ECOPACK2 System
Troubleshooting manual

Reference:	**AY00000102657**
Technical manual:	**1525MI**
Version:	**A**
Issue date:	**06.05.2015**

ALSTOM

Transport

UPDATE

Mod.	Date	Designation	Author	Note
A	06.05.2015	First issue	Consulting - ALTRAN	

ANNEX

Documentation Number	Designation

	Name	Qualification	Date	Signature
Written by:	A. Cocco	Documentation	06/05/2015	A. Cocco
Verified by:	G.Borsatto	PQM	6/5/2015	
	D. Di Stefano	SSM	6/5/2015	
Approved by:	M.Losito	TLE	6/5/2015	Michele Losito

INDEX

FIGURE

TABLE

1. INTRODUCTION

This document describes, in a troubleshooting oriented approach, the fault analysis and address to the correct recovery procedure that shall be followed when a specific fault occurred on the Metro Rio Ecopack2 System.

1.1. Abbreviations

AGATE	Advanced Generic Alstom Traction Electronic
APS	Alimentation Par le Sol (Ground-level power supply system)
DJ	Disjunctor (main circuit breaker)
DJSC	Disjunctor Super Capacitor (namely HSCB)
DJSC_CP	Disjunctor Super Capacitor Control Panel
E2CU	Ecopack2 Control Unit
FLT	Fault
FSCB	Fan Speed Control board
HSCB	High Speed Circuit Breaker (namely DJSC)
HSCB_CP	High Speed Circuit Breaker Control Panel
HVAC	Heating, Ventilation and Air Conditioning
HW	Hardware
IGBT	Insulated Gate Bipolar Transistor
KC	Circuit reference of Capacitor Contactor
KL	Circuit reference of Line Contactor
KPRE	Circuit reference of Pre-charge Contactor
LF	Circuit reference of Line filter
LRU	Line Replaceable Unit
MVB	Multifunctional Vehicle Bus
N/A	Non Applicable
RPRE	Circuit reference of Pre-charge Resistor
SC	Super capacitor
SCMS	Super Capacitors Management System
SW	Software
TAL	Circuit reference of Line Current Sensor
TALNEG	Circuit reference of Negative Current Sensor
TALPOS	Circuit reference of Positive Current Sensor
TASC	Circuit reference of Super Capacitor Current Sensor
TCU	Traction Converter Unit
TCMS	Train Control Monitoring System
TV	Traction Voltage Transducer
TVF	Circuit reference of Filter Voltage Sensor
TVL	Circuit reference of Line Voltage Sensor
TVSC	Circuit Reference of Super Capacitor Voltage Sensor

1.2. Reference Documents

Document Code	Description
TRV 9001LA14173	Train Tracer UTM user manual

INTENTIONALLY EMPTY PAGE

2. Fault management description

The fault analysis is based on three focal points:

- the fault detection
- the fault logging
- the troubleshooting

2.1. Fault Detection

The fault detection identifies when a fault occurs. The detection is possible in two phases:

- during the electronic self check executed before the train departure, in workshop;
- in operative state when a critical or major fault occurs.

If a critical or major fault occurs when the rolling stock is in operative phase, the AGATE sends an alert to the Train Control Monitoring System (TCMS). In this case it is necessary to recover the train back to the workshop.

2.2. Fault logging

The fault logging indicates the collection of the events messages registered by the Agate.
The Agate, functionally named Ecopack2 Control Unit (E2CU), monitors input and output signals detecting the fault occurrence. The fault log informs the maintenance Personnel about the fault nature. This information can be downloaded by a diagnostic tool (Train Tracer) installed on a personal computer (maintenance PC).

The Agate and the maintenance PC are connected with the Ethernet network. For the Train Tracer tool installation follow the procedure described in the train tracer User Manual (Ref TRV 9001LA14173).

2.3. Troubleshooting

The troubleshooting indicates all the operations needed after the fault log analysis, oriented to the complete recovery of the system. The troubleshooting helps the maintenance Personnel to identify and interpret the event message, providing a cross reference between the error and the causes or possible LRU involved.

The Figure 1 represents the composition of the tramway Citadis RIO. The Energy Storage System (ESS) contains the Ecopack2 System.

The Figure 2 resumes the operations needed to recovery the system.

The maintenance Personnel connects the maintenance PC to the AGATE (E2CU) in order to analyze the fault log registered.

The maintenance Personnel when finds the ERROR title checks it in the Table 3 reads the column of the LRUs involved in order to perform the system recovery.

