

Certificate of conformity with test report**Customer's****Order number****Substation****Project number****Equipment type**

TH7m/BLINDE

Test report number

100558 / 7150080

Routine test list

7150728

Standards

IEC

Other information(Reference(s) of the waivers granted):

We certify that apart from the exceptions and waivers listed, the supply in question has been manufactured according to the technical specifications of the customer's contract, order or sub-order and that, after all inspections and tests have been performed, satisfies in every respect the relevant special specifications, drawings, standards and regulations in force.

A	22/01/2007	EDITION INITIALE	BILLOUD	AQFAB	
Index	Date	Modifications	Name/Signatu	Function	Archive
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Equipment declared conform

Frequency	50	Hz	Current			Pressure		
Voltage / Current			In Switchgear	2000	A	PN Circuit breaker	0,63	MPa
Nominal :	130	kV	In Busbar	2500	A	CR Circuit breaker	0,6	MPa
Auxiliary Circuit breaker :	110	Vcc	In Coupling	2500	A	BP Circuit breaker	0,58	MPa
Auxiliary Switchgear :	110	Vcc	In Isolating switch	0	A	DI Circuit breaker	0	MPa
Motor Circuit breaker :	110	Vcc	Icc Earthing switch	31,5	kA	PN Other devices	0,63	MPa
Motor Load break switch :	0	Va	Icc Circuit breaker	31,5	kA	CR Other devices	0,6	MPa
Motor Other devices :	110	Vcc		3	s	BP Other devices	0,58	MPa
Heating Circuit breaker :	230	Va		3	s	DI Other devices	0	MPa
Heating Switchgear :	230	Va				NB : our dielectric test are carried out at the SF6 2nd alarm level pressure (BP)		

Dispatch section no	Item no.	Equipment type	Serial number	Inspection date	Nbr of pages
100558-010 E01 INCOMING FEEDER	DOUBLE JDBARRE	Bay 51219100A1	TRV200700256	20/02/2007	4 - 4
		Circuit breaker with mechanical operating mechanis Q01	DJB200700258	13/02/2007	5 - 6
		Combined disconnecter earthing sw itch Q20	SCM200700257	01/02/2007	7 - 7
		Combined disconnecter earthing sw itch Q90	SCM200700260	31/01/2007	8 - 8
		Disconnecter Q10	SEC200700259	01/02/2007	9 - 9
		Earthing sw itch H.S. Q80 HS	SRT200700273	02/02/2007	10 - 10
100558-020 E02 OUTGOING FEEDER	DOUBLE JDBARRE	Bay 51219100A2	TRV200700274	15/02/2007	11 - 11
		Circuit breaker with mechanical operating mechanis Q01	DJB200700277	15/02/2007	12 - 13
		Combined disconnecter earthing sw itch Q20	SCM200700276	02/02/2007	14 - 14
		Combined disconnecter earthing sw itch Q90	SCM200700279	02/02/2007	15 - 15
		Disconnecter Q10	SEC200700278	02/02/2007	16 - 16
		Earthing sw itch H.S. Q80 HS	SRT200700275	07/02/2007	17 - 17
100558-021 E02 SUB UNIT	UT	Shipping unit 51219100B1	UT_200700313	13/02/2007	18 - 18

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Equipment declared conform Continuation

	UT	Shipping unit 51219100B2	UT_200700339	13/02/2007	19 - 19
100558-030 E03 BUS COUPLER	DOUBLE JDBARRE	Bay 51219100A3	TRV200700340	19/02/2007	20 - 20
		Circuit breaker w ith mechanical operating mechanis Q01	DJB200700350	19/02/2007	21 - 22
		Combined disconnecter earthing sw itch Q12	SCM200700351	07/02/2007	23 - 23
		Combined disconnecter earthing sw itch Q11	SCM200700358	08/02/2007	24 - 24
		Earthing sw itch Q25	STL200700357	07/02/2007	25 - 25
		Earthing sw itch Q15	STL200700368	08/02/2007	26 - 26
100558-040 E04 RESERVE	DOUBLE JDBARRE	Bay 51219100A4	TRV200700453	26/02/2007	27 - 27
		Circuit breaker w ith mechanical operating mechanis Q01	DJB200700456	26/02/2007	28 - 29
		Combined disconnecter earthing sw itch Q20	SCM200700455	08/02/2007	30 - 30
		Combined disconnecter earthing sw itch Q90	SCM200700458	12/02/2007	31 - 31
		Disconnecter Q10	SEC200700457	08/02/2007	32 - 32
		Earthing sw itch H.S. Q80 HS	SRT200700454	12/02/2007	33 - 33

