


1 POS.	2 CODE OF SENSOR	3 ALARM POINT DESCRIPTION	4 SYSTEM					5 THRUSTER NO.			6 MONITORING AREA			7 SENSOR					8 DELAY/SEC.	9 REMARKS	10 CHECK			
			AQM HYDRAULIC	CONTROL SYSTEM	AQM EL. SYSTEM	LUBRICATION	SEALING	PNEUMATIC	AQM1 ALARM	AQM2 ALARM	COMMON ALARM	CONTROL BOARD	LOCAL	E.CONTROL BOARD	GROUPING	DEVICE TYPE	SIGNAL TYPE	ADJUST RANGE				SETTING VALUE		
																						LOW	HIGH	DIFFERENCE
1	ACU	ACU, WARNING	X				X	X			X			D	CPU WATCH DOG	CONTACT				X	2			
2	ACU	ACU, FAILURE	X				X	X			X			C	CPU WATCH DOG	CONTACT				X	2			
3	ST200	AQM OIL TEMPERATURE			X		X	X			X			B	TEMPERATURE SWITCH	CONTACT	20...150	80 °C		X		15		
4	SL200	AQM OIL LEVEL			X		X	X			X			A	LEVEL SWITCH	CONTACT			X			15		
5	SP230	COOLING OIL FILTER 1 CLOGGED			X		X	X			X			A	PRESSURE SWITCH	CONTACT	FIX.	2.2...2.8			X	15	bar	
6	SP231	COOLING OIL FILTER 2 CLOGGED			X		X	X			X			A	PRESSURE SWITCH	CONTACT	FIX.	2.2...2.8			X	15	bar	
7	SP310	CLUTCH OPERATING PRESSURE			X		X	X			X			A	PRESSURE SWITCH	CONTACT		17	X			6	bar	
8	SL140	HYDRAULIC OIL LEVEL	X				X	X			X			A	LEVEL SWITCH	CONTACT			X			15		
9	ST140	HYDRAULIC OIL TEMPERATURE	X				X	X			X			B	TEMPERATURE SWITCH	CONTACT	20...110	65 °C		X		15		
10	SP150	HYDRAULIC OIL FILTER 1 CLOGGED	X				X	X			X			A	PRESSURE SWITCH	CONTACT	FIX.	2.2...2.8			X	15	bar	
11	SP151	HYDRAULIC OIL FILTER 2 CLOGGED	X				X	X			X			A	PRESSURE SWITCH	CONTACT	FIX.	2.2...2.8			X	15	bar	
12	SP100	BOOSTER PRESSURE LOW	X				X	X			X			A	PRESSURE SWITCH	CONTACT		17	X			4	bar	
13	SL500	GRAVITY TANK OIL LEVEL			X		X	X			X			B	LEVEL SWITCH	CONTACT			X			15		
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								

M = main alarm unit; R = repeater alarm unit; G = group alarm unit

- A > AQM engine critical
- B > AQM engine non critical
- C > AQM control critical
- D > AQM control non critical

Lang U

 Rolls-Royce		AQUAPILOT CONTROL SYSTEM				DBL				
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Drawn	30.11.2004	TAOJ	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight		Scale	7 3 5 7 1 3 6		- B - 008	01	/ 01	U		

B	090316	JAJA	JAJA	THKH	Adjust range of ST200 and ST140 rectifie
Rev	Date	Drawn	Approved	Checked	Revision text

PLOTDATE: 17.03.2009 E

AQUAMASTER STEERING DATA FEEDBACK "position and rate of change"

STEERING DATA FROM
ATC-T SERIAL ENCODER

SIGNAL'S
LIMITING

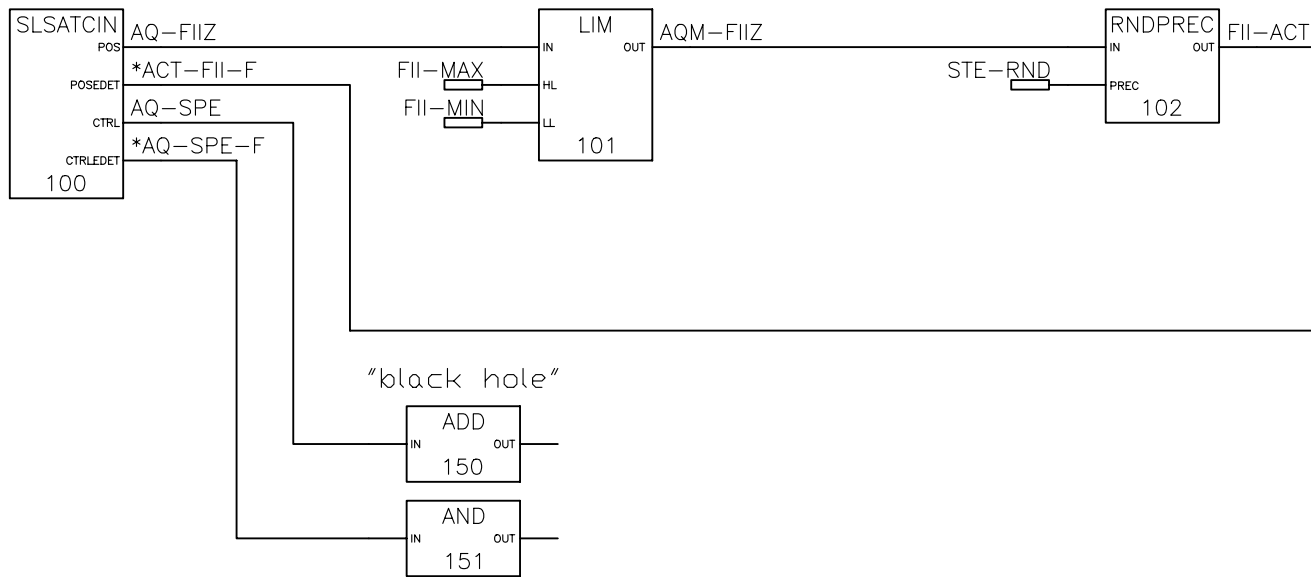
SIGNAL'S
ROUNDING

ACTUAL FEED-BACK ENCODER
VALUE

POUT TURNCONT

FEED-BACK ENCODER
FAILURE

POUT ALARMS



PROCESS CONSTANTS

RCONST	0.0	FII-MIN
RCONST	359.9	FII-MAX
RCONST	0.1	STE-RND

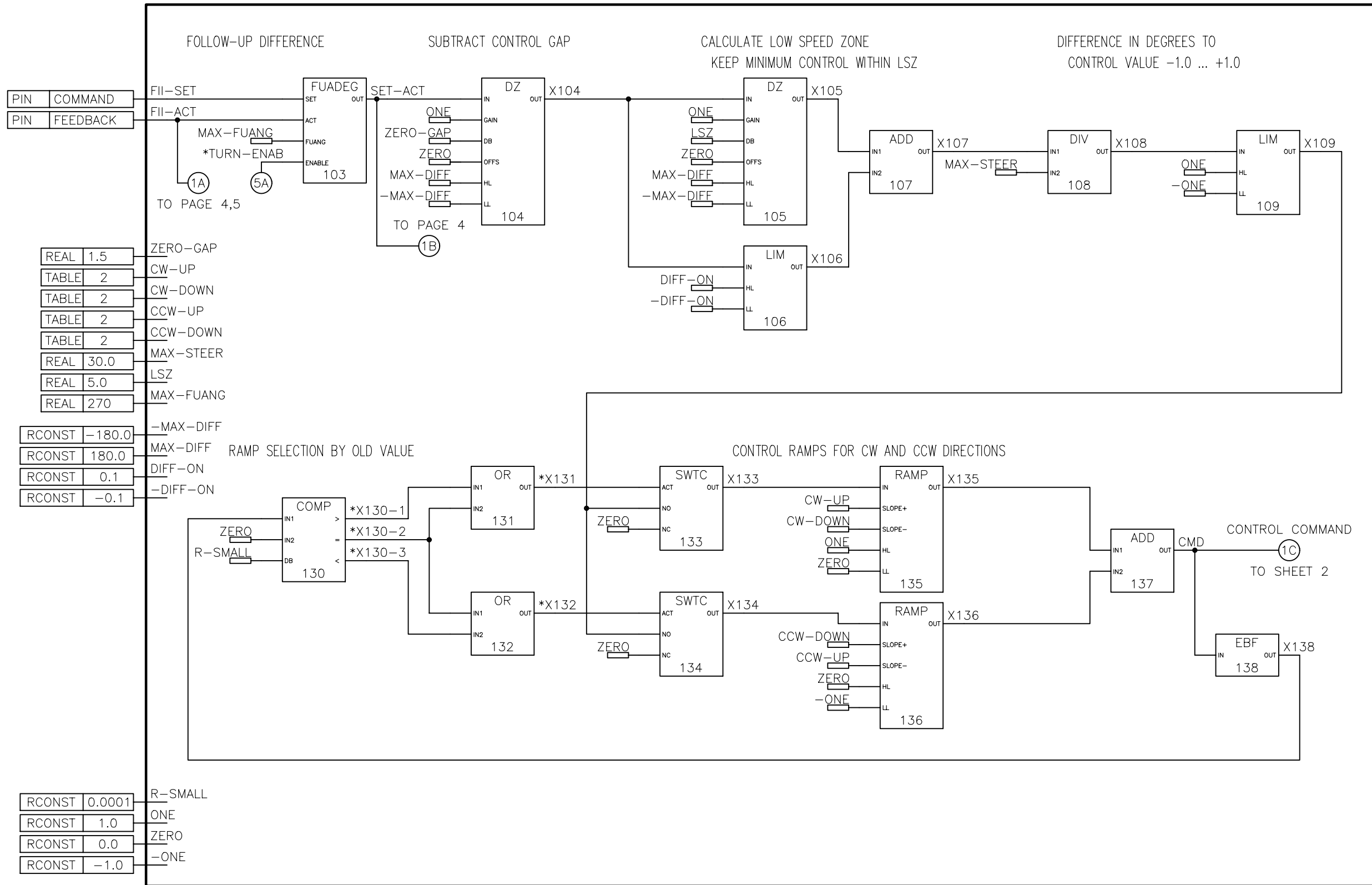
PLOTDATE: 01.03.2002 E

Languages: U

		AQUAPILOT CONTROL SYSTEM				CCN-01
		ACU				
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		Checked MJV	Process Block Diagram			
Drawn	28.2.2002	JAJA	Group	Size	Serial number	Rev
Weight		Scale	3350148 - 0 - 001			Page
				01 / 01		Lang
						U

Process: TURNCONT

Cycletime (s): 0.1



Languages: U



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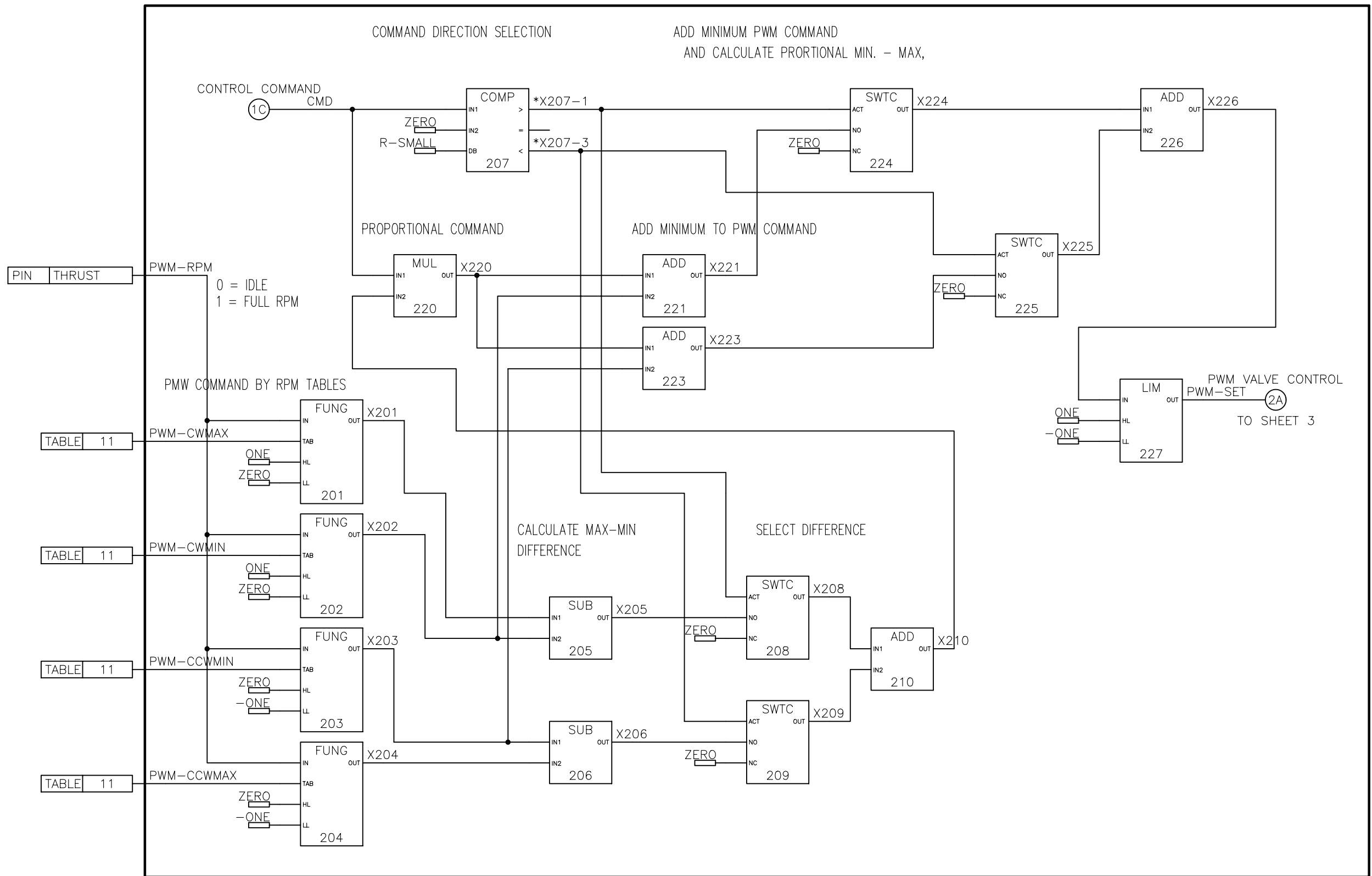
Approved SSI
Checked MJV

AQUAPILOT CONTROL SYSTEM
ACU
Turning Control (TURNCONT)
Process Block Diagram

CCN-01

Drawn	9.10.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350096-0-001			01 / 06		U		

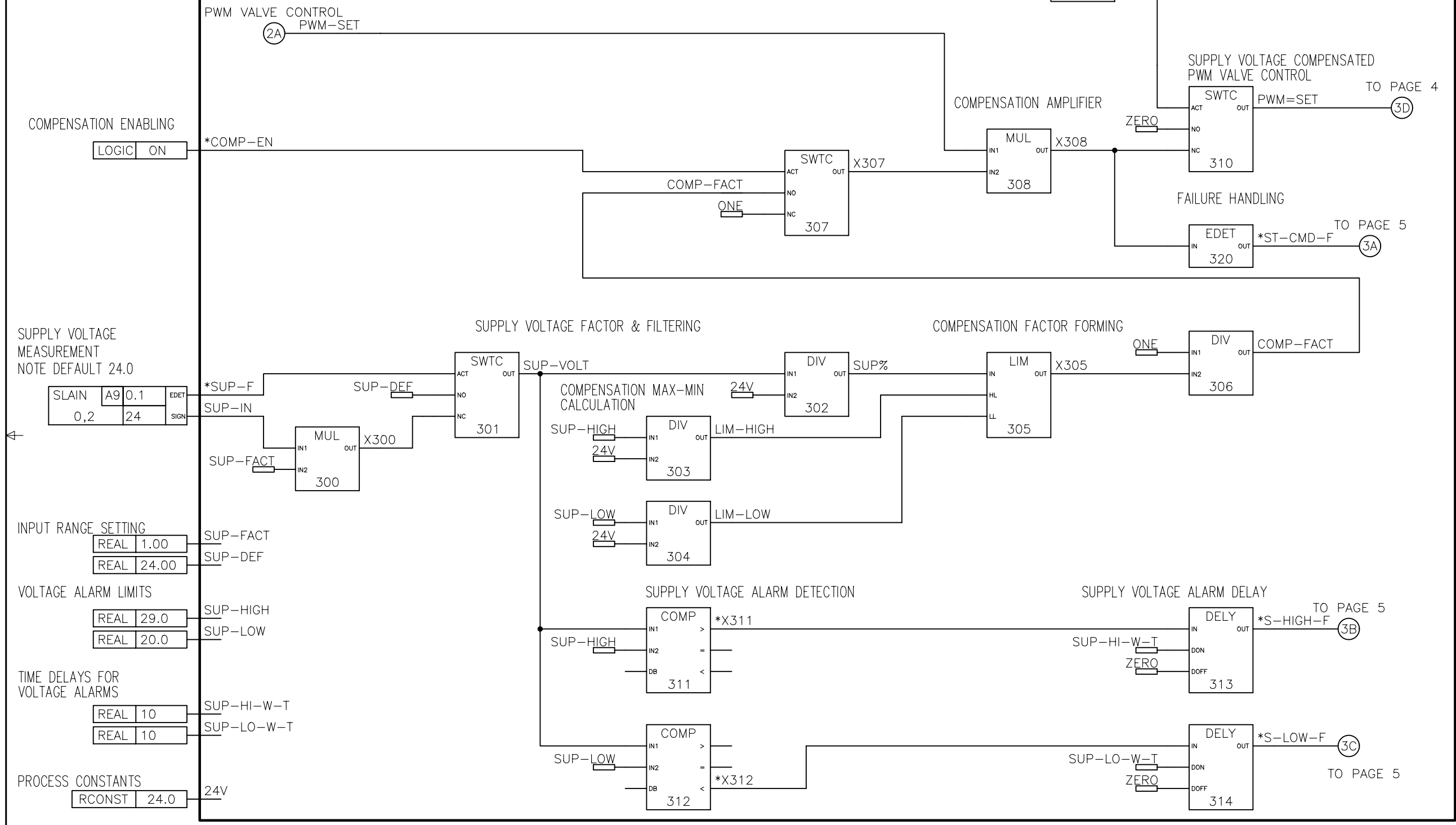
PLOTDATE: 09.01.2006



Languages: U

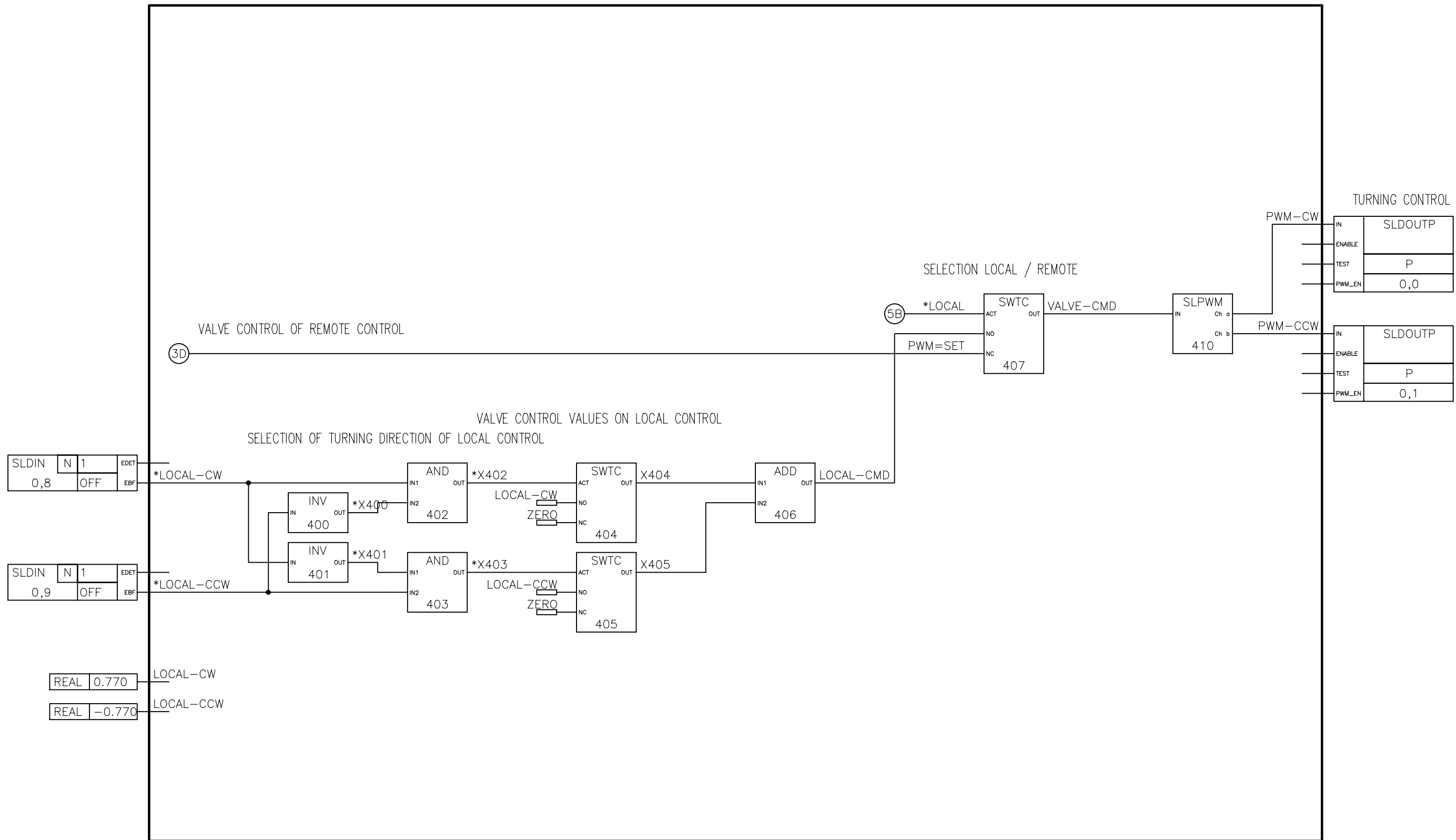
		AQUAPILOT CONTROL SYSTEM ACU Turning Control (TURNCONT) Process Block Diagram				CCN-01 <small>PL01DATE: 09.01.2006</small>
<small>THIS DRAWING IS PROPERTY OF ROLLS-ROYCE. IT IS NOT TO BE REPRODUCED OR SHOWN TO ANY THIRD PARTY WITHOUT SPECIAL PERMISSION OF ROLLS-ROYCE. BY AB.</small>		Approved SSI	Group Size	Serial number	Rev	Variant
Drawn 9.10.2001 AKHA	Scale 1:1	3350096-0-001			Page 02/06	Total pages U

SUPPLY VOLTAGE MEASUREMENT AND PWM CONTROL VOLTAGE COMPENSATION



Languages: U

Rolls-Royce		AQUAPILOT CONTROL SYSTEM ACU Turning Control (TURNCONT) Process Block Diagram				CCN-01 <small>PL01DATE: 09.01.2006</small>
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Drawn 9.10.2001 AKHA	Scale 1:1	3350096-0-001		03/06	U	

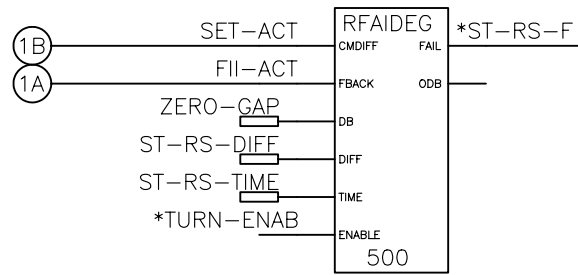


Languages: U

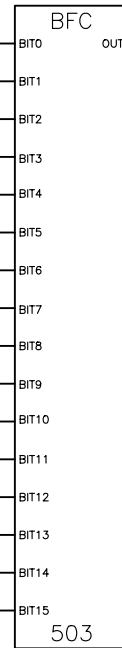
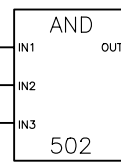
		AQUAPILOT CONTROL SYSTEM		CCN-01	
		ACU		PL01DATE: 09.01.2006	
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		Checked	Process Block Diagram		
Drawn	9.10.2001 AKHA	Group	Size	Serial number	Rev
Weight	Scale 1:1	3350096-0-001		Page	Total pages
				04/06	U

ALARMS

ORIENTATION FAILURE

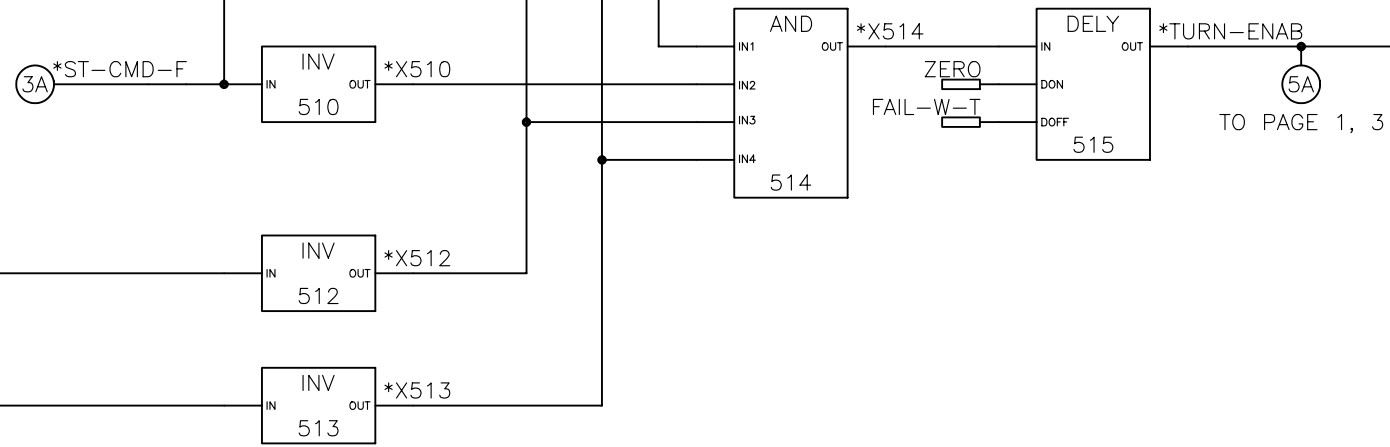


STEERING COMMAND FAILURE



ENABLES

TURNING ENABLE



REAL 2.0 ST-RS-DIFF
REAL 5 ST-RS-TIME

PIN ALARMS *RUNNING

PIN LOGICAL *LOCAL

PIN LOGICAL *BACKUP

REAL 0.5 FAIL-W-T

TURNING ENABLED
POUT LOGICAL

POUT ALARMS

Languages: U



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Checked MJV

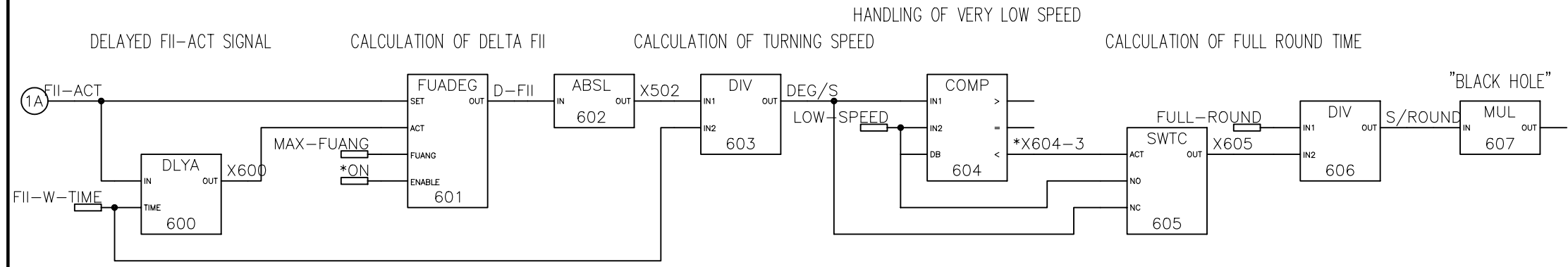
AQUAPILOT CONTROL SYSTEM
ACU
Turning Control (TURNCONT)
Process Block Diagram

CCN-01

PL01DATE: 09.01.2006

Drawn	9.10.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350096-0-001			05/06		U		

MEASURING OF THE TURNING SPEED OF AQM



- REAL 0.5 FII-W-TIME
- LCONST ON *ON
- RCONST 0.5 LOW-SPEED
- RCONST 360 FULL-ROUND

Languages: U

		AQUAPILOT CONTROL SYSTEM		CCN-01	
		ACU		PL01DATE: 09.10.2001	
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		Checked MJV	Process Block Diagram		
Drawn	9.10.2001 AKHA	Group	Size	Serial number	Rev
Weight kg	Scale 1:1	3350096-0-001		Page	Total pages
				06 / 06	U

Process: THRUST

Cycletime (s): 0.100

CLUTCH DISABLED
USED WHEN NO CLUTCH
CONTROL

ACTUAL PM'S RPM VALUE

CLUTCH ENGAGE REQUESTS
AND SELECTED MODE

MAXIMUM RPM VALUE WHEN
CLUTCH CAN BE ENGAGED

MINIMUM RPM VALUE WHEN
CLUTCH CAN BE ENGAGED

CLUTCH ENGAGE DELAY

CLUTCH DISENGAGE DELAY

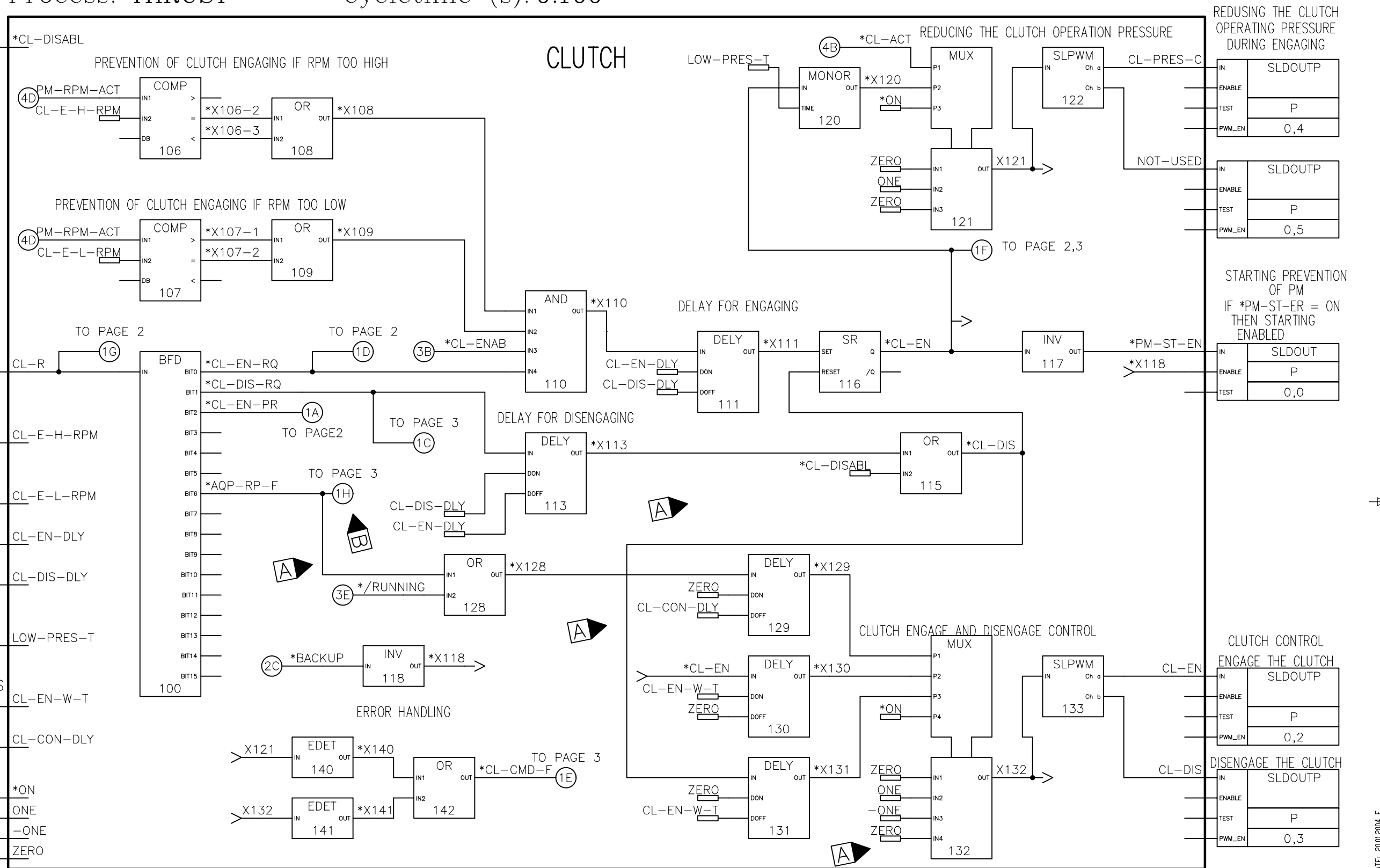
TIME PRESSURE IS REDUCED
IN CLUTCH ENGAGE PHASE

WAITTIME FOR CLUTCH TO
ENGAGE AFTER PRESSURE IS
REDUCED

CLUTCH CONTROL DELAY

PROCESS CONSTANTS

LCONST	ON	*ON
RCONST	1.0	ONE
RCONST	-1.0	-ONE
RCONST	0.0	ZERO



REDUCING THE CLUTCH
OPERATING PRESSURE
DURING ENGAGING

IN	SLDOUTP
ENABLE	
TEST	P
PWM_EN	0,4

IN	SLDOUTP
ENABLE	
TEST	P
PWM_EN	0,5

STARTING PREVENTION
OF PM
IF *PM-ST-ER = ON
THEN STARTING
ENABLED

IN	SLDOUT
ENABLE	P
TEST	0,0

CLUTCH CONTROL
ENGAGE THE CLUTCH

IN	SLDOUTP
ENABLE	
TEST	P
PWM_EN	0,2

DISENGAGE THE CLUTCH

IN	SLDOUTP
ENABLE	
TEST	P
PWM_EN	0,3

Languages: U



AQUAPILOT CONTROL SYSTEM
ACU
Thrust
Process Block Diagram

CCN-01

D	040120	AKHA	JAJA	TATU	Maintenance control active output added
C	021113	AKHA	JAJA	SAKU	*LOCAL channel corrected to 0,7
B	021016	AKHA	JAJA	SAKU	RPM COMMAND FAILURE CORRECTED
A	020913	AKHA	JAJA	KIKO	ENABLE SIGNALS FIX
Rev	Date	Drawn	Approved	Checked	Revision text