If more LRU are involved, the maintainer shall perform iterative LRU replacement following the LRU order in the Table until the fault is detected.

INTENTIONALLY EMPTY PAGE

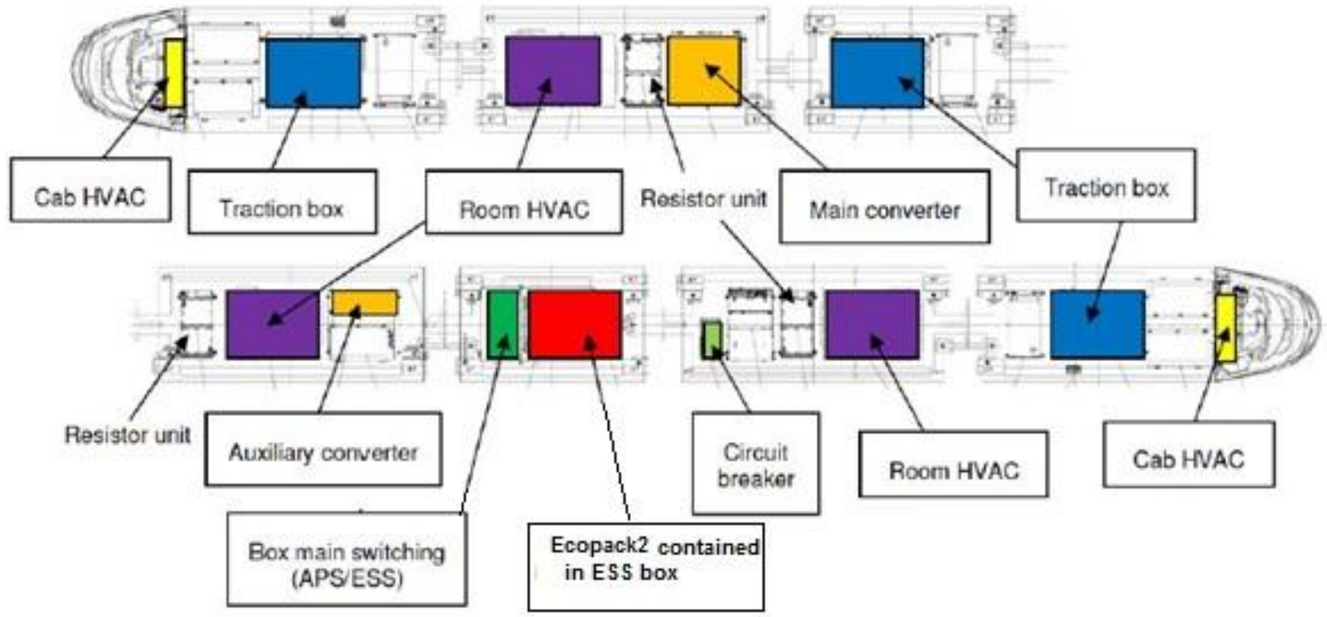

Figure 1:Tramway Citadis RIO Composition

INTENTIONALLY EMPTY PAGE

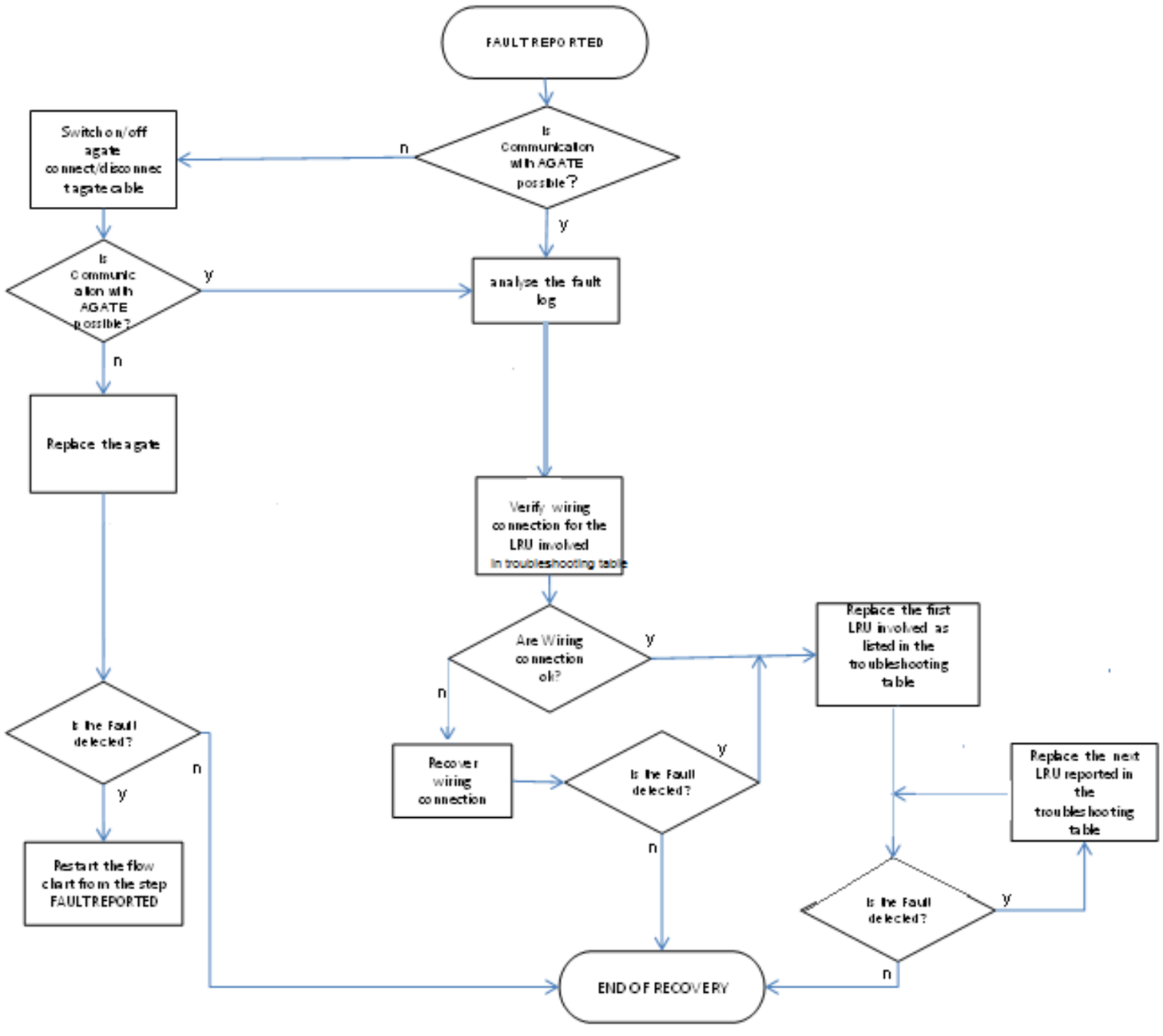

Figure 2:Troubleshooting flow chart

INTENTIONALLY EMPTY PAGE

3. Troubleshooting Tables

This paragraph contains the information for the fault identification during the troubleshooting activity.

All the events or faults detected by the Ecopack2 Control Unit (E2CU) are collected in the Table 3- Troubleshooting Table.

The **first column** in the Table 3 is the “fault identification” and it is represented with the fields described in the following Table 1.

The **second column** in the Table 3 indicates the possible causes or the LRUs involved in the fault.

Where multiple LRU are indicated, the maintainer shall perform the iterative LRU replacement following the LRU order, until the fault is detected.

Table 1- Fault identification

FIELD	DESCRIPTION
Type	It indicates if the event is an information an alert or an error
Code	It indicates the code of the event:, it is composed by 4 digit
Title	Title of fault

The events are functionally grouped (grey row in Table 3) as reported in the following Table 2:

Table 2- Software Functional Group

N	Software Functional Group
1	SYSTEM MANAGEMENT
2	HARDWARE INTERFACE MANAGEMENT
3	SWITCHGEAR MANAGEMENT
4	OPERATIONAL MODE MANAGEMENT
5	CHOPPER MANAGEMENT
6	SUPER CAPACITOR MANAGEMENT
7	NETWORK MANAGEMENT
8	SCMS MANAGEMENT

There are no faults recorded for the management of the Operational Mode.

