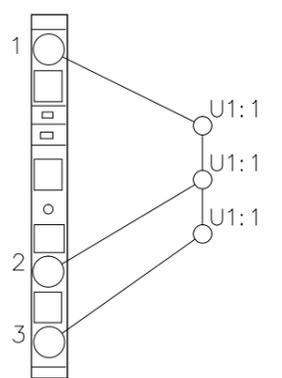
Access List

RR AB'S Info. Class:
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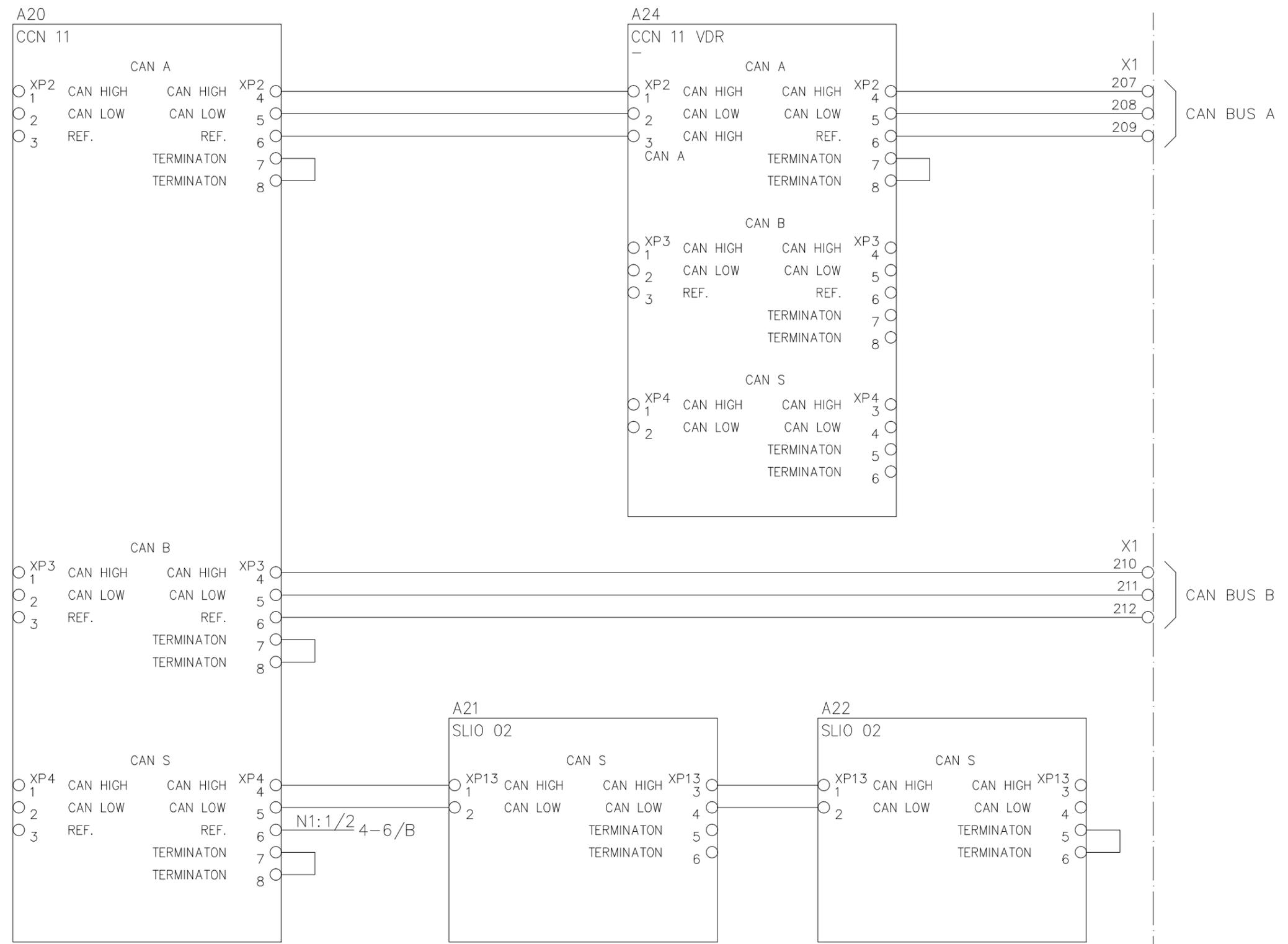
DISTRIBUTION TERMINAL EXAMPLE



POWER SUPPLY BACK-UP SYSTEM

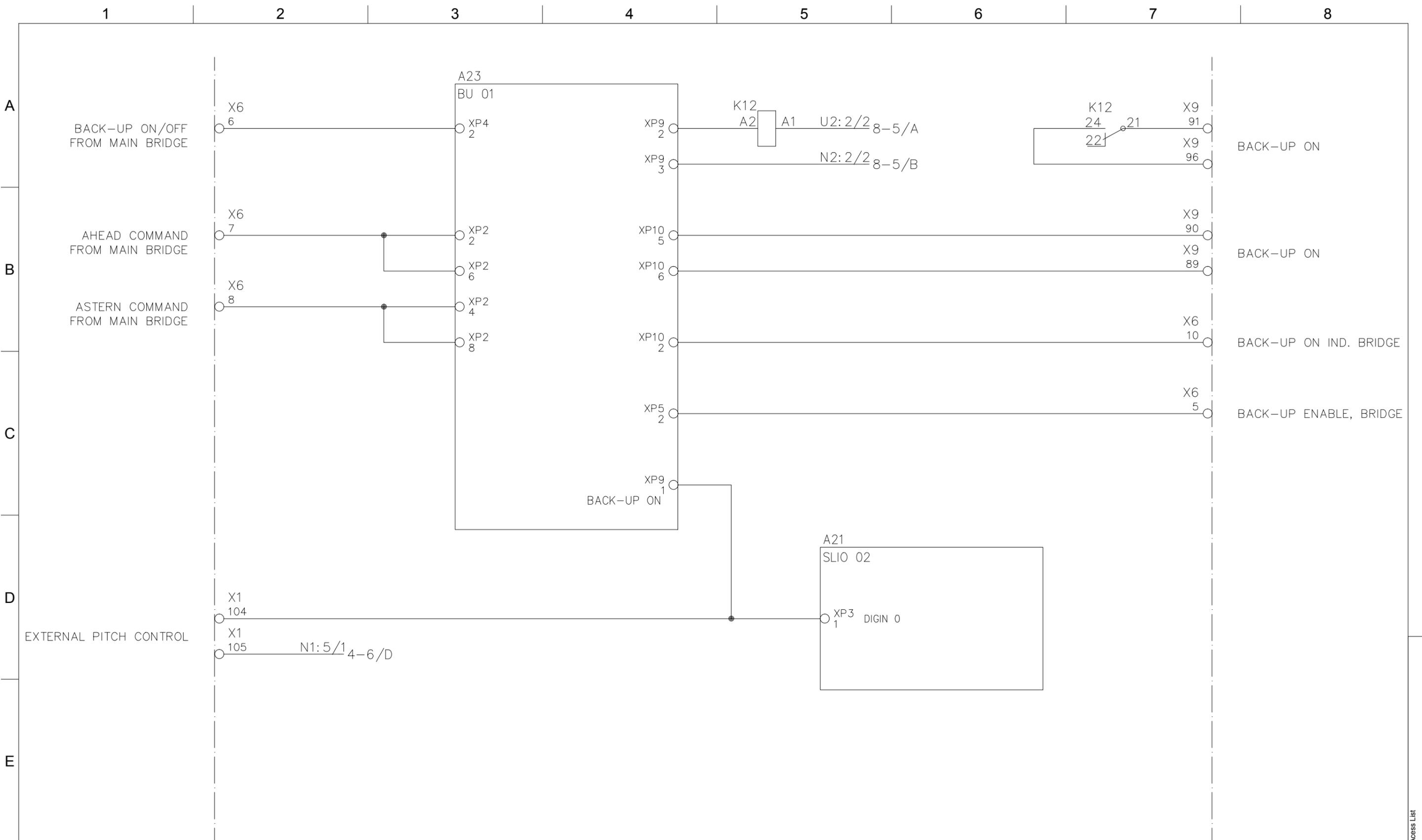
Control unit, wiring		Checked: LNJE	Previous Drg: STANDARD	
Kamewa Main Propeller, Basic		Approved: KK201	Weight kg:	
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 8 of 22
Drawing no: RRM000226163			Revision: B	
<p>Rolls-Royce AB Propulsion Kristinehamn</p>		<p>Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.</p>		

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CAN BUS

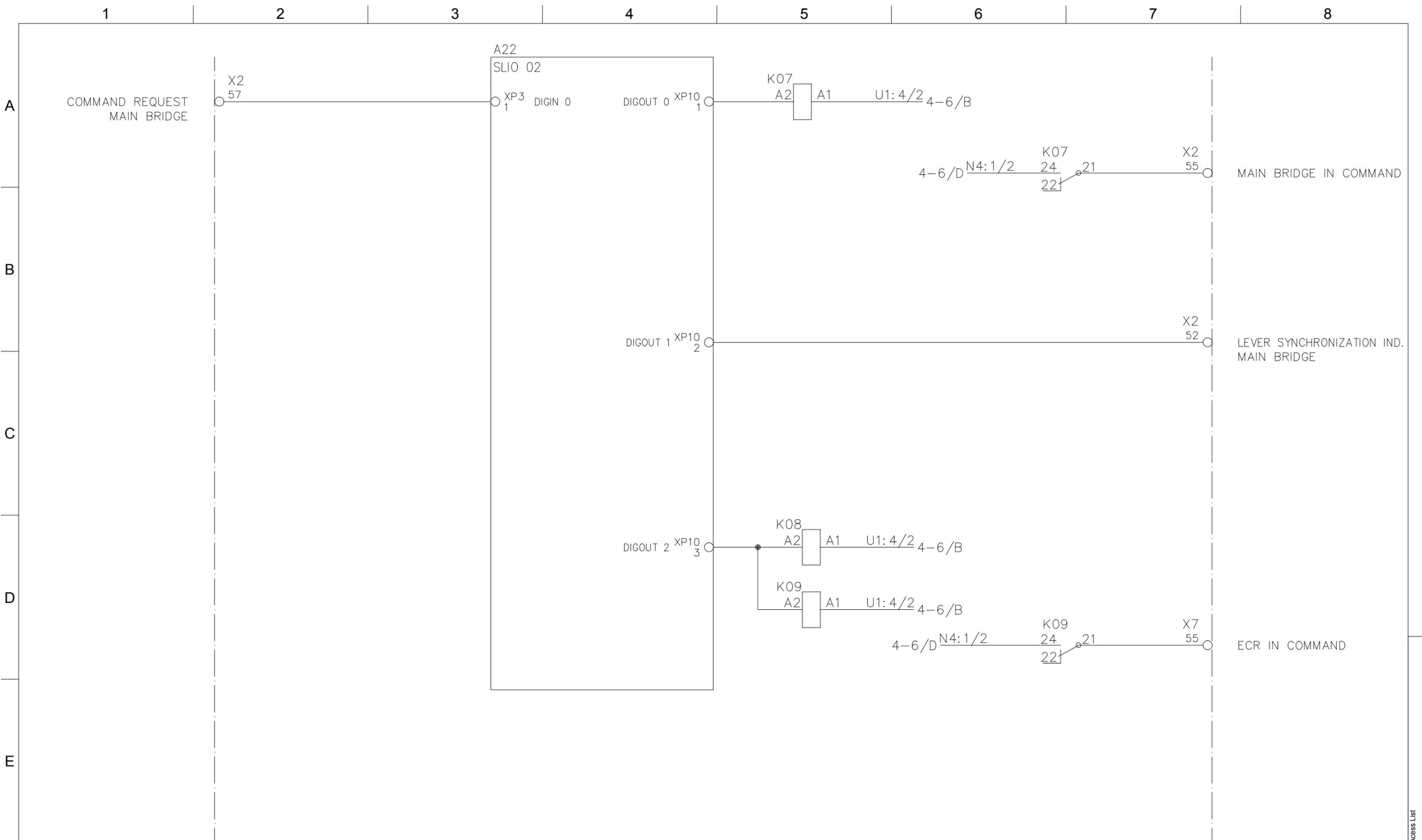
Control unit, wiring		Checked: LNJE	Previous Drg: STANDARD	
Kamewa Main Propeller, Basic		Approved: KK201	Weight kg:	
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 9 of 22
Drawing no: RRM000226163			Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.		



BACK-UP SYSTEM, EXTERNAL PITCH

Control unit, wiring				Checked: LNJE	Previous Drg: STANDARD
Kamewa Main Propeller, Basic				Approved: KK201	Weight kg:
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 10 of 22	
Drawing no: RRM000226163				Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.			

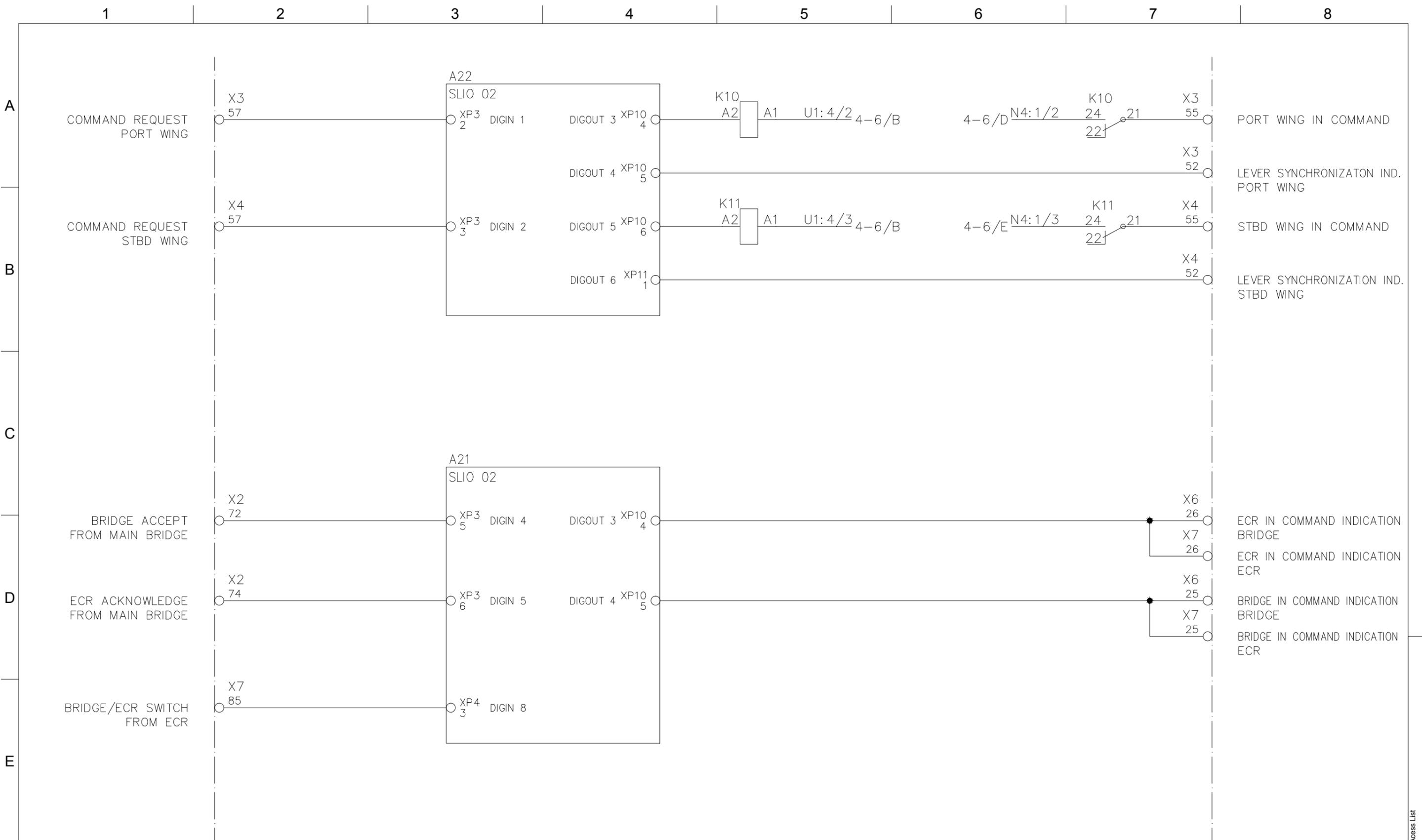
Access List
RR AB'S Info. Class:
LIMITED



MANOEUVRE RESPONSIBILITY

Control unit, wiring				Checked: LNJE	Previous Drg: STANDARD
Kamewa Main Propeller, Basic				Approved: KK201	Weight kg:
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 11 of 22	
Drawing no: RRM000226163				Revision: B	
 <p>Rolls-Royce AB Propulsion Kristinehamn</p>					
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Access List
RR AB'S Info. Class:
LIMITED



MANOEUVRE RESPONSIBILITY

Control unit, wiring		Checked: LNJE	Previous Drg: STANDARD	
Kamewa Main Propeller, Basic		Approved: KK201	Weight kg:	
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 12 of 22
Drawing no: RRM000226163			Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.		

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RR AB'S Info. Class:
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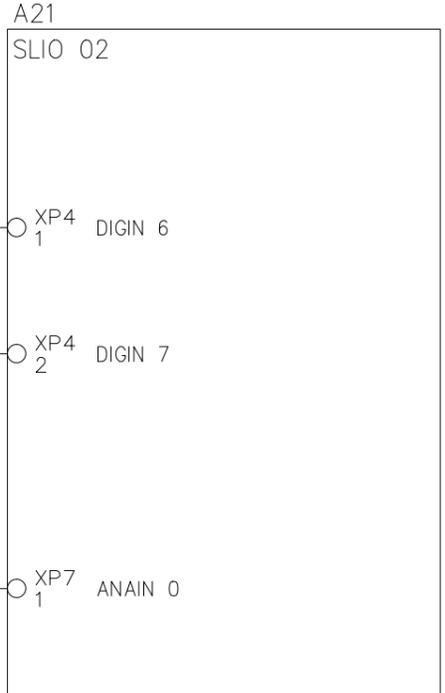
D

E

F

PITCH COMMAND, AH
FROM ECR

X7
53



PITCH COMMAND, AS
FROM ECR

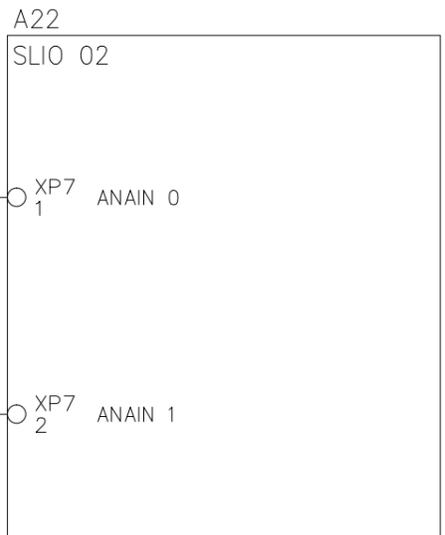
X7
54

LEVER COMMAND
FROM MAIN BRIDGE

X2
53

N1:5/1 4-6/D

X2
54



LEVER COMMAND
FROM PORT WING

X3
53

N1:5/1 4-6/D

X3
54

LEVER COMMAND
FROM STBD WING

X4
53

N1:5/1 4-6/D

X4
54

LEVER, PITCH COMMAND SIGNALS

Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce AB
Propulsion Kristinehamn

Checked: LNJE Previous Drg: STANDARD

Approved: KK201 Weight kg:

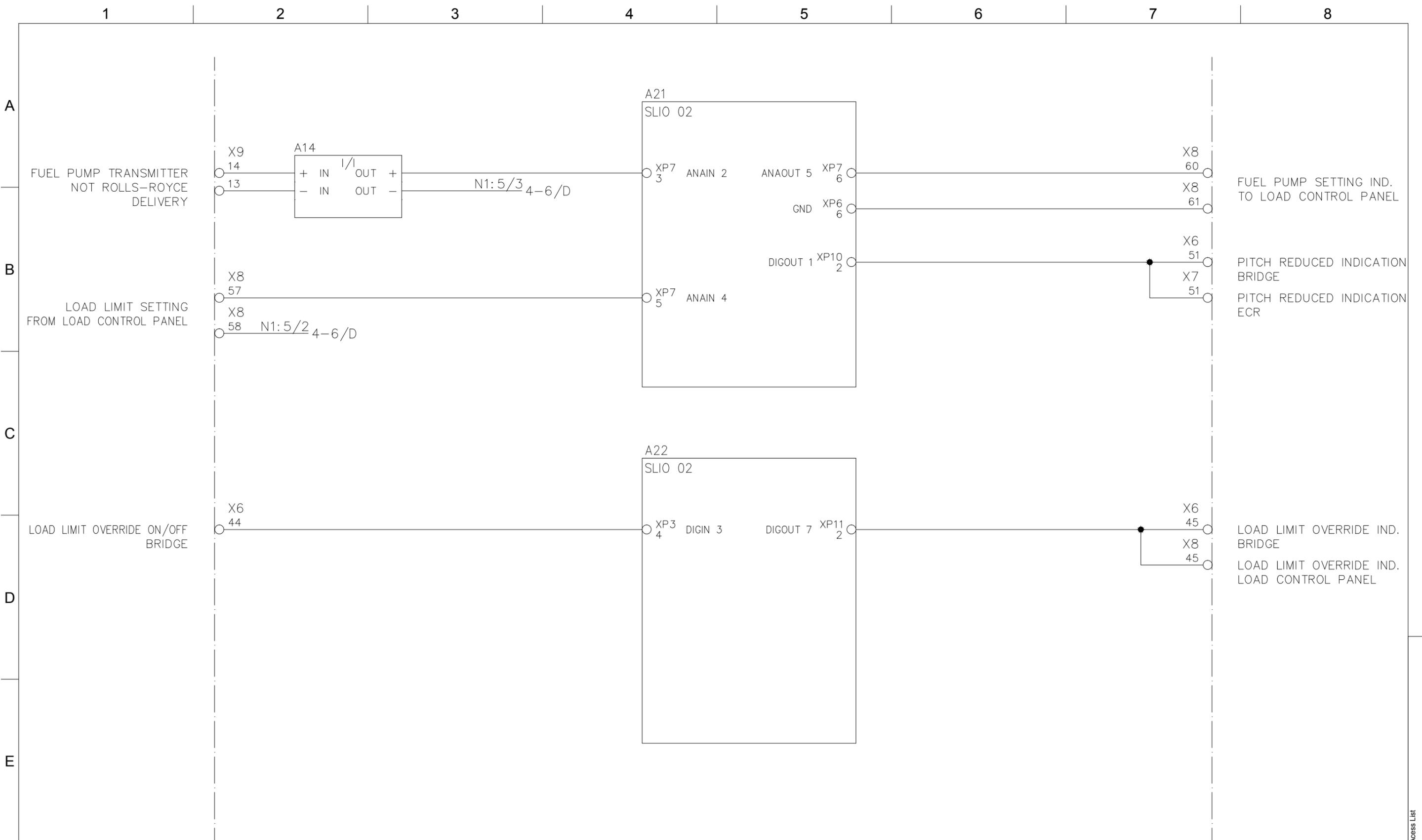
Origin. / Date: ANPE 2014.04.09 Scale: A3 Format: A3 Sheet: 13 of 22

Drawing no: RRM000226163 Revision: B

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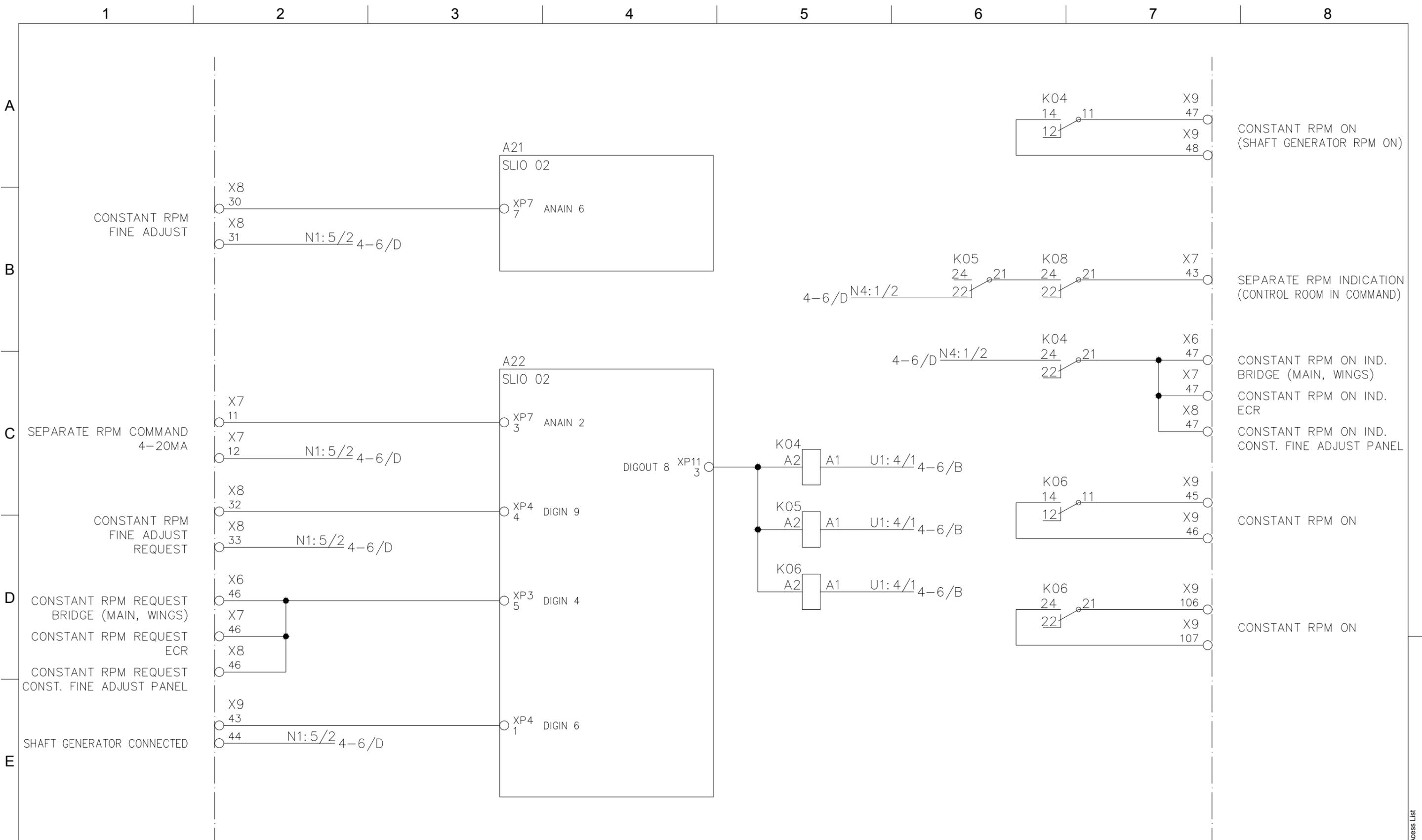