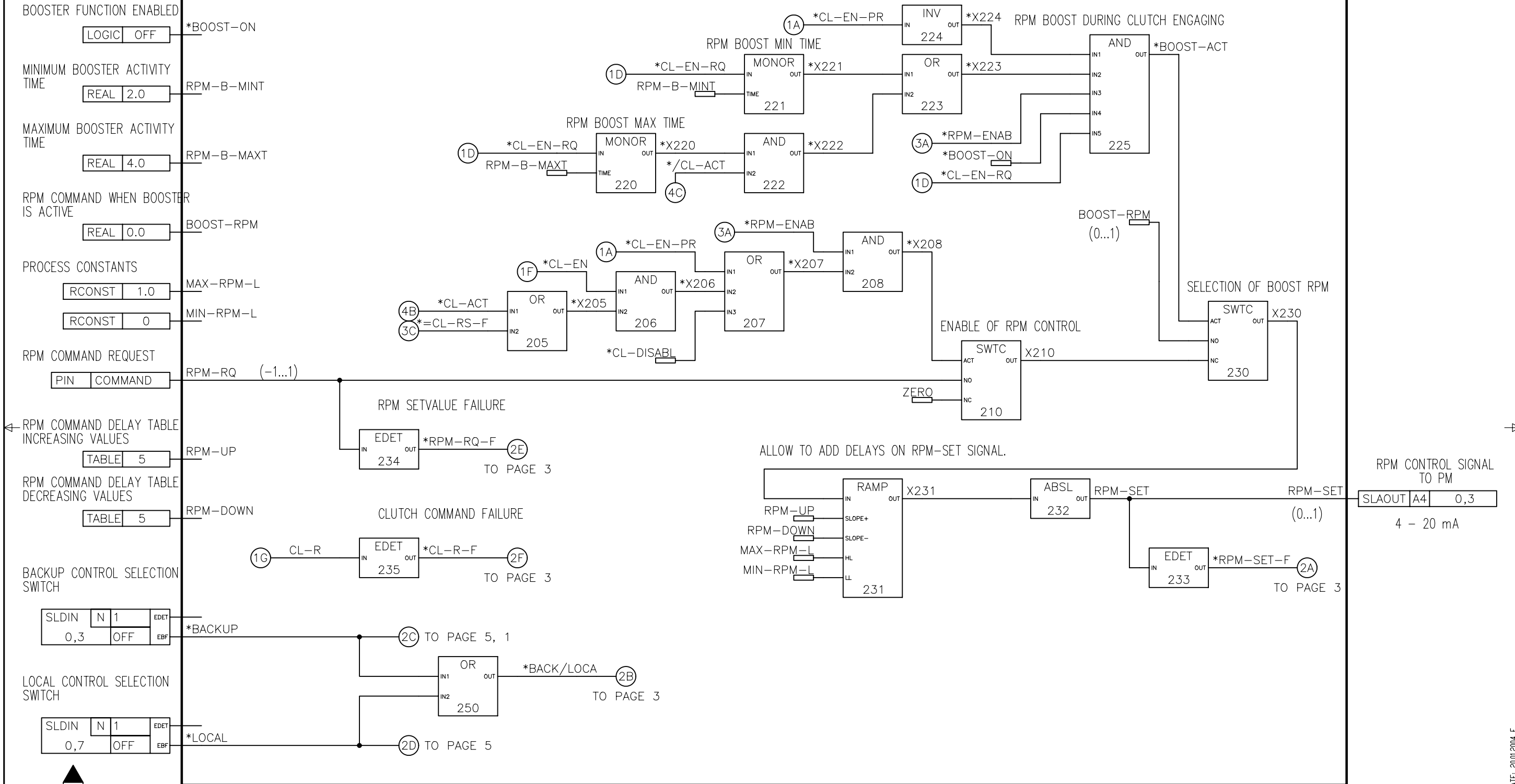
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Approved
ARAS
Checked
TKH

Drawn	11.1.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350105-D-001	01	05	U		

PLTDATE: 20.01.2004 E

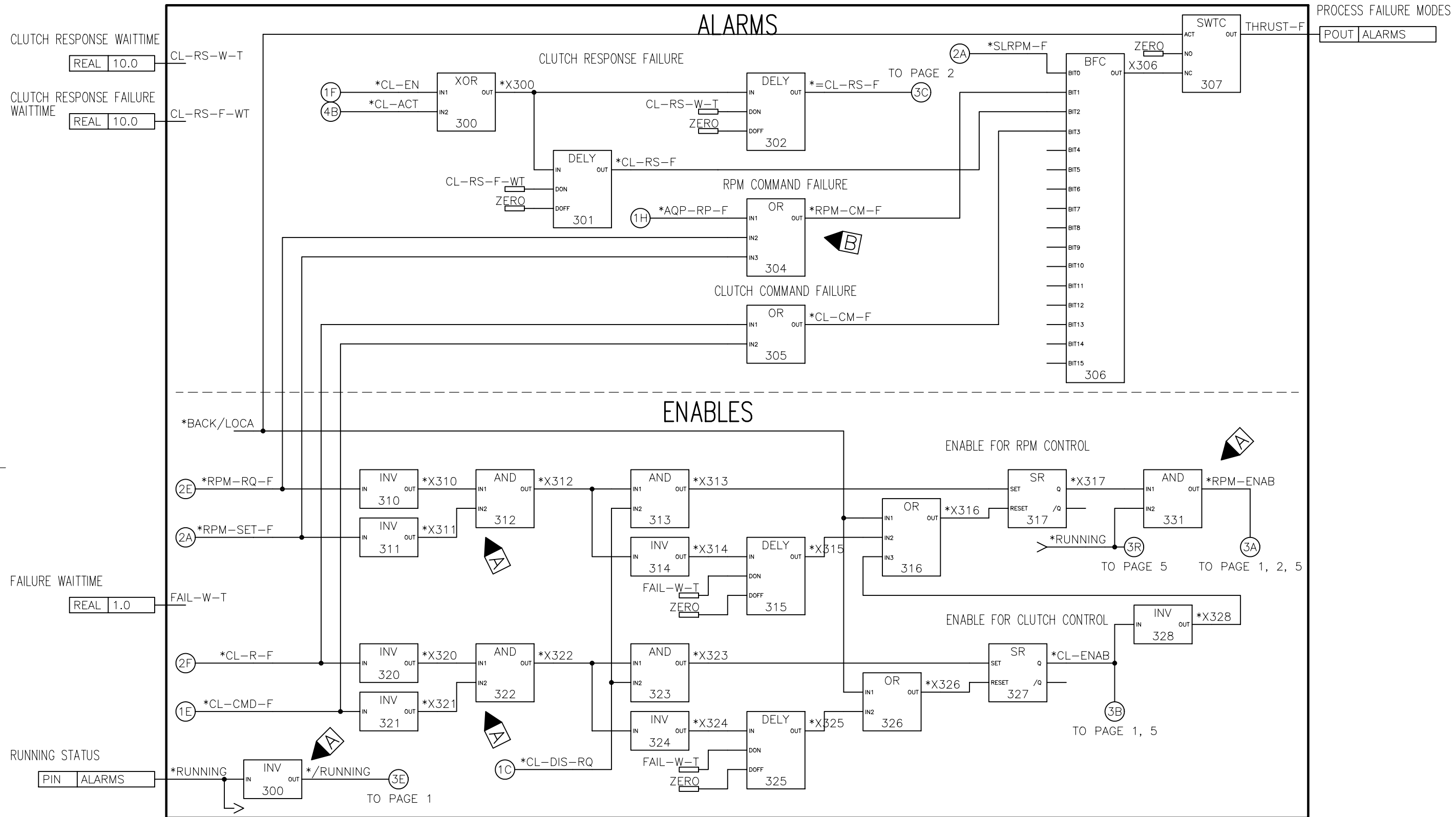
RPM



Languages: U

		AQUAPILOT CONTROL SYSTEM ACU Thrust Process Block Diagram		CCN-01 L
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Drawn 11.1.2002 AKHA	Group Size Serial number 3350105-D-001	Rev Variant	Page 02/05	Total pages 05
Weight kg	Scale 1:1			

PLOTDATE: 20.01.2004 E



ALARMS

ENABLES

PROCESS FAILURE MODES
POUT ALARMS

CLUTCH RESPONSE WAITTIME
REAL 10.0

CLUTCH RESPONSE FAILURE WAITTIME
REAL 10.0

FAILURE WAITTIME
REAL 1.0

RUNNING STATUS
PIN ALARMS

Languages: U



AQUAPILOT CONTROL SYSTEM
ACU
Thrust
Process Block Diagram

CCN-01

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TKH

Drawn	11.1.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350105-D-001			03/05		U		

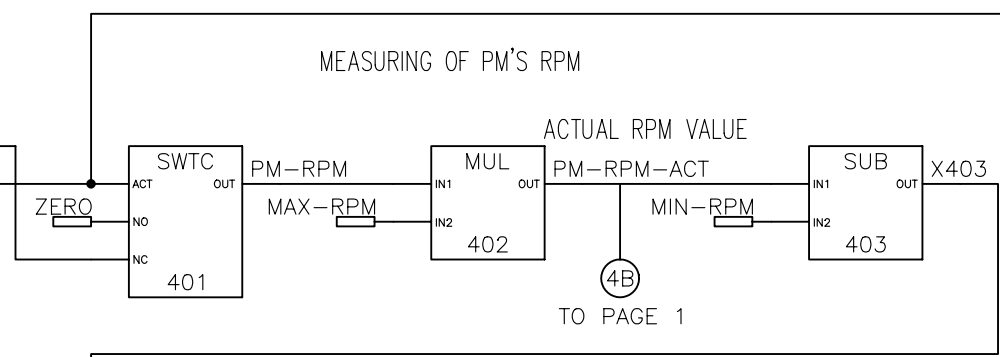
PLOTDATE: 20.01.2004 E

MEASURING OF PM'S RPM

PICK-UP ALARM WAITTIME
 ALARM ON REAL 1.0
 ALARM OFF REAL 3.0
 PICK-UP PLATE PEG COUNT REAL 3
 ENABLE PICK-UP ALARM LOGIC ON

RPM-AL-ON
 RPM-AL-OFF
 RPM PICK-UP MEASUREMENT
 0 = 0 RPM
 1 = {MAX-RPM} RPM

PEGS-NRO
 MAX-RPM
 *AL-ENABL
 SLRPM
 PEGS
 REF
 ALARM
 *SLRPM-AL
 AL ENABLE
 400



TO PAGE 1

RPM VALUE CALCULATION

PROJECT DEPENDENT DATA
 MAXIMUM RPM OF PM (FULL) REAL 1300
 MINIMUM RPM OF PM (IDLE) REAL 500

MAX-RPM
 MIN-RPM
 SUB
 IN1
 IN2
 OUT
 X404
 404



RPM VALUE
 0 = {MIN-RPM} RPM (IDLE)
 1 = {MAX-RPM} RPM (FULL)

POUT TURNCONT

FEEDBACK FROM THE POSITION OF THE CLUTCH

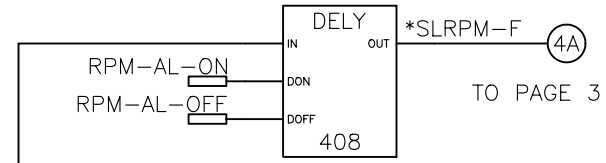
CLUTCH OPERATING PRESSURE SWITCH
 SLDIN N 1 EDET
 0,0 OFF EBF



TO PAGE 2, 3, 5

TO PAGE 2

DELAY FOR ALARM SIGNAL



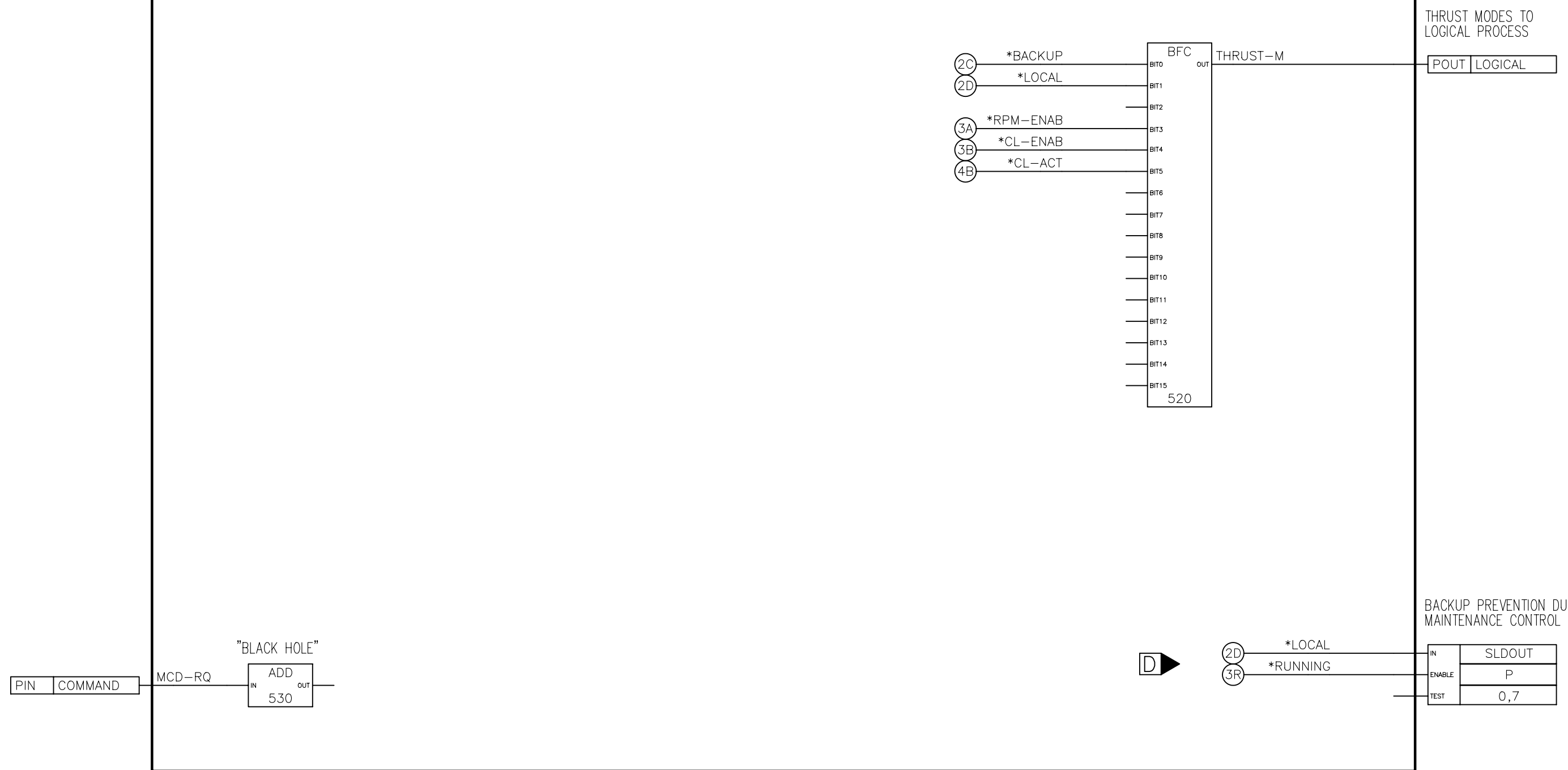
TO PAGE 3

Languages: U

		AQUAPILOT CONTROL SYSTEM ACU Thrust Process Block Diagram		CCN-01
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Drawn 11.1.2002 AKHA	Group Size Serial number	Rev Variant	Page Total pages	Lang
Weight kg	Scale 1:1	3350105 - D - 001		04 / 05 U

PLOTDATE: 20.01.2004 E

THRUST MODES

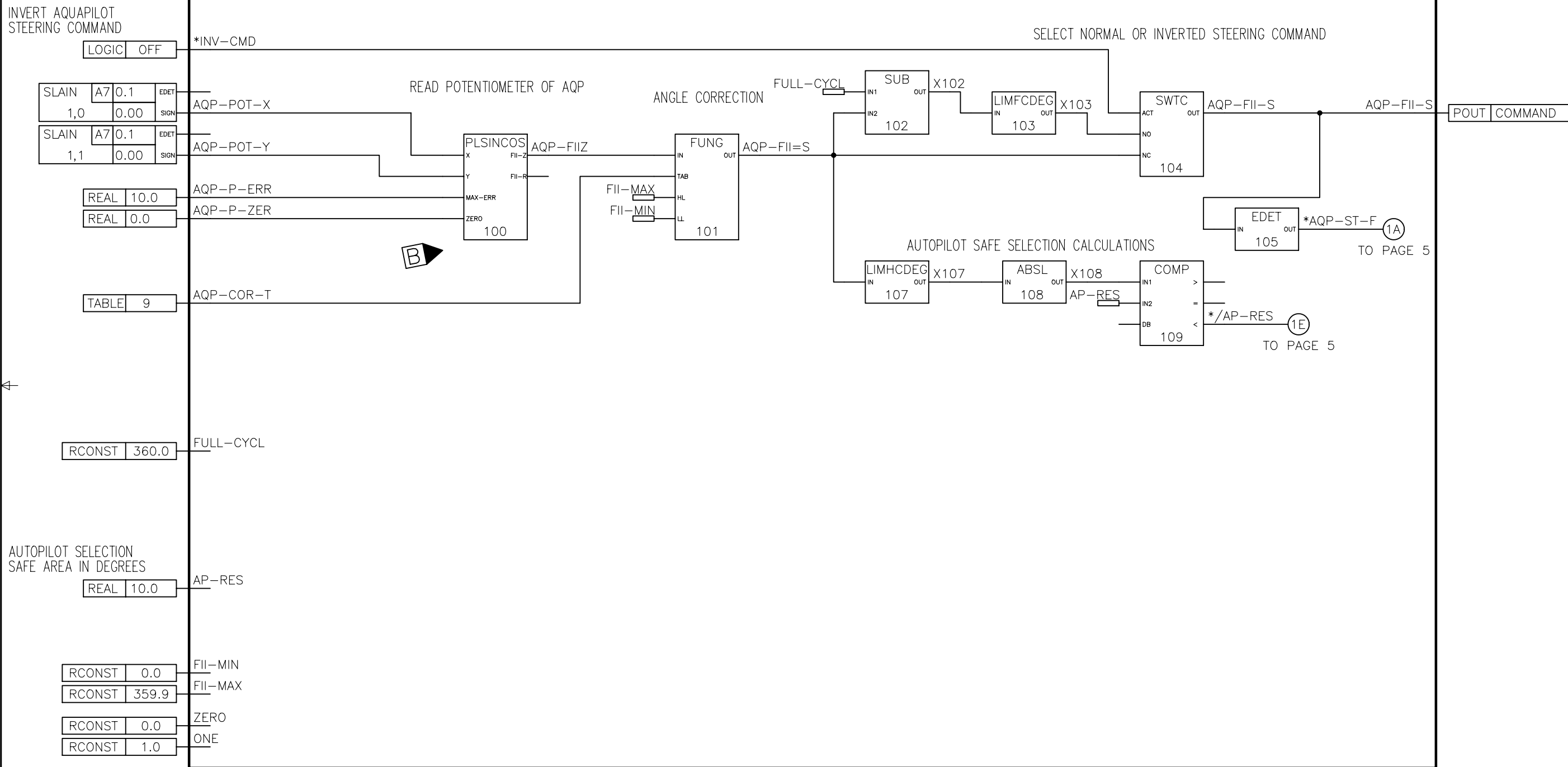


Languages: U

		AQUAPILOT CONTROL SYSTEM ACU Thrust Process Block Diagram			CCN-01		
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Weight kg		Scale 1:1		3350105 - D - 001		05 / 05 U	

PL01DATE: 20020901

AQUAPILOT DIRECTION POTENTIOMETER



Rev	Date	Drawn	Approved	Checked	Revision text
D	090824	AKHA	TUPE	JAPA	THRUST ERROR LOGICS CORRECTED
C	020912	AKHA	JAJA	KIKO	RPM pot reading updated
B	020423	SSI	SSI	MJV	Linear sine-cosine potentiometer
A	020326	SSI	SSI	MJV	analog input timeouts changed

Languages: U

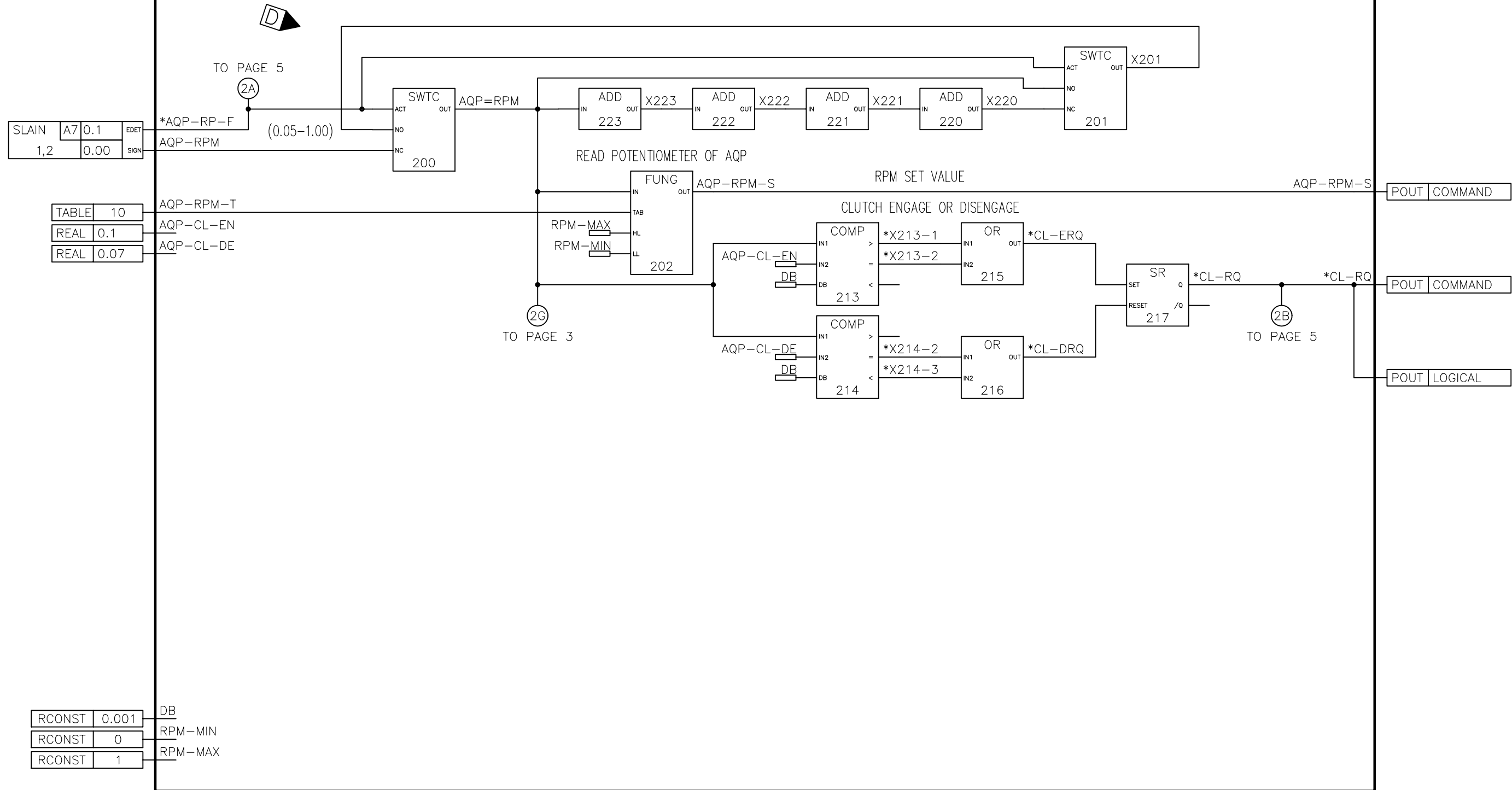


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AQUAPILOT CONTROL SYSTEM		CCN-0	
ACU			
Aquapilot Lever Handling (AQP)			
Process Block Diagram			
Drawn	9.10.2001	AKHA	Group Size Serial number
Weight	kg	Scale	1:1
3350095-D-001		Page	01 / 05
U		Lang	

PLOT DATE: 24.02.2009 E

AQUAPILOT RPM POTENTIOMETER



SLAIN	A7	0.1	EDET
1,2		0.00	SIGN

TABLE	10
REAL	0.1
REAL	0.07

RCONST	0.001	DB
RCONST	0	RPM-MIN
RCONST	1	RPM-MAX

Languages: U



AQUAPILOT CONTROL SYSTEM
ACU
Aquapilot Lever Handling (AQP)
Process Block Diagram

CCN-0

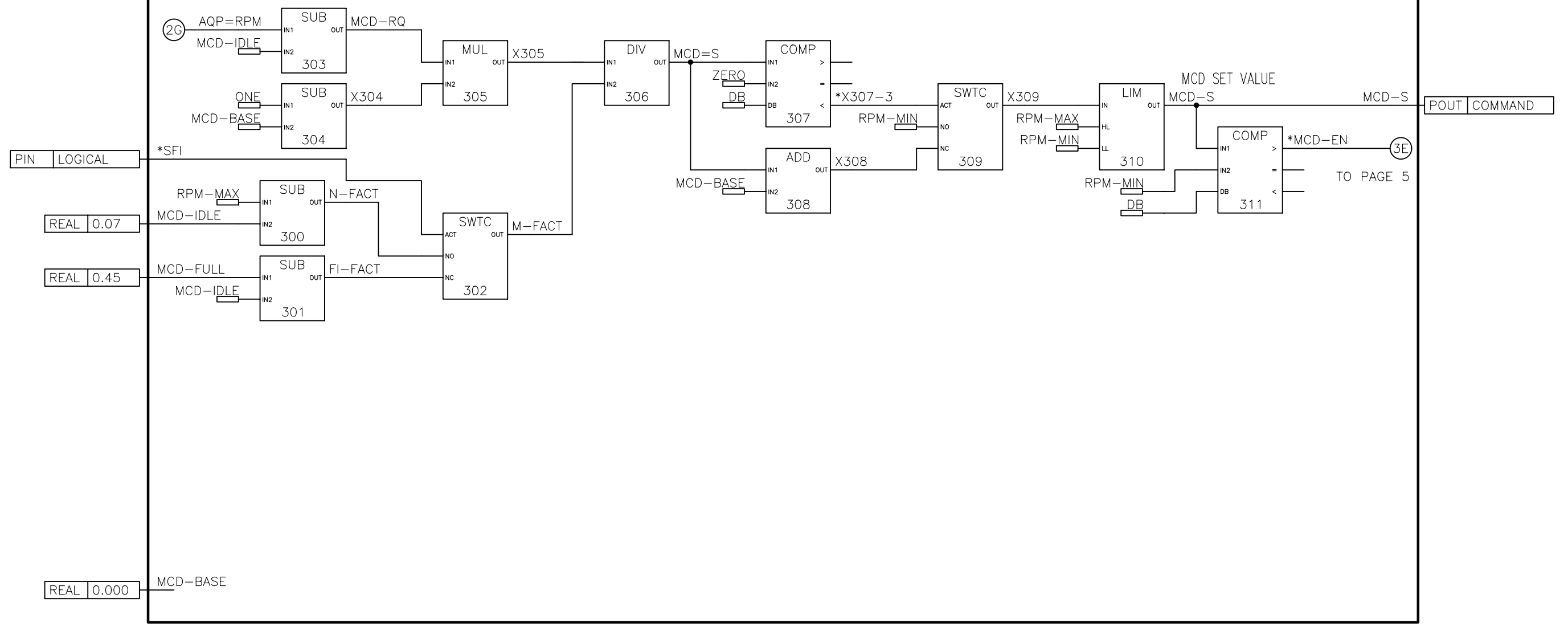
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Approved
SSI
Checked
MJV

Drawn	9.10.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	Scale		3350095-D-001			02/05		U		
kg	1:1									

PLOT DATE: 24.02.2009 E

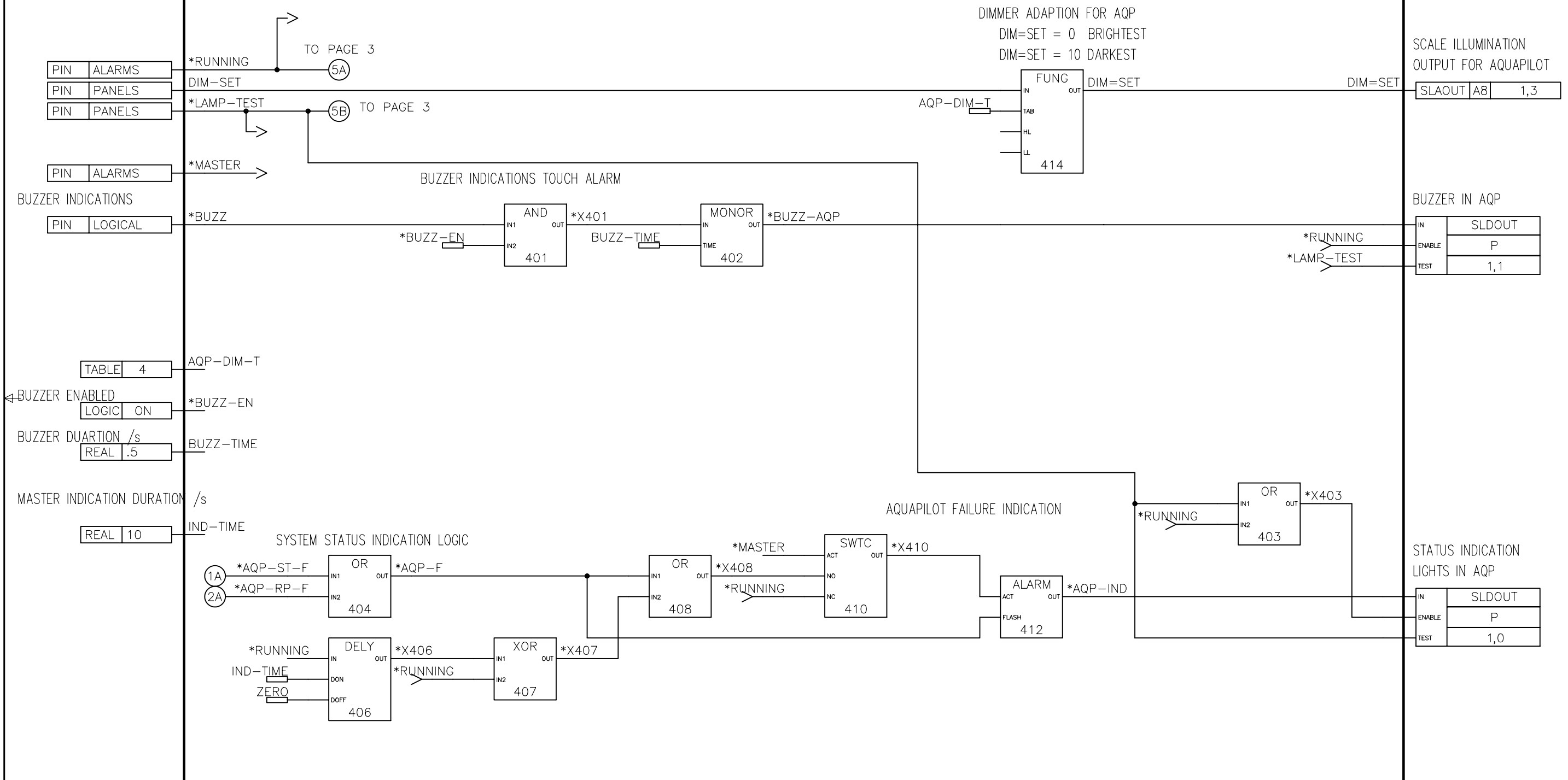
MCD-CLUTCH



Languages: U

		AQUAPILOT CONTROL SYSTEM ACU Aquapilot Lever Handling (AQP) Process Block Diagram		CCN-001	
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Drawn 9.10.2001 AKHA	Group Size Serial number	Rev Variant	Page 03 / 05	Total pages 05	Lang U
Weight kg	Scale 1:1	3350095-D-001		TO PAGE 5	

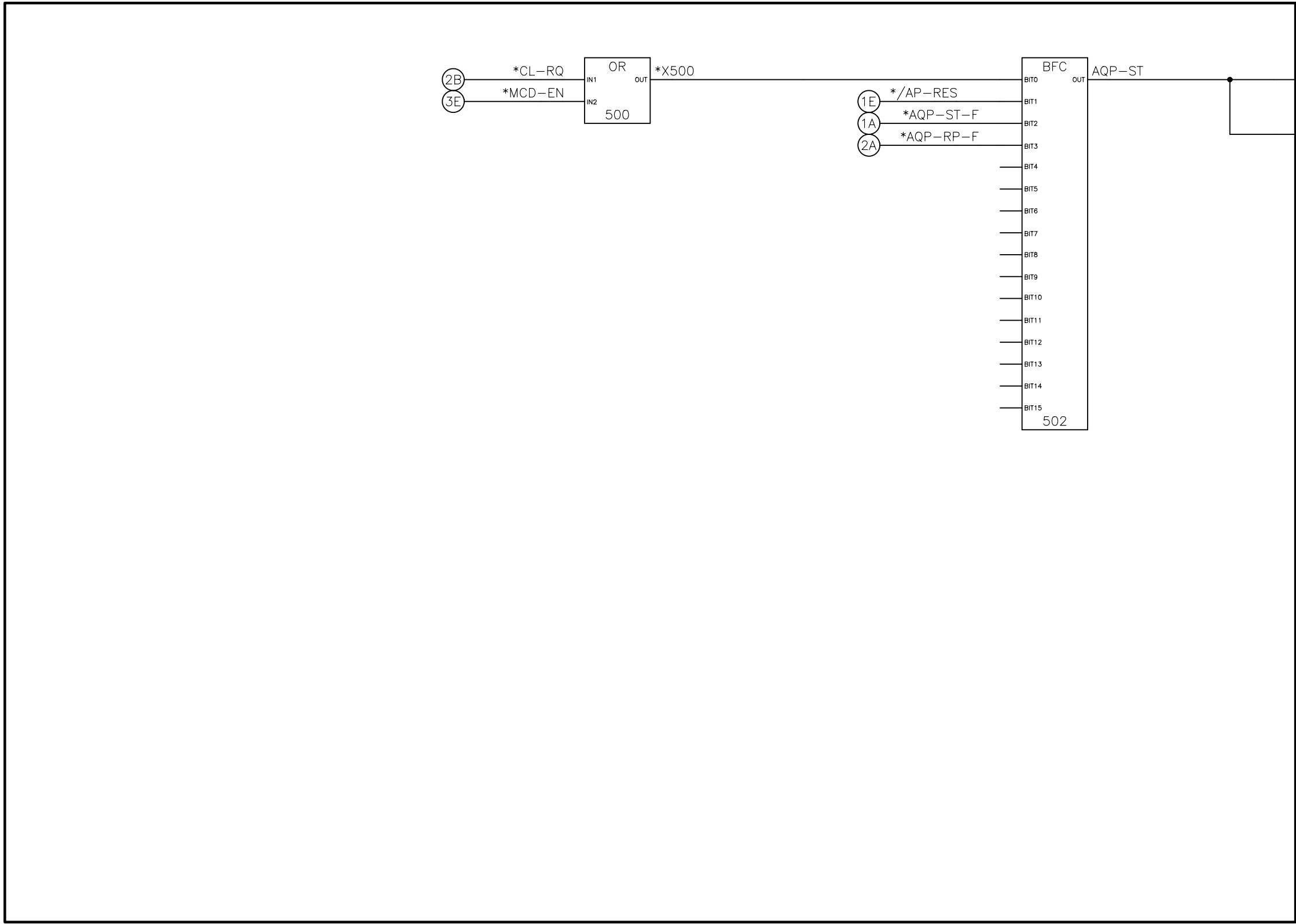
AQUAPILOT INDICATIONS



Languages: U

		AQUAPILOT CONTROL SYSTEM ACU Aquapilot Lever Handling (AQP) Process Block Diagram		CCN-0
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Drawn 9.10.2001 AKHA	Group Size Serial number	Rev Variant	Page Total pages	Lang
Weight kg	Scale 1:1	3350095-D-001		04/05