INTENTIONALLY EMPTY PAGE

Table 3- Troubleshooting Table

FAULT IDENTIFICATION	POSSIBLE LRU INVOLVED or other causes
1-SYSTEM MANAGEMENT	
Error 1501- Fault to make action isol	Fault associated to others faults with isolation as Fault consequences
Error 1502- Fault to make action isol ext	Fault associated to others faults with external isolation as Fault consequences
Error 1201- Fault on Ecopack subsystem identification	AGATE
Error 1301- The fan commanded doesn't work	FAN,KFAN,MOTORFAN,FSCB AGATE
Information 1302- The fan not commanded doesn't stop	NO REPLACEMENT(investigation on FAN,KFAN,MOTORFAN,FSCB and AGATE)
Error 1601- Traction isolated fault	NO REPLACEMENT(fault related to an external isolation request, the traction isolation causes the Ecopack2 isolation)EXTERNAL CAUSES
Error 1602- Isolation request from TCMS	NO REPLACEMENT(fault related to an external isolation request) EXTERNAL CAUSES
Information 1801- Network time fault	NO REPLACEMENT(erroneous time references on MVB) EXTERNAL CAUSES
2-HARDWARE INTERFACE MANAGEMENT	
Error 2401- Inchoerence between tcu tvf and tvl	TVL, AGATE
Error 2402- Inchoerence between tvl and tvf	TVF,TVL,KPRE,RPRE,LF,AGATE
Error 2403- Transducer positive input offset fault (TALPOS)	TAL+,AGATE
Error 2404- Transducer negative input offset fault (TALNEG)	TAL -, AGATE
Error 2405- Transducer SC offset fault (TASC)	TASC, AGATE
3-SWITCHGEAR MANAGEMENT	
Information 3101- Precharge resistor temperature fault	NO REPLACEMENT(investigation on RPRE)
Error 3201- DJ SC opening fault	DJSC*-DJSC*_CP,AGATE
Error 3202- DJ SC closing fault	DJSC*-DJSC*_CP,AGATE
Error 3301- Precharge contactor opening fault	KPRE, AGATE
Warning 3302- Precharge contactor closing fault	KPRE, AGATE
Error 3401- Line contactor opening fault	KL,AGATE, short circuit
Warning 3402- Line contactor closing fault	KL, AGATE
Error 3501- Super capacitor contactor opening fault	KC,AGATE, short circuit
Warning 3502- Super capacitor contactor closing fault	KC, AGATE
Warning 3601- Precharge process failed	NO REPLACEMENT (investigation on KL,KPRE, TVF)
Error 3602- Precharge process failed (counted)	KL,KPRE, TVF
5-CHOPPER MANAGEMENT	

FAULT IDENTIFICATION	POSSIBLE LRU INVOLVED or other causes
Error 5301- Positive input chopper isolation overcurrent fault	TAL+, short circuit on POWER MODULE,AGATE
Error 5302- Negative input chopper isolation overcurrent fault	TAL-, short circuit on POWER MODULE,AGATE
Warning 5303- Input chopper inhibition minimum voltage fault	TVF,AGATE
Error 5304- Input chopper isolation minimum voltage fault	TVF,AGATE
Warning 5305- Input chopper inhibition overvoltage fault	TVF,AGATE
Error 5306- Input chopper isolation overvoltage fault	TVF,AGATE
Error 5307- Differential current protection	TAL, leakage problem: RPRE, KPRE, KL, POWER MODULE or if not leakage AGATE
Warning 5308- Thermo-switch of the power module detected	FAN,POWER MODULE, AGATE
Warning 5309- IGBTs fault feedback	POWER MODULE, AGATE
Error 5310- High temperature fault by BetaTherm	FAN,POWER MODULE, AGATE
6-SUPER CAPACITOR MANAGEMENT	
Warning 6201- SC overcurrent fault (inhibition)	TASC, AGATE
Error 6202- SC overcurrent fault (isolation)	TASC, AGATE
Error 6203- SC branch overvoltage fault	TVSC,AGATE
Warning 6204- SC module 1 overvoltage fault	SCMS
Warning 6205- SC module 2 overvoltage fault	SCMS
Warning 6206- SC module 3 overvoltage fault	SCMS
Warning 6207- SC module 4 overvoltage fault	SCMS
Warning 6208- SC module 5 overvoltage fault	SCMS
Warning 6209- SC module 6 overvoltage fault	SCMS
Error 6210- SC cell of module 1 overvoltage fault	SCMS
Error 6211- SC cell of module 2 overvoltage fault	SCMS
Error 6212- SC cell of module 3 overvoltage fault	SCMS
Error 6213- SC cell of module 4 overvoltage fault	SCMS
Error 6214- SC cell of module 5 overvoltage fault	SCMS
Error 6215- SC cell of module 6 overvoltage fault	SCMS
Warning 6216- SC module 1 overtemperature fault	FAN, SCMS
Warning 6217- SC module 2 overtemperature fault	FAN, SCMS
Warning 6218- SC module 3 overtemperature fault	FAN, SCMS
Warning 6219- SC module 4 overtemperature fault	FAN, SCMS
Warning 6220- SC module 5 overtemperature fault	FAN, SCMS
Warning 6221- SC module 6 overtemperature fault	FAN, SCMS