LOAD CONTROL

Control unit, wiring				Checked: LNJE	Previous Drg: STANDARD
Kamewa Main Propeller, Basic				Approved: KK201	Weight kg:
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 14 of 22	
Drawing no: RRM000226163				Revision: B	
 <p>Rolls-Royce AB Propulsion Kristinehamn</p>					
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Access List

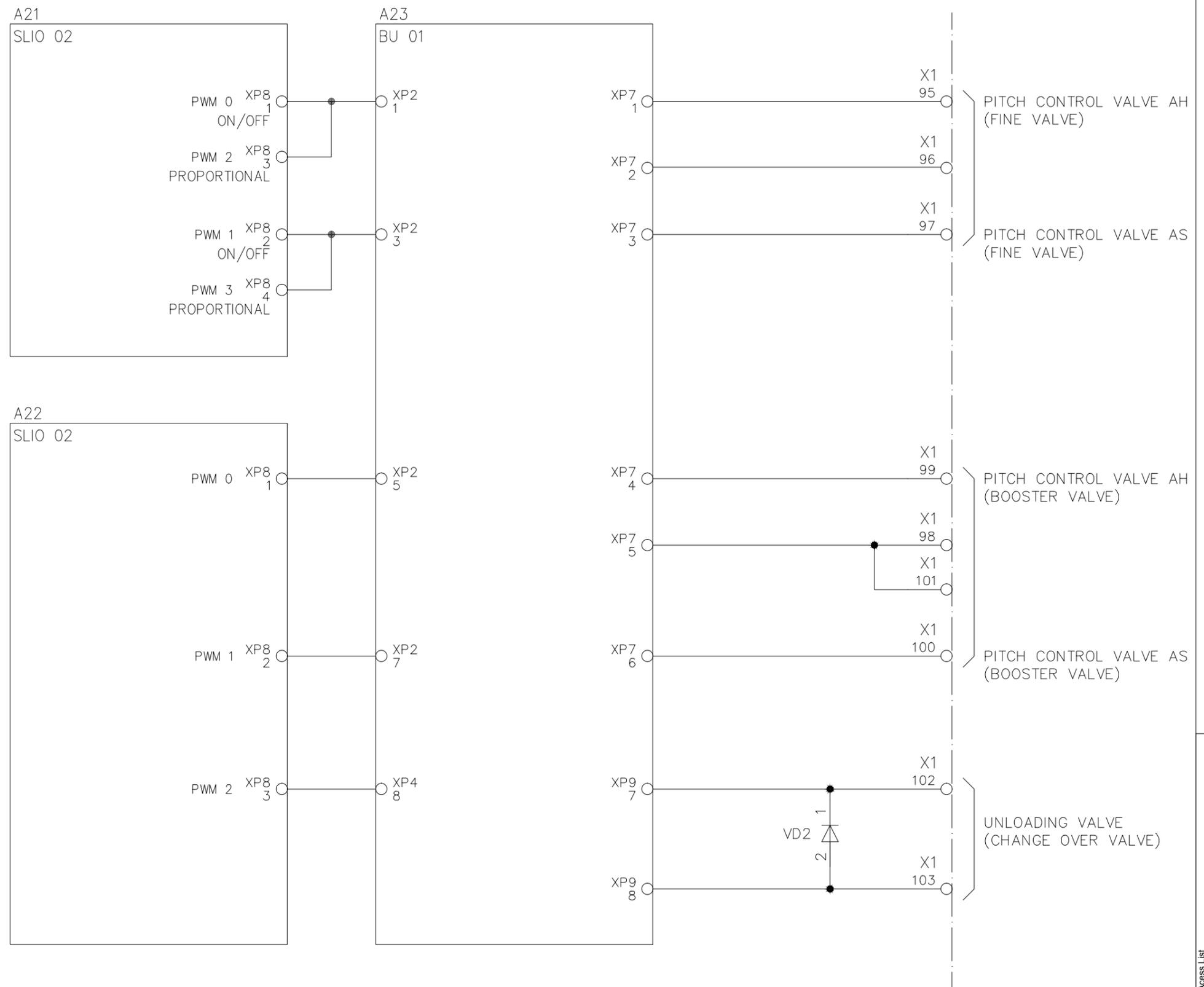
RR AB'S Info. Class:
LIMITED



OPERATING MODES, SEPARATE RPM AND CONSTANT RPM ADJUST

Control unit, wiring				Checked: LNJE	Previous Drg: STANDARD
Kamewa Main Propeller, Basic				Approved: KK201	Weight kg:
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 15 of 22	
Drawing no: RRM000226163				Revision: B	
 <p>Rolls-Royce AB Propulsion Kristinehamn</p>					
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Access List
RR AB'S Info. Class:
LIMITED

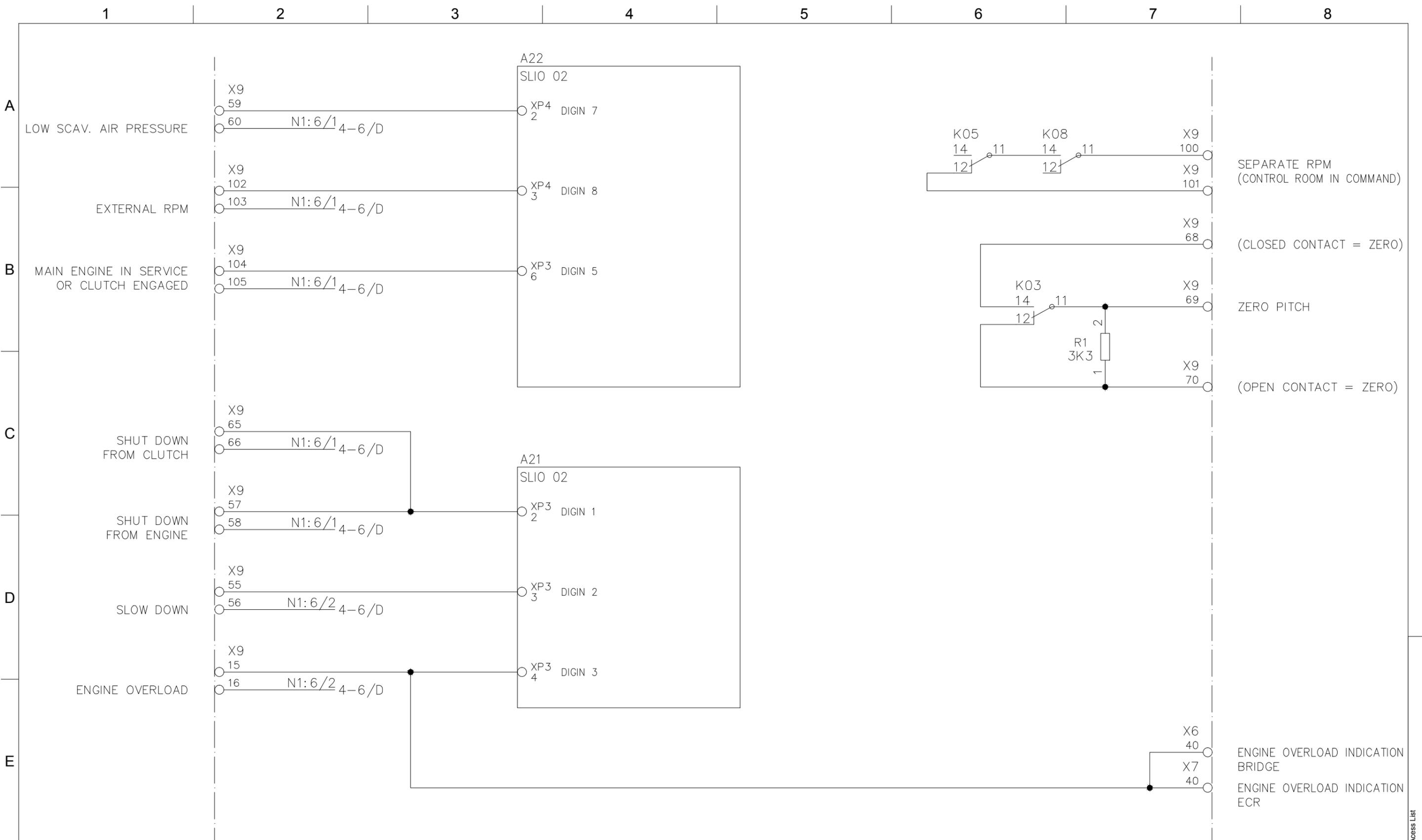


PITCH CONTROL

Control unit, wiring		Checked: LNJE	Previous Drg: STANDARD	
Kamewa Main Propeller, Basic		Approved: KK201	Weight kg:	
Origin. / Date: ANPE 2014.04.09	Scale:	Format: A3	Sheet: 16 of 22	
Drawing no: RRM000226163			Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		RR AB'S Info. Class: LIMITED		

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Access List



MAIN ENGINE

Control unit, wiring		Checked: LNJE	Previous Drg: STANDARD	
Kamewa Main Propeller, Basic		Approved: KK201	Weight kg:	
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 17 of 22
Drawing no: RRM000226163			Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.		

Access List
RR AB'S Info. Class:
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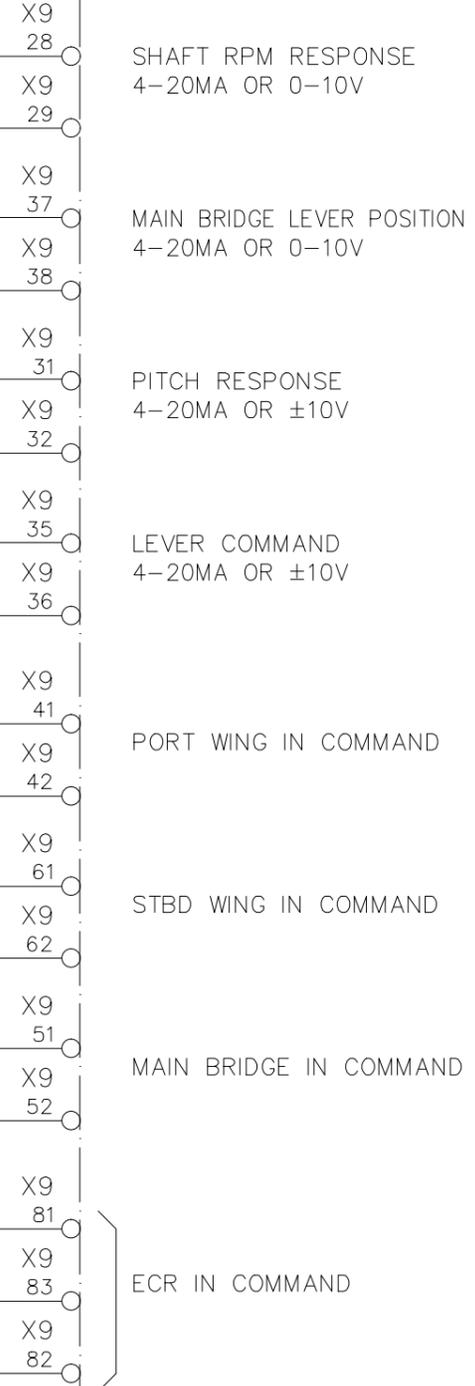
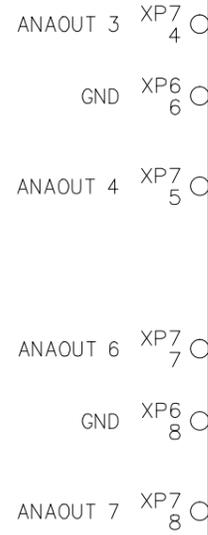
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A22
SLIO 02

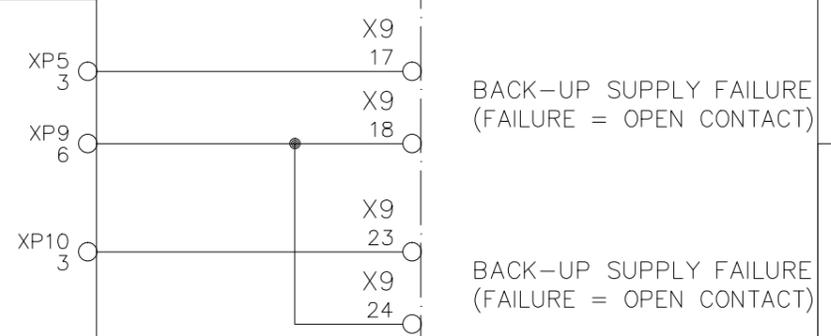
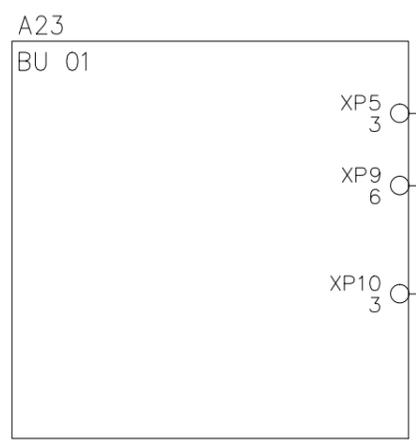
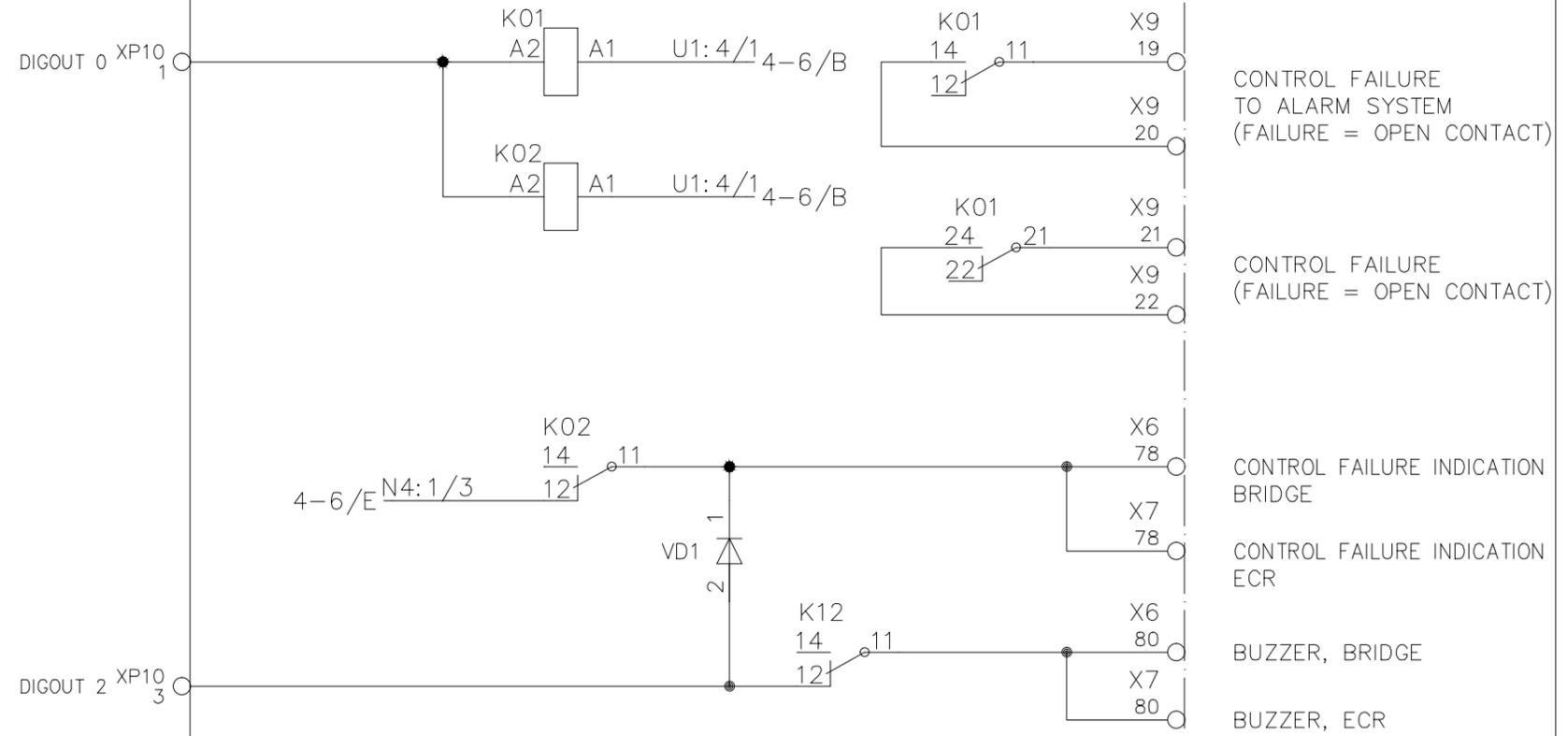
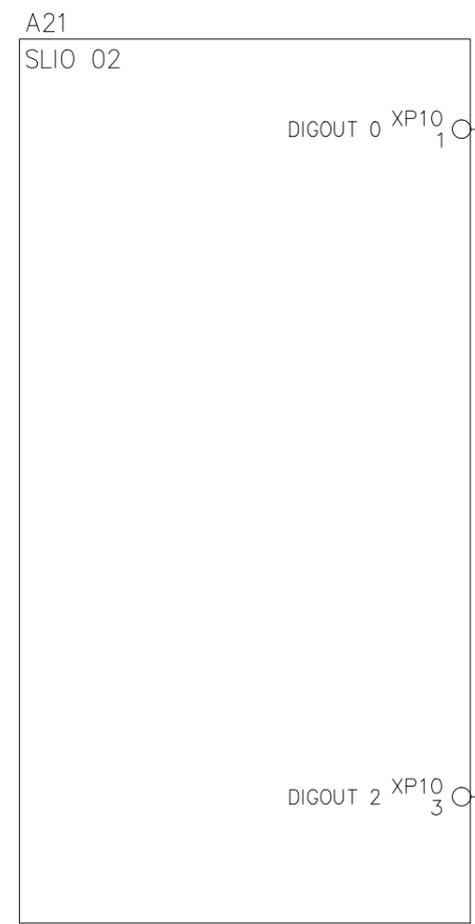


STATUS

Control unit, wiring		Checked: LNJE	Previous Drg: STANDARD	
Kamewa Main Propeller, Basic		Approved: KK201	Weight kg:	
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 18 of 22
Drawing no: RRM000226163			Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.		

Access List

RR AB'S Info. Class:
LIMITED



STATUS, ALARM

Control unit, wiring

Kamewa Main Propeller, Basic

Rolls-Royce AB
Propulsion Kristinehamn

Checked: LNJE	Previous Drg: STANDARD
Approved: KK201	Weight kg:
Origin. / Date: ANPE 2014.04.09	Scale: A3
Format: A3	Sheet: 19 of 22
Drawing no: RRM000226163	Revision: B

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A

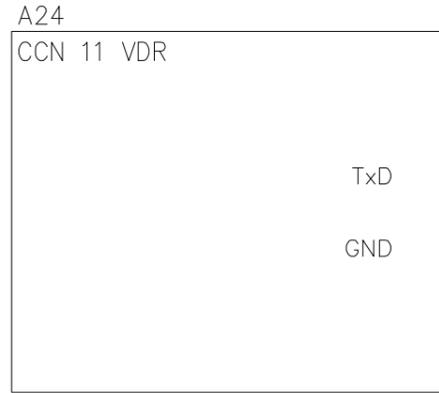
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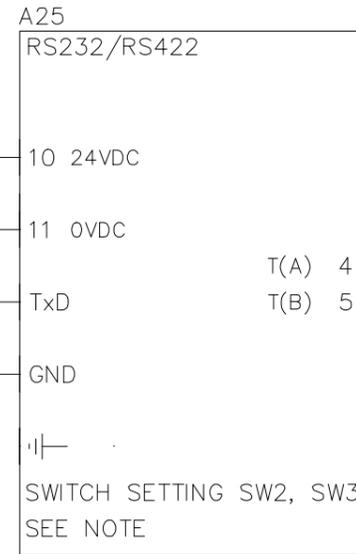
E

F



XM1 3
XM1 7

4-6/A U1: 3/2
4-6/D N1: 6/2



X9 109
X9 110

VOYAGE
DATA RECORDER
NMEA 0183, RS422

NOTE!
SWITCH SETTINGS SW2, SW3 FOR A25 (WEIDMULLER)

SW2								
Switch	1	2	3	4	5	6	7	8
Switch pos.	off	off	on	off	off	on	on	on

SW3				
Switch	1	2	3	4
Switch pos.	on	on	off	off

VDR INTERFACE

Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:	Scale:	Format:	Sheet:
ANPE 2014.04.09		A3	20 of 22

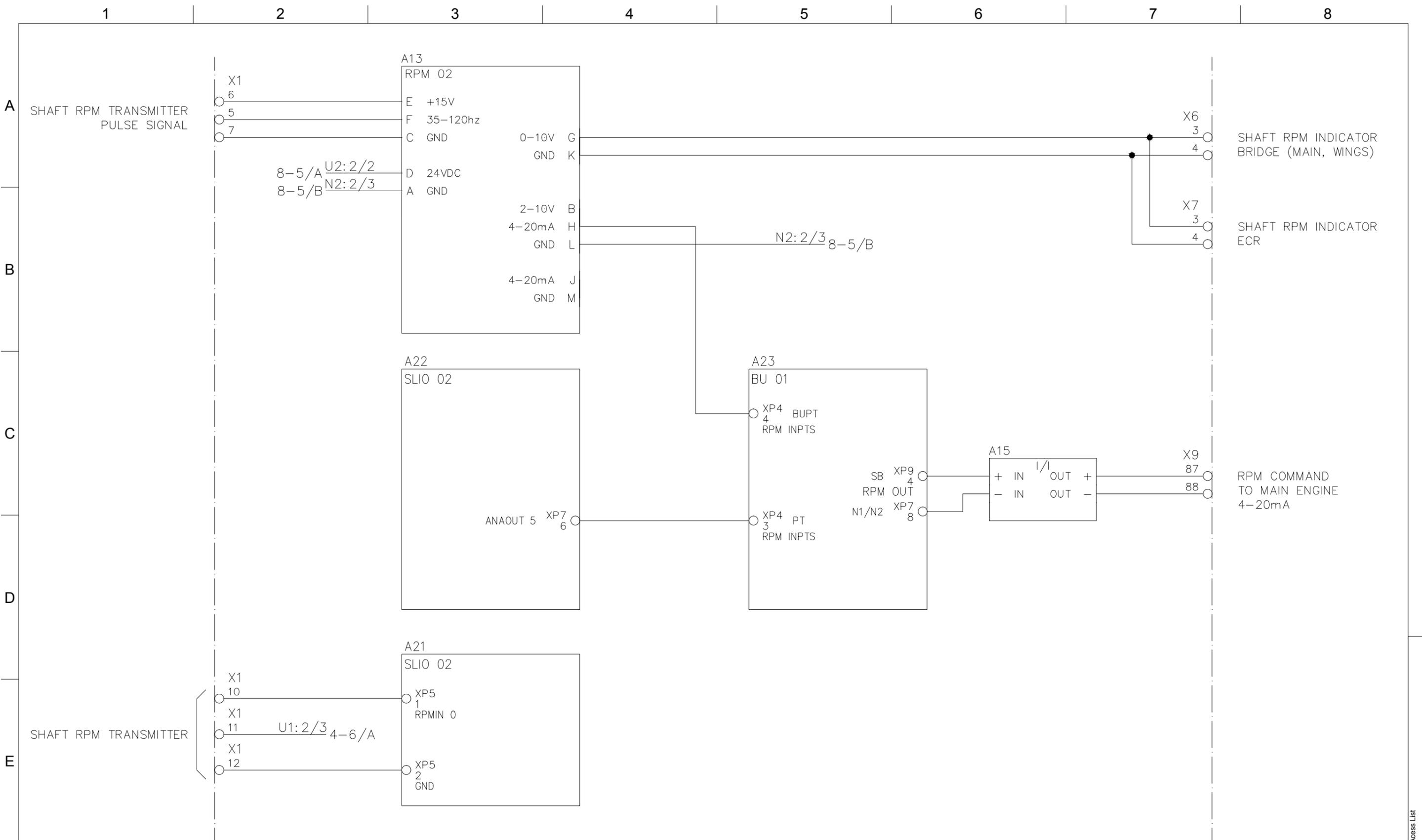
Drawing no:	Revision:
RRM000226163	B

Checked:	Previous Drg:
LNJE	STANDARD
Approved:	Weight kg:
KK201	

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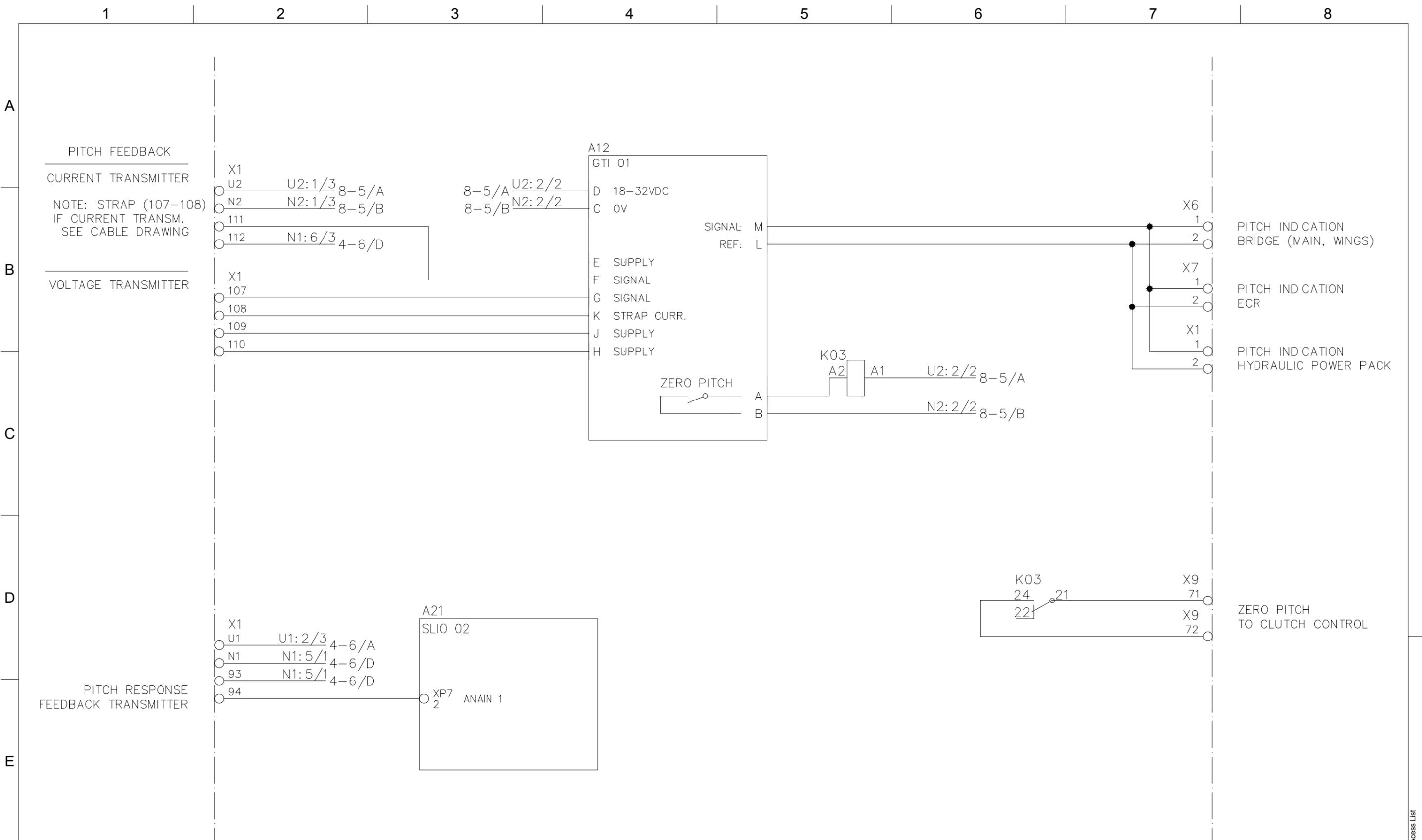
RR AB'S Info. Class:
LIMITED



