



Remote Control System CPP-Basic

INSTRUCTION MANUAL

DMN000227245

Plant: Murueta 307

Date: 2015-01-27

Revision: A



:

Remote Control System, CPP-Basic

Drawings:

Dwg.No:

Rev.

| | | |
|---|-------------------------------------|------------|
| Electric remote control, System assembly Part list report Cable drawings | RRM000233349 -“- DMN000224637 | B B |
| Main bridge control panel, port Layout Wiring PCB schematic | RRM200018710 -“- DMN200002881 | A A |
| Main bridge control panel, starboard Layout Wiring PCB schematic | RRM200018712 -“- DMN200002881 | A A |
| Wing control panel, port Layout Wiring PCB schematic | RRM200018711 -“- DMN200002881 | A A |
| Wing control panel, starboard Layout Wiring PCB schematic | RRM200018713 -“- DMN200002881 | A A |
| RPM indicator, bridge Layout | 158555 | - |
| Control room, control panel Layout Wiring PCB schematic | RRM200018714 -“- DMN200002975 | A A |
| Load control panel layout wiring | RRM000236697 -“- | A |
| RPM indicator, control room Layout | 158556 | - |



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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

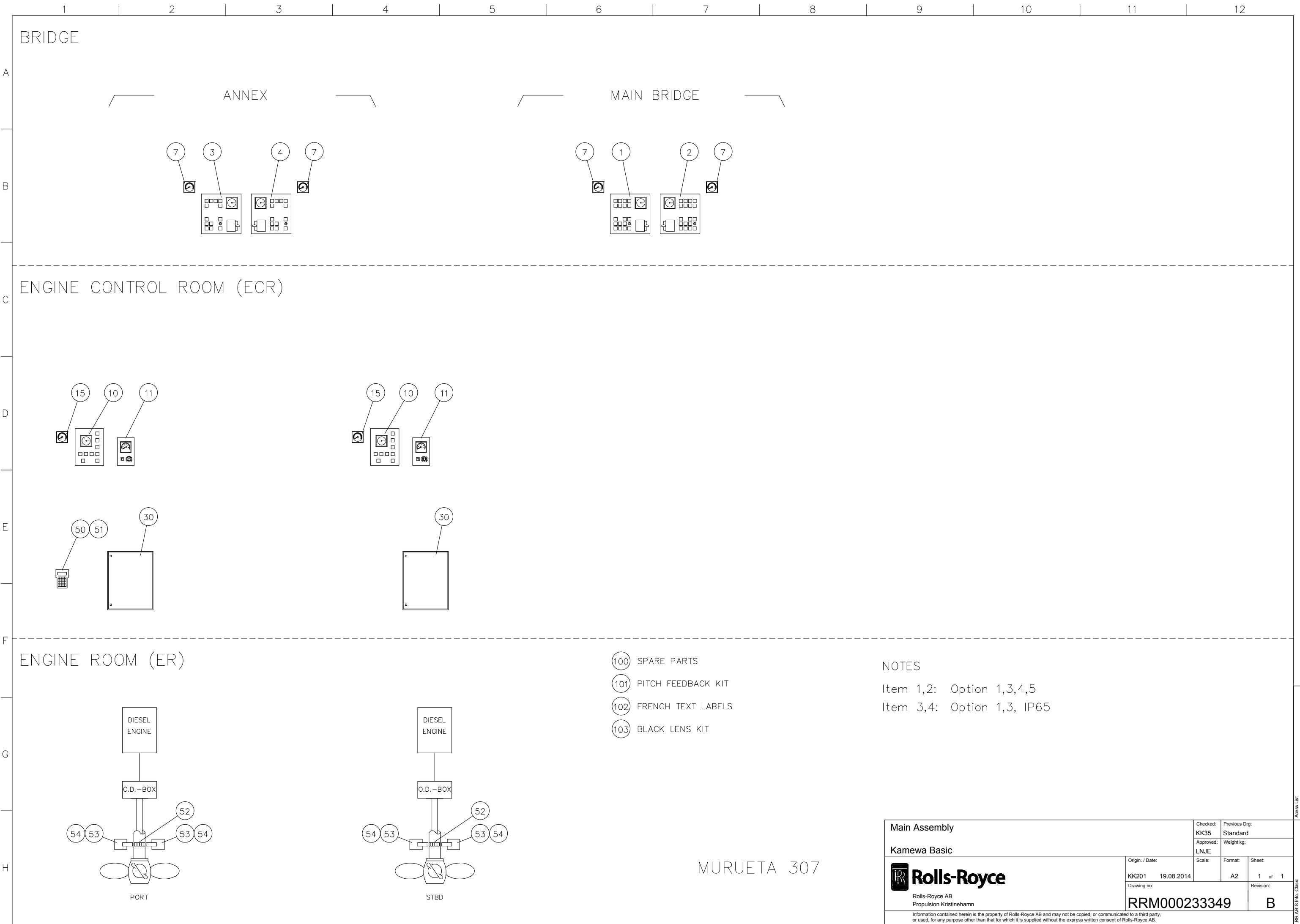
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D

C

B

a



Part List Report - External use



Rolls-Royce

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 | El 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 | El 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 | El 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 | EI 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 | El 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 | El 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 | El 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 | El 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 | El 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

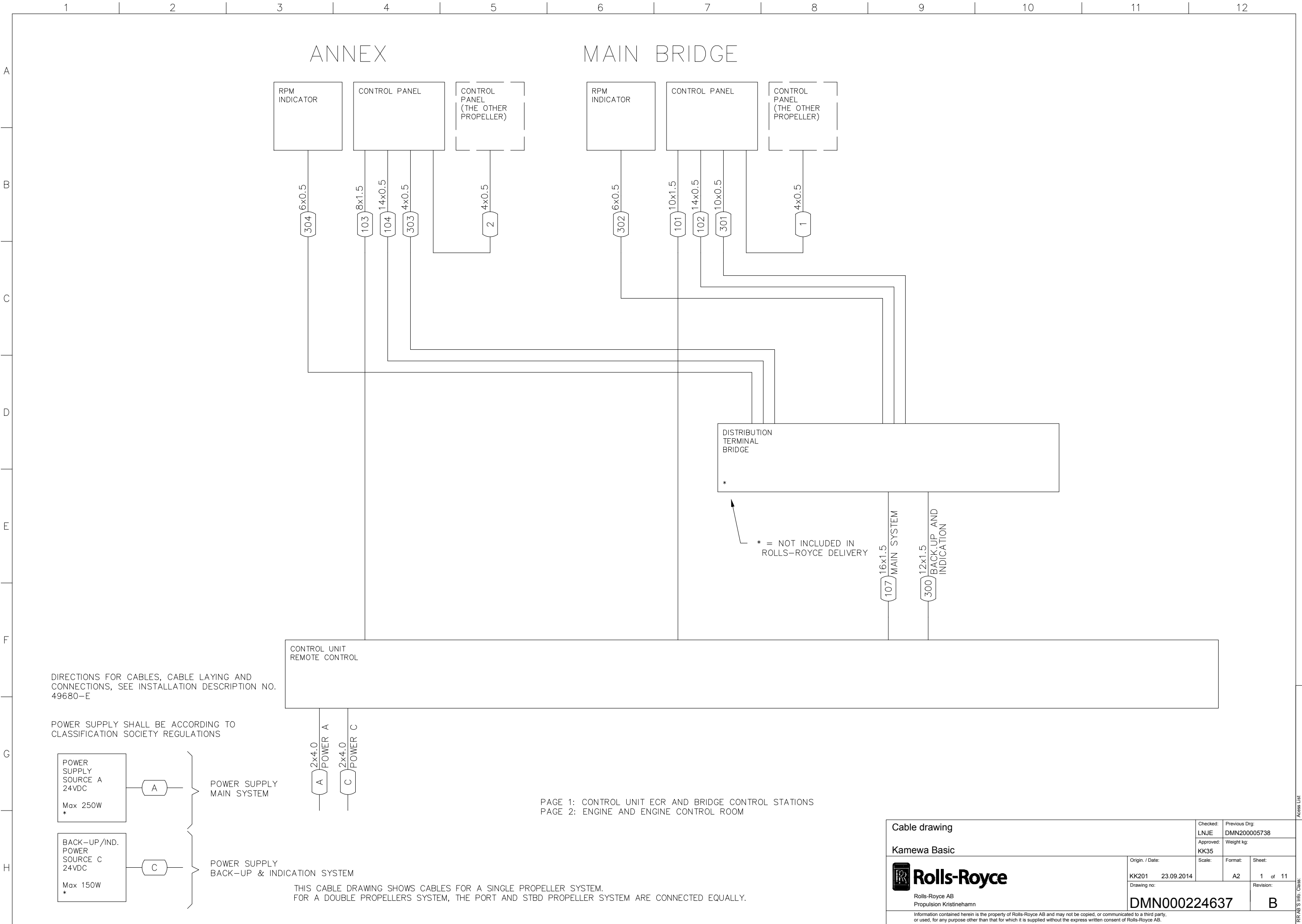
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|-------|-----|-----|-----|--------------|-----|-----------------------|------------|-------------------------------|----------|
| 2 | 36 | 1 | pcs | F070551 | B | Connection Terminal | Detail | R1 | Released |
| 2 | 37 | 2 | pcs | F070552 | A | Connection 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 |

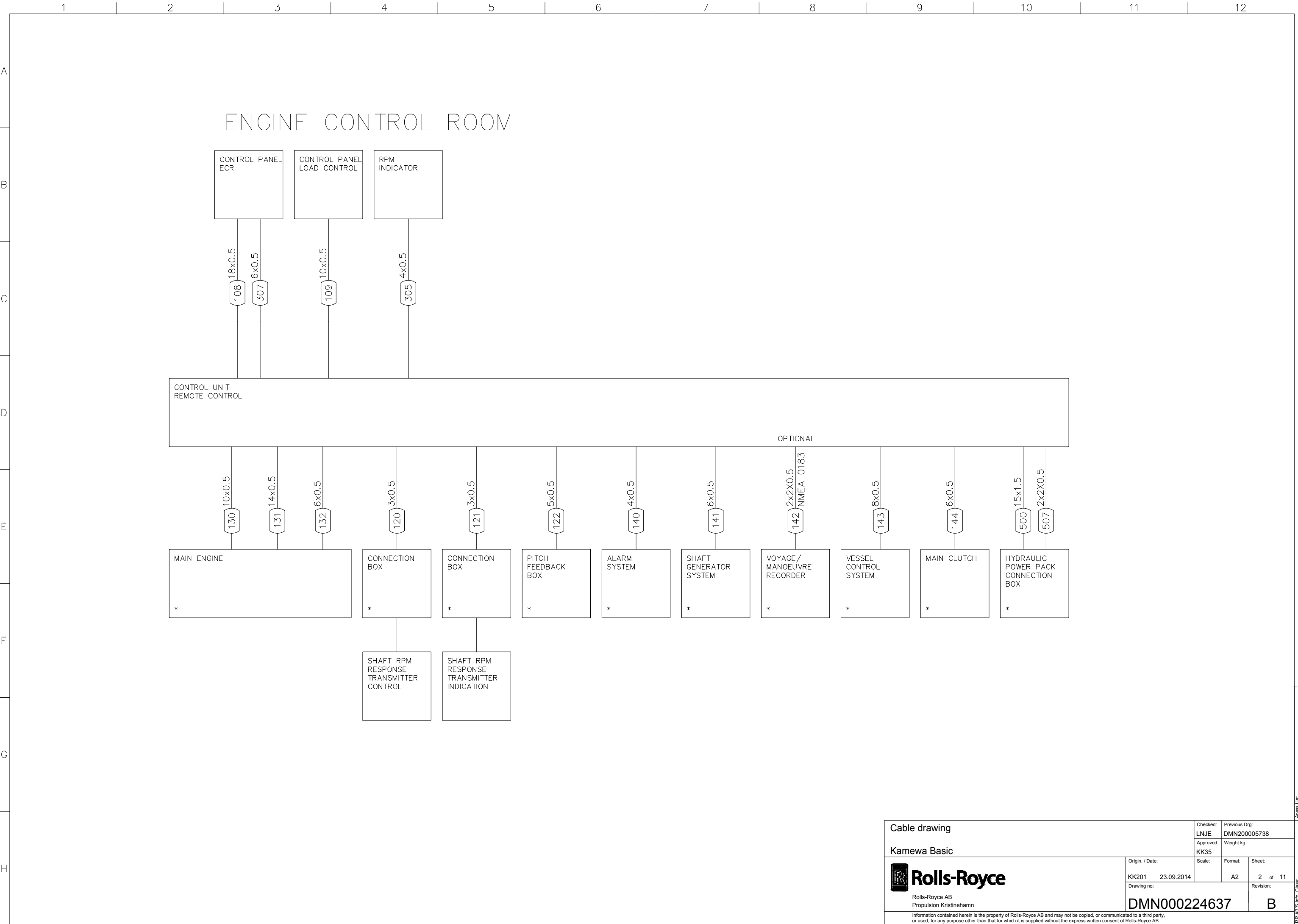
Part List Report - External use



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 |





Cable drawing

Kamewa Basic

Rolls-Royce

Rolls-Royce AB

Propulsion Kristinehamn

Origin / Date:

KK20123.09.2014

Drawing no:

DMN000224637

Checked:

LNJE

Approved:

KK35

Scale:

Format:

A2

Sheet:

2 of 11

Revision:

B

Previous Drg:

DMN200005738

Weight kg:

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Access List

RR AB S Info Class: LIMITED

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|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| A | | | | | | | | |
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| C | | | | | | | | |
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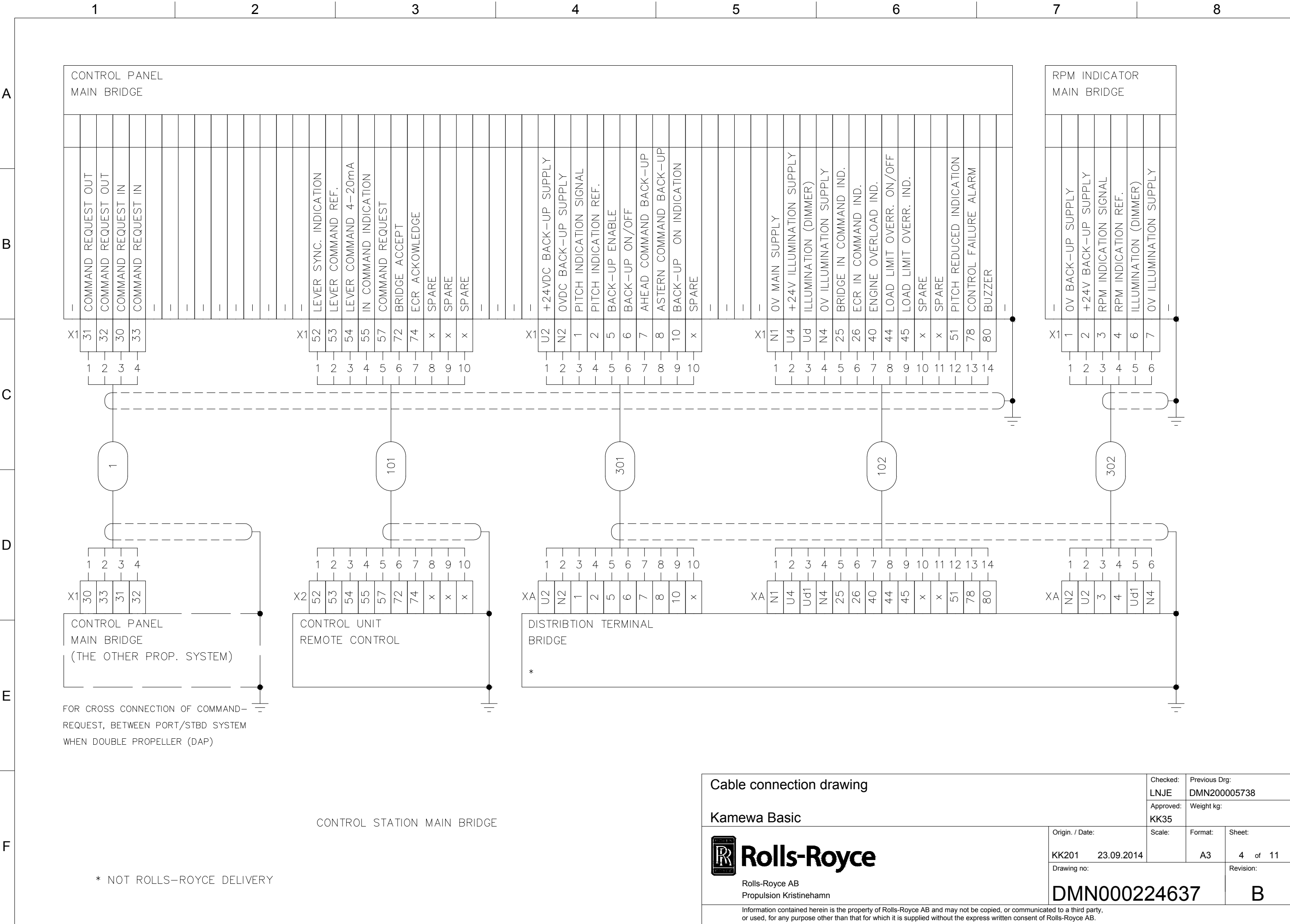
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| 144 | 11 |
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| 507 | 9 |

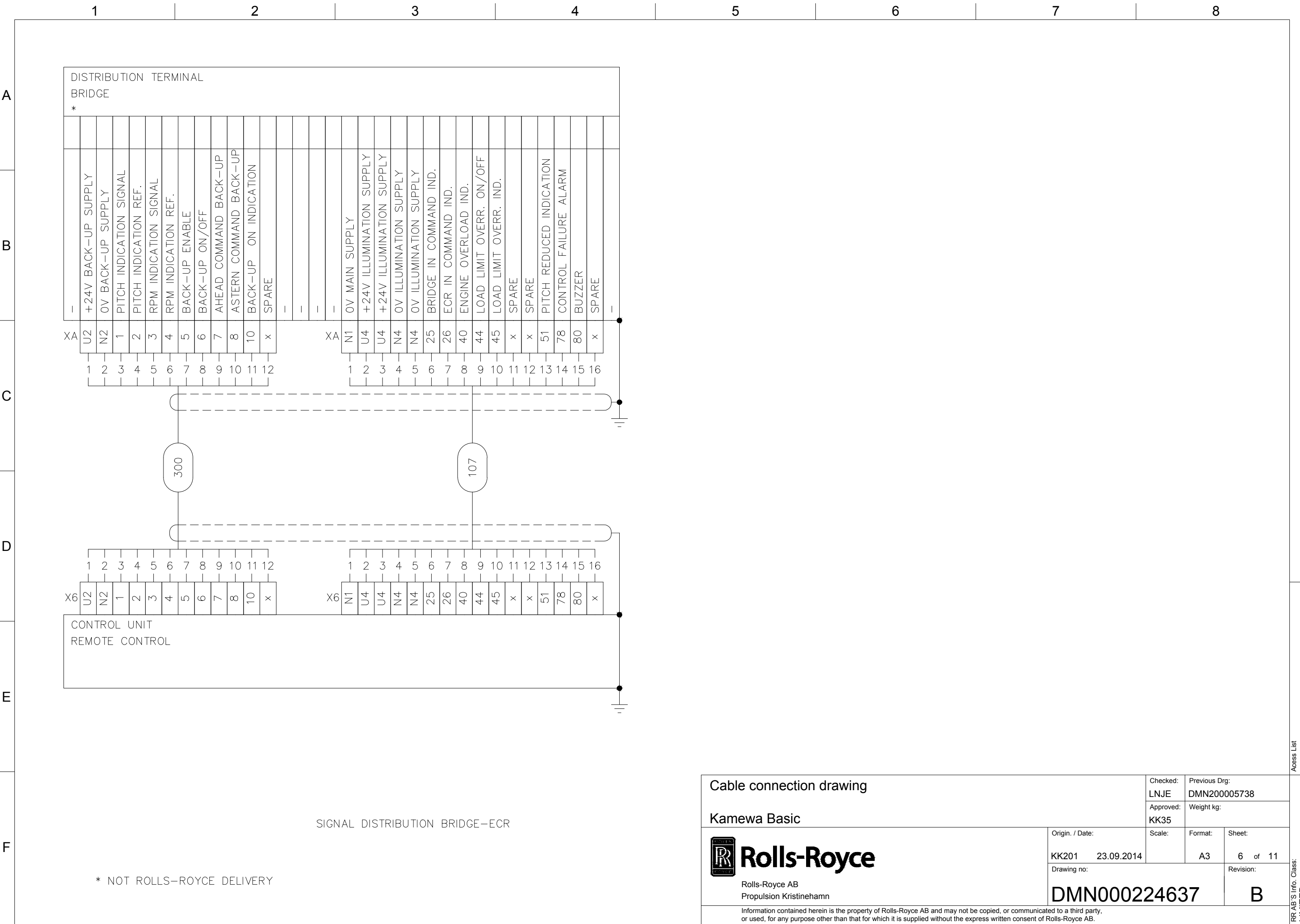
CABLE OVERVIEW

| | | | | |
|--|-----------------------------|-------------------|-------------------------------|---------|
| Cable connection drawing | | Checked: LNJE | Previous Drg: DMN200005738 | |
| Kamewa Basic | | Approved: KK35 | Weight kg: | |
|  Rolls-Royce AB Propulsion Kristinehamn | Origin. / Date: | Scale: | Format: | Sheet: |
| | KK201 23.09.2014 | | A3 | 3 of 11 |
| | Drawing no: DMN000224637 | | Revision: B | |
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Access List

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LIMITED





Cable connection drawing

Checked:
LNJE

Previous Drg:
DMN200005738

Approved:
KK35

Weight kg:

Origin. / Date:
KK201 23.09.2014

Scale:

Format:
A3

Sheet:
6 of 11

Drawing no:
DMN000224637

Revision:
B

RR

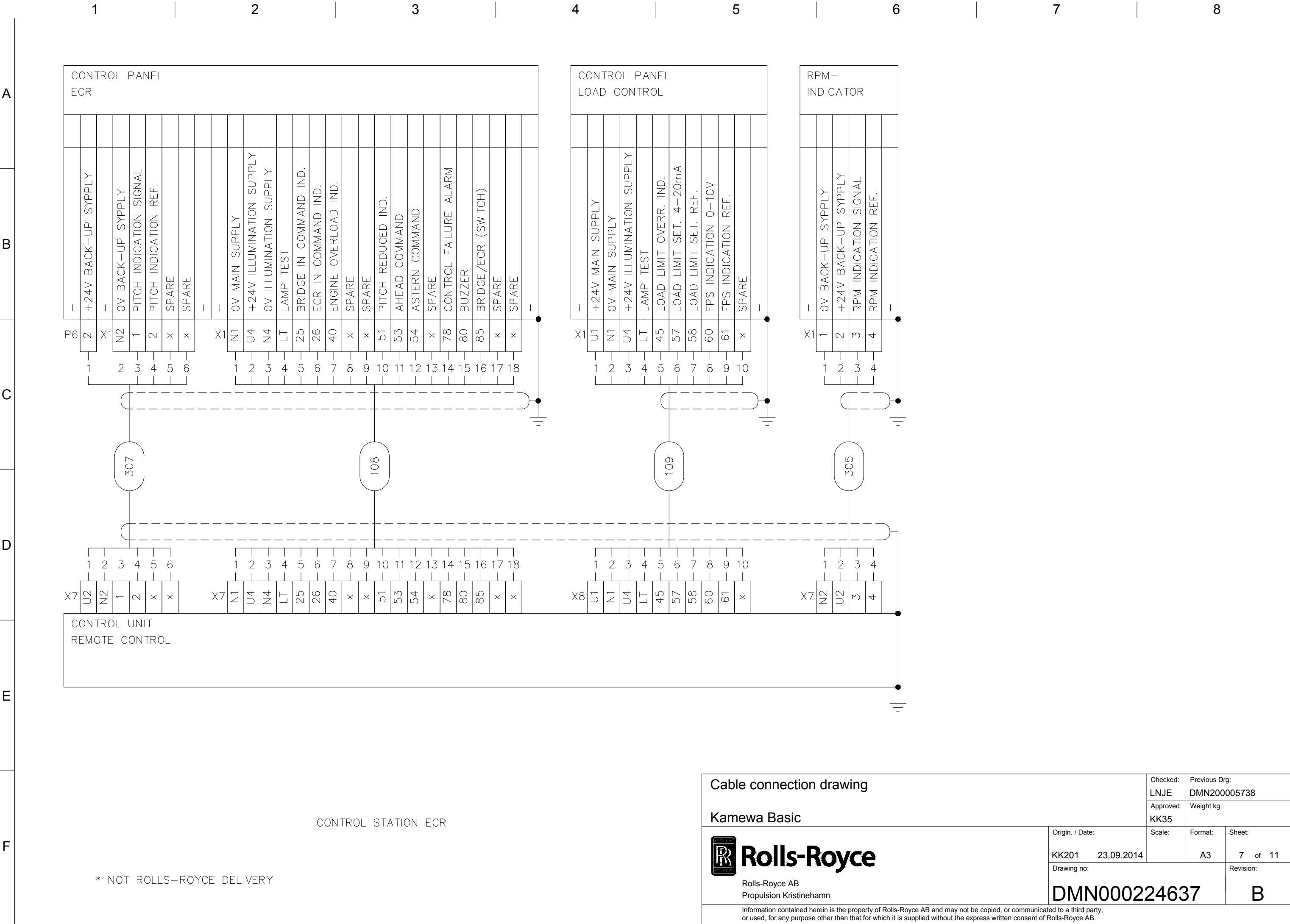
Rolls-Royce

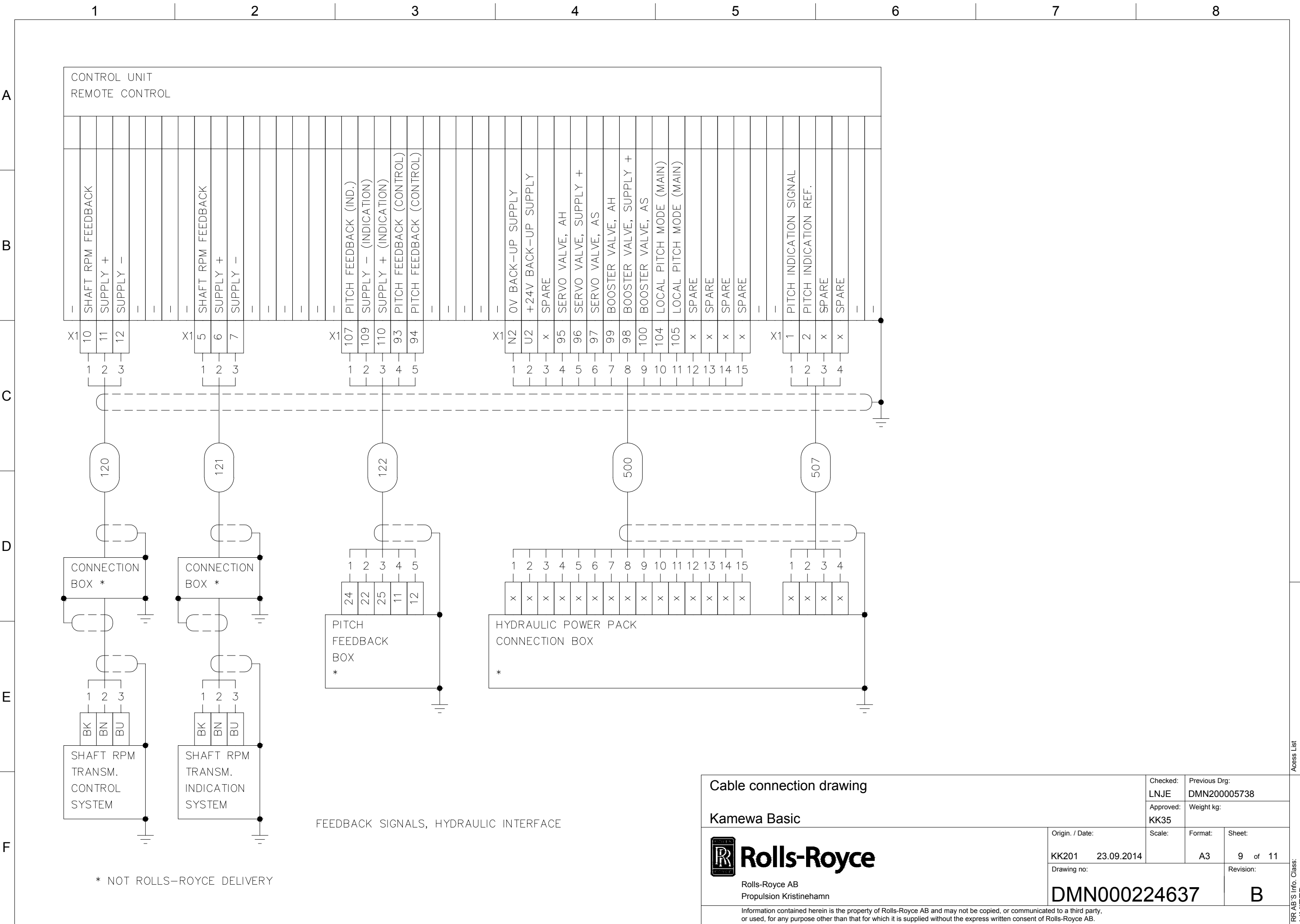
Rolls-Royce AB
Propulsion Kristinehamn

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Access List

RR AB'S Info. Class:
LIMITED





120

121

122

500

507

CONNECTION BOX *

CONNECTION BOX *

PITCH FEEDBACK BOX *

HYDRAULIC POWER PACK CONNECTION BOX *

1

2

3

BK

BN

BU

SHAFT RPM TRANSM. CONTROL SYSTEM

1

2

3

BK

BN

BU

SHAFT RPM TRANSM. INDICATION SYSTEM

1

2

3

4

5

24

22

25

11

12

PITCH FEEDBACK BOX *

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

HYDRAULIC POWER PACK CONNECTION BOX *

1

2

3

4

x

x

x

x

FEEDBACK SIGNALS, HYDRAULIC INTERFACE

Cable connection drawing

Kamewa Basic

RR

Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

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Checked:
LNJE

Approved:
KK35

Previous Drg:
DMN200005738

Weight kg:

Origin. / Date:
KK201 23.09.2014

Scale:

Format:
A3

Sheet:
9 of 11

Drawing no:
DMN000224637

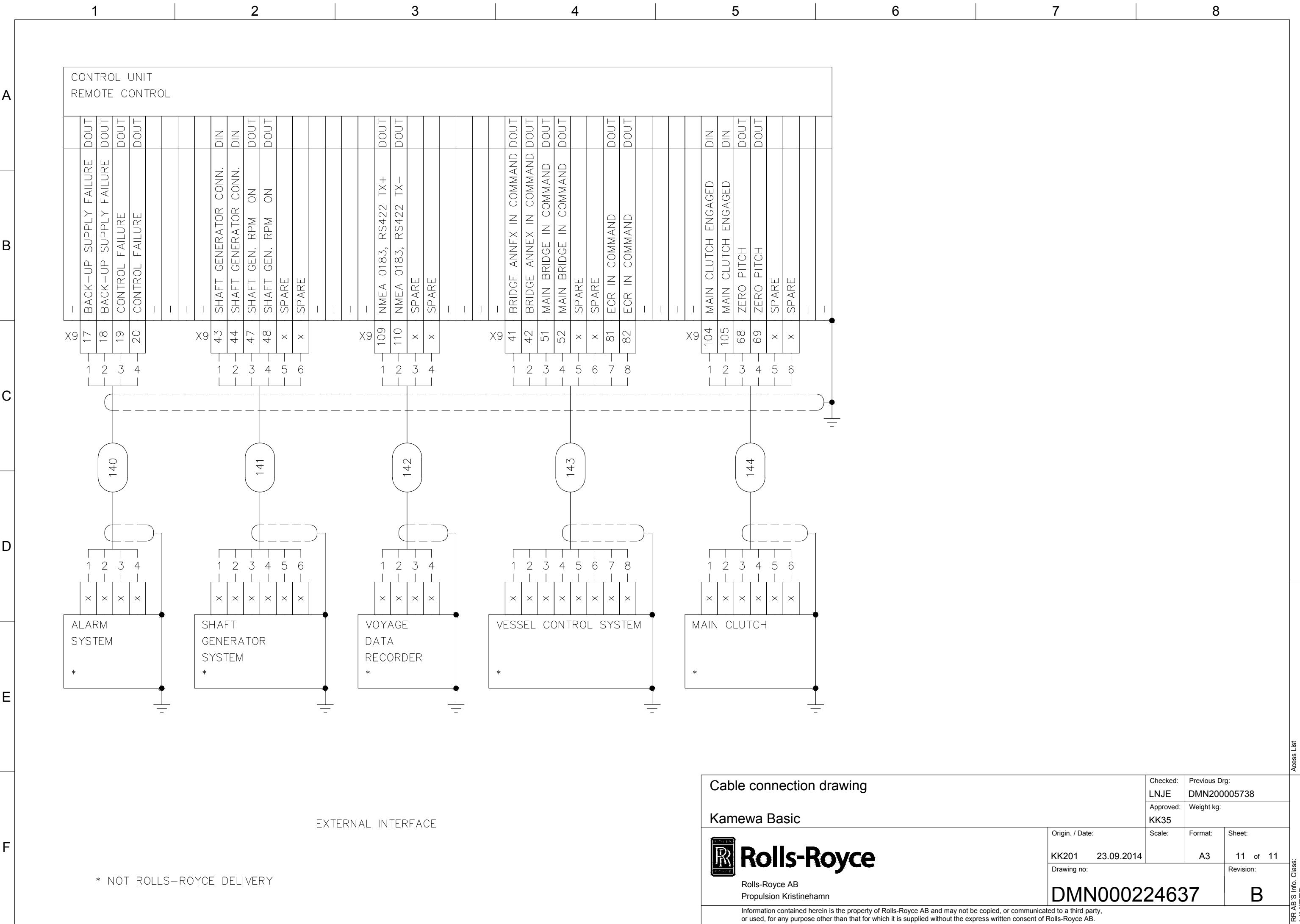
Revision:
B

Access List

RR AB'S Info. Class:
LIMITED

* NOT ROLLS-ROYCE DELIVERY





Cable connection drawing

Kamewa Basic

RR

Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:

KK201 23.09.2014

Drawing no:

DMN000224637

Checked:
LNJE

Approved:
KK35

Previous Drg:
DMN200005738

Weight kg:

Scale:

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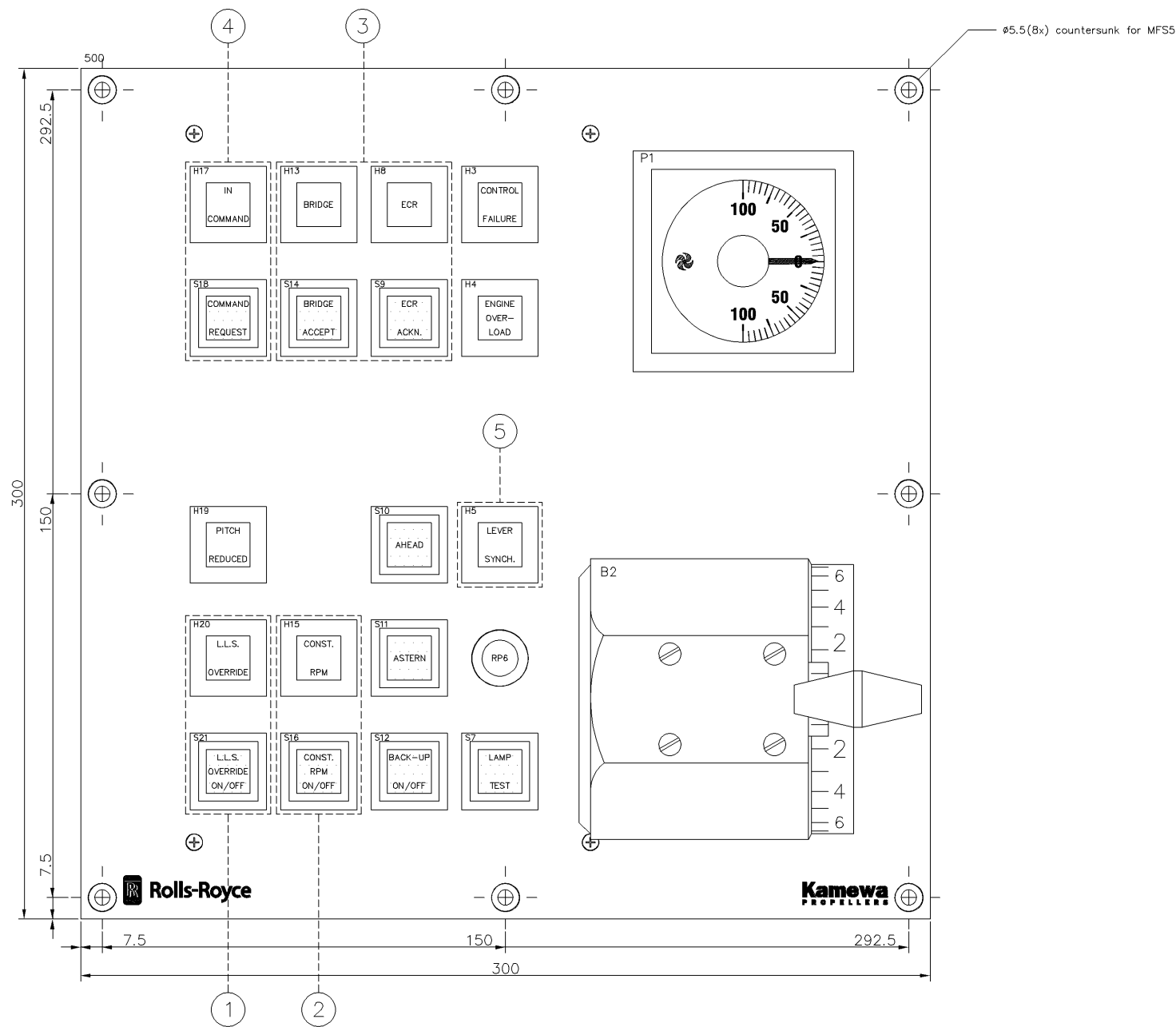
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Revision:
B

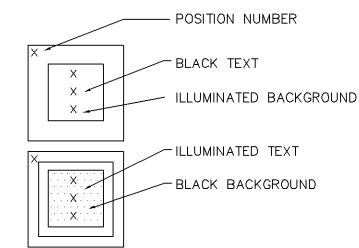
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Access List

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: 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:

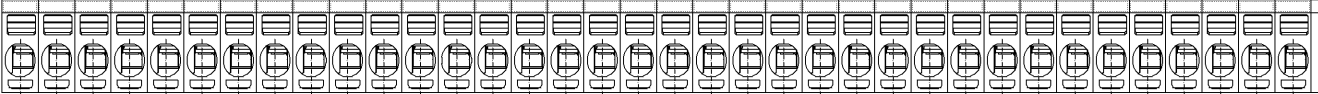
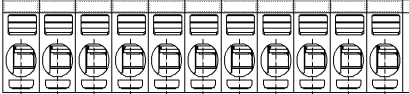



HEIGHT OVER PANEL: 180mm
MAX DEPTH: 100mm
WEIGHT: 3,3Kg
PROTECTION DEGREE: IP65
PANEL SURFACE: BLACK ANODIZED
SCREEN PRINT COLOUR: YELLOW
LOGO COLOUR: WHITE
INSTRUMENT COLOUR: BLACK/YELLOW
CUT OUT IN DESK: 270 x 270 mm(H x W)