FAULT IDENTIFICATION	POSSIBLE LRU INVOLVED or other causes
Warning 6222- SC module 1-4 temperature dispersion fault	SC,SCMS
Warning 6223- SC module 2-5 temperature dispersion fault	SC,SCMS
Warning 6224- SC module 3-6 temperature dispersion fault	SC,SCMS
Error 6225- Open-circuit in the SC branch	SC
Information 6227- SC module 1 voltage dispersion fault	NO REPLACEMENT (investigation on SC,SCMS)
Information 6228- SC module 2 voltage dispersion fault	NO REPLACEMENT (investigation on SC,SCMS)
Information 6229- SC module 3 voltage dispersion fault	NO REPLACEMENT (investigation on SC,SCMS)
Information 6230- SC module 4 voltage dispersion fault	NO REPLACEMENT (investigation on SC,SCMS)
Information 6231- SC module 5 voltage dispersion fault	NO REPLACEMENT (investigation on SC,SCMS)
Information 6232- SC module 6 voltage dispersion fault	NO REPLACEMENT (investigation on SC,SCMS)
Error 6233- SC module 1 discharge residual voltage fault	SC,SCMS
Error 6234- SC module 2 discharge residual voltage fault	SC,SCMS
Error 6235- SC module 3 discharge residual voltage fault	SC,SCMS
Error 6236- SC module 4 discharge residual voltage fault	SC,SCMS
Error 6237- SC module 5 discharge residual voltage fault	SC,SCMS
Error 6238- SC module 6 discharge residual voltage fault	SC,SCMS
Error 6239- SCMS contact opened fault	SCMS,AGATE
7-NETWORK MANAGEMENT	
Error 7101- Network configuration fault	AGATE
Error 7102- MVB board in fault	AGATE
Error 7103- MVB life signal fault (isol)	AGATE
8-SCMS MANAGEMENT	
Information 8301- SCMS frame dead time fault	NO REPLACEMENT (investigation on SCMS)
Information 8302- SCMS frame high level fault	NO REPLACEMENT (investigation on SCMS)
Information 8303- SCMS status not ok fault	NO REPLACEMENT (investigation on SCMS)
Information 8304- SCMS relay false detection fault	NO REPLACEMENT (investigation on SCMS)
Information 8305- SCMS modules voltage and voltage transducer inconsistency	NO REPLACEMENT (investigation on SCMS)
Information 8306- SCMS modules temperatures dispersion	NO REPLACEMENT (investigation on SCMS)
Information 8307- SCMS selection mode fault on SC module 1	NO REPLACEMENT (investigation on SCMS)
Information 8308- SCMS selection mode fault on SC module 2	NO REPLACEMENT (investigation on SCMS)
Information 8309- SCMS selection mode fault on SC module 3	NO REPLACEMENT (investigation on SCMS)

FAULT IDENTIFICATION	POSSIBLE LRU INVOLVED or other causes
Information 8310- SCMS selection mode fault on SC module 4	NO REPLACEMENT (investigation on SCMS)
Information 8311- SCMS selection mode fault on SC module 5	NO REPLACEMENT (investigation on SCMS)
Information 8312- SCMS selection mode fault on SC module 6	NO REPLACEMENT (investigation on SCMS)
Information 8313- SCMS temperature measured voltage fault on SC module 1 (bad value)	NO REPLACEMENT (investigation on SCMS)
Information 8314- SCMS temperature measured voltage fault on SC module 2 (bad value)	NO REPLACEMENT (investigation on SCMS)
Information 8315- SCMS temperature measured voltage fault on SC module 3 (bad value)	NO REPLACEMENT (investigation on SCMS)
Information 8316- SCMS temperature measured voltage fault on SC module 4 (bad value)	NO REPLACEMENT (investigation on SCMS)
Information 8317- SCMS temperature measured voltage fault on SC module 5 (bad value)	NO REPLACEMENT (investigation on SCMS)
Information 8318- SCMS temperature measured voltage fault on SC module 6 (bad value)	NO REPLACEMENT (investigation on SCMS)

*****DJSC is the French abbreviation of the HSCB.The Disjunctor Super Capacitor phisically coincides with the High Speed Circuit Breaker.

4. SYSTEM MANAGEMENT FAULT CODE

Each event is represented in a card composed by the field described below.