RPM INDICATION AND COMMAND

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Kamewa Main Propeller, Basic				Approved: KK201	Weight kg:
Origin. / Date: ANPE 2014.04.09		Scale:	Format: A3	Sheet: 21 of 22	
Drawing no: RRM000226163				Revision: B	
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Access List
RR AB'S Info. Class:
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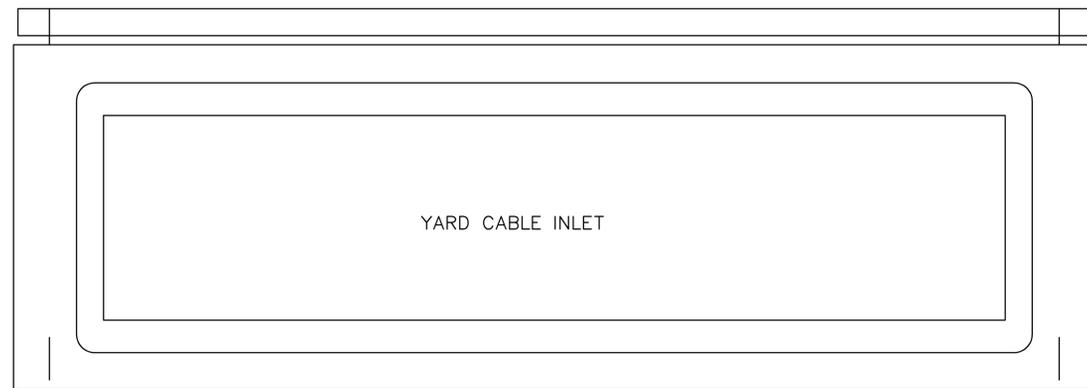


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Kamewa Main Propeller, Basic		Approved: KK201	Weight kg:
Origin. / Date: ANPE 2014.04.09	Scale: A3	Format: A3	Sheet: 22 of 22
Drawing no: RRM000226163		Revision: B	
 Rolls-Royce AB Propulsion Kristinehamn		RR AB'S Info. Class: LIMITED	

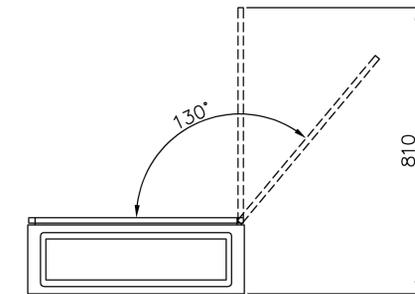
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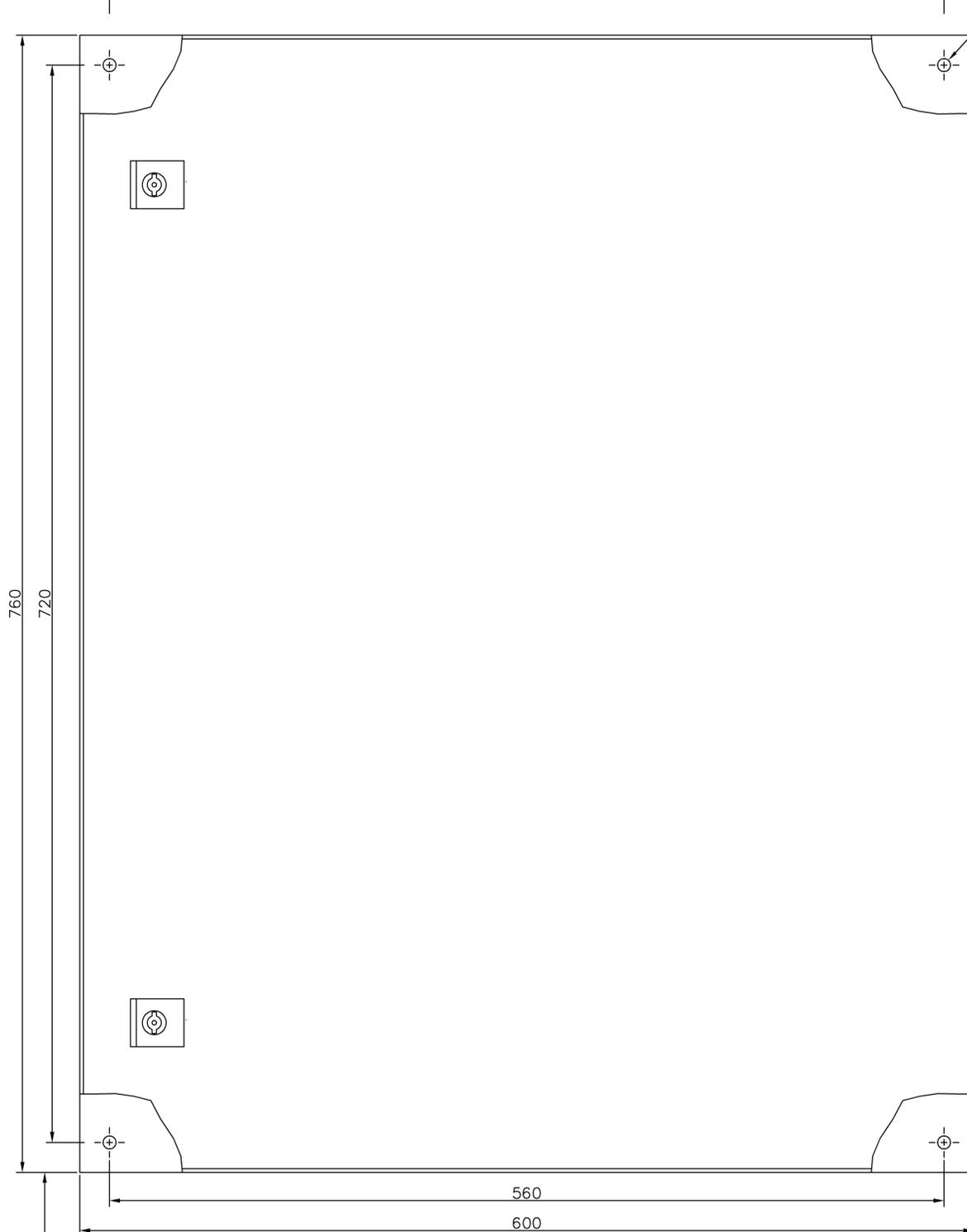
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	a	Drawing adjusted	12.01.2003	KK53	KKL	KKL	
	b	Changed to RAL 7035	14.06.2005	KK53	KKL	KKL	
	c	New frame, general update	18.12.2008	KK172	ENA	ENA	



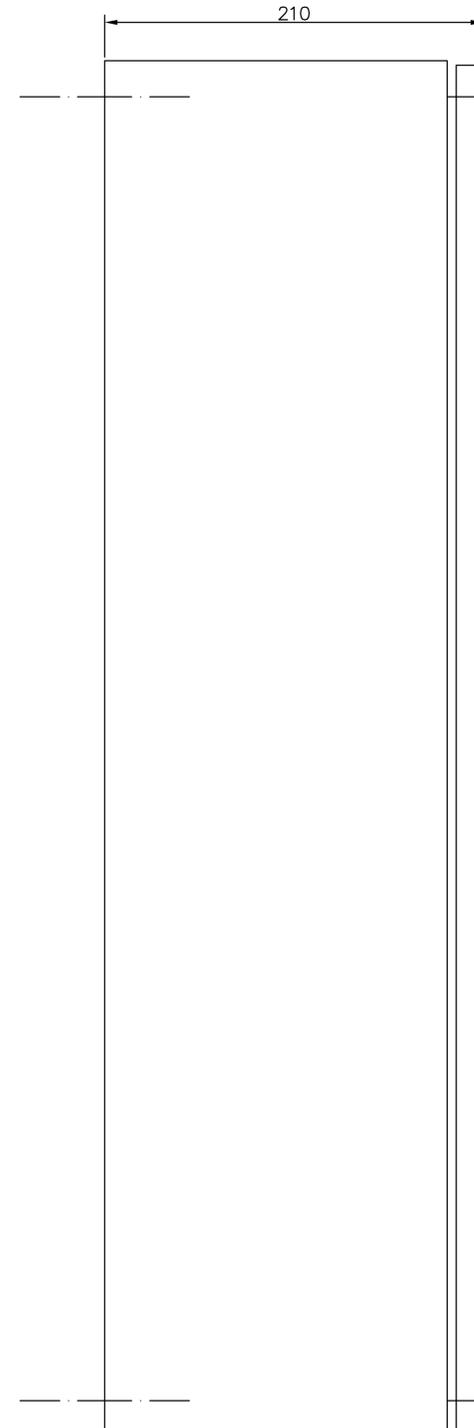
MOUNTING HOLES $\varnothing 8$ (4x)



SCALE 1:10



MINIMUM REQUIRED SPACE FOR CABLE CONNECTION



HOUSING: RITTAL AE1076.500
SINGLE DOOR

PROTECTION DEGREE: IP66

ROLLS-ROYCE STANDARD COLOUR: RAL 7035 (light grey)
SPECIAL COLOUR SEE ORDER SPECIFICATION

Casing, layout		Checked:	Previous Dwg:
		KKL	108634
Kamewa Main Propeller/Waterjet, customer		Approved:	Weight kg:
		KKL	
Origin / Date:	Scale:	Format:	Sheet:
RWN 16.07.1999	1:2	A1	1 of 1
Drawing no:	Revision:		
117320			c
<small>Rolls-Royce AB Propulsion Kristinehamn</small>			
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4

Phot.	Revis. a	Revision comprises New frame, updated	Date 19.12.2008	Drawn KK172	Checked ENA	Approved ENA	Mod.note
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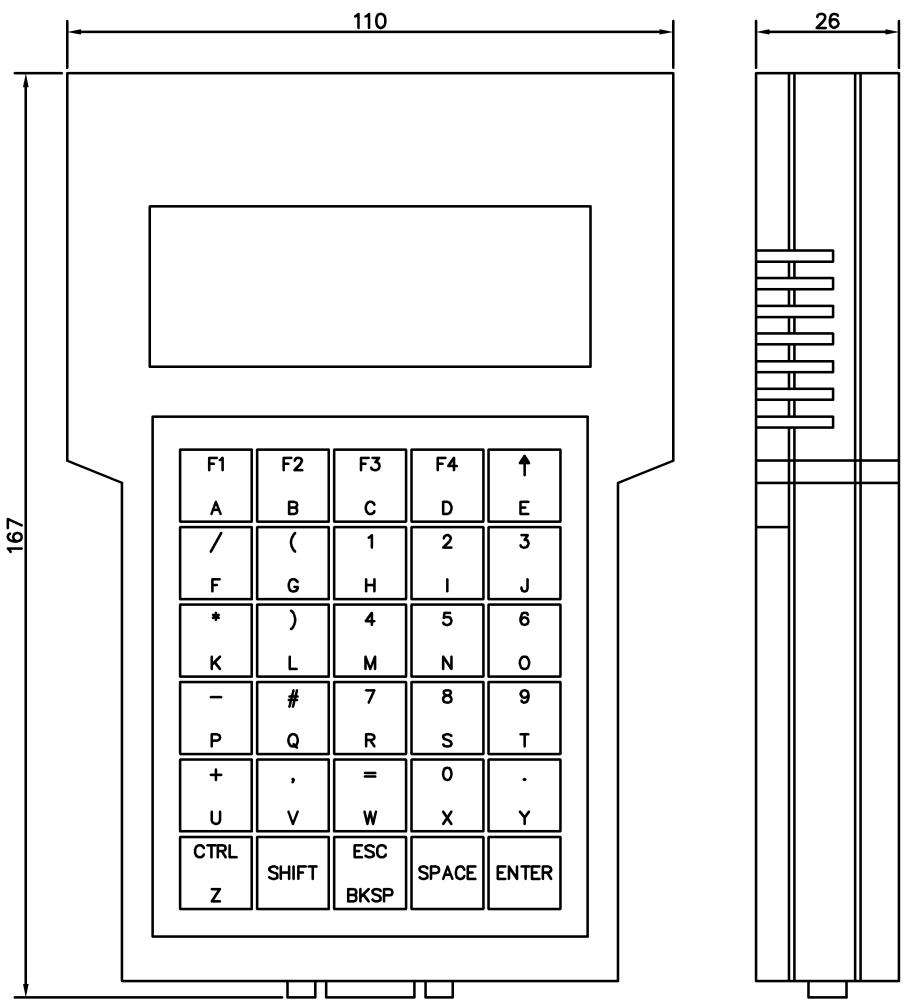
A

B

C

D

E



Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um	General Tolerances: SS-ISO 2768-f	Sharp edges broken: 0.2-0.5	
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Hand held terminal, layout	Checked: ATM	Previous Drg:
	Approved: NOP	Weight kg:

 Kamewa Main Propeller/Waterjet	Origin. / Date:	Scale:	Format:	Sheet:
	EKO 16.06.1999	1:1	A4	1 of 1
Drawing no: 968530			Revision: a	

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Access List

RR AB S. Info. Class: LIMITED

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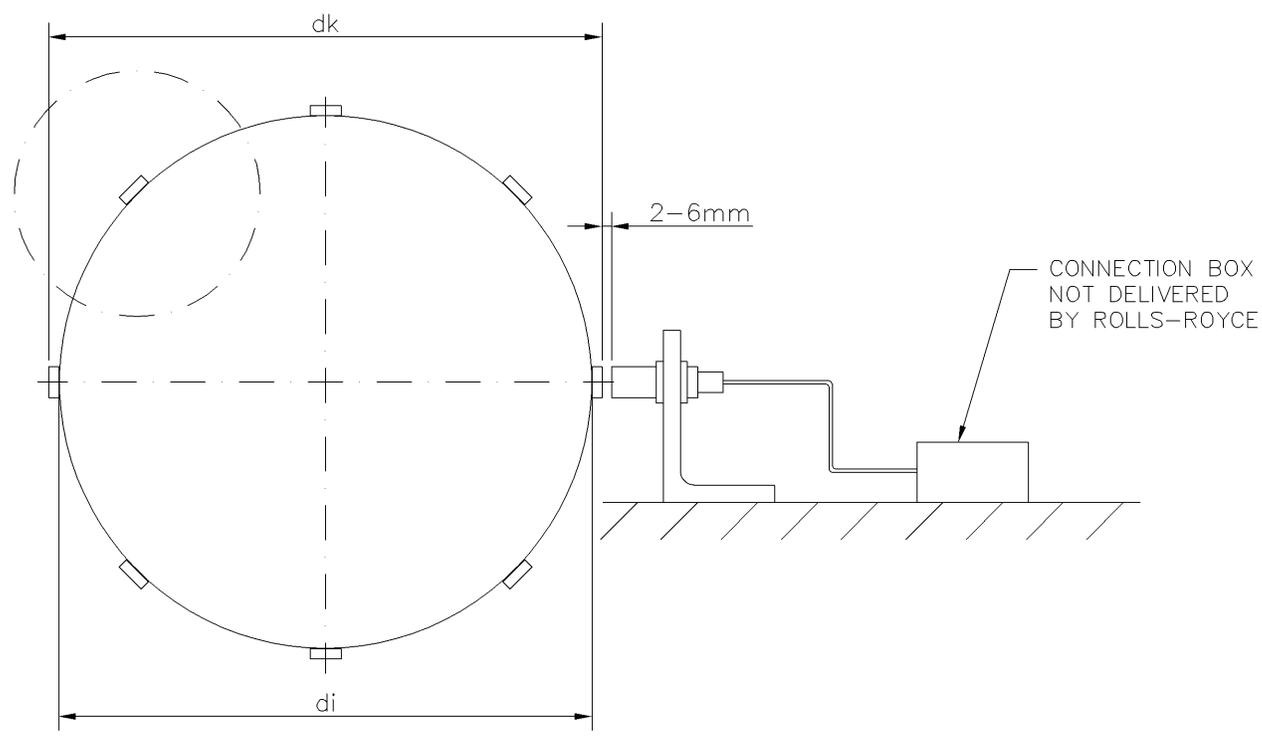
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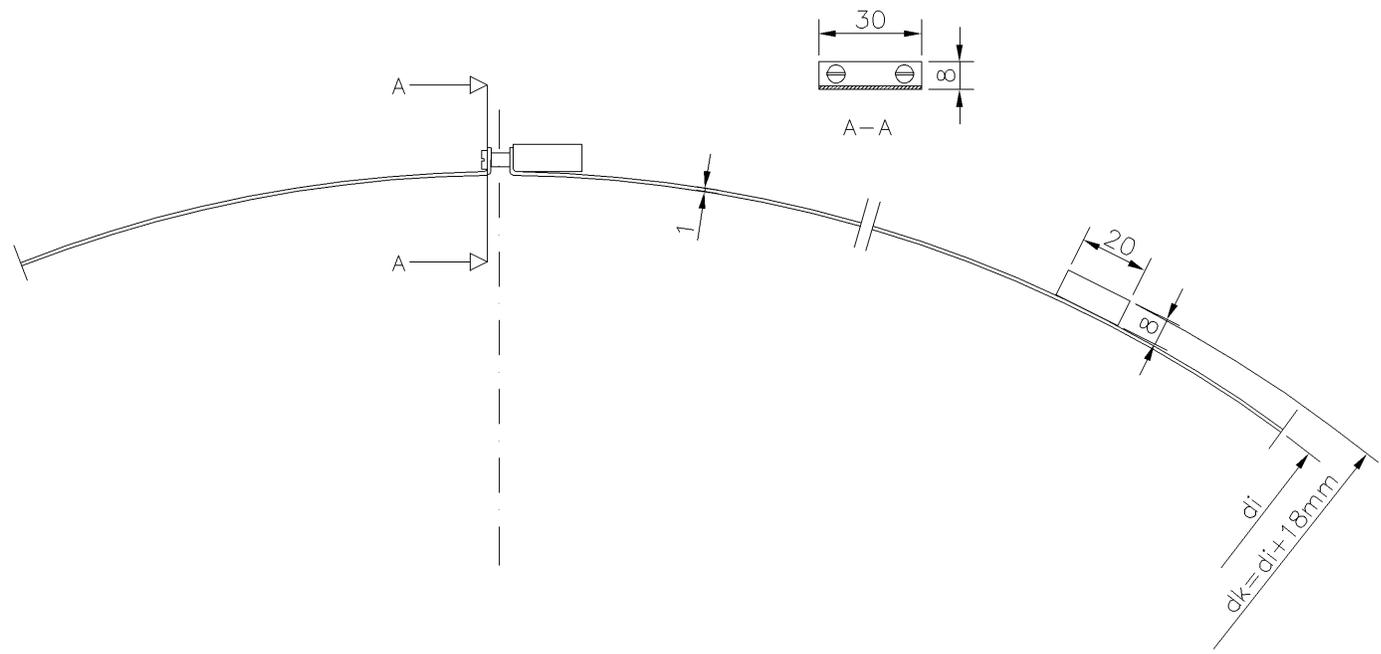
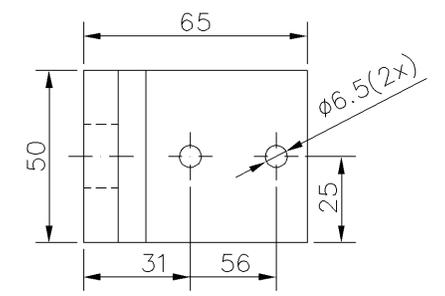
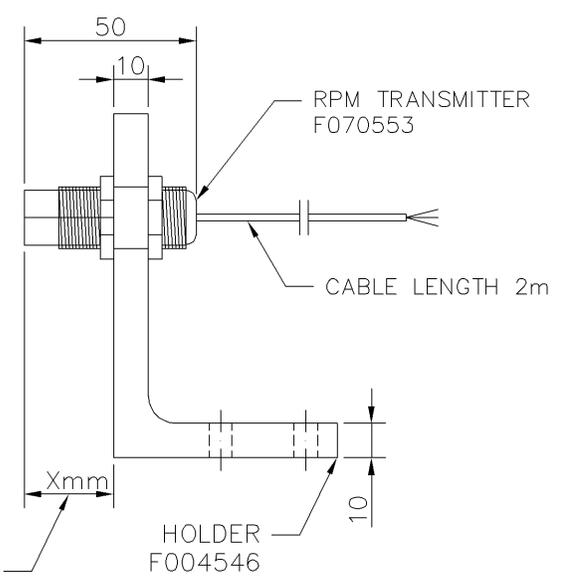
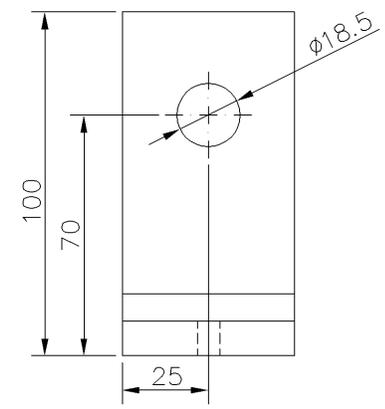
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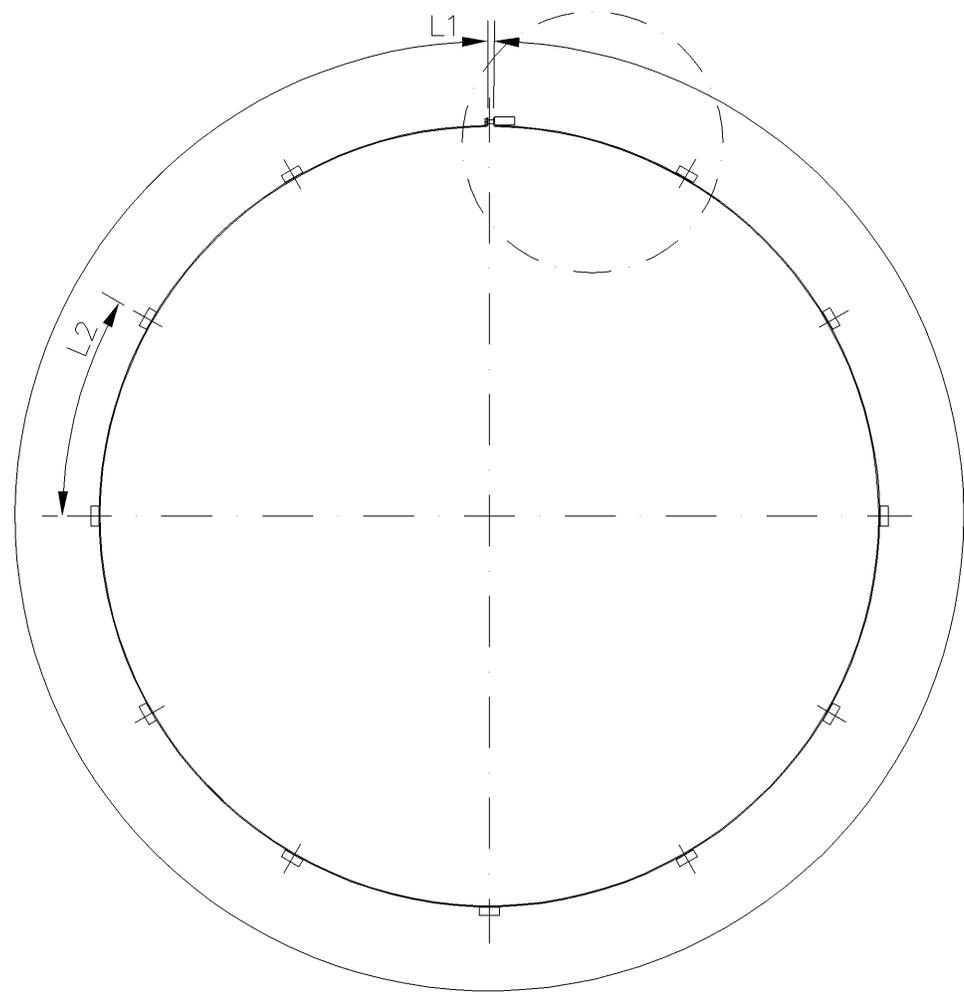
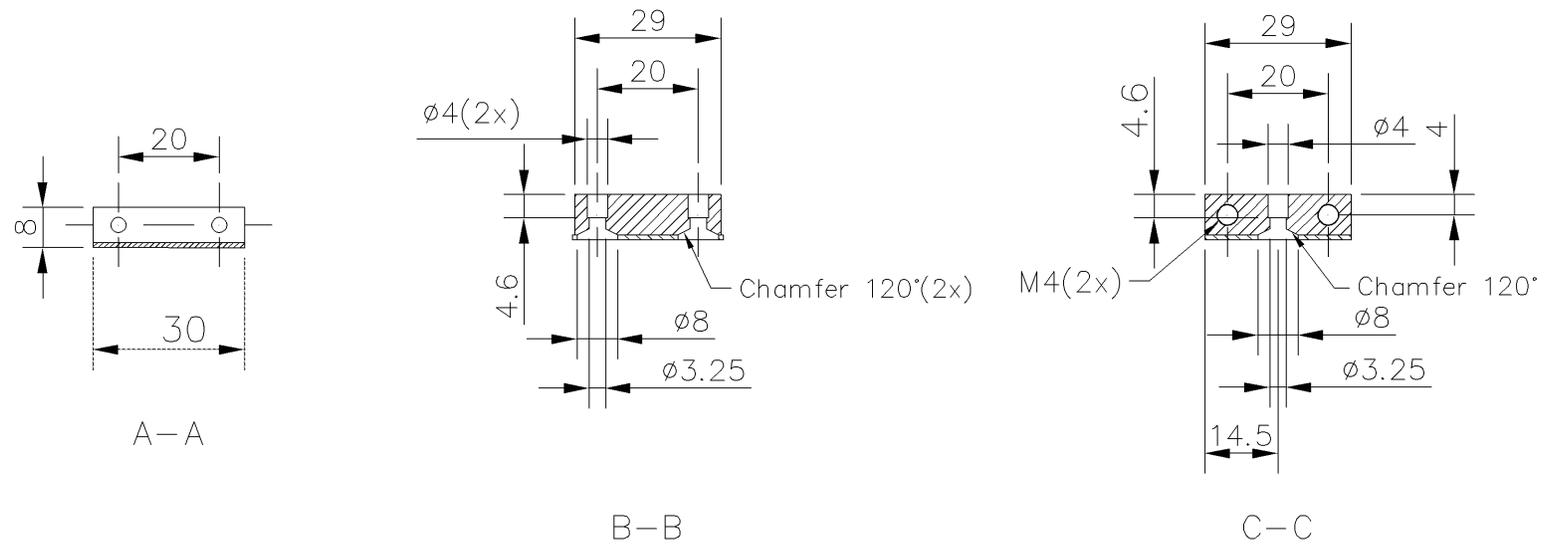
PRINCIPLE, NOT ACTUAL SCALE