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: 0.2-0.5 | Checked: RK35 Approved: LNUE | Previous Drg: Standard Weighting: |
| Control panel, layout | | | | |
| Kamewa Main Propeller, Basic, Bridge | | | | |
| Origin, / Date: KK201 17.08.2011 | | Scale: 1:1 | Format: A1 | Sheet: 1 of 3 |
| Rolls-Royce Propulsion Kiel Drawing no: RRM200018710 | | Revision: A | | |

| | | | | | | | | |
|--|---|---|---|---|---|---------------------------|---------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| A | <div>PCB CONNECTOR</div> <div>X1</div> <div></div> <div>X1:</div> <div>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)</div> | | | | <div>PCB CONNECTOR</div> <div>X2</div> <div></div> <div>X2:</div> <div>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</div> | | | |
| B | | | | | | | | |
| C | | | | | | | | |
| D | | | | | | | | |
| E | | | | | | | | |
| F | | | | | | | | |
| Control panel, wiring | | | | | Checked: KK35 | Previous Drg: Standard | | |
| Kamewa Main Propeller, Basic, bridge | | | | | Approved: LNJE | Weight kg: | | |
| <div> Rolls-Royce</div> <div>Rolls-Royce AB Propulsion Kristinehamn</div> | | | | | Origin. / Date: KK201 17.08.2011 | Scale: | Format: A3 | Sheet: 2 of 3 |
| | | | | | Drawing no: RRM200018710 | | | Revision: A |
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| | | | | | Access List | | | |

A

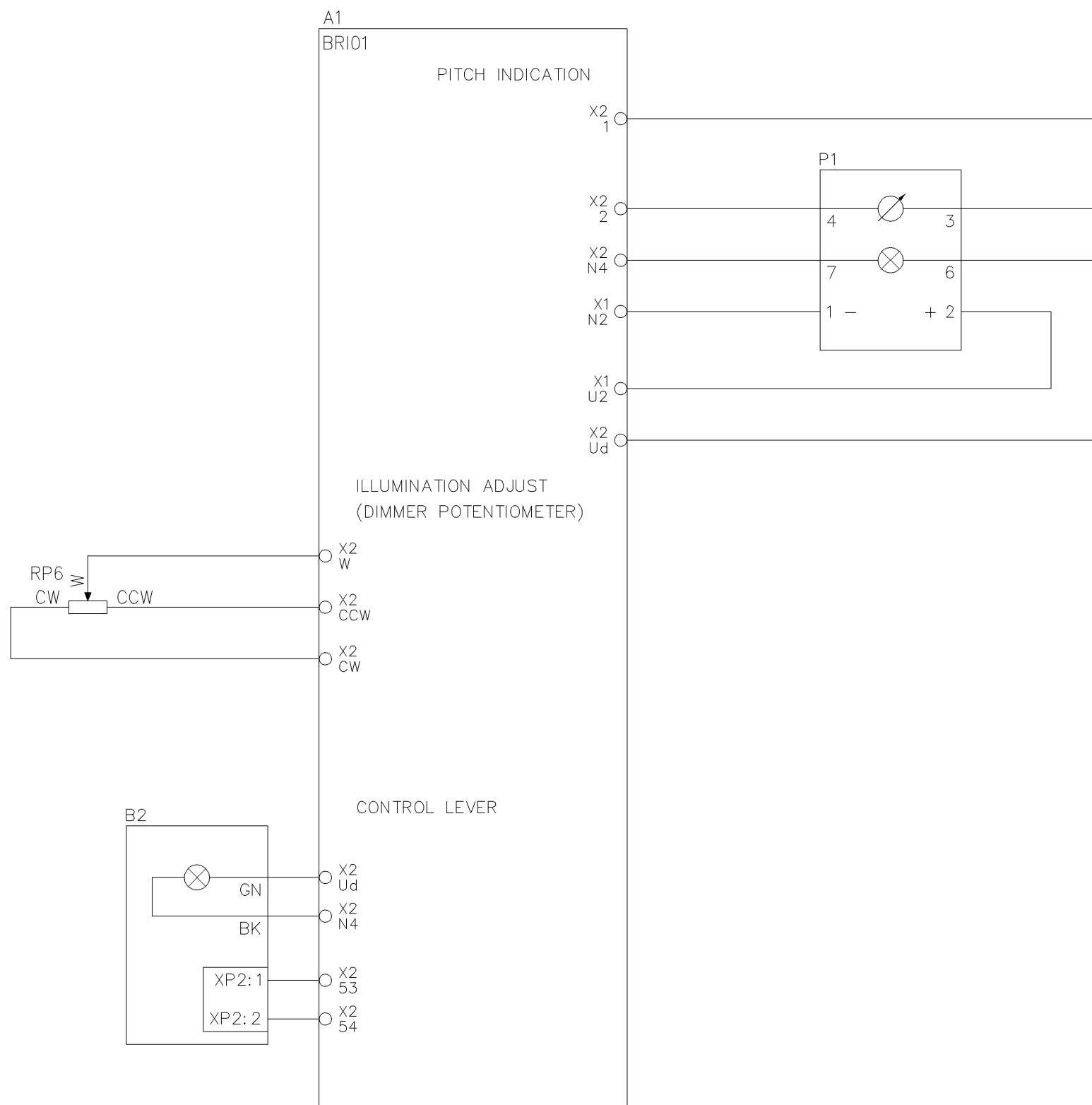
B

C

D

E

F



Control panel, wiring

Kamewa Main Propeller, Basic, Bridge



Rolls-Royce AB
Propulsion Kristinehamn

| |
|-----------------|
| Origin. / Date: |
|-----------------|

| | |
|-------|------------|
| KK201 | 17.08.2011 |
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Drawing no:

RRM200018710

| | |
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| Checked: | KK35 |
|----------|------|

Approved:
LNJE

| | |
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| | Scale: |
|--|--------|

| | |
|---------------|--|
| Previous Drg: | |
| Standard | |

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| Weight kg: | |
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| Format | |
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A3

Sheet:

3 of 3

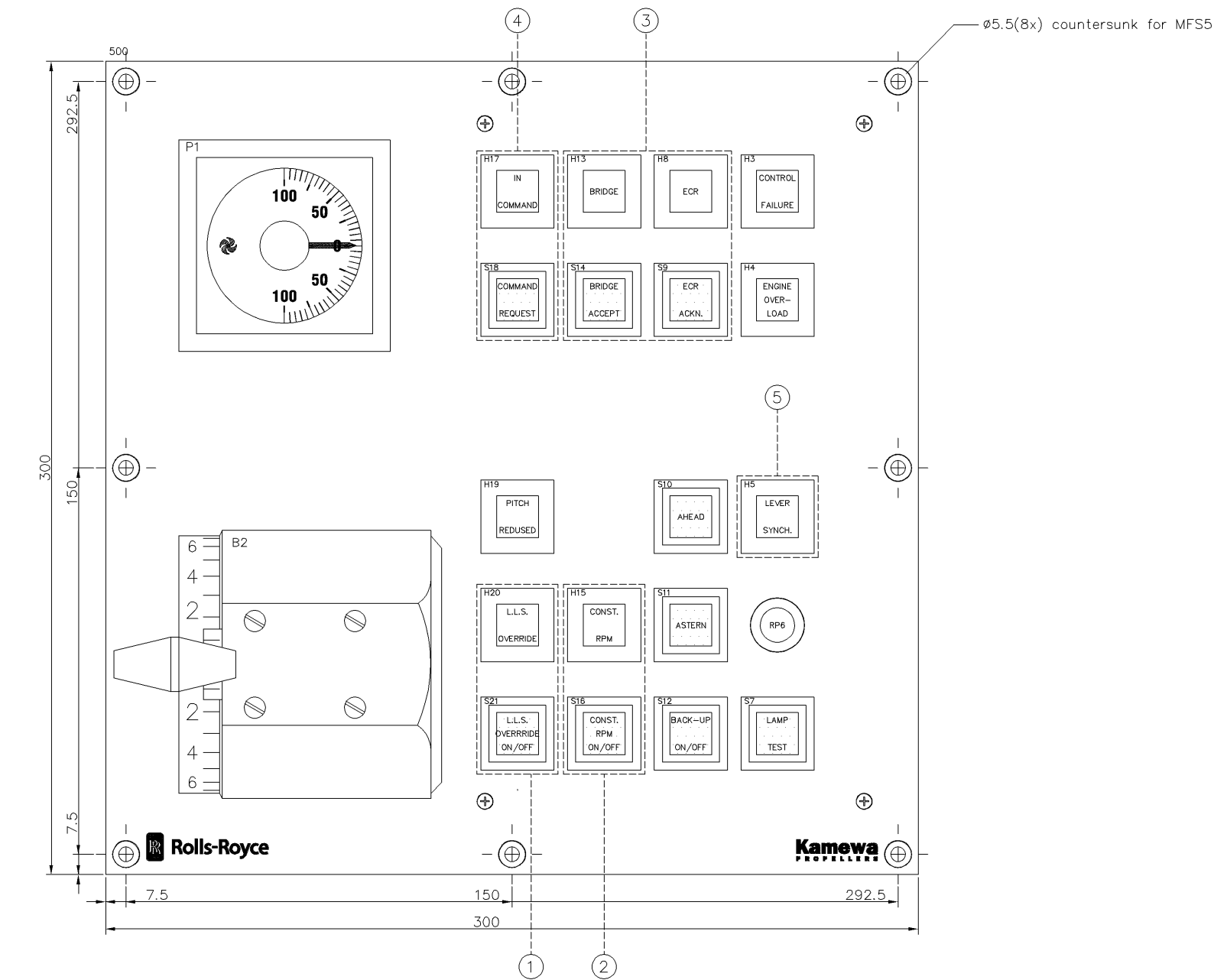
Revision:

A

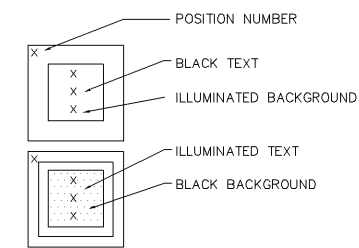
Information contained herein is the property of Rolls-Royce AB and may not be copied, or communicated to a third party, or used, for any purpose other than that for which it is supplied without the express written consent of Rolls-Royce AB.

Access List

RR AB'S Info. Class:



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:

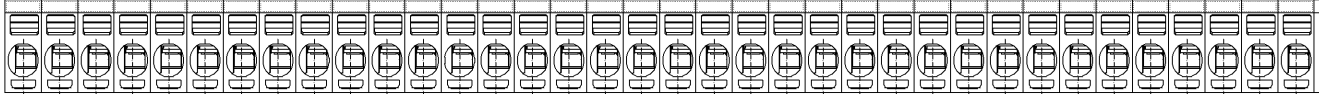
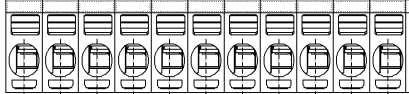





HEIGHT OVER PANEL: 180mm
MAX DEPTH: 100mm
WEIGHT: 3.3Kg
PROTECTION DEGREE: IP65
PANEL SURFACE: BLACK ANODIZED
SCREEN PRINT COLOUR: YELLOW
LOGO COLOUR: WHITE
INSTRUMENT COLOUR: BLACK/YELLOW
CUT OUT IN DESK: 270 x 270 mm(H x W)

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 um | General Tolerances: SS-ISO 2768-f | Sharp edges broken: 0.2-0.5 | Checked: KK201 | Previous Dg: Standard |
| Control panel, layout | | | Approved: LNUE | Weighting: |
| Kamewa Main Propeller, Basic, Bridge | | | Origin, / Date: | Scale: Format: Sheet: |
| Rolls-Royce Propulsion Kiel 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. | | | KK330 10.01.2012 Drawing no: | 1:1 A1 1 of 3 Revision: |
| RRM200018712 | | | A | |

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|--|---|---|---|---|-------------------------------------|---------------------------|---------------|---|--|--|--|--|-------------------|---------------------------|--|--------------------------------------|--|--|--|--|-------------------|------------|--|---|--|--|--|--|-------------------------------------|--------|---------------|------------------|-----------------------------|--|--|----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | <div>PCB CONNECTOR</div> <div>X1</div> <div></div> <div>X1:</div> <div>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)</div> | | | | | | | <div>PCB CONNECTOR</div> <div>X2</div> <div></div> <div>X2:</div> <div>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</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | <table><tr><td colspan="5">Control panel, wiring</td><td>Checked: KK201</td><td colspan="2">Previous Drg: Standard</td></tr><tr><td colspan="5">Kamewa Main Propeller, Basic, bridge</td><td>Approved: LNJE</td><td colspan="2">Weight kg:</td></tr><tr><td colspan="5" rowspan="2"><div>Rolls-Royce</div><div>Rolls-Royce AB Propulsion Kristinehamn</div></td><td>Origin. / Date: KK330 10.01.2012</td><td>Scale:</td><td>Format: A3</td><td>Sheet: 2 of 3</td></tr><tr><td colspan="3">Drawing no: RRM200018712</td><td colspan="2">Revision: A</td></tr><tr><td colspan="9">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.</td></tr><tr><td colspan="9"></td></tr></table> | | | | | | | Control panel, wiring | | | | | Checked: KK201 | Previous Drg: Standard | | Kamewa Main Propeller, Basic, bridge | | | | | Approved: LNJE | Weight kg: | | <div>Rolls-Royce</div> <div>Rolls-Royce AB Propulsion Kristinehamn</div> | | | | | Origin. / Date: KK330 10.01.2012 | Scale: | Format: A3 | Sheet: 2 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. | | | | | | | | | | | | | | | | | |
| Control panel, wiring | | | | | Checked: KK201 | Previous Drg: Standard | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kamewa Main Propeller, Basic, bridge | | | | | Approved: LNJE | Weight kg: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>Rolls-Royce</div> <div>Rolls-Royce AB Propulsion Kristinehamn</div> | | | | | Origin. / Date: KK330 10.01.2012 | Scale: | Format: A3 | Sheet: 2 of 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Drawing no: RRM200018712 | | | Revision: A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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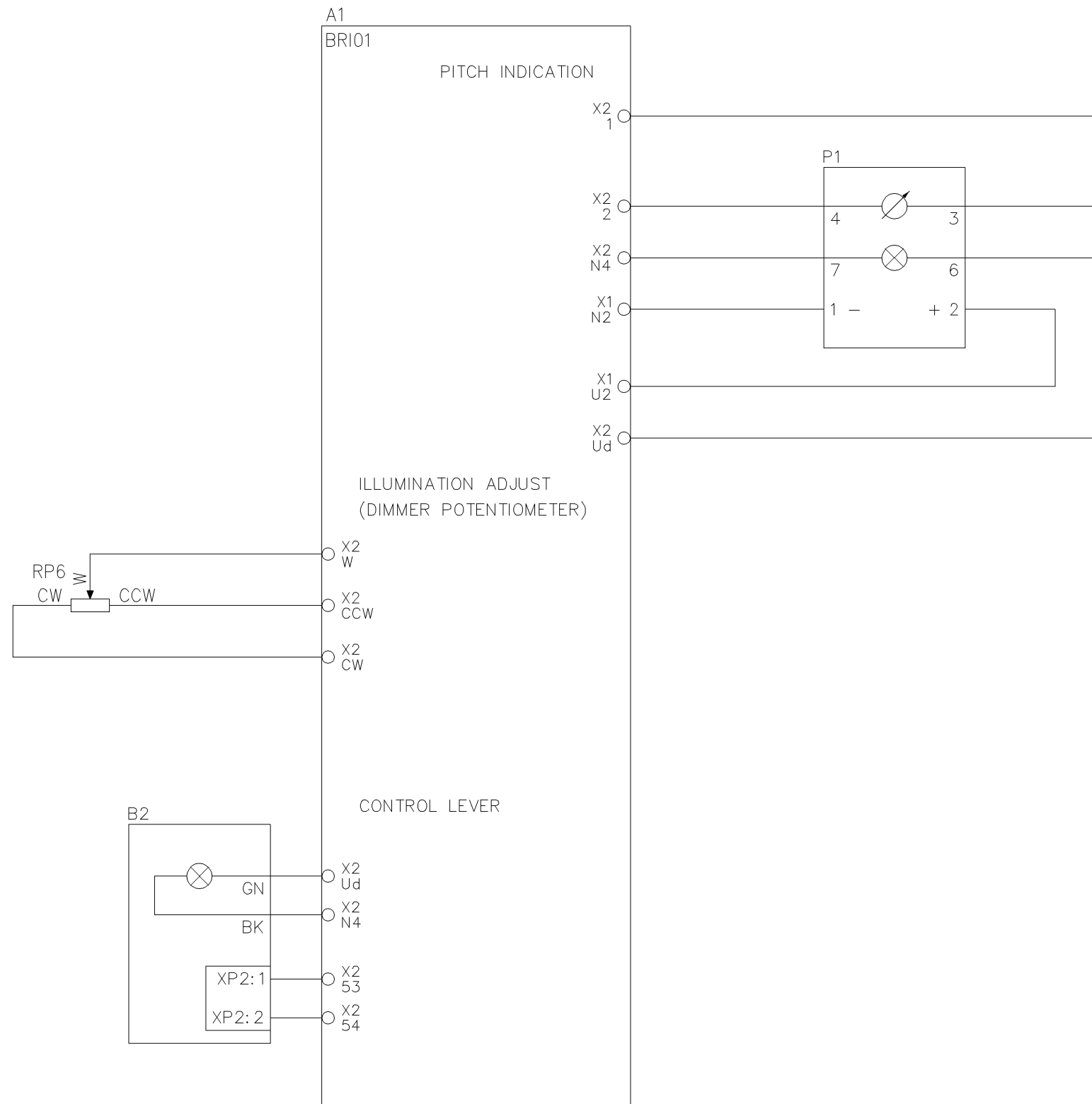
B

C

D

E

F



INDICATION, DIMMER, CONTROL LEVER

Control panel, wiring

Kamewa Main Propeller, Basic, Bridge



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

| |
|-----------------|
| Origin. / Date: |
|-----------------|

| | |
|-------|------------|
| KK330 | 10.01.2012 |
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Drawing no:

RRM200018712

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| Checked: | |
| KK201 | |

Approved:
LNJE

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| Scale: | |
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| | |
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| Previous Drg: | |
| Standard | |

Weight kg:

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| Format: | |
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A3

Sheet:

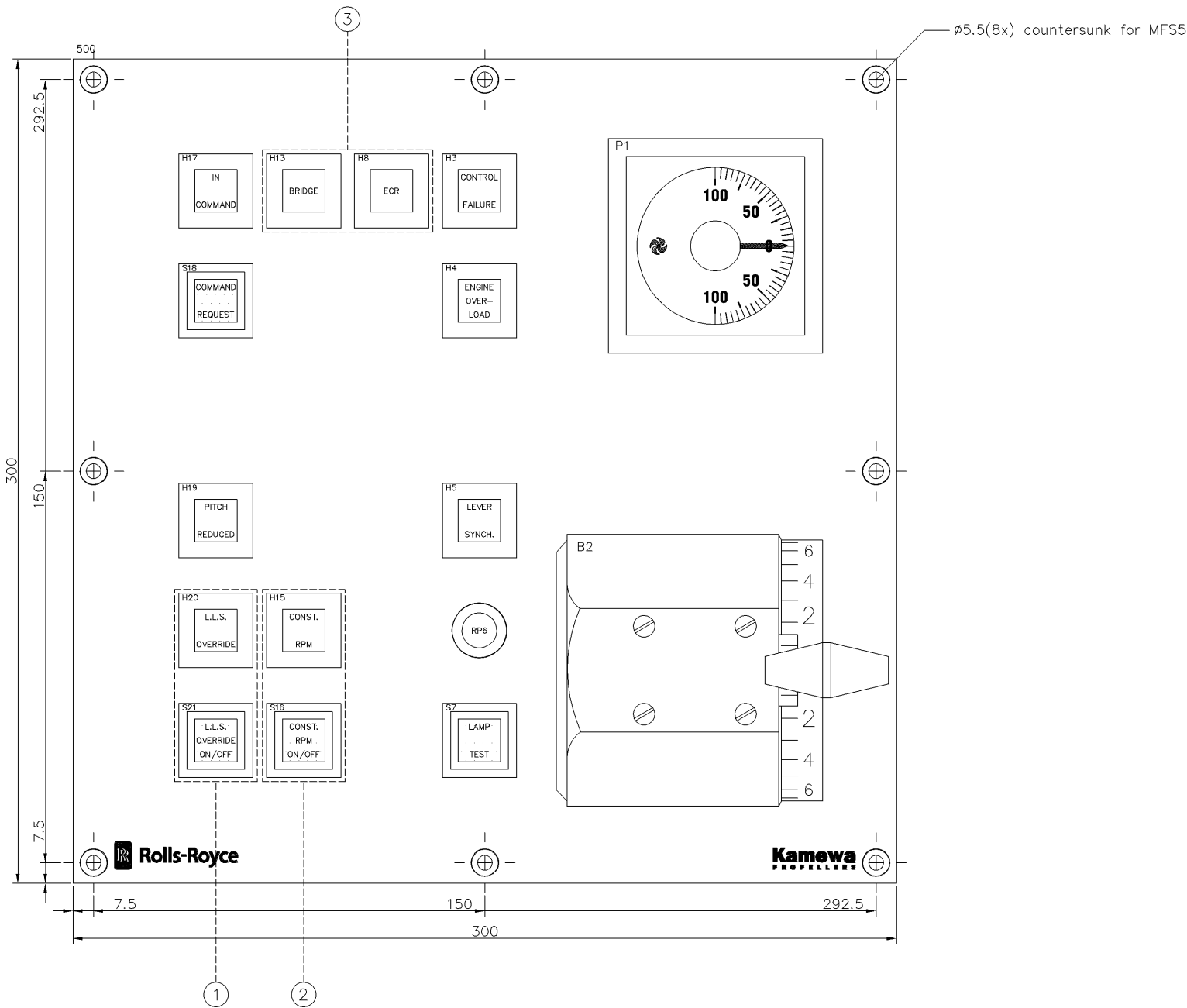
3 of 3

Revision:

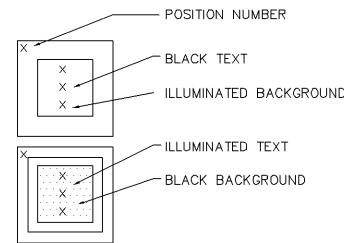
A

1917 000000

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)

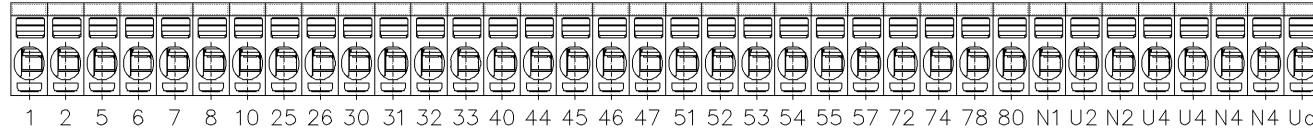
OPTIONAL FUNCTIONS:

- 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: 0.2-0.5 | Checked: RK35 Approved: LNUE | Previous Dwg: Standard Weighting: |
| Control panel, layout | | | | |
| Kamewa Main Propeller, Basic bridge wing | | | | |
| Origin, Date: KK201 05.09.2011 | | Scale: 1:1 | Format: A1 | Sheet: 1 of 3 |
| Rolls-Royce Propulsion Kielbrehm | | Drawing no: RRM200018711 | | |
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PCB CONNECTOR

X1

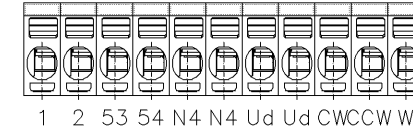


X1:

- 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



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

Control panel, wiring

Kamewa Main Propeller, Basic bridge wing



Rolls-Royce AB
Propulsion Kristinehamn

| |
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| Origin. / Date: |
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| KK201 | 05.09.2011 |
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Drawing no:

RRM200018711

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| Checked: |
| KK35 |

Approved:
LNJE

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| | Scale: |
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| Previous Drg: | |
| Standard | |

Weight kg:

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| Format: |
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A3

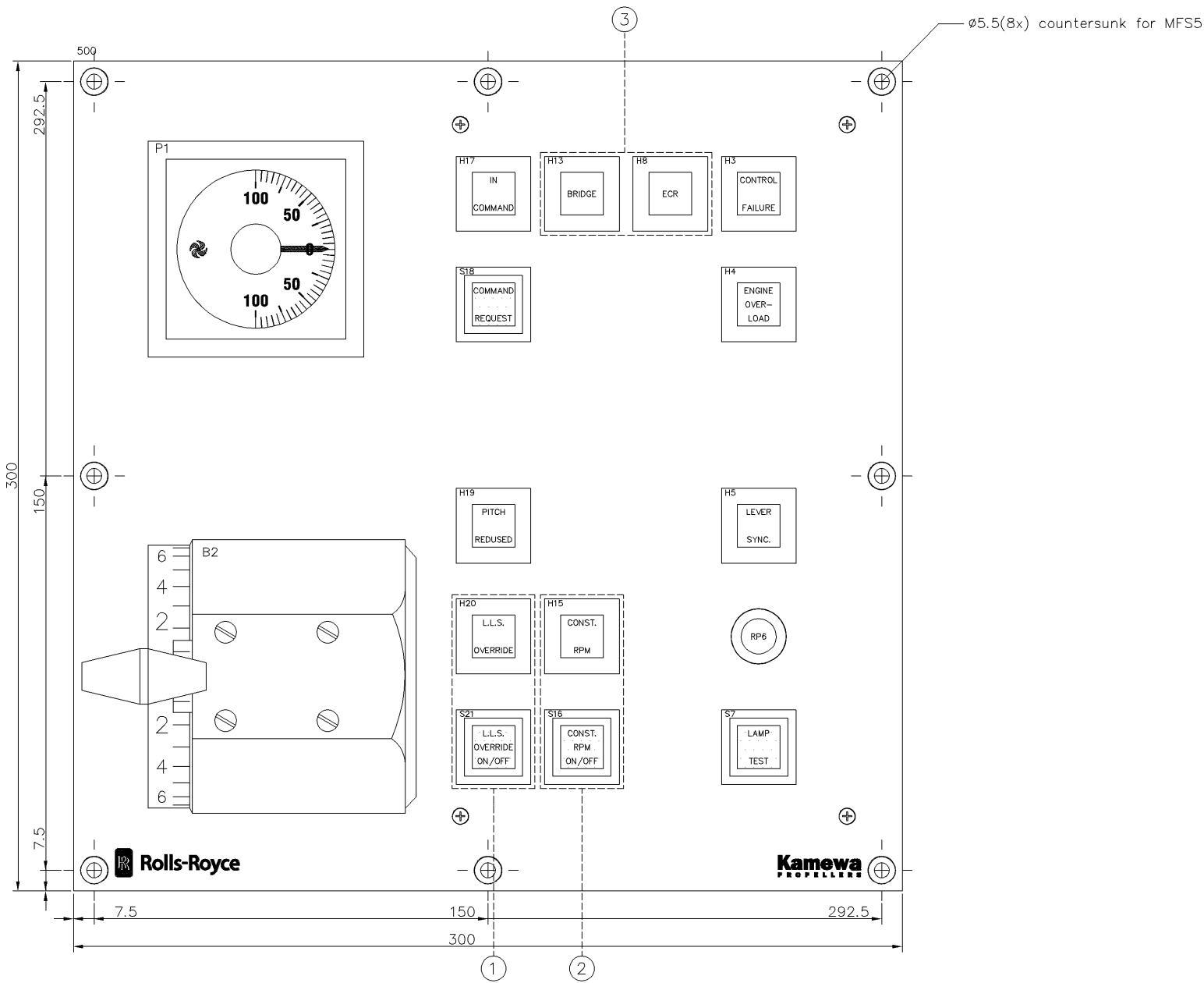
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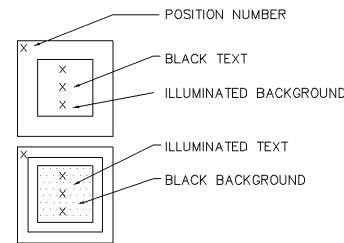
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Access List

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:

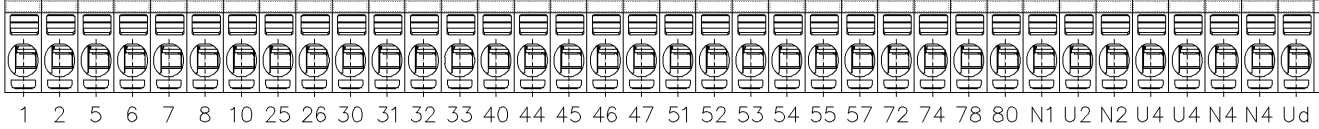
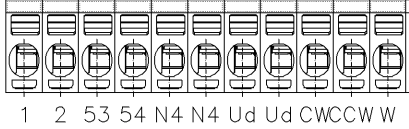






HEIGHT OVER PANEL: 180mm
MAX DEPTH: 100mm
WEIGHT: 3.2Kg
PROTECTION DEGREE: IP66
PANEL SURFACE: BLACK ANODIZED
SCREEN PRINT COLOUR: YELLOW
LOGO COLOUR: WHITE
INSTRUMENT COLOUR: BLACK/YELLOW
CUT OUT IN DESK: 270 x 270 mm(H x W)

OPTIONAL FUNCTIONS:

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

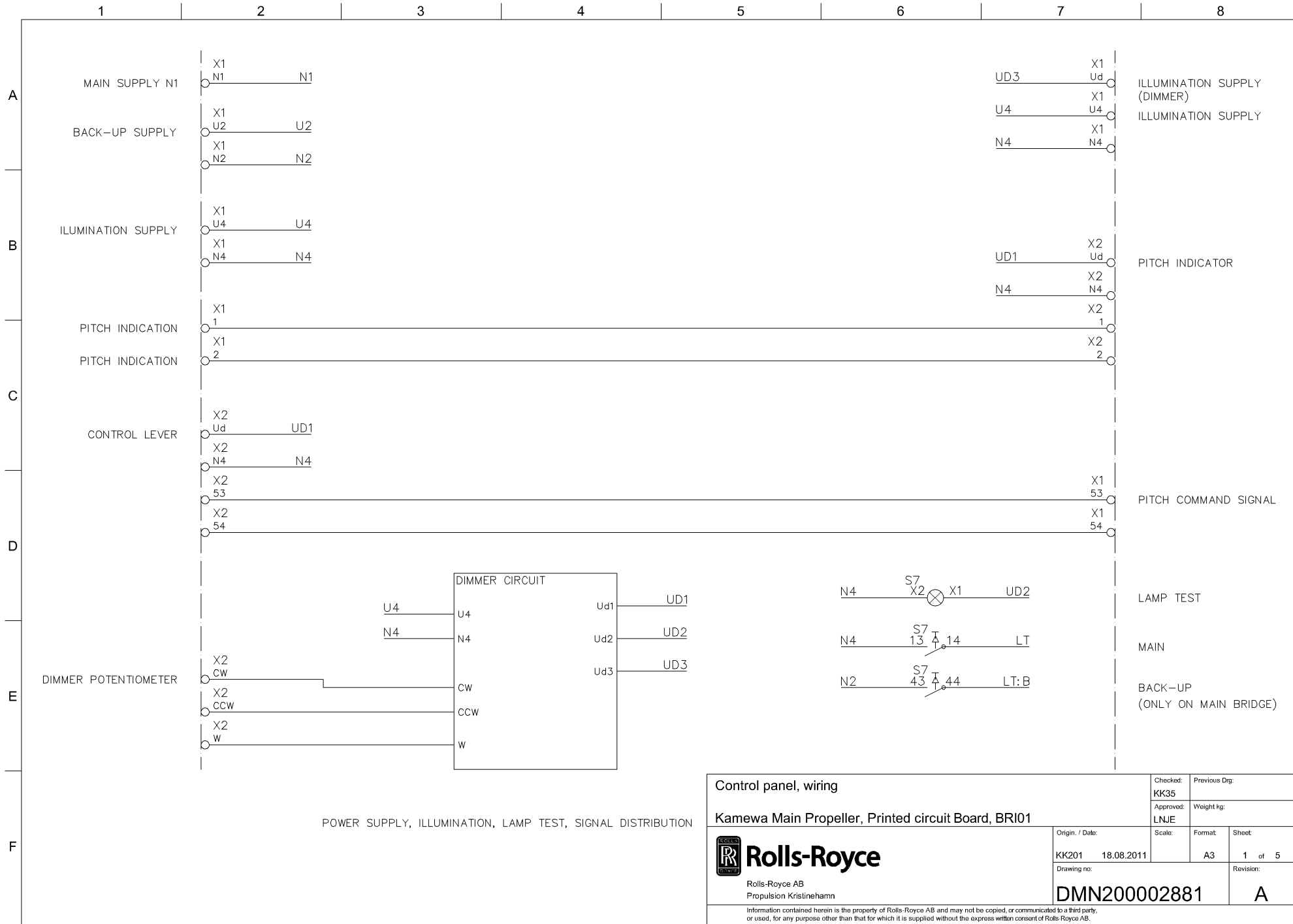
| | | | | |
|--|--------------------------------------|--------------------------------|-------------------|---------------------------|
| Only panel plates, Surface Roughness: SS-ISO 1302 Ra 1.6 um | General Tolerances: SS-ISO 2768-f | Sharp edges broken: 0.2-0.5 | Checked: KK201 | Previous Drg: Standard |
| Control panel, layout | | | Approved: LNUE | Weighting: |
| Kamewa Main Propeller, Basic bridge wing | | | Origin, Date: | Scale: Format: Sheet: |
| Rolls-Royce Propulsion Kielbremer | | | KK330 10.01.2012 | 1:1 A1 1 of 3 |
| Drawing no: | | | RRM200018713 | Revision: |
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|--|---|---|---|------------------|---------------|--------|-----------|---|--|--|--|----------|---------------|--|-------|----------|--|--|--|--|--|-----------|------------|--|------|--|--|---|--|--|--|-----------------|--|--------|---------|--------|------------------|--|--|----|--------|-------------|--|--|-----------|--|--------------|--|--|---|--|--|--|--|--|--|--|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | <div>PCB CONNECTOR</div> <div>X1</div> <div></div> <div>X1:</div> <div>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)</div> | | | | | | | <div>PCB CONNECTOR</div> <div>X2</div> <div></div> <div>X2:</div> <div>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</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | <table><tr><td colspan="4" rowspan="2">Control panel, wiring</td><td>Checked:</td><td colspan="2">Previous Drg:</td></tr><tr><td>KK201</td><td colspan="2">Standard</td></tr><tr><td colspan="4" rowspan="2">Kamewa Main Propeller, Basic bridge wing</td><td>Approved:</td><td colspan="2">Weight kg:</td></tr><tr><td>LNJE</td><td colspan="2"></td></tr><tr><td colspan="4" rowspan="3"><div> Rolls-Royce</div><div>Rolls-Royce AB Propulsion Kristinehamn</div></td><td colspan="2">Origin. / Date:</td><td>Scale:</td><td>Format:</td><td>Sheet:</td></tr><tr><td colspan="2">KK330 10.01.2012</td><td></td><td>A3</td><td>2 of 3</td></tr><tr><td colspan="3">Drawing no:</td><td colspan="2">Revision:</td></tr><tr><td colspan="3">RRM200018713</td><td colspan="2">A</td></tr><tr><td colspan="9">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.</td></tr></table> | | | | | | | Control panel, wiring | | | | Checked: | Previous Drg: | | KK201 | Standard | | Kamewa Main Propeller, Basic bridge wing | | | | Approved: | Weight kg: | | LNJE | | | <div> Rolls-Royce</div> <div>Rolls-Royce AB Propulsion Kristinehamn</div> | | | | Origin. / Date: | | Scale: | Format: | Sheet: | KK330 10.01.2012 | | | A3 | 2 of 3 | Drawing no: | | | Revision: | | RRM200018713 | | | 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. | | | | | | | | |
| Control panel, wiring | | | | Checked: | Previous Drg: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | KK201 | Standard | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kamewa Main Propeller, Basic bridge wing | | | | Approved: | Weight kg: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | LNJE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div> Rolls-Royce</div> <div>Rolls-Royce AB Propulsion Kristinehamn</div> | | | | Origin. / Date: | | Scale: | Format: | Sheet: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | KK330 10.01.2012 | | | A3 | 2 of 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Drawing no: | | | Revision: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RRM200018713 | | | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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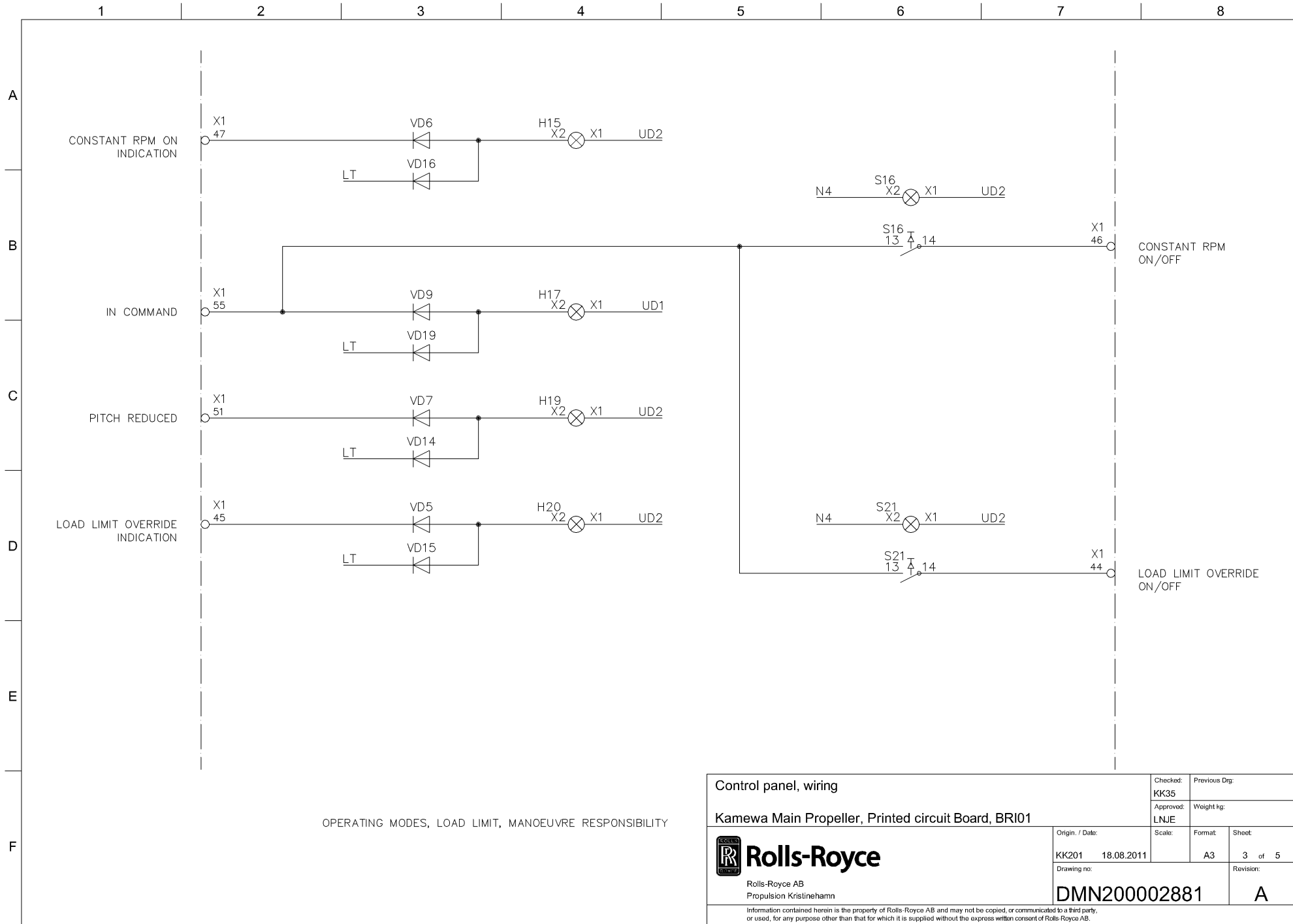
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|--|--|--|-----------------|---------------|---------|--------|-----------|--|
| Control panel, wiring | | | Checked: | Previous Drg: | | | | |
| | | | KK201 | Standard | | | | |
| Kamewa Main Propeller, Basic bridge wing | | | Approved: | Weight kg: | | | | |
| | | | LNJE | | | | | |
| <div></div> <div><h1>Rolls-Royce</h1><p>Rolls-Royce AB Propulsion Kristinehamn</p></div> | | | Origin. / Date: | Scale: | Format: | Sheet: | | |
| | | | KK330 | 10.01.2012 | | A3 | 2 of 3 | |
| | | | Drawing no: | | | | Revision: | |
| | | | RRM200018713 | | | | A | |
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Access List