Table 4- Fault/Event identification

FIELD	DESCRIPTION
Name/mnemonic :	It indicates the fault name/mnemonic
Type of fault :	It indicates the event type: instantaneous, Counted or long.
Logging :	It indicates in which stack the event is recorded and if it is recorded at appearance and/or disappearance
Description :	it indicates a short description of the event.
Fault consequence :	it indicates the consequence caused by the fault
Possible cause :	it indicates the possible cause that generate the fault
Possible LRU involved	It indicates the description of possible LRU involved on the fault

4.1. Error 1501- Fault to make action isol

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f15_action_isol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	Fault associated to others faults with isolation as Fault consequences
Fault consequence :	Isolation
Possible cause :	Other faults with Isolation as consequences
Possible LRU involved	See Table 3- Troubleshooting Table

4.2. Error 1502- Fault to make action isol ext

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f15_action_isol_ext
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	Fault associated to others faults with external isolation as Fault consequences
Fault consequence :	Isolation commanded from the External components
Possible cause :	Other faults with external Isolation as consequences(Fault 1601-1602)
Possible LRU involved	See Table 3- Troubleshooting Table

4.3. Error 1201- Fault on Ecopack subsystem identification

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f12_id
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	It is not possible to identify the physical location of the E2CU.
Fault consequence :	Isolation and Pulse Inhibition
Possible cause :	The Agate doesn’t work correctly, check the wiring and the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

4.4. Error 1301- The fan commanded doesn't work

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f13_fan_not_start
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The fan commanded by the Agate doesn’t work
Fault consequence :	Isolation and Pulse Inhibition
Possible cause :	The Fan, the KFAN, the FSCB and the MOTORFAN don’t work correctly, check the components, otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

4.5. Information 1302- The fan not commanded doesn't stop

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f13_fan_not_stop
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The fans could not stop working
Fault consequence :	NO ACTION
Possible cause :	The Fan, the KFAN, the FSCB and the MOTORFAN don’t work correctly, check the components, otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

4.6. Error 1601- Traction isolated fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f16_tcu_isol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	the traction isolation causes the Ecopack2 isolation.
Fault consequence :	Pulse Inhibition and Isolation commanded from the External components
Possible cause :	Fault related to an external isolation request , the traction isolation causes the Ecopack2 isolation. Fault due to an external Causes
Possible LRU involved	See Table 3- Troubleshooting Table

4.7. Error 1602- Isolation request from TCMS

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f16_tcms_isol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	Isolation request from TCMS.
Fault consequence :	Pulse Inhibition -External Isolation.
Possible cause :	Fault related to an external isolation request. Fault due to an External causes.
Possible LRU involved	See Table 3- Troubleshooting Table

4.8. Information 1801- Network time fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f18_time_net
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Wrong Reference time on MVB
Fault consequence :	NO ACTION
Possible cause :	Erroneous reference time on MVB or Agate. Fault due to an External causes.
Possible LRU involved	See Table 3- Troubleshooting Table

INTENTIONALLY EMPTY PAGE

5. HARDWARE INTERFACE MANAGEMENT FAULT CODE

5.1. Error 2401- Incoherence between TCU TVF and TVL

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f24_tv_tcu_incho
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The values measured by the TVF on Traction chain and TVL on Ecopack2 System are incoherent
Fault consequence :	Isolation and Inhibition
Possible cause :	TVL doesn’t work correctly. check the component otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

5.2. Error 2402- Incoherence between TVL and TVF

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f24_tvl_tvf_incho
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The values measured by the TVF and TVL on Ecopack2 system are incoherent
Fault consequence :	Isolation and Inhibition
Possible cause :	TVL,TVF, KPRE, RPRE and LF don’t work properly, check the components otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

5.3. Error 2403- Transducer positive input offset fault (TALpos)

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f24_talpos_offset
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The Current value measured by the TAL+ is not under the offset threshold
Fault consequence :	Isolation and Inhibition
Possible cause :	TAL+ doesn’t work correctly, check the component, otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

5.4. Error 2404- Transducer negative input offset fault (TALneg)

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f24_talneg_offset
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The Current value measured by the TAL- is not under the offset threshold
Fault consequence :	Isolation and Inhibition
Possible cause :	TAL- doesn’t work correctly, check the component, otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

5.5. Error 2405- Transducer SC offset fault (TASC)

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f24_tasc_offset
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The Voltage value measured by the TASC is not under the offset threshold
Fault consequence :	Isolation and Inhibition
Possible cause :	TASC doesn’t work correctly, check the component, otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