Inspection date :			
For approval	Signature	For conformity	Signature
The customer's representative		BILLLOUD ALAIN The inspection Manager	

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Workshop routine test report for Bay

Serial number : TRV200700256

Type : Bay 51219100A1

Diagram number : Index :

Floor space plan number : Index :

			Phase	1	2	3
Acceptable Values : Value - Unit						
04	Main circuit resistances					
	Resistance R1	≤209 μΩ		104,6		
	Resistance R1	≤204 μΩ			105,1	109,1
	Resistance R2	≤191 μΩ		155,8	152,7	
	Resistance R2	≤200 μΩ				158,3
	Resistance R4	≤174 μΩ		140,5	137,5	
	Resistance R4	≤183 μΩ				144,5
05	Tightness test					
	Helium	≤10-7 mbar.l/s			OK	
06	Dielectric tests					
	Earthing switch open at	275 KV		OK	OK	OK
	Main circuit (Open and Close) at	275 KV		OK	OK	OK
	Partial discharges level in pC at	174 KV	≤5 pC	0,8	0,8	2,6
10	Documents attached with the equipment					
	Current transformer				30018520	

Inspection date : 20/02/2007	
For approval	Signature
	For conformity
	MARA CAS Christian
The customer's representative	The quality controller

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Workshop routine test report for Circuit breaker with mechanical operating mechanis

Serial number : DJB200700258
mechanis Q01

Type : Circuit breaker with mechanical operating

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3	
Acceptable Values : Value - Unit						
01	Mechanical operating					
	At maximum voltage	10 CO 121 Vcc		OK		
	At minimum voltage	10 CO 93.5 Vcc		OK		
	At nominal voltage	80 CO 110 Vcc		OK		
03	Operating times					
	<u>For mechanical drive</u>					
	<u>at nominal voltage</u>					
	Opening time	110Vcc	28±4 ms	27,2	27,2	27,2
	Closing time	110 Vcc	72±10 ms	73,4	73,2	73,3
	<u>and at maximal voltage</u>					
	Opening times	121Vcc	27±4 ms	26,6	26,7	26,5
	Closing times	121 Vcc	71±10 ms	72,5	72,3	72,5
	<u>and minimal voltage (opening)</u>					
	Opening times	93.5 Vcc	30±5 ms	31,5	31,5	31,4
	Closing times	93.5 Vcc	75±10 ms	74,9	74,7	74,9
04	Main circuit resistances					
	Resistance		≤60 μΩ	42,2	38,6	43,2
05	Tightness test					
	Helium	≤10-7 mbar.l/s		OK		
06	Dielectric tests					
	Wiring insulation at	2 KV		OK		

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Workshop routine test report for TH7m Continuation

Serial number : DJB200700258

Inspection date : 13/02/2007	
For approval The customer's representative	Signature AMIEUX Serge The quality controller

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Workshop routine test report for Disconnecter

Serial number : SEC200700259

Type : Disconnecter Q10

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
01	Mechanical operating				
	At maximum voltage	10 CO121VCC		OK	
	At minimum voltage	10 CO 93.5 VCC		OK	
	At nominal voltage	50 CO110VCC		OK	
	<u>Checking the drive</u>				
	Manuel operation			OK	
04	Main circuit resistances				
	Resistance	≤30 μΩ	18,2	20,6	18,8
06	Dielectric tests				
	Wiring insulation at	2 KV		OK	

Inspection date : 01/02/2007	
For approval	Signature
	For conformity
	DOMENECH Frederic
The customer's representative	The quality controller

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Workshop routine test report for Earthing switch H.S.