PLOTDATE: 24.02.2009 E



Languages:
U



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Approved
SSI
Checked
MJV

AQUAPILOT CONTROL SYSTEM
ACU
Aquapilot Lever Handling (AQP)
Process Block Diagram

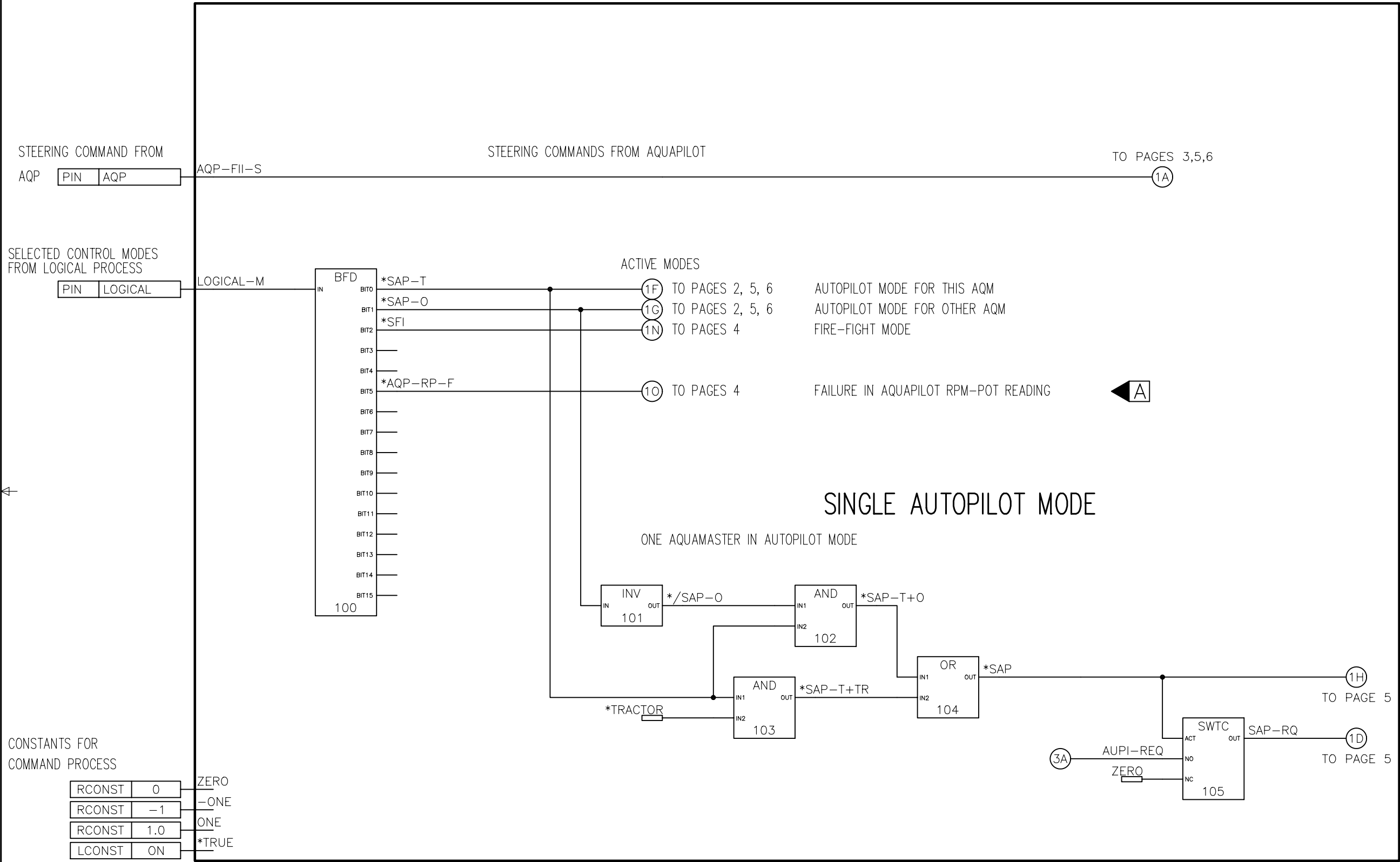
CCN-0

PLTDATE: 24.06.2009 E

Drawn	9.10.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350095-D-001			05/05		U		
		1:1								

Process: COMMAND

Cycletime (s): 0.100



Languages:

Rolls-Royce

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Approved: ARAS
Checked: KIH

AQUAPILOT CONTROL SYSTEM
ACU
Command Handling (COMMAND)
Process Block Diagram

CCN-01

PL01DATE: 17.09.2002

A	020917	JAJA	JAJA	TATU	*AQP-RP-F SIGNAL ADDED
Rev	Date	Drawn	Approved	Checked	Revision text

Drawn	12.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350097-A-003			01	105	U

ASYMMETRIC AUTOPILOT MODE

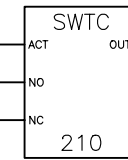
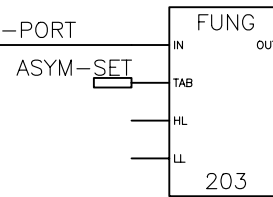
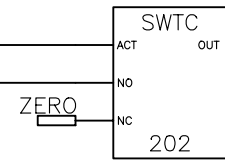
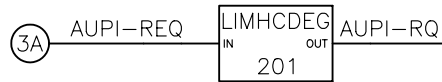
ASYMMETRIC TABLE CORRECTION

SIDE SELECT
ON = PORT
OFF = STBD

LOGIC ON

*SIDESEL

CONVERT 360°- SIGNAL
TO -180° +180° SIGNAL



CONVERT -180° +180°- SIGNAL
TO 360° SIGNAL



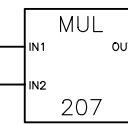
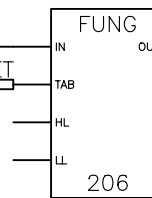
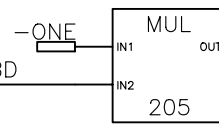
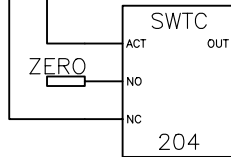
2A
TO PAGE 5

ASYMMETRIC OPERATION
TABLE FOR 2 AQM USE

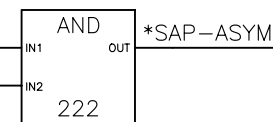
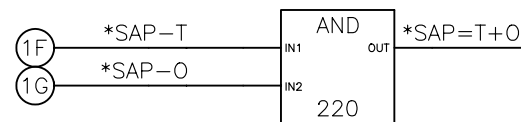
TABLE 10

ASYM-SET

ASYMMETRIC TABLE CORRECTION



ASYMMETRIC AUTOPILOT SELECTION

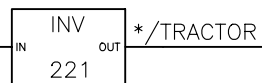


2D
TO PAGE 5,6

SHIP TYPE (DRIVE)
ON = TRACTOR
OFF = STERN

LOGIC OFF

*TRACTOR



Languages:



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Approved
ARAS
Checked
KIH1

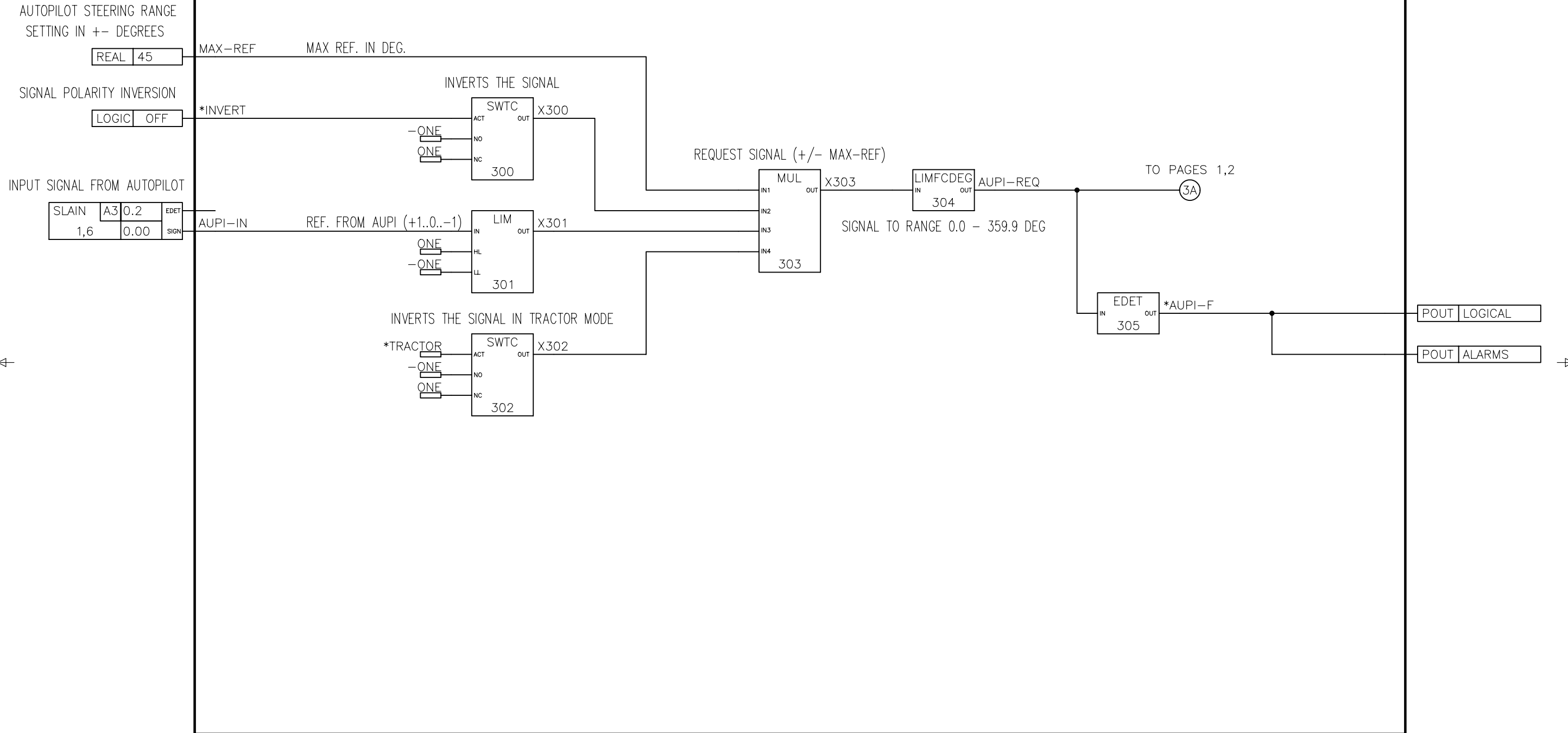
AQUAPILOT CONTROL SYSTEM
ACU
Command Handling (COMMAND)
Process Block Diagram

CCN-04

PL01DATE: 17.09.2002.E

Drawn	12.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350097-A-003			02/05	U	

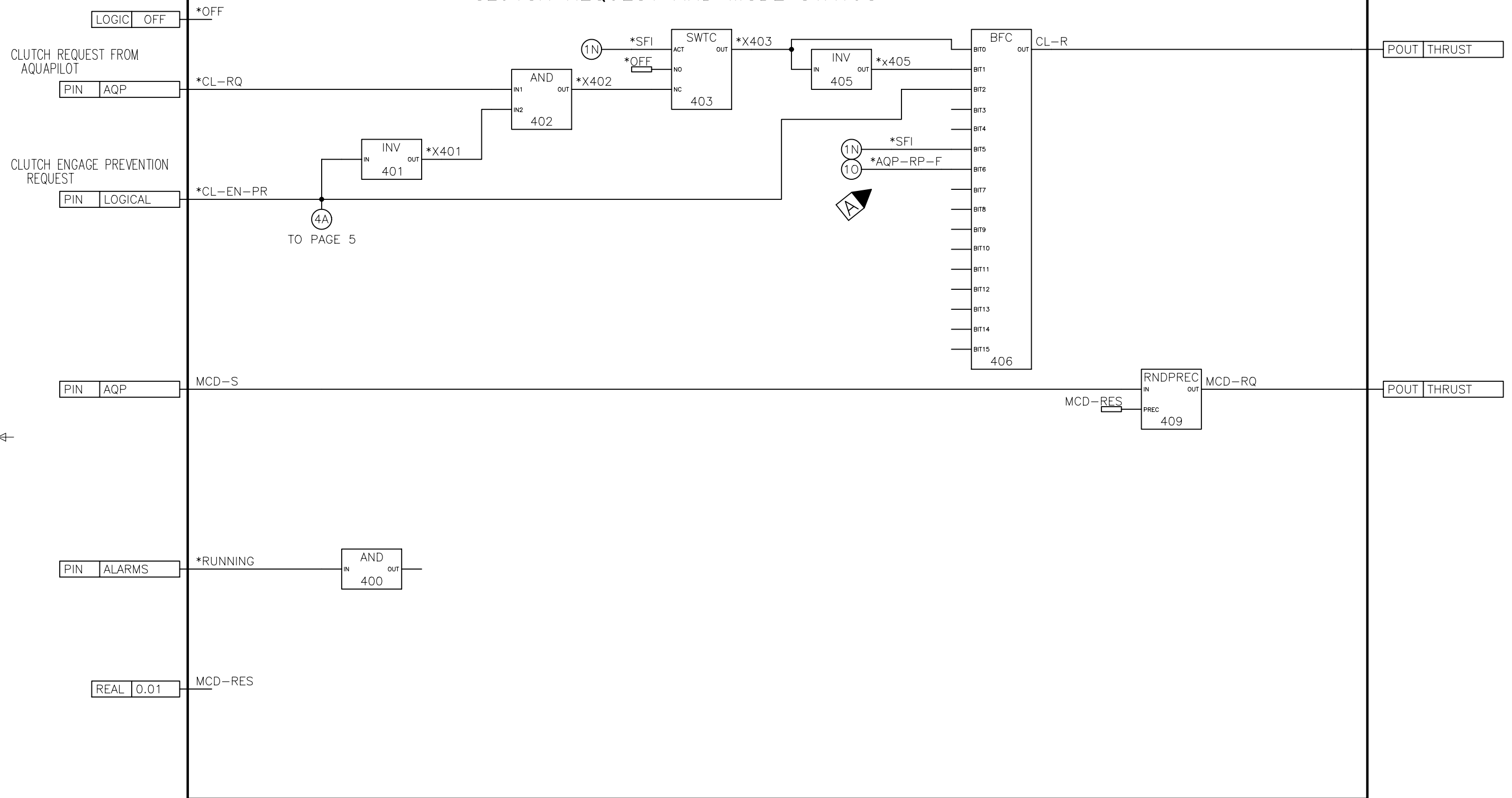
AUTOPILOT SIGNAL INPUT



Languages:

		AQUAPILOT CONTROL SYSTEM ACU Command Handling (COMMAND) Process Block Diagram		CCN-01	
<small>THIS DRAWING IS PROPERTY OF ROLLS-ROYCE (BY AB). IT IS NOT TO BE REPRODUCED OR SHOWN TO ANY THIRD PARTY WITHOUT SPECIAL PERMISSION OF ROLLS-ROYCE (BY AB).</small>		Approved ARAS Checked KIH		<small>PL01DATE: 17.09.2002</small>	
Drawn 12.2.2002 AKHA	Group Size Serial number	Rev Variant	Page Total pages	Lang	U
Weight kg	Scale 1:1	3350097-A-003		03/05	U

CLUTCH REQUEST AND MODE STATUS

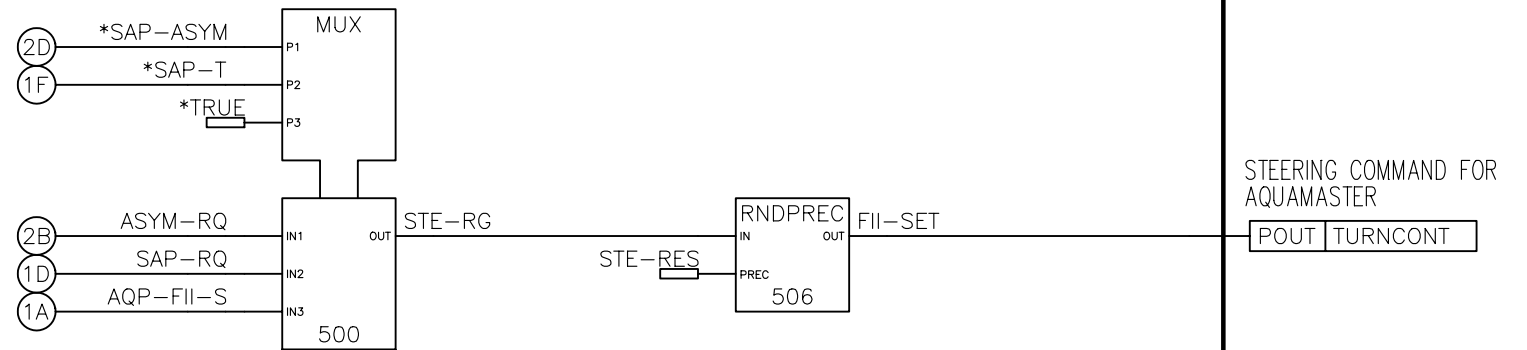


Languages:

		AQUAPILOT CONTROL SYSTEM ACU Command Handling (COMMAND) Process Block Diagram		CCN-04	
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Drawn 12.2.2002 AKHA	Group Size Serial number	Rev Variant	Page Total pages	Lang	
Weight kg	Scale 1:1	3350097-A-003		04/05	

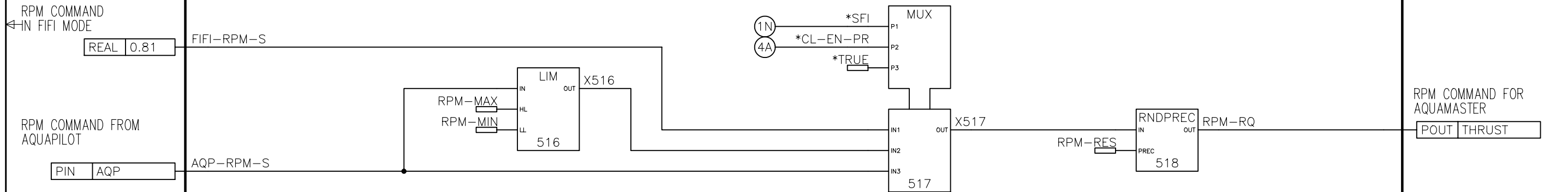
STEERING AND RPM COMMAND SELECTION

STEERING COMMAND SELECTION



REAL 0.70 RPM-MAX
 REAL 0.000 RPM-MIN

RPM MODE SELECTION SWITCH



RPM COMMAND IN FIFI MODE
 REAL 0.81 FIFI-RPM-S

RPM COMMAND FROM AQUAPILOT
 PIN AQP AQP-RPM-S

REAL 0.001 RPM-RES
 REAL 0.5 STE-RES

Languages:

		AQUAPILOT CONTROL SYSTEM ACU		CCN-04	
THIS DRAWING IS PROPERTY OF ROLLS-ROYCE (Y) AB. IT IS NOT TO BE REPRODUCED OR SHOWN TO ANY THIRD PARTY WITHOUT SPECIAL PERMISSION OF ROLLS-ROYCE (Y) AB.		Approved ARAS		Command Handling (COMMAND) Process Block Diagram	
Checked KIH		Group Size Serial number		Rev Variant Page Total pages Lang	
Drawn 12.2.2002 AKHA		3350097-A-003		05/05 U	
Weight kg Scale 1:1					

PLOT DATE: 17.09.2002 E

MODE INPUTS

NODE RUNNING STATE

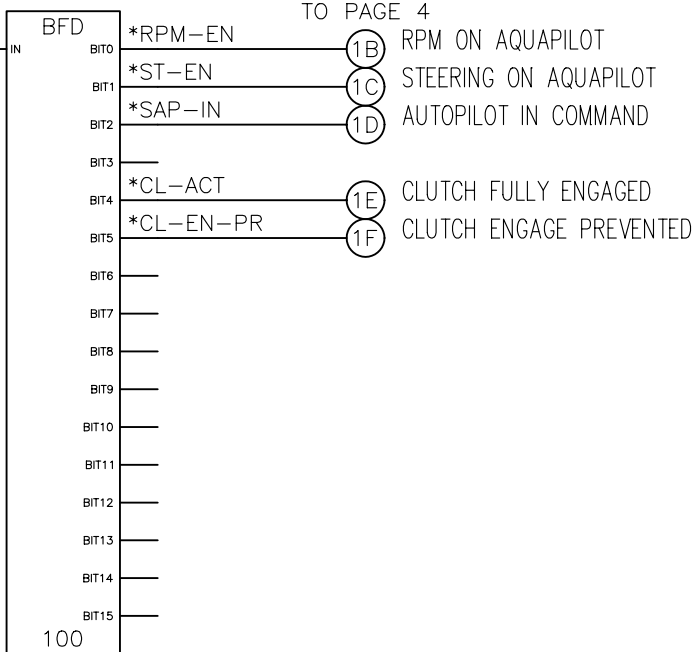
PIN ALARMS

*RUNNING TO PAGE 3, 4 (1A)

AQM MODE INDICATIONS FROM LOGICAL PROCESS

PIN LOGICAL

AQM-IND



LAMP TEST (SLAVE) FROM NETWORK

BINL	1.0	EDET
273	OFF	EBF

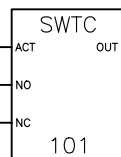
*NET-LT TO PAGE 3 (1G)

DIMMER SETTING (SLAVE) FROM NETWORK

BINR	1.0	EDET
271	0.00	EBF

*NET-D-ERR
NET-D

NETWORK DIMMER ERROR HANDLING



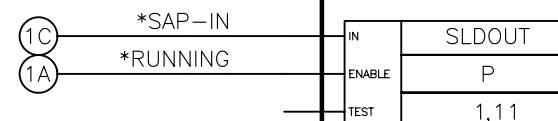
NET-DIM TO PAGE 3 (1H)

NETWORK DIMMER FAILURE DEFAULT DIMMER SETTING

REAL	8.0
------	-----

DIM-DEF

AUTOPILOT IN COMMAND FOR AUTOPILOT



Languages:

Aquamaster
AZIMUTH THRUSTERS

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Approved
ARAS
Checked
TKH

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Reading Of Panels (PANELS)
Process Block Diagram

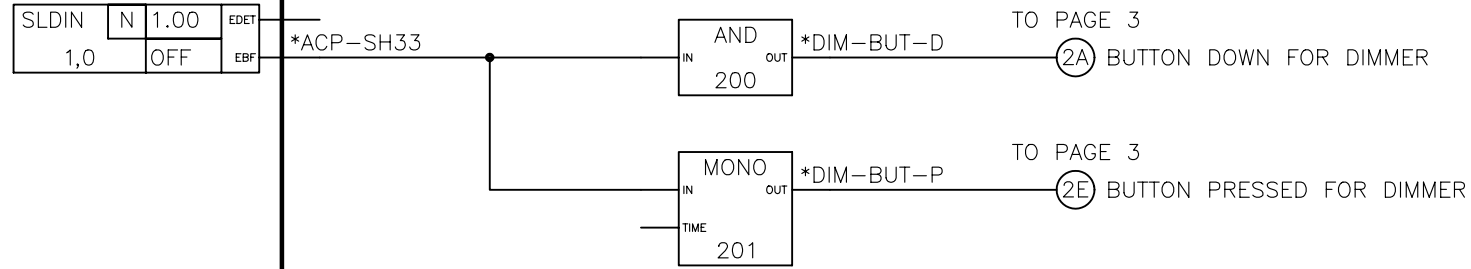
CCN-01

Drawn	14.11.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350106 - 0 - 003			01	105	U

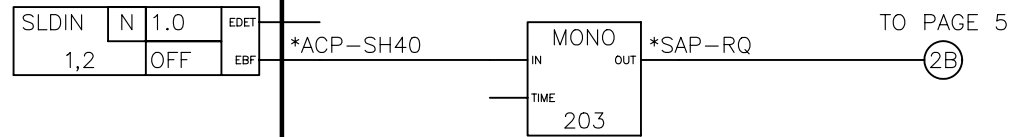
PLOTDATE: 10.01.2002

INPUTS FROM PANEL

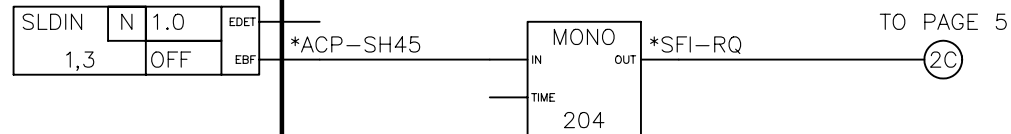
DIMMER PUSH BUTTON



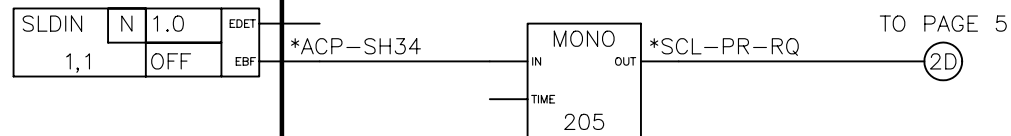
AUTOPILOT REQUEST



FIRE FIGTHER REQUEST



CLUTCH ENGAGE PREVENTION



Languages:

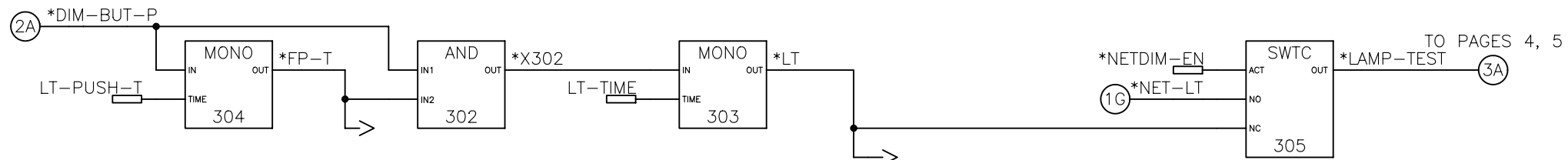
Aquamaster AZIMUTH THRUSTERS		AQUAPILOT CONTROL SYSTEM				CCN-01
		ACU (AQM N:0 1)				
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		Checked TKH	Process Block Diagram			
Drawn 14.11.2001 AKHA	Group Size Serial number	Rev Variant	Page Total pages	Lang		
Weight kg	Scale 1:1	3350106 - 0 - 003			02 / 05	U

DIMMER FUNCTION

DOUBLE PRESSING DETECTION

LAMP TEST PULSE GENERATION

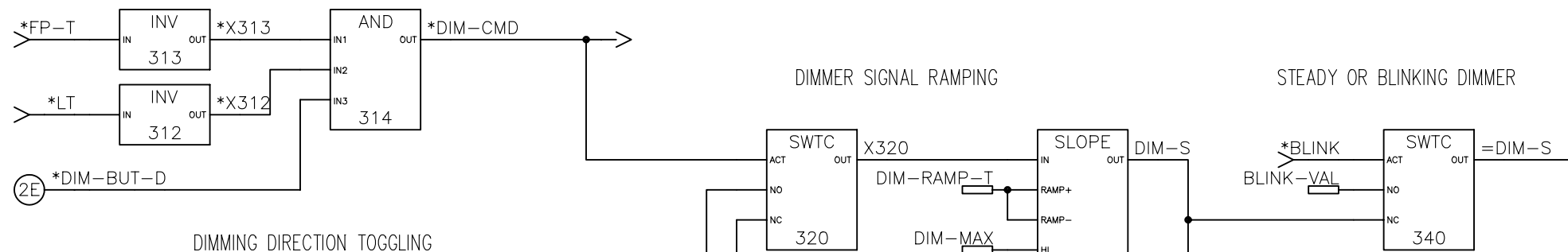
NETWORK OR LOCAL LAMPTEST SOURCE SELECTION



DIMMER COMMAND ACTIVATION

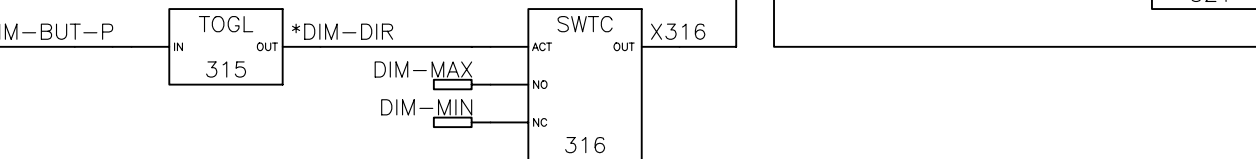
DIMMER SIGNAL RAMPING

STEADY OR BLINKING DIMMER



DIMMING DIRECTION TOGGLING
ON=UP, OFF = DOWN

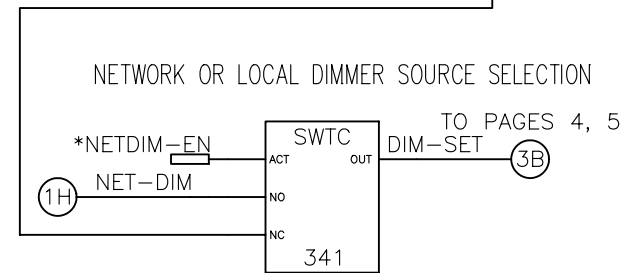
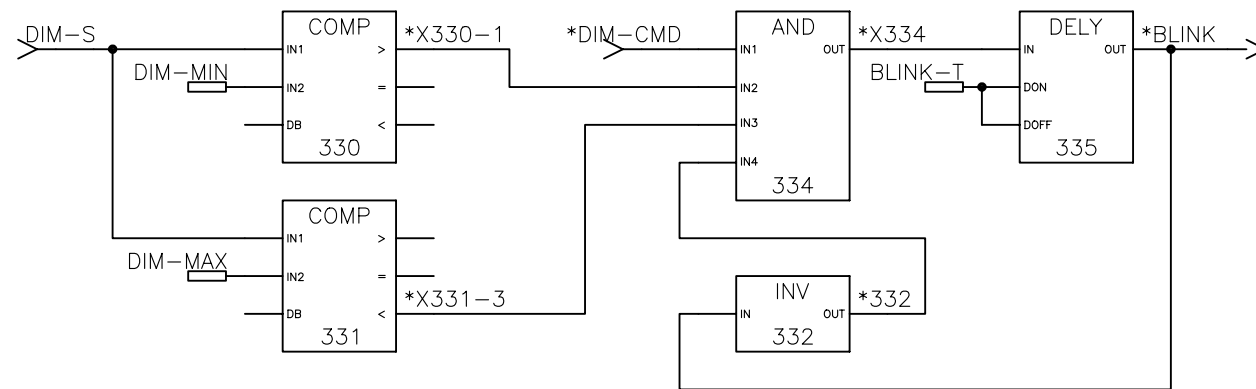
BLINK ON DIMMER SETTING
(DEFAULT LAMPS OFF)



BLINKING RANGE DETECTION

BLINKING COMMAND

NETWORK OR LOCAL DIMMER SOURCE SELECTION



- BLINK CYCLE TIME: REAL 10.0
- BLINK-T: REAL 0.3
- MINIMUM DIMMING (BRIGHTEST): REAL 0.0
- DIM-MIN
- MAXIMUM DIMMING (DARKEST): REAL 5
- DIM-MAX
- DIMMING RAMP TIME: REAL 5.0
- DIM-RAMP-T
- DOUBLE PRESS DETECTION TIME: REAL 0.8
- LT-PUSH-T
- LAMP TEST DURATION TIME: REAL 2.0
- LT-TIME
- NETWORK DIMMER SELECTION: LOGIC OFF
- *NETDIM-EN

Languages:

Aquamaster
AZIMUTH THRUSTERS

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Approved
ARAS
Checked
TKH

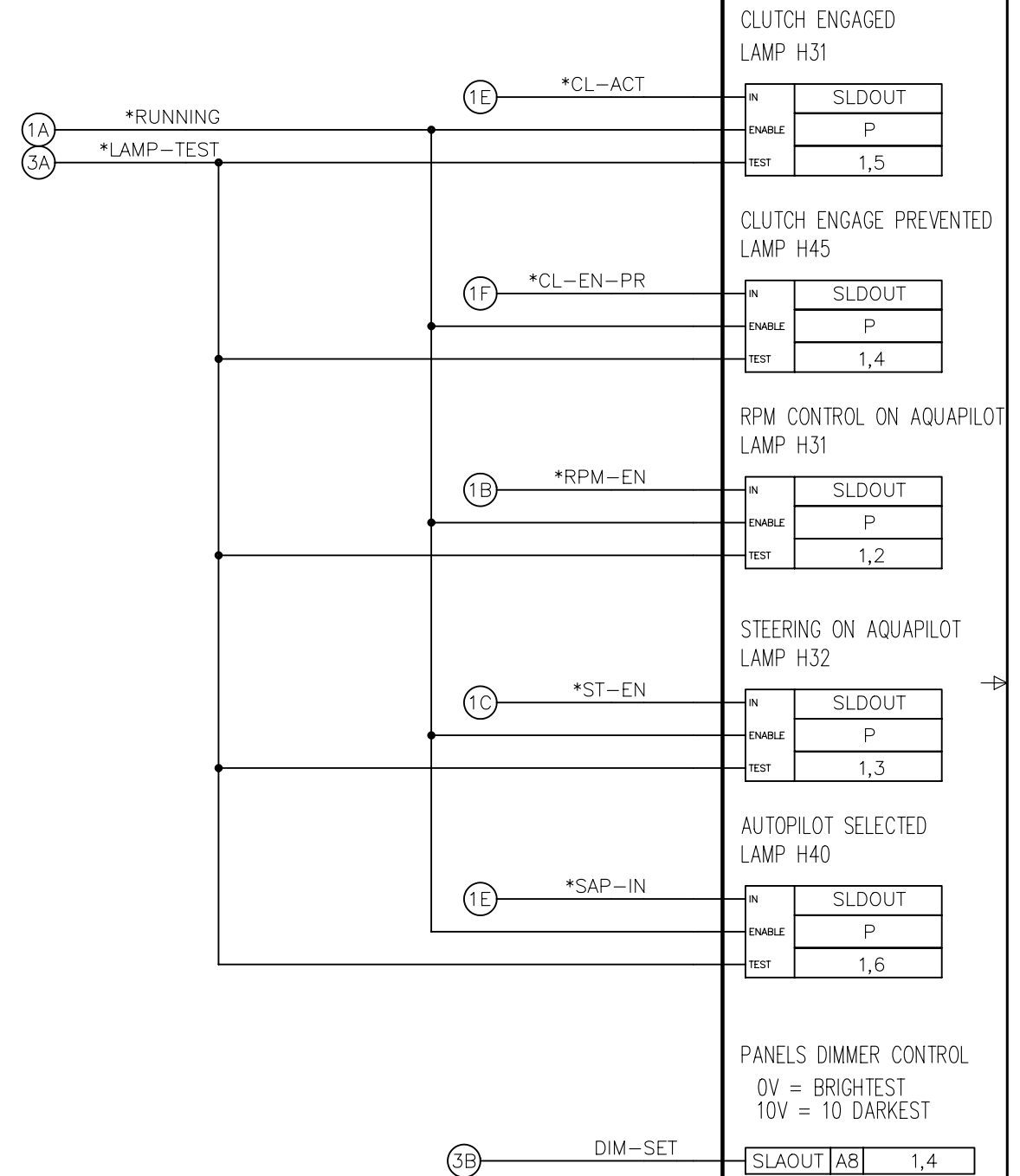
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Reading Of Panels (PANELS)
Process Block Diagram