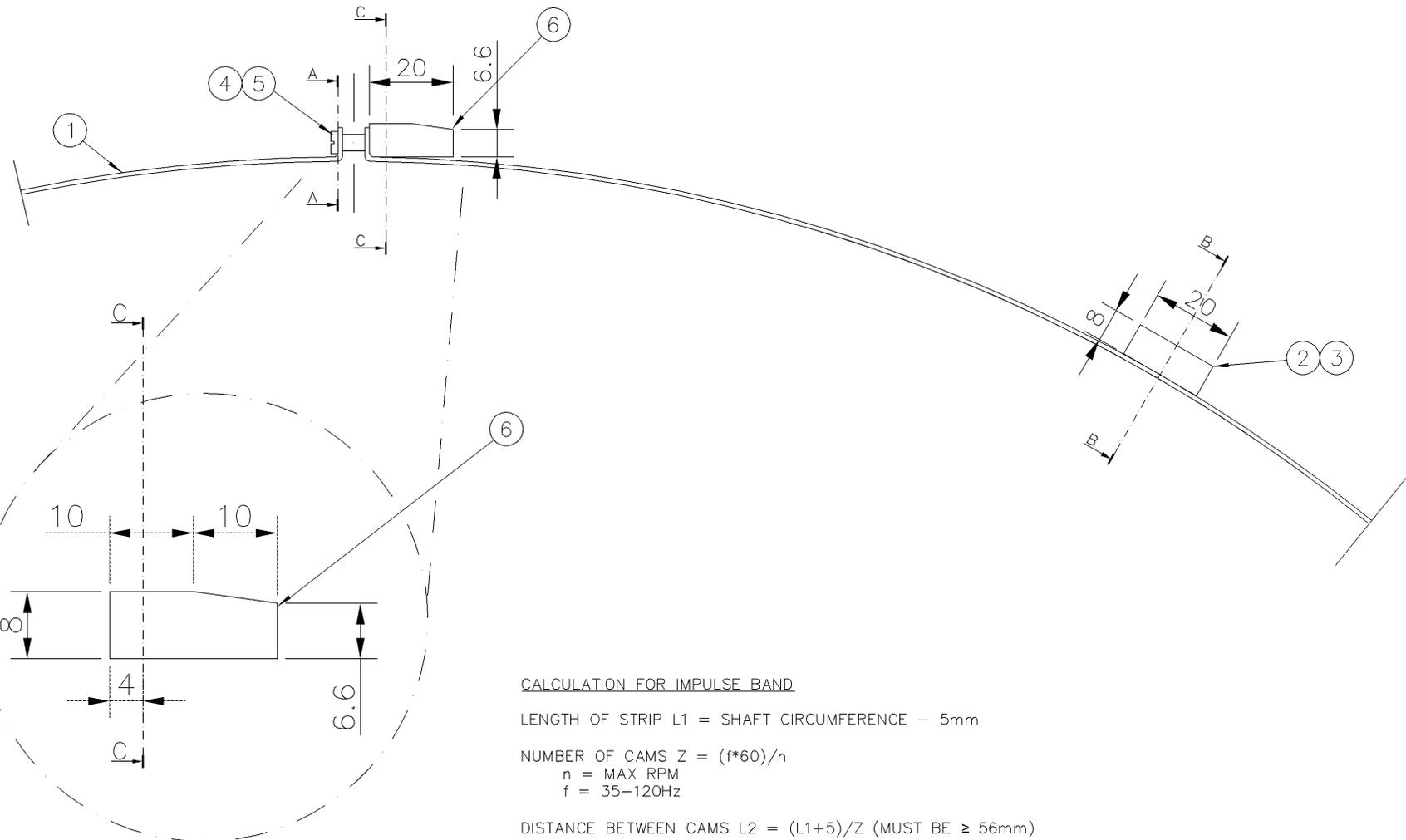
THE IMPULSE BAND IS DELIVERED FULLY EQUIPPED FOR EVERY SHAFT DIAMETER (di), COMPLETE WITH SCREWS. THE SCREWS MUST NOT BE EXCHANGED.

Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um		General Tolerances: SS-ISO 2768-f		Sharp edges broken: 0.2-0.5				
RPM transmitter				Checked: EKO	Previous Drg: 510800			
Kamewa Main Propeller, transmitter control system installation descript.				Approved: EKO	Weight kg:			
		Origin. / Date: AMA 25.02.1997	Scale: 1:2	Format: A3	Sheet: 1 of 1			
Rolls-Royce AB Propulsion Kristinehamn		Drawing no: 107009			Revision: D			
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RR-AB S Info. Class: LIMITED



SCALE 1:5



CALCULATION FOR IMPULSE BAND
 LENGTH OF STRIP L1 = SHAFT CIRCUMFERENCE - 5mm
 NUMBER OF CAMS Z = $(f \cdot 60) / n$
 n = MAX RPM
 f = 35-120Hz
 DISTANCE BETWEEN CAMS L2 = $(L1 + 5) / Z$ (MUST BE ≥ 56 mm)

THE FIRST CAM IS POSITIONED BY THE JOINT, SEE ABOVE.
 ALL DIMENSIONS TO BE ROUNDED OFF TO EVEN MILLIMETER.
 ALL DATA TO BE NOTIFIED ON THE MAIN ASSEMBLY OF THE REMOTE CONTROL SYSTEM.
 STATE THE FOLLOWING DATA WHEN ORDERING THE IMPULSE BAND:
 L2/Z/L1

Pos	No.of	Description	Referens	Customer	Article No.	Remark
6	1	Cam, bright zincified, material SIS 1312	-	-	-	See drawing
5	2	Washer, bright nickel-plated, BRB 3.2x6, SIS 5170	SMS 70	-	-	
4	2	Screw, bright nickel-plated, MCS 3x16 fnb, SIS 5170	SMS 18	-	-	
3	2xZ	Pop-rivet, TAP/D 46 BS	-	-	-	
2	Z-1	Cam, bright zincified, SIS 1312	-	-	-	Size 8x20x29
1	1	Strip, SIS 4106	-	-	-	t=1

Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um

General Tolerances: SS-ISO 2768-f

Sharp edges broken: 0.2-0.5

Impulse band, assembly

Kamewa Main Propeller, impulse band assembly

Checked: EKO Previous Drg:
 Approved: EKO Weight kg:

Origin / Date: AMA 11.03.1997 Scale: 1:2 Format: A2 Sheet: 1 of 1
 Drawing no: 107127 Revision: C

Rolls-Royce
 Rolls-Royce AB
 Propulsion Kristinehamn

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Access List
LIMITED

A

POS	No.of	DESCRIPTION	ART.NO	REMARK
1	15	LAMP	F070461	
2	1	PC-board LIB01	F004463	
3	1	FUSE	F070541	6A
4	1	Tool for dismounting of lamps	F070594	
5				
6				
7				
8				

B

C

D

E

Access List

Spare part

Kamewa Main Propeller, CanMan Basic spare parts

Checked:	Previous Drg:
EKO	103627

Approved:	Weight kg:
EKO	



Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:	Scale:	Format:	Sheet:
TKN 10.03.1999		A4	1 of 1

Drawing no:	Revision:
117018	B



User Manual

Basic Remote Control System, CPP





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User Manual

Introduction

The Kamewa CPP-BASIC remote control system is a microprocessor based remote control system, used to control the pitch setting of the Kamewa Controllable Pitch Propeller (CPP).

The system can, with maintained rotation direction of the propeller, order both ahead and astern manoeuvres by changing the pitch setting.

The manoeuvring is performed from a control station. The system can be equipped with up to three control stations on bridge and one control station in control room.

When there is more than one control station, there is also a responsibility system included which allows only one control station at a time to be "In command".

The RPM of the Main engine, driving the propeller, can also be controlled from the Kamewa system (optional function). When ordering a pitch setting, the system simultaneously generates a main engine RPM command. The relationship between pitch setting and main engine RPM is determined from the "combinator curve".

When manoeuvring the pitch (and RPM), the load of the main engine is controlled by the load control system (optional function) which automatically regulates the pitch. The max allowed load/pitch, corresponding to the actual engine RPM, is determined from the "load curve".

A back-up system, which is a complement to the main system, is included. The back-up system is of "non follow up" type and controls the pitch by direct activation of the hydraulic control valve. The back-up system is electrically separated from the main system.

There is also a pitch indication system included which is electrically separated from both the main and back-up systems.

The indication system continuously shows (on each control station) the actual pitch setting of the propeller.

As option, a shaft (propeller) RPM indication system can be included.

The system is available in a basic version to which different options can be added.

Below is a list over the basic and optional functions.

Basic equipment/functions of the "CPP-BASIC" system:

- One control station, main bridge
- Pitch control (not RPM control)
- Back-up control, on main bridge
- Pitch indication (on each control panel)
- Engine overload protection system
- Slowdown/Shutdown (inputs)
- Failure supervision of main control, back-up and indication system.
- 24V DC system supply

Optional equipment/functions of the "CPP-BASIC" system:

- Bridge wing control stations (one or two)
- Control station in control room
- RPM control (combinator)
- Separate RPM control panel, in control room
- Remote/Local RPM take over panel/function
- E/P converter, for engine RPM setting
- Load control
- Additional pitch indicators, "Panama type"
- Shaft RPM indication
- Hand terminal (for calibration / adjusting)
- Signals for VDR/manoeuvre recorder
- Signals to Manoeuvre recorder
- Signals to wrong way alarm system
- Shaft generator interface
- 115/220VAC power supply
- Emergency stop
- Clutch control

Equipment and Basic Functions

Signal Routing

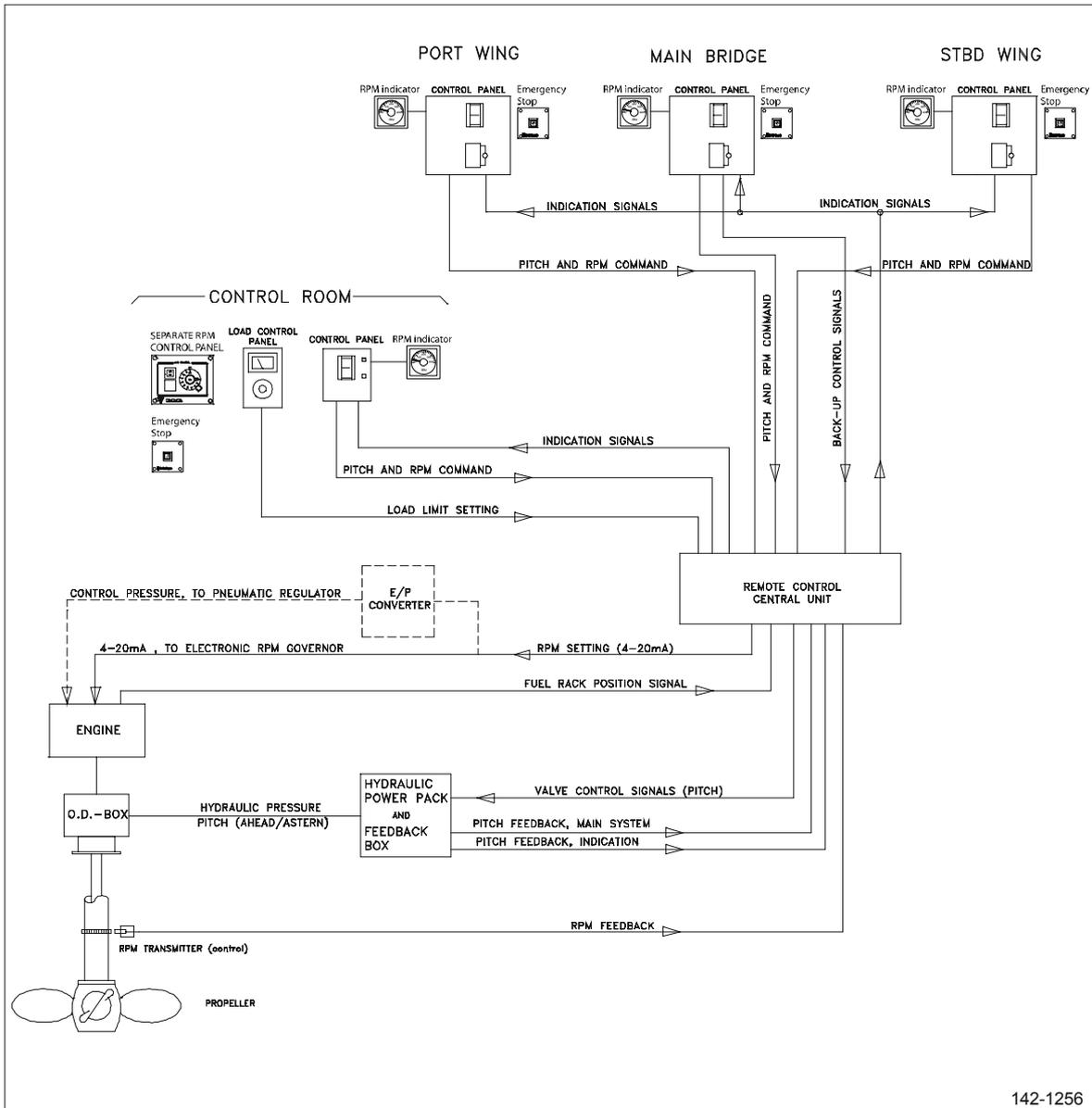


Figure 1 Signal routing.



Main Bridge, Control Station

Control modes (if RPM control is included)

Combinator Mode

Simultaneous control of pitch and RPM, with the control lever.

Constant RPM-mode

Pitch is controlled with the control lever.

A constant RPM is generated by the control system.

Back-up Mode

Control of pitch, using the push buttons ahead/astern (non follow up control). A constant "back up RPM" is activated.

Control modes (if RPM control is not included)

Pitch control-mode

Pitch is controlled with the control lever.

RPM is controlled from an external system (not Kamewa).

Back-up Mode

Control of pitch, using the push buttons ahead/astern (non follow up control).

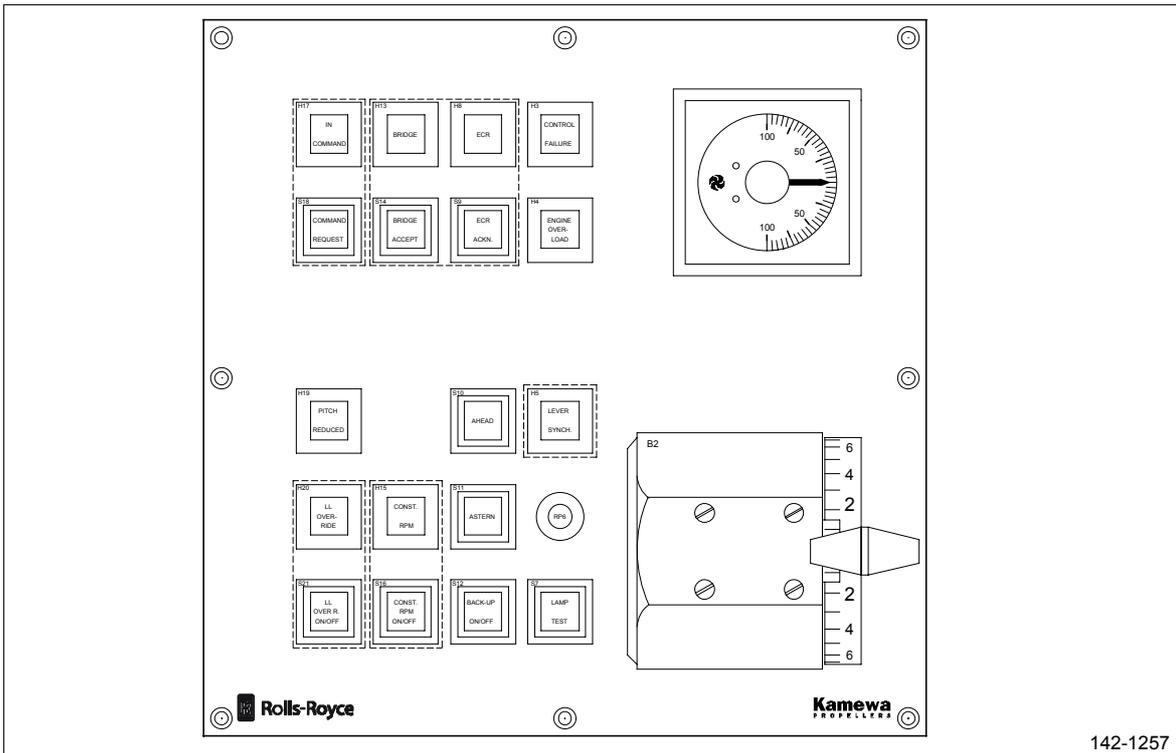


Figure 2 Control panel, main bridge (all options included).

Bridge Wing, Control Station(s)

Control modes (if RPM control is included)

Combinator Mode

Simultaneous control of pitch and RPM, with the control lever.

Constant RPM-mode

Pitch is controlled with the control lever.

A constant RPM is generated by the control system.

Control modes (if RPM control is not included)

Pitch control-mode

Pitch is controlled with the control lever.

RPM is controlled from an external system (not Kamewa).

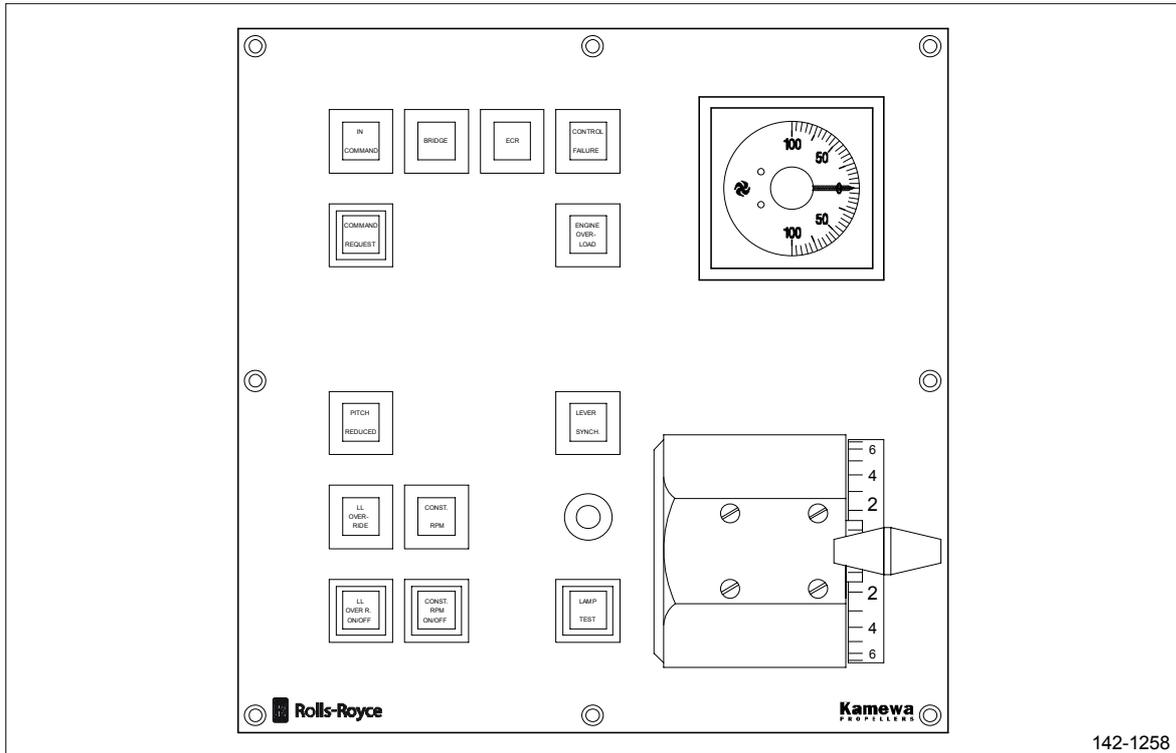


Figure 3 Control panel, bridge wing (all options included).

Control Room (ECR), Control Station

Control modes

Pitch control-mode

Pitch is controlled with the push buttons "ahead" and "astern" (follow up control).

RPM is controlled from a separate control device.

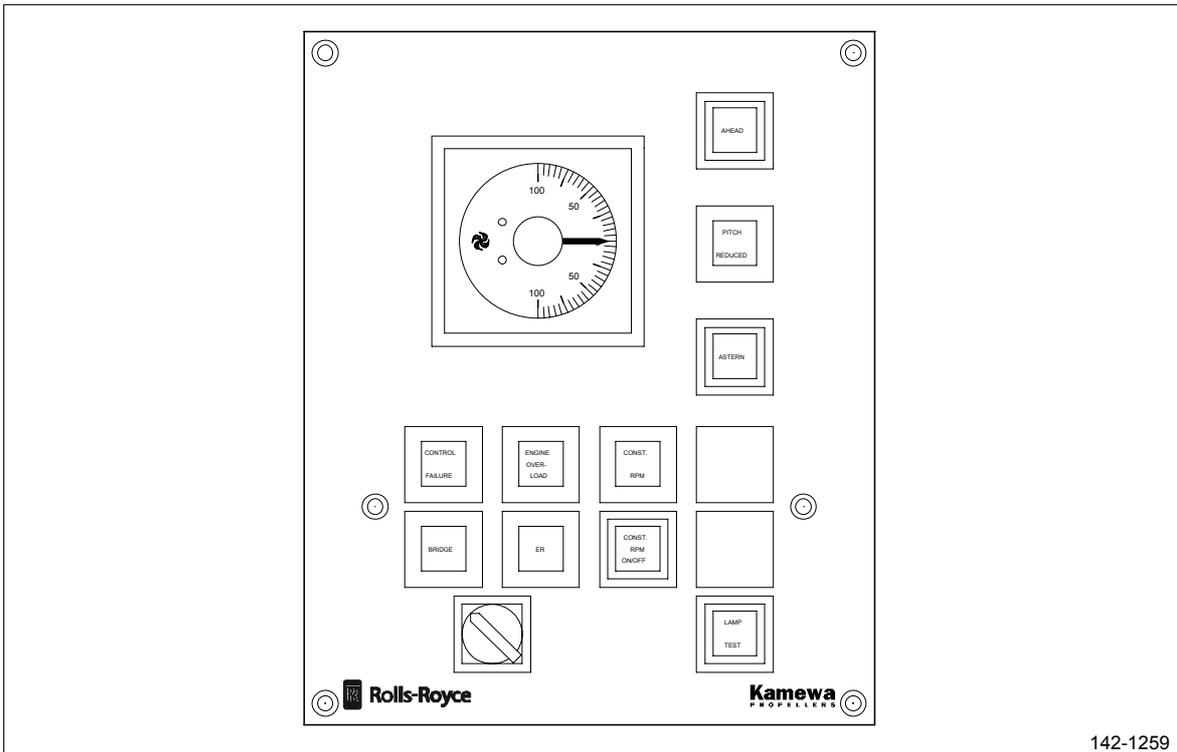


Figure 4 Control panel, control room.