Serial number : SRT200700273

Type : Earthing switch H.S. Q80 HS

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
01	Mechanical operating				
	At maximum voltage	10 CO 121 Vcc		OK	
	At minimum voltage	10 CO 93.5 Vcc		OK	
	At nominal voltage	50 CO 110Vcc		OK	
	<u>Checking the drive</u>				
	Manuel operation			OK	
06	Dielectric tests				
	Wiring insulation at	2 KV		OK	

Inspection date : 02/02/2007	
For approval	Signature
	For conformity
	CA POGNA Jérôme
The customer's representative	The quality controller

Unit UIG	Quality assurance	100558	Page 10/33
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Workshop routine test report for Bay

Serial number : TRV200700274

Type : Bay 51219100A2

Diagram number : Index :

Floor space plan number : Index :

			Phase	1	2	3
Acceptable Values : Value - Unit						
04	Main circuit resistances					
	Resistance R1	≤175 μΩ		95,7		
	Resistance R1	≤170 μΩ			90,9	93,4
	Resistance R2	≤174 μΩ		138,7	133,9	
	Resistance R2	≤183 μΩ				142,6
	Resistance R3	≤175 μΩ		95,3		
	Resistance R3	≤170 μΩ			91,2	93,1
	Resistance R4	≤183 μΩ				142,8
	Resistance R4	≤174 μΩ		138,5	134,5	
05	Tightness test					
	Helium	≤10-7 mbar.l/s			OK	
06	Dielectric tests					
	Earthing switch open at	275 KV		OK	OK	OK
	Main circuit (Open and Close) at	275 KV		OK	OK	OK
	Partial discharges level in pC at	174 KV	≤5 pC	0,8	0,7	1,3
10	Documents attached with the equipment					
	Current transformer				30019814	

Inspection date : 15/02/2007	
For approval The customer's representative	Signature BILLOUD Alain-Jacques The quality controller
For conformity	

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Workshop routine test report for Circuit breaker with mechanical operating mechanism

Serial number : DJB200700277
mechanis Q01

Type : Circuit breaker with mechanical operating

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3	
Acceptable Values : Value - Unit						
01	Mechanical operating					
	At maximum voltage	10 CO 121 Vcc		OK		
	At minimum voltage	10 CO 93.5 Vcc		OK		
	At nominal voltage	80 CO 110 Vcc		OK		
03	Operating times					
	<u>For mechanical drive</u>					
	<u>at nominal voltage</u>					
	Opening time	110Vcc	28±4 ms	27,6	27,6	27,6
	Closing time	110 Vcc	72±10 ms	73,5	73,6	73,5
	<u>and at maximal voltage</u>					
	Opening times	121Vcc	27±4 ms	26,9	26,8	26,8
	Closing times	121 Vcc	71±10 ms	72,9	73	73
	<u>and minimal voltage (opening)</u>					
	Opening times	93.5 Vcc	30±5 ms	31,4	31,3	31,3
	Closing times	93.5 Vcc	75±10 ms	75,2	75,2	75,4
04	Main circuit resistances					
	Resistance		≤60 μΩ	41,7	39,2	41,3
05	Tightness test					
	Helium	≤10-7 mbar.l/s		OK		
06	Dielectric tests					
	Wiring insulation at	2 KV		OK		

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Workshop routine test report for TH7m Continuation

Serial number : DJB200700277

Inspection date : 15/02/2007	
For approval The customer's representative	Signature BILLOUD Alain-Jacques The quality controller

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Workshop routine test report for Disconnecter

Serial number : SEC200700278

Type : Disconnecter Q10

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
01	Mechanical operating				
	At maximum voltage	10 CO121VCC		OK	
	At minimum voltage	10 CO 93.5 VCC		OK	
	At nominal voltage	50 CO110VCC		OK	
	<u>Checking the drive</u>				
	Manuel operation			OK	
04	Main circuit resistances				
	Resistance	≤30 μΩ	19,3	23,4	21,6
06	Dielectric tests				
	Wiring insulation at	2 KV		OK	

Inspection date : 02/02/2007	
For approval	Signature
The customer's representative	For conformity
	DOMENECH Frederic
	The quality controller

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Workshop routine test report for Earthing switch H.S.

Serial number : SRT200700275

Type : Earthing switch H.S. Q80 HS

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
01	Mechanical operating				
	At maximum voltage	10 CO 121 Vcc		OK	
	At minimum voltage	10 CO 93.5 Vcc		OK	
	At nominal voltage	50 CO 110Vcc		OK	
	<u>Checking the drive</u>				
	Manuel operation			OK	
06	Dielectric tests				
	Wiring insulation at	2 KV		OK	

Inspection date : 07/02/2007	
For approval	Signature
The customer's representative	For conformity
	DOMENECH Frederic
	The quality controller

Unit UIG	Quality assurance	100558	Page 17/33
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Workshop routine test report for Shipping unit