CCN-01

Drawn	14.11.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350106 - 0 - 003			03 / 05	U	

PLOTDATE: 10.01.2002

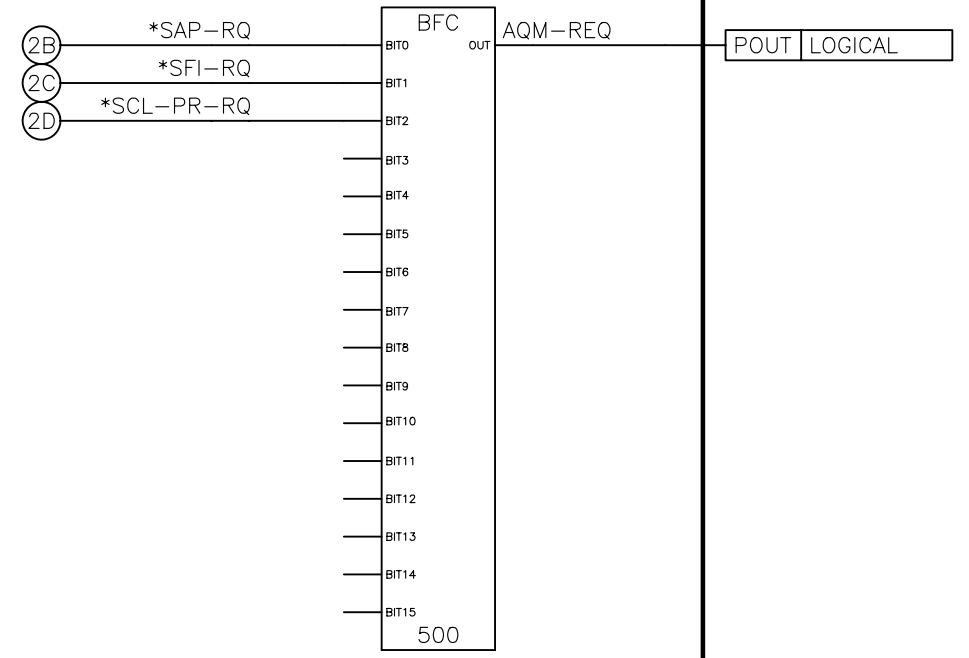
OUTPUTS TO PANEL, DIMMER OUTPUT AND SOURCE HANDLING



Languages:

Aquamaster AZIMUTH THRUSTERS		AQUAPILOT CONTROL SYSTEM		CCN-01	
		ACU (AQM N:0 1)		PL01DATE: 10.01.2001	
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<small>Checked</small> TKH		<small>Group</small> Size	<small>Serial number</small> 3350106 - 0 - 003	<small>Rev</small> 04	<small>Variant</small> /05
<small>Drawn</small> 14.11.2001	AKHA	<small>Page</small> 04	<small>Total pages</small> 05	<small>Lang</small> U	
<small>Weight</small> kg	<small>Scale</small> 1:1				

MODE OUTPUTS



PUSH BUTTON REQUESTS FOR LOGICAL PROCESS

POUT LOGICAL

3B DIM-SET POUT AQP

DIMMER COMMAND TO AQP

PANEL DIMMER COMMAND TO NETWORK

IN	BOUT	
ENABLE	270	0.5

3A *LAMP-TEST POUT AQP

LAMP TEST COMMAND TO AQP

PANEL LAMP TEST COMMAND TO NETWORK

IN	BOUT	
ENABLE	272	0.5

DIMMER SETTING TO NETWORK ENABLING
ON = SEND TO NETWORK
OFF = DO NOT SEND



Languages:

Aquamaster AZIMUTH THRUSTERS		AQUAPILOT CONTROL SYSTEM		CCN-01	
		ACU (AQM N:0 1)		PL01DATE: 10012001	
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		<small>Checked</small> TKH	Process Block Diagram		
<small>Drawn</small> 14.11.2001 AKHA	<small>Group</small> Size	<small>Serial number</small>	<small>Rev</small>	<small>Variant</small>	<small>Page</small> Total pages Long
Weight kg	Scale 1:1	3350106 - 0 - 003		05 / 05	U

MODE INPUTS

NODE RUNNING STATE

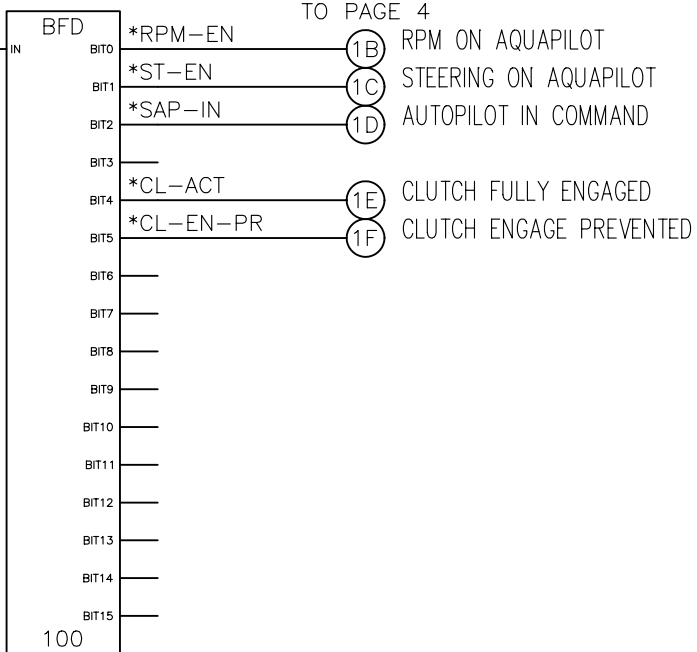
PIN ALARMS

*RUNNING TO PAGE 3, 4 (1A)

AQM MODE INDICATIONS FROM LOGICAL PROCESS

PIN LOGICAL

AQM-IND



LAMP TEST (SLAVE) FROM NETWORK

BINL	1.0	EDET
272	OFF	EBF

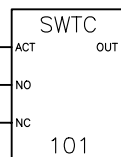
*NET-LT TO PAGE 3 (1G)

DIMMER SETTING (SLAVE) FROM NETWORK

BINR	1.0	EDET
270	0.00	EBF

*NET-D-ERR
NET-D

NETWORK DIMMER ERROR HANDLING



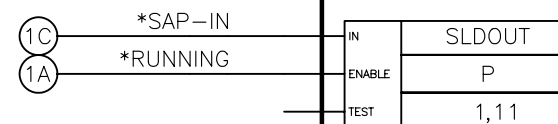
DIM-DEF
NET-DIM TO PAGE 3 (1H)

NETWORK DIMMER FAILURE DEFAULT DIMMER SETTING

REAL	8.0
------	-----

DIM-DEF

AUTOPILOT IN COMMAND FOR AUTOPILOT



Languages:

Aquamaster
AZIMUTH THRUSTERS

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AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Reading Of Panels (PANELS)
Process Block Diagram

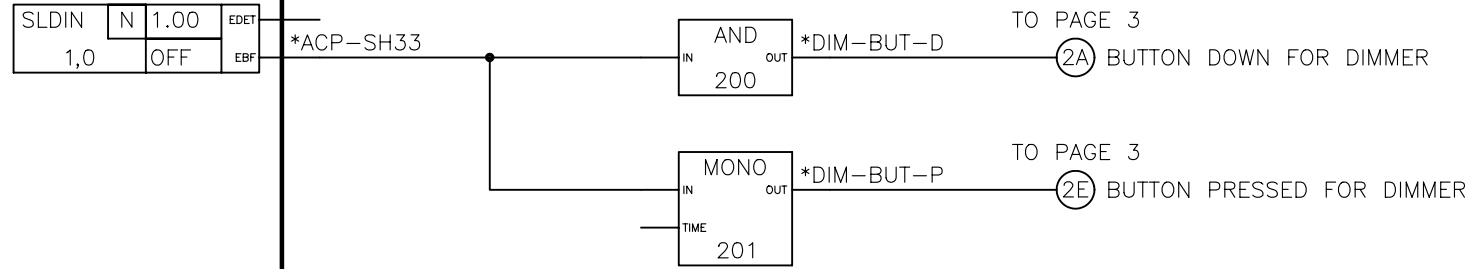
CCN-01

Drawn	14.11.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350108 - 0 - 003			01	1/05	U

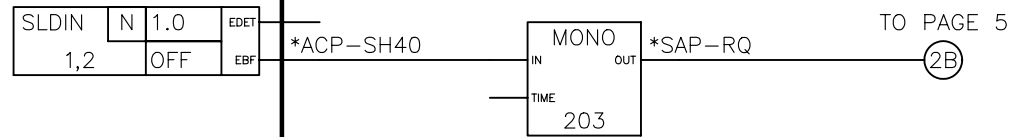
PLOTDATE: 10.01.2002

INPUTS FROM PANEL

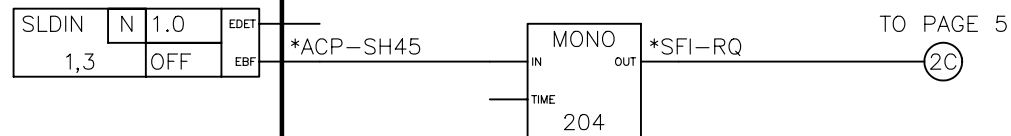
DIMMER PUSH BUTTON



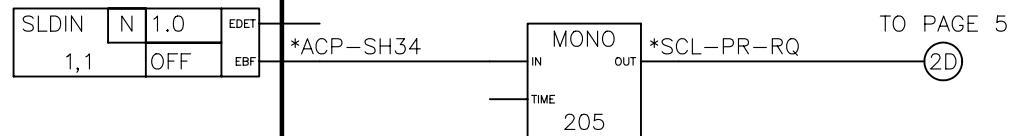
AUTOPILOT REQUEST



FIRE FIGHTER REQUEST



CLUTCH ENGAGE PREVENTION



Languages:

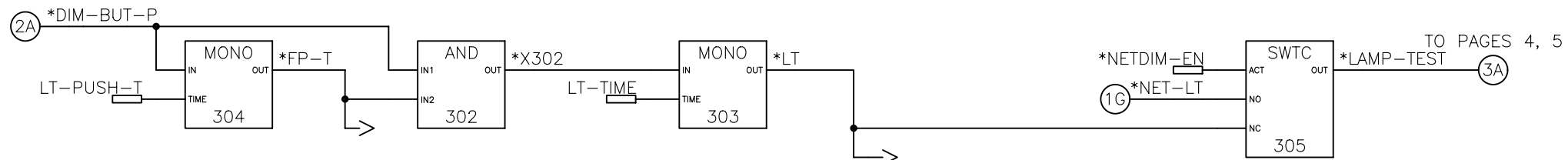
Aquamaster AZIMUTH THRUSTERS		AQUAPILOT CONTROL SYSTEM				CCN-01
		ACU (AQM N:0 2)				
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		Checked TKH	Process Block Diagram			
Drawn 14.11.2001 AKHA	Group Size Serial number	Rev Variant	Page Total pages	Lang		
Weight kg	Scale 1:1	3350108 - 0 - 003		02 / 05 U		

DIMMER FUNCTION

DOUBLE PRESSING DETECTION

LAMP TEST PULSE GENERATION

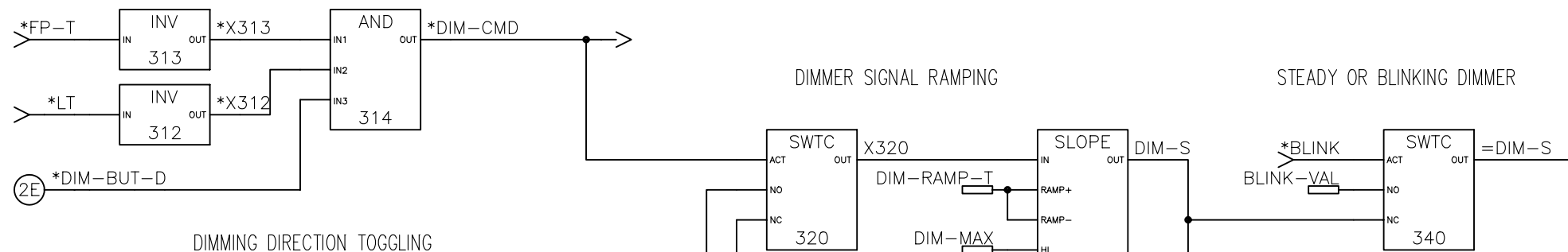
NETWORK OR LOCAL LAMPTEST SOURCE SELECTION



DIMMER COMMAND ACTIVATION

DIMMER SIGNAL RAMPING

STEADY OR BLINKING DIMMER



DIMMING DIRECTION TOGGING
ON=UP, OFF = DOWN

BLINK ON DIMMER SETTING
(DEFAULT LAMPS OFF)

BLINK CYCLE TIME

MINIMUM DIMMING (BRIGHTEST)

MAXIMUM DIMMING (DARKEST)

DIMMING RAMP TIME

DOUBLE PRESS DETECTION TIME

LAMP TEST DURATION TIME

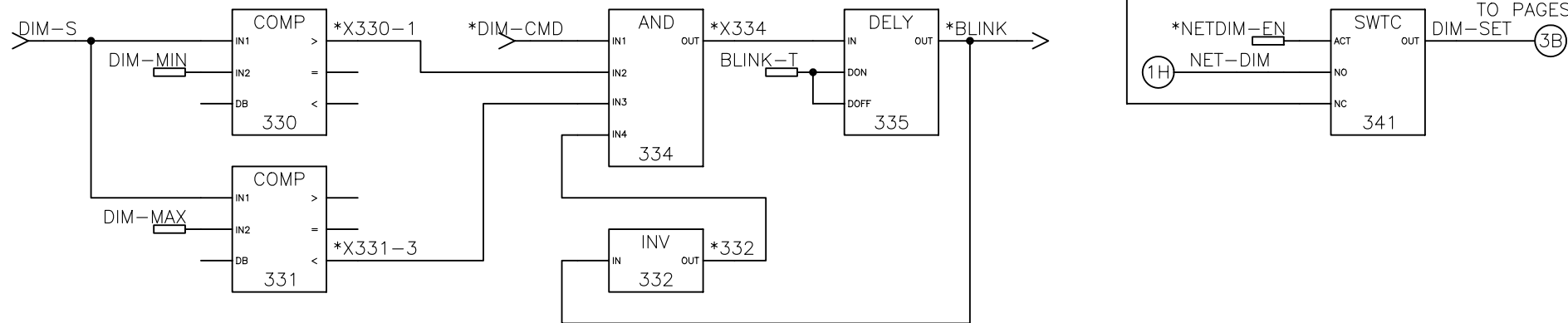
NETWORK DIMMER SELECTION

- REAL 10.0 BLINK-VAL
- REAL 0.3 BLINK-T
- REAL 0.0 DIM-MIN
- REAL 5 DIM-MAX
- REAL 5.0 DIM-RAMP-T
- REAL 0.8 LT-PUSH-T
- REAL 2.0 LT-TIME
- LOGIC OFF *NETDIM-EN

BLINKING RANGE DETECTION

BLINKING COMMAND

NETWORK OR LOCAL DIMMER SOURCE SELECTION



Languages:

Aquamaster
AZIMUTH THRUSTERS

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Approved
ARAS
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TKH

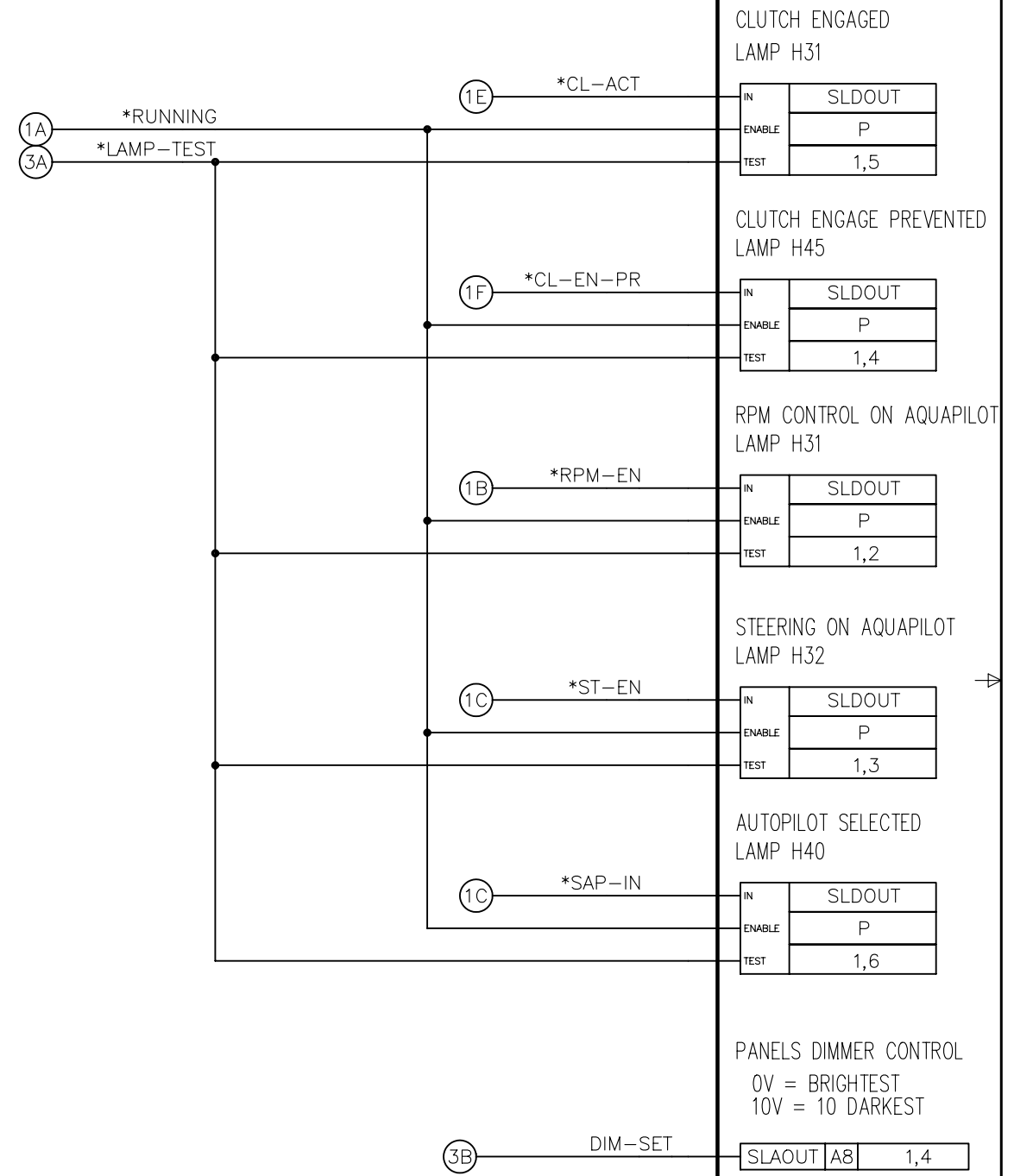
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Reading Of Panels (PANELS)
Process Block Diagram

CCN-01

PL01DATE: 10012008

Drawn	14.11.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350108-0-003			03/05	U	

OUTPUTS TO PANEL, DIMMER OUTPUT AND SOURCE HANDLING



Languages:

Aquamaster
AZIMUTH THRUSTERS

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Approved
ARAS
Checked
TKH

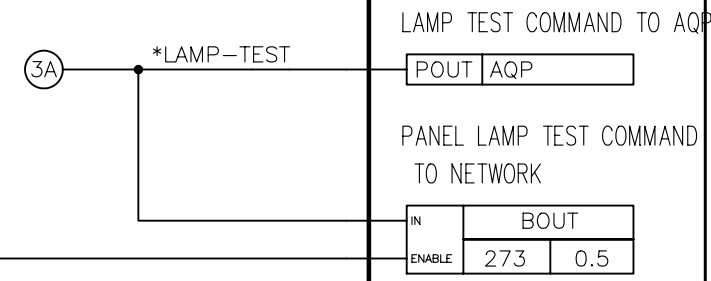
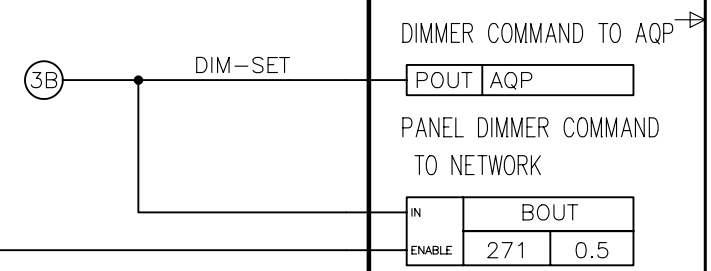
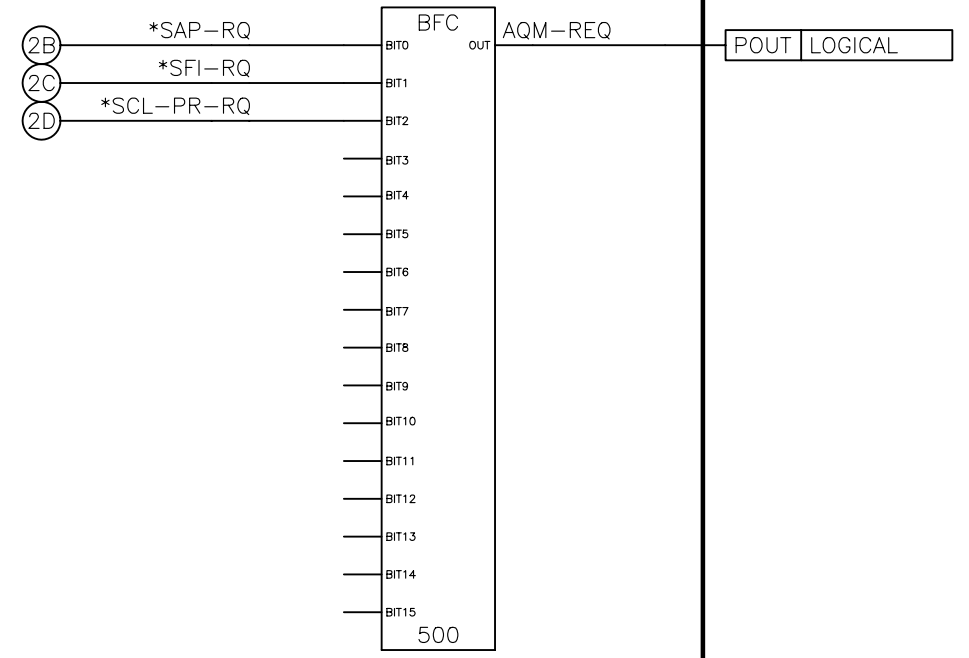
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Reading Of Panels (PANELS)
Process Block Diagram

CCN-01

Drawn	14.11.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350108 - 0 - 003			04 / 05		U		
		1:1								

PLOTDATE: 10.01.2002

MODE OUTPUTS



DIMMER SETTING TO NETWORK ENABLING
 ON = SEND TO NETWORK
 OFF = DO NOT SEND



Languages:

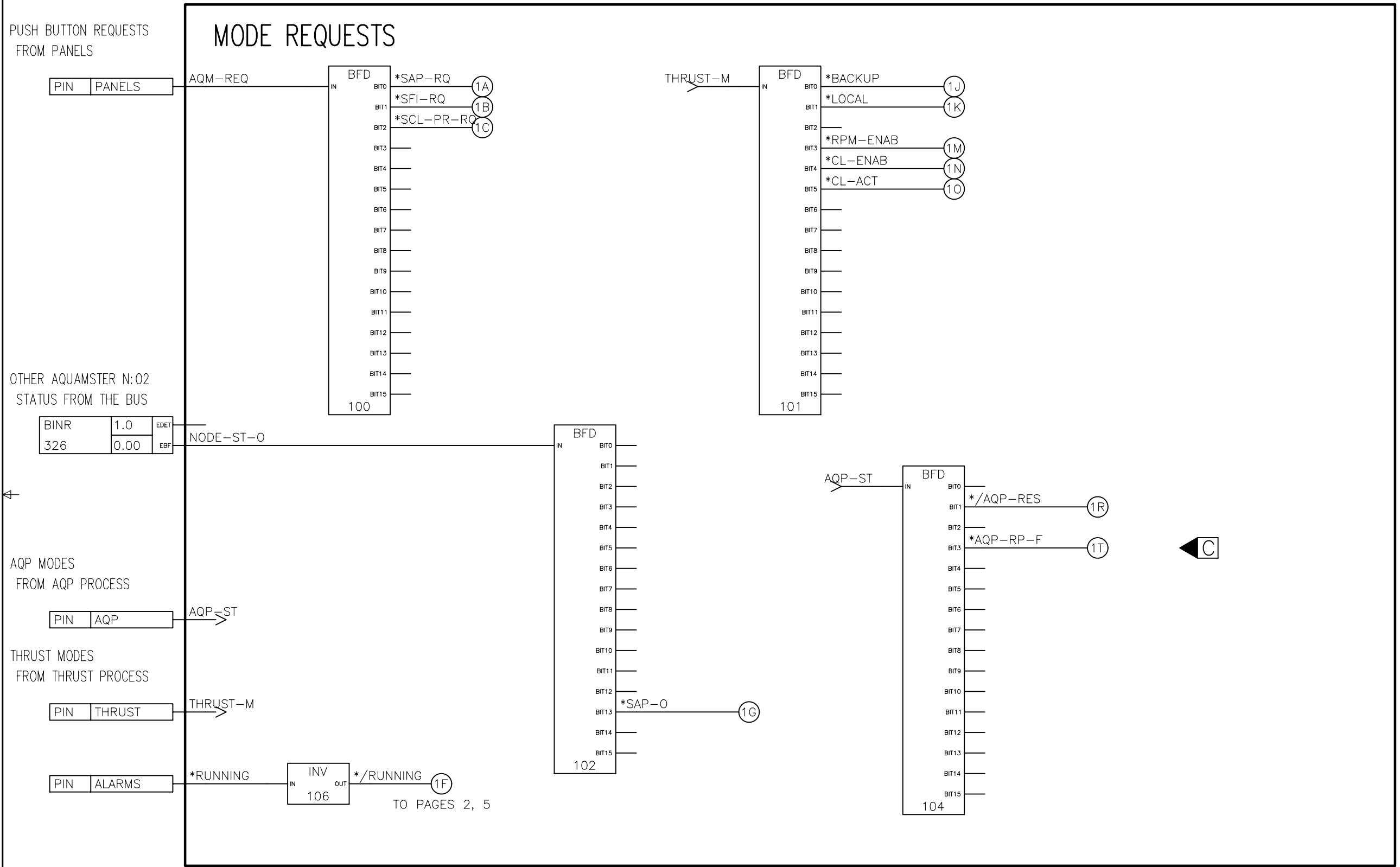
AQUAPILOT CONTROL SYSTEM
 ACU (AQM N:0 2)
 Reading Of Panels (PANELS)
 Process Block Diagram

CCN-01
PL01DATE: 10012001

Drawn	14.11.2001	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight kg	Scale 1:1		3350108 - 0 - 003			05 / 05		U		

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Approved ARAS
 Checked TKH



C	020912	AKHA	JAJA	KIKO	*AQP-RP-F SIGNAL ADDED
B	020611	AKHA	JAJA	SAKU	External preventer corrected
A	020326	AKHA	SSI	KIHI	ERROR LOOP REMOVED
Rev	Date	Drawn	Approved	Checked	Revision text

Languages: U

Rolls-Royce

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Approved: ARAS
Checked: KIHI

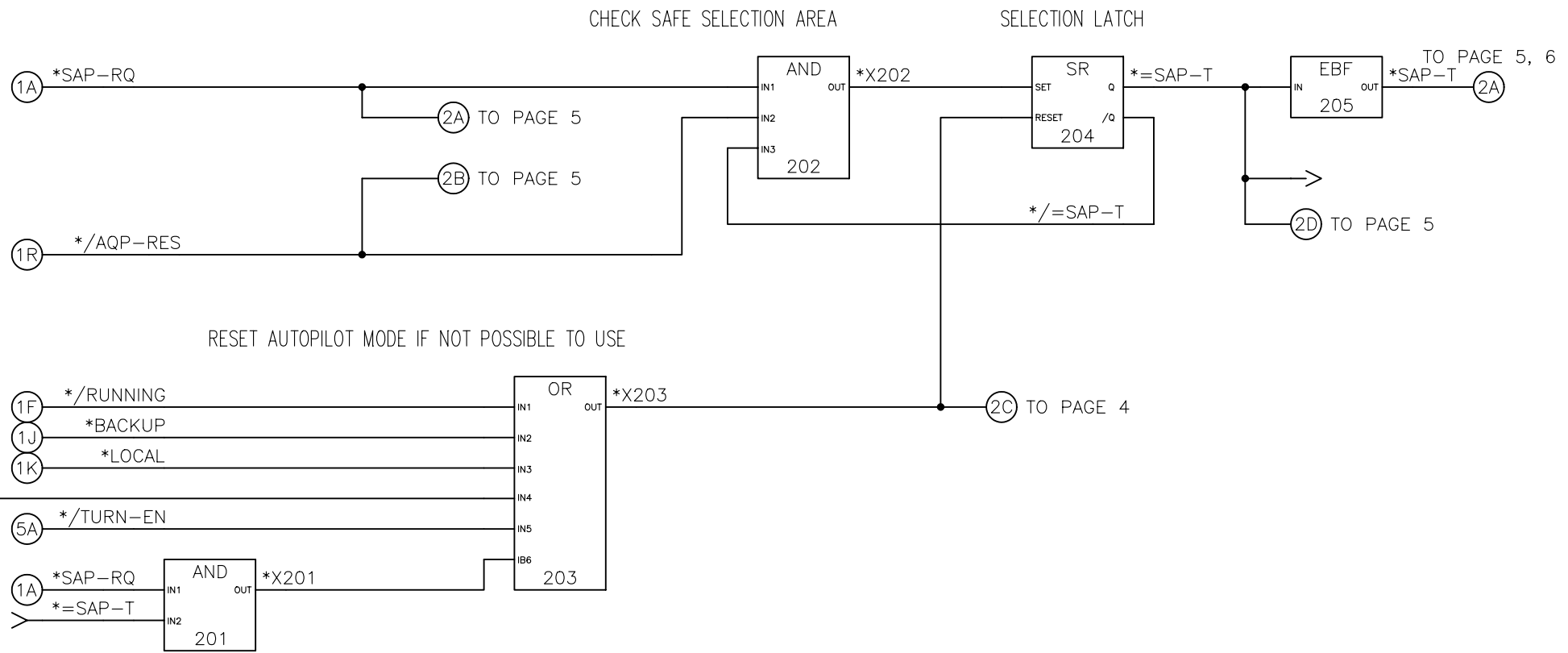
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01

PL01DATE: 12.09.2002

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350107 - C - 003			01 / 06		U		

AUTOPILOT MODE SELECTION



AUTOPILOT INPUT
FAIL STATUS

PIN	COMMAND
-----	---------

Languages:
U



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Approved
ARAS
Checked
KIH

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01

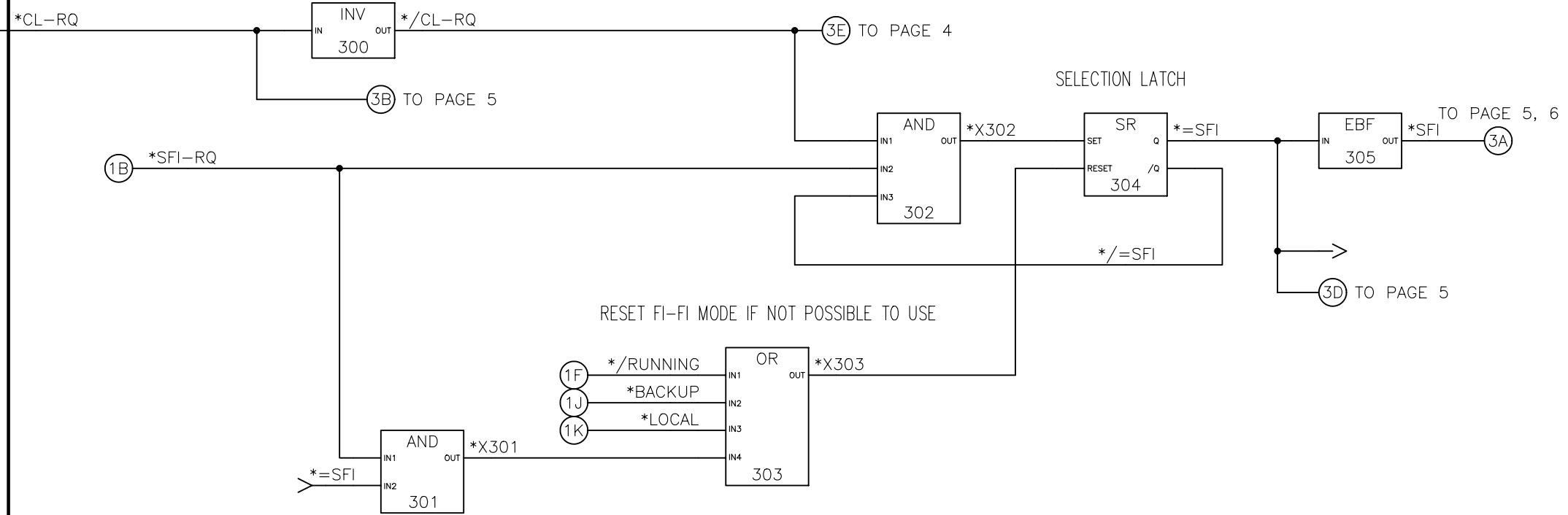
PL01DATE: 12.09.2002

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350107 - C - 003			02 / 06		U		