INTENTIONALLY EMPTY PAGE

6. SWITCHGEAR MANAGEMENT FAULT CODE

6.1. Information 3101- Precharge resistor temperature fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f31_prech_res_temp
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The RPRE temperature is over the temperature Threshold
Fault consequence :	NO ACTION
Possible cause :	RPRE doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

6.2. Error 3201- DJSC opening fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f32_djsc_opening
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The DJSC could not be open.
Fault consequence :	Isolation and inhibition
Possible cause :	The DJSC doesn’t work correctly, check the component, its control panel otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

6.3. Error 3202- DJSC closing fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f32_djsc_closing
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The DJSC could not be closed.
Fault consequence :	Isolation and inhibition
Possible cause :	The DJSC doesn’t work correctly, check the component, its control panel otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

6.4. Error 3301- Precharge contactor opening fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f33_kpre_opening
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The KPRE could not be opened.
Fault consequence :	Isolation and inhibition
Possible cause :	The KPRE doesn’t work correctly, check the component or otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

6.5. Warning 3302- Precharge contactor closing fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f33_kpre_closing
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The KPRE could not be closed.
Fault consequence :	Pulse Inhibition
Possible cause :	The KPRE doesn’t work correctly, check the component or otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

6.6. Error 3401- Line contactor opening fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f34_kl_opening
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The KL could not be opened
Fault consequence :	Isolation and inhibition
Possible cause :	The KL doesn’t work correctly, check the component and check if there is a short circuit or otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

6.7. Warning 3402- Line contactor closing fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f34_kl_closing
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The KL could not be closed
Fault consequence :	Pulse Inhibition
Possible cause :	The KL doesn’t work correctly, check the component or otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

6.8. Error 3501- Super capacitor contactor opening fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f35_kc_opening
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The KC could not be opened
Fault consequence :	Isolation and inhibition
Possible cause :	The KC doesn’t work correctly, check the component and check if there is a short circuit or otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

6.9. Warning 3502- Super capacitor contactor closing fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f35_kc_closing
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The KC could not be closed
Fault consequence :	Pulse Inhibition
Possible cause :	The KC doesn’t work correctly, check the component or otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

6.10. Warning 3601- Precharge process failed

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f36_precharge_failed
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The precharge process failed
Fault consequence :	KL opening
Possible cause :	The KL, KPRE and TVF don’t work correctly, verify the absence of Short circuit and check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

6.11. Error 3602- Precharge process failed (counted)

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f36_precharge_failed_cnt
Type of fault :	Counted
Logging :	at appearance in “3_LOCK”
Description :	The precharge process failed repeatedly
Fault consequence :	Isolation and Inhibition
Possible cause :	The KL, KPRE and TVF don’t work correctly, verify the absence of Short circuit and check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

7. CHOPPER MANAGEMENT FAULT CODE

7.1. Error 5301- Positive input chopper isolation overcurrent fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_pos_isol_overcur
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The current measured by the TAL+ is not under the max-current threshold
Fault consequence :	Isolation and Inhibition
Possible cause :	The TAL+ and/or the Power Module don’t work correctly, verify the absence of Short circuit and check the components otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

7.2. Error 5302- Negative input chopper isolation overcurrent fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_neg_isol_overcur
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The current measured by the TAL- is not under the max-current threshold
Fault consequence :	Isolation and Inhibition
Possible cause :	The TAL- and/or the Power Module don’t work correctly, verify the absence of Short circuit and check the components otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

7.3. Warning 5303- Input chopper inhibition minimum voltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_inhib_minvol
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The Voltage measured by the TVF is not over the first minimum threshold.
Fault consequence :	Pulse Inhibition
Possible cause :	The TVF doesn’t work correctly, check the component otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

7.4. Error 5304- Input chopper isolation minimum voltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_isol_minvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The Voltage measured by the TVF is not over the second minimum threshold.
Fault consequence :	Isolation and Inhibition
Possible cause :	The TVF doesn’t work correctly, check the component otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

7.5. Warning 5305- Input chopper inhibition overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_inhib_overvol
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The Voltage measured by the TVF is not under the first threshold.
Fault consequence :	Pulse Inhibition
Possible cause :	The TVF doesn’t work correctly, check the component otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

7.6. Error 5306- Input chopper isolation overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_isol_overvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The Voltage measured by the TVF is not under the second threshold.
Fault consequence :	Isolation and Inhibition
Possible cause :	The TVF doesn’t work correctly, check the component otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