RR AB'S Info. Class:
LIMITED



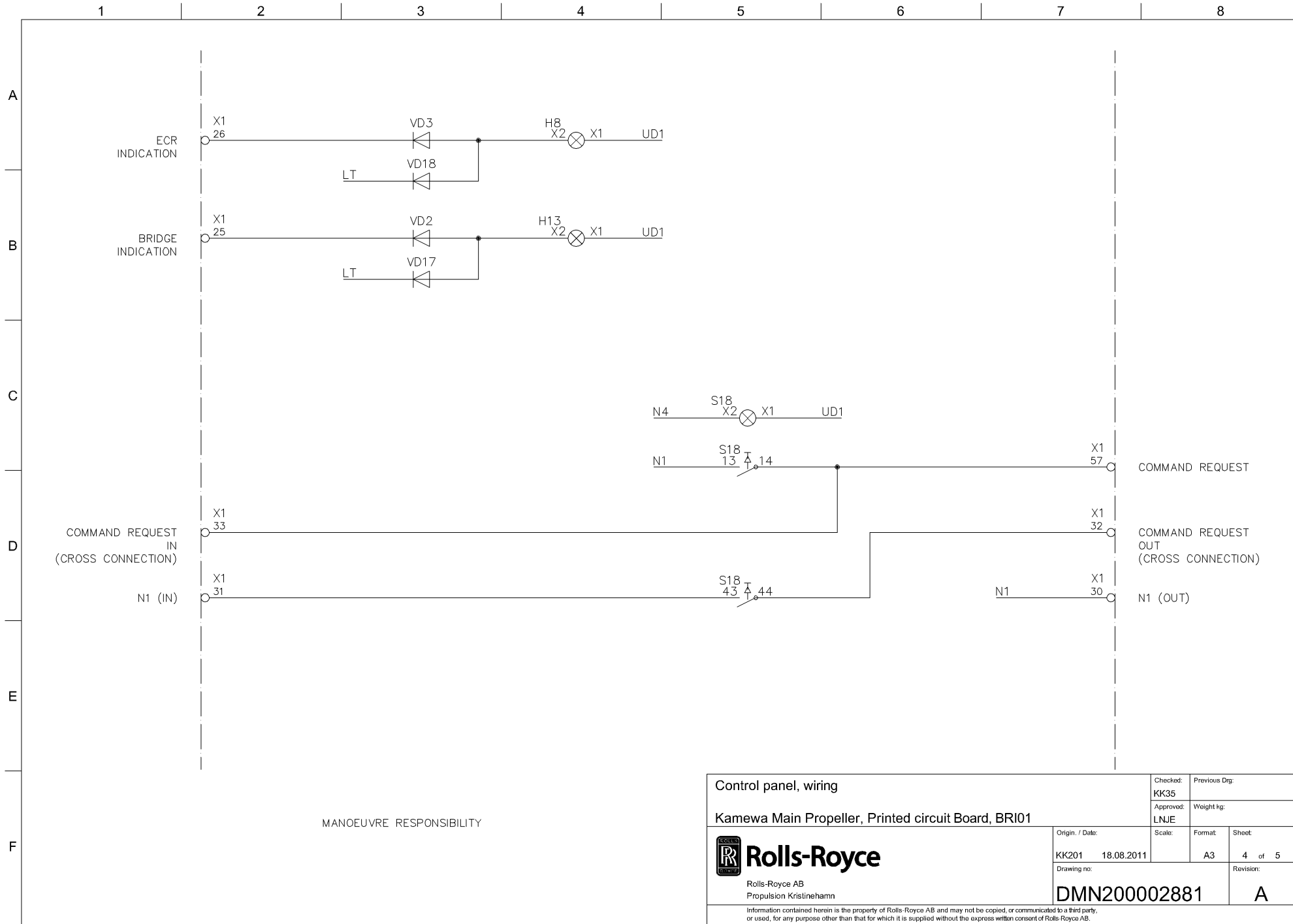
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| Kamewa Main Propeller, Printed circuit Board, BRI01 | | | | Approved: LNJE | | Weight kg: | | | |
| <div><h1>Rolls-Royce</h1><p>Rolls-Royce AB Propulsion Kristinehamn</p></div> | | | | Origin. / Date: | | Format: | | Sheet | |
| | | | | KK201 18.08.2011 | | A3 | | 1 of 5 | |
| | | | | Drawing no: | | | | Revision: | |
| DMN200002881 | | | | A | | | | | |
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| | | | | | | | | LIMITED | |




| | | | | | | | | |
|--|------------------|--|--------|-------------------|---------|---------------|-----------|--|
| Control panel, wiring | | | | Checked: KK35 | | Previous Org: | | |
| Kamewa Main Propeller, Printed circuit Board, BRI01 | | | | Approved: LNJE | | Weight kg: | | |
|  Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn | Origin. / Date: | | Scale: | | Format: | | Sheet: | |
| | KK201 18.08.2011 | | | | A3 | | 3 of 5 | |
| | Drawing no: | | | | | | Revision: | |
| | DMN200002881 | | | | | | A | |
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Across Ltd

Rolls-Royce AB Info Class: LIMITED



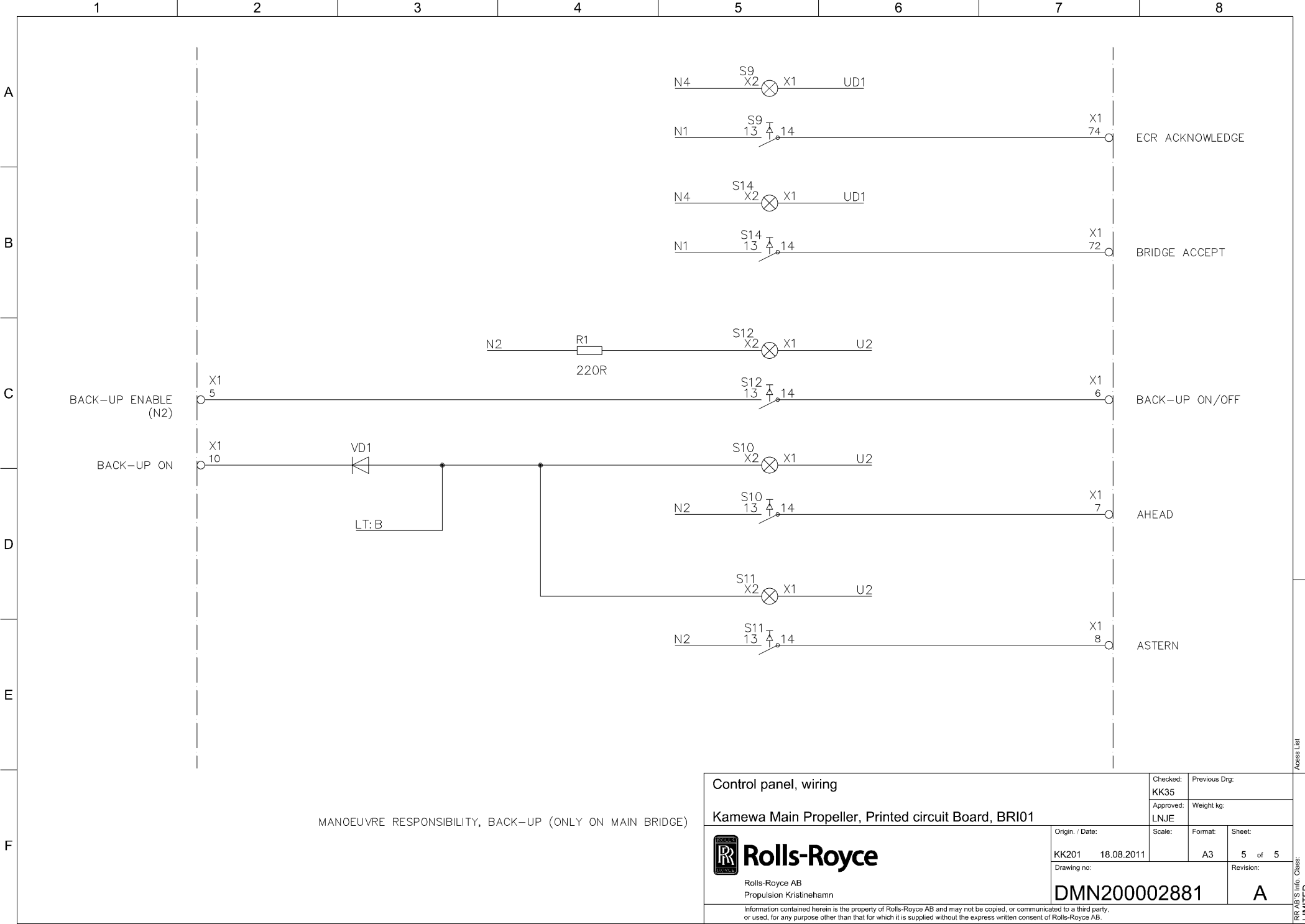
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| Kamewa Main Propeller, Printed circuit Board, BRI01 | | | | Approved: LNJE | | Weight kg: | |
| | | | | Scale: | | Format: | Sheet |
|  | Rolls-Royce | | Origin. / Date: | | Format: | | Sheet |
| | | | KK201 18.08.2011 | | A3 | | 4 of 5 |
| | | | Drawing no: | | Revision: | | |
| Rolls-Royce AB Propulsion Kristinehamn | | DMN200002881 | | | | A | |
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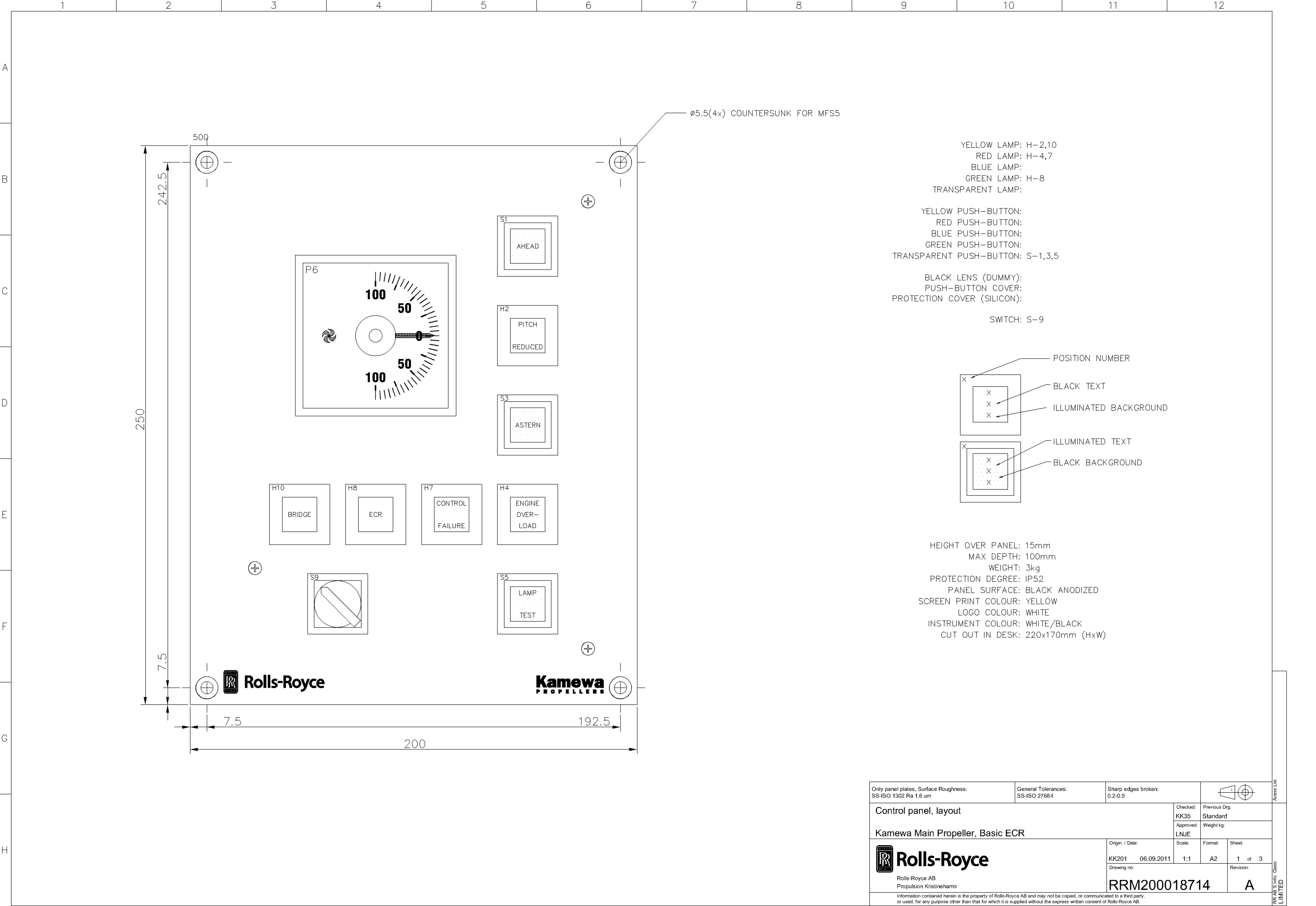
RR AB'S Info Class

LIMITED

Across Ltd

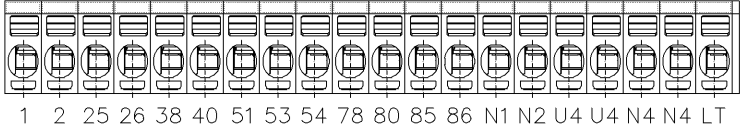
Rolls-Royce AB Info Class: LIMITED





PCB CONNECTOR

X1

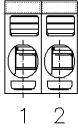


X1:

- 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



X2:

- 1 PITCH INDICATION
- 2 PITCH INDICATION

| | | | | | | | |
|---|--|--|------------------|--|---------------|----------|-----------|
| Control panel, wiring | | Checked: | KK35 | | Previous Drg: | Standard | |
| | | Approved: | LNJE | | Weight kg: | | |
| Kamewa Main Propeller, Basic ECR | | Origin. / Date: | KK201 06.09.2011 | | Scale: | Format: | Sheet: |
| | | Drawing no: | RRM200018714 | | | | Revision: |
| <div><div><div>ROLLS</div><div>RR</div><div>ROYCE</div></div><div><div>Rolls-Royce</div><div>Rolls-Royce AB</div><div>Propulsion Kristinehamn</div></div></div> | | 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

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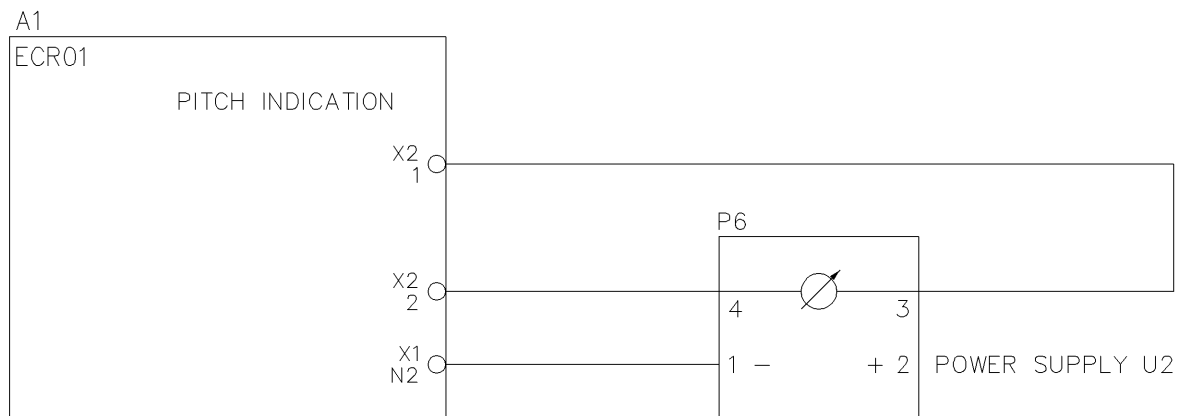
B

C

D

E

F



INDICATION

Control panel, wiring

Kamewa Main Propeller, Basic ECR



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

| | |
|-----------------|------------|
| Origin. / Date: | |
| KK201 | 06.09.2011 |

Drawing no:

RRM200018714

| | |
|----------|---------------|
| Checked: | Previous Drg: |
| KK35 | Standard |

| | |
|-------------------|------------|
| Approved: LNJE | Weight kg: |
|-------------------|------------|

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| Scale: | Format: | Sheet: |
| | A3 | 3 of 3 |

Revision:

A

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Access List

RR AB'S Info. Class:
LIMITED

A

B

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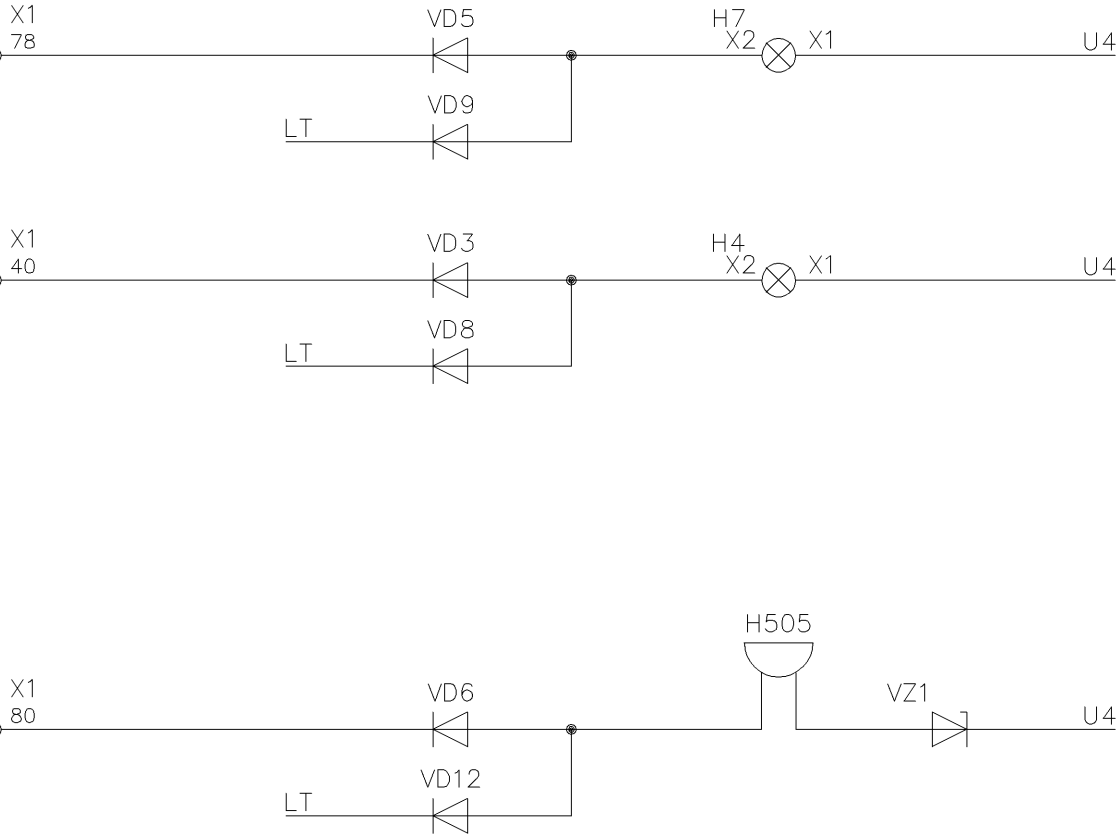
8

CONTROL FAILURE

ENGINE OVERLOAD

BUZZER

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

Scale:

Previous Drg:

Weight kg:

Format:

A3

Sheet:

2 of 4

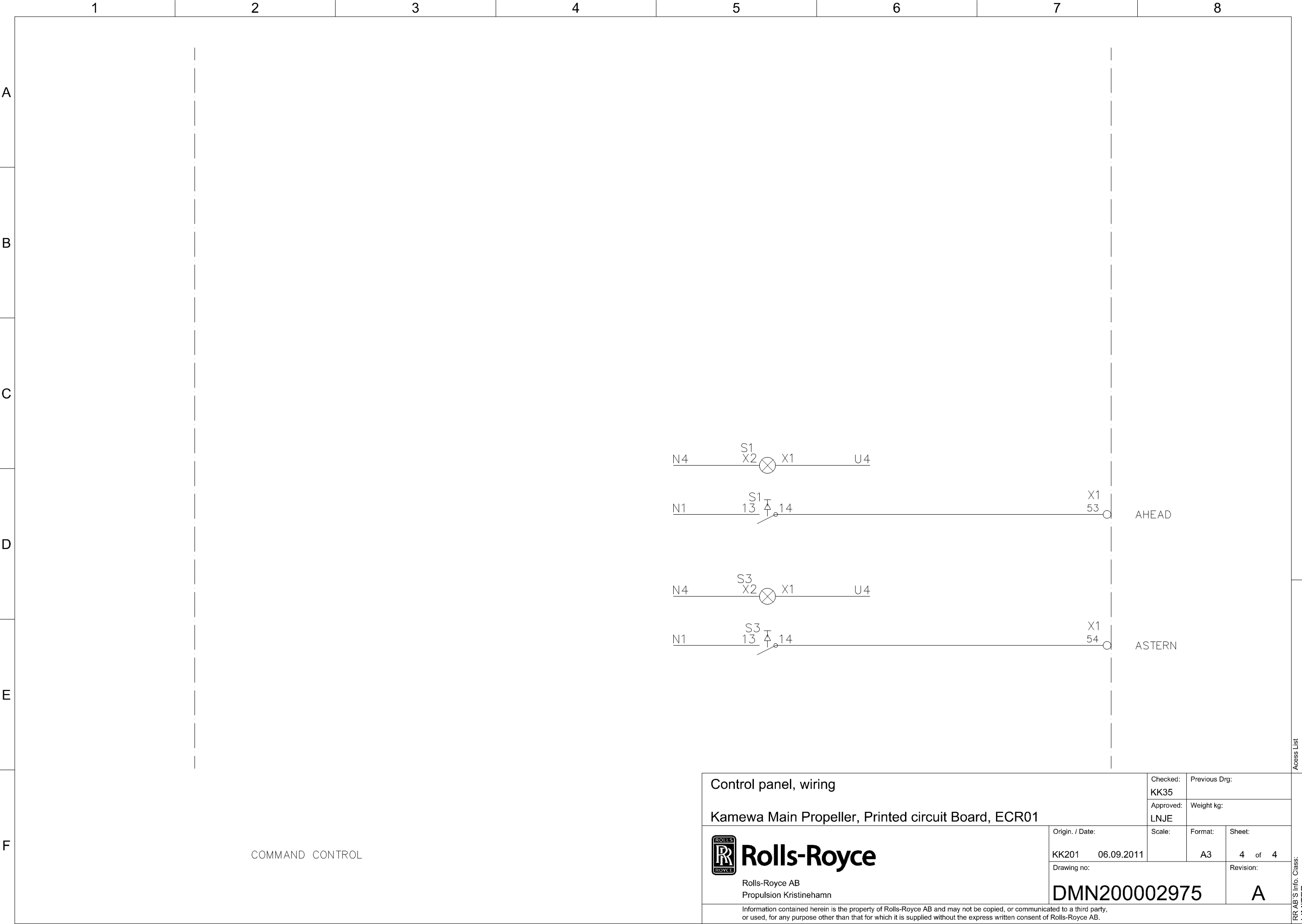
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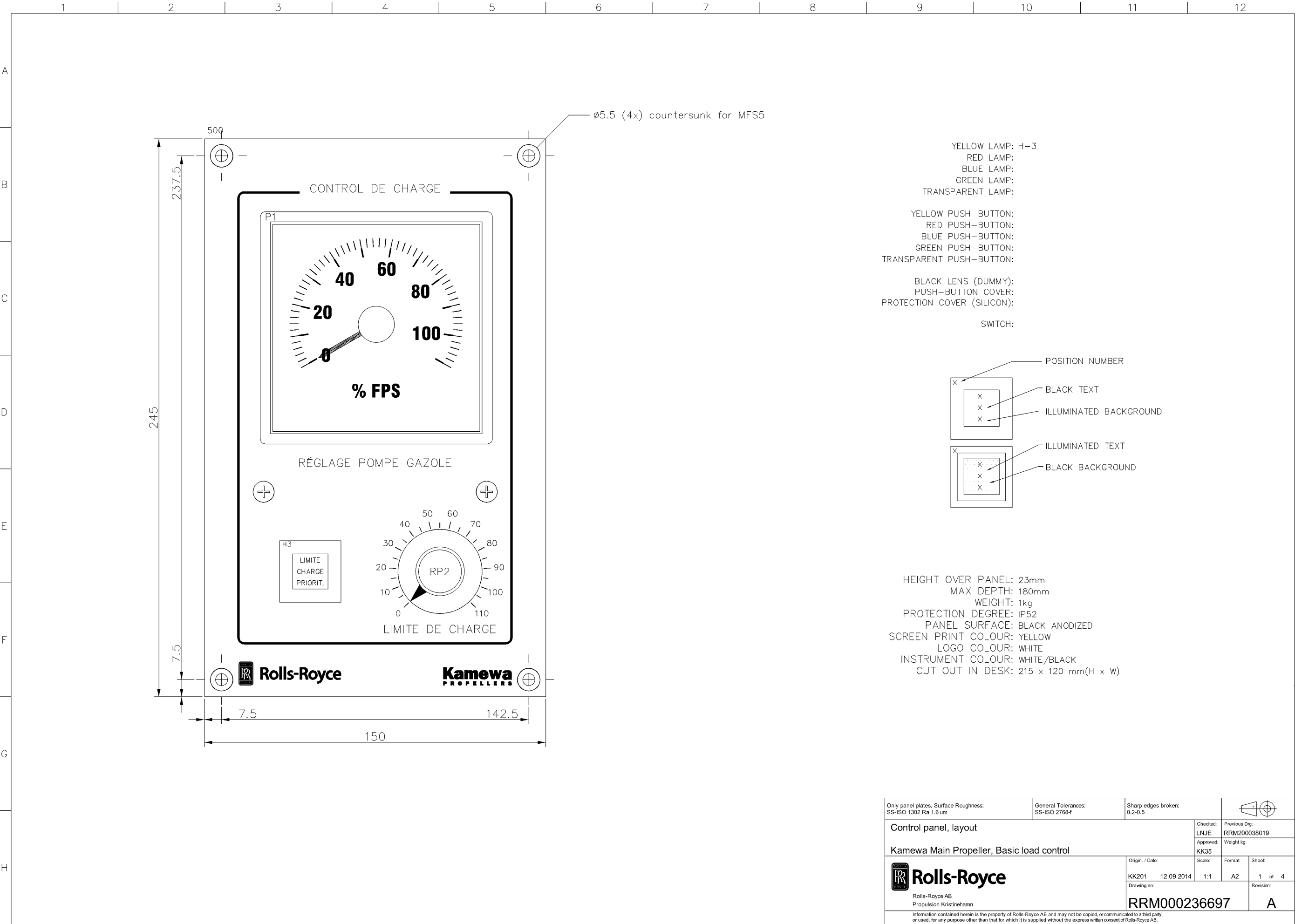
A

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Access List

RR AB'S Info. Class:
LIMITED







| | |
|-----------------------|-------------|
| RRR AB'S Info. Class: | Access List |
| LIMITED | |

A

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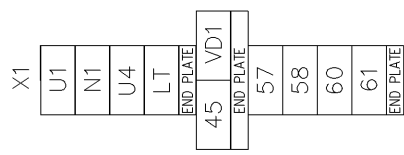
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CONNECTION TERMINALS MOUNTED ON POS 510

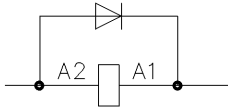


GENERAL INFORMATION

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

If other area is not specified

Example: 1.0
Cable area 1 mm² required.

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

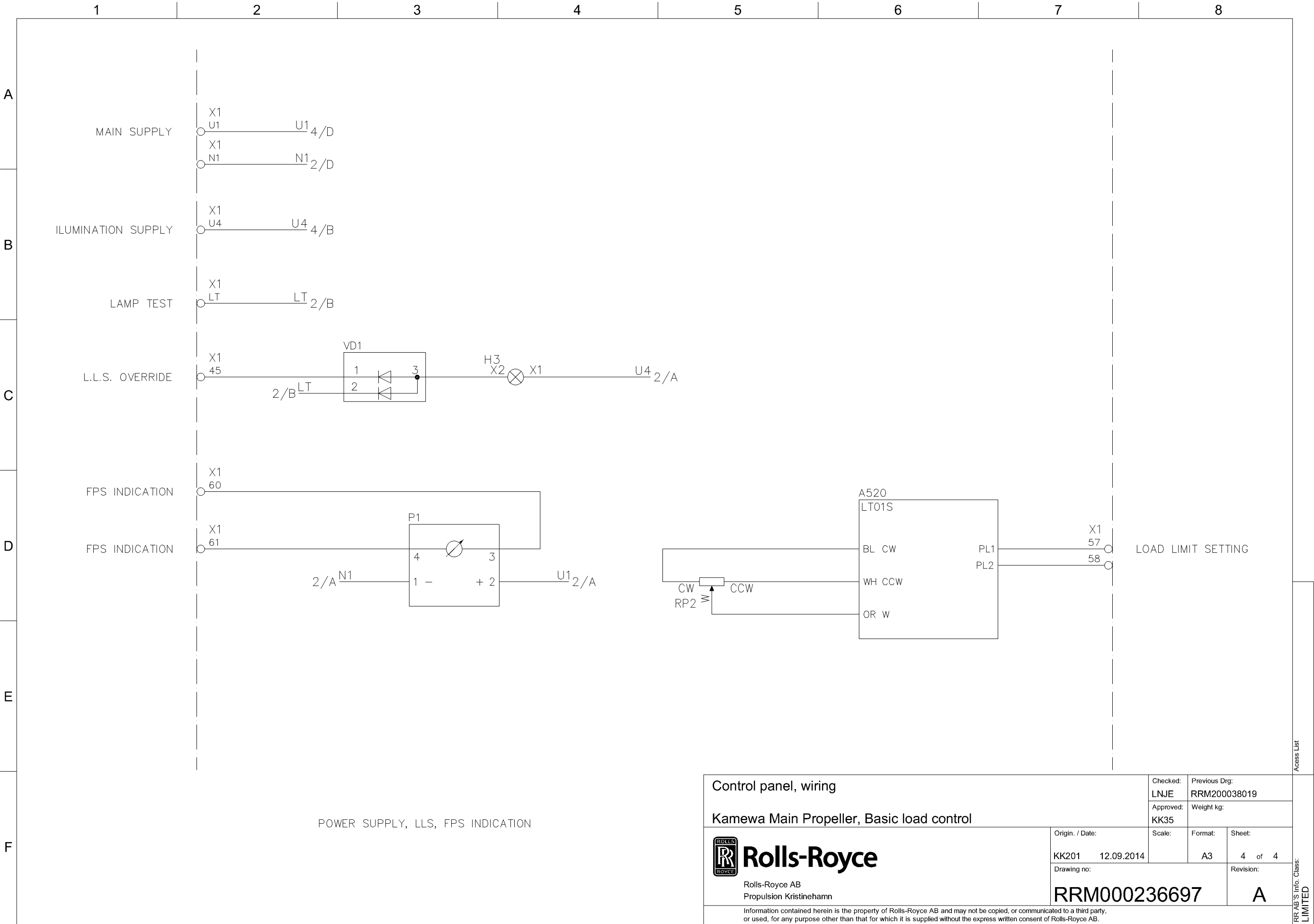
Approved: KK35
Weight kg:

Origin. / Date: KK201 12.09.2014
Scale: Format: A3
Sheet: 3 of 4

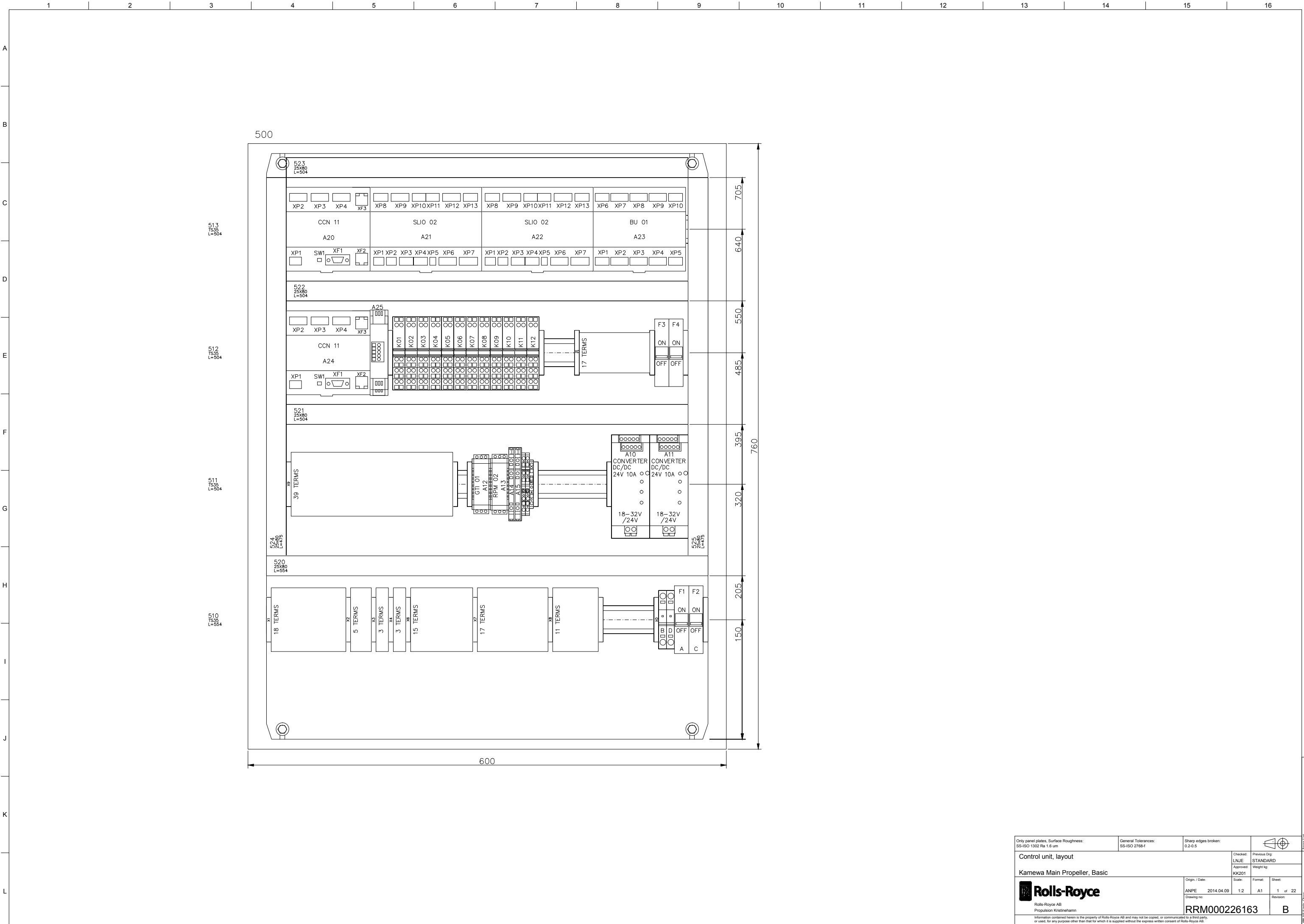
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Revision: A

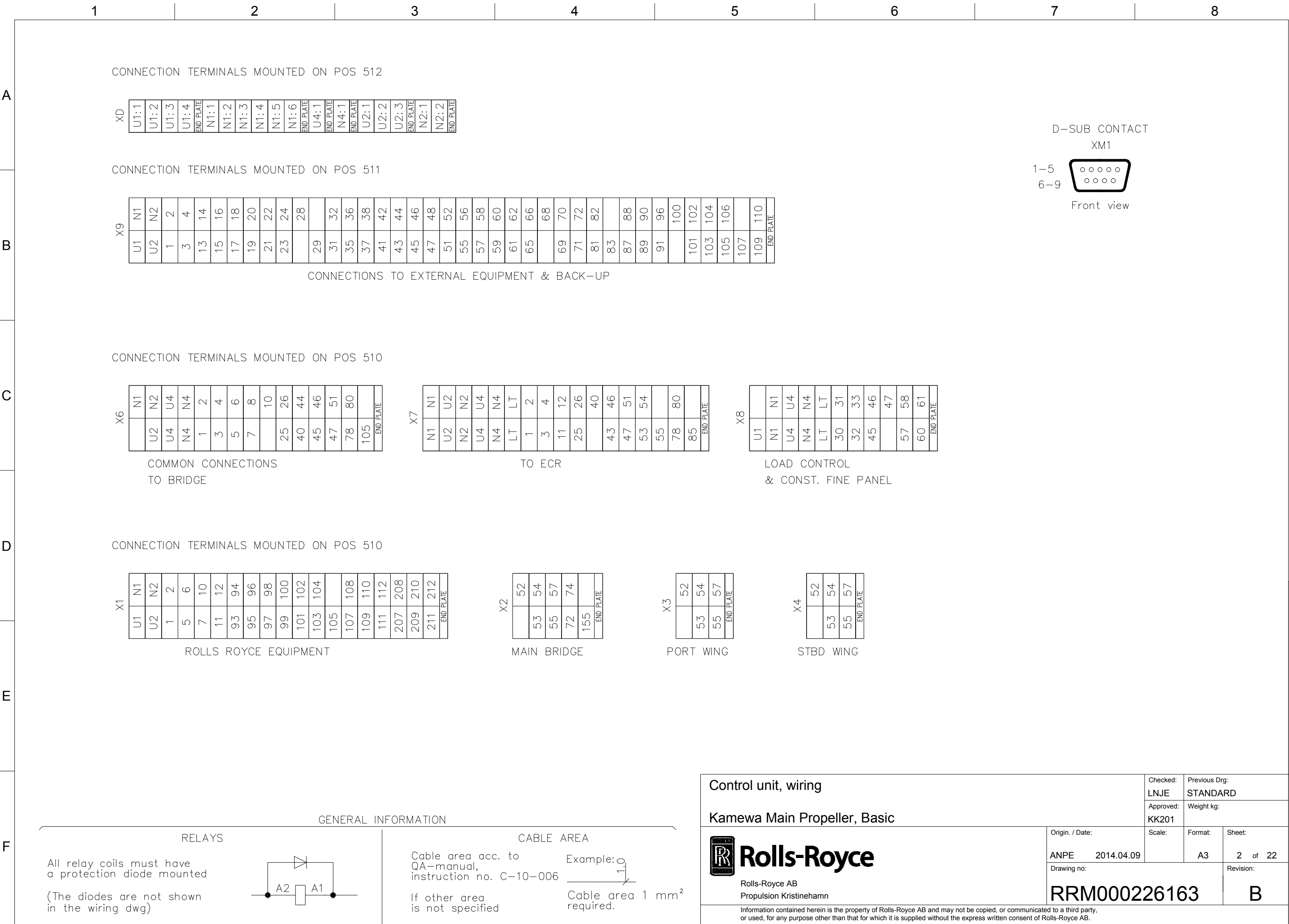
Access List

RR AB'S Info. Class:
LIMITED



| | | | | | |
|--|--|--|-------------------------------------|-------------------------------|------------------|
| Control panel, wiring | | | Checked: LNJE | Previous Drg: RRM200038019 | |
| | | | Approved: KK35 | Weight kg: | |
| Kamewa Main Propeller, Basic load control | | | Origin. / Date: KK201 12.09.2014 | Scale: | Format: A3 |
| | | | Drawing no: RRM000236697 | | Sheet: 4 of 4 |
| <div><div><div>ROLLS ROYCE</div><div><div>Rolls-Royce</div><div>Rolls-Royce AB Propulsion Kristinehamn</div></div></div></div> <div>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.</div> | | | Revision: A | | |
| | | | | | |