FIRE-FIGHTING MODE SELECTION

"CLUTCH" NEGATIVE FOR
FIFI MODE SELECTION

PIN AQP



Languages:
U



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ARAS
Checked
KIH

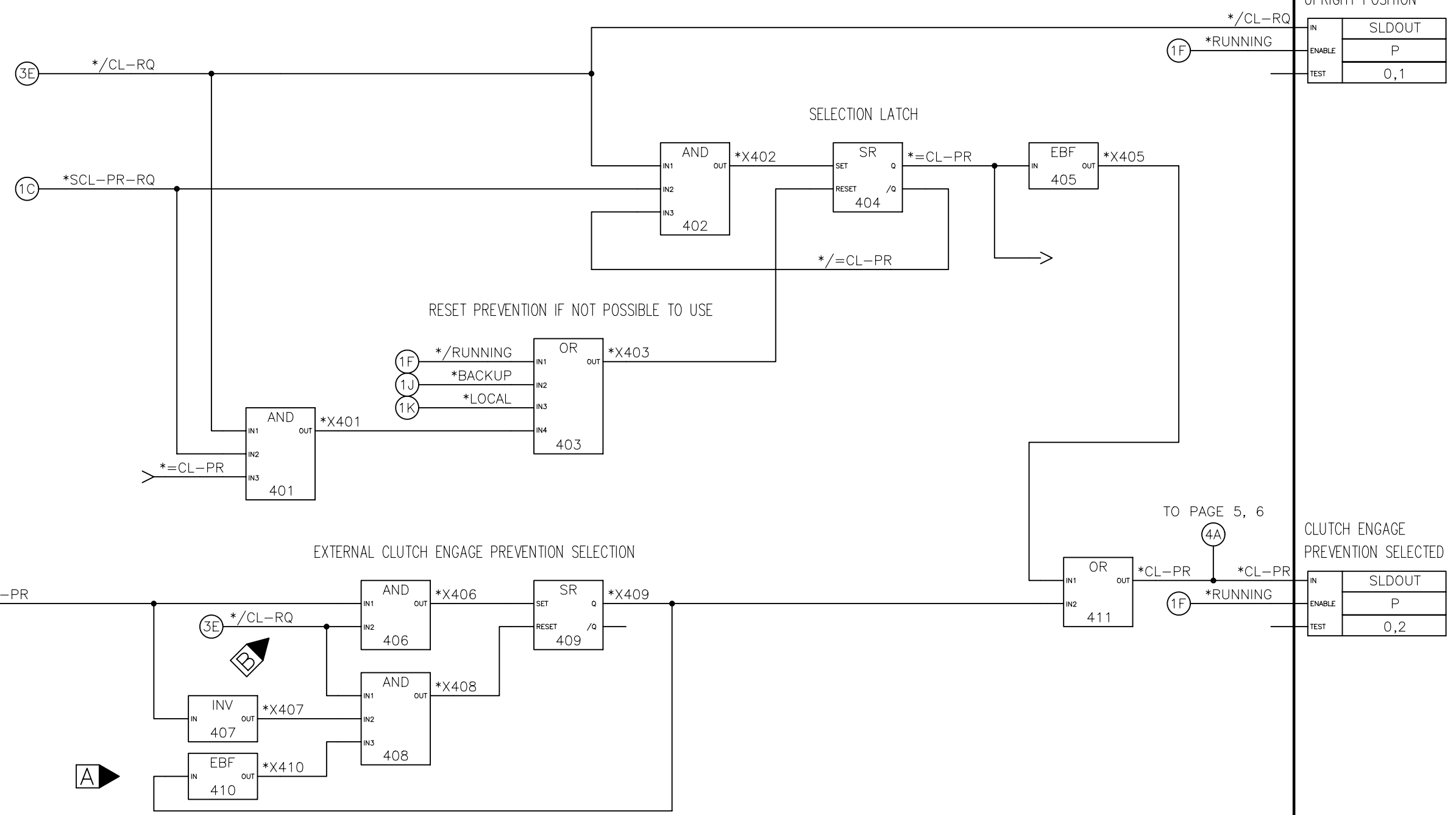
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01

PL01DATE: 12.09.2002.E

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350107 - C - 003			03 / 06	U	

CLUTCH ENGAGE PREVENTION MODE SELECTION



Languages: U

Rolls-Royce

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01

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Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350107 - C - 003			04	06	U		

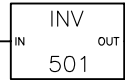
DATE: 12.09.2002

MODES AND INDICATIONS

TURNING CONTROL STATUS FROM PROCESS

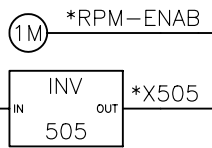
PIN | TURNCONT

*TURN-ENAB



*/TURN-EN

4A TO PAGE 2



1M *RPM-ENAB

IN1

IN2

OUT *RPM-EN

1T *AQP-RP-F

INV 505

OUT *X505

IN

IN

OUT *ST-ENAB

IN

IN

OUT *SAP-IN

IN

IN

OUT *FIFI-IN

IN

IN

OUT *CL-ACT-IN

IN

IN

OUT *CL-EN-PR

IN

IN

OUT *X524

IN

IN

OUT *X524

IN

IN

OUT *X524

IN

IN

OUT *X524

IN

IN

OUT *X524

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IN

OUT *X524

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IN

OUT *X524

IN

IN

OUT *X524

IN

IN

OUT *X524

IN

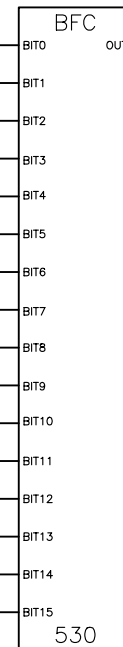
IN

OUT *X524

IN

IN

OUT *X524

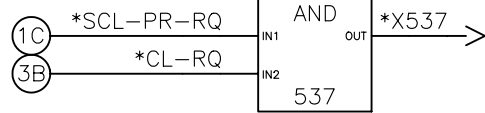


AQM-IND

LAMP INDICATIONS TO PANELS

POUT | PANELS

BUZZER SOUNDS IF CLUTCH ENGAGE PREVENTED MODE NOT SELECTABLE



1C *SCL-PR-RQ

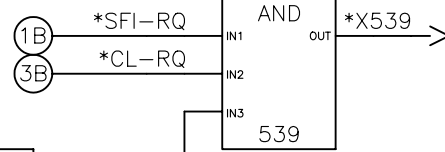
3B *CL-RQ

IN1

IN2

OUT *X537

BUZZER SOUNDS IF FIFI MODE NOT SELECTABLE



1B *SFI-RQ

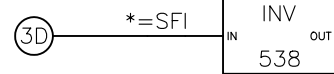
3B *CL-RQ

IN1

IN2

IN3

OUT *X539

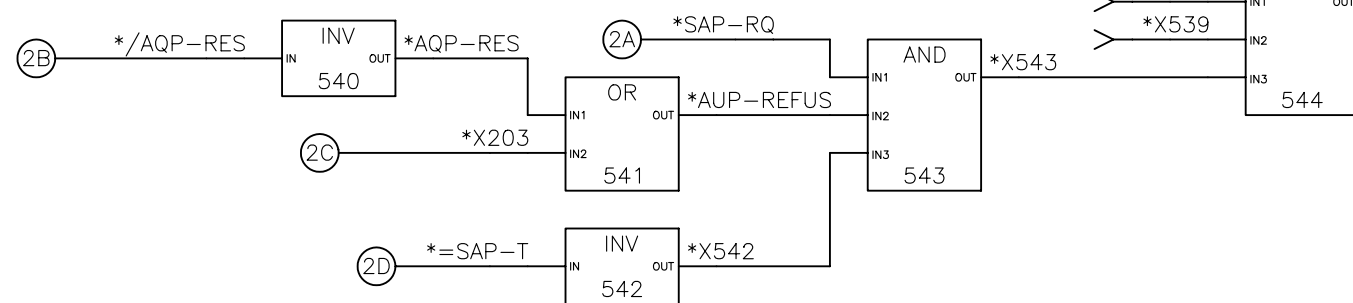


3D *=SFI

IN

OUT *X538

BUZZER SOUNDS IF AUTOPILOT MODE NOT SELECTABLE



2B */AQP-RES

2C *X203

2D *=SAP-T

2A *SAP-RQ

*X537

*X539

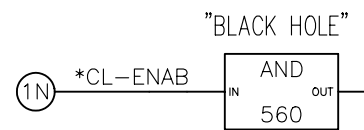
OR 544

IN1

IN2

IN3

OUT *BUZZ



1N *CL-ENAB

IN

OUT

"BLACK HOLE"

IN

OUT

"BLACK HOLE"

IN

OUT

LOGIC OFF

*OFF

AQUAPILOT BUZZER

POUT | AQP

1K *LOCAL

POUT | TURNCONT

*CL-EN-PR

POUT | COMMAND

Languages: U



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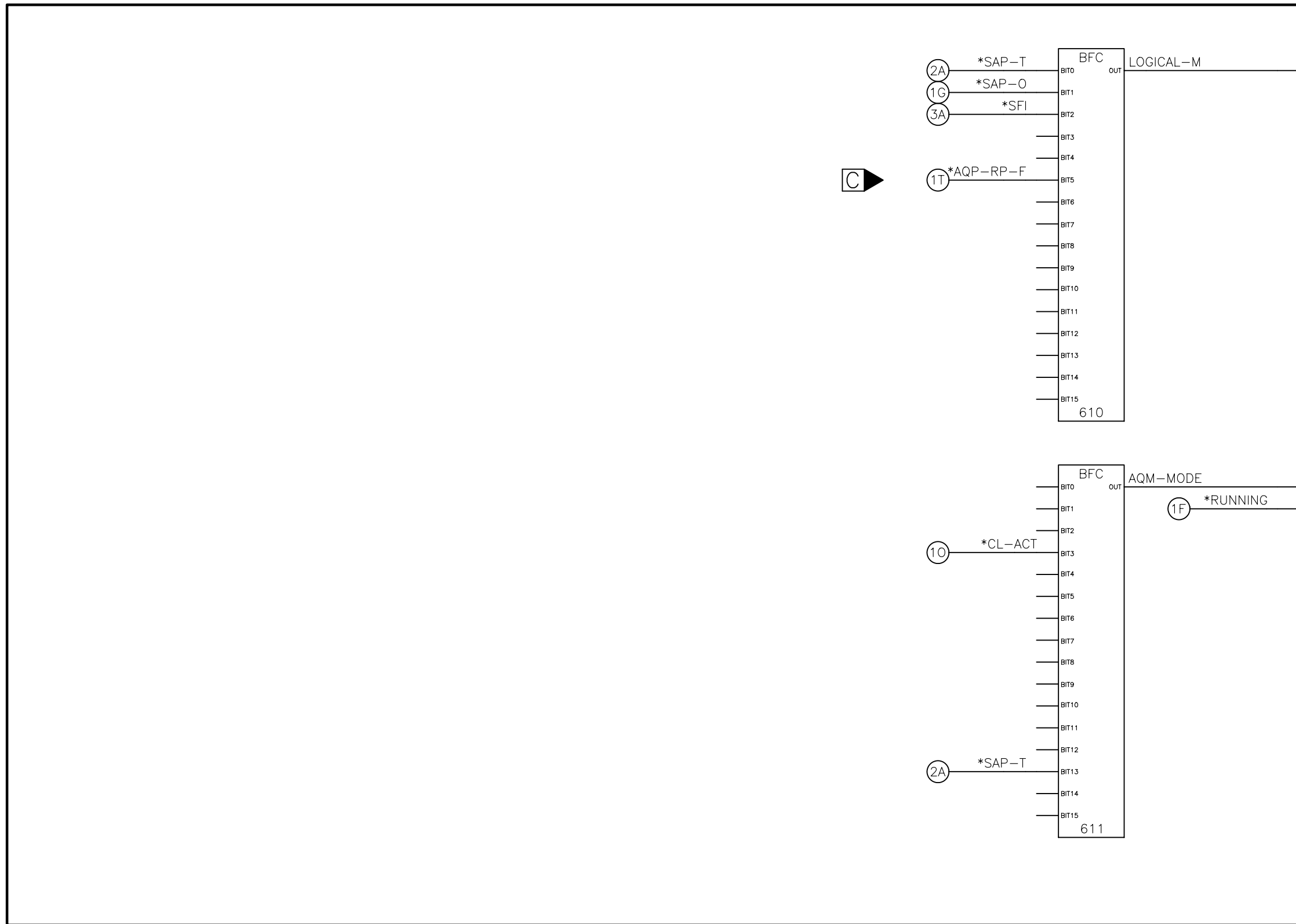
Approved ARAS
Checked KIH

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01

PL01DATE: 07.02.2005-E

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350107 - C - 003			05 / 06		U		



Languages:
U



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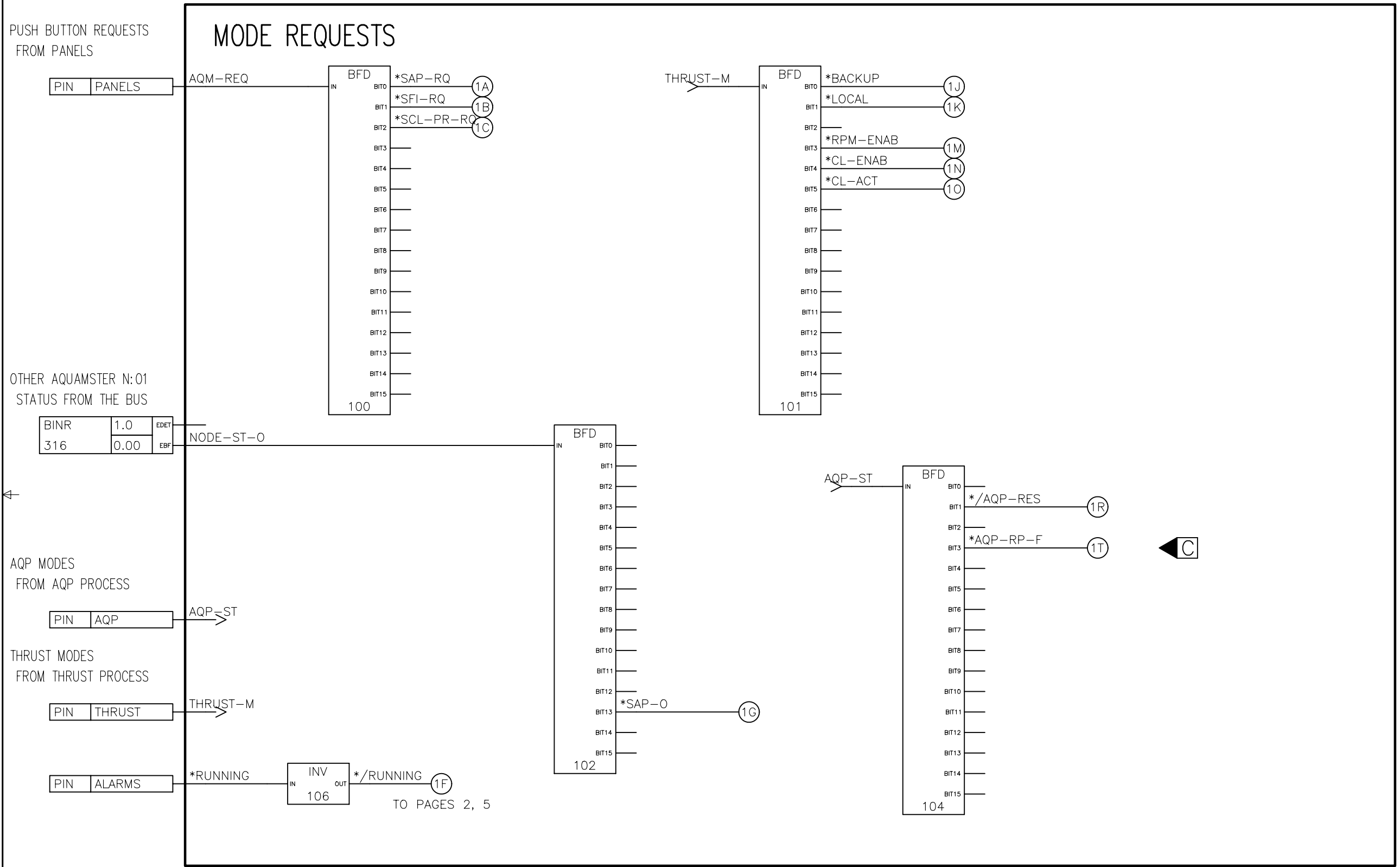
Approved
ARAS
Checked
KIHJ

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01

PL01DATE: 17.09.2002.E

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350107 - C - 003			06 / 06		U		
		1:1								



C	020912	AKHA	JAJA	TATU	*AQP-RP-F SIGNAL ADDED
B	020611	AKHA	JAJA	SAKU	External prevention corrected
A	020326	SSI	SSI	TKH	ERROR LOOP REMOVED
Rev	Date	Drawn	Approved	Checked	Revision text

Languages: U

Rolls-Royce

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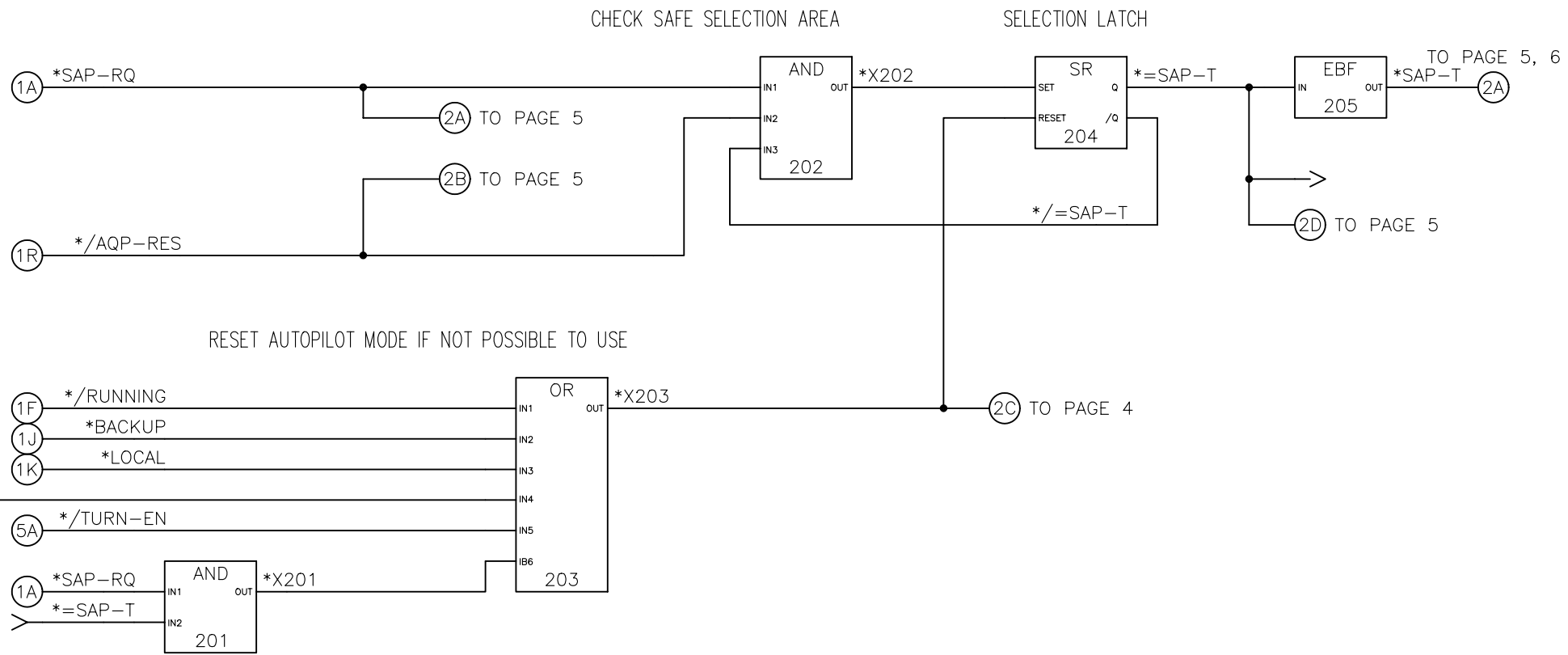
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01

PL01DATE: 12.09.2002

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350109 - C - 003			01	106	U

AUTOPILOT MODE SELECTION



Languages: U



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ARAS
Checked
KIHI

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01

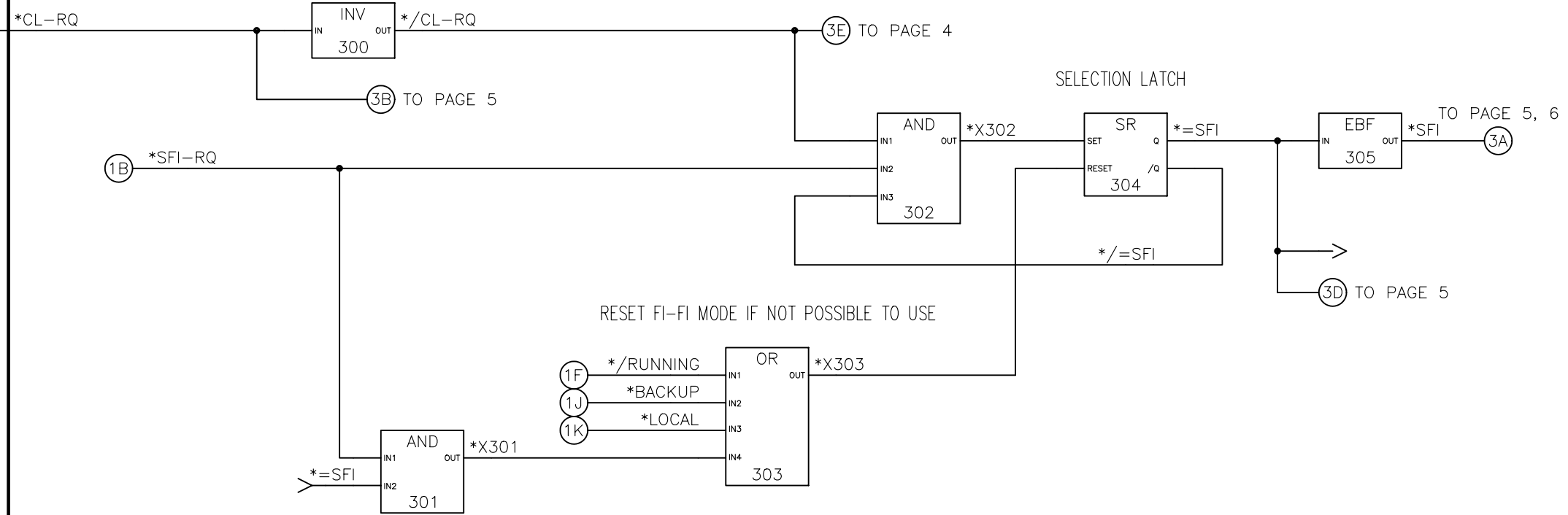
PLOT DATE: 12.09.2002 E

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350109 - C - 003			02 / 06		U		
		1:1								

FIRE-FIGHTING MODE SELECTION

"CLUTCH" NEGATIVE FOR
FIFI MODE SELECTION

PIN AQP



Languages:
U



AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-04

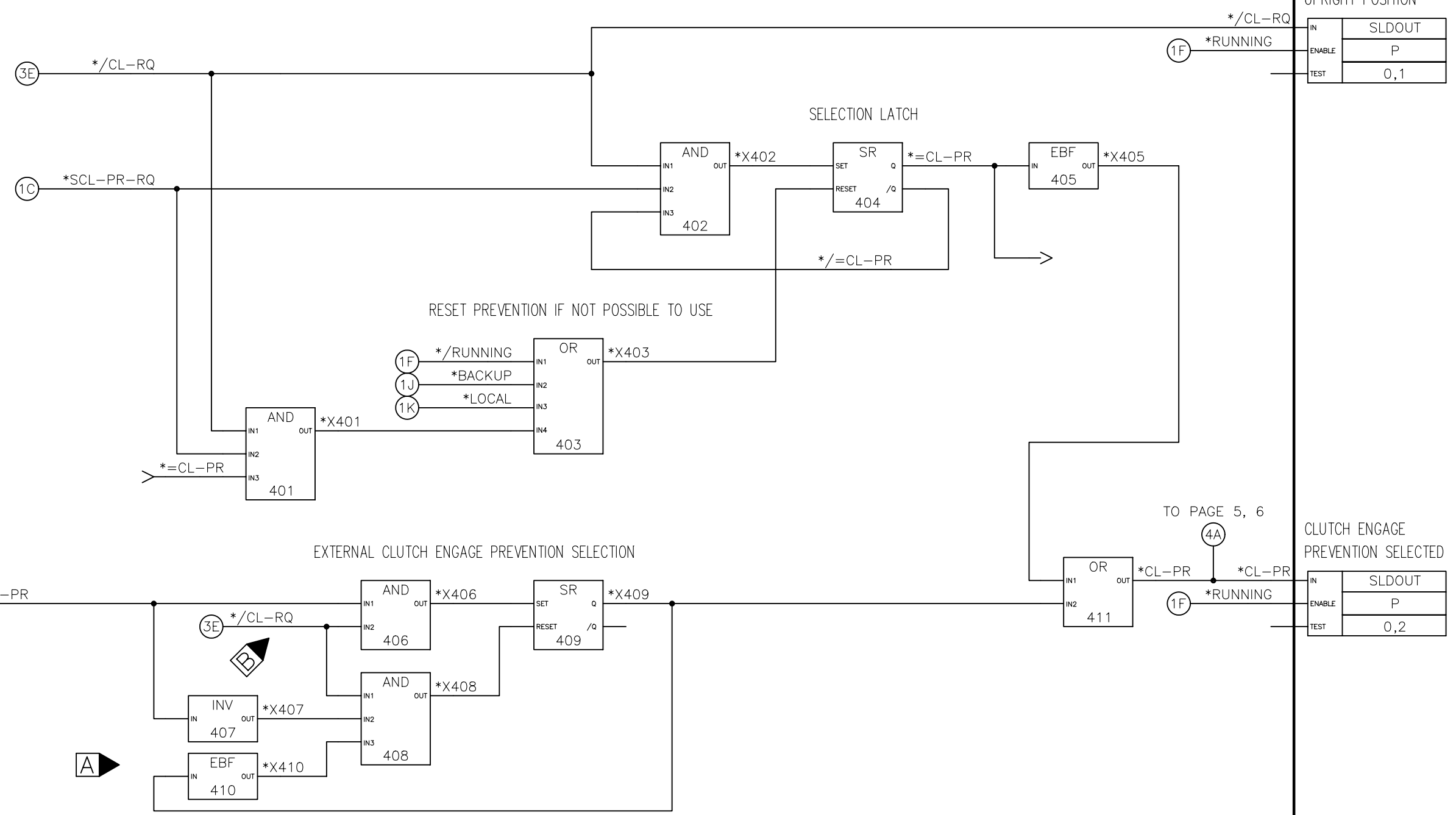
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Approved
ARAS
Checked
KIH

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	1:1		3350109 - C - 003			03 / 06	U	

PLOT DATE: 12.09.2002

CLUTCH ENGAGE PREVENTION MODE SELECTION



AQP AT UPRIGHT POSITION

IN	SLDOUT
ENABLE	P
TEST	0,1

CLUTCH ENGAGE PREVENTION SELECTED

IN	SLDOUT
ENABLE	P
TEST	0,2

EXTERNAL CLUTCH ENGAGE PREVENT REQUEST

SLDIN	N	2	EDET
0,1	OFF	EBF	

Languages: U

Rolls-Royce

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Logical Functions (LOGICAL)
Process Block Diagram

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Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350109 - C - 003			04 / 06		U		

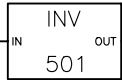
CCN-04
PLOT DATE: 12.09.2002

MODES AND INDICATIONS

TURNING CONTROL STATUS FROM PROCESS

PIN TURNCONT

*TURN-ENAB



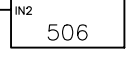
* /TURN-EN (4A)
TO PAGE 2

(1M) *RPM-ENAB

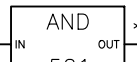


OUT *RPM-EN

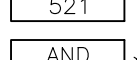
(1T) *AQP-RP-F



OUT *X505



OUT *ST-ENAB



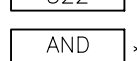
OUT *SAP-IN

(2A) *SAP-T



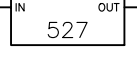
OUT *FIFI-IN

(3A) *SFI



OUT *CL-ACT-IN

(10) *CL-ACT

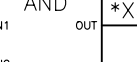


OUT *CL-EN-PR

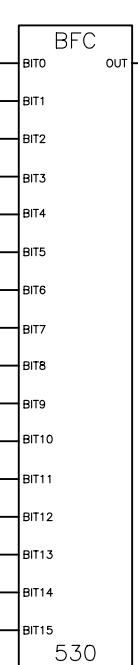
(4A) *CL-PR



OUT * /SAP-IN



OUT *X524

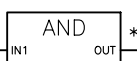


AQM-IND

LAMP INDICATIONS TO PANELS
POUT PANELS

BUZZER SOUNDS IF CLUTCH ENGAGE PREVENTED MODE NOT SELECTABLE

(1C) *SCL-PR-RQ

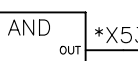


OUT *X537

(3B) *CL-RQ

BUZZER SOUNDS IF FIFI MODE NOT SELECTABLE

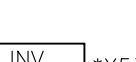
(1B) *SFI-RQ



OUT *X539

(3B) *CL-RQ

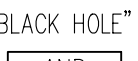
(3D) *=SFI



OUT *X538

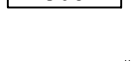
BUZZER SOUNDS IF AUTOPILOT MODE NOT SELECTABLE

"BLACK HOLE"
(1N) *CL-ENAB



OUT

"BLACK HOLE"
(1N) *CL-ENAB



OUT

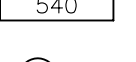
LOGIC OFF *OFF

(2B) * /AQP-RES



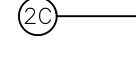
OUT *AQP-RES

(2C) *X203



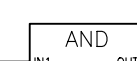
OUT *AUP-REFUS

(2D) *=SAP-T



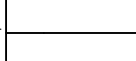
OUT *X542

(2A) *SAP-RQ



OUT *X543

(1K) *LOCAL



OUT *BUZZ

*CL-EN-PR

POUT COMMAND

(3A) *SFI

POUT AQP

(1J) *BACKUP

POUT TURNCONT

AQUAPILOT BUZZER

POUT AQP

POUT TURNCONT

Languages: U



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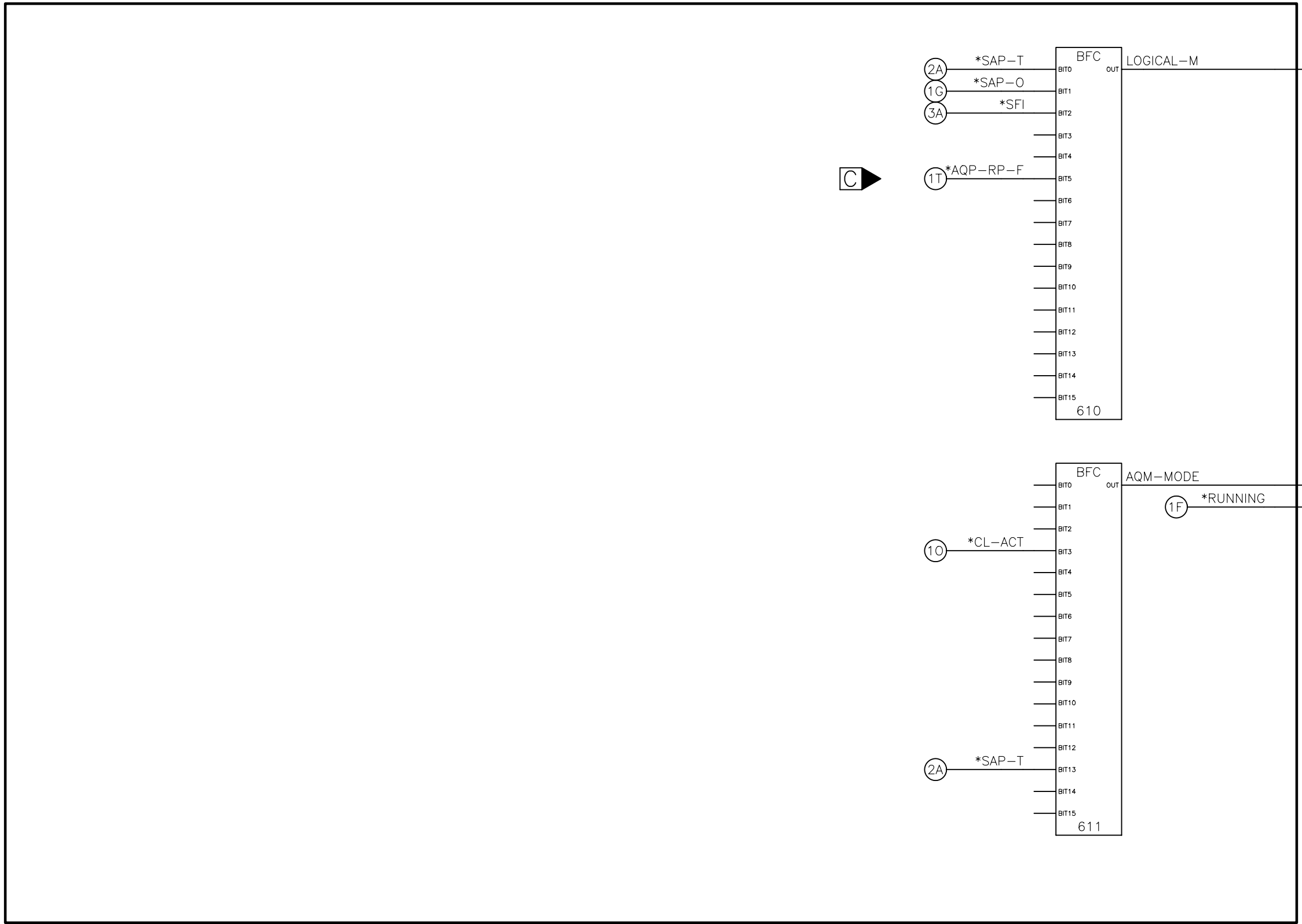
Approved ARAS
Checked KIH

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Logical Functions (LOGICAL)
Process Block Diagram


CCN-01

PL01DATE: 12.09.2002

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350109 - C - 003			05 / 06		U		