The separate RPM control device can be supplied by Rolls-Royce AB or other supplier.

When supplied from Rolls-Royce AB (optional function), we deliver a "separate RPM control panel".

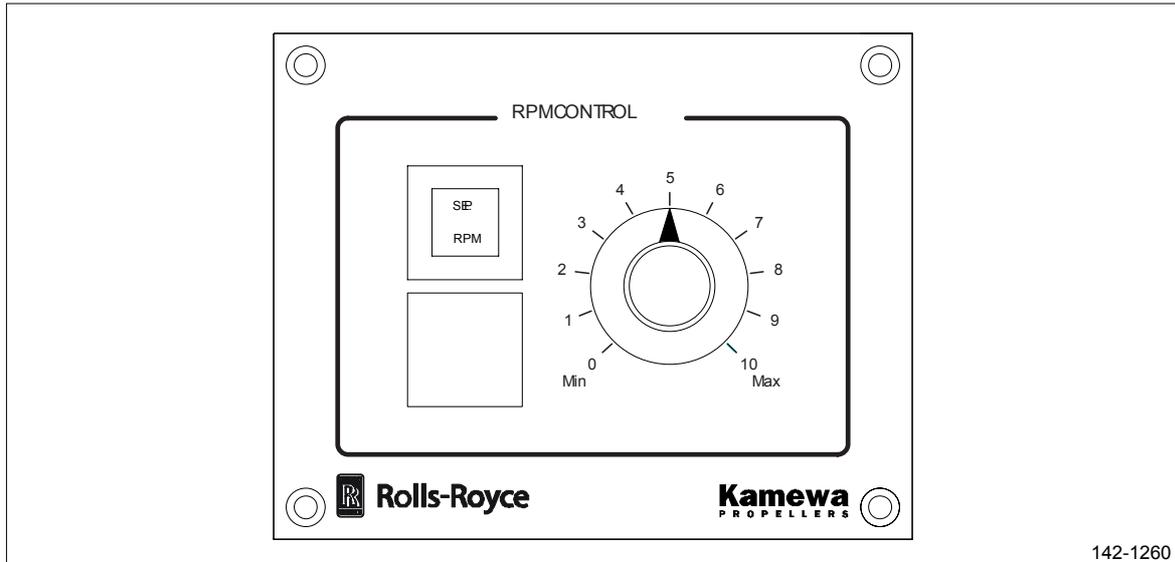


Figure 5 Separate RPM control panel, control room.

When remote/local take over function is included (optional function), we supply a "Remote/Local RPM control panel".

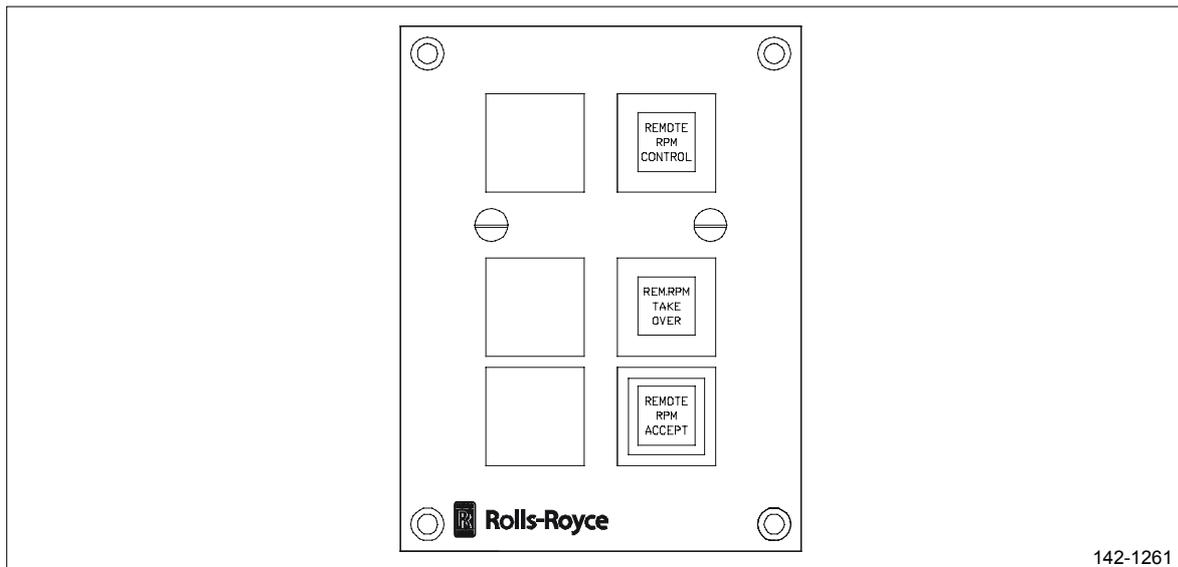


Figure 6 Remote/local RPM control panel, control room.

When load control is included (optional function), we supply a "Load control panel".

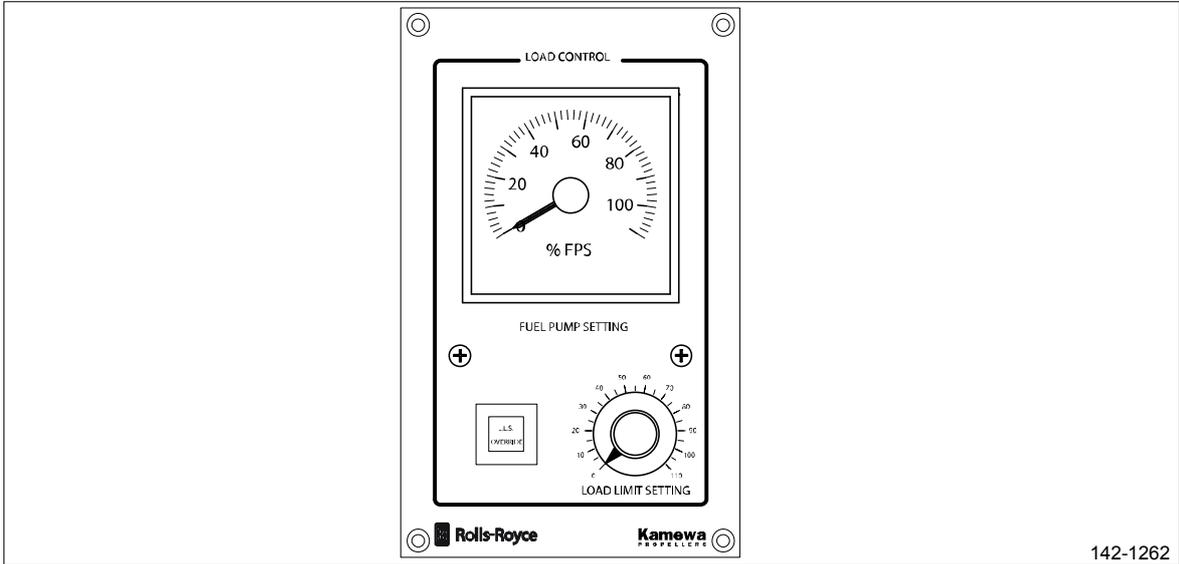


Figure 7 Load control panel, control room.

Operating and Function Description

Pitch Control “Operation”

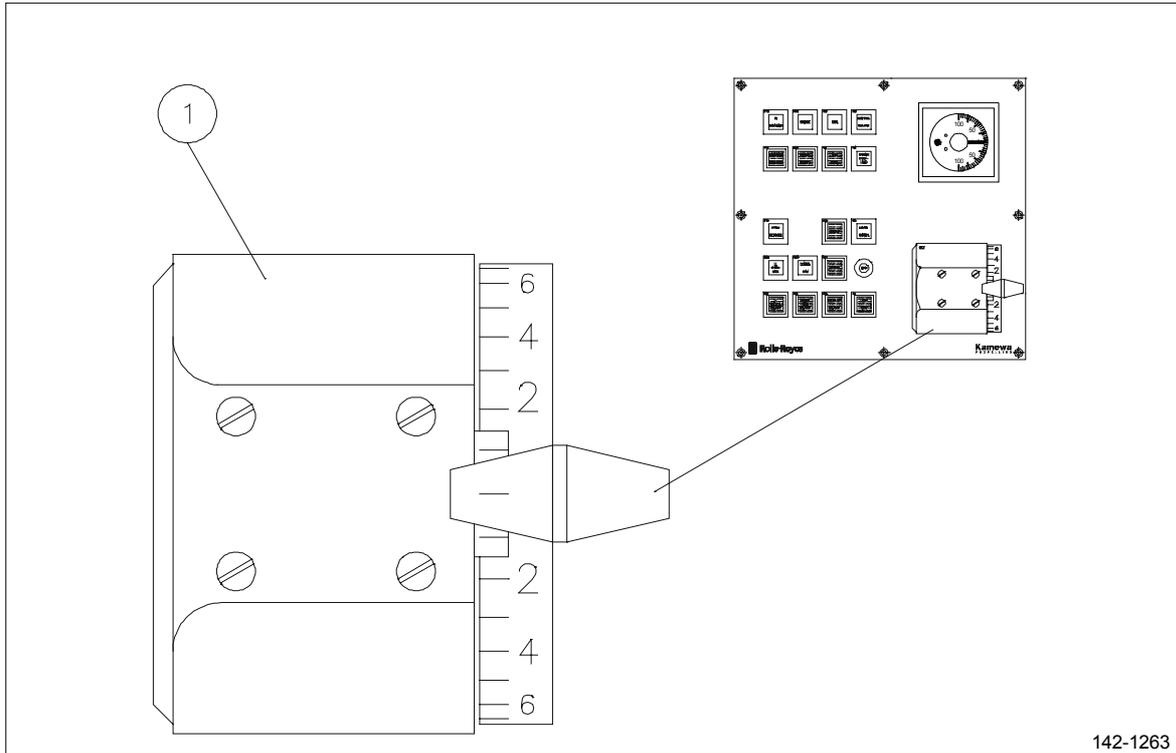


Figure 8 Control lever.

Indexed lever 10-0-10 ahead/astern for pitch (and RPM) command, according to pre-programmed curves.

Pitch Control “Function”

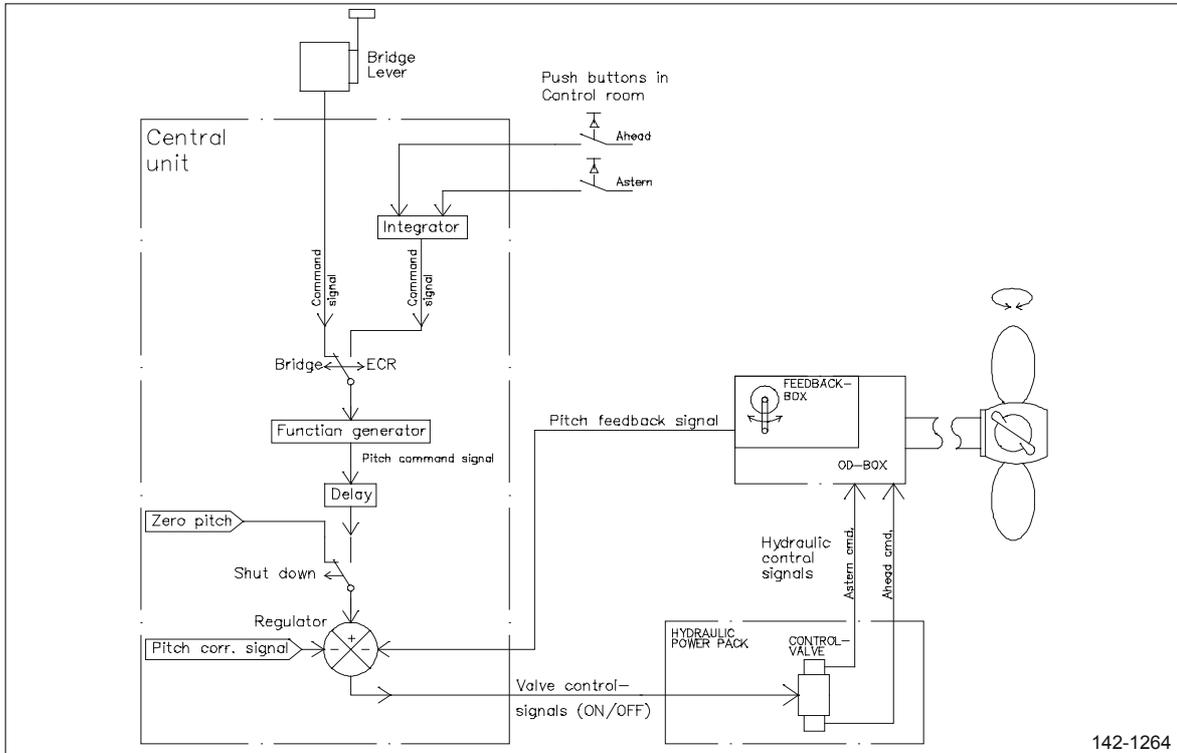


Figure 9 Pitch command signal.

When controlling from bridge a command signal (corresponding to the lever position) is transmitted to the central unit. When controlling from the engine control room, the push button signals "ahead" and "astern", increases or decreases the continuous command signal output from an integrator. A command signal is then selected and fed to a function generator, where the relationship between "lever" command signal and pitch command, is set according to a pre-programmed pitch curve.

A suitable command delay can be set with a parameter in software, normally within the range 0-5 min.

Output from the function generator is pitch command signal, which is fed to the regulator, where it is compared with the actual pitch position (feed back signal). Pitch correction signal, from load control process (if included) is also fed to the regulator.

If there is a difference between ordered and actual pitch, the hydraulic pitch control valve is activated, in order to correct the actual pitch setting, until the control error (difference) has disappeared.

The pitch command signal can be overridden by the signal shut down, from the engine safety system. When shut down is ordered, the pitch is set to zero.

RPM Control “Operation” (Optional)

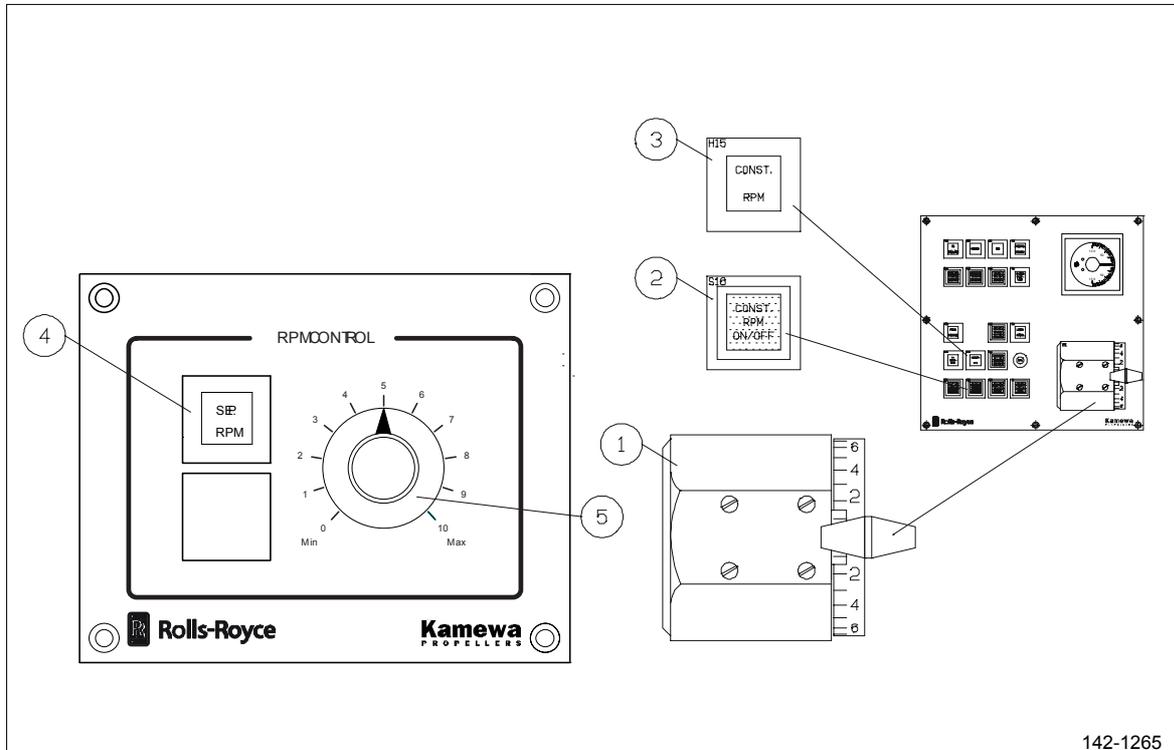


Figure 10 RPM control panel, control room.

1. Control lever
2. Constant RPM On/Off
3. Constant RPM (On)
4. Separate RPM mode
5. Separate RPM command

Pos 1, Figure 10. Indexed lever 10-0-10 ahead/astern for RPM (and pitch) command, according to a pre-programmed RPM curve.

Pos 2, Figure 10. Push button for selection of constant RPM-mode ON/OFF. The constant RPM can only be activated from the bridge, and the level is pre-programmed in the software. An eventual shaft generator will interlock the constant RPM.

Pos 3, Figure 10. Indication lamp for indication of constant RPM-mode selected.

Pos 4, Figure 10. Indication lamp indicating when separate RPM mode is selected.

Pos 5, Figure 10. Indexed knob 0-10 (min - max) for RPM command according to min and max of the pre-programmed RPM curve.

When controlling from control room the RPM is controlled separately from a "separate RPM-control device", and not from the control lever (see pos 1, Figure 10). The separate RPM control device can be supplied by Kamewa or other supplier. When supplied from Kamewa (optional function) we deliver a "separate RPM control panel".

RPM Control “Function” (Optional)

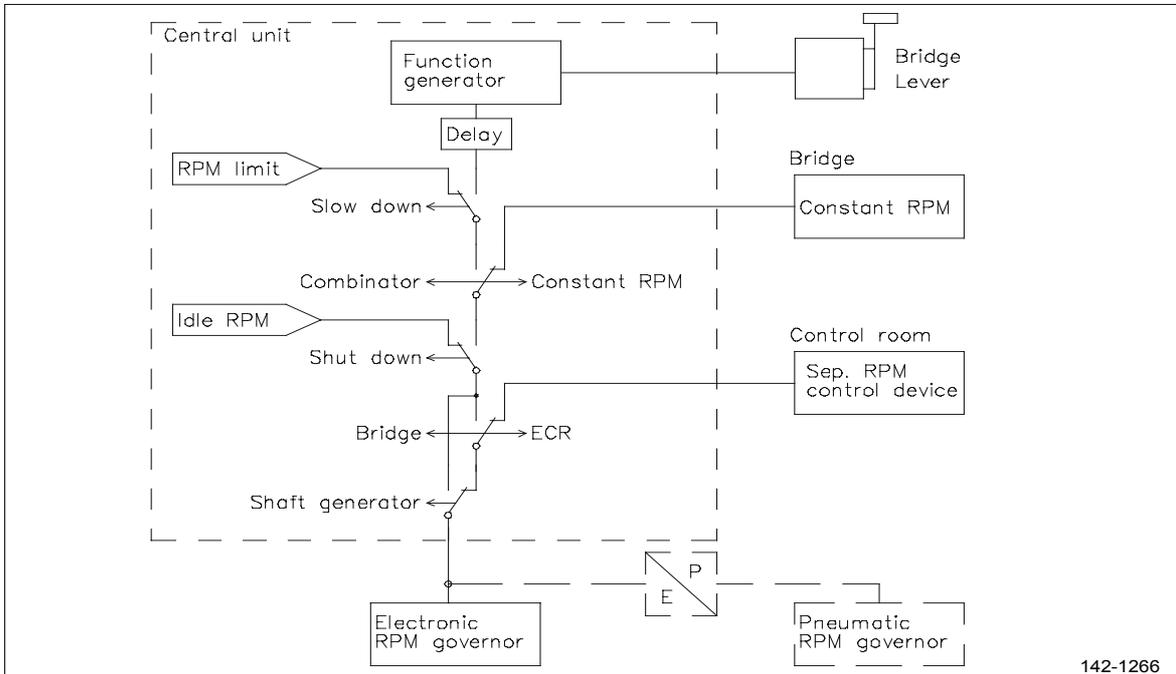


Figure 11 RPM command system.

When controlling from bridge, a command signal (corresponding to the lever position) is transmitted to the central unit and fed into a function generator, where the relationship between command signal and RPM command is set according to a pre-programmed RPM curve.

A suitable command delay can be set with a parameter in software, normally within the range 0-5 min.

Output from the function generator is RPM-command. The RPM command is fed directly to an electronic RPM governor or via an electric/pneumatic converter to a pneumatic RPM governor.

Selection of constant RPM in bridge, gives the possibility to connect a shaft generator to the shaft. If a shaft generator is connected, the activated constant RPM will be interlocked and kept, even if the command is transferred to control room.

When the shaft generator is disconnected, from bridge, the constant RPM must be switched off by hand. If the shaft generator is disconnected from control room, the RPM will automatically be changed to separate RPM.

If slow down is activated the RPM is limited to a preset level. The level is set with a software parameter. Slow down will not affect a constant RPM.

If Shut down is activated the RPM is set to idle.

When controlling from control room the RPM is controlled separately, "separate RPM mode". The pitch is controlled from the push buttons "ahead" and "astern". The RPM is controlled from a separate control device. In sep. mode the RPM is not affected of a slow down or shut down.

Pitch Indication "Operation"

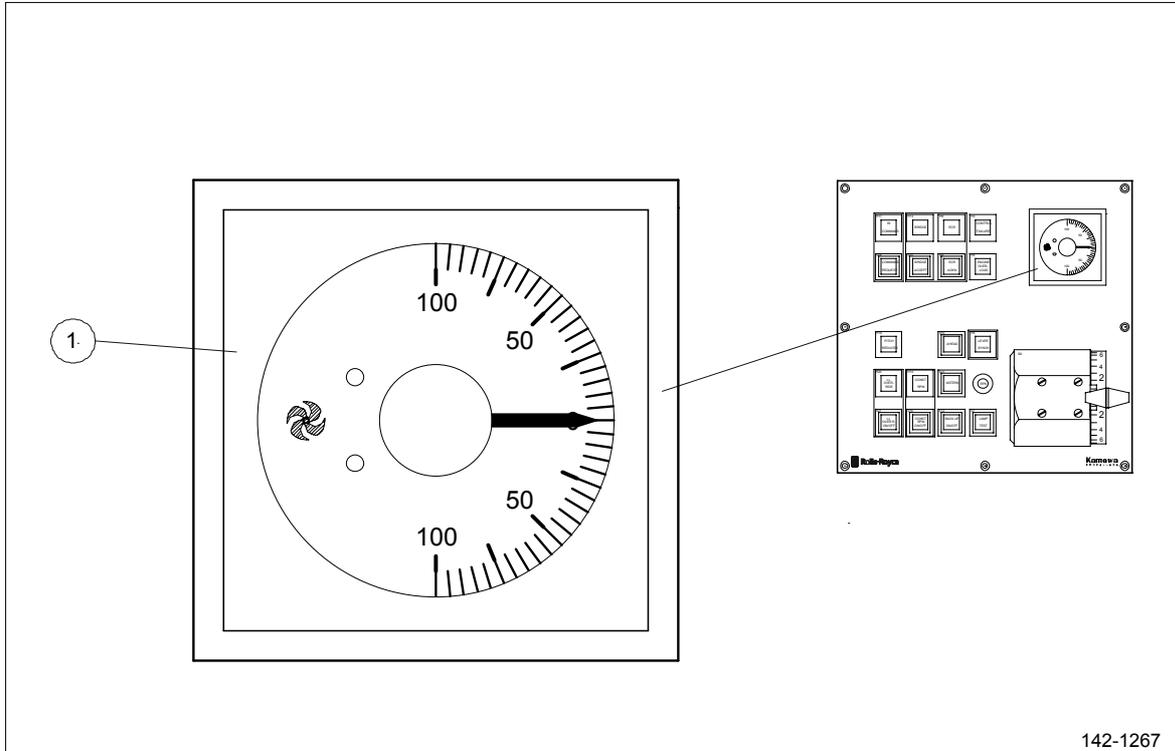


Figure 12 Pitch indicator, main bridge.

Pitch indicator for continuous indication of actual pitch.

Pitch Indication “Function”

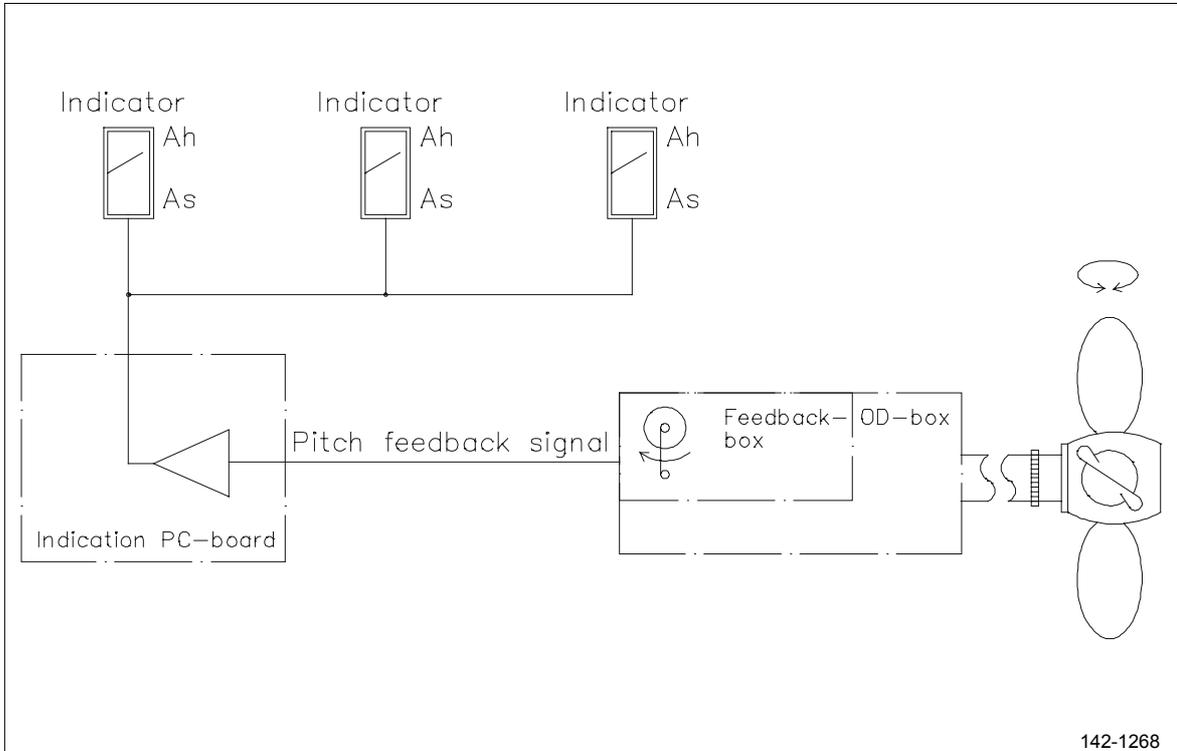


Figure 13 Pitch indicator system.