A

B

C

D

E

F

| 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

Kamewa Main Propeller, Basic



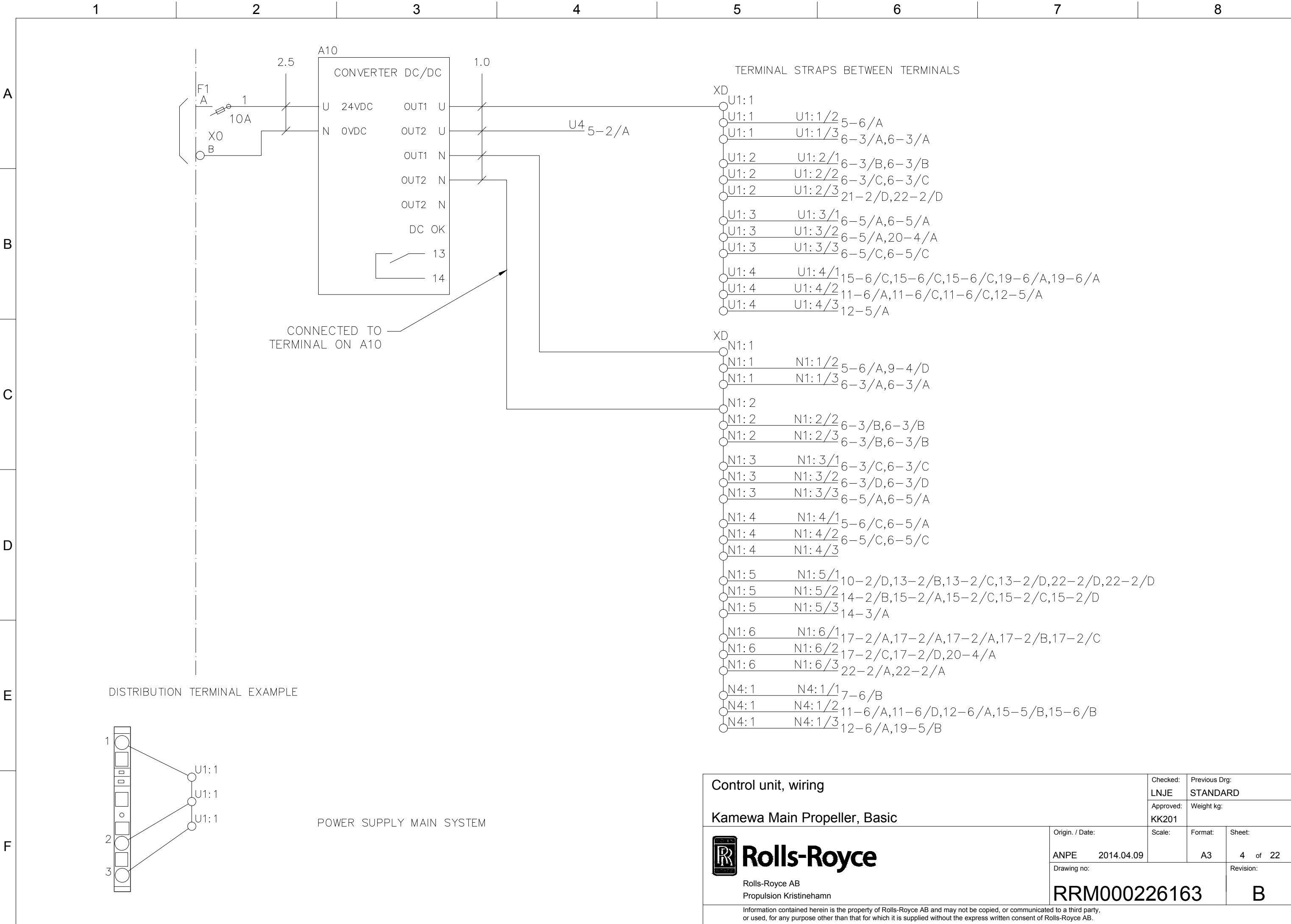
Rolls-Royce AB
Propulsion Kristinehamn

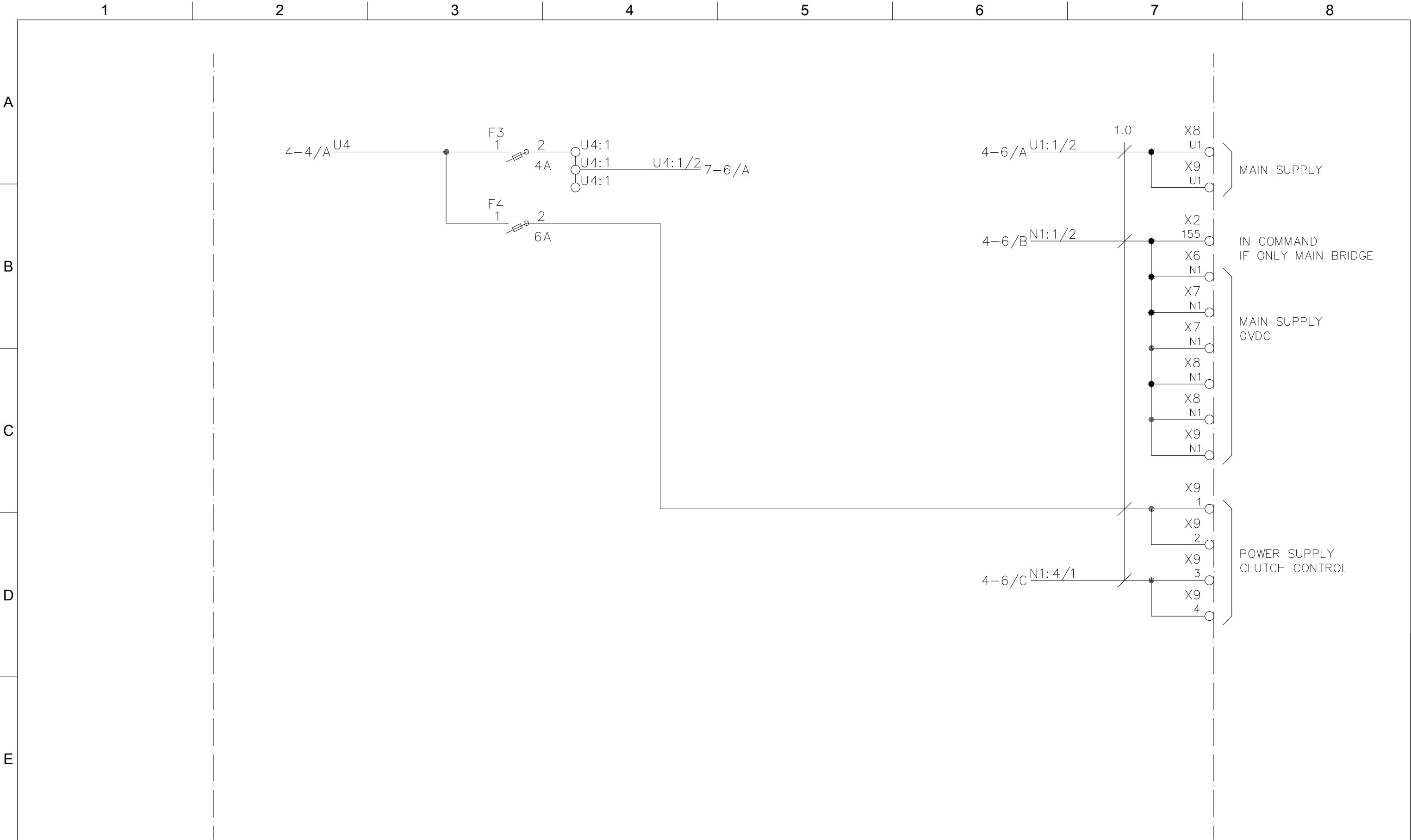
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| | Approved: KK201 | |
| Origin. / Date: ANPE 2014.04.09 | Scale: | Format: A3 |
| Drawing no: RRM000226163 | | Sheet: 3 of 22 |
| | | Revision: B |

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Access List

RR AB'S Info. Class:
LIMITED





POWER SUPPLY MAIN SYSTEM

Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

Scale: Format: Sheet:
A3 5 of 22

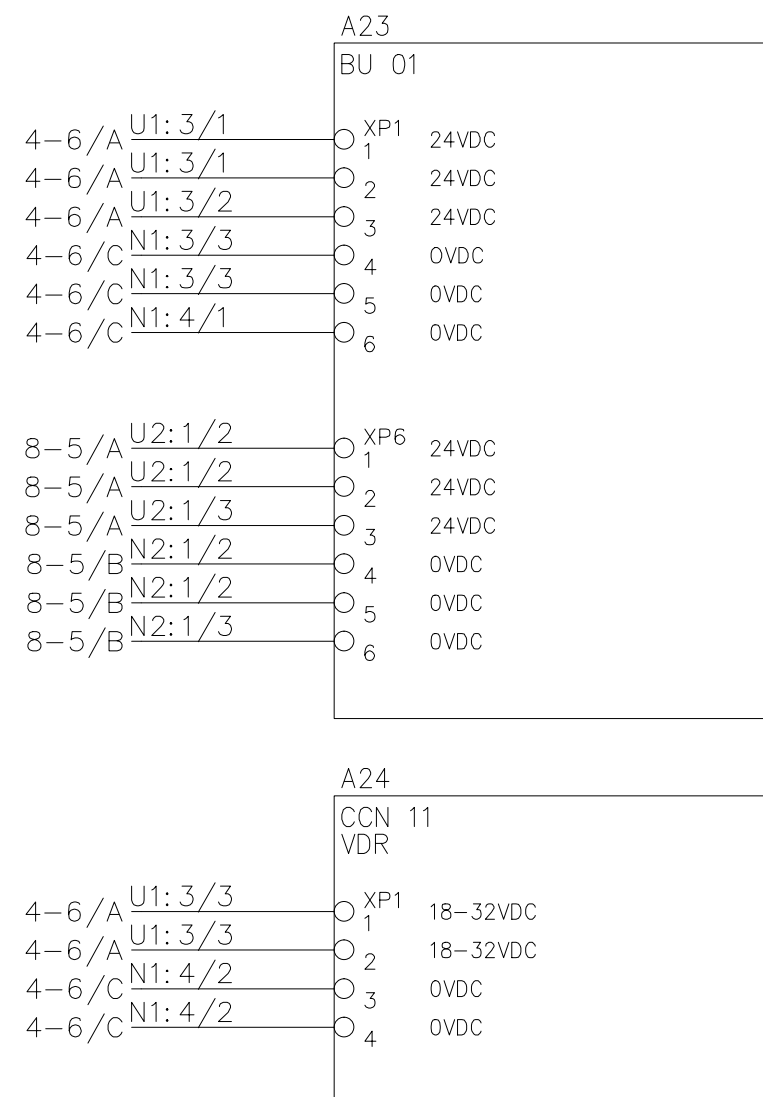
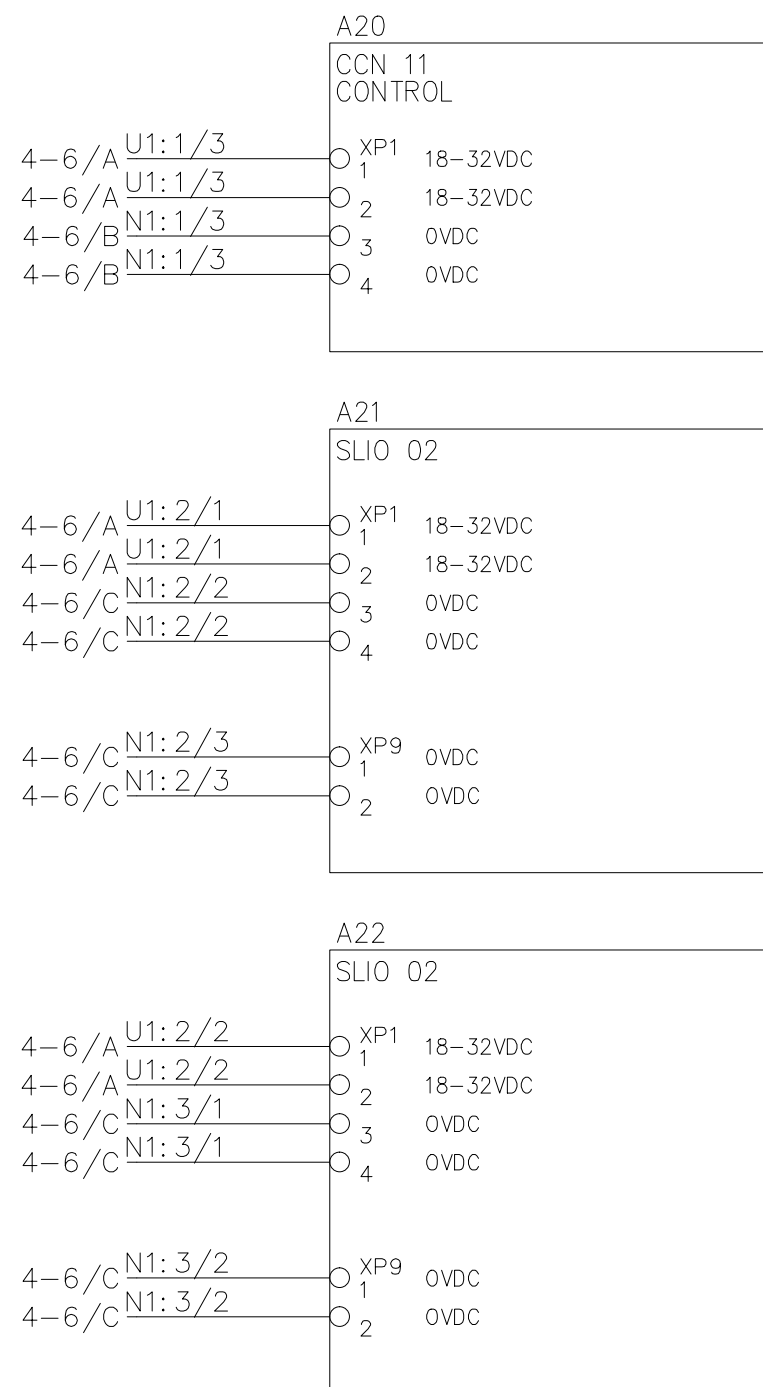
Revision:

B


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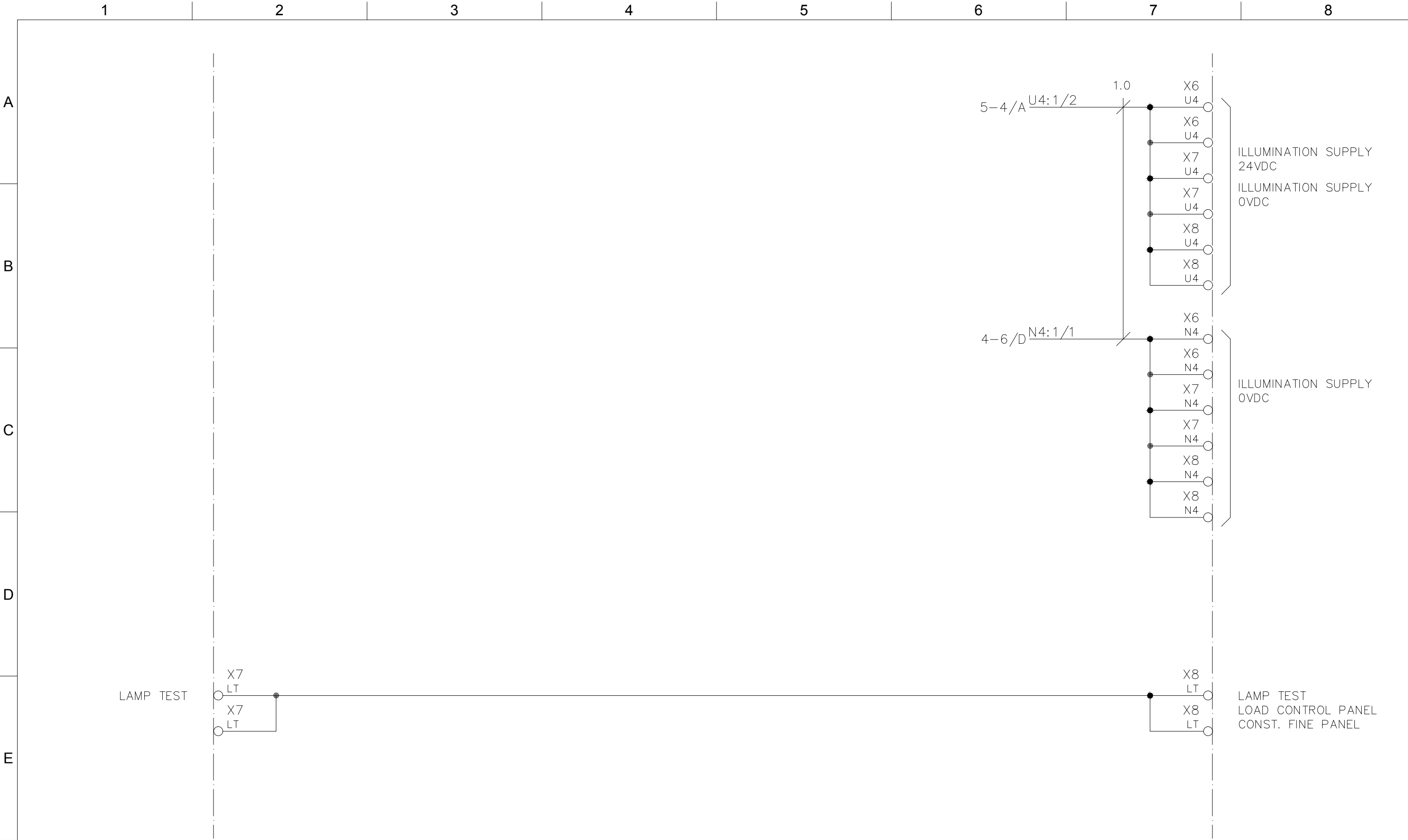
Access List

RR AB'S Info. Class:
LIMITED



POWER SUPPLY CIRCUIT BOARDS

| | | | | |
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| 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 | 6 of 22 |
| | Drawing no: | | | Revision: |
| | RRM000226163 | | | B |
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Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

Scale: Format: Sheet:
A3 7 of 22

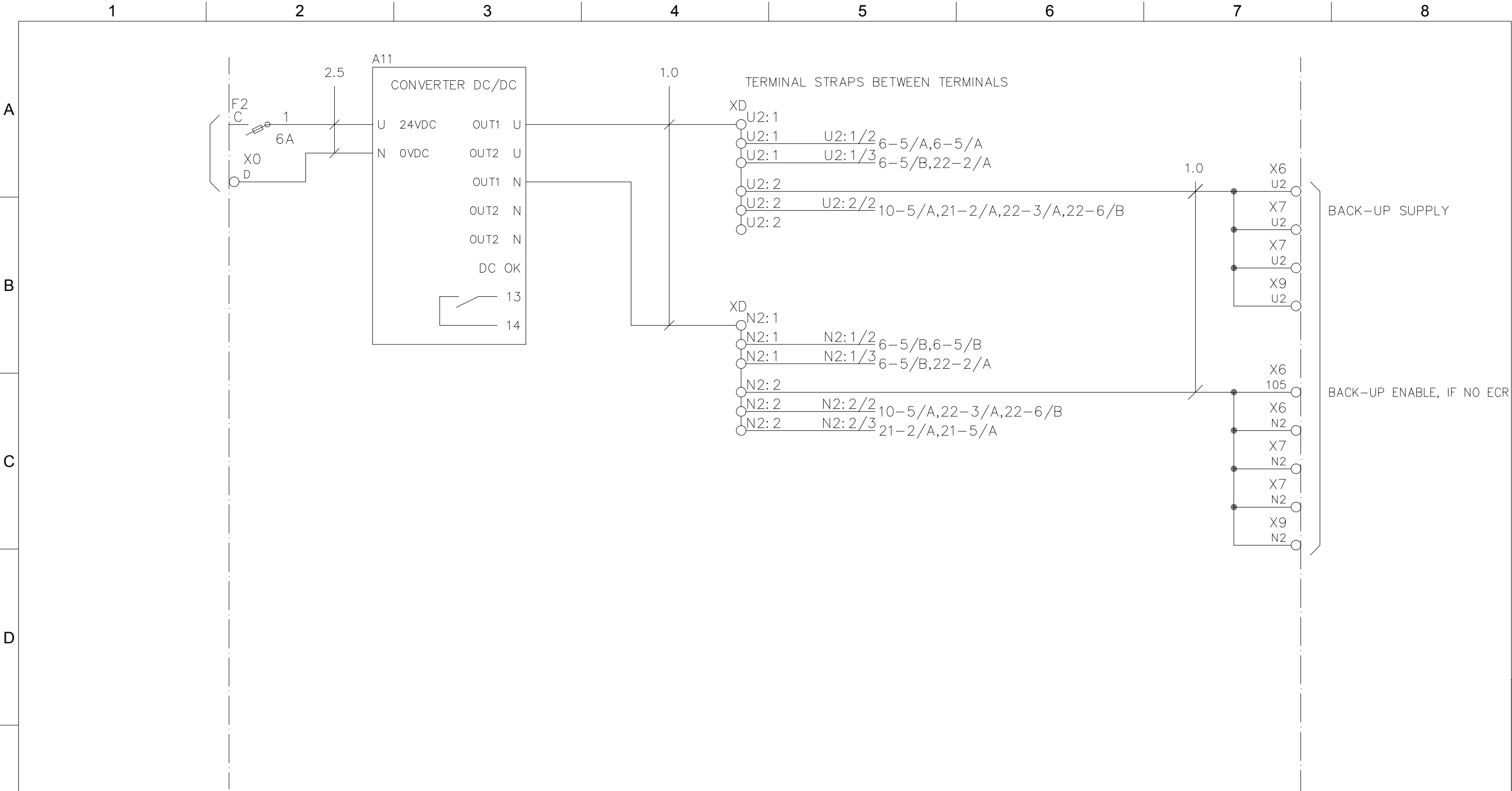
Revision:

B

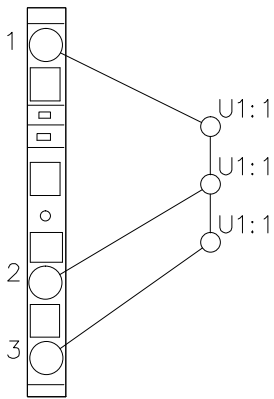
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Access List

RR AB'S Info. Class:
LIMITED



DISTRIBUTION TERMINAL EXAMPLE



POWER SUPPLY BACK-UP SYSTEM

Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
ANPE 2014.04.09

Drawing no:

Checked:
LNJE

Approved:
KK201

Scale:
A3

Format:
A3

Sheet:
8 of 22

Revision:
B

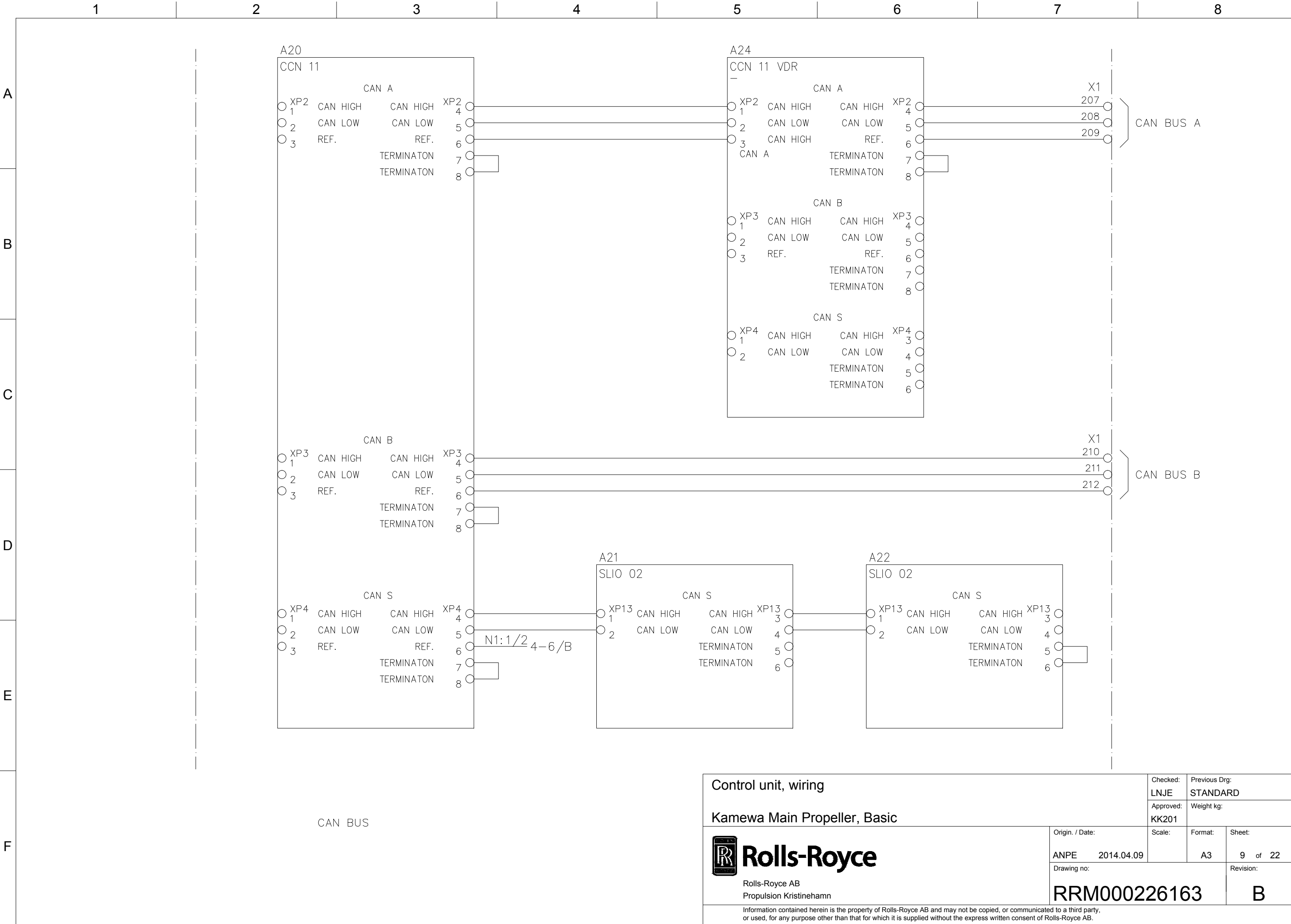
RRM000226163

B

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Access List

RR AB'S Info. Class:
LIMITED



A22

SLIO 02

CAN S

XP13

1

CAN HIGH

CAN HIGH

XP13

3

2

CAN LOW

CAN LOW

4

5

TERMINATON

5

6

TERMINATON

6

A24

CCN 11 VDR

CAN A

XP2

1

CAN HIGH

CAN HIGH

XP2

4

2

CAN LOW

CAN LOW

5

3

CAN HIGH

REF.

6

7

TERMINATON

7

8

TERMINATON

8

CAN B

XP3

1

CAN HIGH

CAN HIGH

XP3

4

2

CAN LOW

CAN LOW

5

3

REF.

REF.

6

7

TERMINATON

7

8

TERMINATON

8

CAN S

XP4

1

CAN HIGH

CAN HIGH

XP4

3

2

CAN LOW

CAN LOW

4

5

TERMINATON

5

6

TERMINATON

6

X1

207

208

209

CAN BUS A

X1

210

211


212

CAN BUS B

N1: 1/2

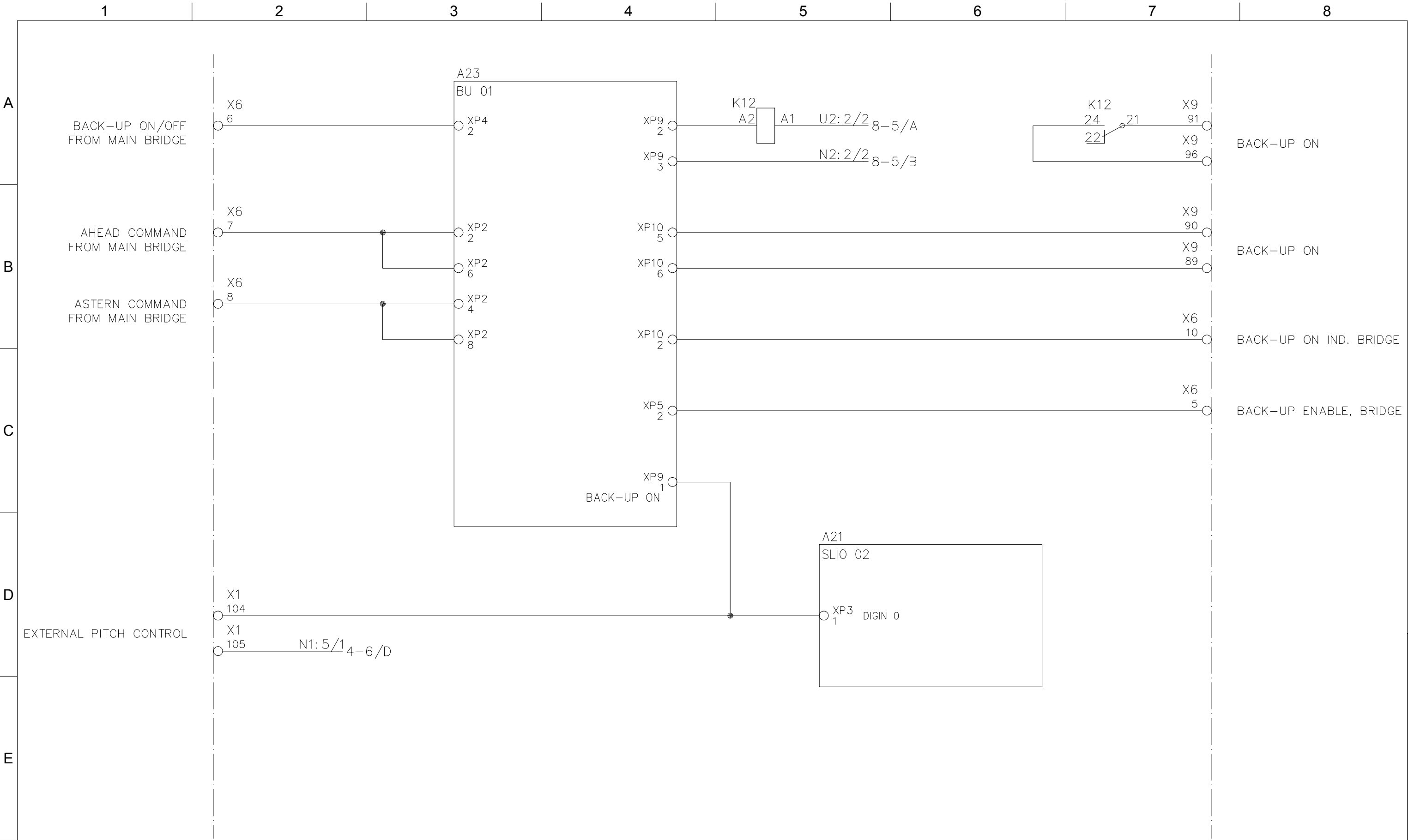
4-6/B


CAN BUS

| | | | | | | |
|--|--|--|--------------------|---------------------------|---------|-----------|
| Control unit, wiring | | | Checked: LNJE | Previous Drg: STANDARD | | |
| Kamewa Main Propeller, Basic | | | Approved: KK201 | Weight kg: | | |
| <div><div><div></div><div>Rolls-Royce</div></div><div>Rolls-Royce AB Propulsion Kristinehamn</div></div> | | | Origin. / Date: | Scale: | Format: | Sheet: |
| | | | ANPE 2014.04.09 | | A3 | 9 of 22 |
| | | | Drawing no: | | | Revision: |
| | | | RRM000226163 | | B | |
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Access List

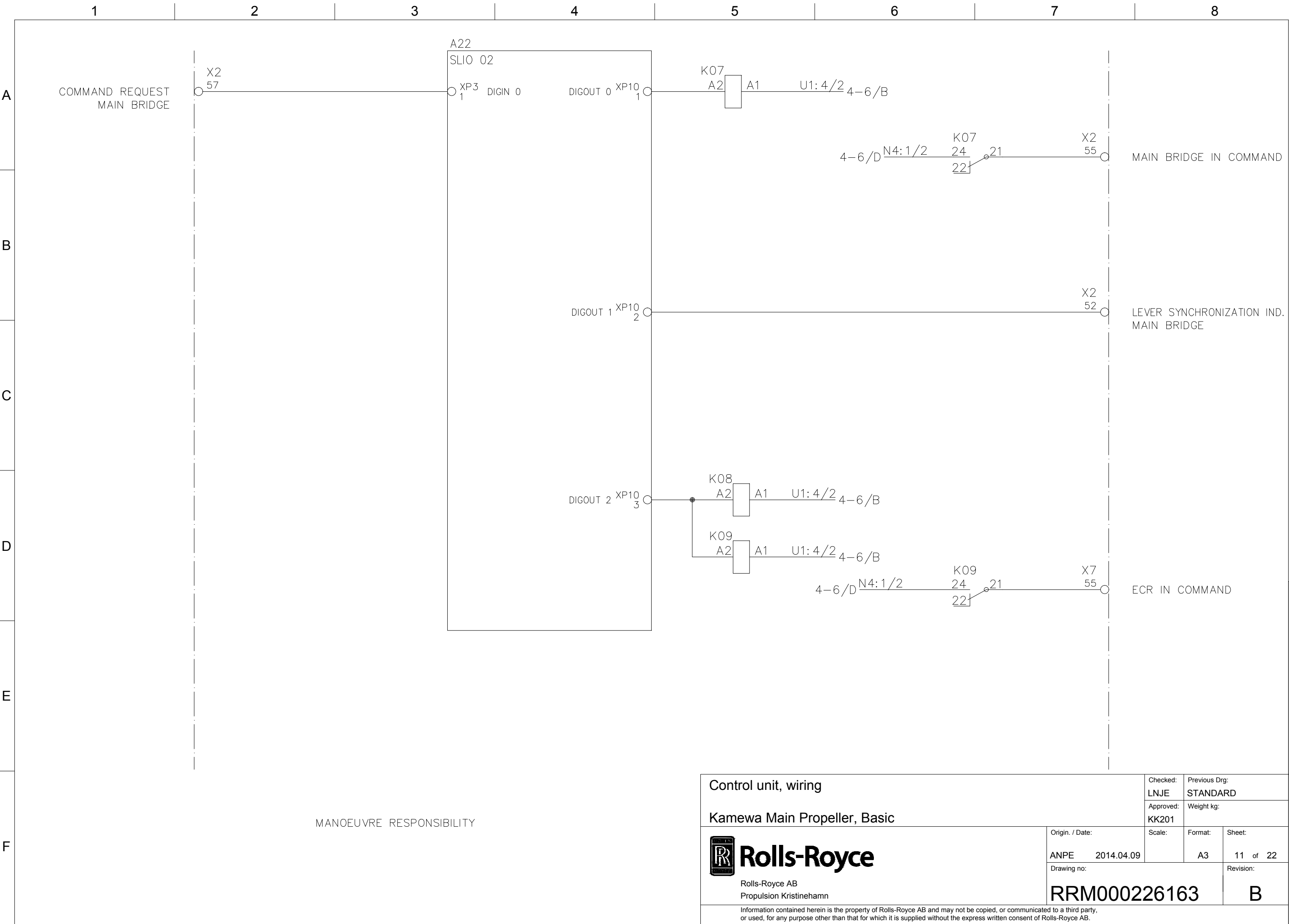
RR AB'S Info. Class:
LIMITED



| | | | | |
|--|-----------------|-----------|---------------|-----------|
| 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 | 10 of 22 |
| | Drawing no: | | | Revision: |
| RRM000226163 | | | B | |
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Access List

RR AB'S Info. Class:
LIMITED



Control unit, wiring

Kamewa Main Propeller, Basic

RR

Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:

ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

Previous Drg:
STANDARD

Weight kg:

Scale:

Format:
A3

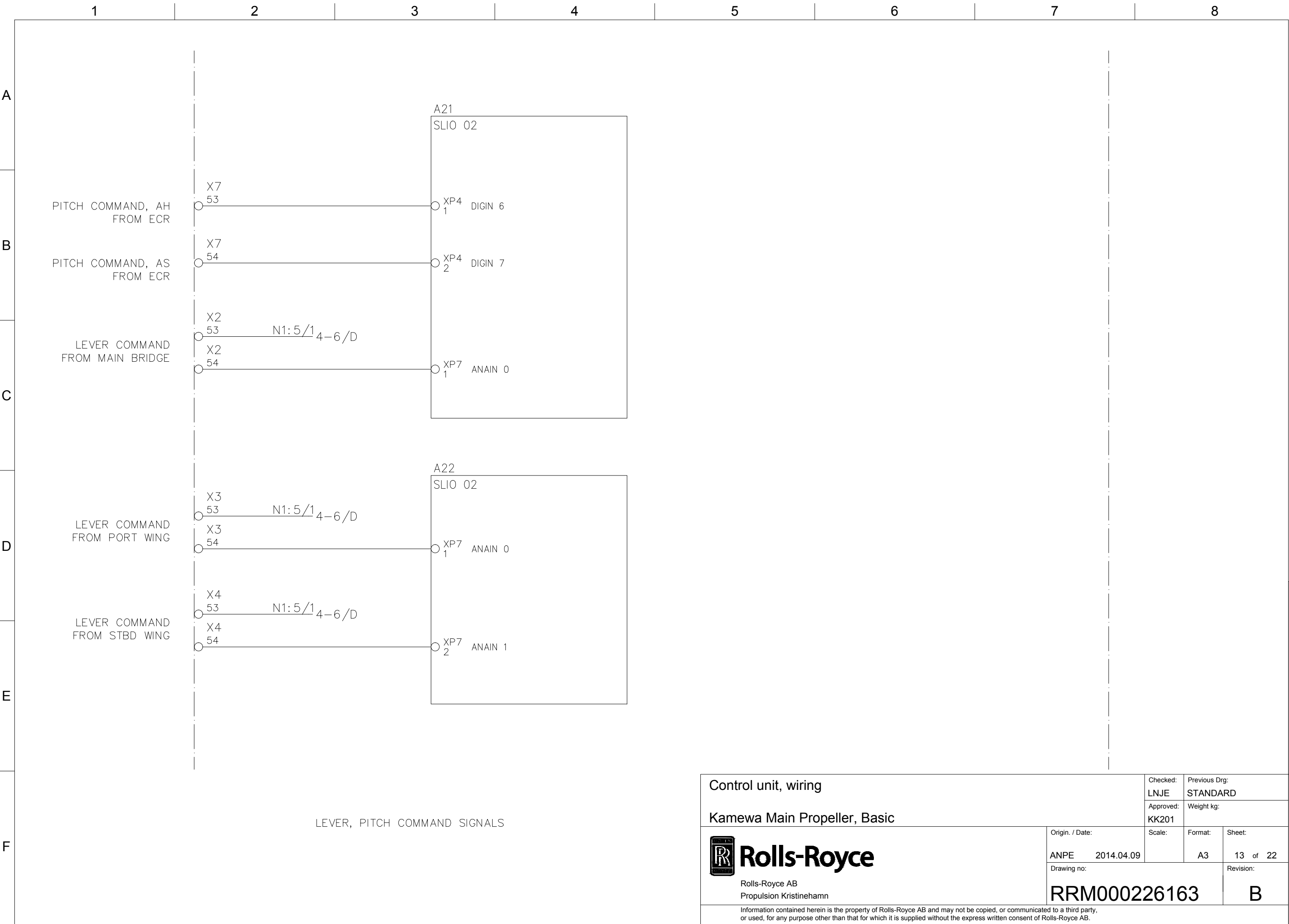
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11 of 22