Serial number : UT_200700313

Type : Shipping unit 51219100B1

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
04	Main circuit resistances				
	Resistance	≤17 μΩ	13,2	13,6	13,6
05	Tightness test				
	Helium		OK		
06	Dielectric tests				
	Main circuit (Open and Close) at 275KV		OK	OK	OK
	Partial discharges level in pC at 174KV	≤5 pC	0,7	0,7	1,8

Inspection date : 13/02/2007	
For approval	Signature
	For conformity
	MARA CAS Christian
The customer's representative	The quality controller

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Workshop routine test report for Shipping unit

Serial number : UT_200700339

Type : Shipping unit 51219100B2

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
04	Main circuit resistances				
	Resistance	≤16 μΩ	13,2	13,5	13,4
05	Tightness test				
	Helium		OK		
06	Dielectric tests				
	Main circuit (Open and Close) at 275KV		OK	OK	OK
	Partial discharges level in pC at 174KV	≤5 pC	0,7	0,7	1,8

Inspection date : 13/02/2007	
For approval	Signature
	For conformity
	MARA CAS Christian
The customer's representative	The quality controller

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Workshop routine test report for Bay

Serial number : TRV200700340

Type : Bay 51219100A3

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
04	Main circuit resistances				
	Resistance R1	≤237 μΩ	193,1		
	Resistance R1	≤232 μΩ		185,9	195,7
	Resistance R2	≤203 μΩ	162,8		
	Resistance R2	≤198 μΩ		157,8	167,4
05	Tightness test				
	Helium	≤10-7 mbar.l/s		OK	
06	Dielectric tests				
	Earthing switch open at	275 KV	OK	OK	OK
	Main circuit (Open and Close) at	275 KV	OK	OK	OK
	Partial discharges level in pC at	174 KV	≤5 pC	0,8	0,8

Inspection date : 19/02/2007	
For approval	Signature
	For conformity
	MARA CAS Christian
The customer's representative	The quality controller

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Workshop routine test report for Circuit breaker with mechanical operating mechanis

Serial number : DJB200700350
mechanis Q01

Type : Circuit breaker with mechanical operating

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3	
Acceptable Values : Value - Unit						
01	Mechanical operating					
	At maximum voltage	10 CO 121 Vcc		OK		
	At minimum voltage	10 CO 93.5 Vcc		OK		
	At nominal voltage	80 CO 110 Vcc		OK		
03	Operating times					
	<u>For mechanical drive</u>					
	<u>at nominal voltage</u>					
	Opening time	110Vcc	28±4 ms	28,3	28,4	28,3
	Closing time	110 Vcc	72±10 ms	73,8	73,8	73,9
	<u>and at maximal voltage</u>					
	Opening times	121Vcc	27±4 ms	27,6	27,8	27,6
	Closing times	121 Vcc	71±10 ms	73,5	73,4	73,5
	<u>and minimal voltage (opening)</u>					
	Opening times	93.5 Vcc	30±5 ms	32,4	32,6	32,5
	Closing times	93.5 Vcc	75±10 ms	75,7	75,6	75,7
04	Main circuit resistances					
	Resistance		≤60 μΩ	46	40	51
05	Tightness test					
	Helium	≤10-7 mbar.l/s		OK		
06	Dielectric tests					
	Wiring insulation at	2 KV		OK		

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Workshop routine test report for TH7m Continuation

Serial number : DJB200700350

Inspection date : 19/02/2007	
For approval The customer's representative	Signature MARA CAS Christian The quality controller

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Workshop routine test report for Earthing switch

Serial number : STL200700357

Type : Earthing switch Q25

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
01	Mechanical operating				
	At maximum voltage	10 CO 121 Vcc		OK	
	At minimum voltage	10 CO 93.5 Vcc		OK	
	At nominal voltage	50 CO 110 Vcc		OK	
	<u>Checking the drive</u>				
	Manuel operation			OK	
06	Dielectric tests				
	Wiring insulation at	2 KV		OK	

Inspection date : 07/02/2007	
For approval	Signature
	For conformity
	DOMENECH Frederic
The customer's representative	The quality controller

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Workshop routine test report for Earthing switch

Serial number : STL200700368

Type : Earthing switch Q15

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
01	Mechanical operating				
	At maximum voltage	10 CO 121 Vcc		OK	
	At minimum voltage	10 CO 93.5 Vcc		OK	
	At nominal voltage	50 CO 110 Vcc		OK	
	Checking the drive				
	Manuel operation			OK	
06	Dielectric tests				
	Wiring insulation at	2 KV		OK	