The pitch indication system is a separate system for continuous indication of the actual pitch setting. The indication system has a separate pitch feedback transmitter located in the feedback box.

The feedback signal is fed to an amplifier on the indication PC-board, where the signal is adjusted to a +/-10 V signal, which is distributed to the pitch indicators on each control station.

Manoeuvre responsibility, Bridge – ECR, "Operation"

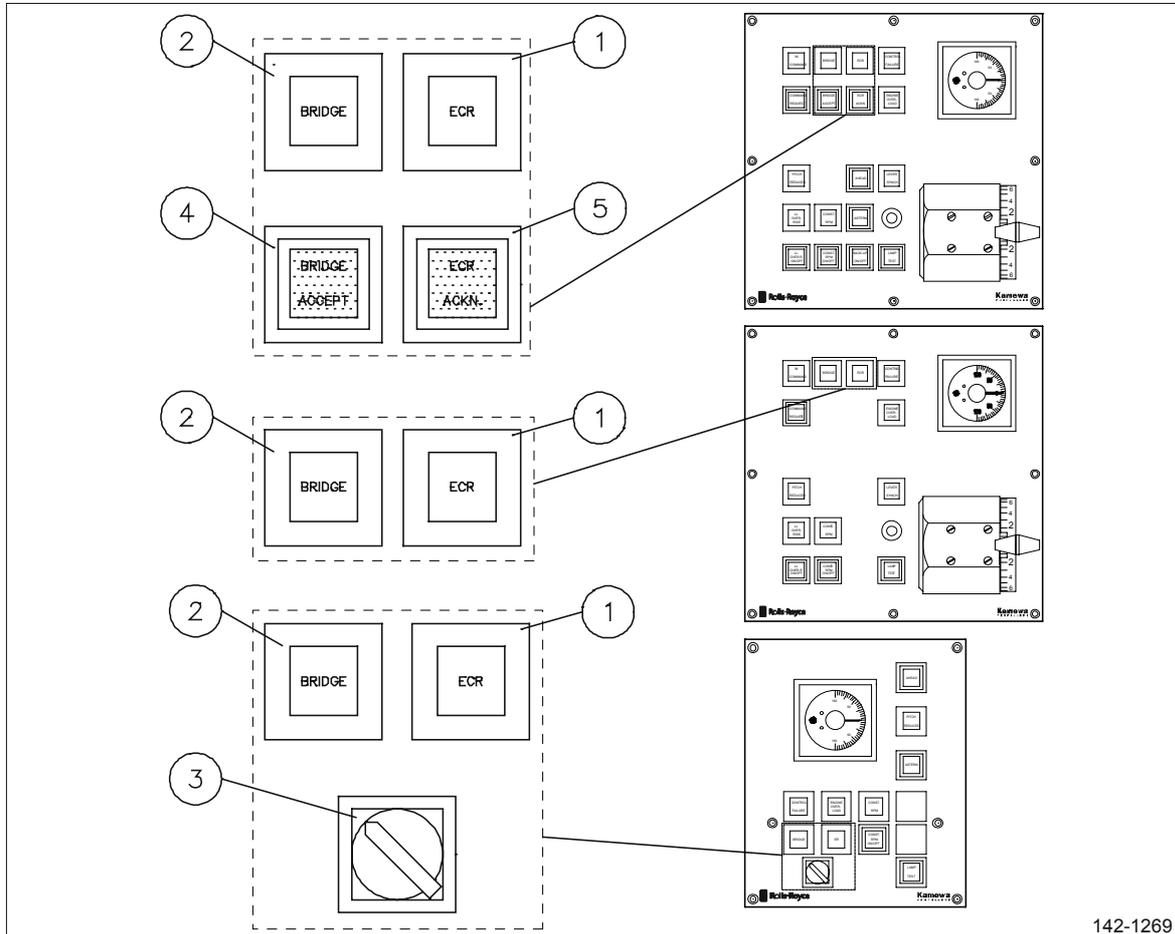


Figure 14 Manoeuvre control panels.

1. ECR (Engine control room) indication lamp
2. Bridge indication lamp
3. Switch Bridge/ECR
4. Bridge Control Accept button
5. ECR Control Acknowledge button

Pos 1, Figure 14. Indication lamp indicating "Control room" in command.

Pos 2, Figure 14. Indication lamp indicating "Bridge" in command.

Pos 3, Figure 14. Switch for manoeuvre station change over, BR/ECR.

Pos 4, Figure 14. Push button for acceptance of control when changing from ECR to Bridge.

Pos 5, Figure 14. Push button for acknowledge of transferred control, when changing from Bridge to ECR.

Manoeuvre responsibility, Bridge – ECR, "Function"

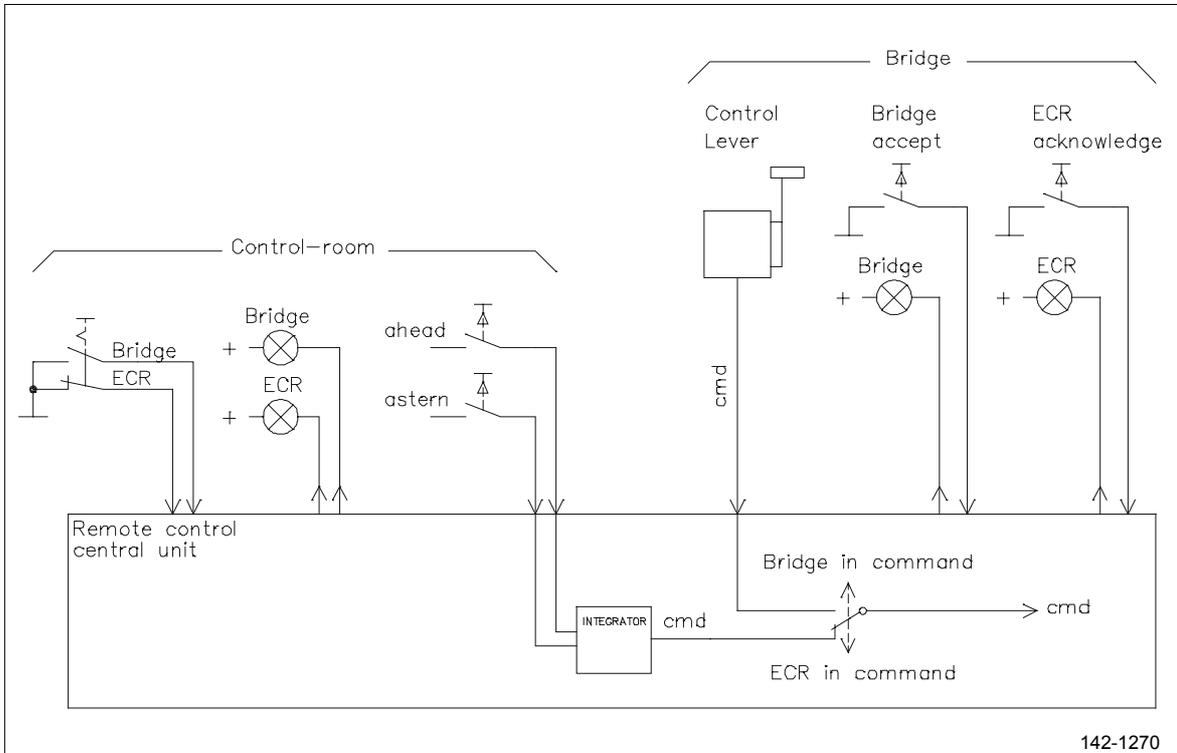


Figure 15 Manoeuvre responsibility system.

For switching over the control between bridge and control room, there is a manoeuvre responsibility system. On each control station the lamps "bridge" and "ECR" continuously indicate which station is in command.

The control room is the master control station where the switch "BR/ECR" is located.

Change of control station from bridge to ECR:

When the switch in control room is switched from position "Bridge" to position "ECR", the command will be directly transferred from bridge to ECR. A buzzer will be activated and the lamp "ECR" will flash until the button "ECR acknowledge" on bridge is pushed.

Change of control station from ECR to Bridge:

When the switch in control room is switched from position "ECR" to position "bridge", a buzzer will be activated and the lamp "Bridge" will flash. However the command remains in "ECR" and the lamp "ECR" is lit until the button "Bridge accept" on bridge is pushed. When "Bridge accept" is pushed the command will be transferred to bridge.

Manoeuvre responsibility, Main Bridge – Bridge Wings, "Operation"

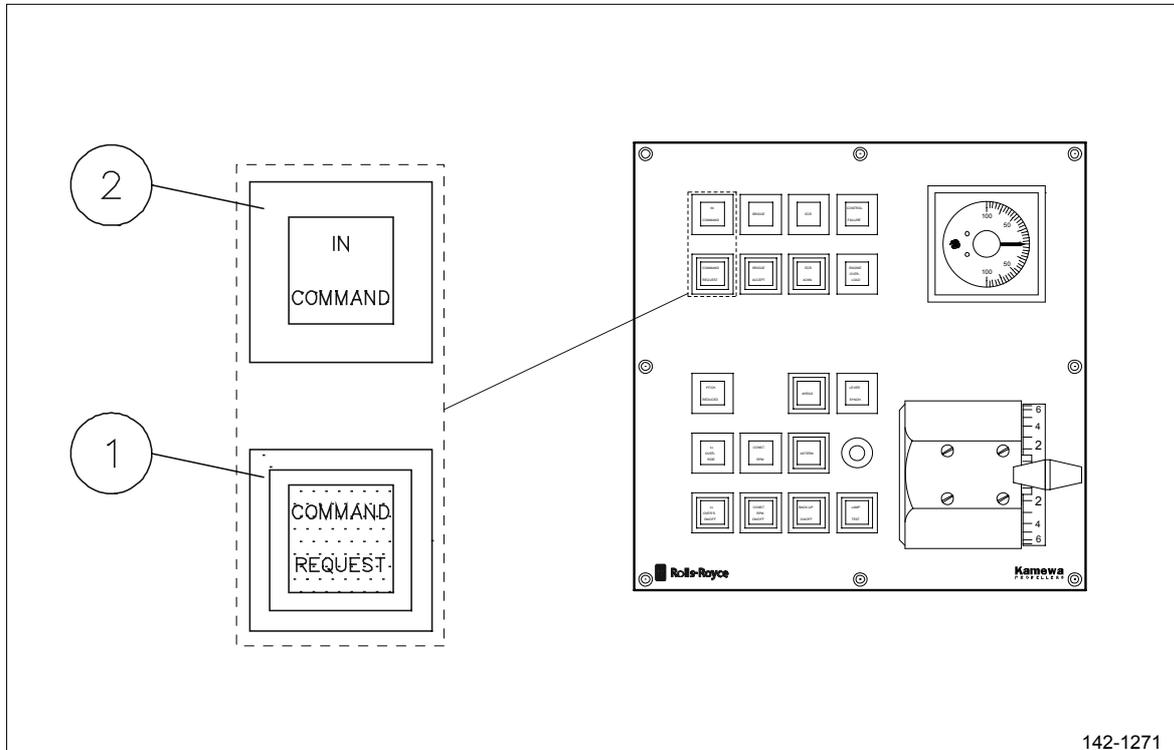


Figure 16 Control panel, main bridge.

1. Command Request button
2. In Command indication lamp

Pos 1, Figure 16. Push button for transferring of command between main bridge and the bridge wing stations.

Pos 2, Figure 16. Indication lamp, indicating when the actual control station is "in command".

Manoeuvre responsibility, Main Bridge – Bridge Wings, "Function"

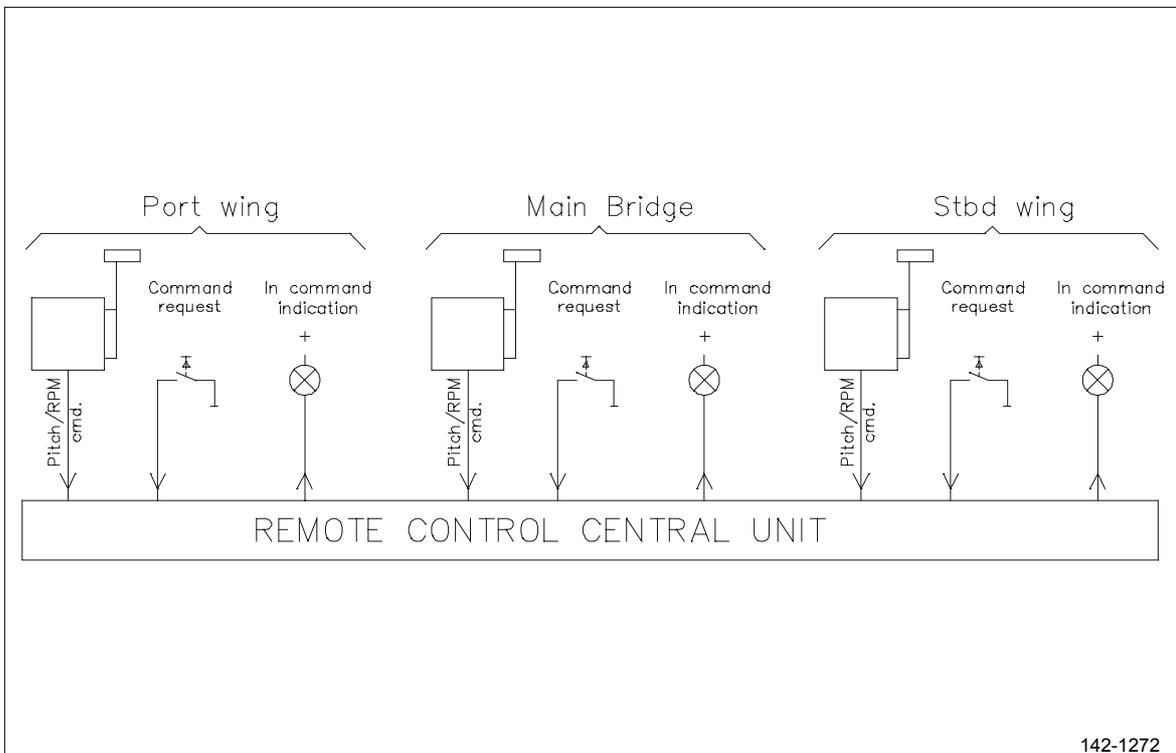


Figure 17 Manoeuvre responsibility system.

When the command is on "Bridge" (see Manoeuvre responsibility, Bridge – ECR, "Function") the command can be transferred between main bridge control station and the bridge wing control stations.

When the push button "command request" is pushed the command is directly transferred. The lamp "In command" indicates which station that is in command.

From the lever on each control station a command signal is fed to the remote control central unit. The remote control selects and reads the command signal from the station that is in command.

Lever Synchronizing System "Operation"

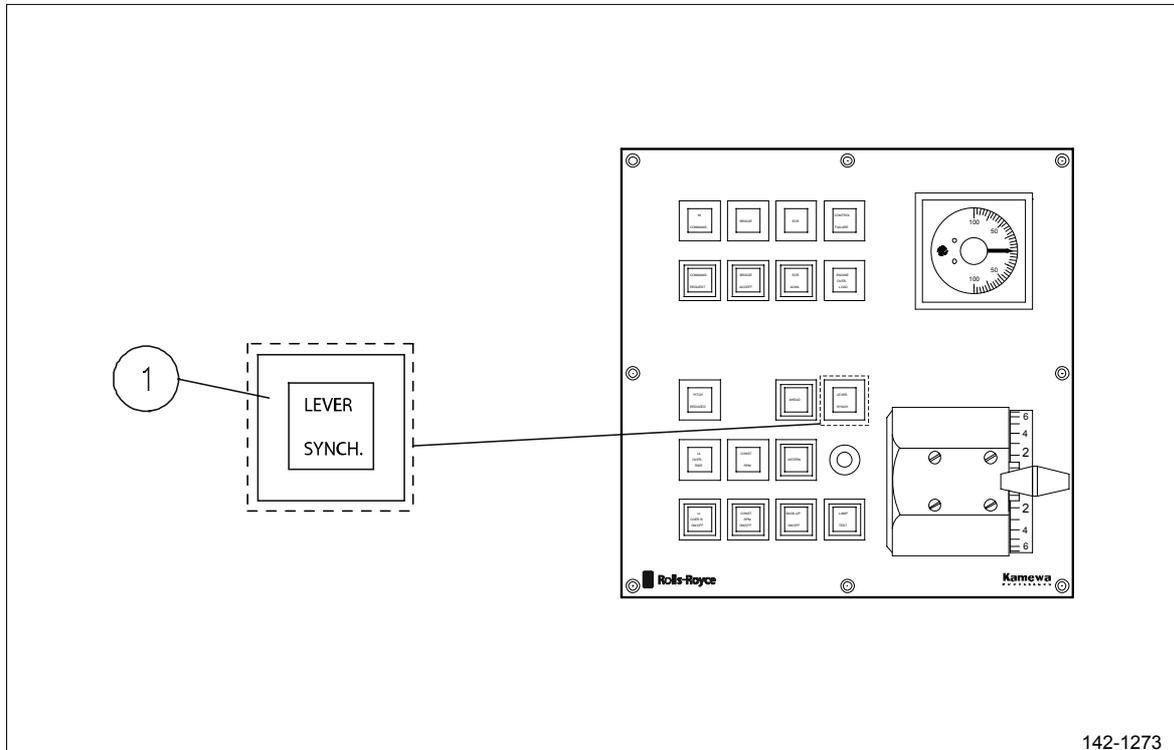


Figure 18 Control panel, main bridge.

1. Lever Synch indication lamp

Indication lamp indicating that the lever is synchronized with the lever which is "in command" (or when control room is "in command", synchronized with the command ordered).

Before change over between control stations the levers can be synchronized so that a "bump free" change-over can be performed.

Observe the pitch indicator and move the lever slowly over the range where the lever which is "in command" is likely to be set. The lamp "lever sync." will be lit when the lever is synchronized.

There is no blocking of change over between control stations when the levers are not synchronized. The lever synchronize indication lamp is for indication only.

Lever Synchronizing System "Function"

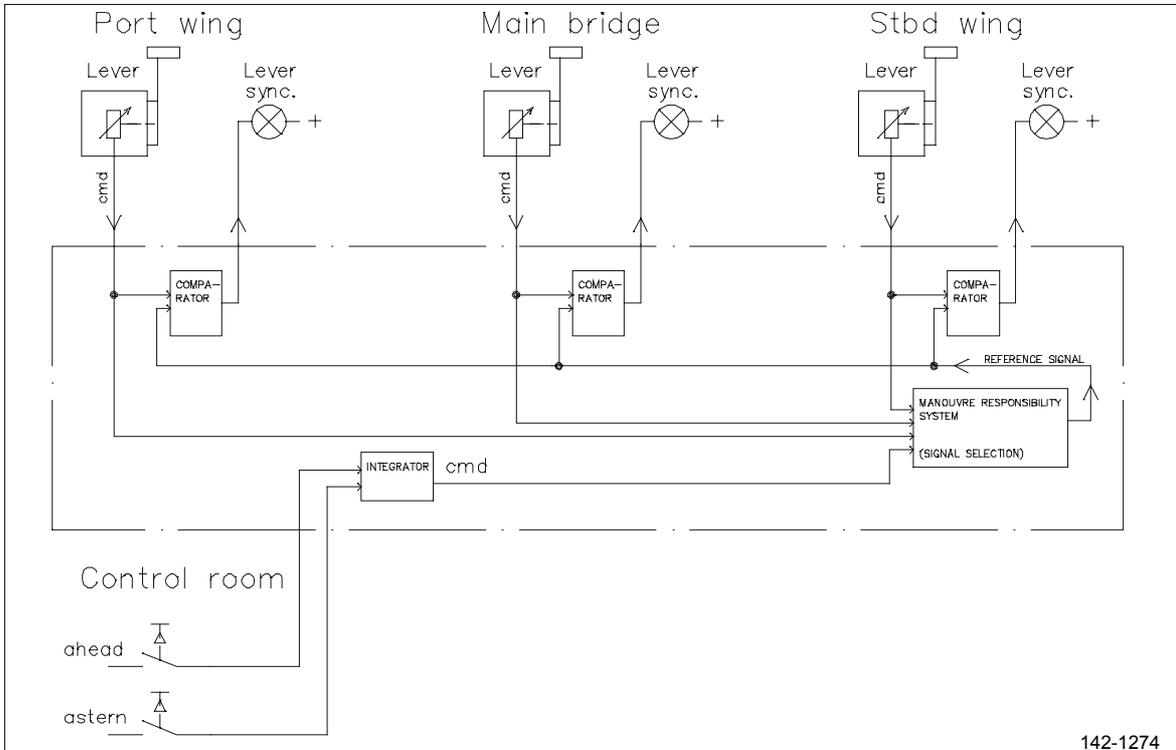


Figure 19 Command signals, levers.

The control system continuously reads the command signal (lever position) of each control lever on the bridge.

The system also reads the command signal from control room. (Control room command is generated from the push buttons "ahead" and "astern" via an integrator).

The manoeuvre responsibility system selects and feeds the command signal that is "in command", to the comparators to be used as reference signal.

The "lever command signal" and the selected "reference signal" are then compared, and if found equal the lamp "lever sync." is activated.

In this way the levers can always be synchronized so that a "bump free" change over between control stations can be performed.

Overload Protection "Function"

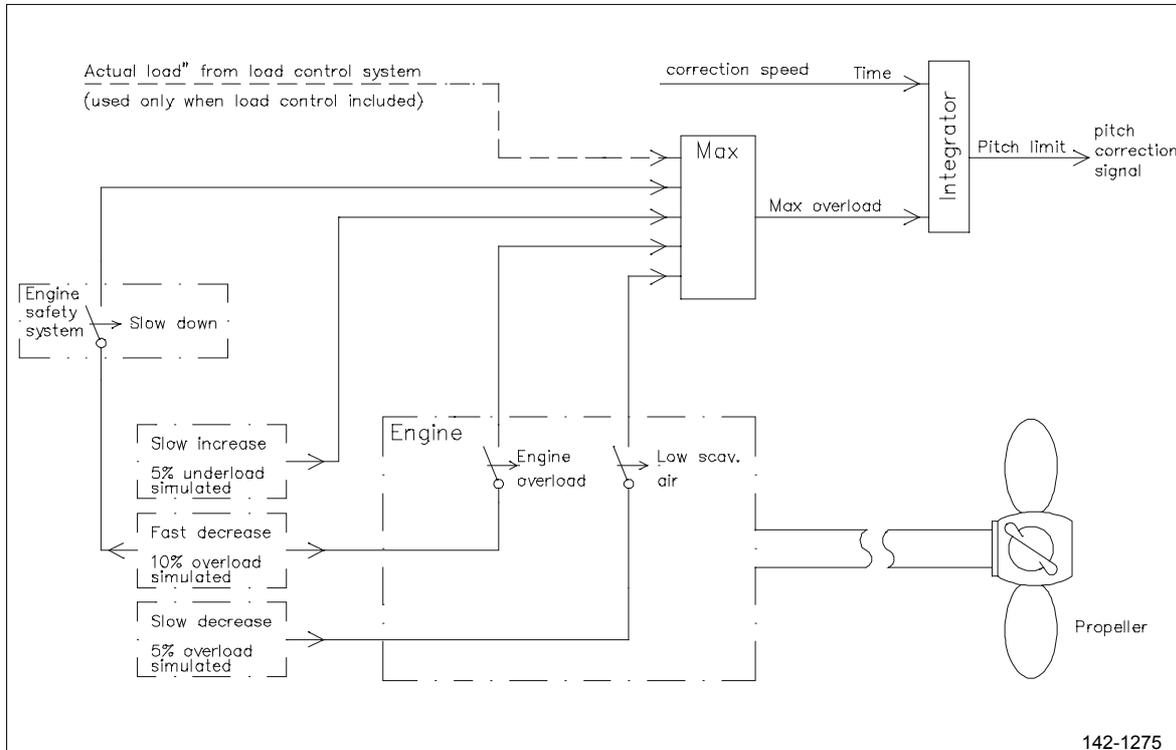


Figure 20 Overload protection system.

If a load "control" function is not included the control system will still be able to take care of overload conditions using the overload "protection" system.

The Overload protection function prevents the engine from being continuously overloaded.

The overload contact from the engine is used to reduce the pitch automatically when overload occurs. A "slow down" signal from the engine safety system will also result in a reduction of the pitch. The pitch is reduced by simulating an overload of 10% (fast decrease).

Pitch can also be automatically reduced, when the contact "low scav air" from the engine is activated. An overload of 5%, is then simulated (slow decrease).

By simulating 5% under load, the speed of the pitch increase is also reduced (slow increase).

Since the pitch is slowly increased the overload can be detected and reduced, while relatively small.