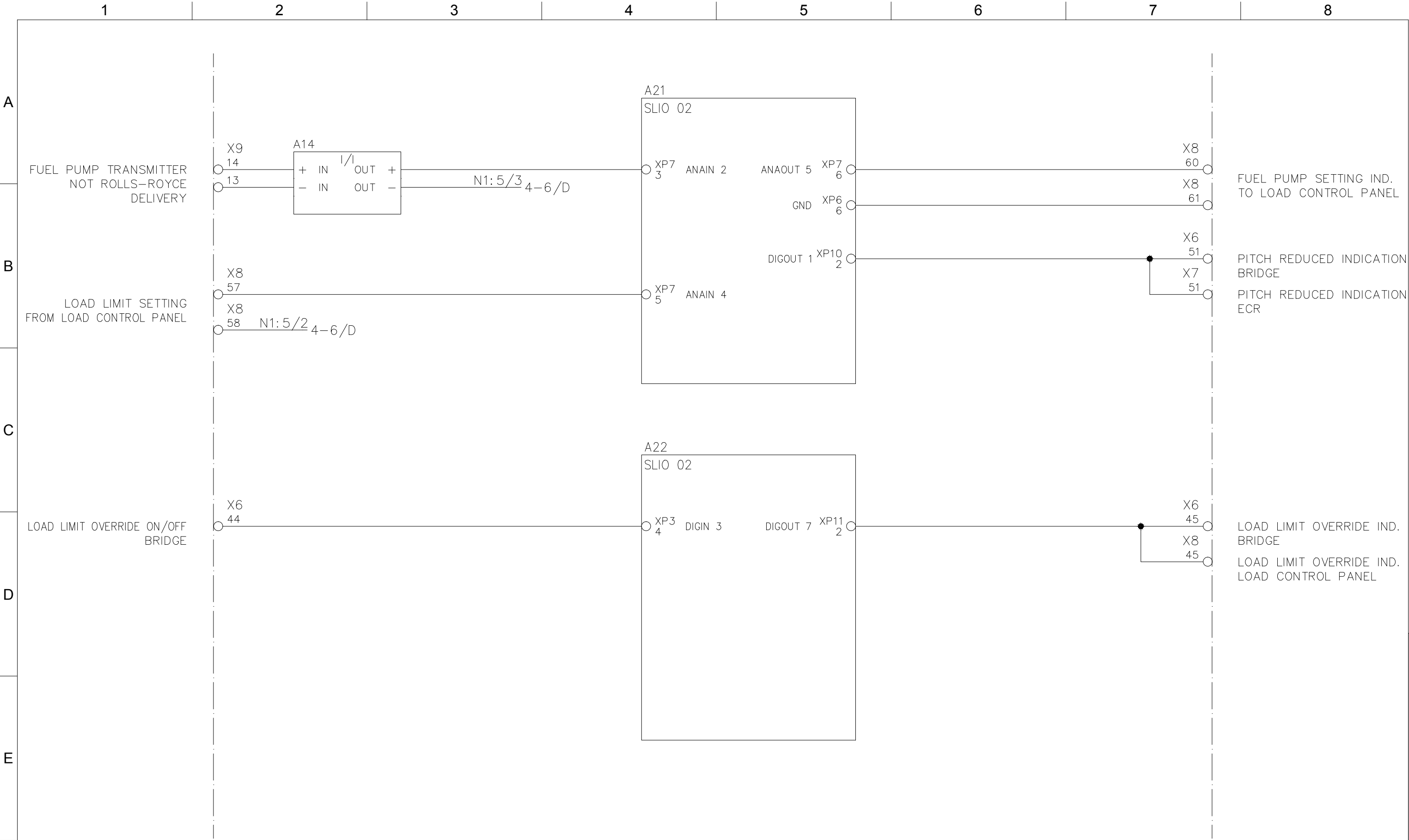
Revision:
B

Access List

RR AB'S Info. Class:
LIMITED

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Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

Scale:
A3

Format:
14 of 22

Previous Drg:
STANDARD

Weight kg:

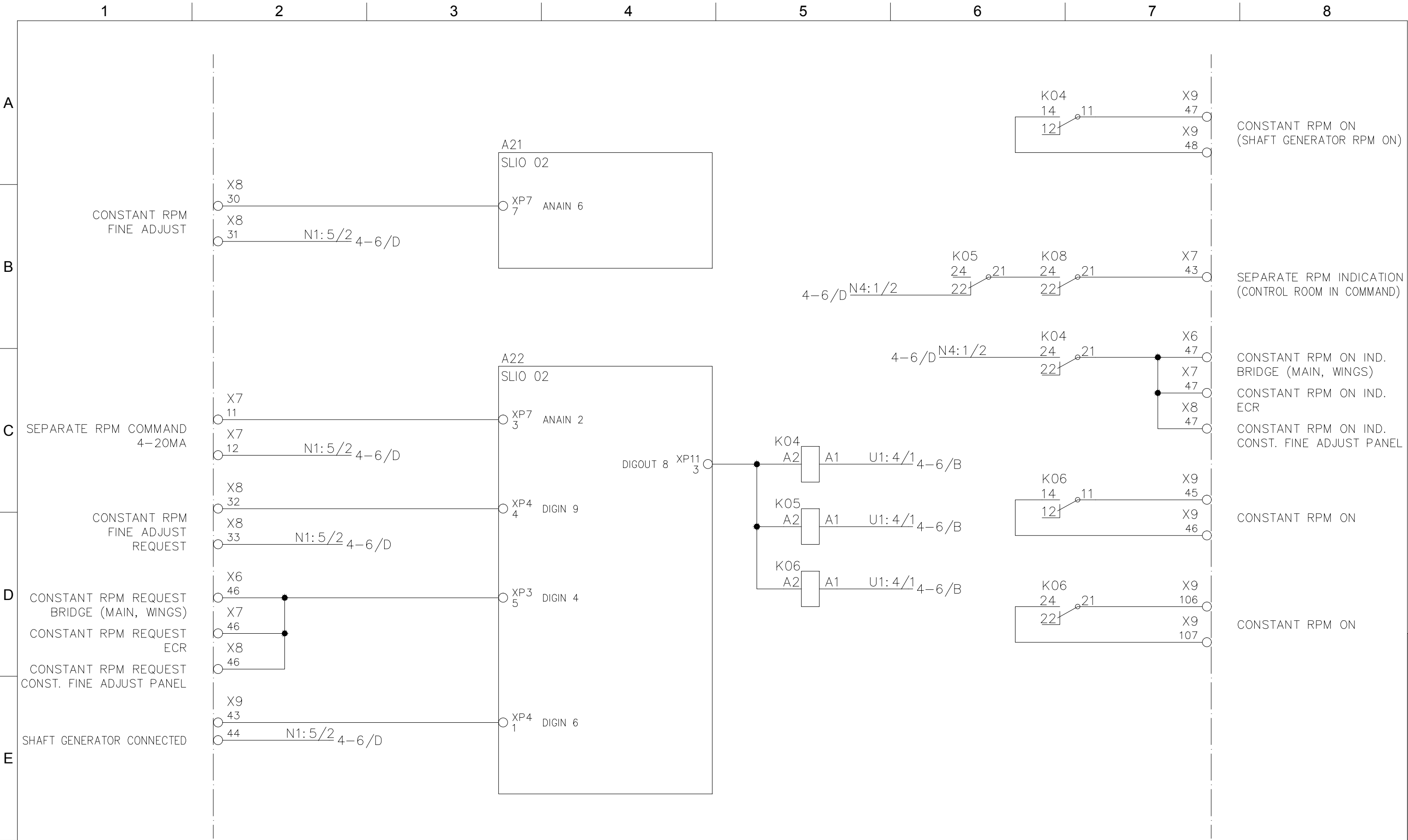
Revision:

B

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Access List

RR AB'S Info. Class:
LIMITED



Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

Scale: A3
Format: A3
Sheet: 15 of 22

Revision:

B

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Access List

RR AB'S Info. Class:
LIMITED

A

B

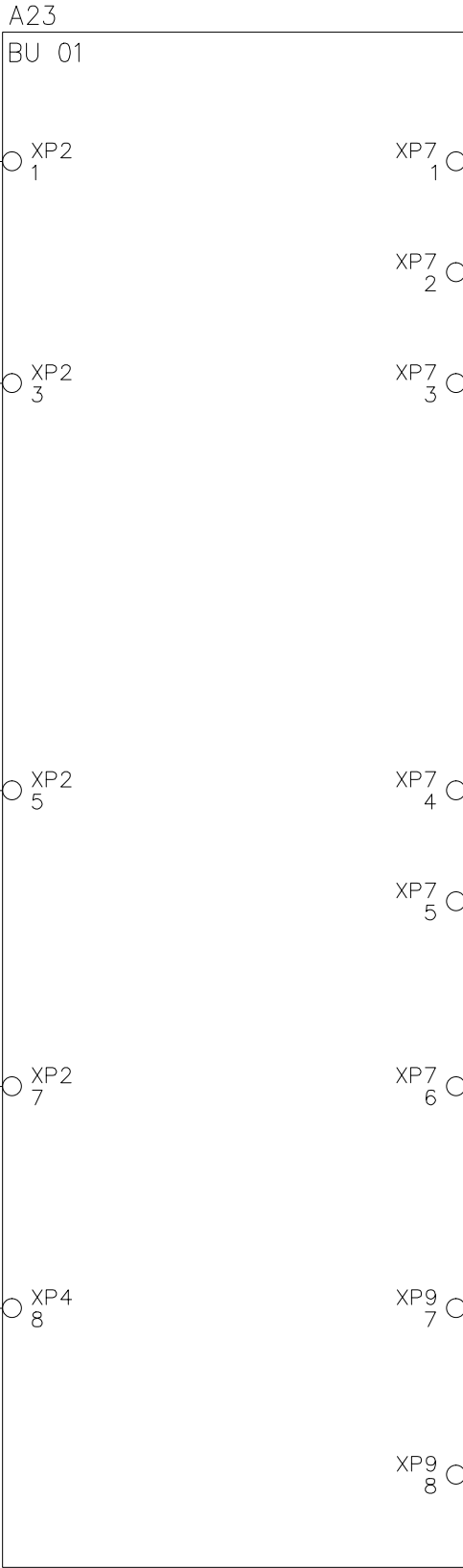
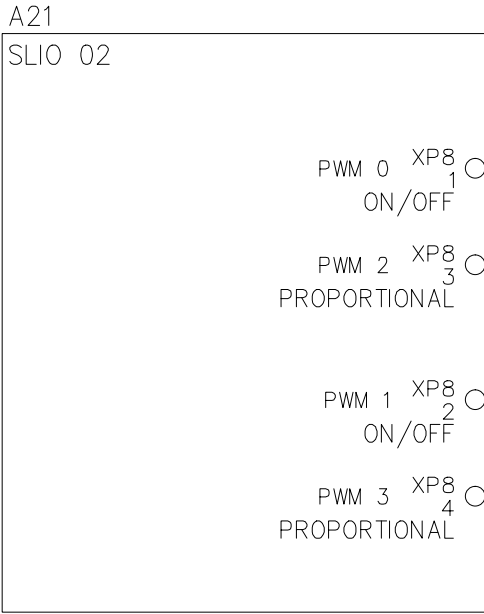
C

D

E

F

12345678



PITCH CONTROL VALVE AH
(FINE VALVE)

PITCH CONTROL VALVE AS
(FINE VALVE)

PITCH CONTROL VALVE AH
(BOOSTER VALVE)

PITCH CONTROL VALVE AS
(BOOSTER VALVE)

UNLOADING VALVE
(CHANGE OVER VALVE)

PITCH CONTROL

Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce AB
Propulsion Kristinehamn

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Origin. / Date:
ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

Scale:
A3

Format:
16 of 22

Previous Drg:
STANDARD

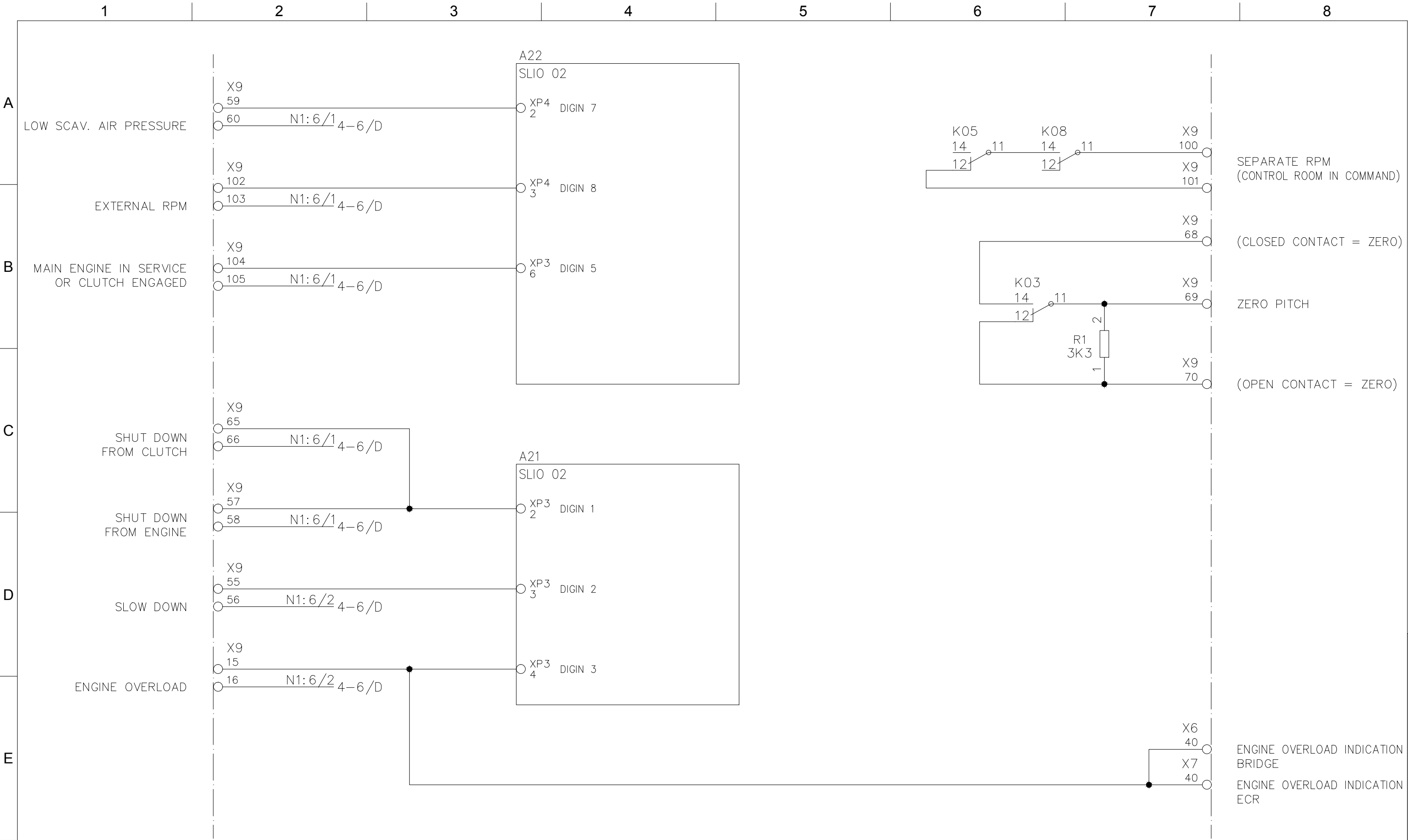
Weight kg:

Revision:

B

Access List

RR AB'S Info. Class:
LIMITED



Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

Scale: A3
Format: 17 of 22
Sheet:

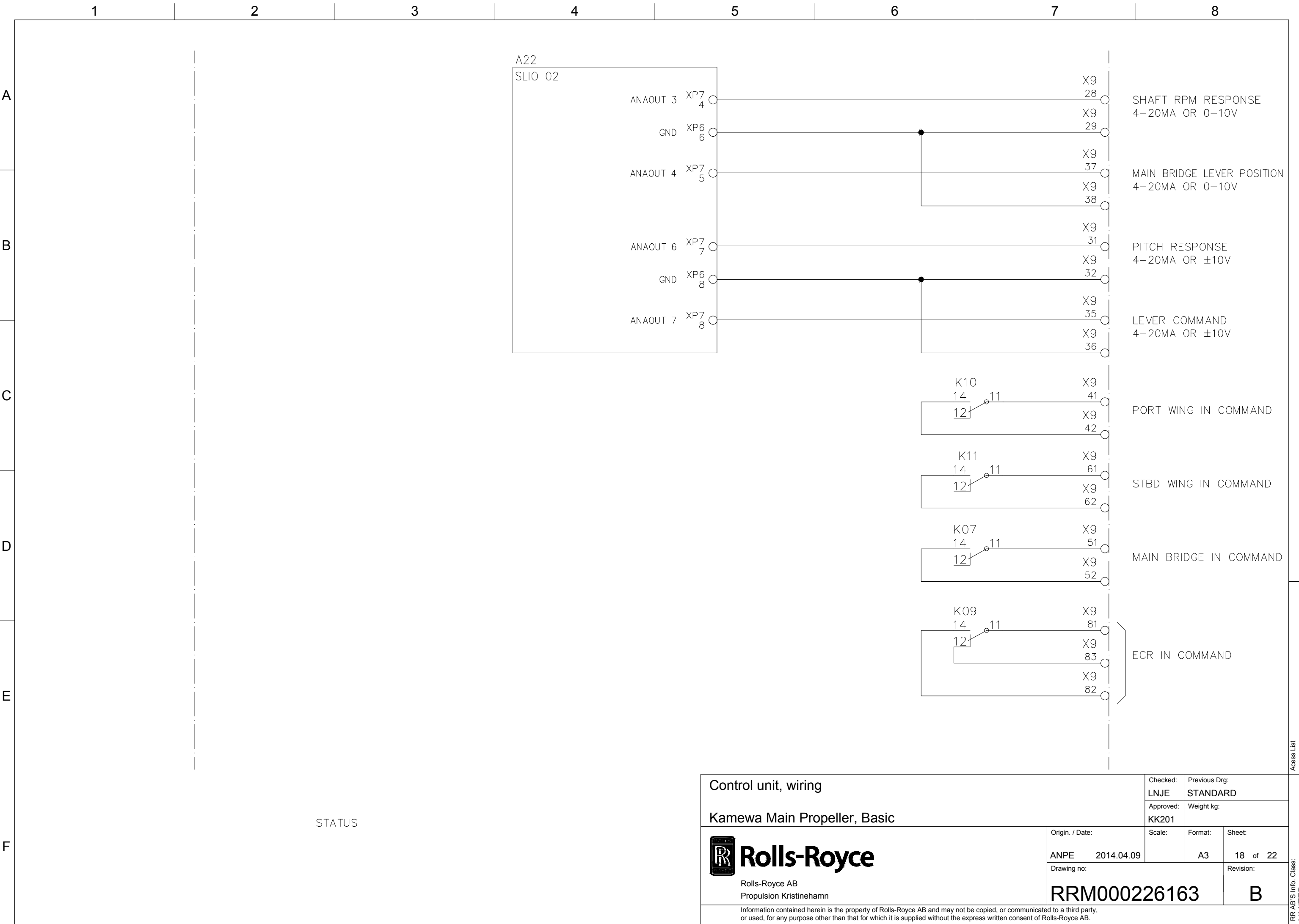
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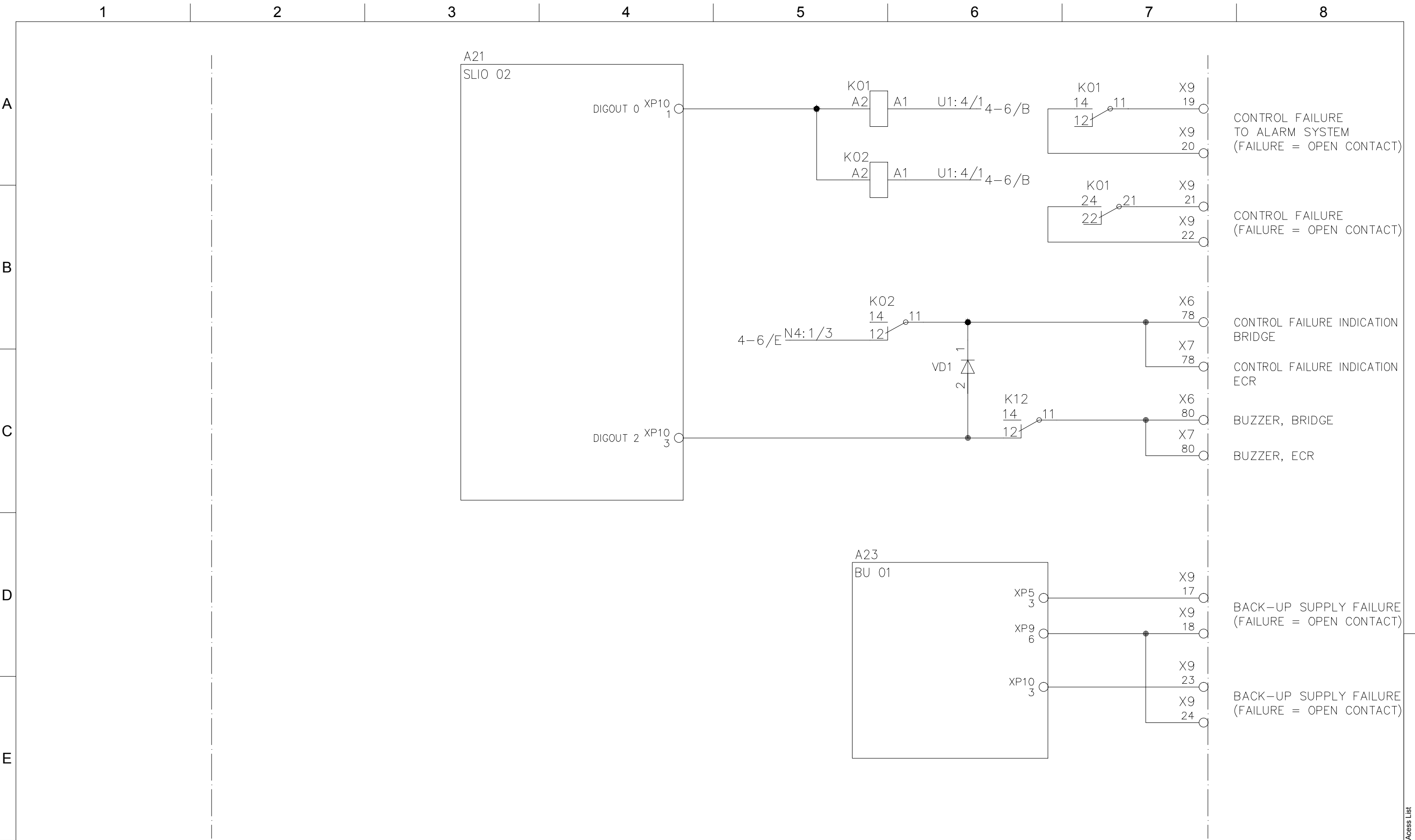
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Access List

RR AB'S Info. Class:
LIMITED





Control unit, wiring

Kamewa Main Propeller, Basic

Rolls-Royce

Rolls-Royce AB

Propulsion Kristinehamn

ANPE2014.04.09

RRM000226163

Checked:
LNJE

Approved:
KK201

Origin. / Date:

Scale:

Format:

Sheet:

Revision:

Previous Drg:
STANDARD

Weight kg:

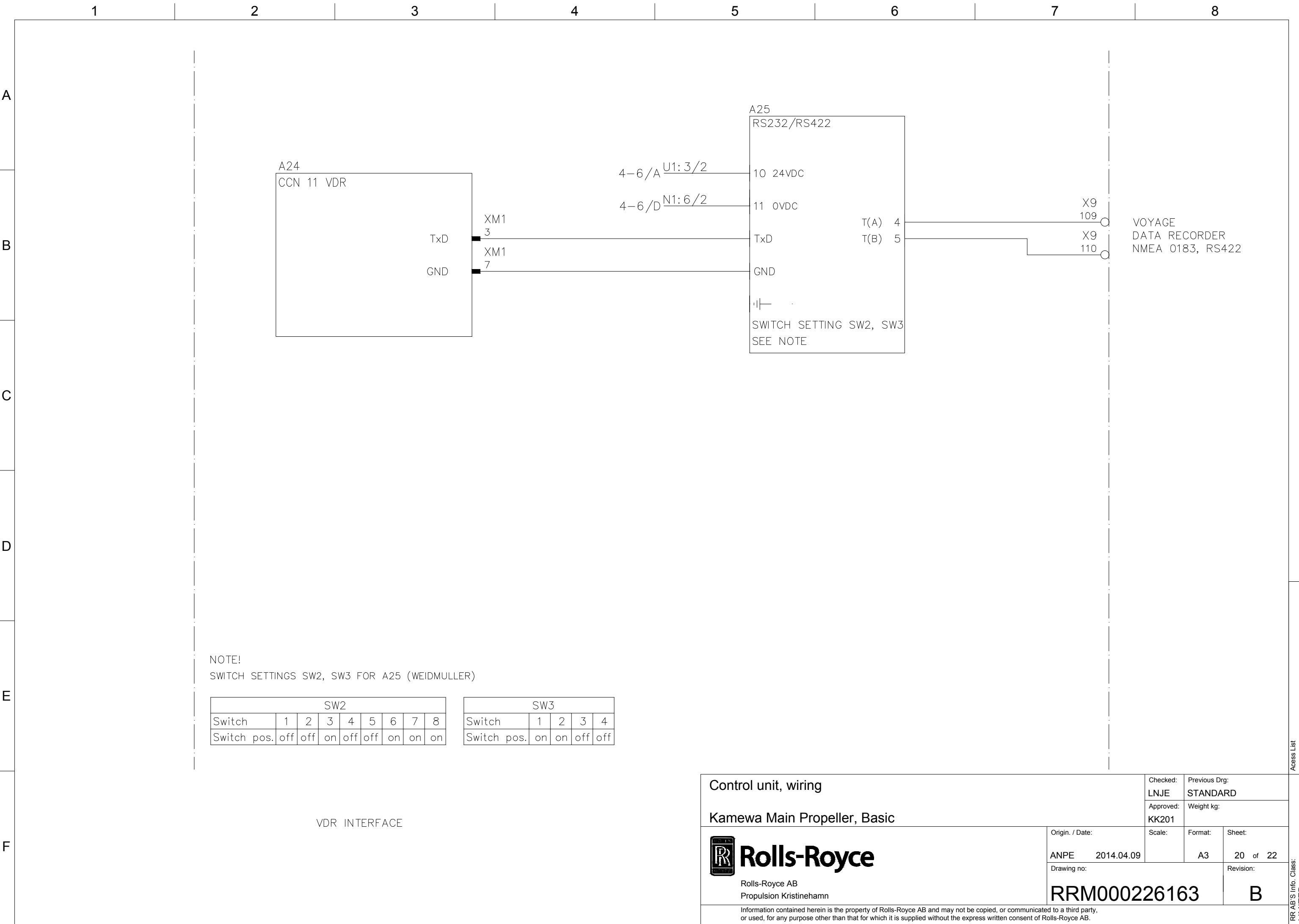
19 of 22

B

Access List

RR AB'S Info. Class:
LIMITED

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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

RR

Rolls-Royce

Rolls-Royce AB

Propulsion Kristinehamn

Origin. / Date:

ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:

LNJE

Previous Drg:

STANDARD

Approved:

KK201

Weight kg:

Scale:

Format:

Sheet:

20 of 22

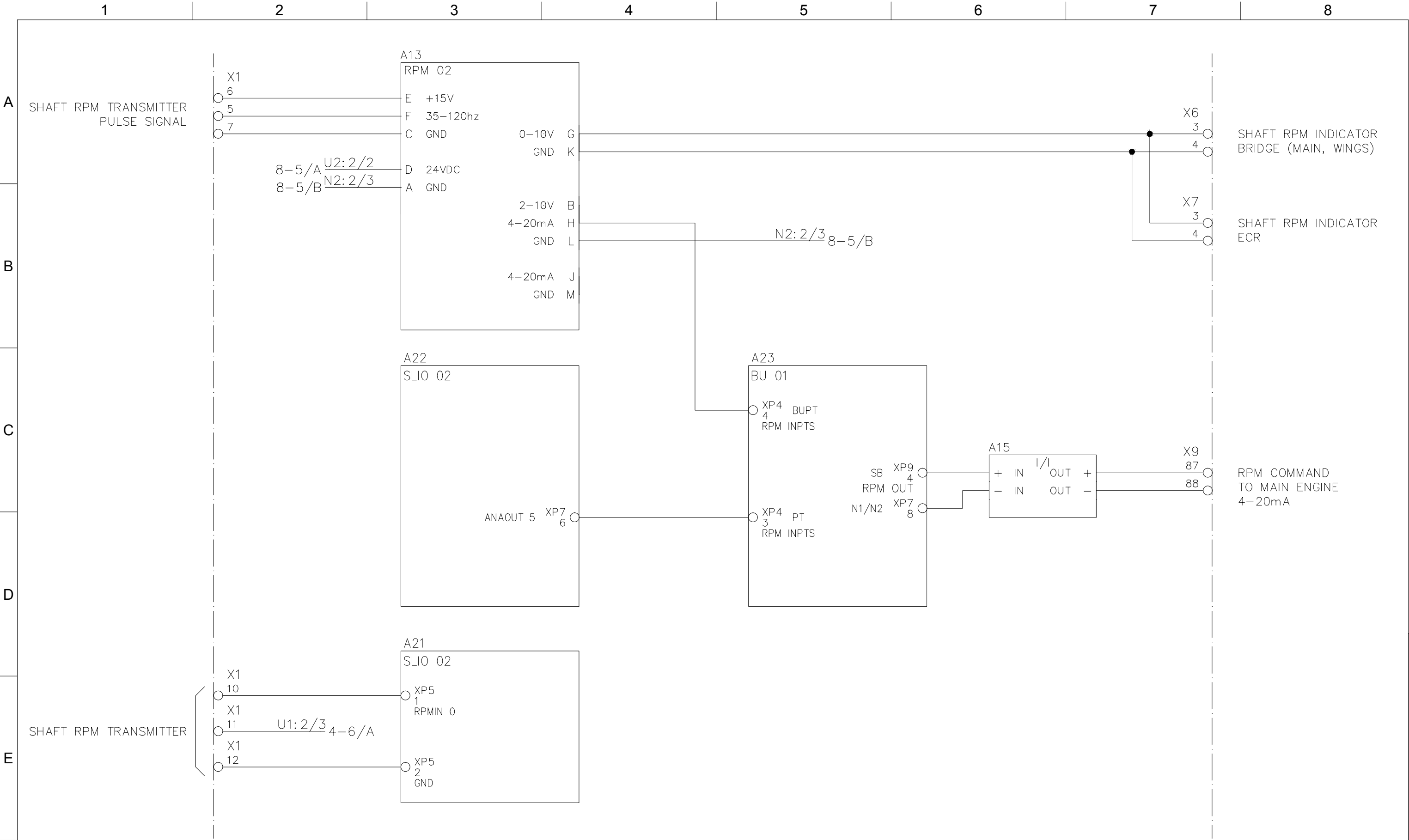
Revision:

B

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Access List

RR AB'S Info. Class: LIMITED



Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

Previous Drg:
STANDARD

Weight kg:

Format: A3

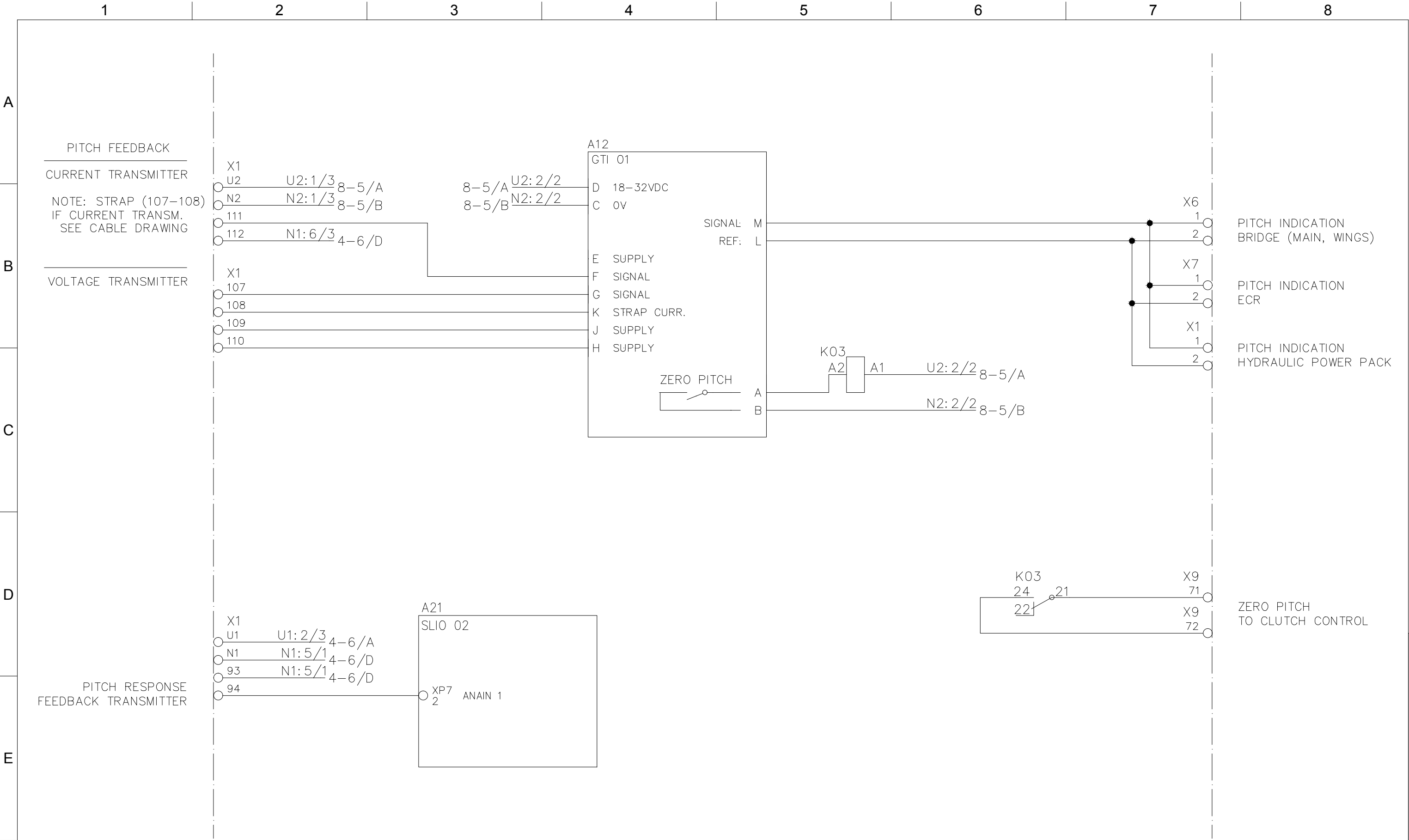
Sheet: 21 of 22

Revision: B

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Access List

RR AB'S Info. Class:
LIMITED



Control unit, wiring

Kamewa Main Propeller, Basic



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:
ANPE 2014.04.09

Drawing no:

RRM000226163

Checked:
LNJE

Approved:
KK201

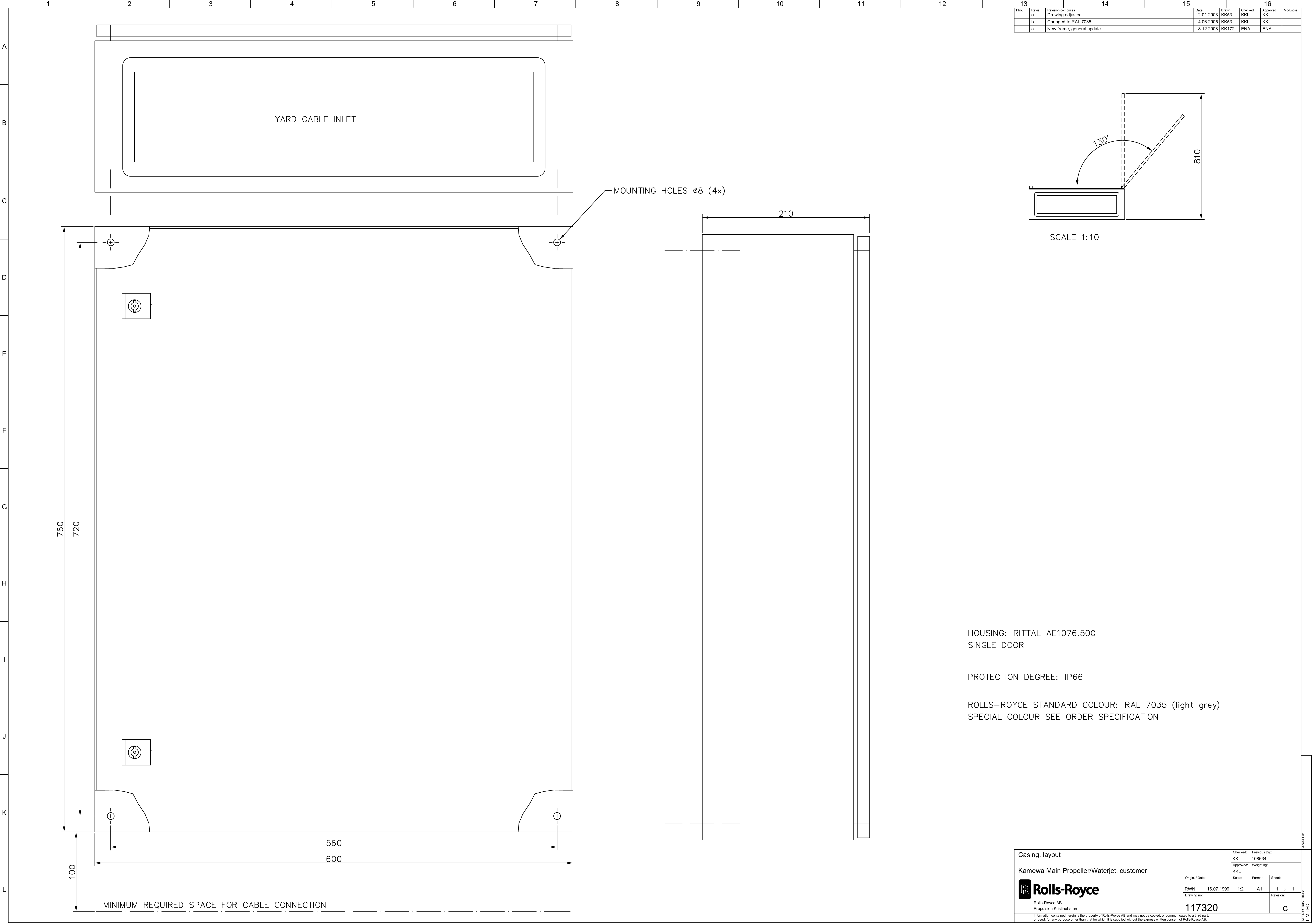
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Format: A3
Sheet: 22 of 22

Revision: B

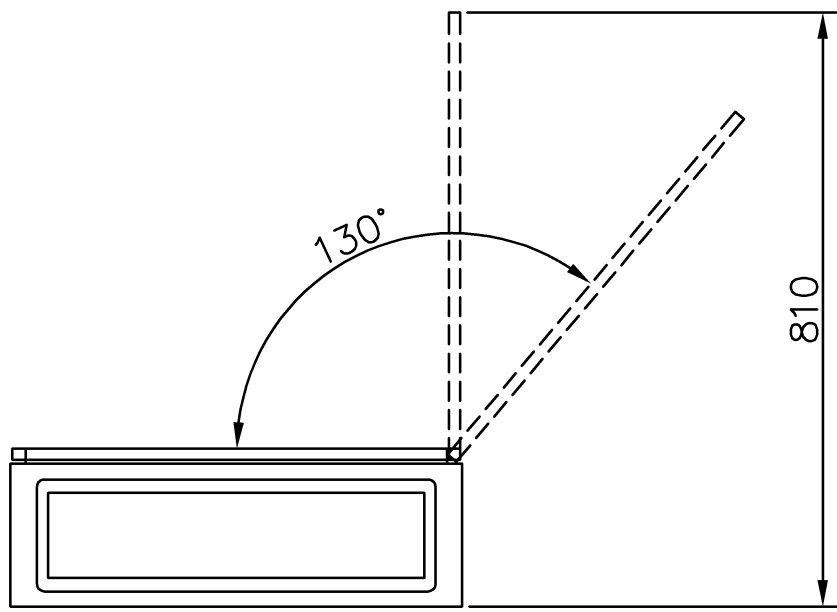
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Access List