Languages:
U

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ARAS
Checked
KIH1

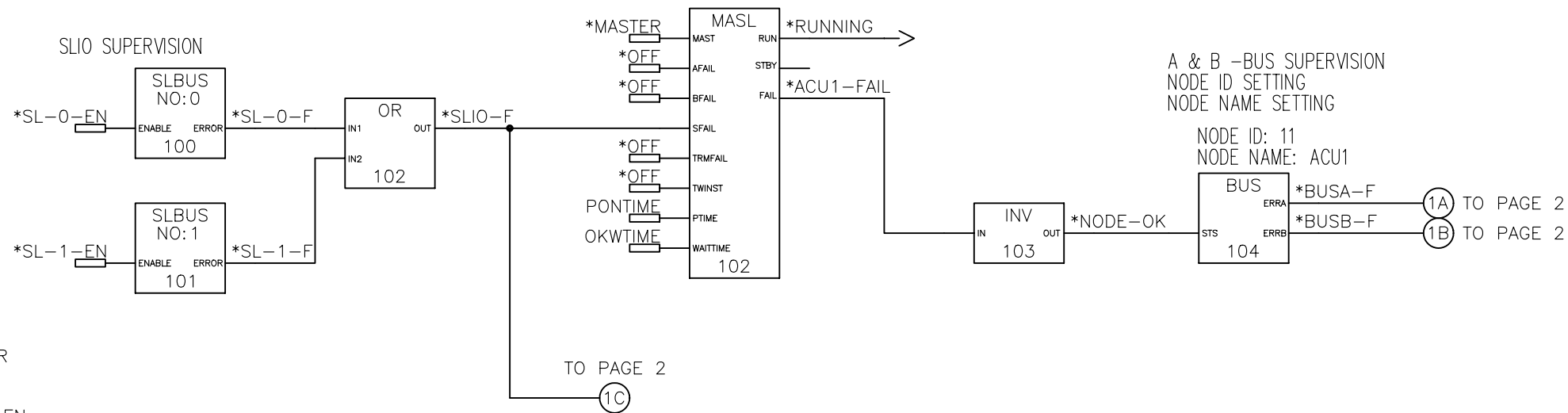
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Logical Functions (LOGICAL)
Process Block Diagram

CCN-01
PLOT DATE: 17.09.2002

Drawn	11.2.2002	AKHA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350109 - C - 003			06 / 06		U		
		1:1								

NODE SUPERVISION, SLIO'S AND BUS

SUPERVISION OF FAILURE STATES AND POWER UP PHASE



THIS NODE SELECTED AS PRIMARY CONTROL NODE

LOGIC ON *MASTER

SLIO 0 SUPERVISION ENABLED

LOGIC ON *SL-0-EN

SLIO 1 SUPERVISION ENABLED

LOGIC ON *SL-1-EN

TIME TO POWER UP THE

REAL 10 PONTIME

TIME TO RECOVER FORM THE FAILURE STATE

REAL 0.50 OKWTIME

SNODE

LOGIC OFF *OFF

MASTER SELECTION OTHER PROCESSES

*MASTER POUT AQP

RUNNING STAUS TO THE OTHER PROCESSES

*RUNNING POUT THRUST

POUT TURNCONT

POUT PANELS

POUT AQP

POUT COMMAND

POUT LOGICAL

A	020117	AKHA	SSI	MJV	SLIO FAILURE HÄLYT KORJATTU
Rev	Date	Drawn	Approved	Checked	Revision text

Languages: U

Aquamaster
AZIMUTH THRUSTERS

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Approved SSI
Checked AKHA

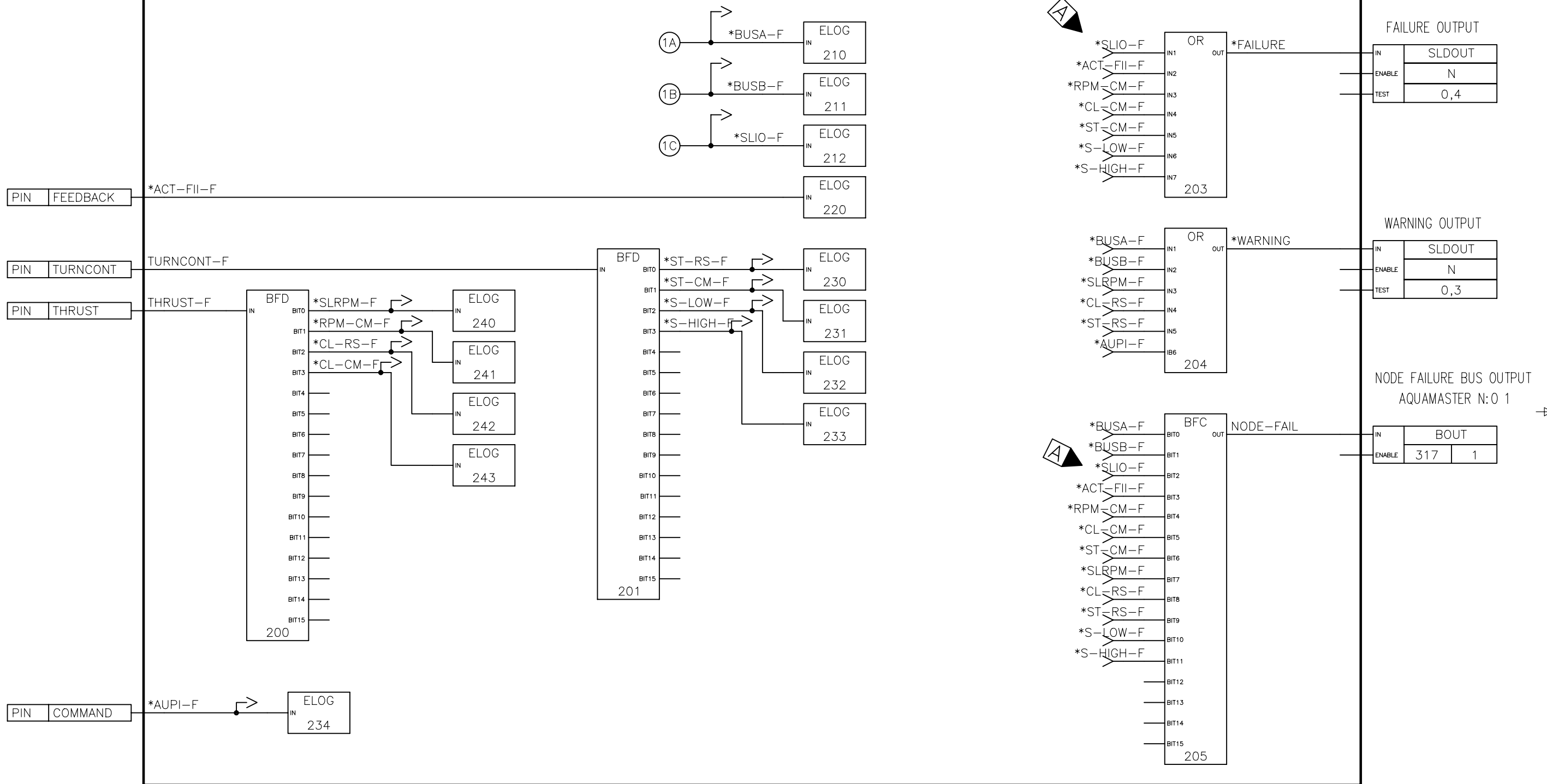
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Alarms Handling (ALARMS)
Process Block Diagram

CCN-01

Drawn	13.10.2001	MJV	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350100 - A - 001			01 / 03		U		

PLOTDATE: 17.01.2002

LOGGING FAILURES, FAILURE TO OUTPUTS



Languages: U

Aquamaster
AZIMUTH THRUSTERS

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Approved
SSI
Checked
AKHA

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Alarms Handling (ALARMS)
Process Block Diagram

CCN-01

Drawn	10/13/01	MJV	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350100 - A - 001			02 / 03		U		

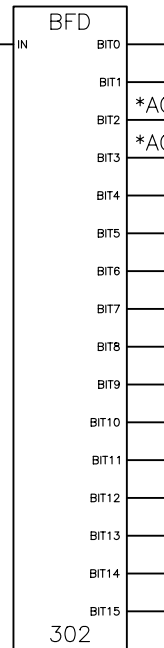
PLOT DATE: 26.10.2001

LOGGING FAILURES

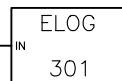
AQUAPILOT STATUS



AQP-ST



AQUAPILOT FAILURES TO LOG



Languages: U

Aquamaster
AZIMUTH THRUSTERS

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Approved
SSI
Checked
AKHA

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 1)
Alarms Handling (ALARMS)
Process Block Diagram

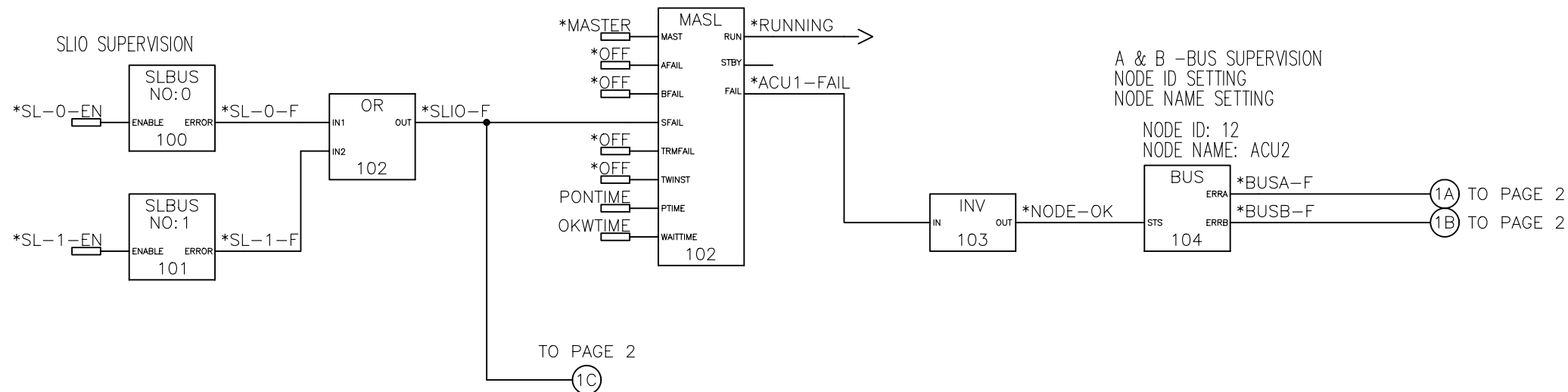
CCN-01

PL01DATE: 26.10.2001

Drawn	10/13/01	MJV	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	Scale		3350100 - A - 001			03 / 03		U		
kg	1:1									

NODE SUPERVISION, SLIO'S AND BUS

SUPERVISION OF FAILURE STATES AND POWER UP PHASE



- LOGIC OFF *OFF
- THIS NODE SELECTED AS PRIMARY CONTROL NODE
LOGIC ON *MASTER
- SLIO 0 SUPERVISION ENABLED
LOGIC ON *SL-0-EN
- SLIO 1 SUPERVISION ENABLED
LOGIC ON *SL-1-EN
- TIME TO POWER UP THE
REAL 10 PONTIME
- TIME TO RECOVER FORM THE FAILURE STATE
REAL 0.50 OKWTIME

- MASTER SELECTION OTHER PROCESSES
> *MASTER POUT AQP
- RUNNING STAUS TO THE OTHER PROCESSES
> *RUNNING POUT THRUST
POUT TURNCONT
POUT PANELS
POUT AQP
POUT COMMAND
POUT LOGICAL

A	011024	AKHA			SLIO FAILURE ALARMS FIXED
Rev	Date	Drawn	Approved	Checked	Revision text

Languages: U

Aquamaster
AZIMUTH THRUSTERS

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Approved SSI
Checked AKHA

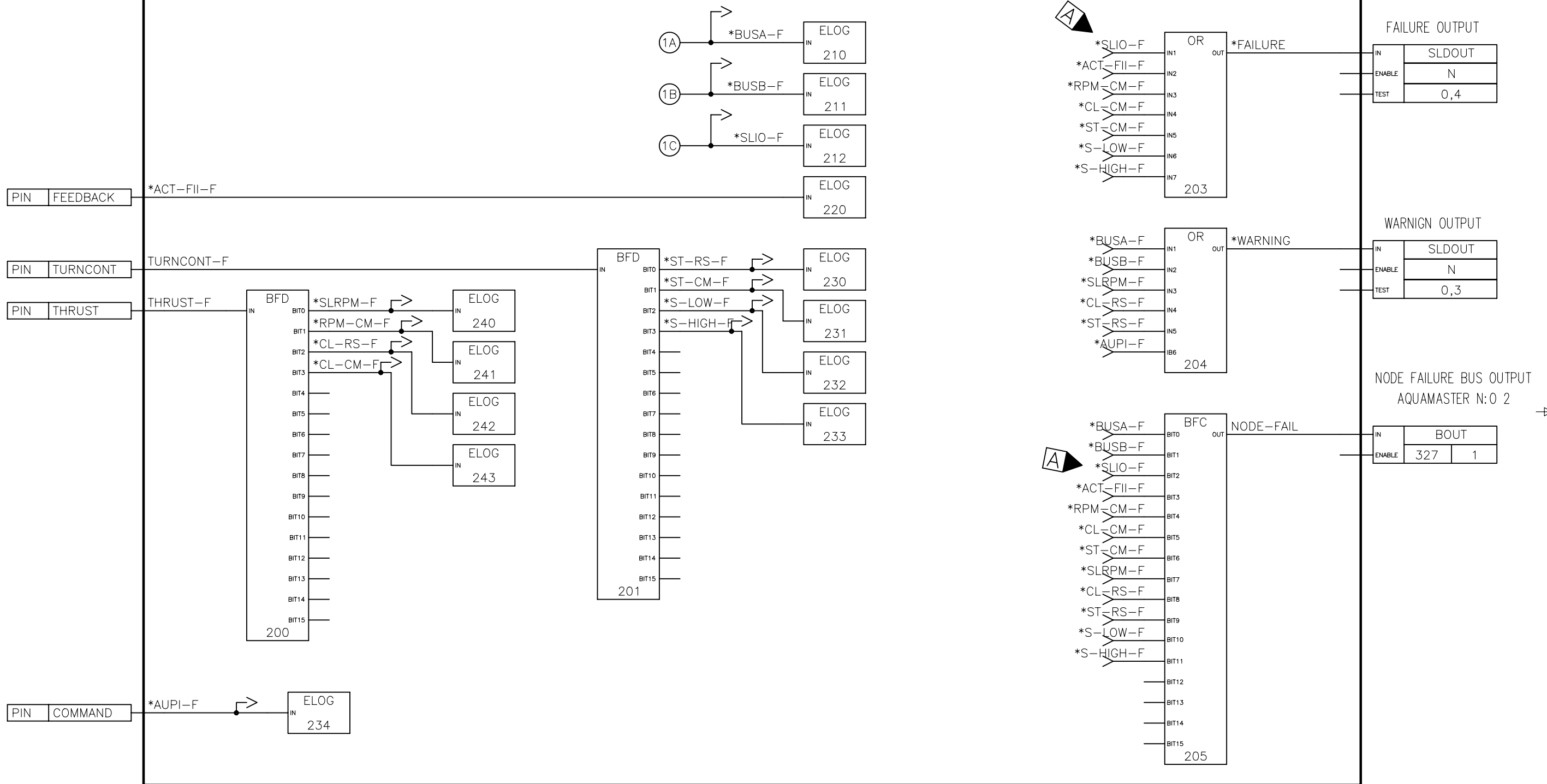
AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Alarms Handling (ALARMS)
Process Block Diagram

CCN-01

Drawn	10/15/01	MJV	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350102 - A - 001			01		01	03	U

PLOTDATE: 26.10.2001

LOGGING FAILURES, FAILURE TO OUTPUTS



Languages: U

Aquamaster
AZIMUTH THRUSTERS

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Approved
SSI
Checked
AKHA

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Alarms Handling (ALARMS)
Process Block Diagram

CCN-01

Drawn	10/15/01	MJV	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350102 - A - 001			02 / 03		U		

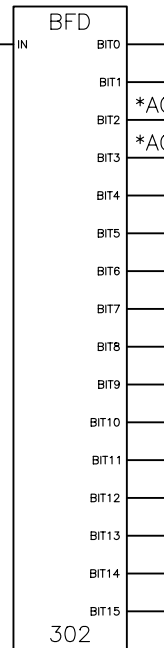
PLOT DATE: 26.10.2001

LOGGING FAILURES

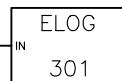
AQUAPILOT STATUS



AQP-ST



AQUAPILOT FAILURES TO LOG



Languages: U

Aquamaster
AZIMUTH THRUSTERS

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Approved
SSI
Checked
AKHA

AQUAPILOT CONTROL SYSTEM
ACU (AQM N:0 2)
Alarms Handling (ALARMS)
Process Block Diagram

CCN-01

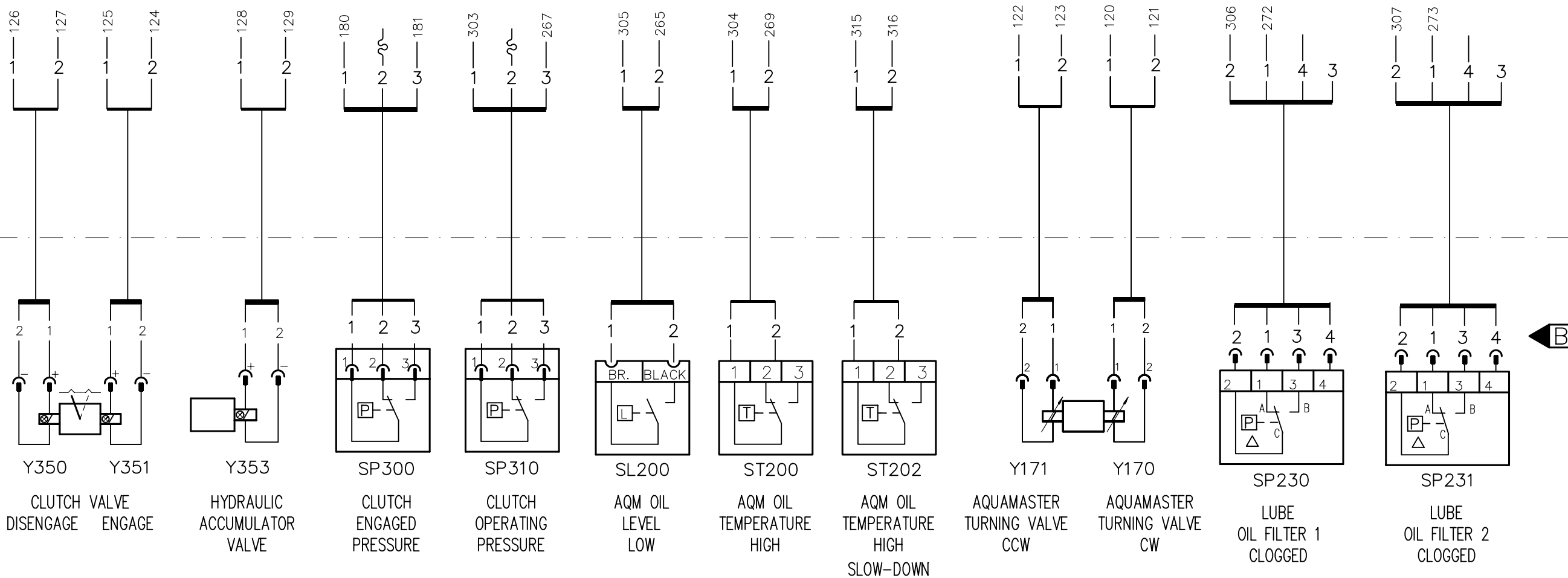
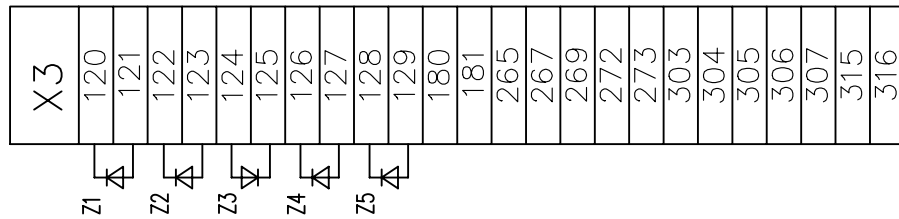
PL01DATE: 26.10.2001

Drawn	10/15/01	MJV	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	3350102 - A - 001			03 / 03		U		
		1:1								

AQUAMASTER UNIT

CONNECTION BOX

TERMINAL BLOCK OF CONNECTION BOX h120b220d90-001



Lang U

Rolls-Royce

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Approved YRMI
Checked AASU

AQUAPILOT CONTROL SYSTEM
Installations In AZT
X3 / 2-wire alarms
Interconnecting diagram

W

B	091112	ESKO	JAJA	ESKO	SP PLUGS UPDATED
Rev	Date	Drawn	Approved	Checked	Revision text

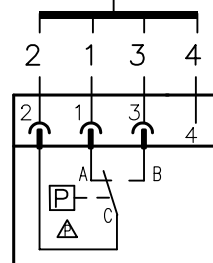
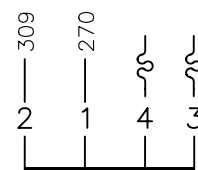
Drawn	18.10.2006	KIKO	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight kg		Scale	7 3 5 6 8 6 9			- B - 013		01	/ 01	U

PLOT DATE: 12.11.2009 E

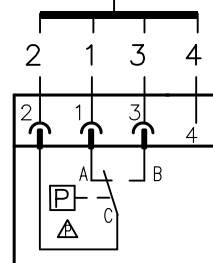
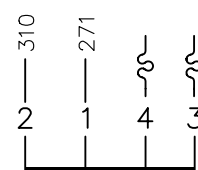
HYDRAULIC UNIT

CONNECTION BOX

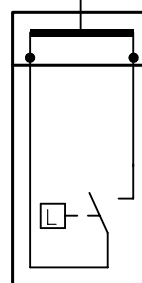
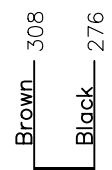
X8	120	121	122	123	261	261	268	270	271	276	277	302	308	309	310	311
----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



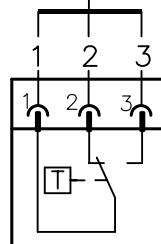
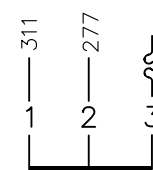
SP150
HYDR. OIL
FILTER 1
CLOGGED



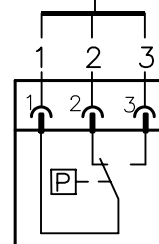
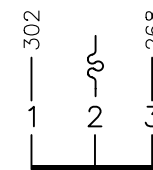
SP151
HYDR. OIL
FILTER 2
CLOGGED



SL140
HYDR. OIL
TANK LEVEL
LOW



ST140
HYDR. OIL
TANK TEMPERATURE
HIGH



SP100
BOOSTER
PRESSURE
LOW

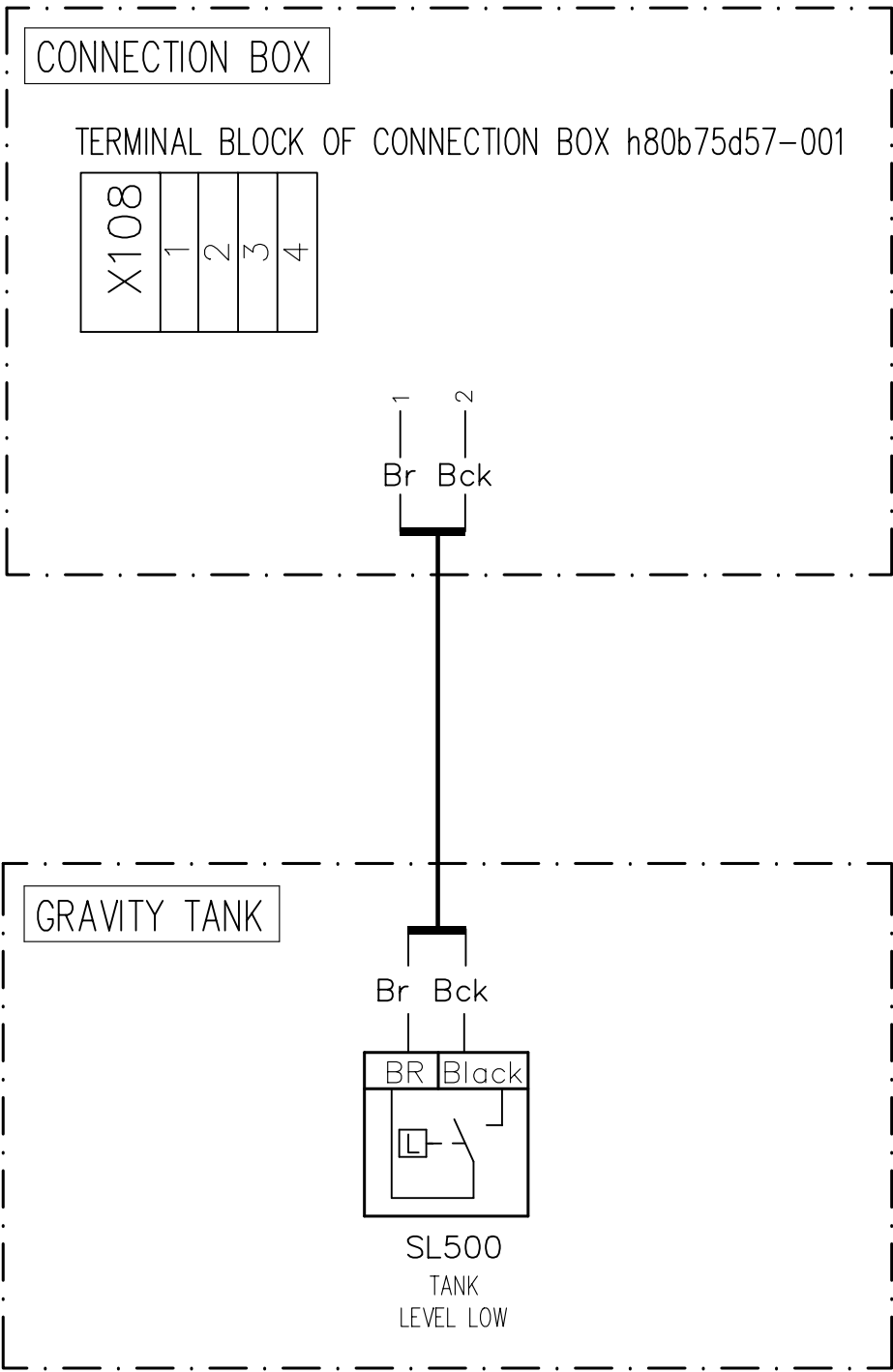
NOTE! OIL TANK, COMPATIBLE WITH
8251740---XXX AND
8251722---XXX

Lang
U

		AQUAPILOT CONTROL SYSTEM Aquamaster cabling X8 Assembly drawing	
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Drawn 13.7.2006 AASU	Group Size Serial number 7 3 5 9 2 3 9	Rev Variant - B - 001	Page Total pages 01 / 01
Weight kg Scale	U		

B	081118	THKH	JAJA	AASU	Added terminals 120-123 (for MCD)
Rev	Date	Drawn	Approved	Checked	Revision text

PLOTDATE: 18.11.2008 E



ng
U



Rolls-Royce

AQUAPILOT CONTROL SYSTEM
Gravity tank/ X108
Low level SL500
Interconnecting diagram

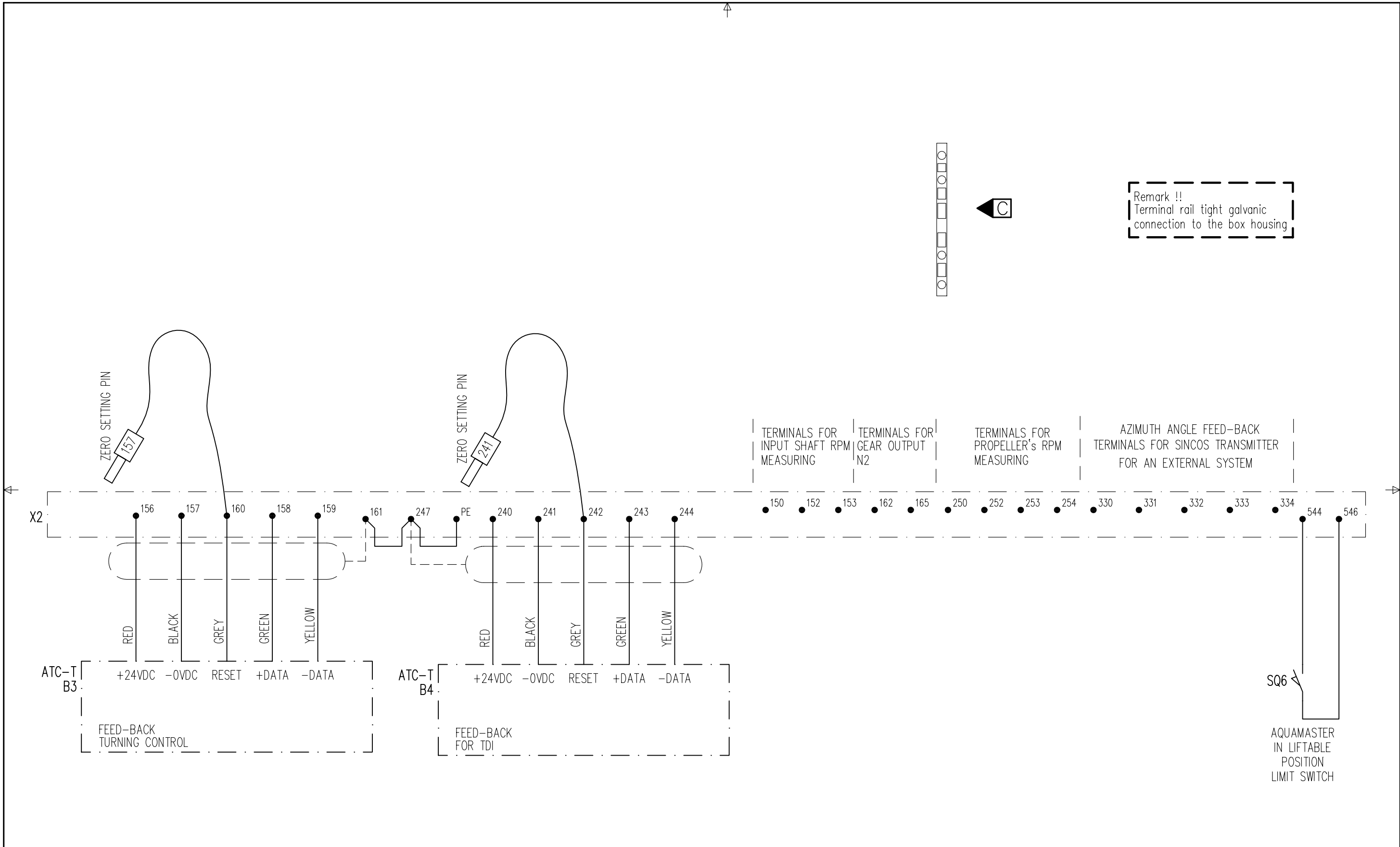
W

PLOTDATE: 03.04.2008 E

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Approved
ERNI
Checked
TKH

Drawn	17.7.2001	JAJA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	kg	Scale	7 4 5 2 2 8 9			- 0 - 0 0 1		0 1	/ 0 1	U



C	040430	HAVA	SSI	ERNI	Row terminal type changed
B	031208	HAVA	SSI	TKH	Added earth terminal and 150
A	030514	HAVA	JAJA	TKH	Earthing of B4's cable screen
Rev	Date	Drawn	Approved	Checked	Revision text

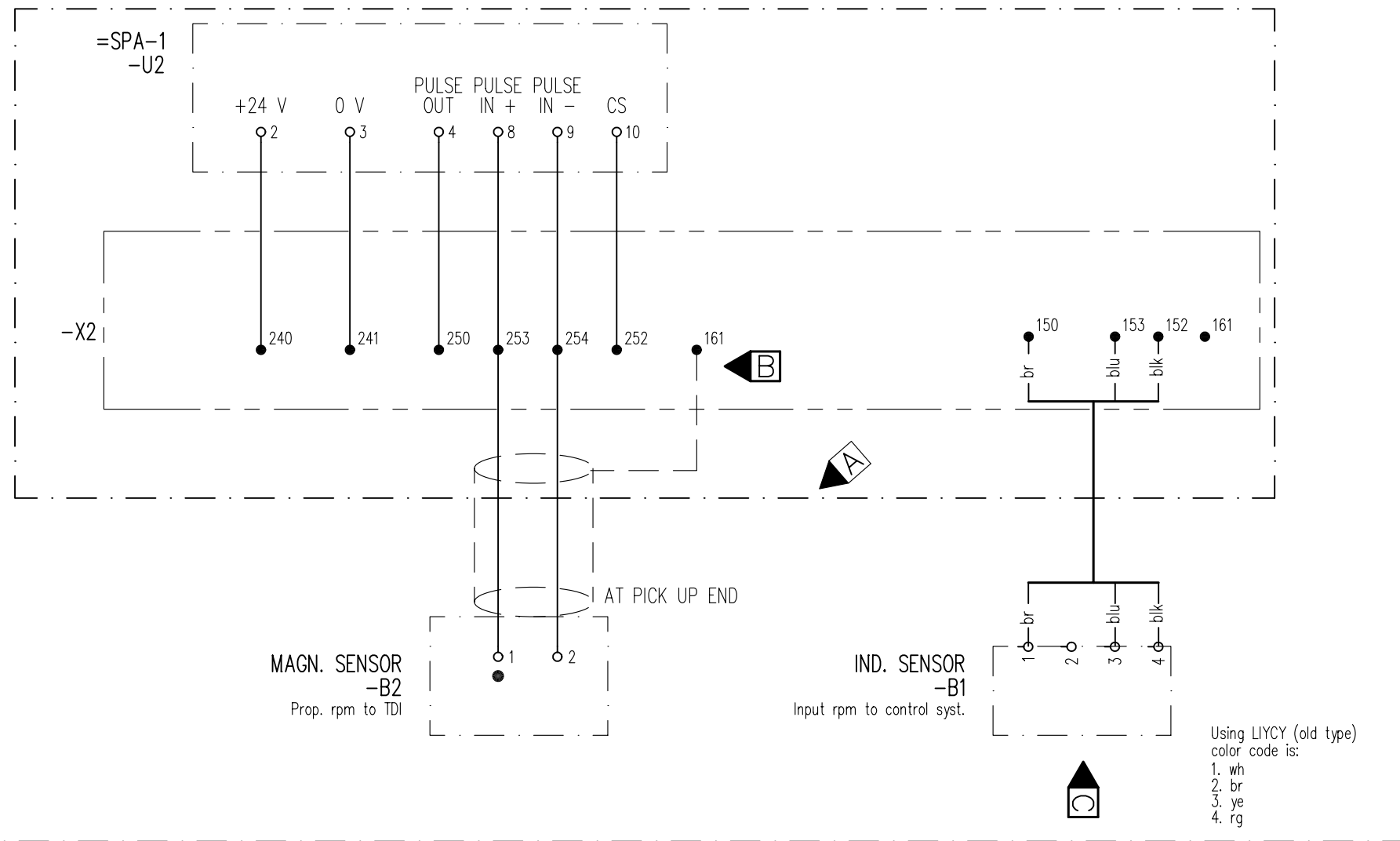
Languages:
U

		Rolls-Royce		AQUAPILOT CONTROL SYSTEM						
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Drawn	25.2.2002	HAVA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight kg	Scale		7357311 - C - 001			01 / 01		U		