Load Control "Operation" (Optional)

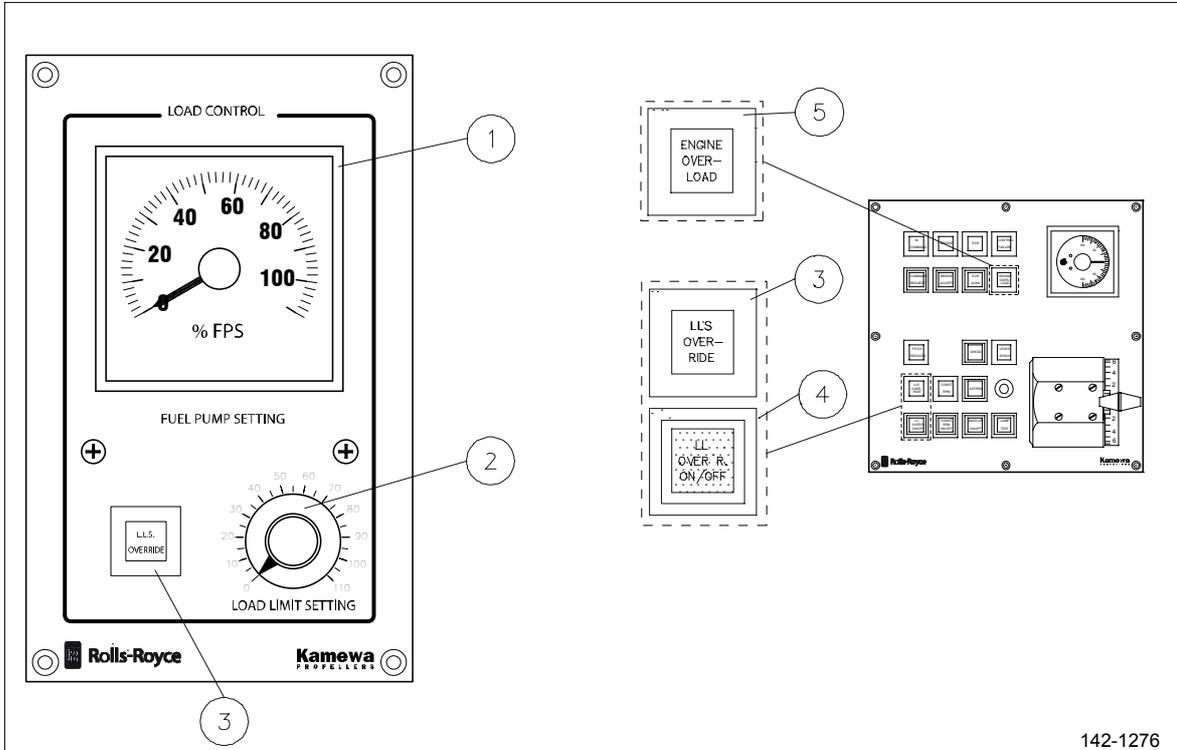


Figure 21 Load control panel.

1. Fuel pump setting indicator
2. Load limit setting, adjustment knob
3. Load limit setting override (On) indication lamp
4. Load limit override (On/Off) button
5. Engine overload indication lamp

Pos 1, Figure 21. Indicates actual fuel pump setting, 0-110 % load of the engine.

Pos 2, Figure 21. Knob for adjustment of engine load limit of the engine.

Pos 3, Figure 21. Lamp for indication of "Load limit override" activated.

Pos 4, Figure 21. Push button for overriding of load limit (load limit is set up to 100 %).

Pos 5, Figure 21. Lamp for indication of main engine overload.

Load Control "Function" (Optional)

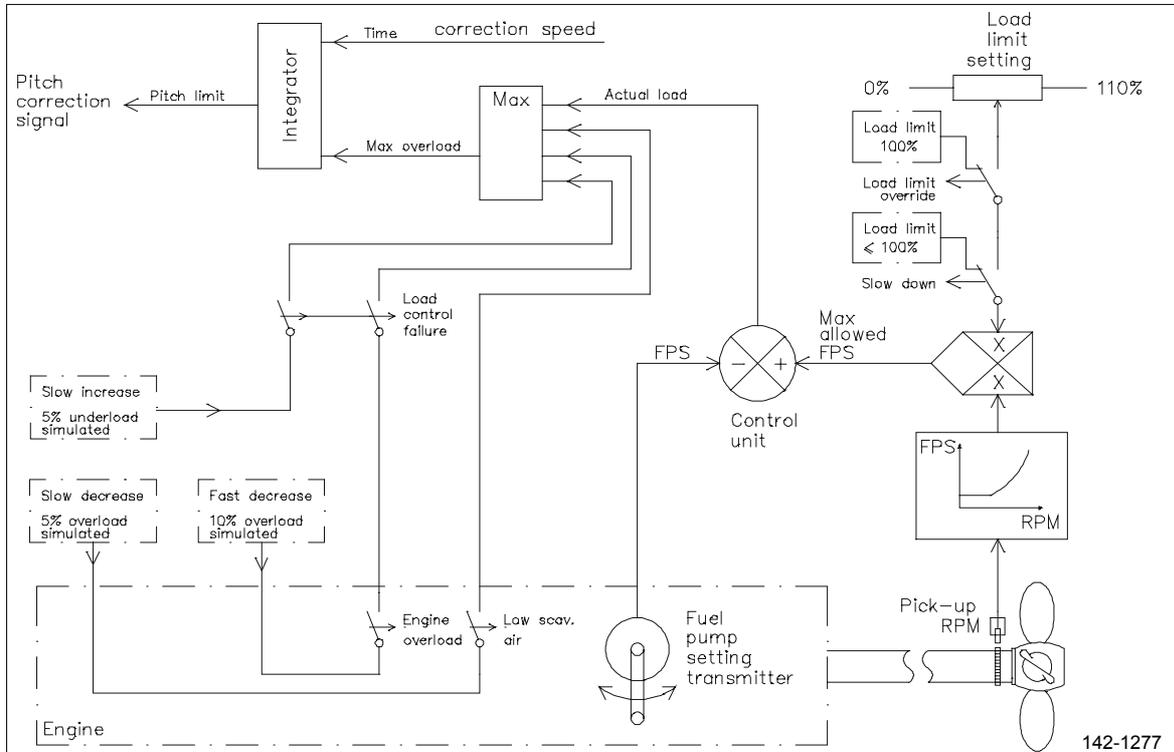


Figure 22 Load control system.

The load control system prevents the engine from being overloaded. The system measures the propeller RPM, and from the "load curve" calculates a corresponding max allowed fuel pump setting. (FPS). The max allowed FPS is then compared with the actual FPS, and if actual FPS is too high the pitch setting is reduced (which will also reduce actual FPS).

If the signal "low scav. air" is received the system will reduce the pitch by simulating an overload of 5% (slow decrease).

In order to get proper control action, there is a parameter for controlling the correction speed. This parameter shall be adjusted to give the fastest control action without serious overshoots.

To further limit the load of the engine a "load limit" 0-110 % can be set with the load limit knob on the load control panel. The calculated max allowed FPS is then multiplied with the load limit factor 0 - 1,1 and compared with the actual FPS.

On the bridge control stations it is possible to override the "load limit setting" by activating the "load limit override" function. The load control system will then still be activated but the load limit will be set up to 100 %.

The load limit setting can also be overridden by a "slow down" signal from the engine safety system. The load limit is then set to pre-programmed value.

If there is a failure in the load control system (ex. failure of actual FPS feedback signal) the system is set to overload protection mode.

In this mode, the overload contact from engine is used to reduce the pitch automatically when overload occurs by simulating an overload of 10% (fast decrease).

The speed of the pitch increase is also reduced by simulating 5% under load (slow increase).

Since the pitch is slowly increased the overload can be detected and reduced, while relatively small.

Dimmer, Lamp Test “Operation”

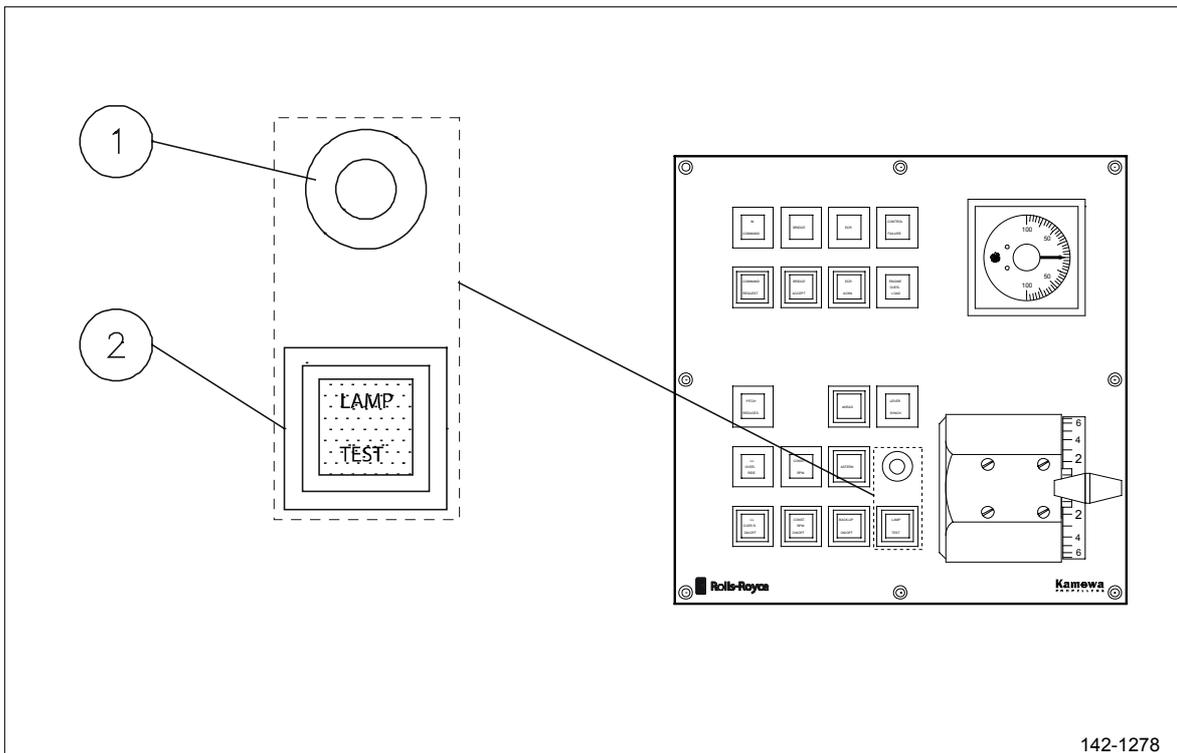


Figure 23 Control panel, main bridge.

1. Dimmer knob
2. Lamp test button

Pos 1, Figure 23. Knob for adjustment of illumination level on the actual control panel.

Pos 2, Figure 23. Push button for testing of all lamps and the buzzer on the actual control panel.

Back-up Manoeuvre “Operation”

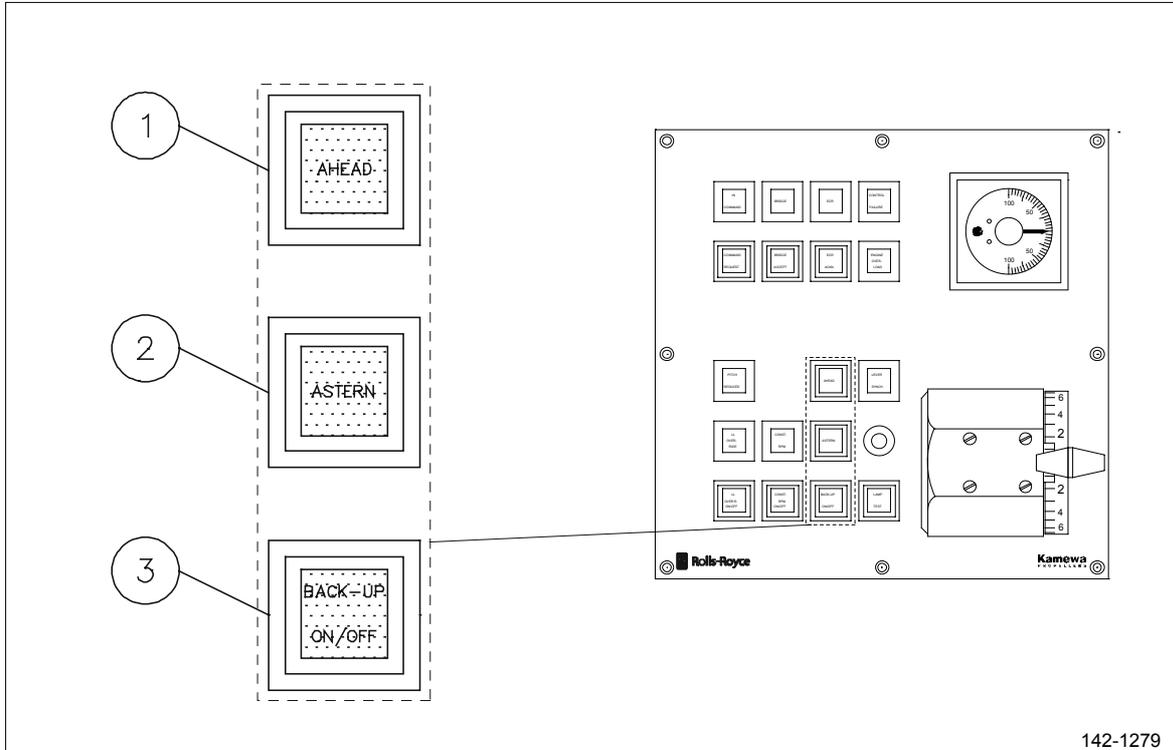


Figure 24 Control panel, main bridge.

1. Ahead button
2. Astern button
3. Back-up On/Off button

Pos 1, Figure 24. Push button for changing of propeller pitch ahead in back-up mode. The push button is lit up when the back up is switched on.

Pos 2, Figure 24. Push button for changing of propeller pitch astern in back-up mode. The push button is lit up when the back up is switched on.

Pos 3, Figure 24. Push button for activating/deactivating the back-up system. When back-up is switched on, the main system is automatically disconnected.

In back up mode the engine overload lamp and the pitch indicator, must be observed, since the propeller in this mode is not controlled by any controller. (Non follow up control).

Back-up Manoeuvre “Function”

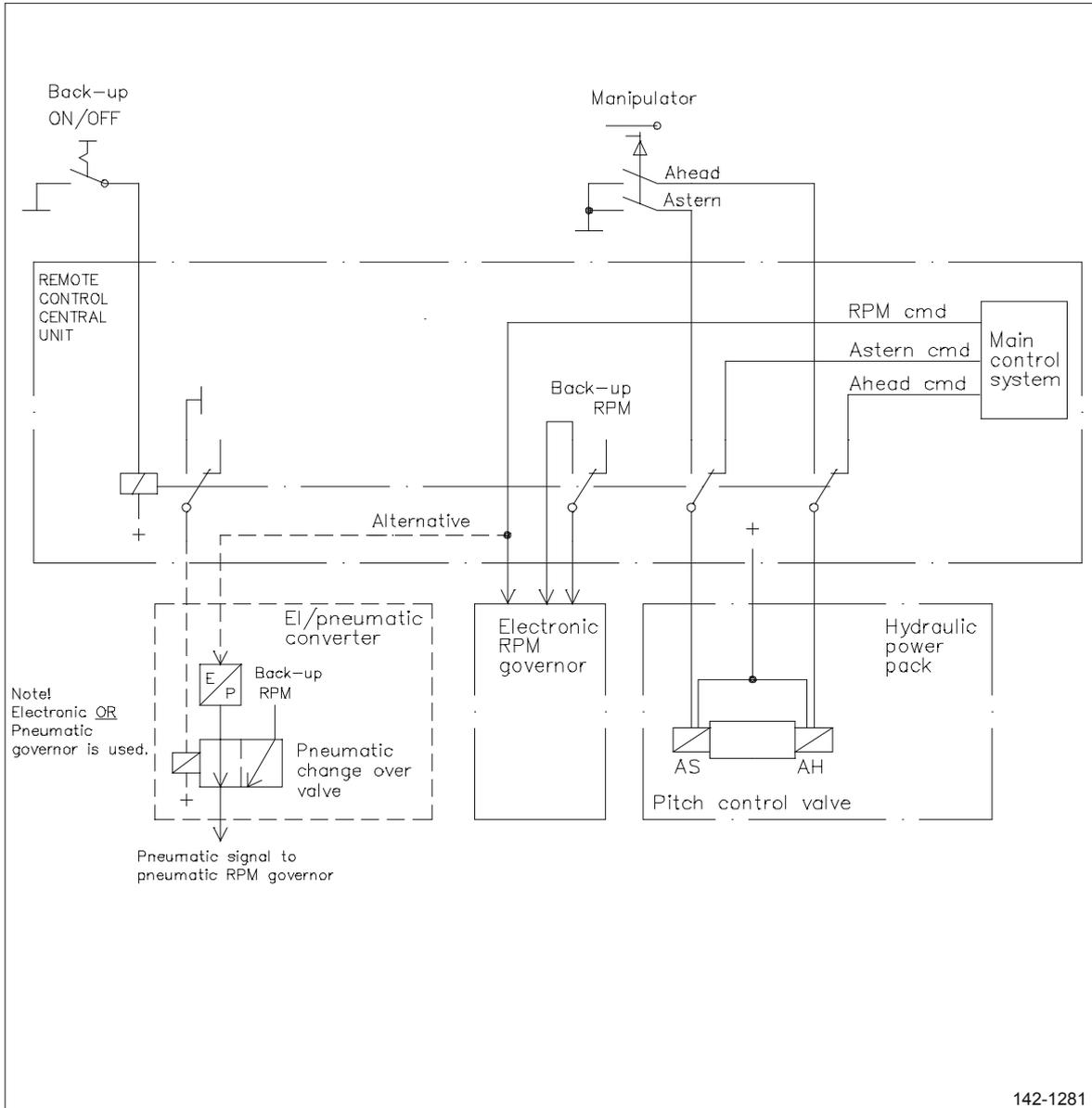


Figure 25 Back-up system.

Back-up is a complementary system of "non follow-up type", electrically separated from the main control system, and is to be used if there is a failure in the main system.

The back-up system consists of:

- Push button "back-up ON/OFF", on main bridge control panel.
- Push buttons "AHEAD" and "ASTERN", on main bridge control panel.
- Back-up change over relays in the central unit.

When the back-up is switched ON, the pitch control valve is disconnected from the main system and connected directly to the pushbuttons on the main bridge. The pitch can then be controlled by pushing the ahead or astern button.

In back up mode the RPM is set to a constant "back-up RPM".

If pneumatic governor, the "back-up RPM" is set in the electric/pneumatic converter with a separate reducing valve. The "back up RPM" is then activated by a pneumatic change over valve in the E/P converter.

If electronic governor, the "back-up RPM" is generated in the governor and activated with a signal (voltage free contact) from the remote control central unit.

As option, an electronic "back-up RPM" signal is generated, by Kamewa.

Control Failure Alarm “Function”

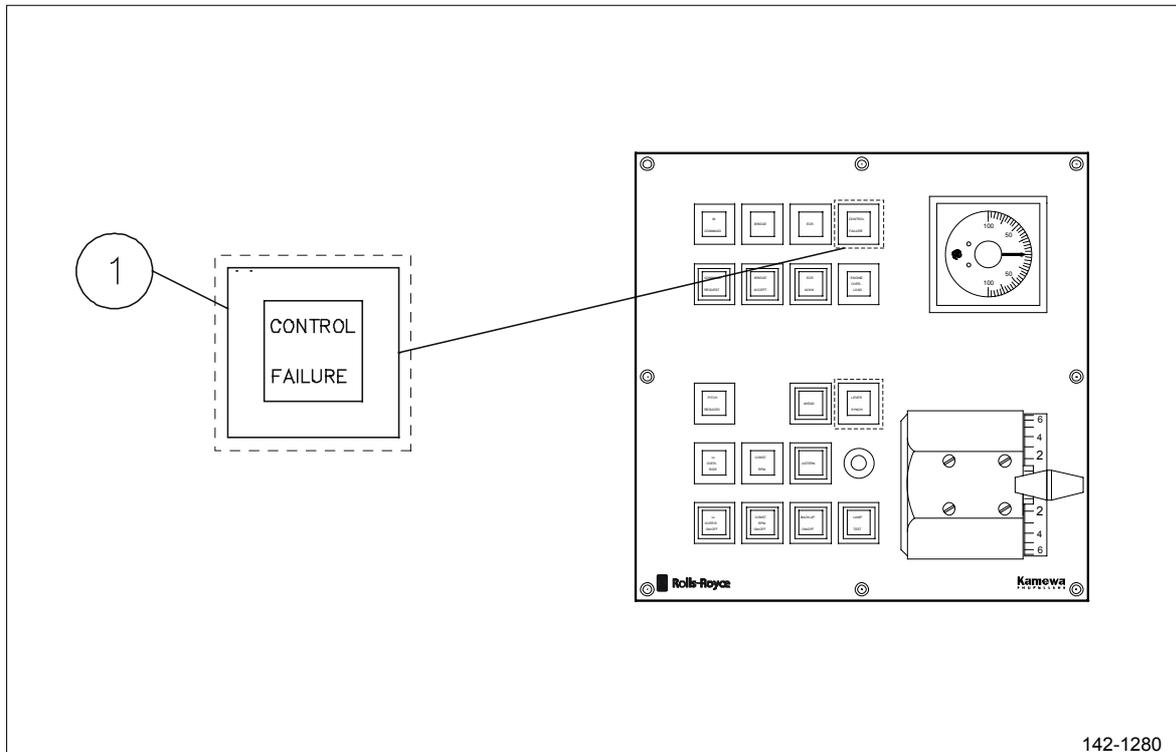


Figure 26 Control panel, main bridge.

1. Control failure indication lamp

Pos 1, Figure 26. Indication lamp indicating a control failure of the main system.

The control failure alarm indicates a failure in the main control system, and includes computer error, power failure, cable break and remaining control error.

If a failure occurs, the buzzer and the lamp "control failure" are activated, the pitch is blocked in actual position, by disconnection the hydraulic pitch control valve, and the engine RPM is if possible maintained.

If back up is activated, the buzzer will be switched off, but the alarm lamp will remain lit as long as the failure remains.

Remote/Local RPM “Function” (Optional)

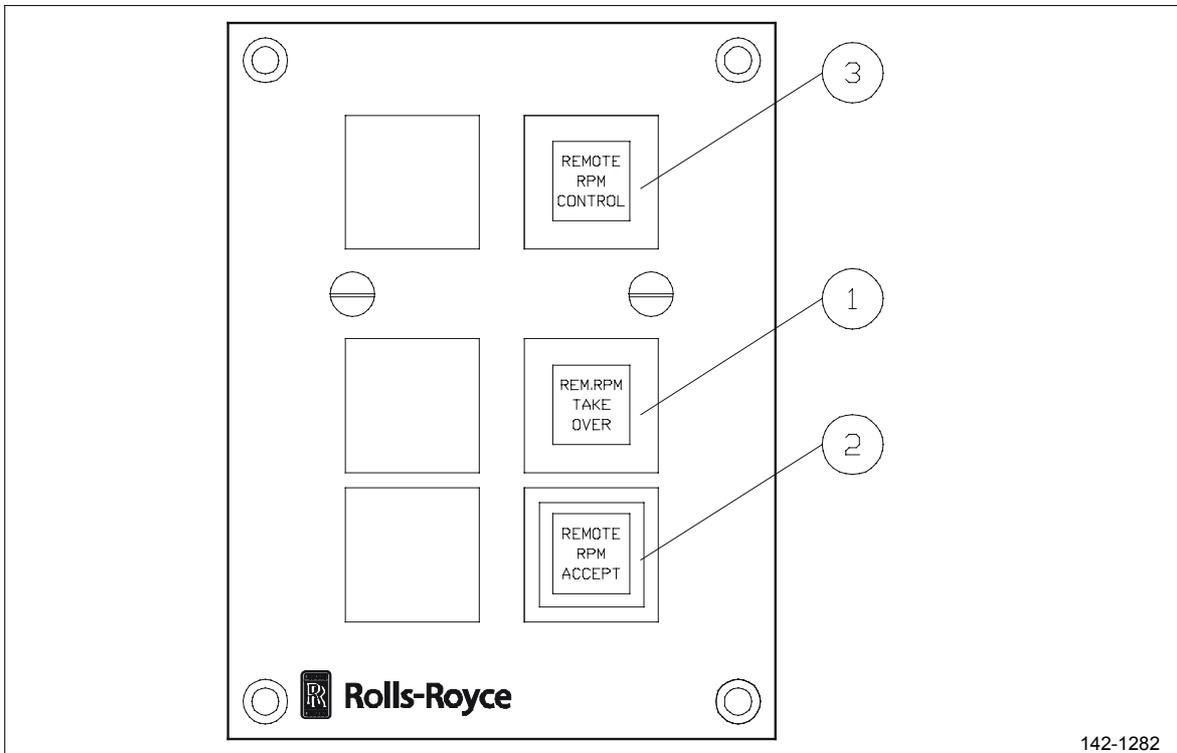


Figure 27 Remote RPM control panel.

1. Remote RPM Take Over indication lamp
2. Remote RPM Accept button
3. Remote RPM Control indication lamp

Pos 1, Figure 27. Indication lamp for indication that Local/Remote switch on engine equipment in engine room, has been set in position remote.

Pos 2, Figure 27. Push button for acceptance of takeover of RPM control to remote.

Pos 3, Figure 27. Indication lamp for indication of remote RPM control.