RR AB'S Info. Class:
LIMITED



| 13 | 14 | 15 | 16 |
|-------|---------------------------|--------------------|------------|
| Prot. | Revis. | Revision comprises | Date |
| a | Drawing adjusted | | 12.01.2003 |
| b | Changed to RAL 7035 | | 14.06.2005 |
| c | New frame, general update | | 18.12.2008 |




SCALE 1:10

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 Dtg: | |
| | | KKL | 108634 | |
| Kamewa Main Propeller/Waterjet, customer | | Approved: | Weight kg: | |
| | | KKL | | |
|  Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn | Origin: / Date: | Scale: | Format: | Sheet: |
| | RWN 16.07.1999 | 1:2 | A1 | 1 of 1 |
| | Drawing no: | Revision: | | |
| | 117320 | | | C |
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1

2

3

4

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

A

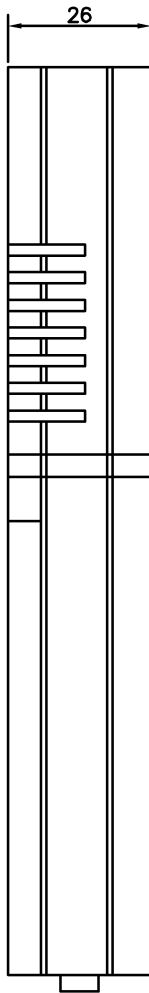
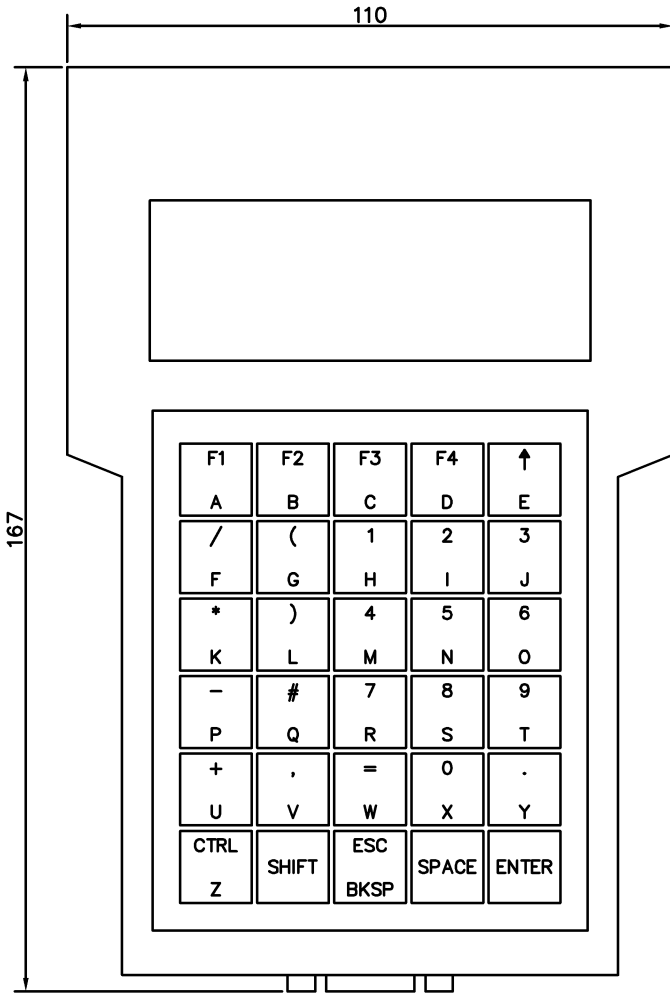
B

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| | | | |
|--|--------------------------------------|--------------------------------|--|
| 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 | |
|--|--------------------------------------|--------------------------------|--|

Hand held teminal, layout

Kamewa Main Propeller/Waterjet



Rolls-Royce AB
Propulsion Kristinehamn

| | | | | |
|-----------------|--|------------------|---------------|-----------|
| | | Checked: ATM | Previous Drg: | |
| | | Approved: NOP | Weight kg: | |
| Origin. / Date: | | Scale: | Format: | Sheet: |
| EKO 16.06.1999 | | 1:1 | A4 | 1 of 1 |
| Drawing no: | | | | Revision: |
| 968530 | | | | a |

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Access List

RR AB S info Class:
LIMITED

A

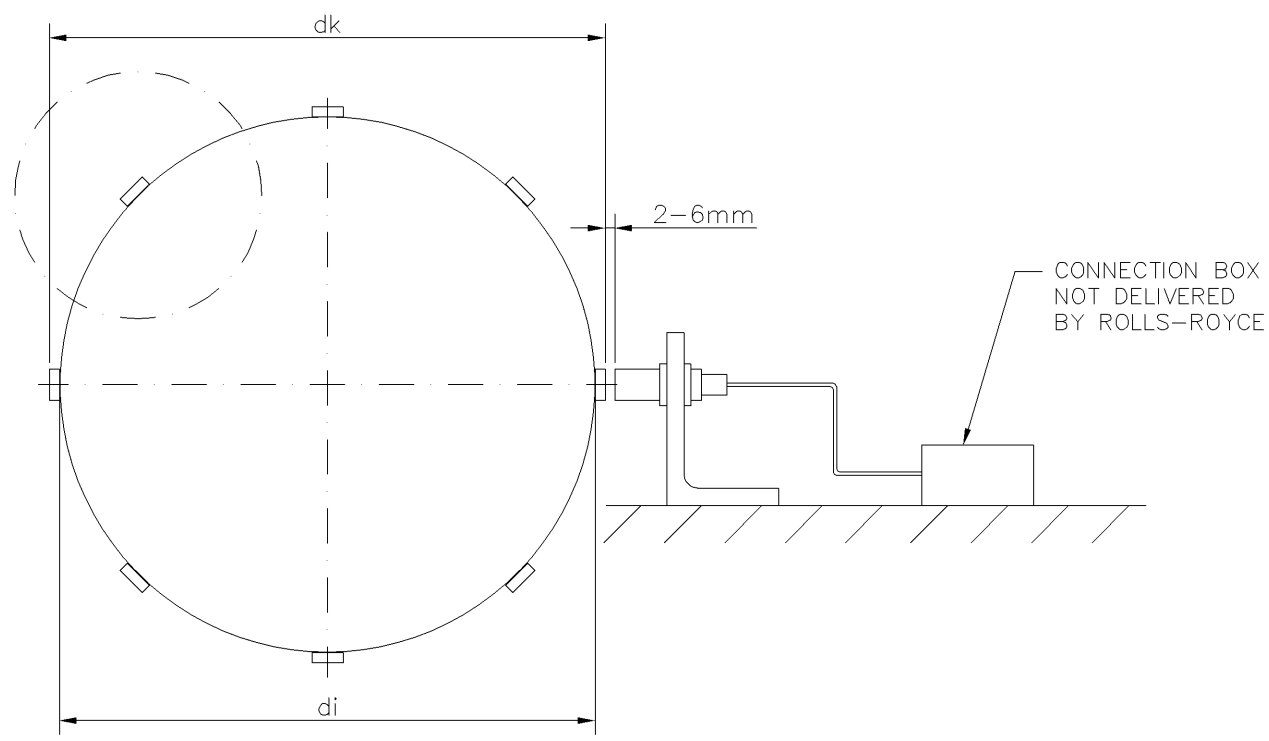
B

C

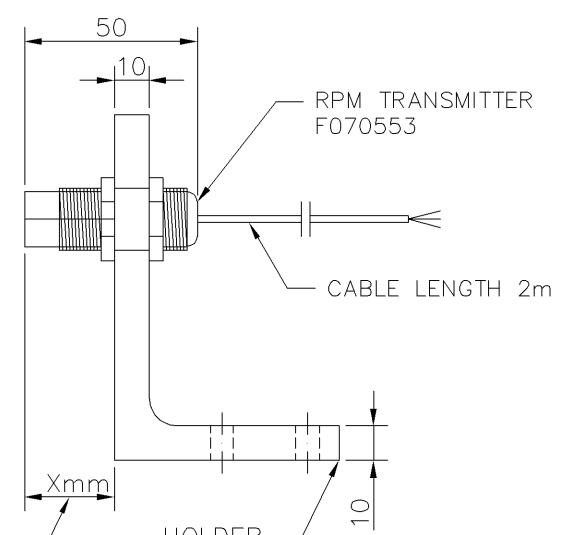
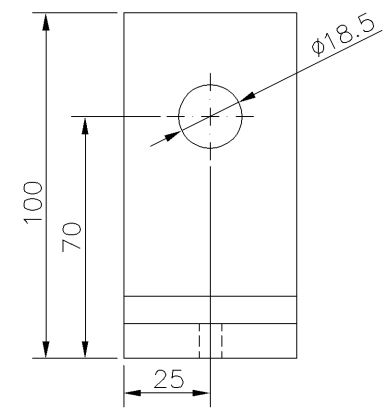
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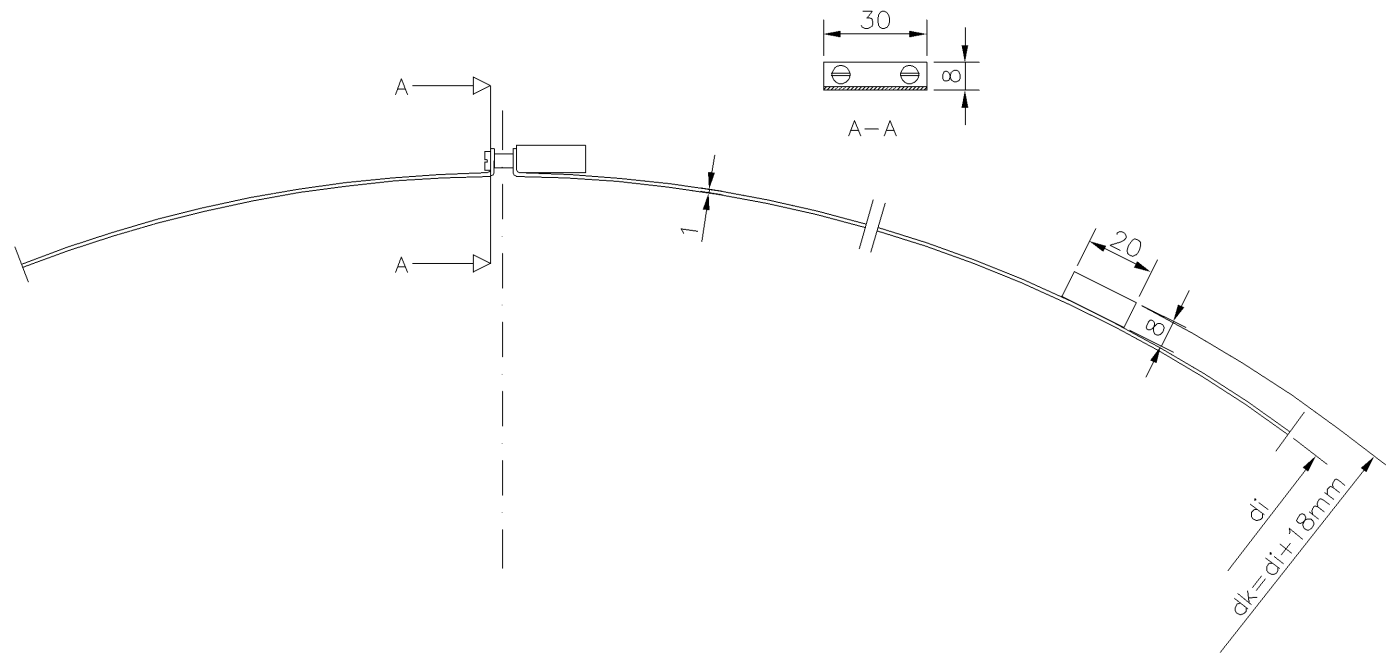
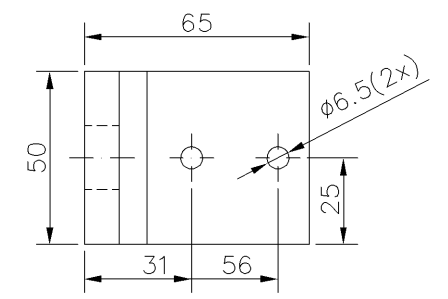
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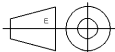

PRINCIPLE, NOT ACTUAL SCALE



ADJUSTABLE
X = 16-33



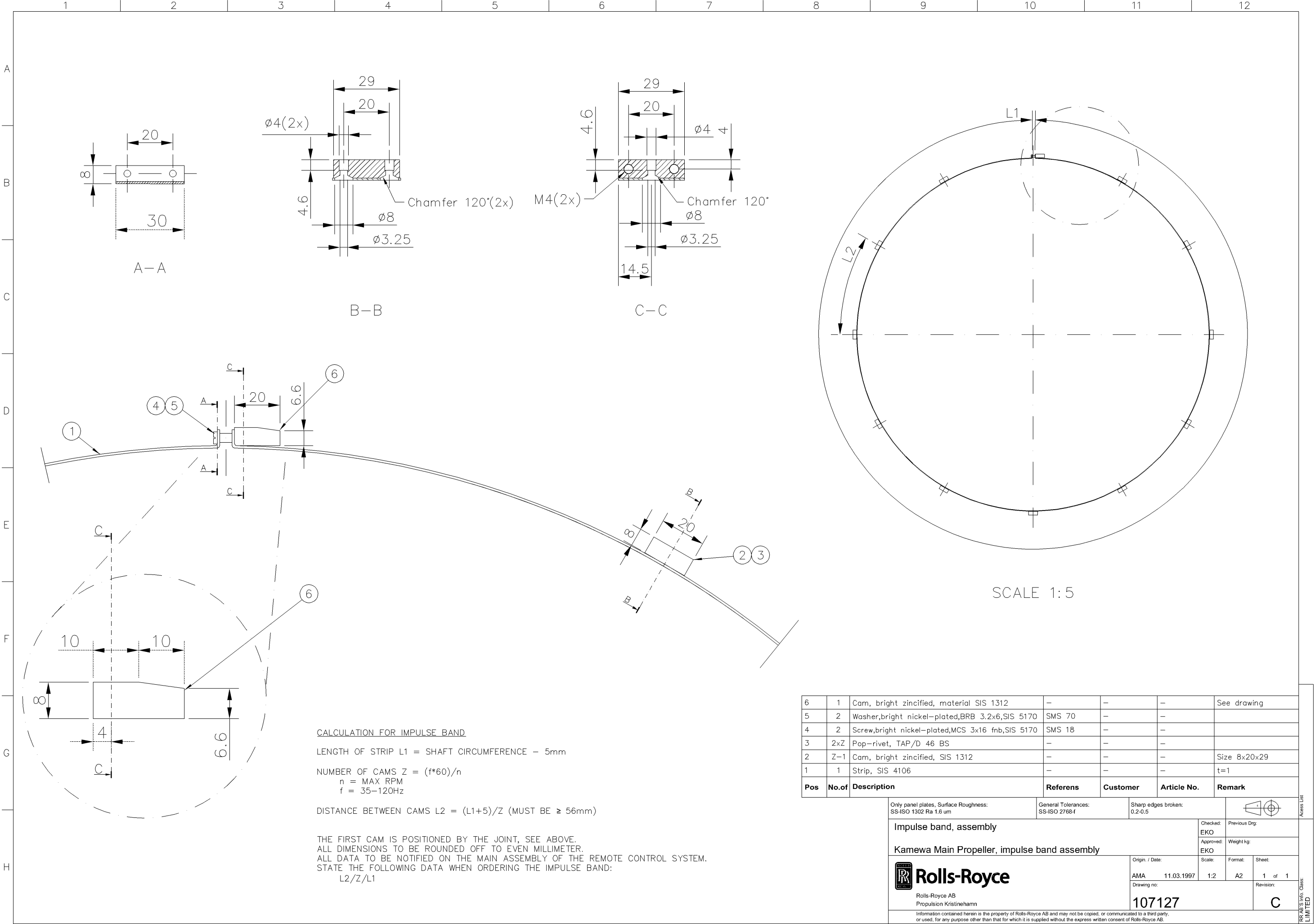
THE IMPULSE BAND IS DELIVERED FULLY EQUIPPED FOR EVERY SHAFT DIAMETER (di), COMPLETE WITH SCREWS. THE SCREWS MUST NOT BE EXCHANGED.

| | | | | | | | | | |
|--|--|--------------------------------------|--|--|--|---|-------------------|----------------------|--|
| 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 | | | |
| | | | | Approved: EKO | | Weight kg: | | | |
| Kamewa Main Propeller, transmitter control system installation descript. | | | | | | | | | |
|  Rolls-Royce Rolls-Royce AB Propulsion Kristinehamn | | | | Origin. / Date: AMA 25.02.1997 | | Scale: 1:2 | Format: A3 | Sheet: 1 of 1 | |
| | | | | Drawing no: 107009 | | | | Revision: D | |
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Access List

RR AB'S Info. Class:
LIMITED

Access List
RR AB S Info. Class:
LIMITED



| 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 |
| Pos | No.of | Description | Referens | Customer | Article No. | Remark |

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



Rolls-Royce

Rolls-Royce AB
Propulsion Kristinehamn

Origin. / Date:

AMA 11.03.1997

Drawing no:

107127

Scale:

1:2

Format:

A2

Sheet:

1 of 1

Revision:

C

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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

1

2

3

4

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

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| | | | | | | | |
|--|--|--|-----------------|--|---------------|---------|--------|
| Spare part | | | Checked: | | Previous Drg: | | |
| | | | EKO | | 103627 | | |
| Kamewa Main Propeller, CanMan Basic spare parts | | | Approved: | | Weight kg: | | |
| | | | EKO | | | | |
| <div></div> <div>Rolls-Royce</div> <div>Rolls-Royce AB Propulsion Kristinehamn</div> | | | Origin. / Date: | | Scale: | Format: | Sheet: |
| | | | TKN 10.03.1999 | | | A4 | 1 of 1 |
| | | | Drawing no: | | | | |
| | | | 117018 | | | | |
| | | | B | | | | |
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Acess List

RR AB'S Info. Class:
LIMITED



User Manual

Basic Remote Control System, CPP





| | |
|--|-----------|
| Introduction..... | 3 |
| Equipment and Basic Functions | 5 |
| Signal Routing..... | 5 |
| Main Bridge, Control Station..... | 6 |
| Bridge Wing, Control Station(s)..... | 7 |
| Control Room (ECR), Control Station | 9 |
| Operating and Function Description | 12 |
| Pitch Control "Operation" | 12 |
| Pitch Control "Function" | 13 |
| RPM Control "Operation" (Optional)..... | 14 |
| RPM Control "Function" (Optional)..... | 15 |
| Pitch Indication "Operation" | 16 |
| Pitch Indication "Function" | 17 |
| Manoeuvre responsibility, Bridge – ECR, "Operation" | 18 |
| Manoeuvre responsibility, Bridge – ECR, "Function" | 19 |
| Manoeuvre responsibility, Main Bridge – Bridge Wings, "Operation" | 20 |
| Manoeuvre responsibility, Main Bridge – Bridge Wings, "Function" | 21 |
| Lever Synchronizing System "Operation" | 22 |
| Lever Synchronizing System "Function" | 23 |
| Overload Protection "Function" | 24 |
| Load Control "Operation" (Optional) | 25 |
| Load Control "Function" (Optional) | 26 |
| Dimmer, Lamp Test "Operation" | 27 |
| Back-up Manoeuvre "Operation" | 28 |
| Back-up Manoeuvre "Function" | 29 |
| Control Failure Alarm "Function"..... | 30 |
| Remote/Local RPM "Function" (Optional)..... | 31 |
| RPM Indication "Function" (Optional) | 32 |
| Clutch Control "Function" (Optional) | 33 |



| | |
|--|-----------|
| Clutch Control “Operation” (Optional) | 37 |
|--|-----------|

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

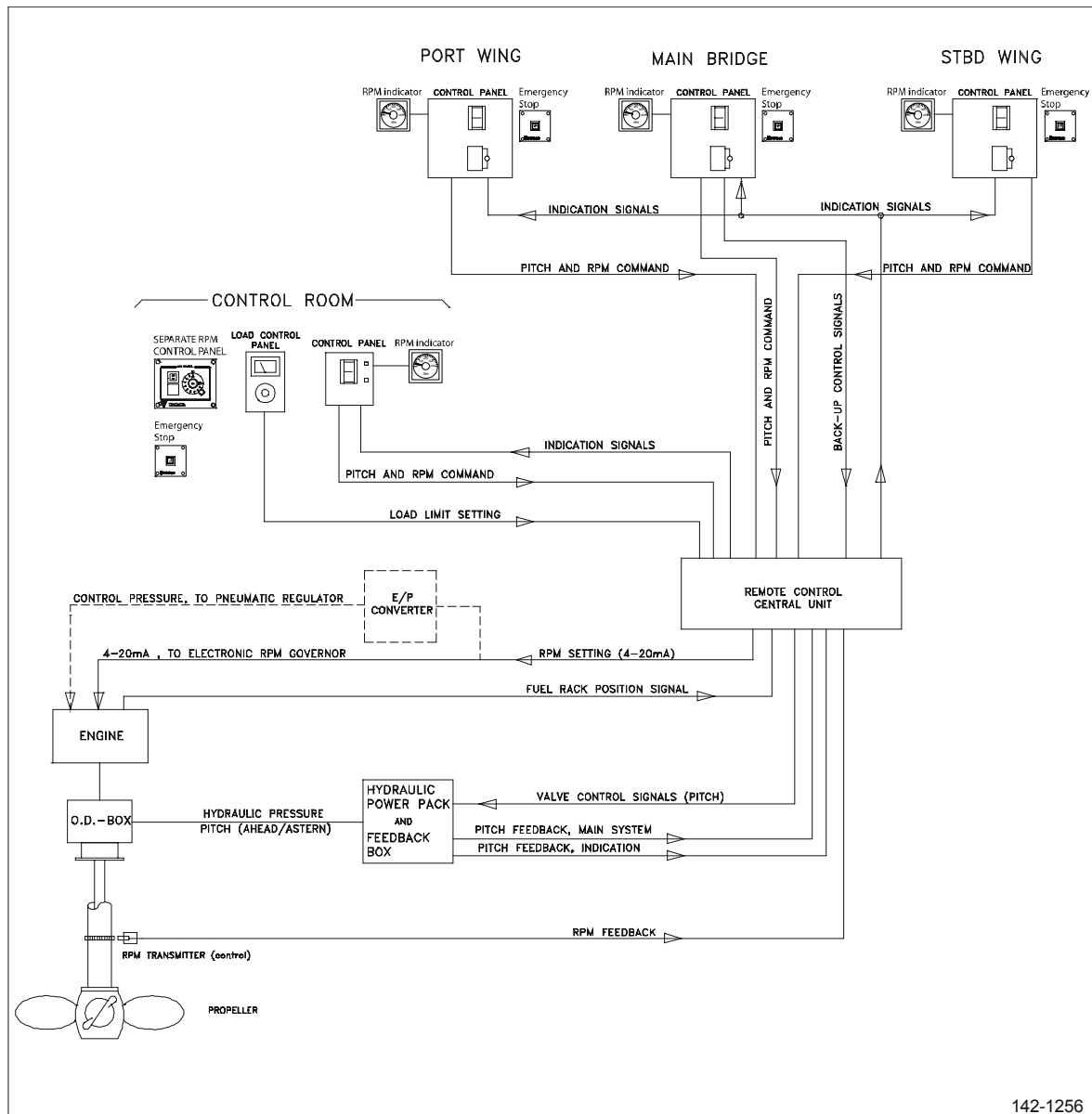


Figure 1 Signal routing.



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).

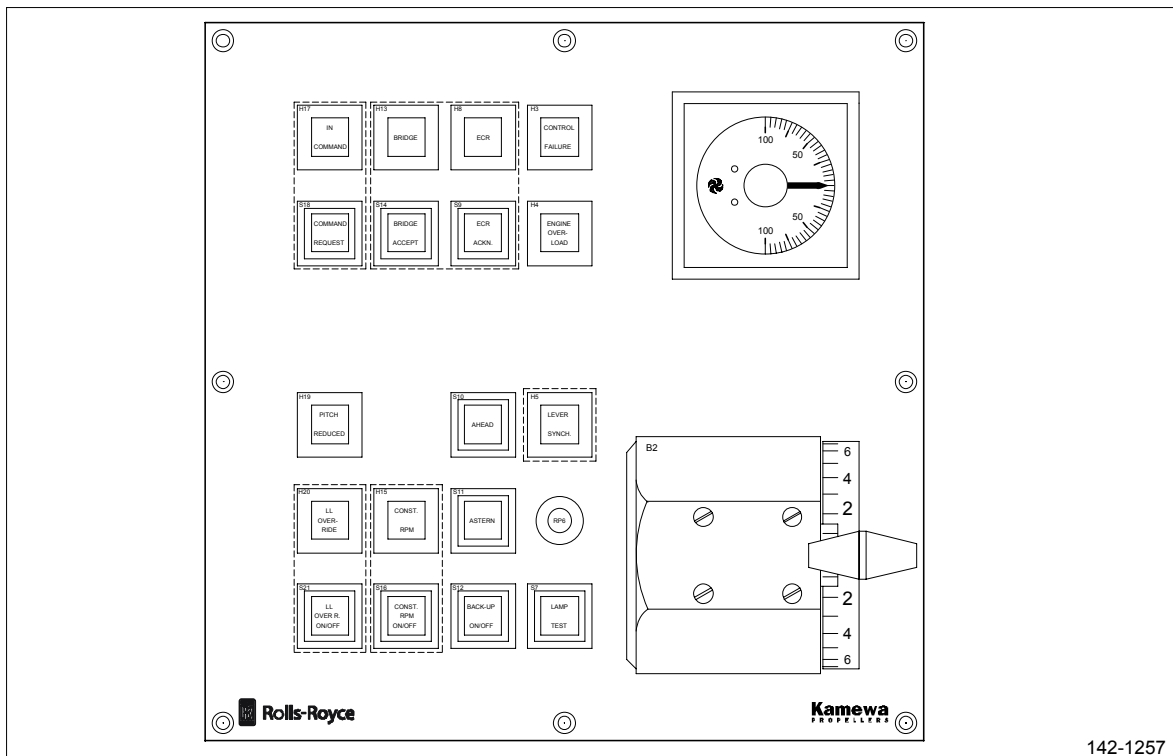


Figure 2 Control panel, main bridge (all options included).

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).

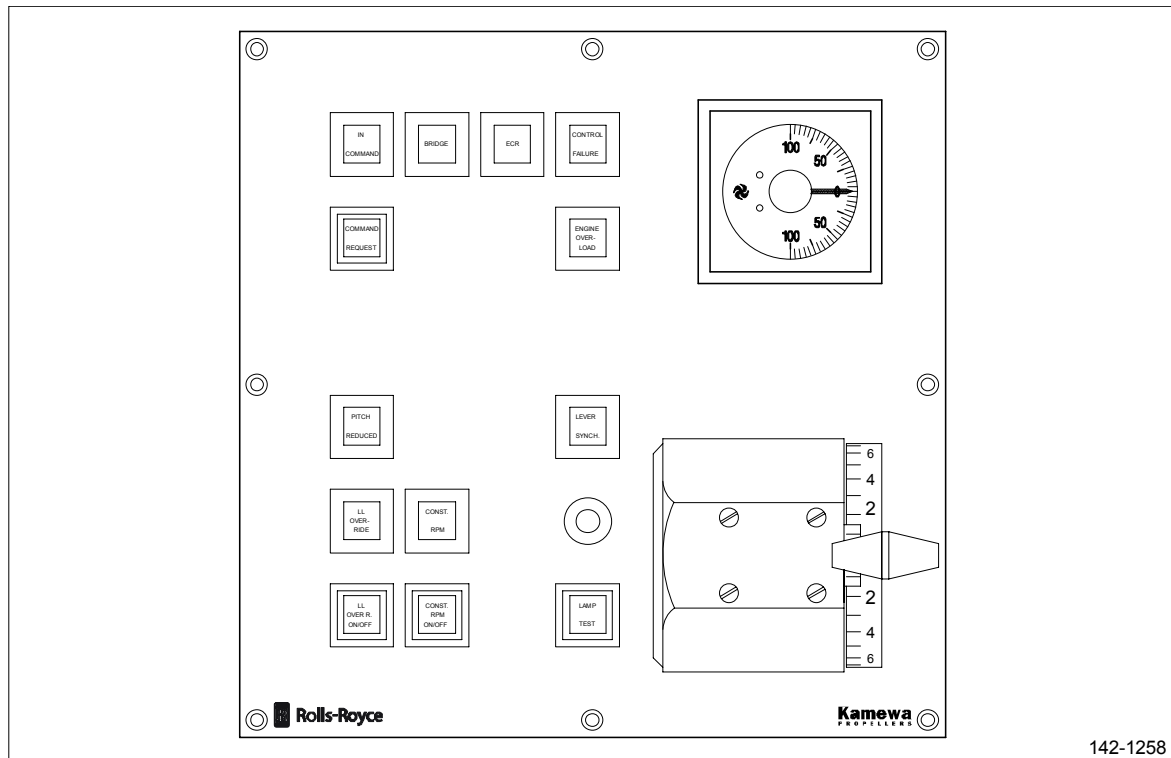


Figure 3 Control panel, bridge wing (all options included).

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.

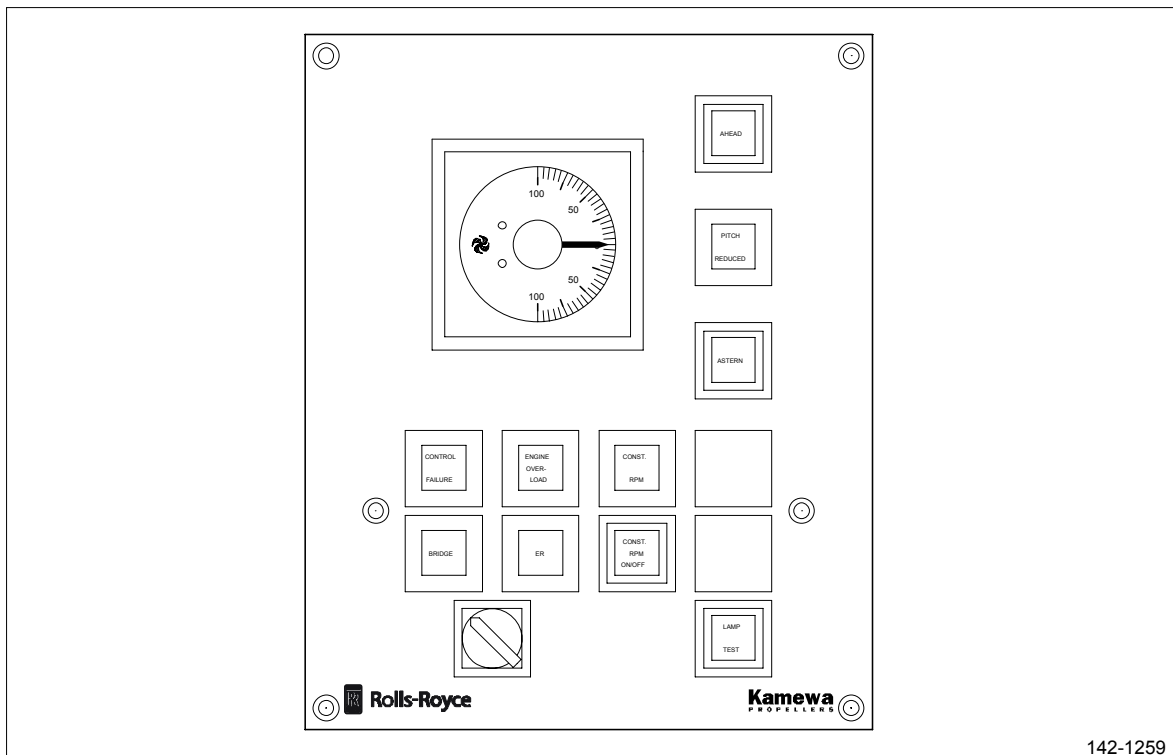


Figure 4 Control panel, control room.

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".

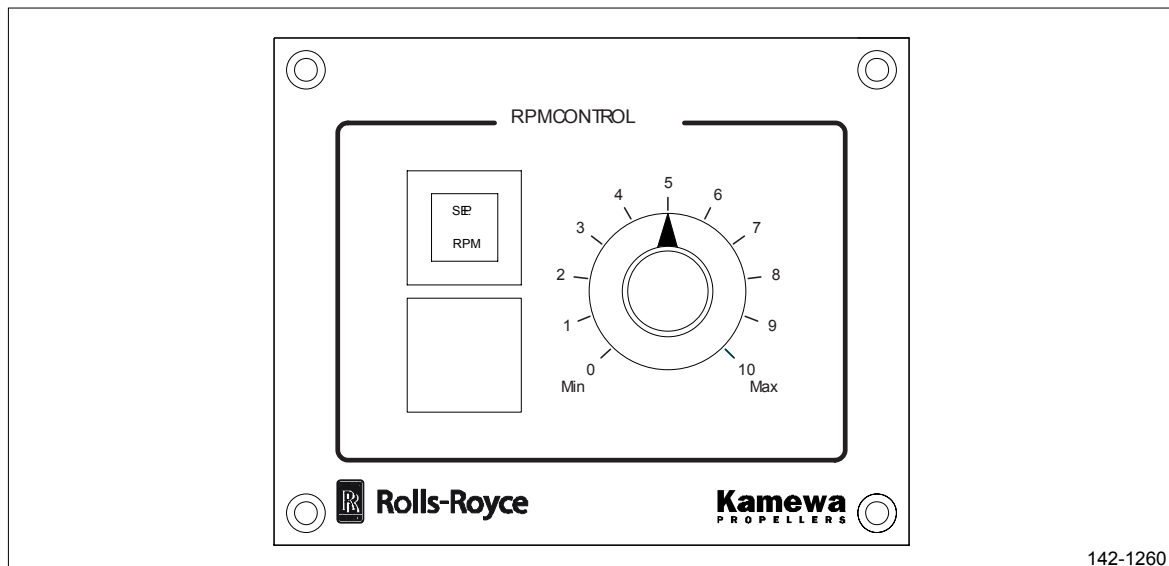


Figure 5 Separate RPM control panel, control room.

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

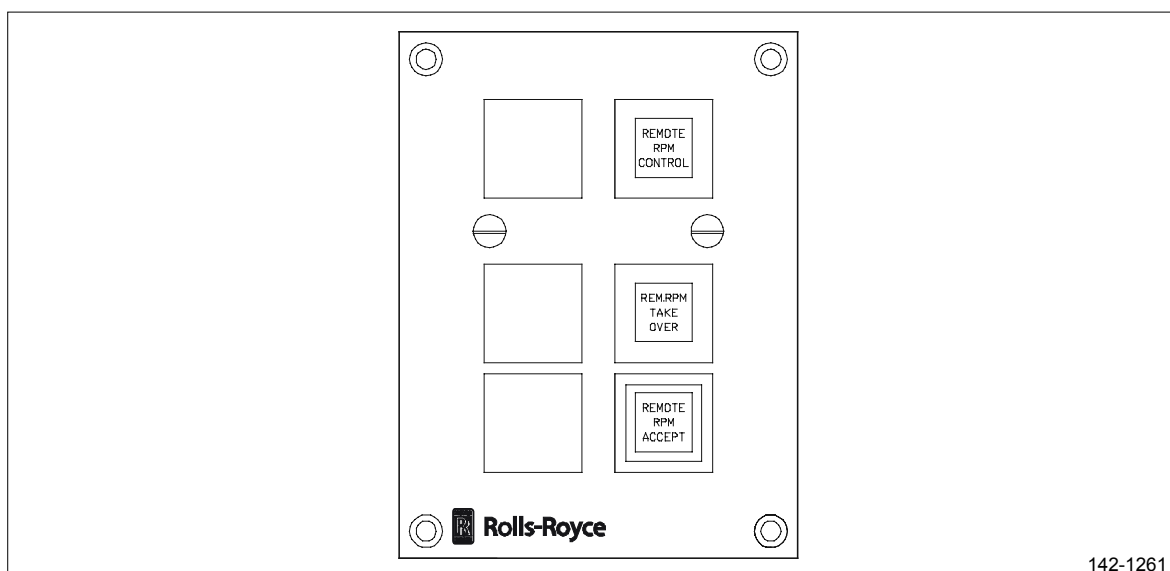


Figure 6 Remote/local RPM control panel, control room.

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

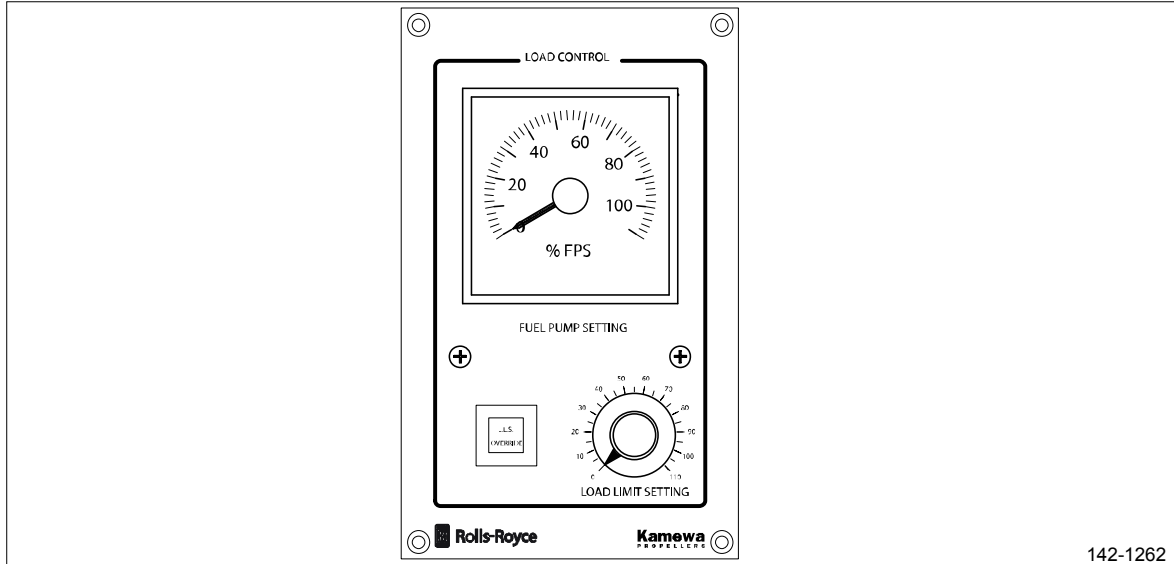


Figure 7 Load control panel, control room.