PLD/DATE: 30.04.2004 E

THRUSTER UNIT

TRANSMITTER BOX



4

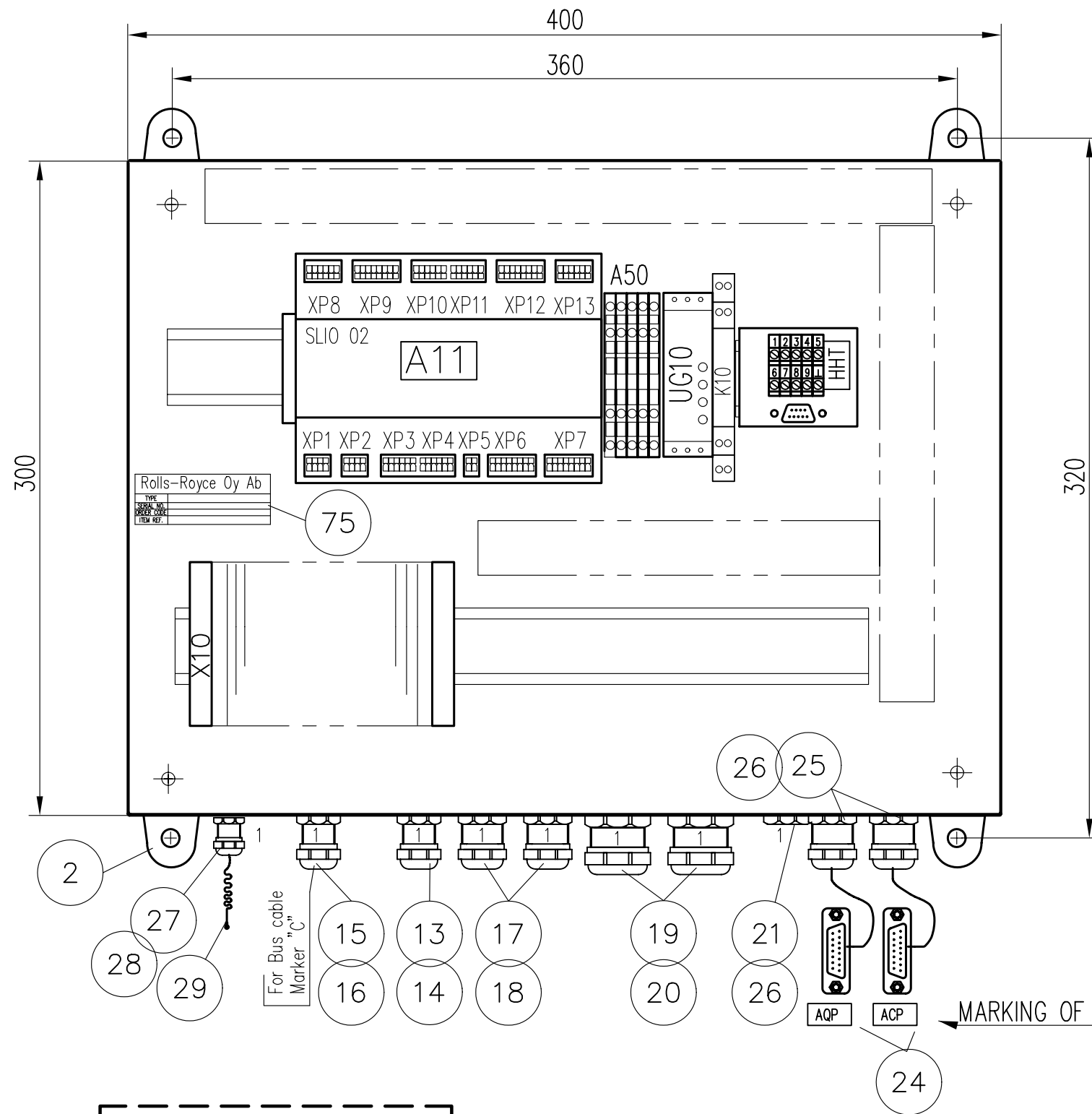
4

Languages:
U

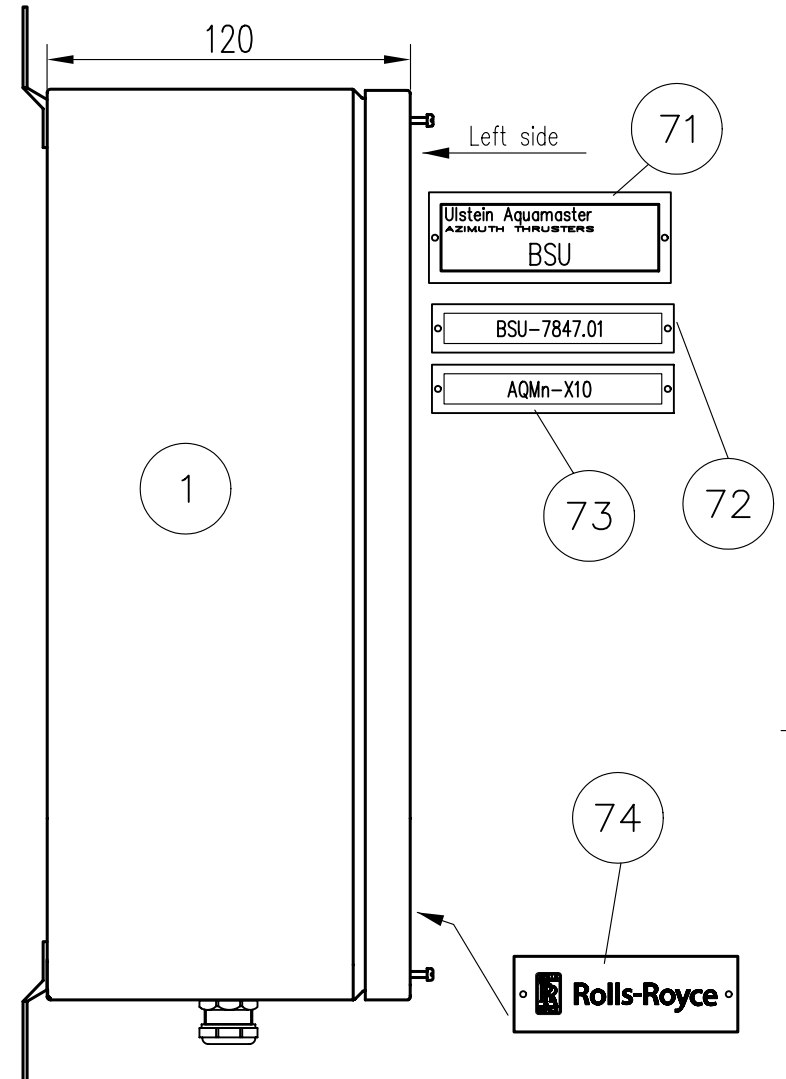
		AQUAPILOT CONTROL SYSTEM Transmitter box Connections of SPA-1 Unit wiring diagram		W
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		Checked TKH		
Drawn 6.11.2001 KIKO	Group Size Serial number	Rev	Variant	Page Total pages Long
Weight kg	Scale	7356296 - C - 003		01 / 01
				U

C	071011	JAJA	AASU	THKH	New type cable for B1 changed
B	031208	HAVA	SSI	TKH	Connection of B2's cable shield
A	030514	JAJA	JAJA	TKH	Connection of cable screen
Rev	Date	Drawn	Approved	Checked	Revision text

PLOTDATE: 11.02.07 E



Component rail to be mounted directly onto the bottom of the box.
 Rail fitting to have galvanic connection to the bottom of the box.



Standard colour RAL 7032 (light grey)
 IP44

Lang U				AQUAPILOT CONTROL SYSTEM				DBL	
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				Checked HAVA		BSU7847.01; (FP_o-o)			
						Assembly drawing		K	
Drawn	17.11.2003	JUYL	Group	Size	Serial number	Rev	Variant	Page	Total pages
Weight	6	kg	Scale	1:2,5	7 3 5 7 8 4 7	- 0 - 0 0 1	0 1	/ 0 2	U

PLOTDATE: 10.01.2008 E

ROW TERMINAL ASSEMBLY

X10
001
001
003
003
005
006
007
008
015
020
021
022
023
028
029
r1
r2
r3
r4
r5
R2.1
⏏
⏏
⏏

3

4

6

5

A50
11 → 15
12 → 16
13 17
14 18
10 10

8

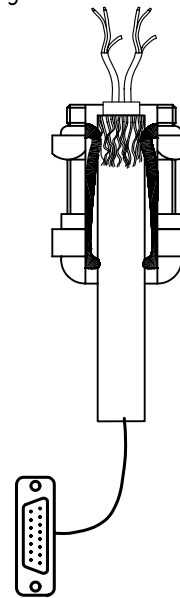
9

10

11

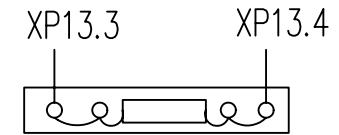
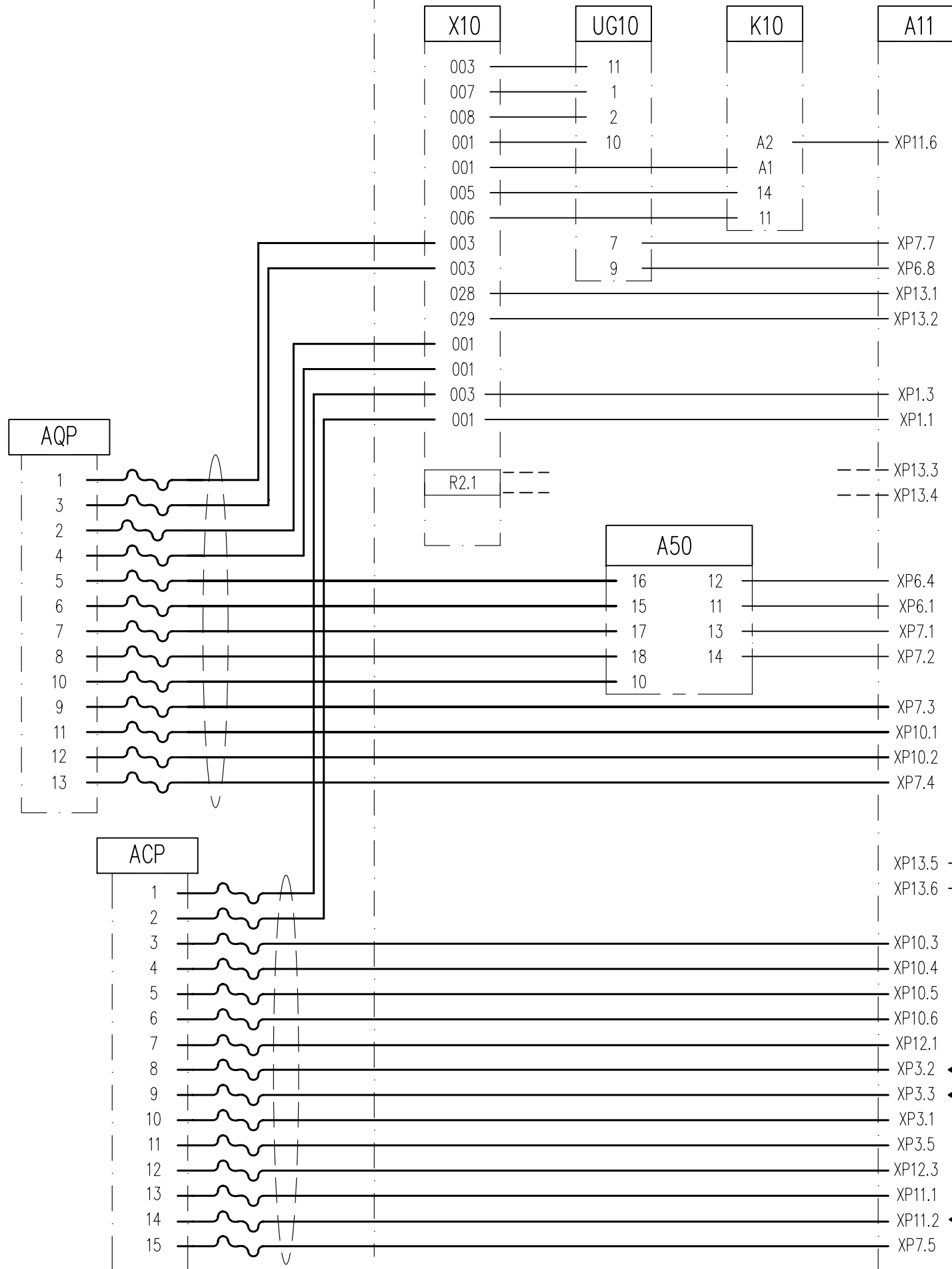
12

Shield of panel cables
to be earthed
through EMC cable glands.



Lang

	Rolls-Royce		AQUAPILOT CONTROL SYSTEM BRIDGE SLIO UNIT BSU7847.01; (FP_o-o)				DBL
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Drawn 17.11.2003 Weight kg	JULY Scale 1:2,5	Group Size Serial number 7 3 5 7 8 4 7	Rev - 0 -	Variant 001	Page 02 / 02	Total pages U	Long

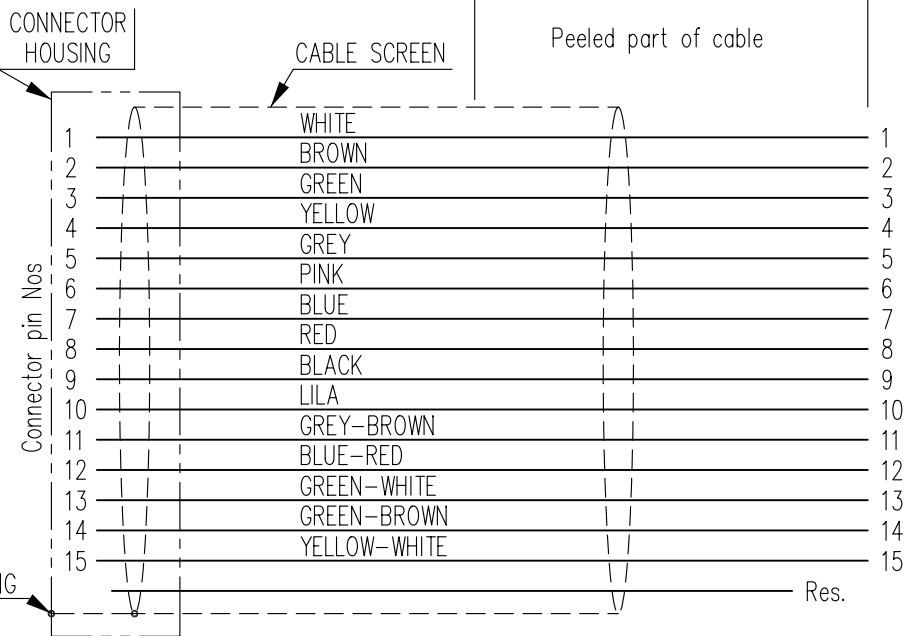
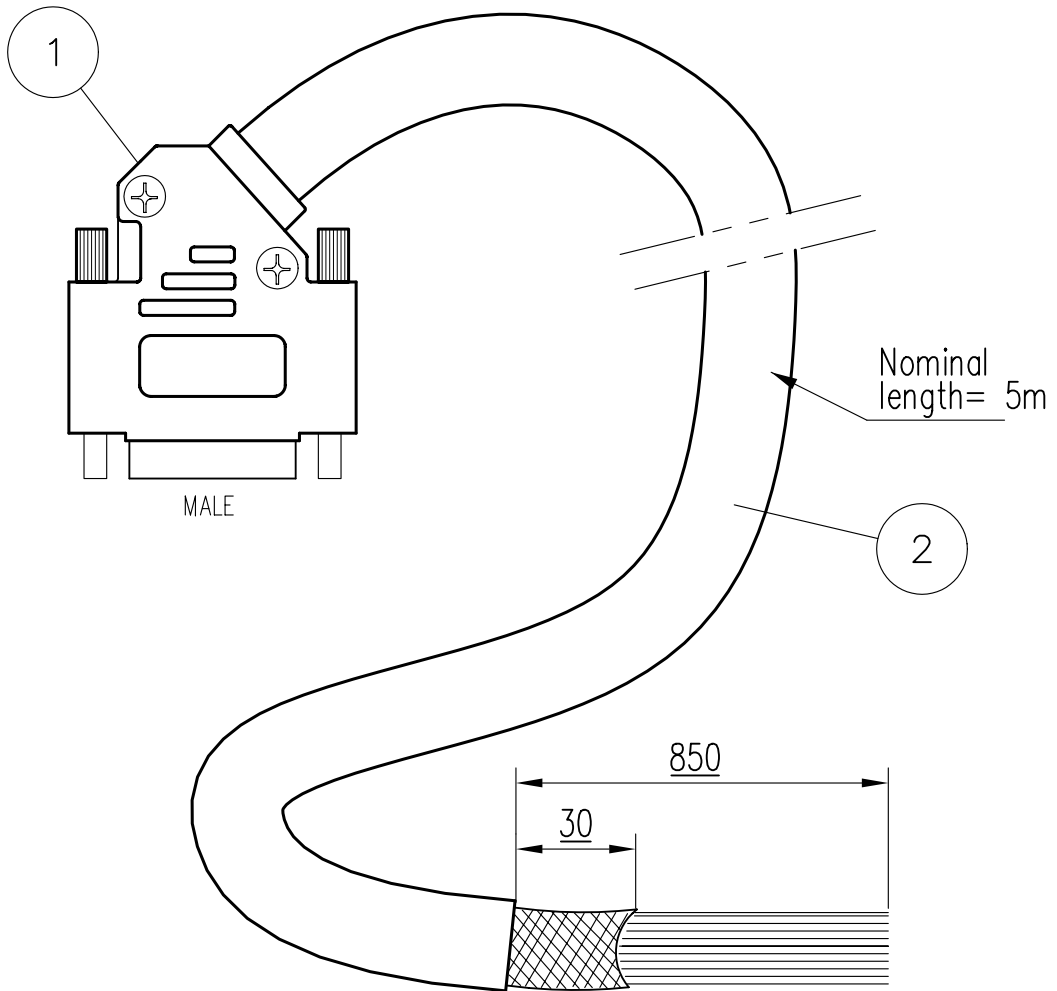


Resistor End Terminal R2.1
Terminal has been connected only if data cables are supplied by RR.

B WIRING of SLIOs with 0.5 mm² .
All other wiring 1.0 mm²
Notice external plugged cables

D	071128	MALO	JAJA	ESKO	Connection corrected
C	070906	MALO	JAJA	AASU	Added additional FIFI connection
B	040216	JUYL	HAVA	YRMI	Input and cross section of wiring changed
A	040121	YRMI	JAJA	HAVA	Changed terminal number
Rev	Date	Drawn	Approved	Checked	Revision text
				AQUAPILOT CONTROL SYSTEM Bridge Slio Unit BSU7847.01 Unit wiring diagram	
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Drawn 17.11.2003 Weight kg		Scale Scale		Group Size Serial number 7 3 5 7 8 4 8 - D - 001	
Rev 01		Variant 01		Page 01 / 01	
Total pages 01		Lang U		FP_o-o W	

PLOTDATE: 26.11.2007 E



ng
U



Rolls-Royce

AQUAPILOT CONTROL SYSTEM
Cable with connector
Aquapilot & Control panels
Assembly drawing

5m

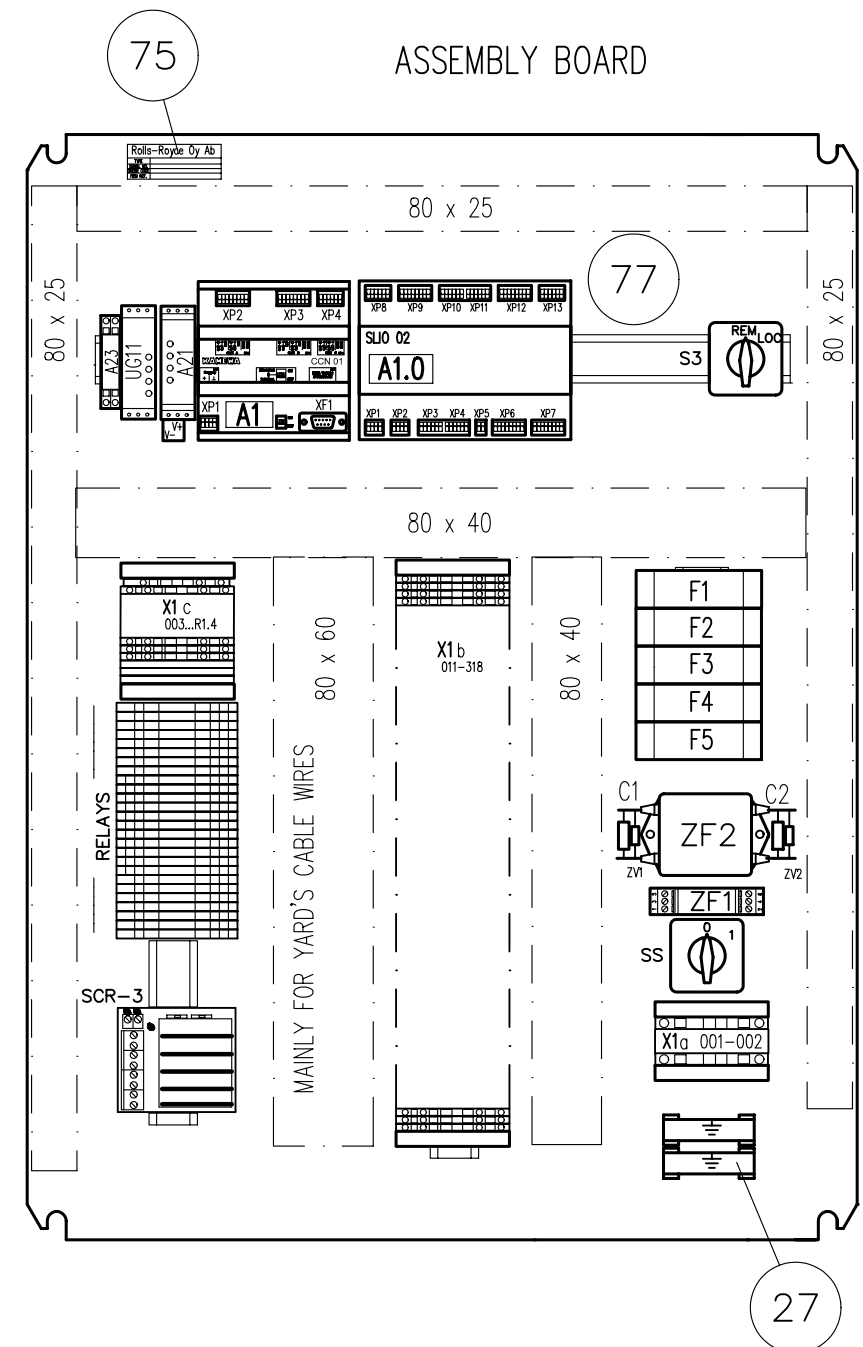
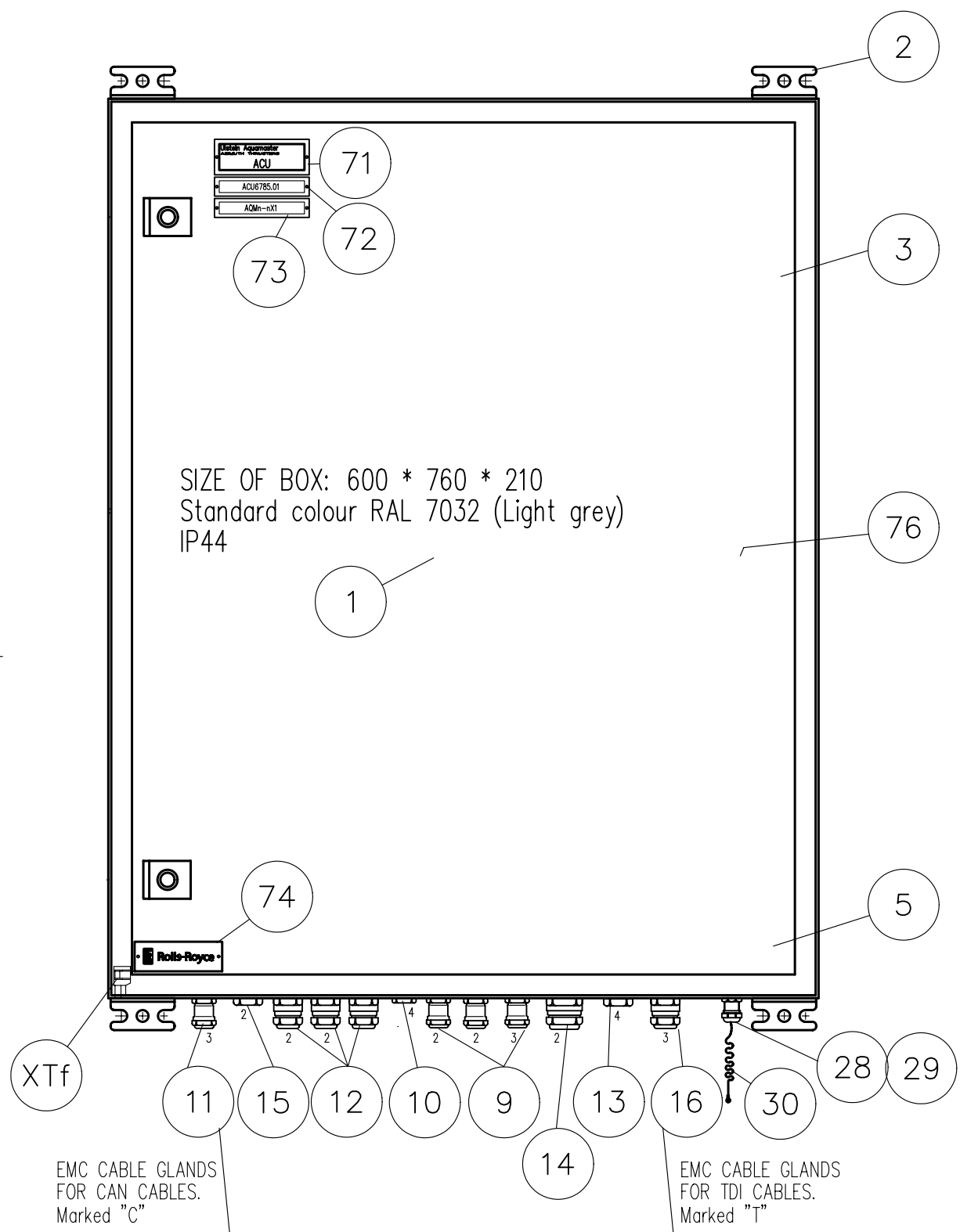
K

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Approved
JAJA
Checked
TKH

Drawn	19.9.2003	HAVA	Group	Size	Serial number	Rev	Variant	Page	Total pages	Long
Weight kg	Scale		7 4 5 2 4 6 3			- 0 - L 0 5		0 1 / 0 1		U

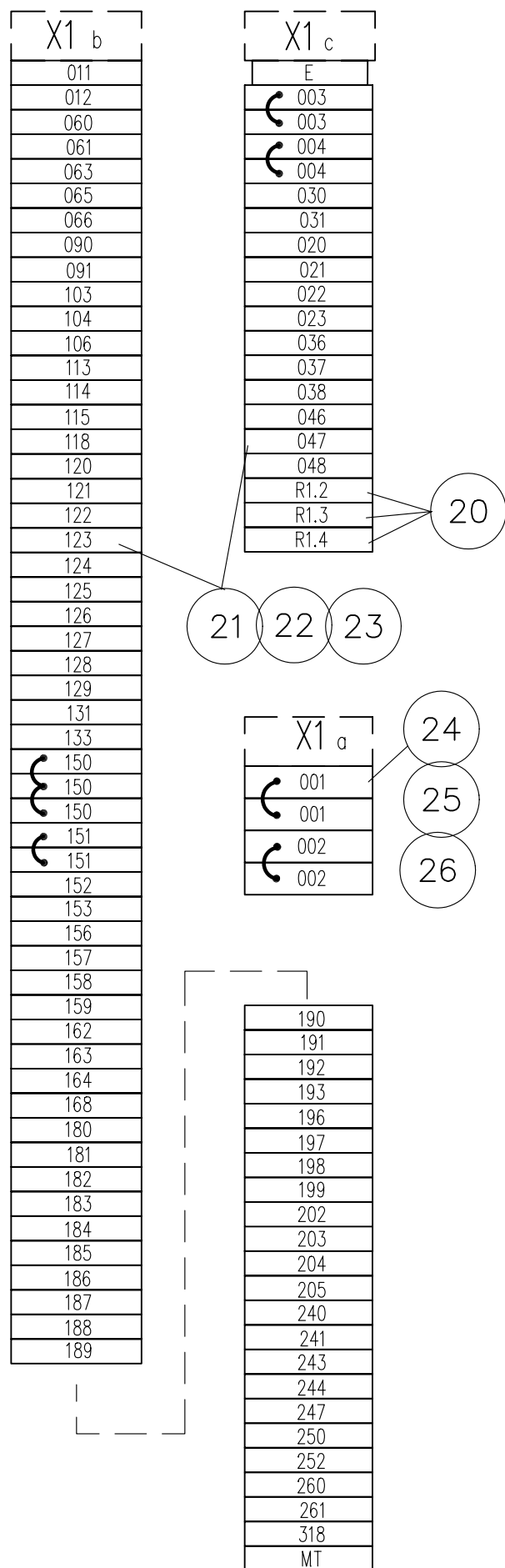
PLOTTDATE: 24.09.2003 E



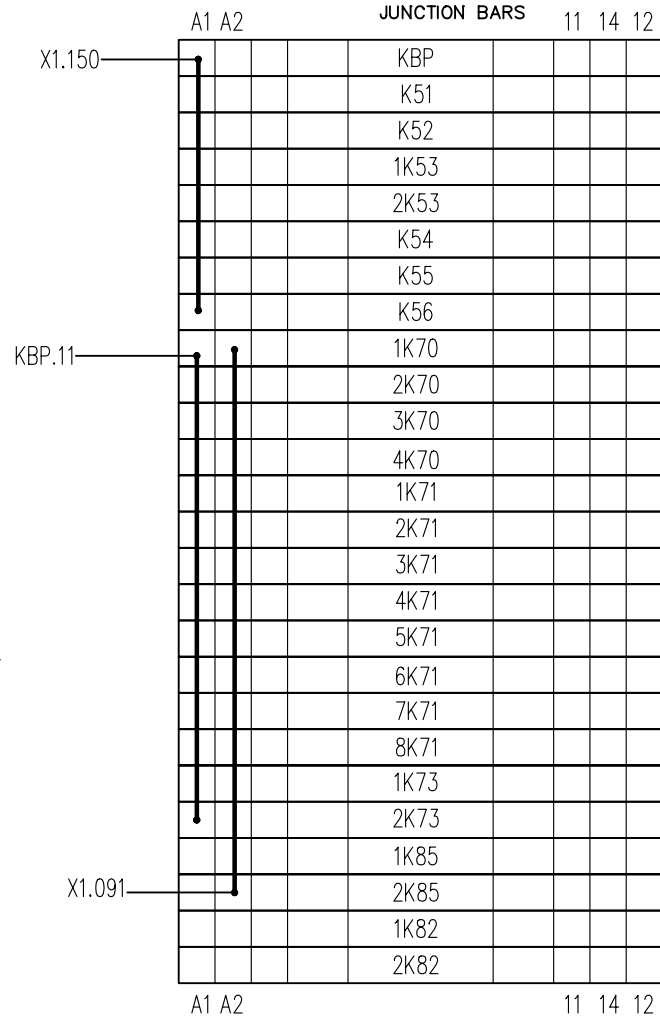
A	040914	JUJL	JAJA	YRMI	Assembly of Xtf plug
Rev	Date	Drawn	Approved	Checked	Revision text
			AQUAPILOT CONTROL SYSTEM Aquamaster Control Unit ACU6785.01; (FP_o-o) Assembly drawing		
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Drawn	17.11.2003	JUJL	Group	Size	Serial number
Weight	39	Scale	1:5	7356785 -A-001	
			Rev	Variant	Page
					01 / 02
			Lang	U	DBL
					K
			Page	Total pages	Long
					U