RPM Indication “Function” (Optional)

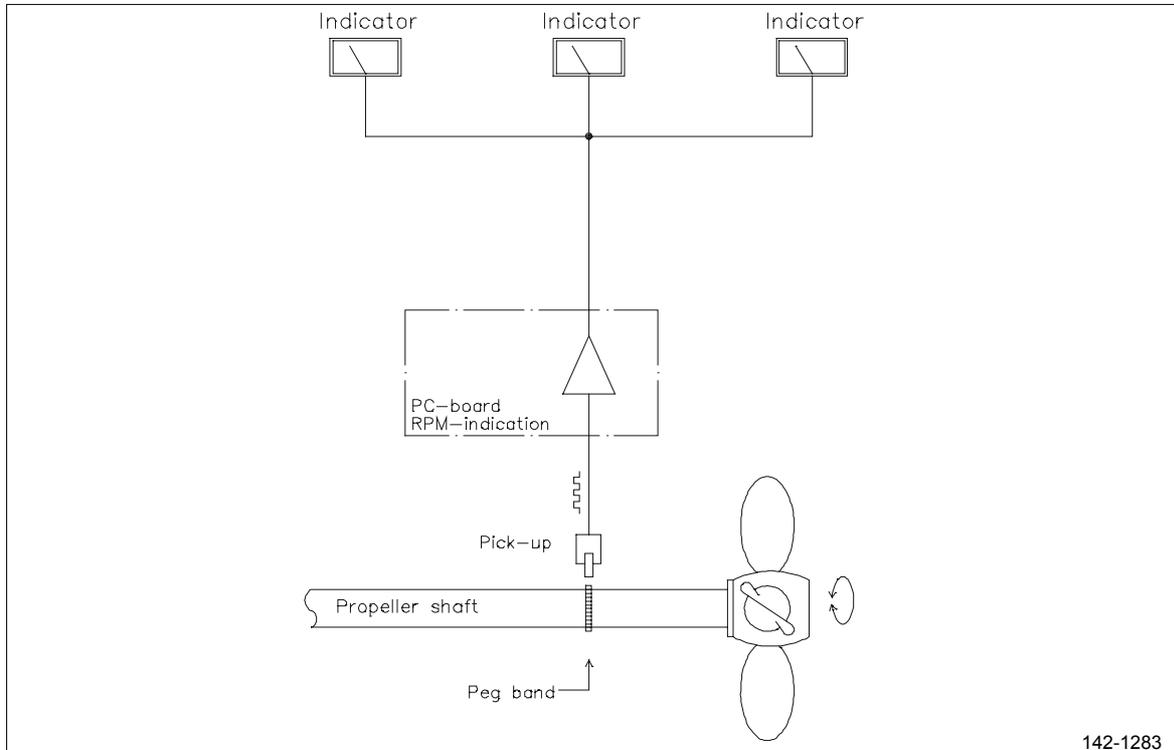


Figure 28 RPM indication system.

RPM indication system is a separate system for continuous indication of the actual shaft (propeller) RPM. The system has a separate RPM-transmitter (pick-up). Outputs from the pick-up are impulses with a frequency corresponding to the RPM.

The pulses are fed to the RPM indication PC-board and converted to a DC-signal suitable for the indicators.

Output from the PC-board is 0-10 V DC which is distributed to the indicators on the control stations.

Clutch Control “Function” (Optional)

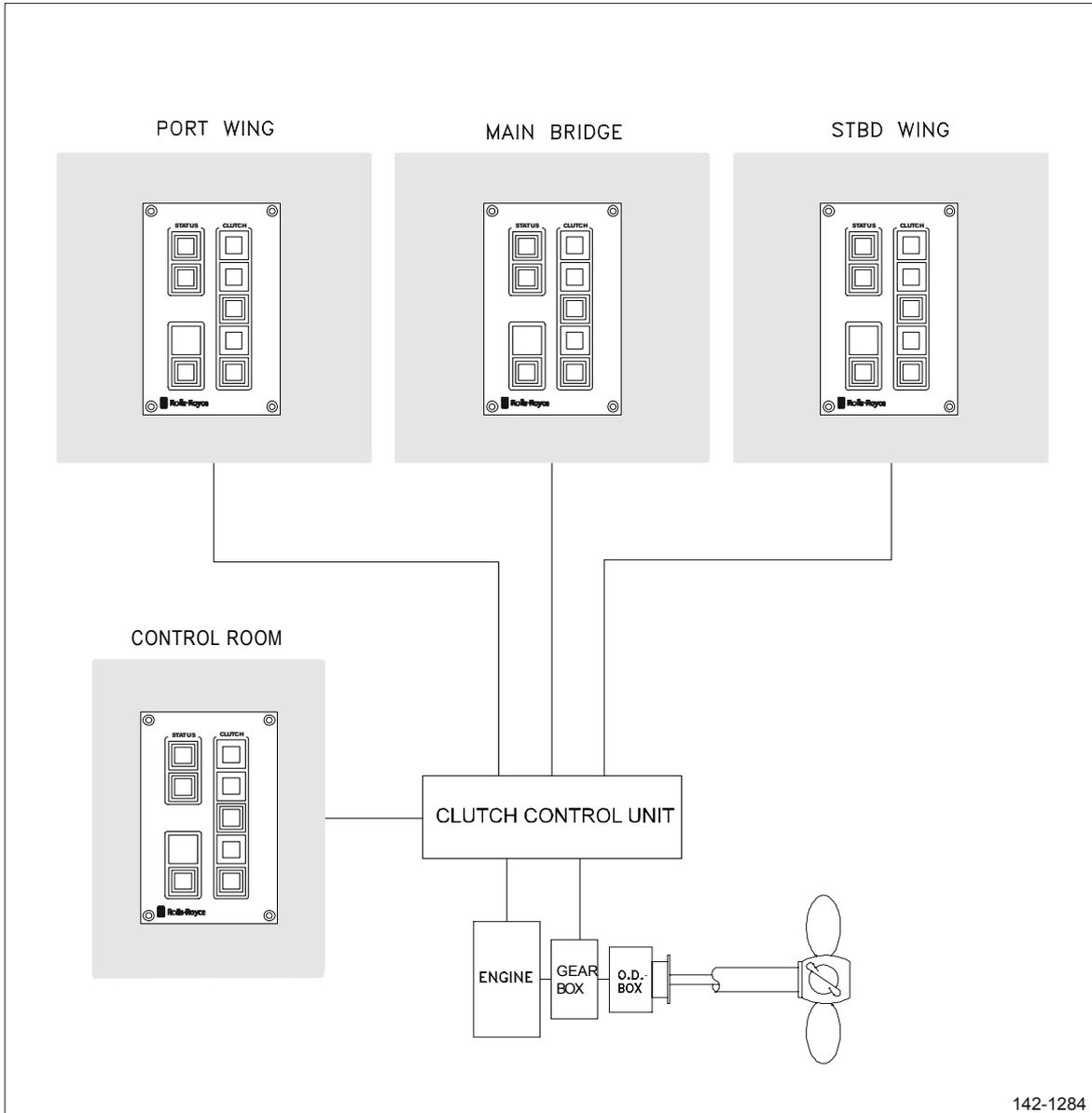


Figure 29 Clutch control system.

The clutch control function supervises the conditions of the engines, clutches, and propellers. The clutch control function determines whether to allow a clutch engagement or not.

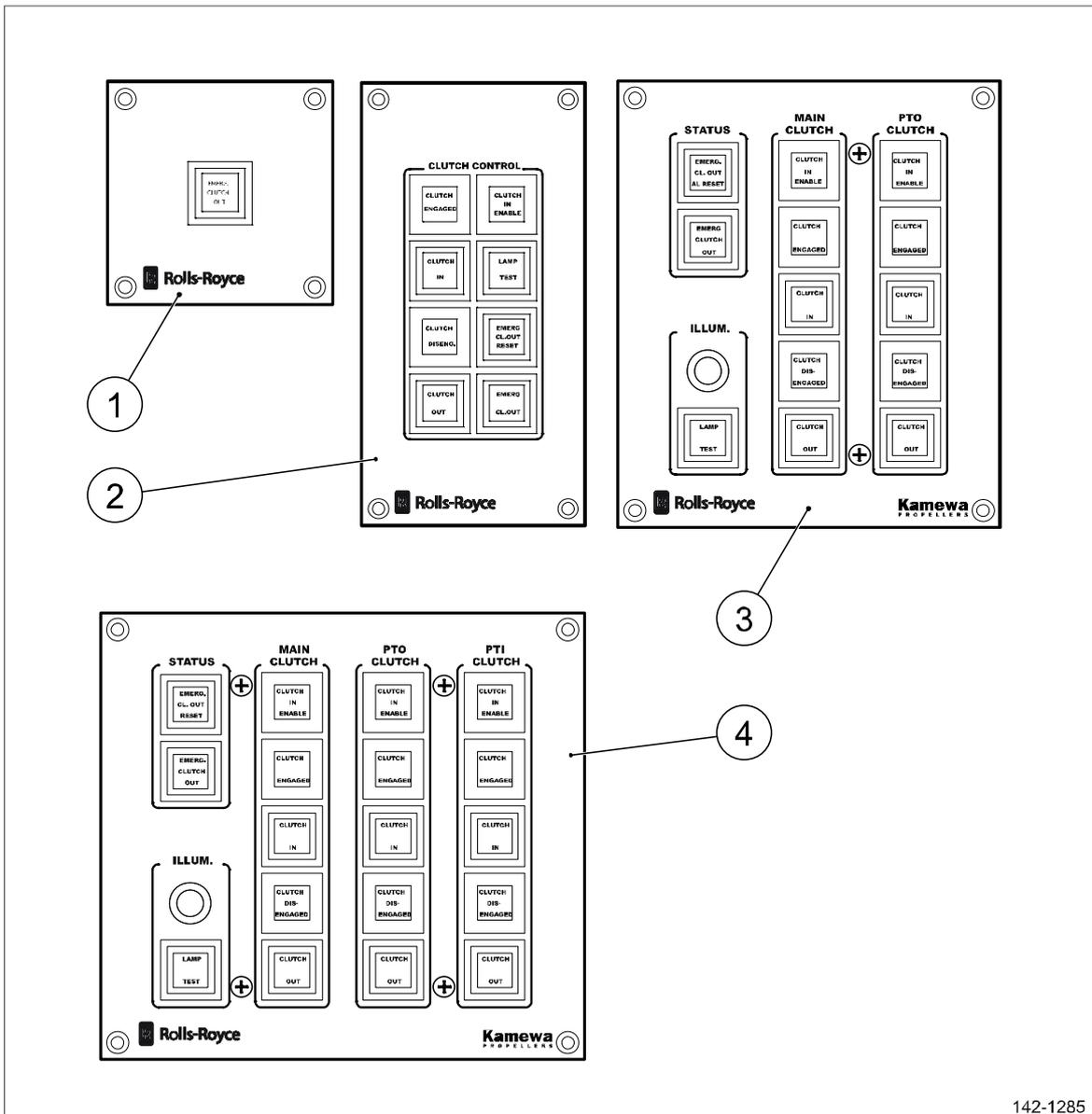
As long as no engine clutches are engaged on the shaft no engine force is transferred to the propeller. Moving the control lever ahead and astern will increase and reduce the pitch according to linear pitch curve, and the RPM according to chosen control mode.



The following conditions must be fulfilled for an engagement:

- engine is running at a RPM ready for clutch in
- the propeller pitch is zero (first engine only)
- low supply oil pressure to clutch has not been detected
- emergency clutch out is not active
- sequence failure alarm is not active
- shaft brake is not engaged

Clutch engagement is not possible when the engine is in LOCAL mode.



142-1285

Figure 30 Alternative clutch panels, bridge stations.

1. Emergency clutch out button (at stations without clutch panel)
2. Clutch control panel for vessel equipped with one clutch (main clutch)
3. Clutch control panel for vessel equipped with two clutches (main and PTO clutch)
4. Clutch control panel for vessel equipped with three clutches (main, PTO and PTI clutch)

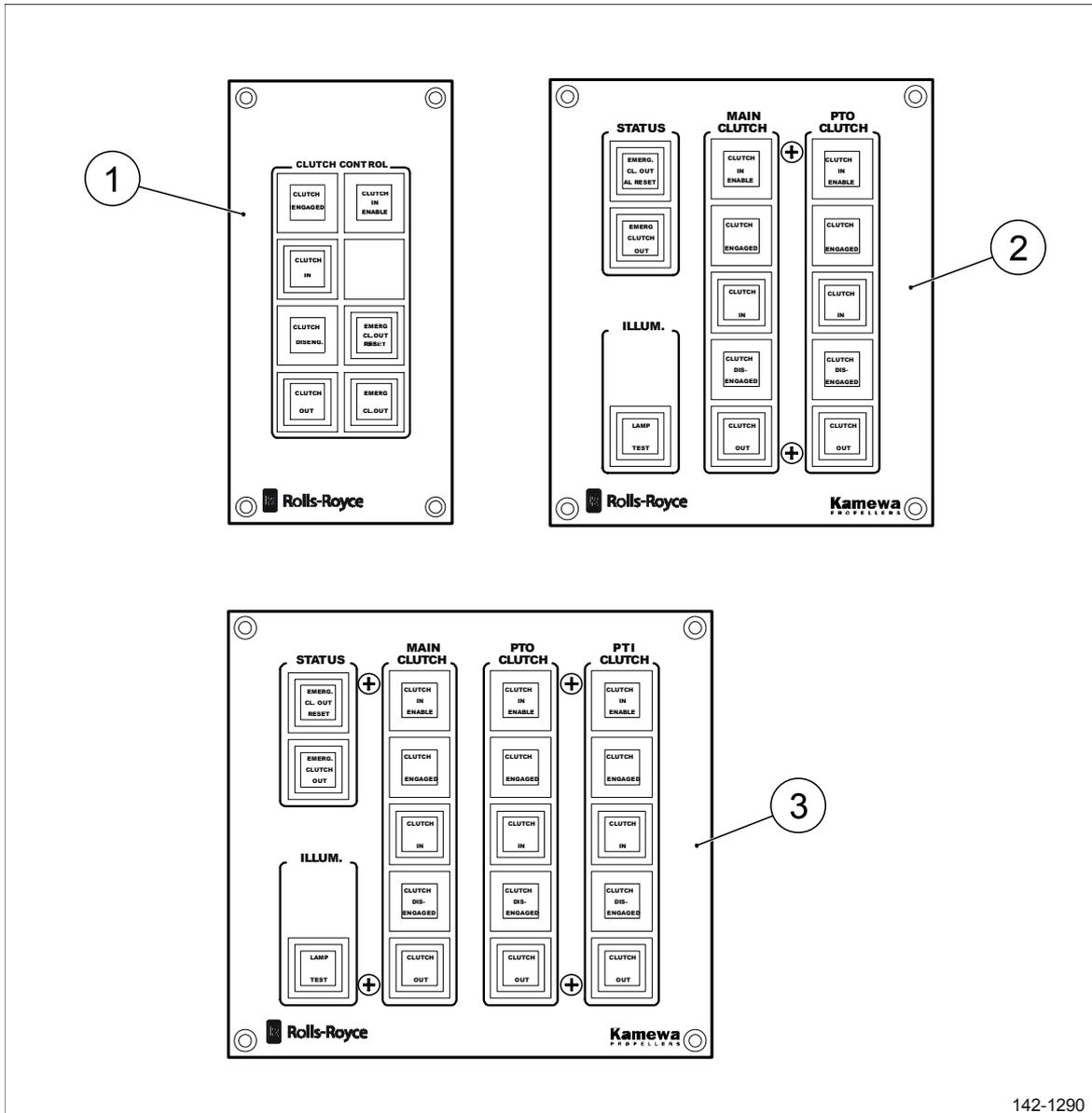


Figure 31 Alternative clutch panels, engine control room (ECR).

1. Clutch control panel for vessel equipped with one clutch (main clutch)
2. Clutch control panel for vessel equipped with two clutches (main and PTO clutch)
3. Clutch control panel for vessel equipped with three clutches (main, PTO and PTI clutch)



Clutch Control “Operation” (Optional)

In case of an emergency situation where an immediate stop of the main propellers is needed the emergency clutch out button is used (see pos 1, Figure 30, pos 10, Figure 32 and pos 2, Figure 33).

The emergency clutch out button is always enabled on all control panels.

Warning: Use emergency clutch out solely in emergency situations. Do not use it for regular clutch out as it will cause wear on the clutches.

Note: The engines cannot be engaged again until the emergency clutch out alarm has been reset.

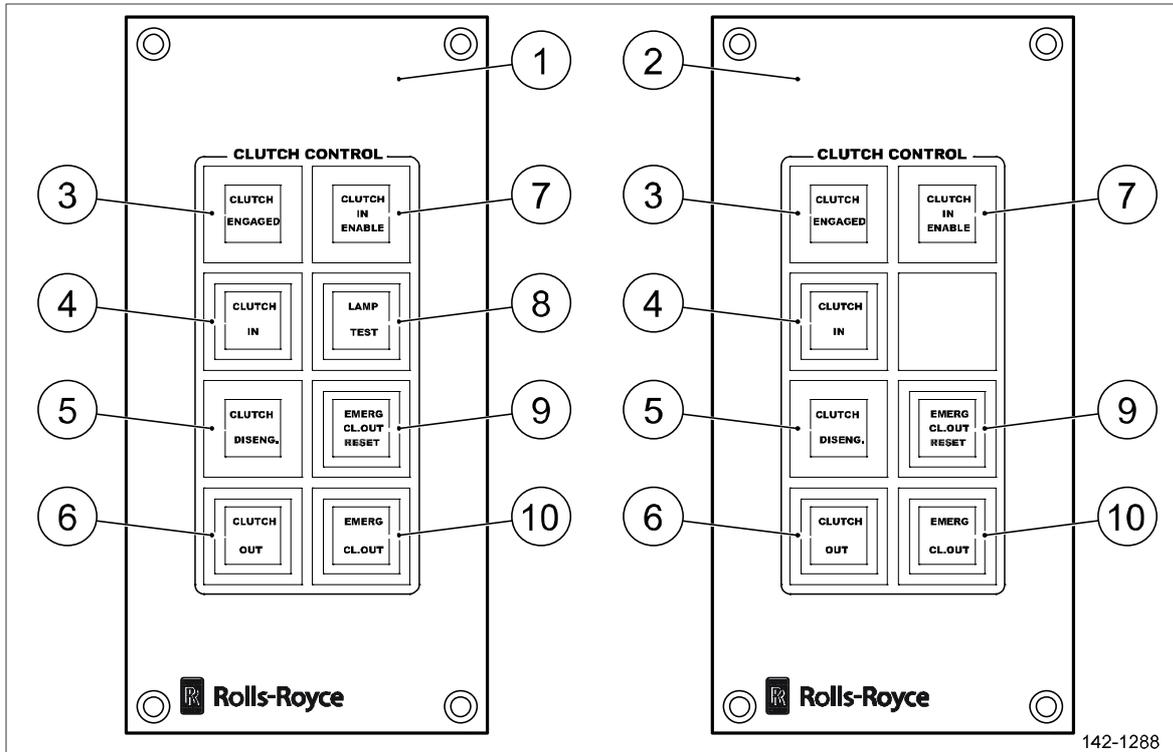
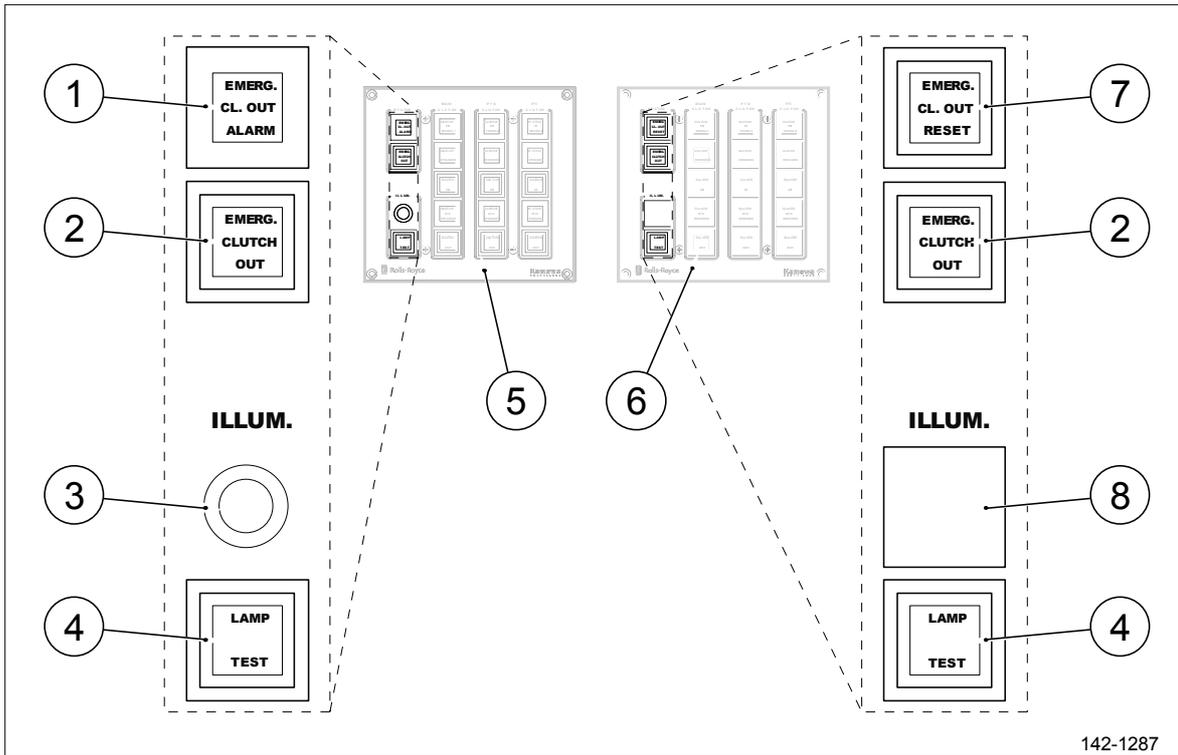


Figure 32 Clutch control panels on vessel with one clutch, bridge stations and engine control room.

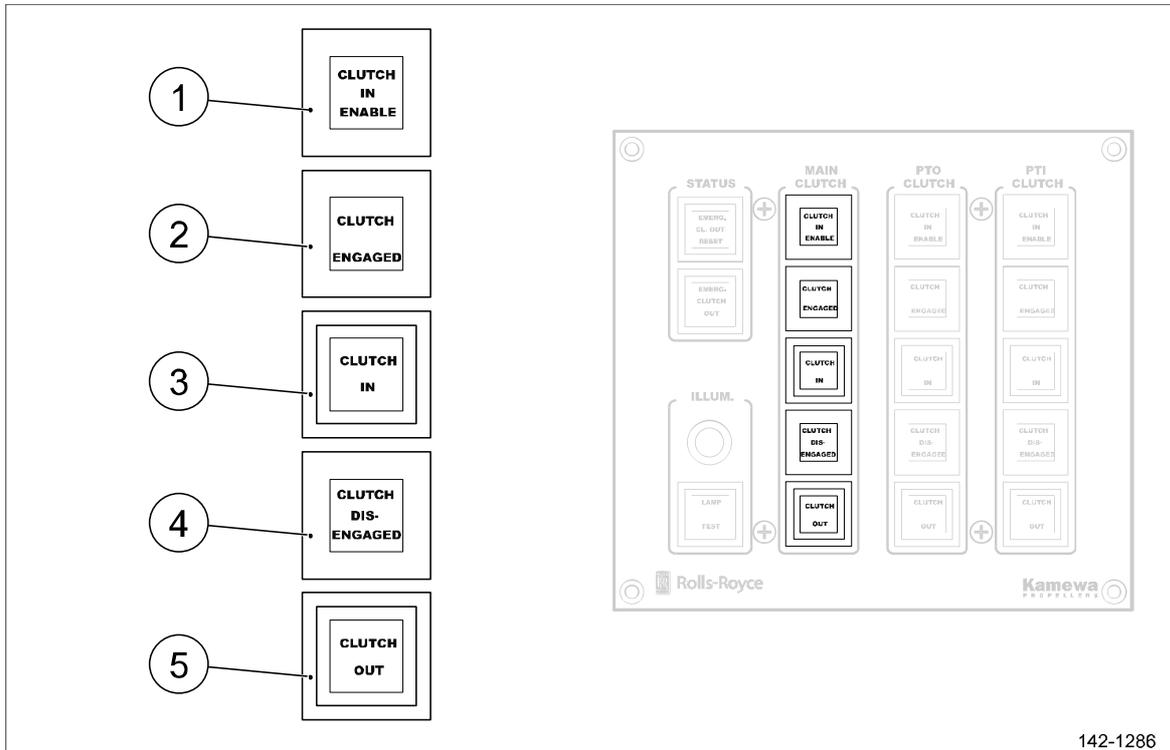
1. Clutch control panel, bridge stations.
2. Clutch control panel, engine control room (ECR).
3. Clutch Engaged indication lamp.
4. Clutch In button for engaging the clutch.
5. Clutch Disengaged indication lamp.
6. Clutch Out button for disengaging the clutch.
7. Clutch In Enabled indication lamp indicating that the “clutch in” conditions are fulfilled and the clutch is ready to be engaged.
8. Lamp Test button (only applicable at bridge stations). Used for testing the lamps on the control panel. To be used every week.
9. Emergency Clutch Out Reset button to reset the emergency clutch out alarm. Button flashes when emergency clutch out alarm is active.
10. Emergency Clutch Out button.



142-1287

Figure 33 Clutch control panels on vessel with two or three clutches, bridge stations and engine control room.

1. Emergency Clutch Out Alarm indication lamp indicating when emergency clutch out is active.
2. Emergency Clutch Out button.
3. Dimmer knob. Is used to adjust the illumination for the indication lamps and buttons. The light can never be dimmed out completely; a small amount of light is always present.
4. Lamp Test button is used for testing the lamps on the control panel. To be used every week.
5. Clutch control panel, bridge stations.
6. Clutch control panel, engine control room (ECR).
7. Emergency Clutch out Reset button to reset the emergency clutch out alarm. Button flashes when emergency clutch out alarm is active. Only applicable at the ECR.
8. Black lens (dummy).



142-1286

Figure 34 Main clutch buttons and indication lamps on clutch control panel on vessel with two or three clutches, bridge stations and engine control room.

1. Clutch In Enable indication lamp indicating that the “clutch in” conditions are fulfilled and the clutch is ready to be engaged
2. Clutch Engaged indication lamp indicating that the clutch is engaged
3. Clutch In button for engaging the clutch
4. Clutch Disengaged indication lamp indicating that the clutch is disengaged
5. Clutch Out button for disengaging the clutch

The “Main Clutch” buttons and indication lamps are identical to the “PTO Clutch” and “PTI clutch”.