Operating and Function Description

Pitch Control “Operation”

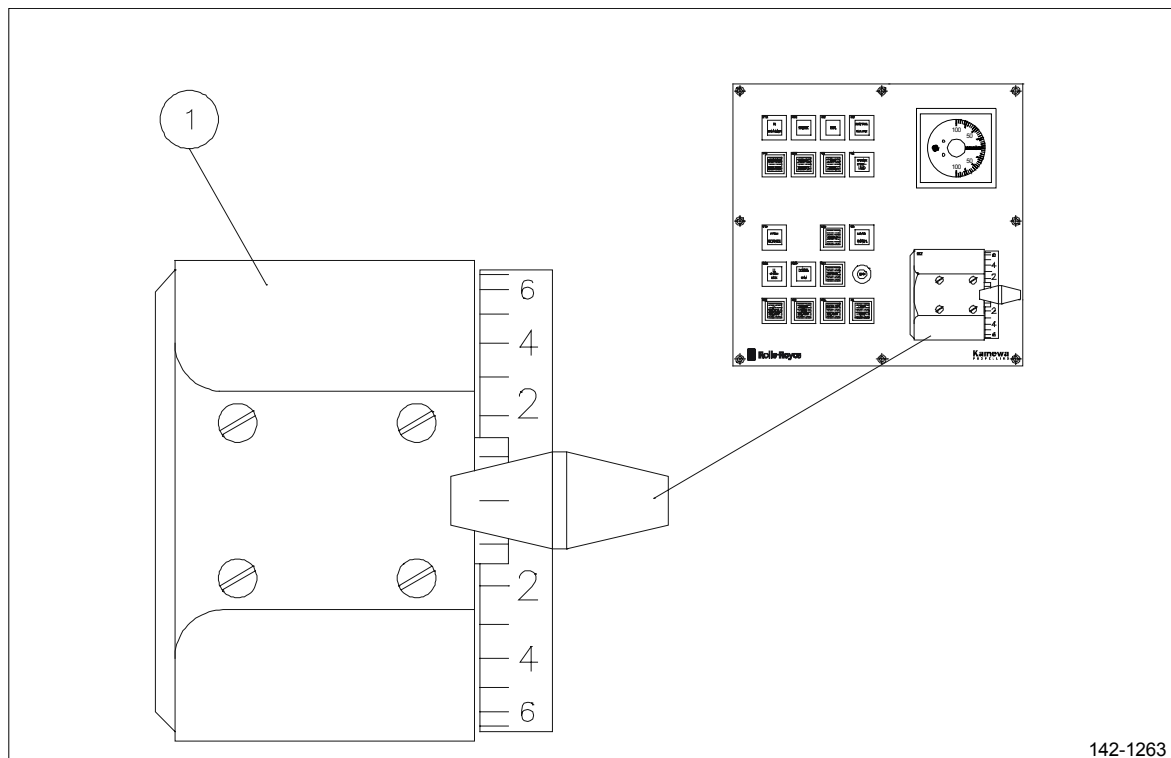


Figure 8 Control lever.

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

Pitch Control “Function”

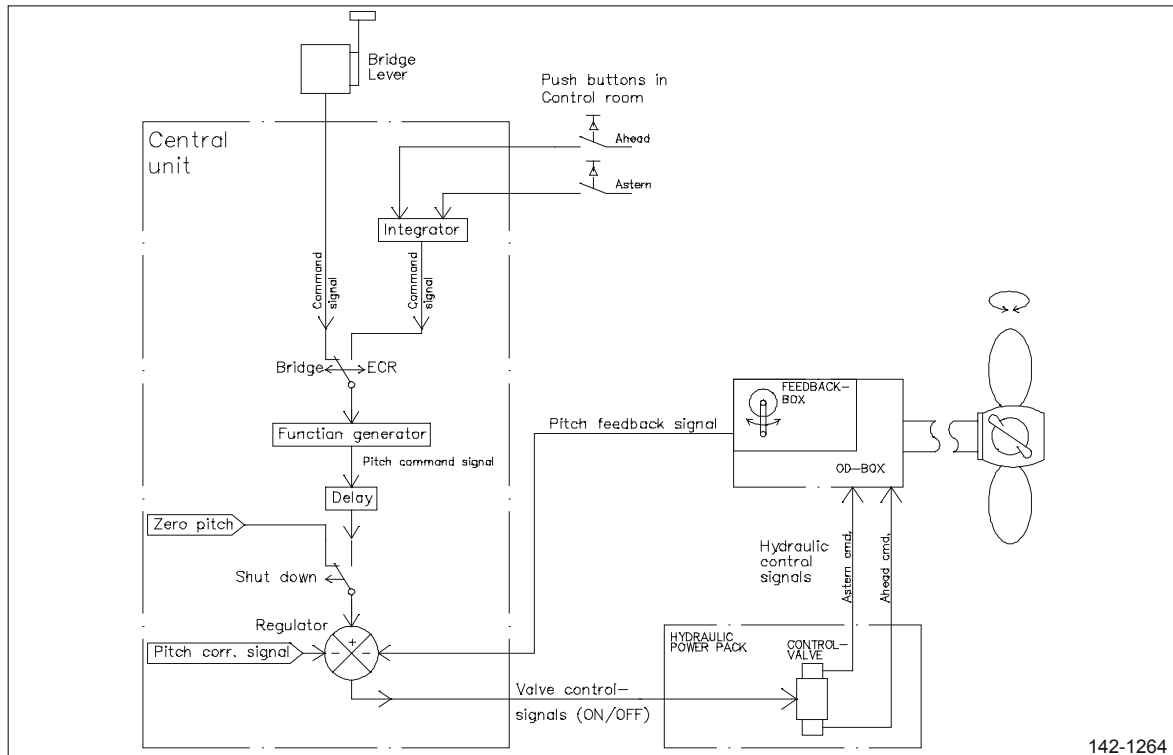


Figure 9 Pitch command signal.

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)

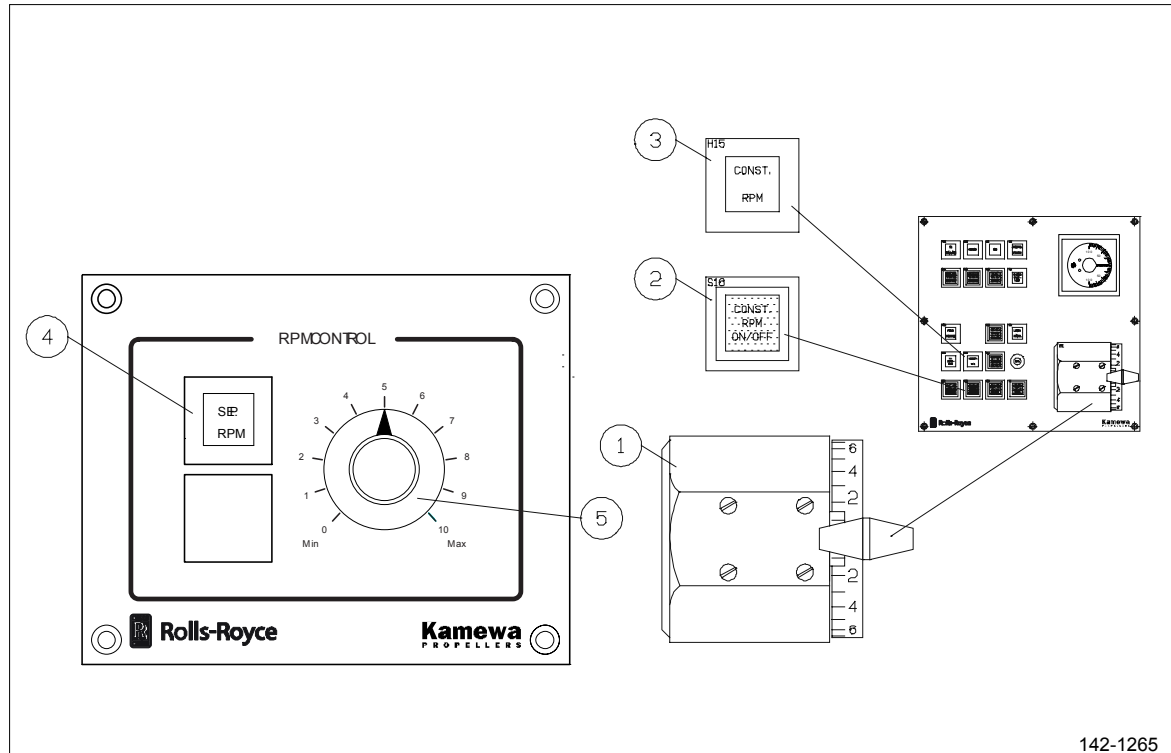


Figure 10 RPM control panel, control room.

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)

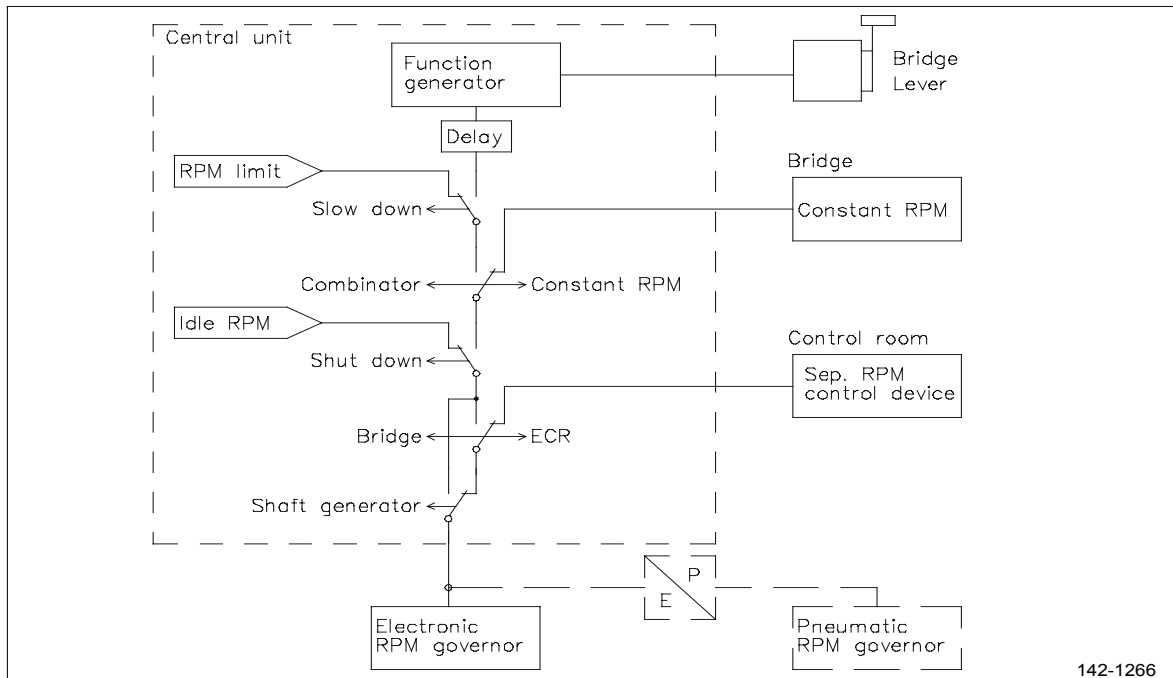


Figure 11 RPM command system.

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"

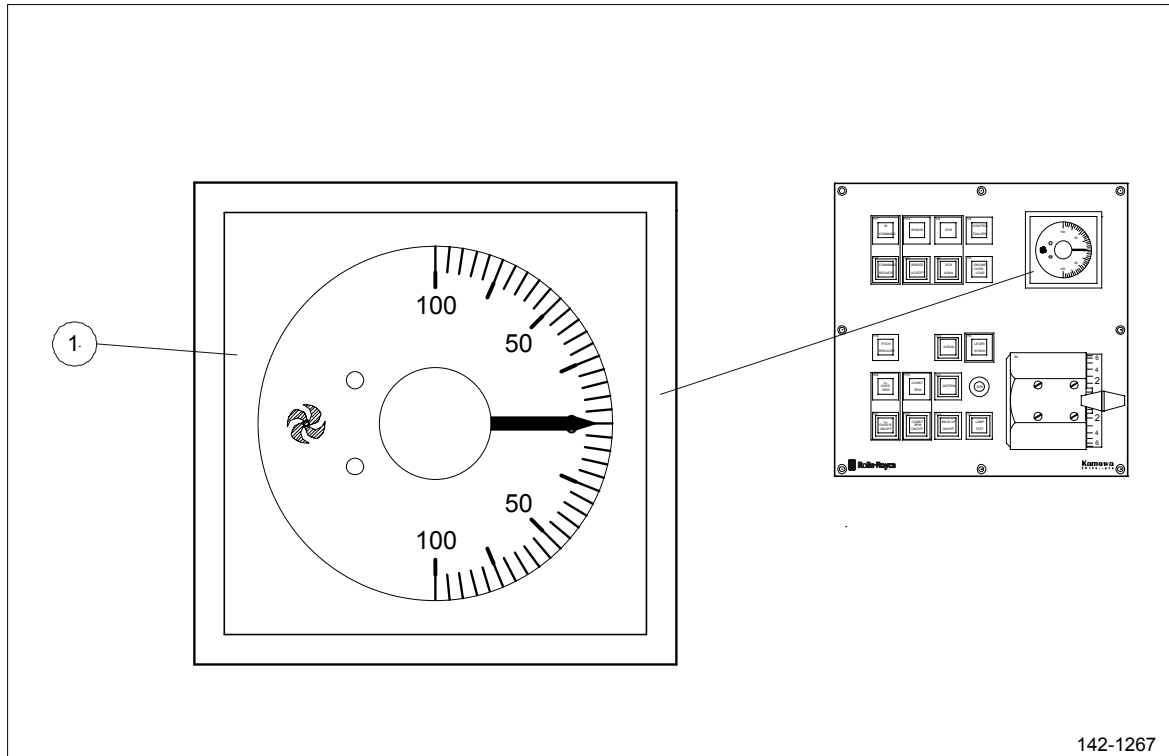


Figure 12 Pitch indicator, main bridge.

Pitch indicator for continuous indication of actual pitch.

Pitch Indication “Function”

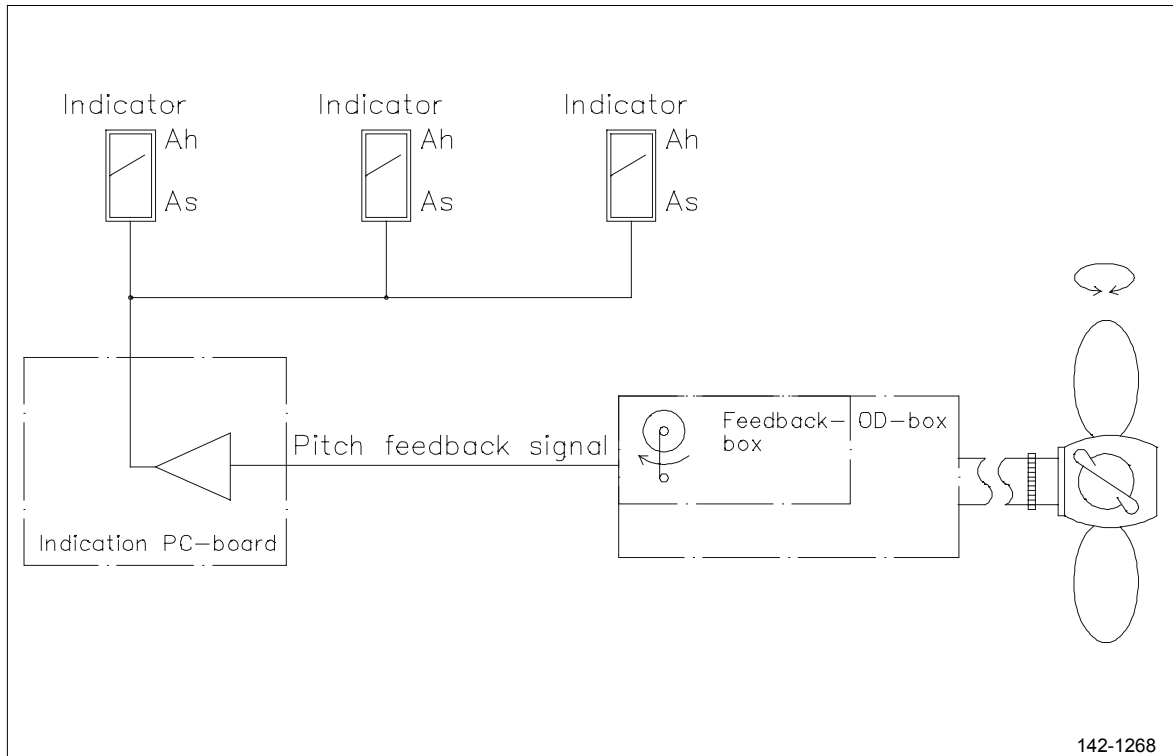


Figure 13 Pitch indicator system.

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"

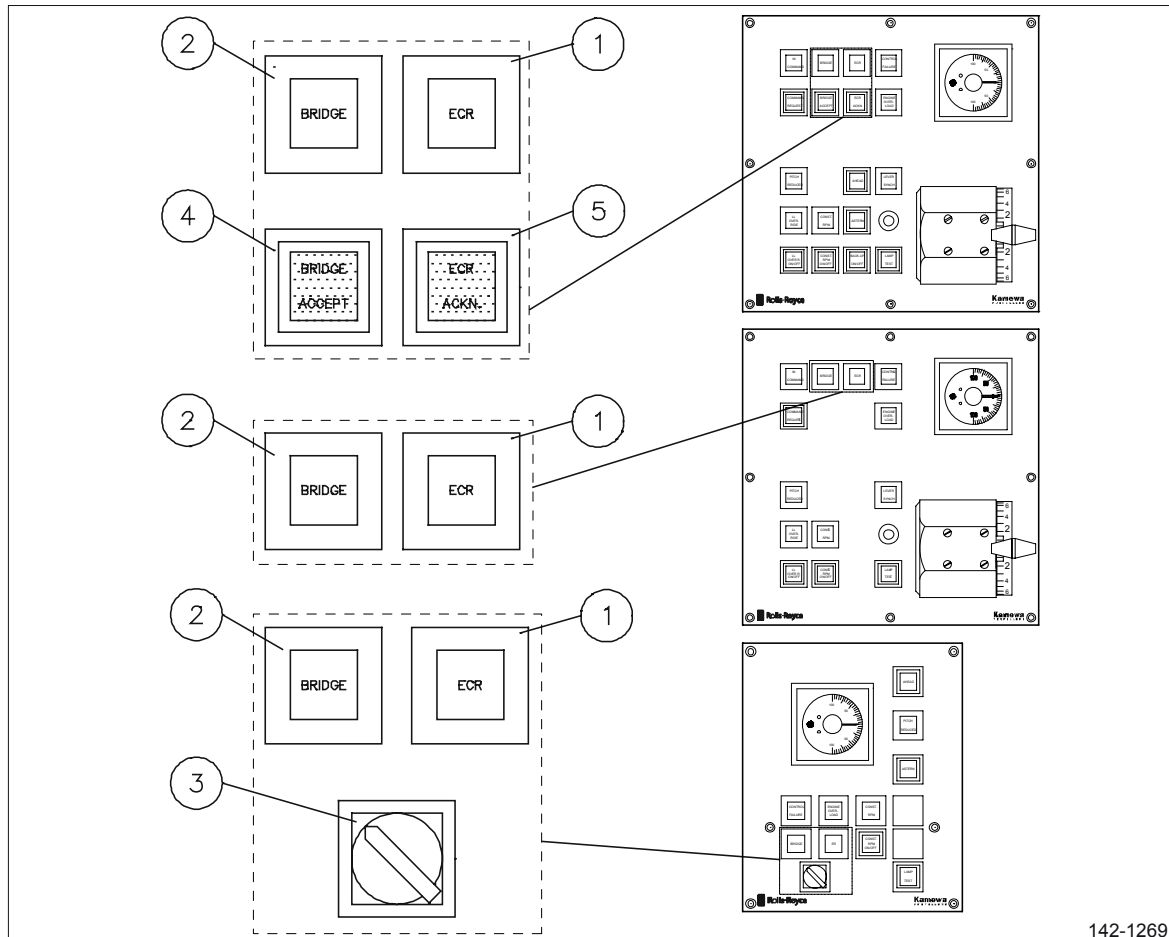


Figure 14 Manoeuvre control panels.

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"

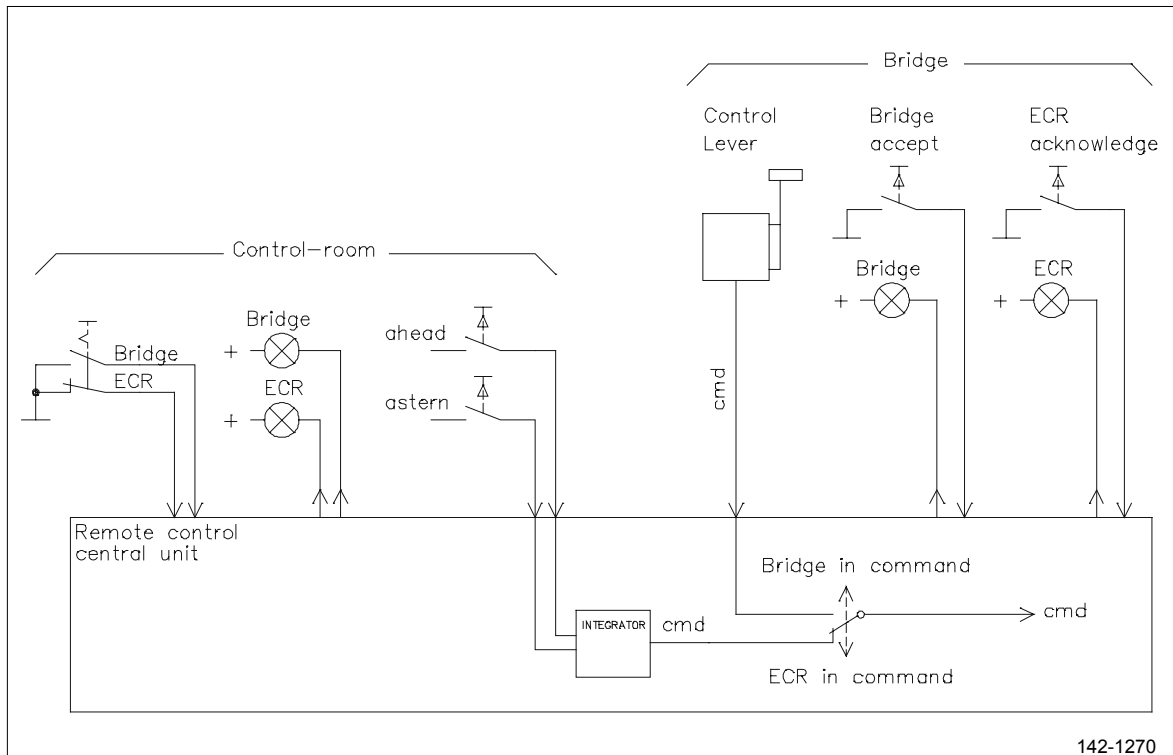


Figure 15 Manoeuvre responsibility system.

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"

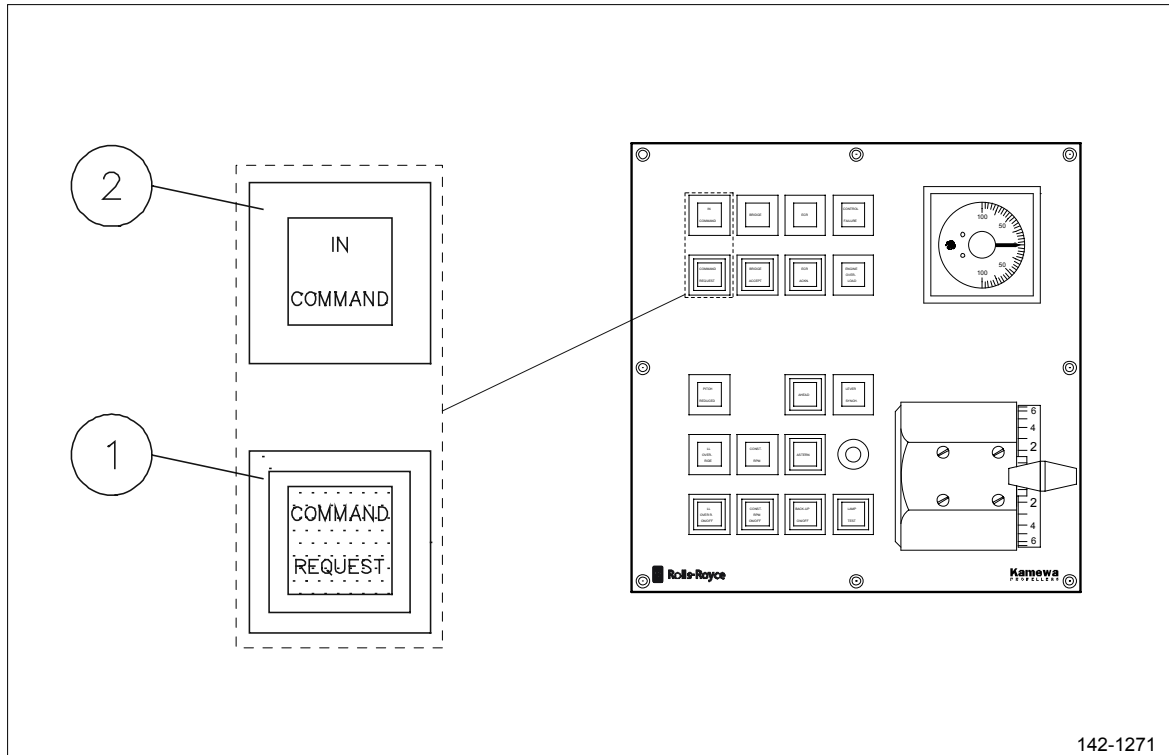


Figure 16 Control panel, main bridge.

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"

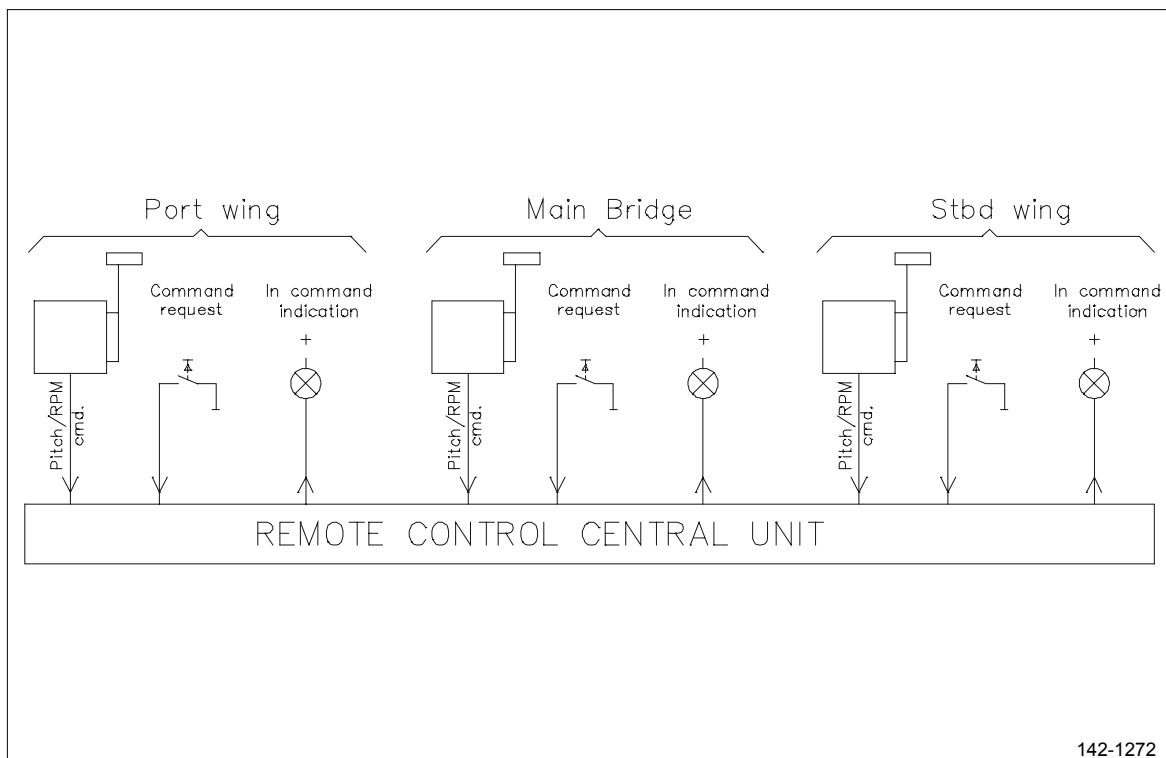


Figure 17 Manoeuvre responsibility system.

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"

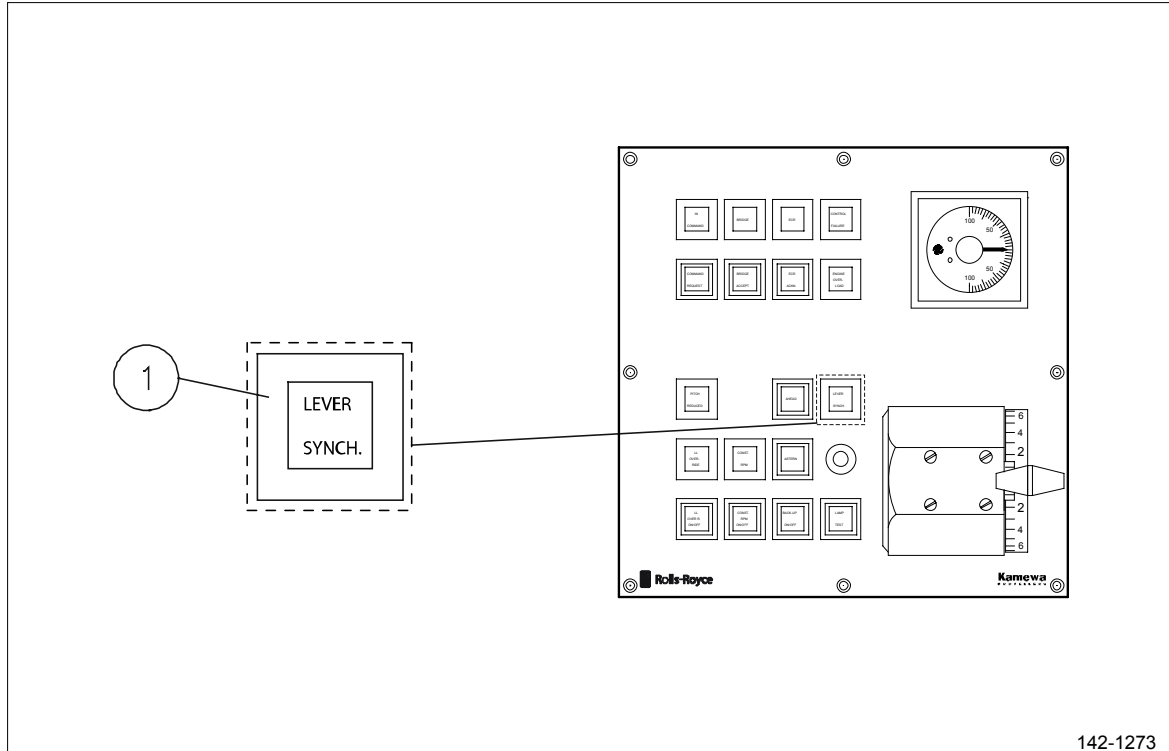


Figure 18 Control panel, main bridge.

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"

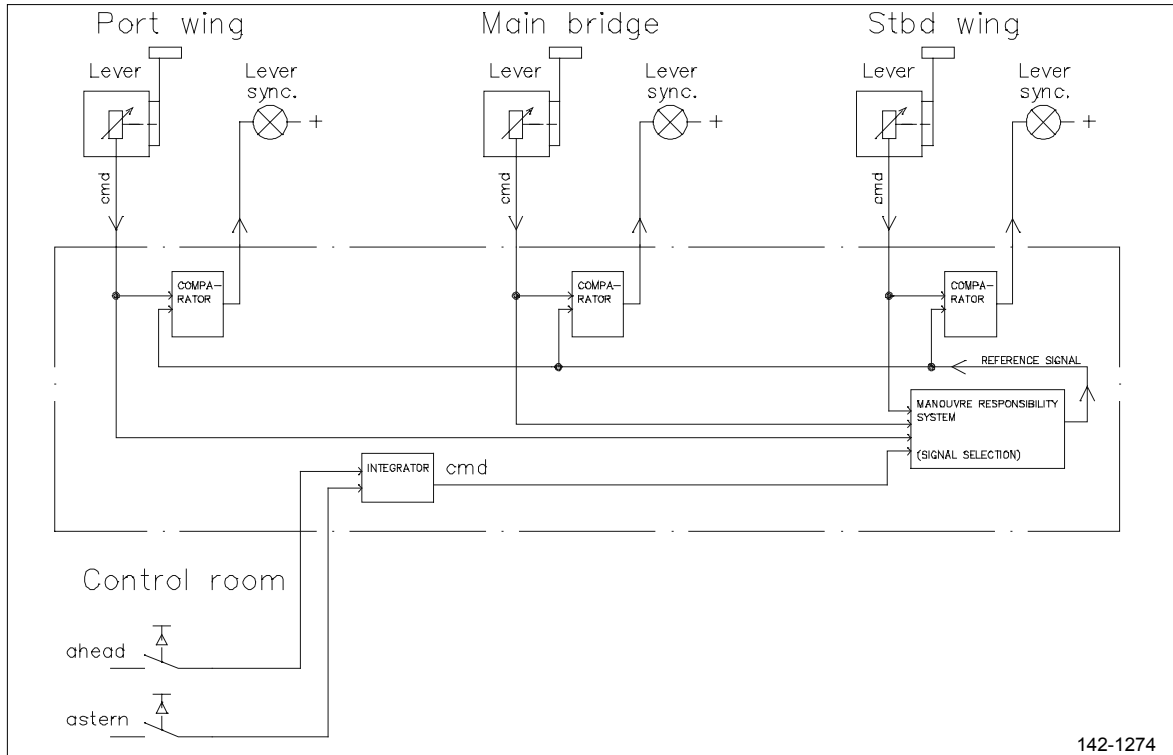


Figure 19 Command signals, levers.

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"

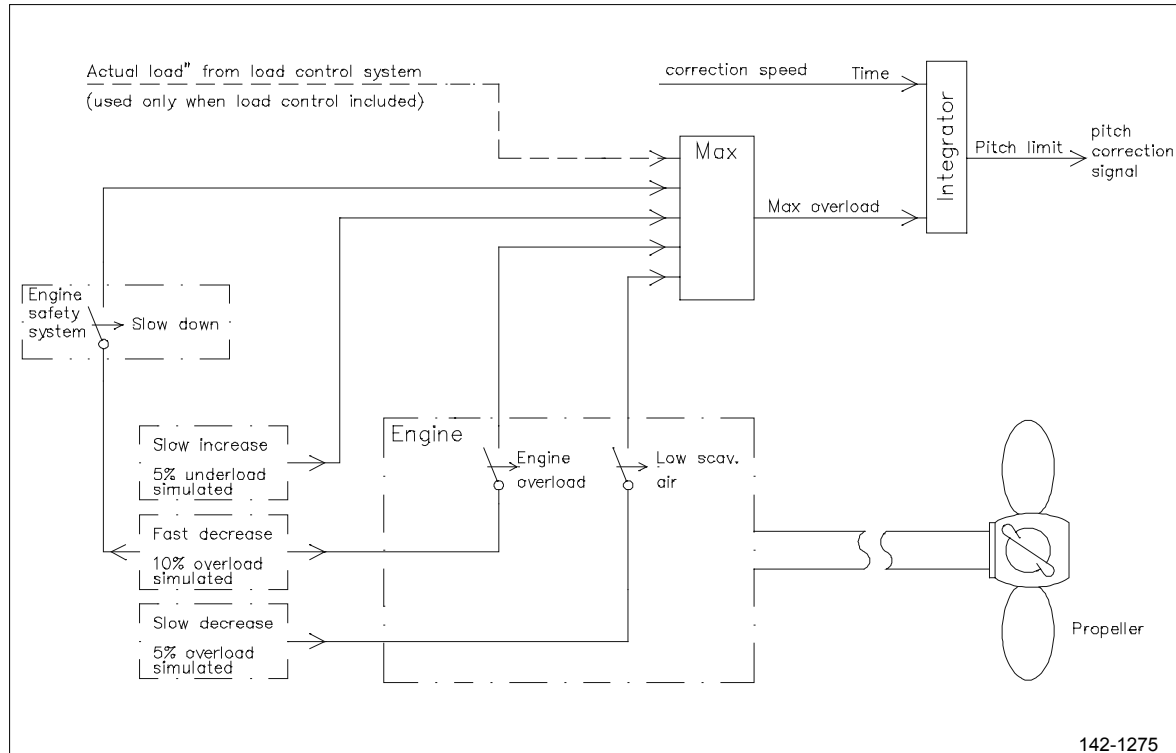


Figure 20 Overload protection system.

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)

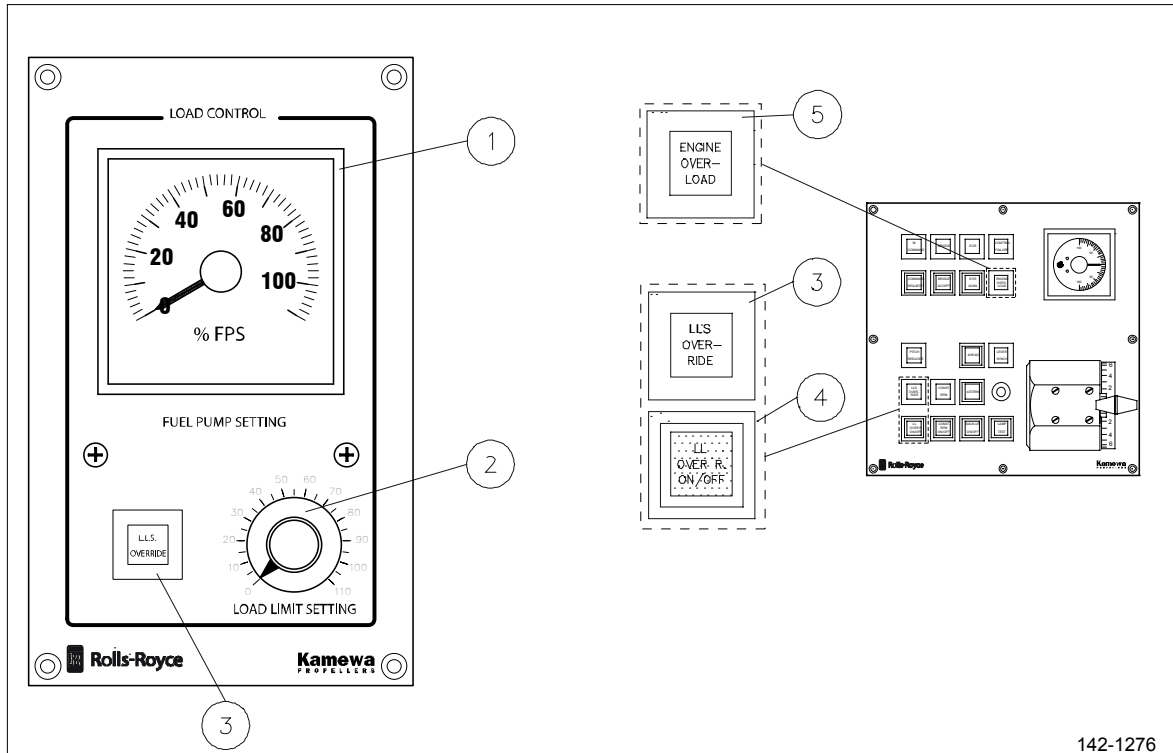


Figure 21 Load control panel.