PLOTDATE: 14.09.2004 E

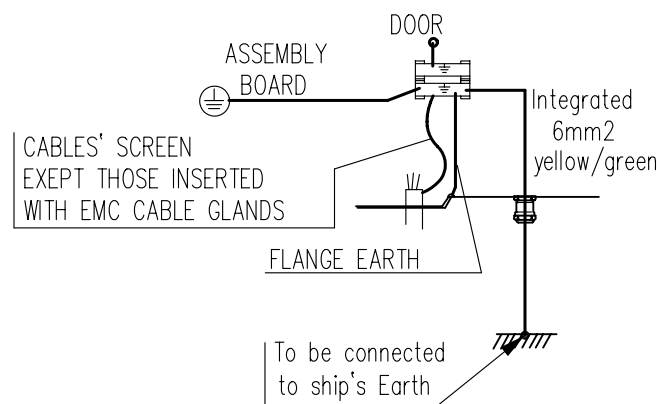
ROW TERMINALS



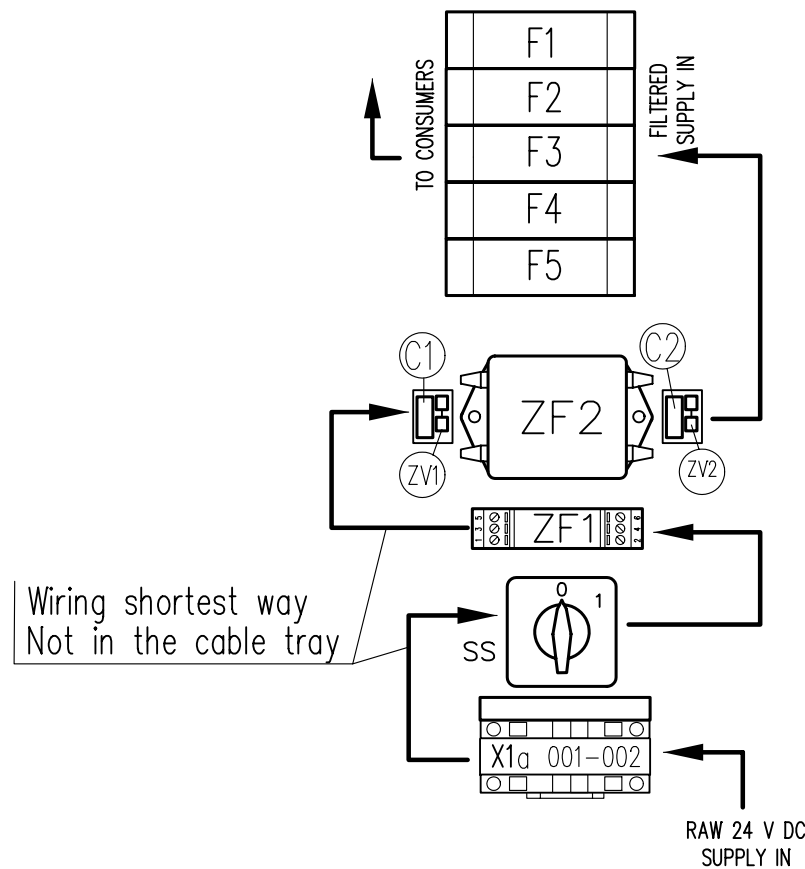
RELAYS JUNCTION BARS



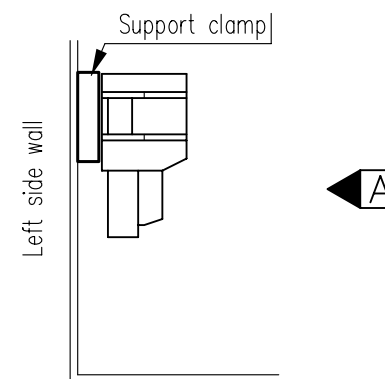
EARTH CONNECTION



WIRING ROUTING REMARK ARROWS



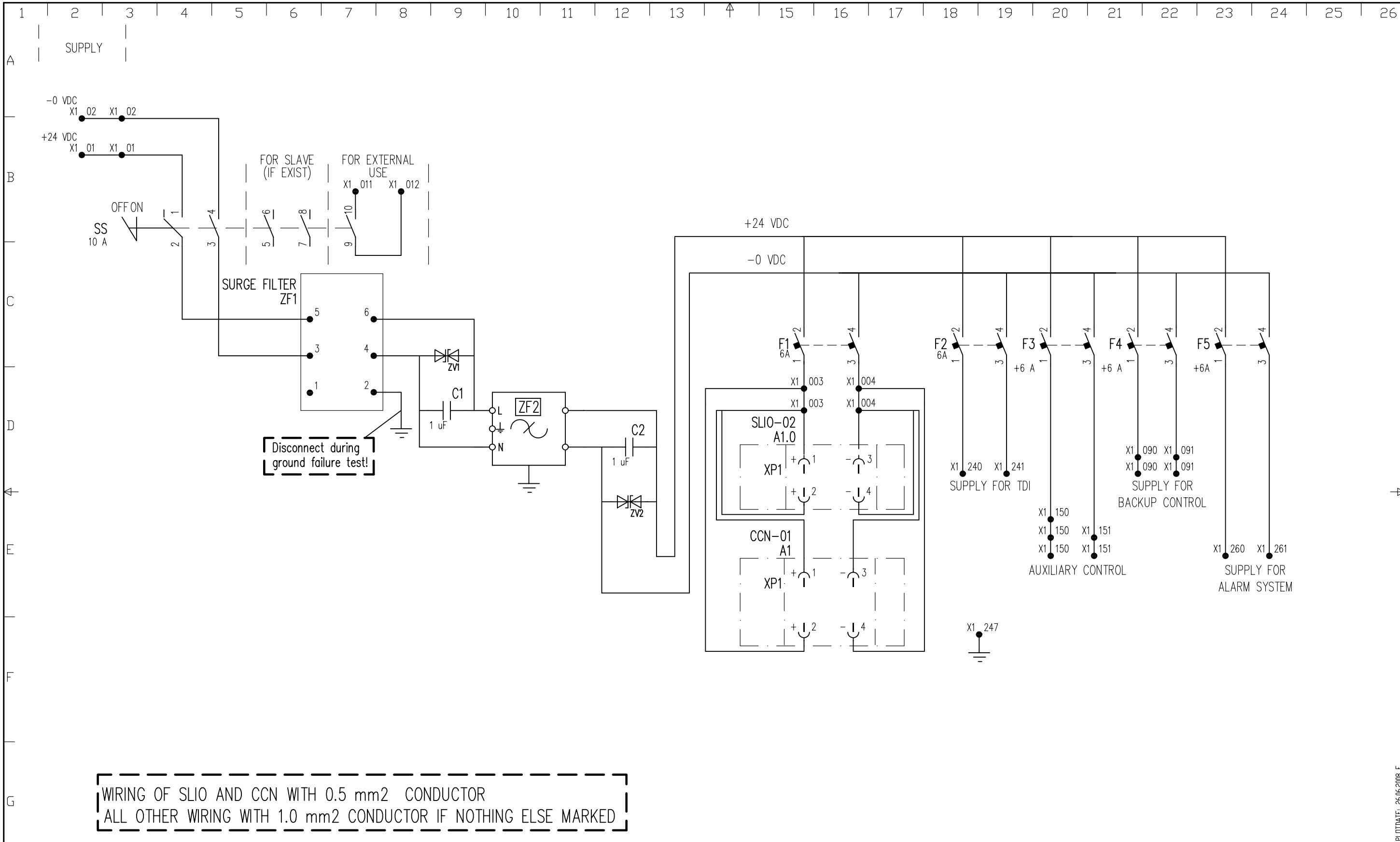
Assembly of plug XTf



Lang U

		AQUAPILOT CONTROL SYSTEM Aquamaster Control Unit ACU6785.01; (FP_o-o)			DBL
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Checked HAVA		K			
Drawn 17.11.2003 Weight kg 39	JULY Scale 1:5	Group Size Serial number 7 3 5 6 7 8 5	Rev Variant - A - 001	Page Total pages 02 / 02	Long U

PLTDATE: 14.09.2004 E



WIRING OF SLIO AND CCN WITH 0.5 mm² CONDUCTOR
 ALL OTHER WIRING WITH 1.0 mm² CONDUCTOR IF NOTHING ELSE MARKED

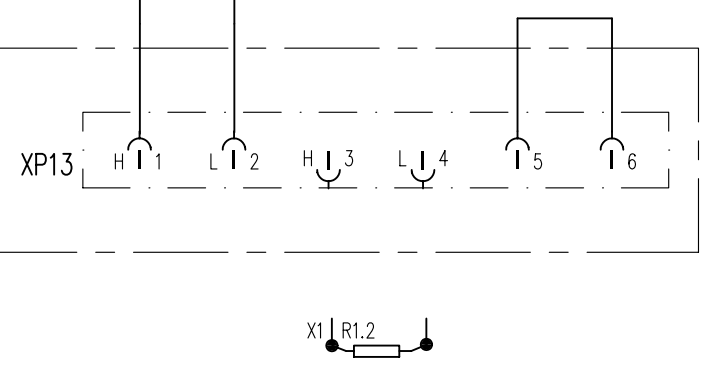
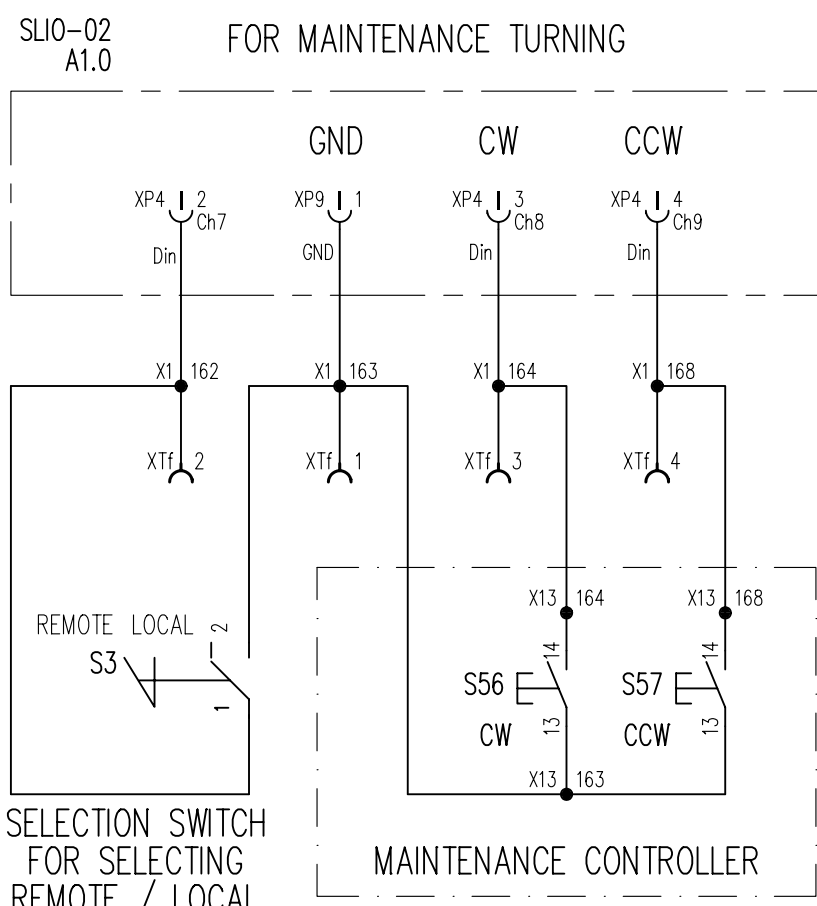
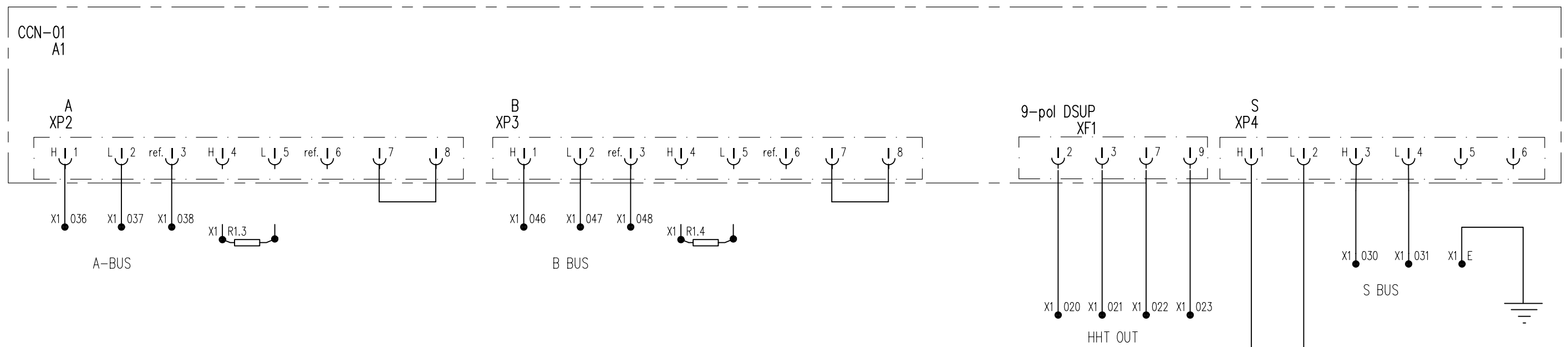
Languages:
U

		AQUAPILOT CONTROL SYSTEM				DBL
		Aquamaster Control Unit				
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		Checked AASU	Unit wiring diagram			
Drawn	2.5.2008	MALO	Group	Size	Serial number	Rev
Weight		Scale	7360048-A-001			Page
			01 / 07		Lang	U

PLOTDATE: 26.06.2008 E

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

A
B
C
D
E
F
G
H



Language: U

Rolls-Royce

AQUAPILOT CONTROL SYSTEM
Aquamaster Control Unit
ACU6785.01; (FP_o-o)
Unit wiring diagram

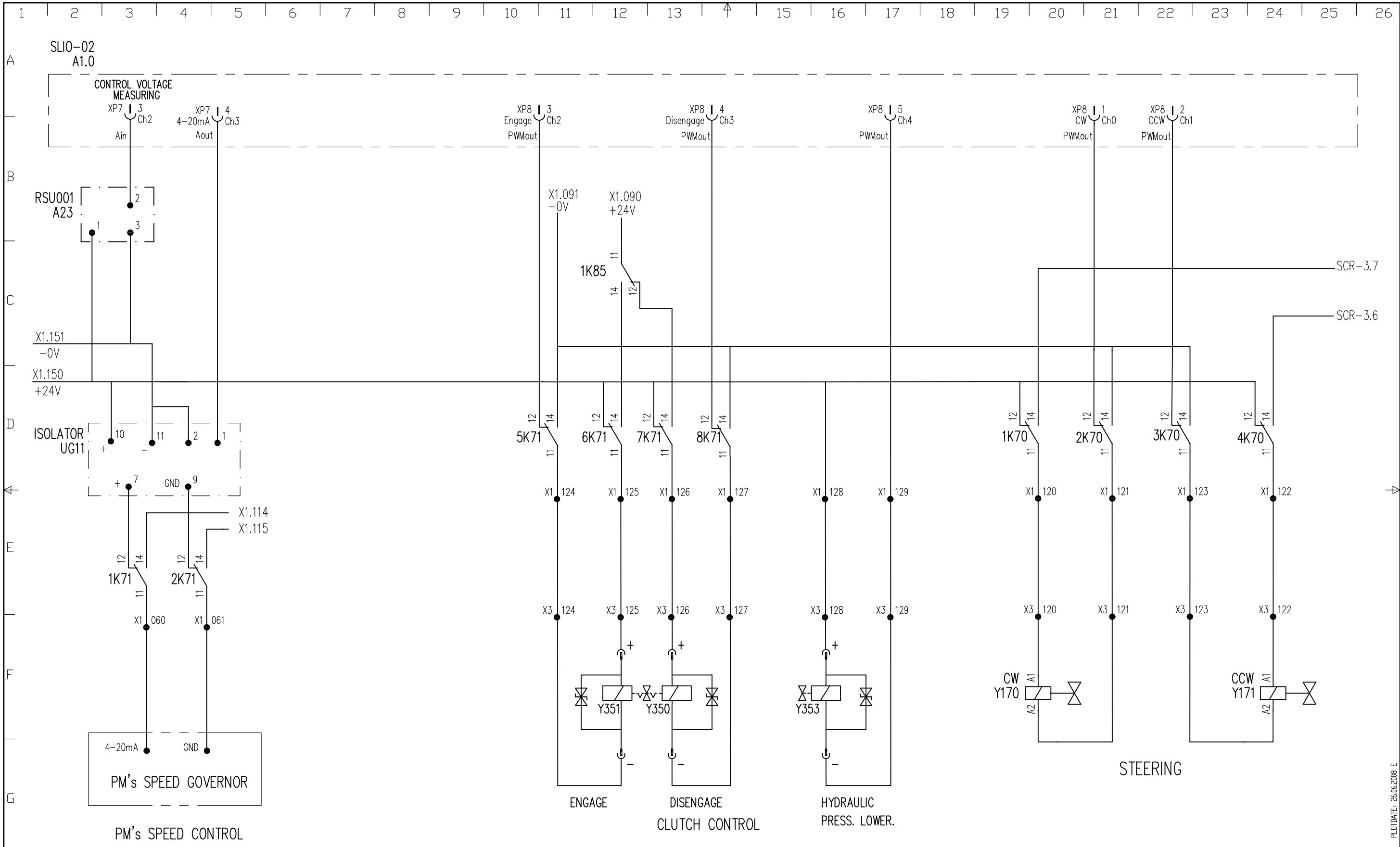
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Approved JAJA
Checked AASU

Drawn	2.5.2008	MALO	Group	Size	Serial number	Rev	Variant	Page	Total pages	Lang
Weight	Scale		7360048-A-001				02/07		U	

DBL
W

PLOTDATE: 26.06.2008 E

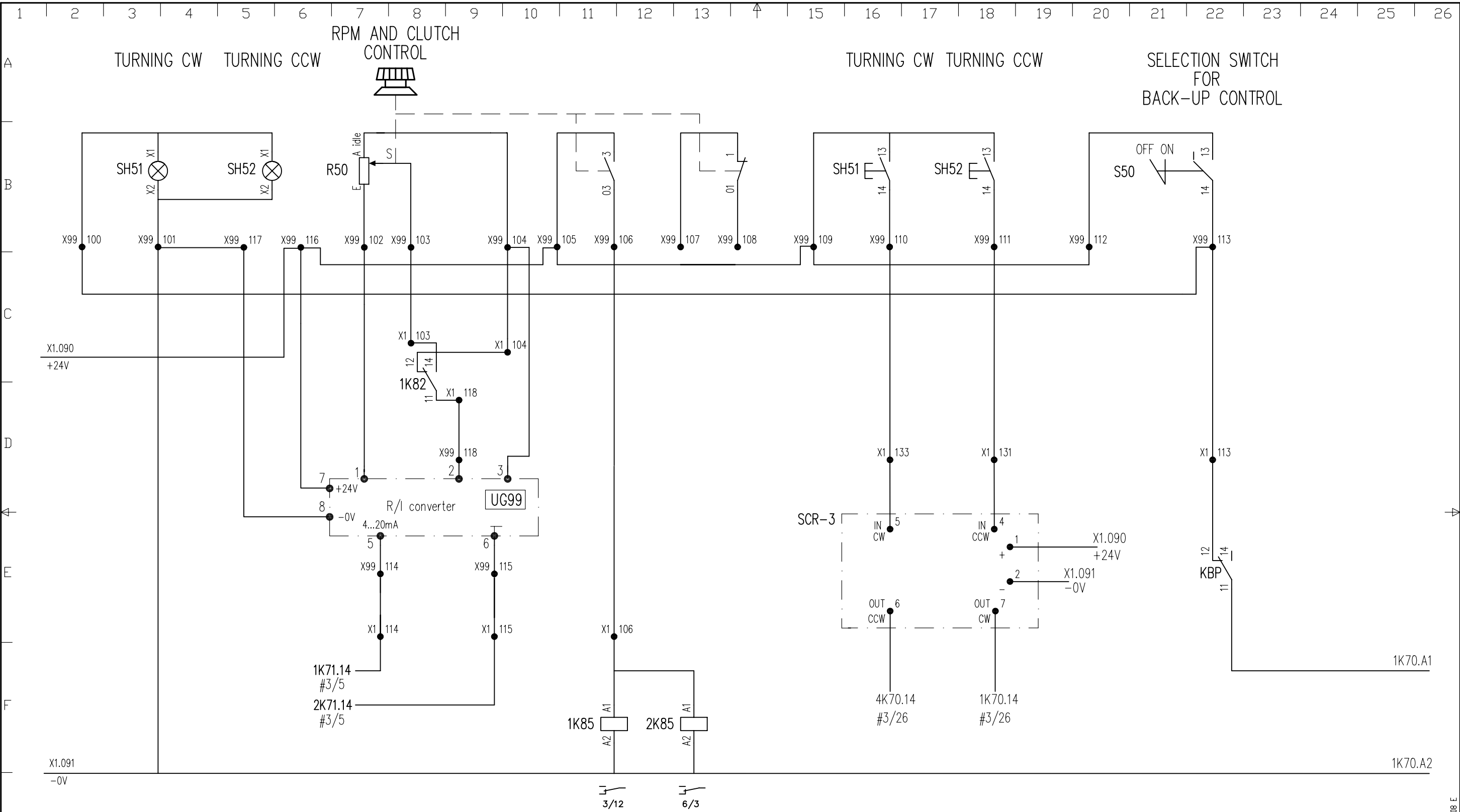


NOTICE RELAYS' JUNCTION BARS
AT THE ASSEMBLY DWG

Languages: U

Rolls-Royce		AQUAPILOT CONTROL SYSTEM Aquamaster Control Unit ACU6785.01; (FP_o-o) Unit wiring diagram		DBL W
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Drawn 2.5.2008 MALO	Group Size Serial number	Rev Variant	Page Total pages	Lang
7360048-A-001		03/07		U

PLOTDATE: 26.06.2008 E



PLOTDATE: 26.06.2008 E

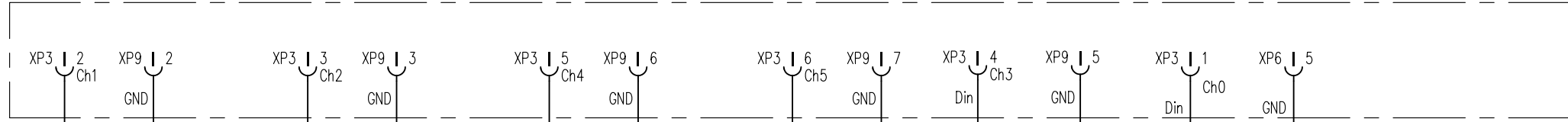
Languages: U

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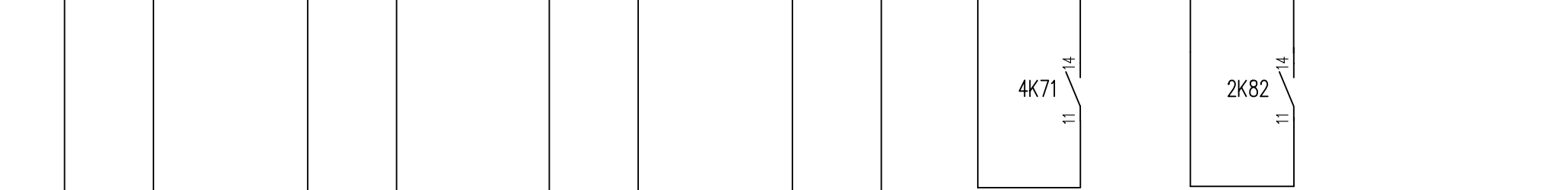
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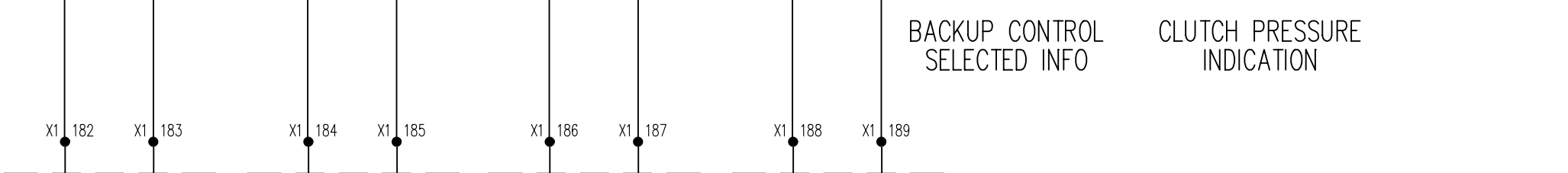
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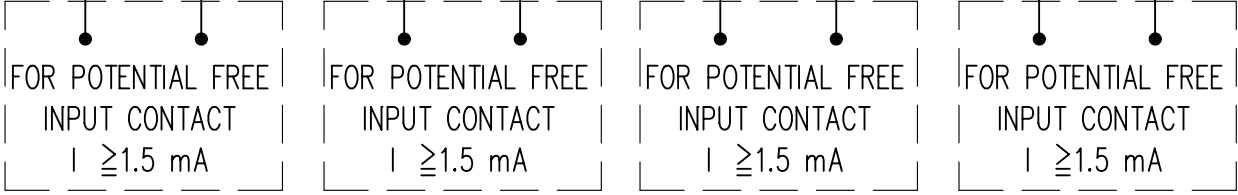
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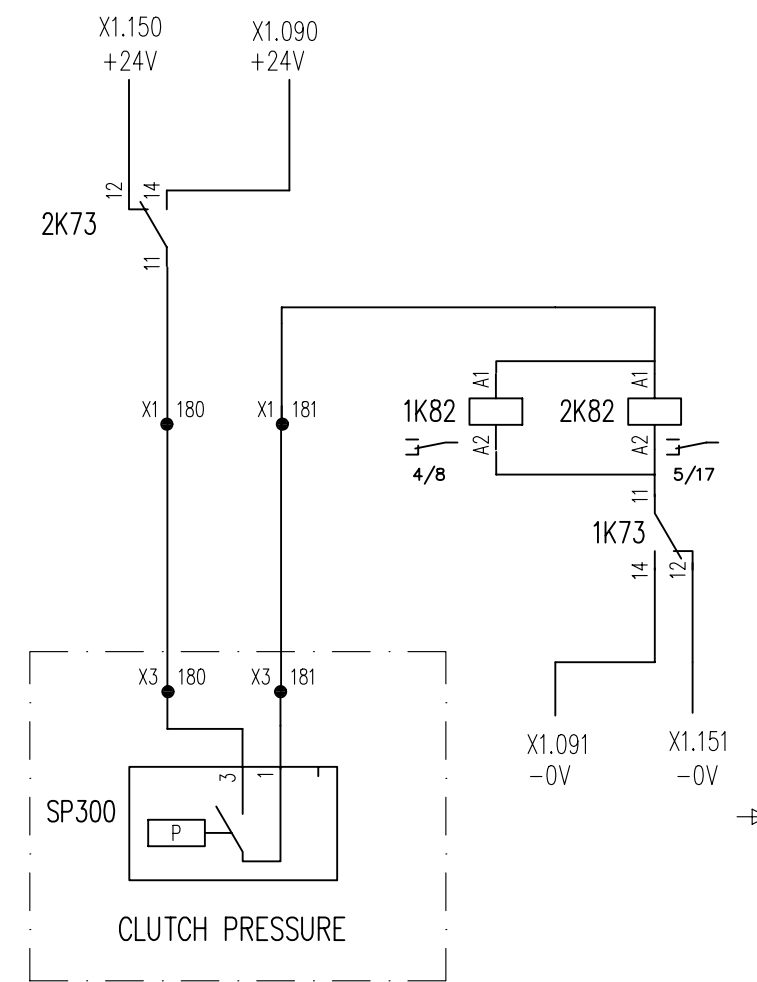
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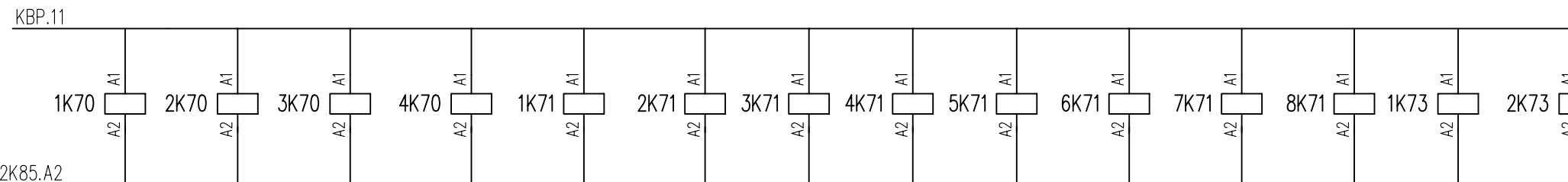
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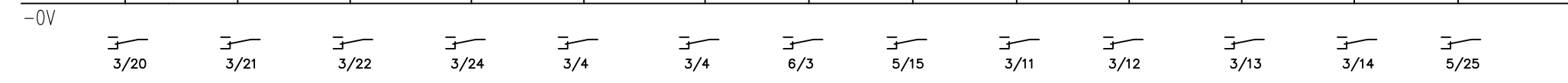
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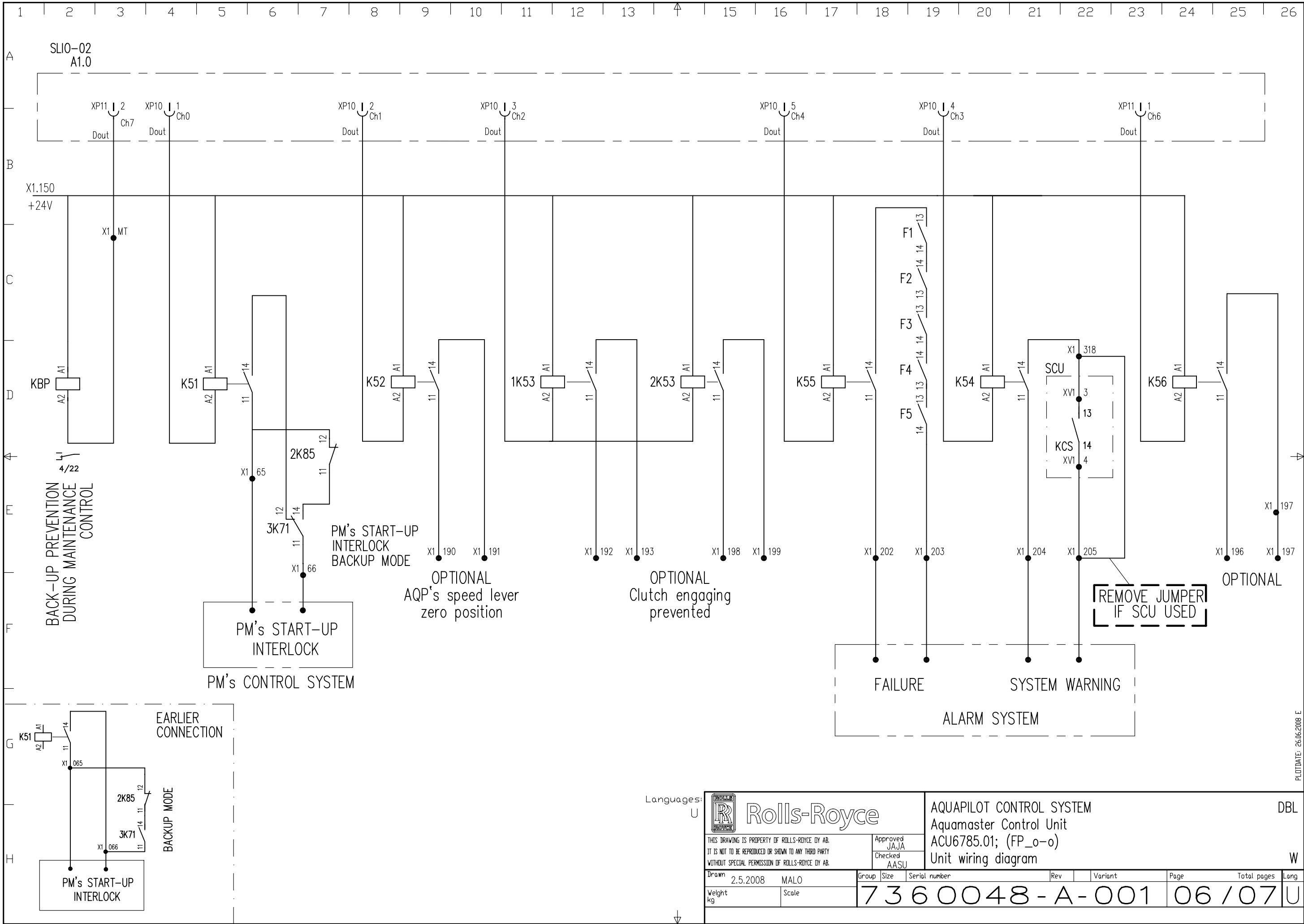


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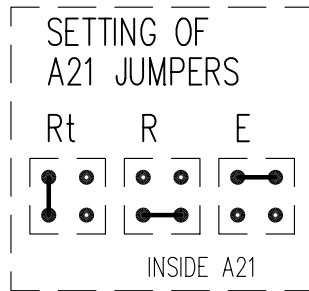
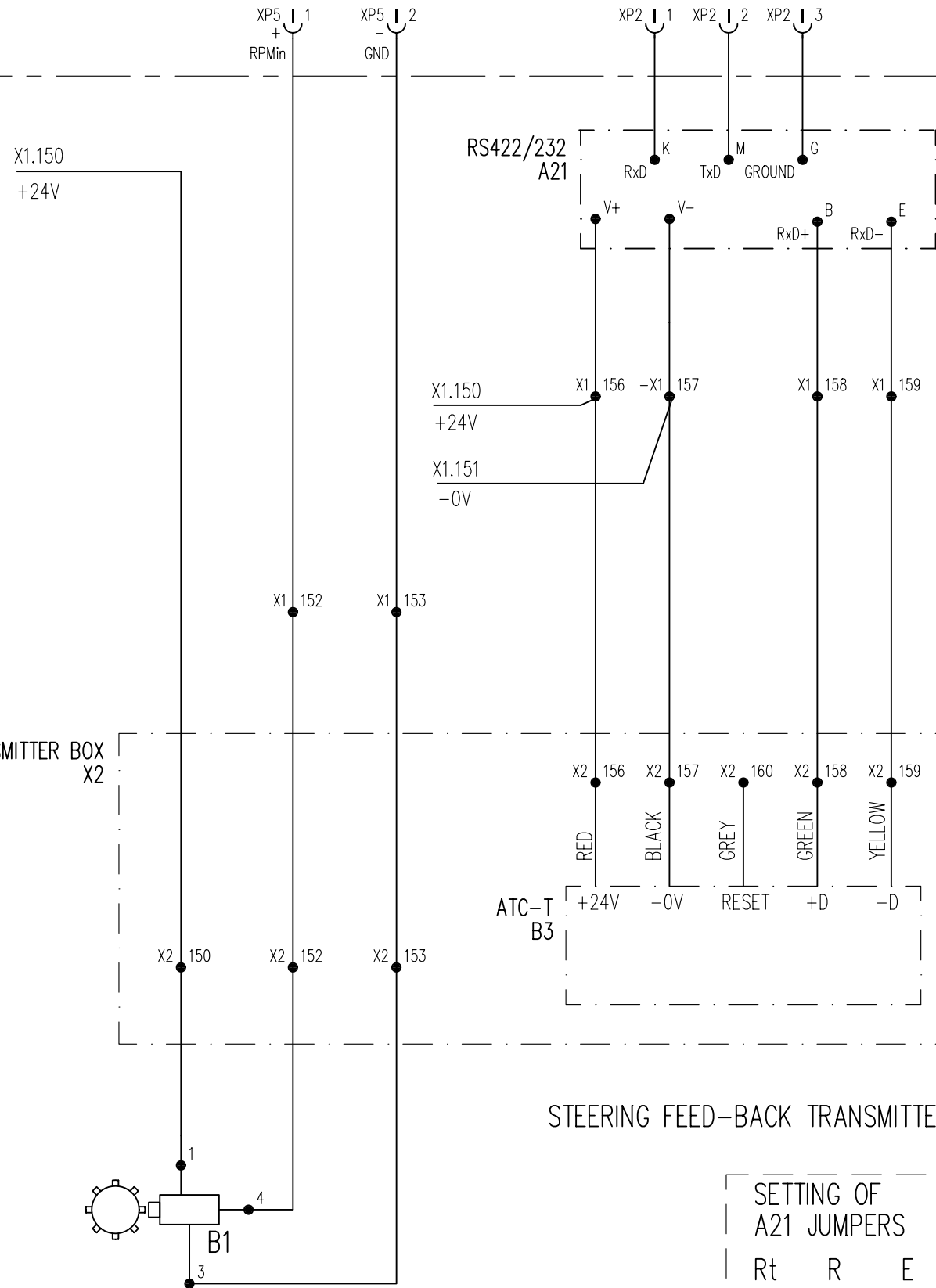


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