Inspection date : 08/02/2007	
For approval	Signature
	For conformity
	DOMENECH Frederic
The customer's representative	The quality controller

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Workshop routine test report for Bay

Serial number : TRV200700453

Type : Bay 51219100A4

Diagram number : Index :

Floor space plan number : Index :

			Phase	1	2	3
Acceptable Values : Value - Unit						
04	Main circuit resistances					
	Resistance R2	≤174 μΩ		134,8	131,8	
	Resistance R2	≤183 μΩ				141,4
	Resistance R3	≤175 μΩ		94,6		
	Resistance R3	≤170 μΩ			91,8	92,7
	Resistance R4	≤174 μΩ		134,4	133,6	
	Resistance R4	≤183 μΩ				142,7
05	Tightness test					
	Helium	≤10-7 mbar.l/s			OK	
06	Dielectric tests					
	Earthing switch open at	275 KV		OK	OK	OK
	Main circuit (Open and Close) at	275 KV		OK	OK	OK
	Partial discharges level in pC at	174 KV	≤5 pC	0,8	0,8	0,8
10	Documents attached with the equipment					
	Current transformer				30019485	

Inspection date : 26/02/2007	
For approval	Signature
	For conformity
	MARA CAS Christian
The customer's representative	The quality controller

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Workshop routine test report for Circuit breaker with mechanical operating mechanis

Serial number : DJB200700456
mechanis Q01

Type : Circuit breaker with mechanical operating

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3	
Acceptable Values : Value - Unit						
01	Mechanical operating					
	At maximum voltage	10 CO 121 Vcc		OK		
	At minimum voltage	10 CO 93.5 Vcc		OK		
	At nominal voltage	80 CO 110 Vcc		OK		
03	Operating times					
	<u>For mechanical drive</u>					
	<u>at nominal voltage</u>					
	Opening time	110Vcc	28±4 ms	27,5	27,5	27,5
	Closing time	110 Vcc	72±10 ms	71,5	71,3	71,4
	<u>and at maximal voltage</u>					
	Opening times	121Vcc	27±4 ms	26,7	26,7	26,7
	Closing times	121 Vcc	71±10 ms	70,8	70,6	70,6
	<u>and minimal voltage (opening)</u>					
	Opening times	93.5 Vcc	30±5 ms	31,7	31,7	31,6
	Closing times	93.5 Vcc	75±10 ms	73	72,8	72,8
04	Main circuit resistances					
	Resistance		≤60 μΩ	42,3	40	43,3
05	Tightness test					
	Helium	≤10-7 mbar.l/s		OK		
06	Dielectric tests					
	Wiring insulation at	2 KV		OK		

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Workshop routine test report for TH7m Continuation

Serial number : DJB200700456

Inspection date : 26/02/2007	
For approval The customer's representative	Signature MARA CAS Christian The quality controller

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Workshop routine test report for Disconnecter

Serial number : SEC200700457

Type : Disconnecter Q10

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
01	Mechanical operating				
	At maximum voltage	10 CO121VCC		OK	
	At minimum voltage	10 CO 93.5 VCC		OK	
	At nominal voltage	50 CO110VCC		OK	
	Checking the drive				
	Manuel operation			OK	
04	Main circuit resistances				
	Resistance	≤30 μΩ	21,2	24	21
06	Dielectric tests				
	Wiring insulation at	2 KV		OK	

Inspection date : 08/02/2007	
For approval	Signature
The customer's representative	For conformity
	DOMENECH Frederic
	The quality controller

Unit UIG	Quality assurance	100558	Page 32/33
Distribution :7.		Index 7150080	J

Workshop routine test report for Earthing switch H.S.

Serial number : SRT200700454

Type : Earthing switch H.S. Q80 HS

Diagram number : Index :

Floor space plan number : Index :

		Phase	1	2	3
Acceptable Values : Value - Unit					
01	Mechanical operating				
	At maximum voltage	10 CO 121 Vcc		OK	
	At minimum voltage	10 CO 93.5 Vcc		OK	
	At nominal voltage	50 CO 110Vcc		OK	
	<u>Checking the drive</u>				
	Manuel operation			OK	
06	Dielectric tests				
	Wiring insulation at	2 KV		OK	

Inspection date : 12/02/2007	
For approval	Signature
The customer's representative	DOMENECH Frederic
	For conformity
	The quality controller

Unit UIG	Quality assurance	100558	Page 33/33
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