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)

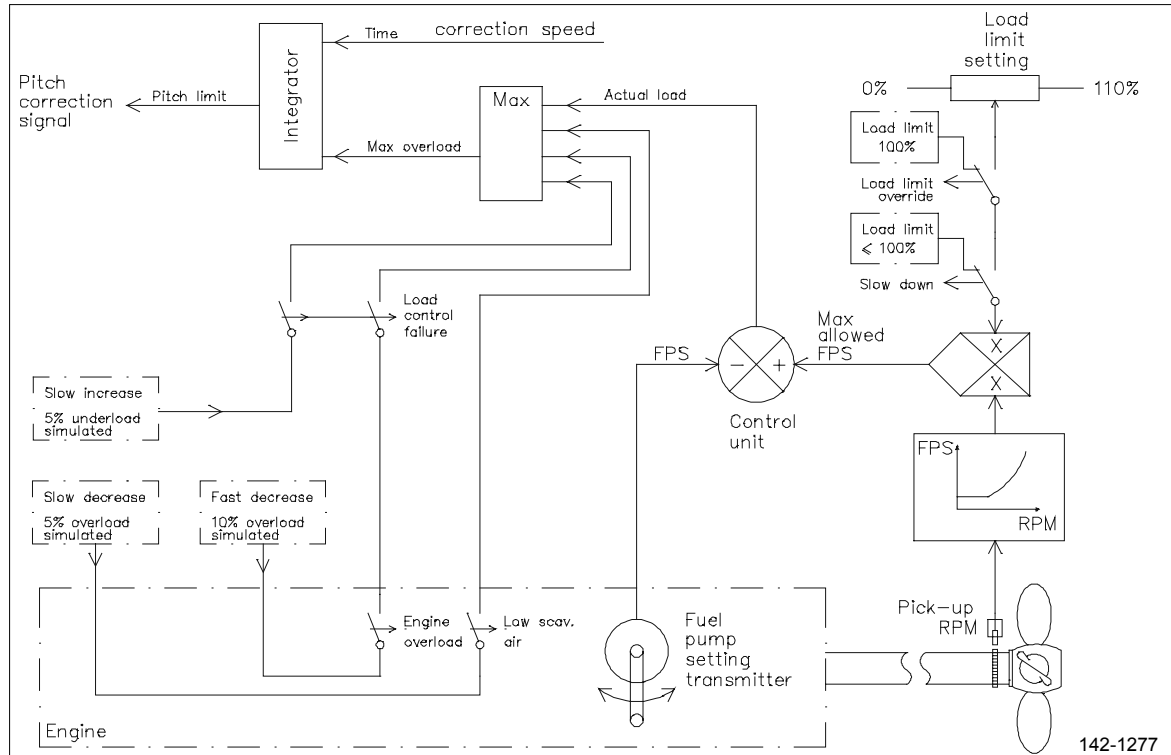


Figure 22 Load control system.

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”

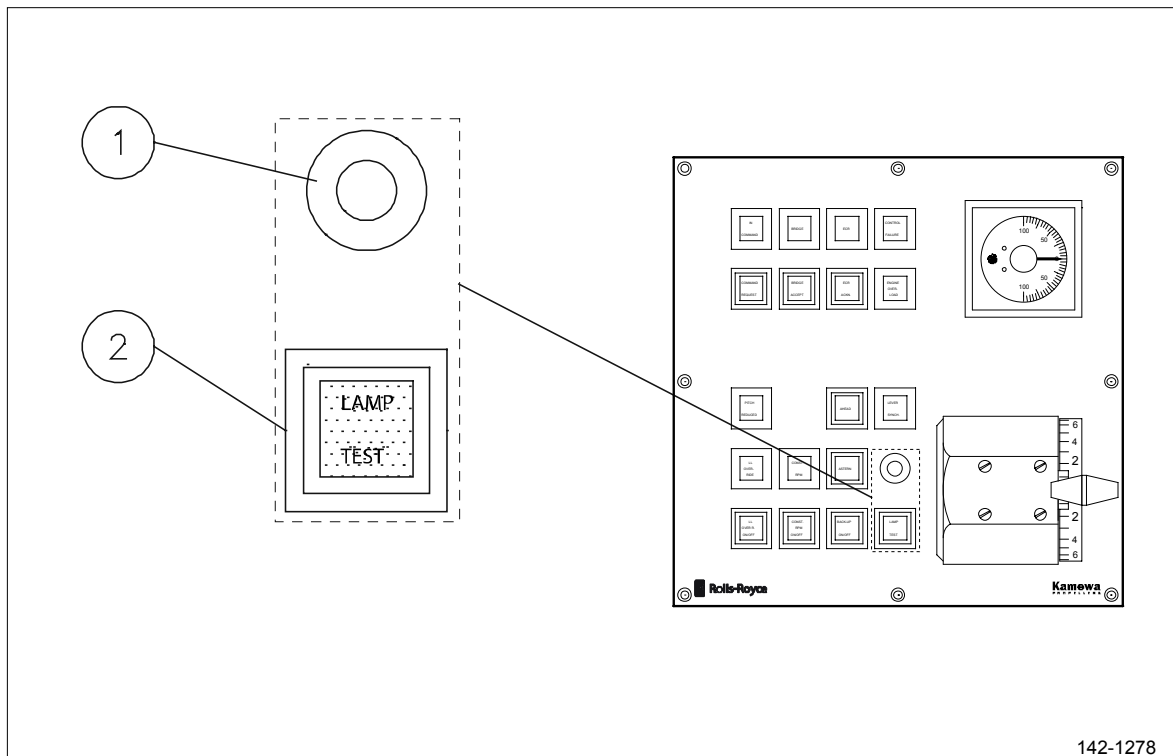


Figure 23 Control panel, main bridge.

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”

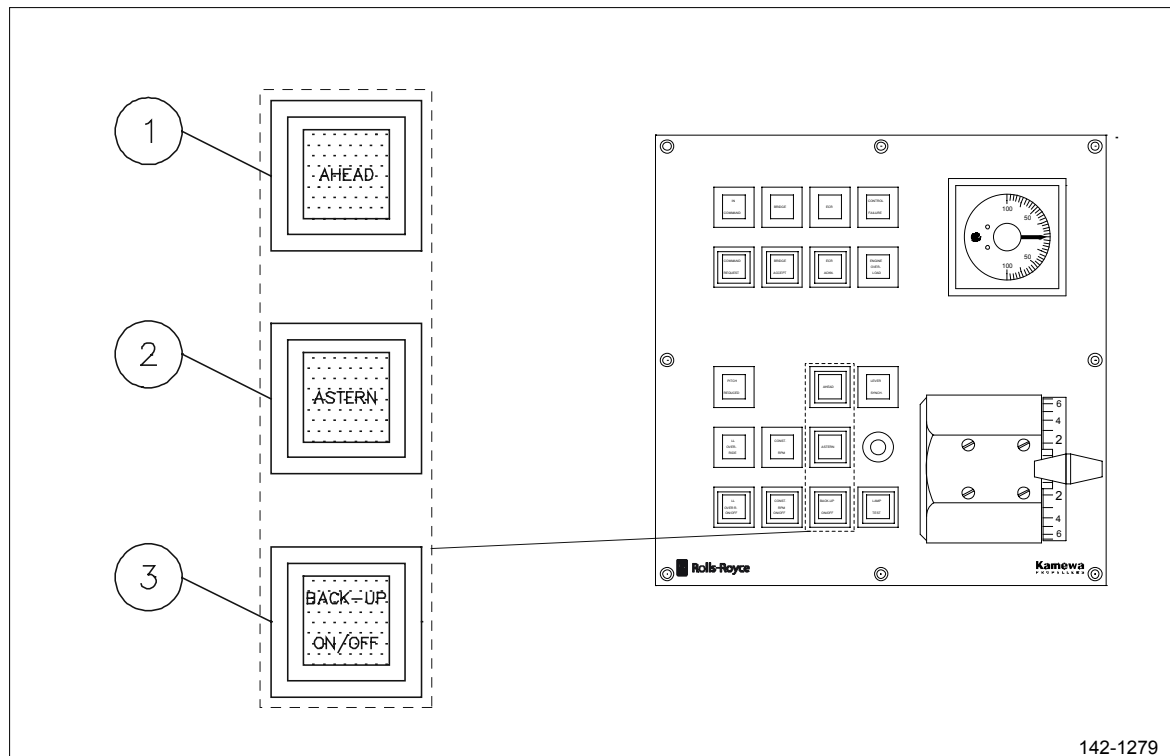


Figure 24 Control panel, main bridge.

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”

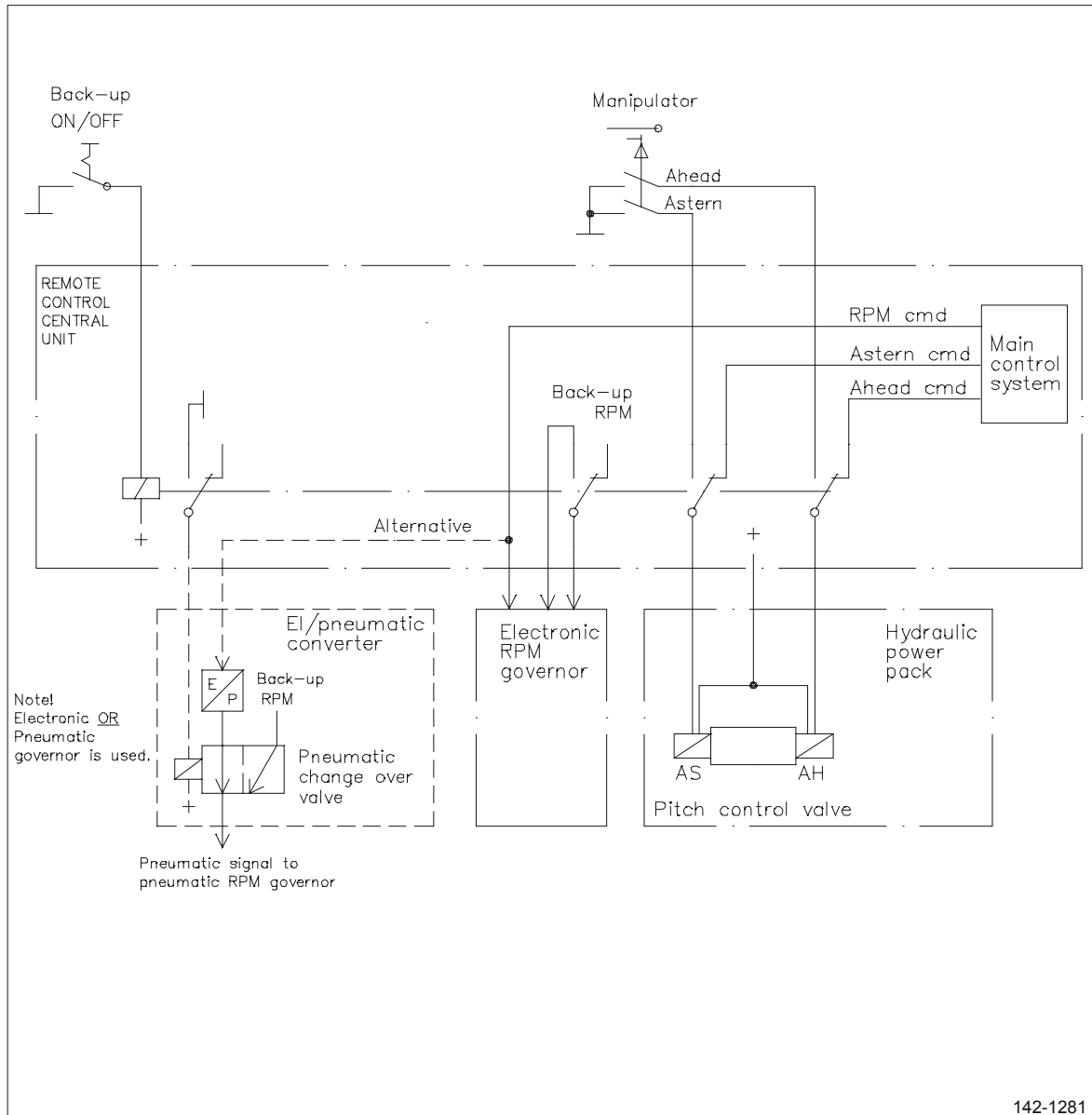


Figure 25 Back-up system.

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”

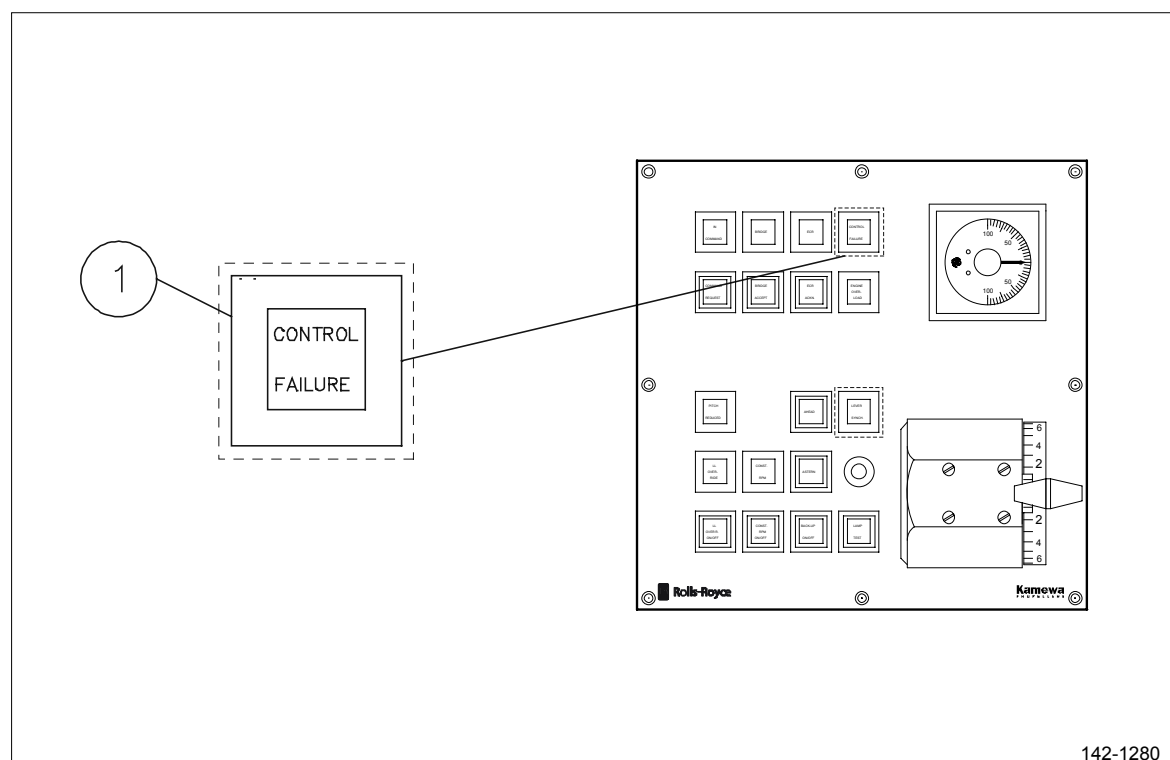


Figure 26 Control panel, main bridge.

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)

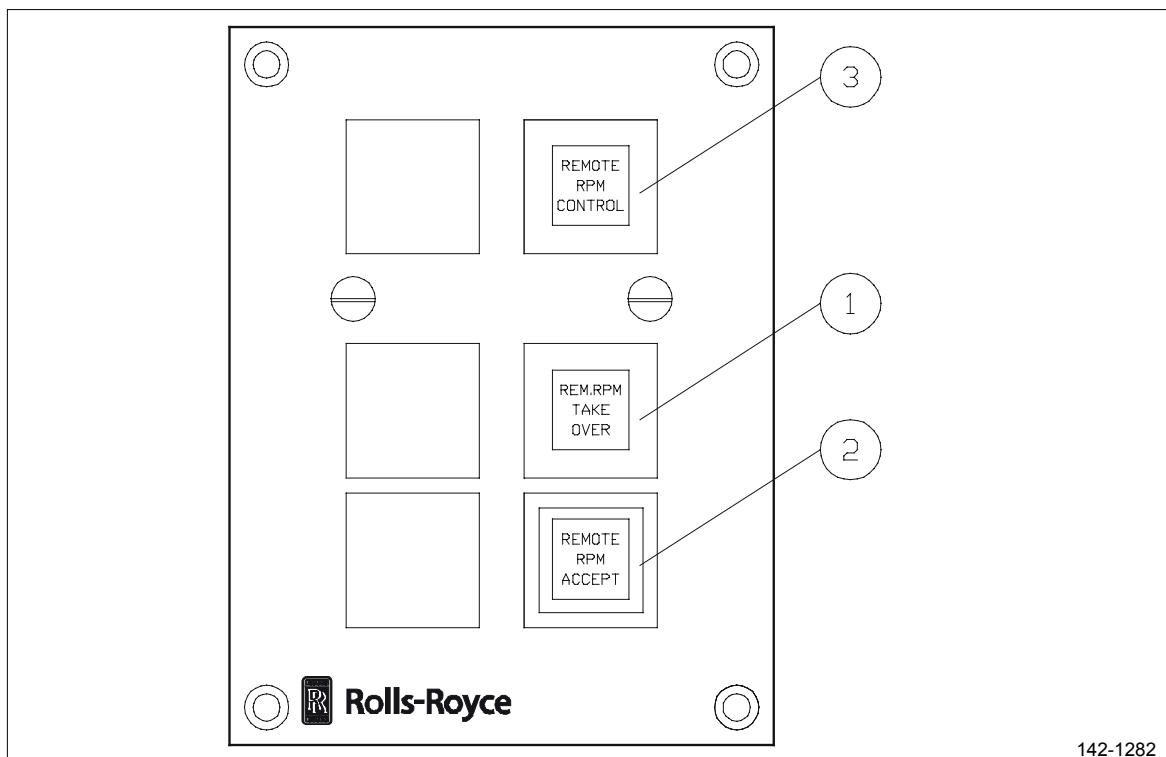


Figure 27 Remote RPM control panel.

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)

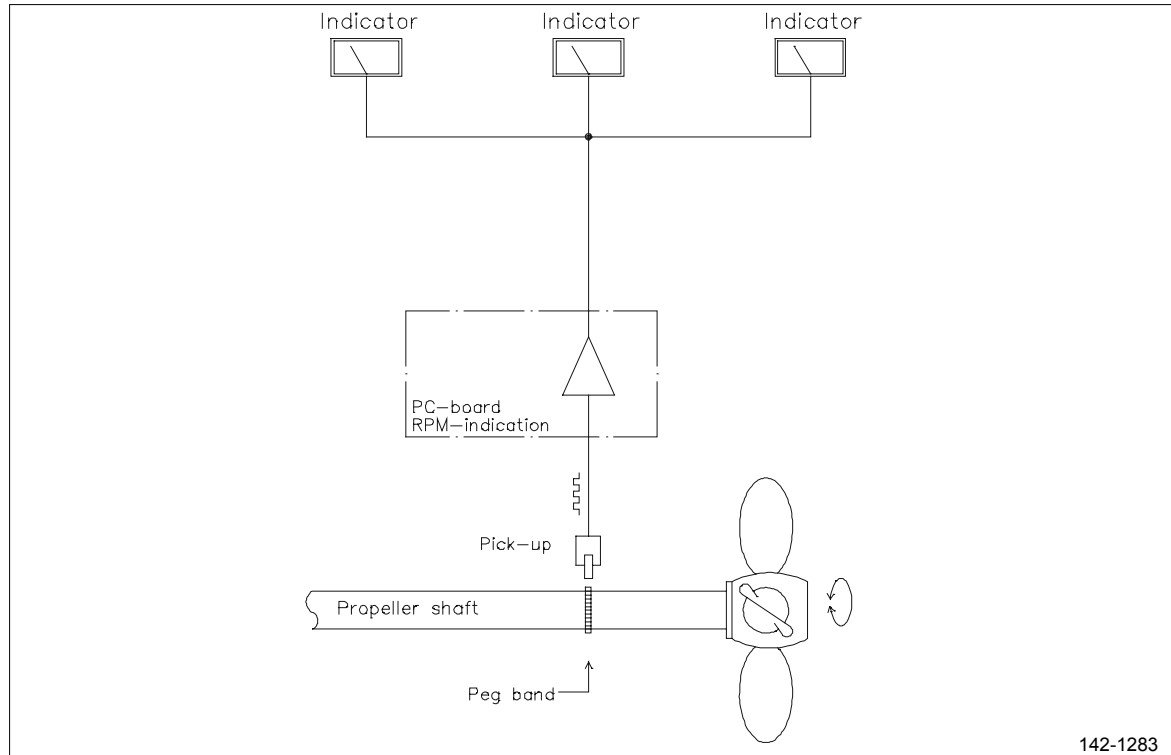


Figure 28 RPM indication system.

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)

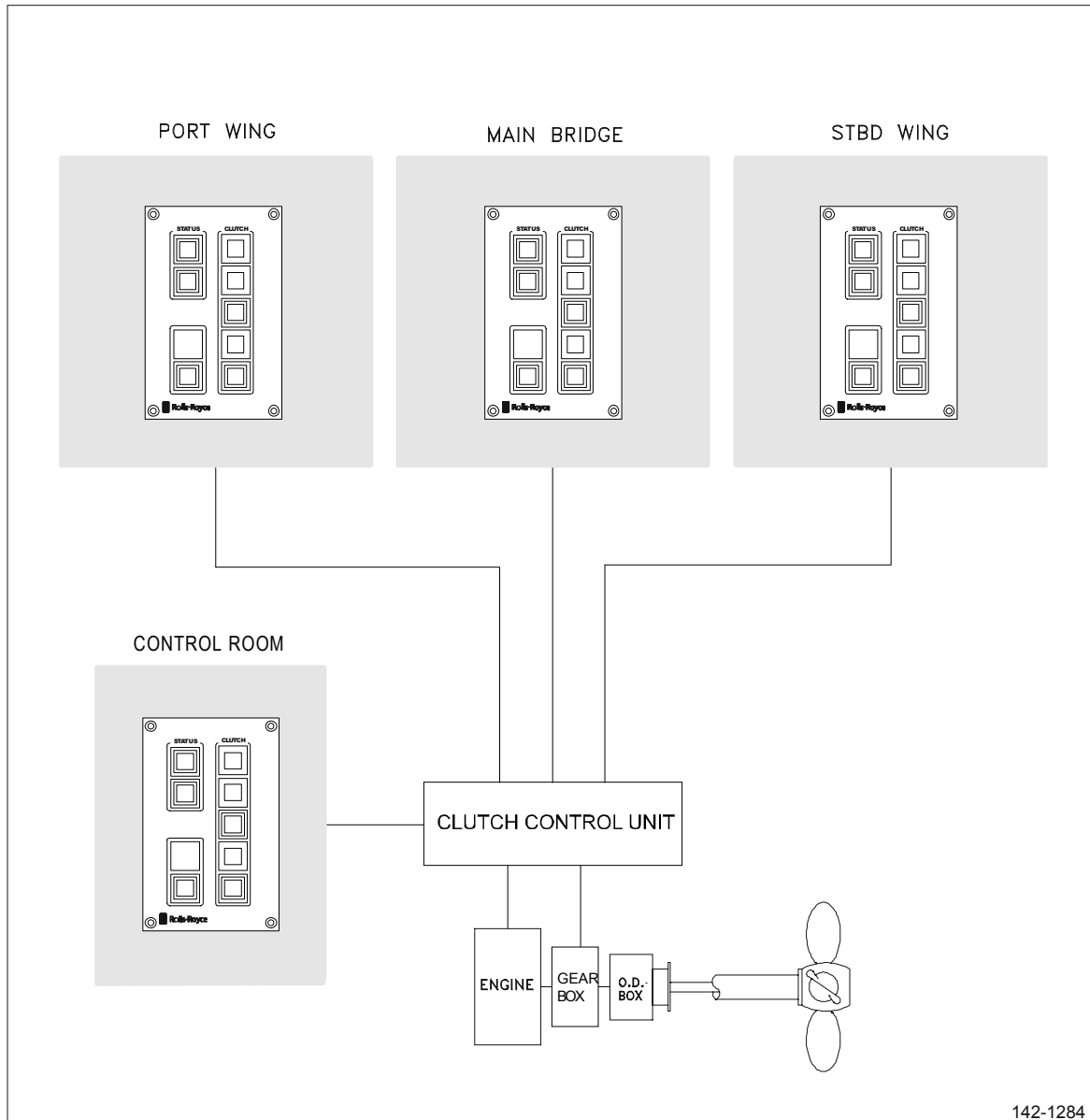


Figure 29 Clutch control system.

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.

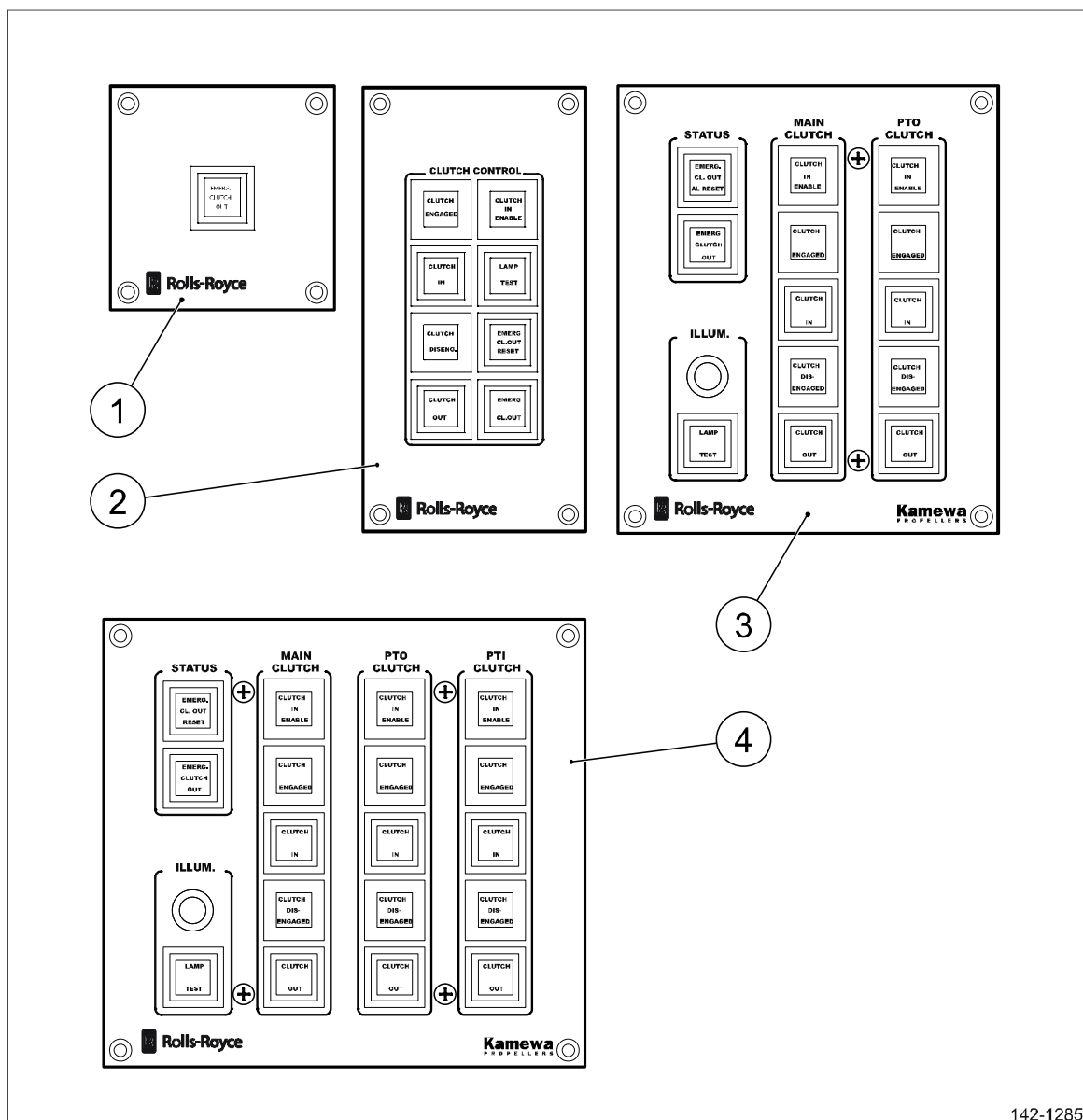
As long as no engine clutches are engaged on the shaft no engine force is transferred to the propeller. Moving the control lever ahead and astern will increase and reduce the pitch according to linear pitch curve, and the RPM according to chosen control mode.



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)

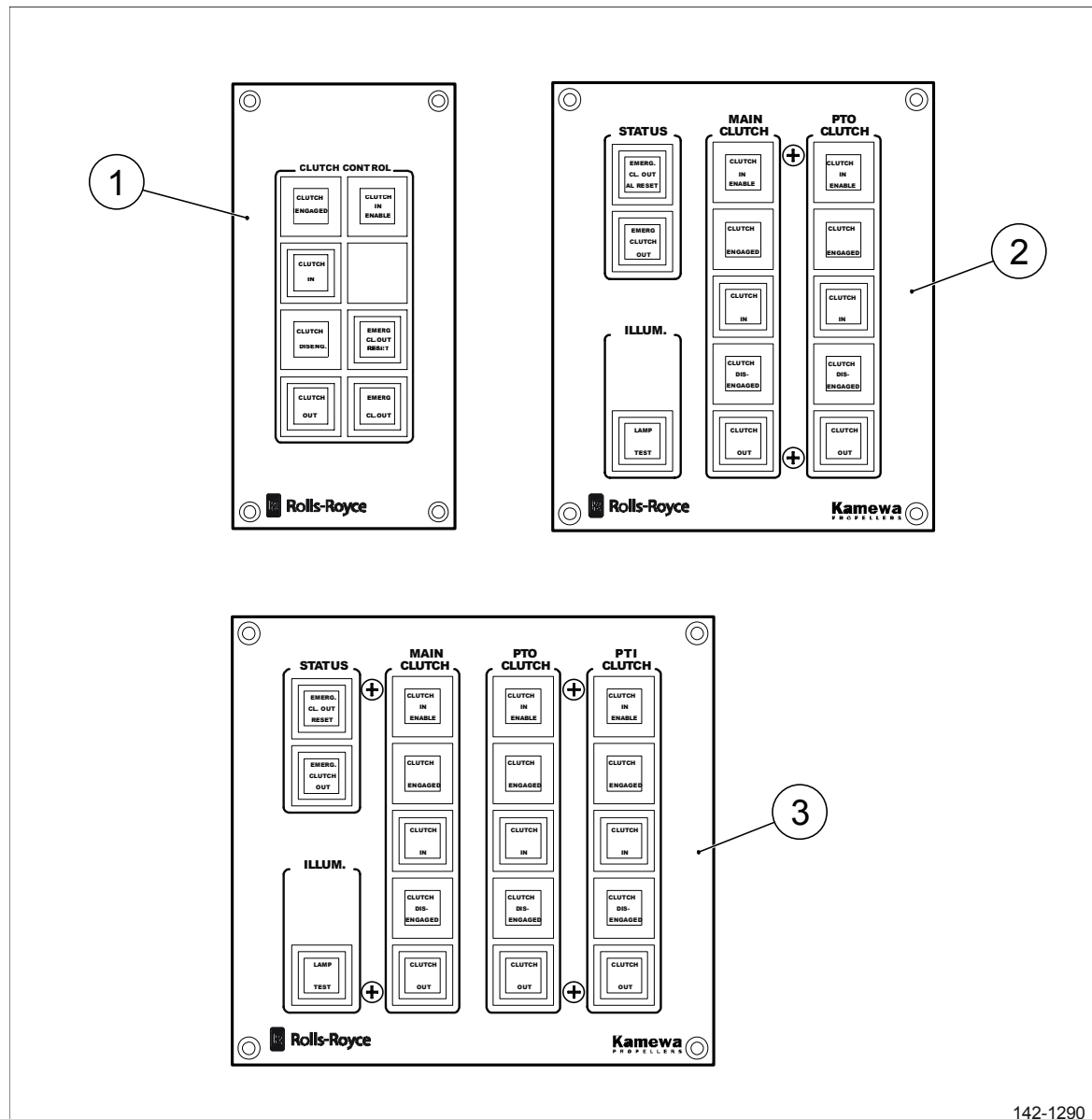


Figure 31 Alternative clutch panels, engine control room (ECR).

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.

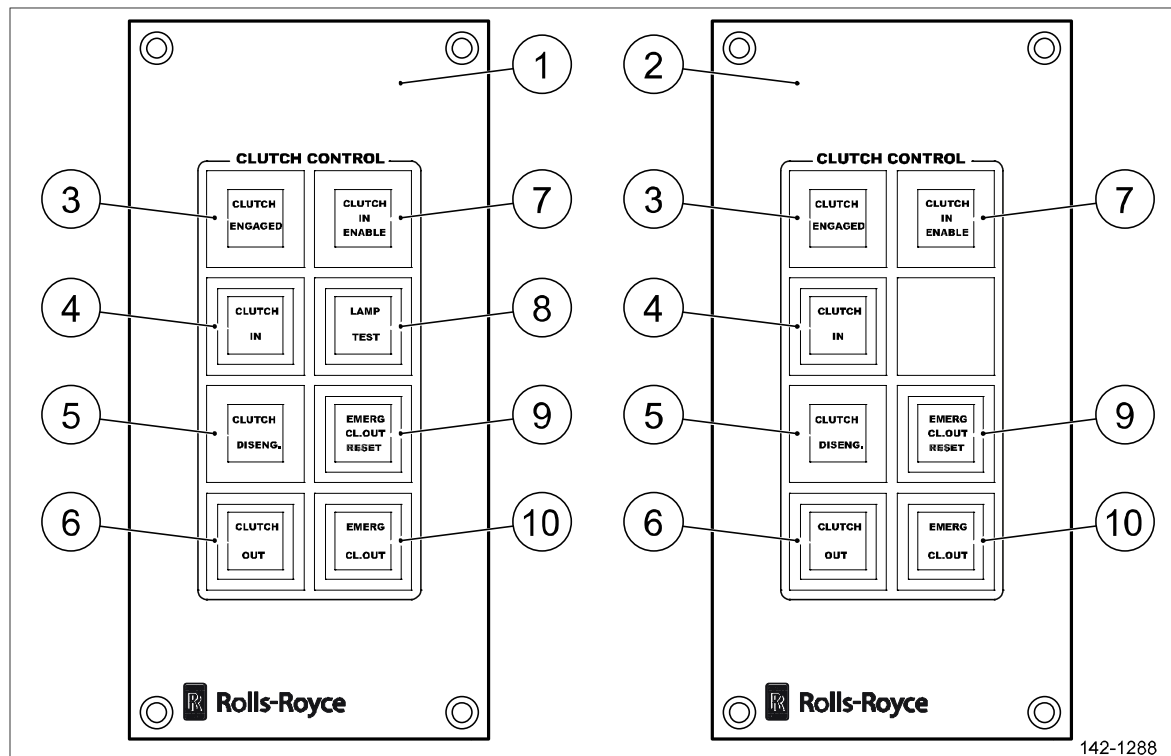


Figure 32 Clutch control panels on vessel with one clutch, bridge stations and engine control room.

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.

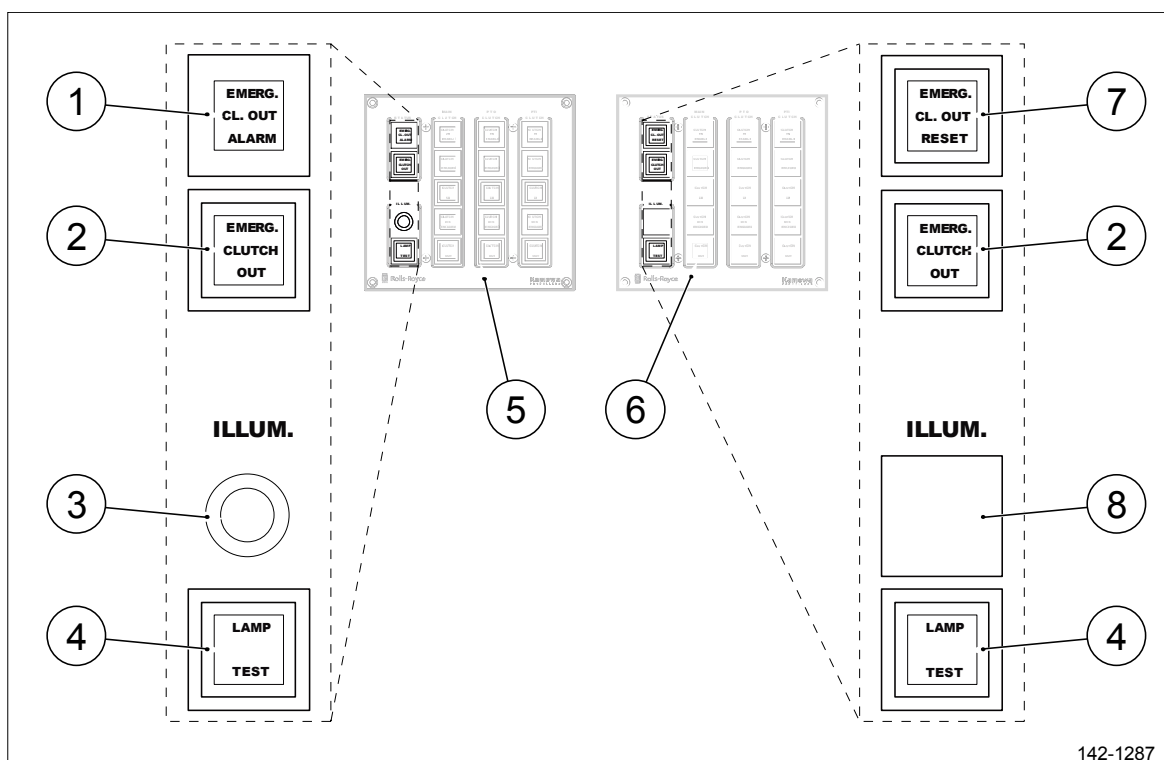


Figure 33 Clutch control panels on vessel with two or three clutches, bridge stations and engine control room.

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).

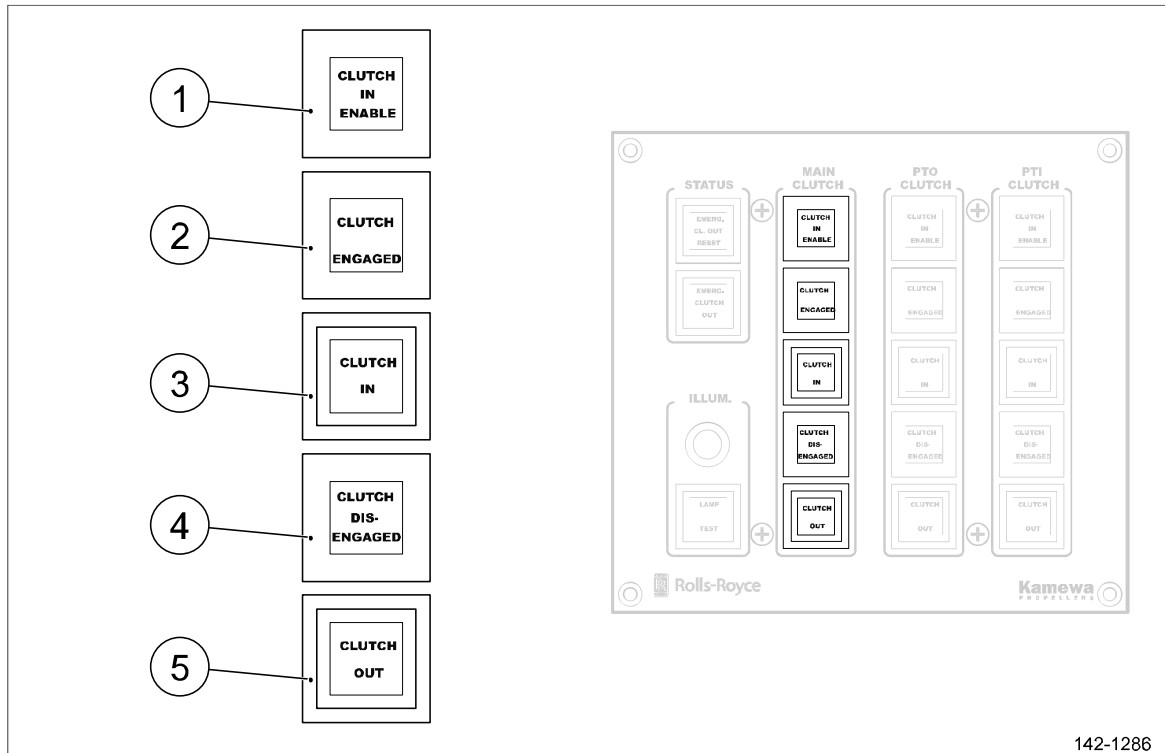


Figure 34 Main clutch buttons and indication lamps on clutch control panel on vessel with two or three clutches, bridge stations and engine control room.

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”.