7.7. Error 5307- Differential current protection

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_cur_diff
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	the differential current is not under the correct threshold
Fault consequence :	Isolation and Inhibition
Possible cause :	TAL doesn’t work correctly, check the component and verify if there was some leakage problem: RPRE, KPRE, KL, POWER MODULE otherwise check the AGATE
Possible LRU involved	See Table 3- Troubleshooting Table

7.8. Warning 5308- Thermo-switch of the power module detected

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_therm_switch
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature of the Power Module is over the max-temperature threshold
Fault consequence :	Isolation and Inhibition
Possible cause :	The Fan, the Power Module don’t work correctly, check the components otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

7.9. Warning 5309- IGBTs fault feedback

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_igbt_fault
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The IGBT doesn’t work correctly.
Fault consequence :	Pulse Inhibition
Possible cause :	The Power Module doesn’t work correctly, check the component otherwise check the Agate.
Possible LRU involved	See Table 3- Troubleshooting Table

7.10. Error 5310- High temperature fault by BetaTherm

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f53_ch_betatherm
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The temperature measured by the thermal probe is over the max-temperature threshold.
Fault consequence :	Isolation and Inhibition
Possible cause :	The Fan, the Power Module don’t work correctly, check the components otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

INTENTIONALLY EMPTY PAGE

8. SUPER CAPACITOR MANAGEMENT FAULT CODE

8.1. Warning 6201- SC overcurrent fault (inhibition)

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f62_sc_inhib_overcur
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The current measured by the TASC is over the max-current threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The TASC doesn’t work correctly, verify if there is a short Circuit, otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

8.2. Error 6202- SC overcurrent fault (isolation)

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f62_sc_isol_overcur
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The current measured by the TASC is over the max-current threshold
Fault consequence :	Isolation
Possible cause :	The TASC doesn’t work correctly, verify if there is a short Circuit, otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

8.3. Error 6203- SC branch overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f62_sc_overvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The voltage measured by the TVSC is over the max-voltage threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The TVSC doesn’t work correctly, verify if there is a short Circuit, otherwise check the Agate
Possible LRU involved	See Table 3- Troubleshooting Table

8.4. Warning 6204- SC module 1 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f62_sc_mod1_overvol
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The voltage measured by the SCMS on module 1 is over the max-voltage threshold.
Fault consequence :	Pulse Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.5. Warning 6205- SC module 2 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f62_sc_mod2_overvol
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The voltage measured by the SCMS on module 2 is over the max-voltage threshold.
Fault consequence :	Pulse Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.6. Warning 6206- SC module 3 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f62_sc_mod3_overvol
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The voltage measured by the SCMS module on 3 is over the max-voltage threshold.
Fault consequence :	Pulse Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.7. Warning 6207- SC module 4 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f62_sc_mod4_overvol
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The voltage measured by the SCMS on module 4 is over the max-voltage threshold.
Fault consequence :	Pulse Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.8. Warning 6208- SC module 5 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f62_sc_mod5_overvol
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The voltage measured by the SCMS on module 5 is over the max-voltage threshold.
Fault consequence :	Pulse Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.9. Warning 6209- SC module 6 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod6_overvol
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The voltage measured by the SCMS on module 6 is over the max-voltage threshold.
Fault consequence :	Pulse Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.10. Error 6210- SC cell of module 1 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_cell1_overvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The voltage measured by the SCMS on cell1 is over the max-voltage threshold.
Fault consequence :	Isolation Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.11. Error 6211- SC cell of module 2 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_cell2_overvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The voltage measured by the SCMS on cell2 is over the max-voltage threshold.
Fault consequence :	Isolation Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.12. Error 6212- SC cell of module 3 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_cell3_overvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The voltage measured by the SCMS on cell3 is over the max-voltage threshold.
Fault consequence :	Isolation Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.13. Error 6213- SC cell of module 4 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_cell4_overvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The voltage measured by the SCMS on cell4 is over the max-voltage threshold.
Fault consequence :	Isolation Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.14. Error 6214- SC cell of module 5 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_cell5_overvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The voltage measured by the SCMS on cell5 is over the max-voltage threshold.
Fault consequence :	Isolation Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.15. Error 6215- SC cell of module 6 overvoltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_cell6_overvol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The voltage measured by the SCMS on cell6 is over the max-voltage threshold.
Fault consequence :	Isolation Inhibition
Possible cause :	The SCMS doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

8.16. Warning 6216- SC module 1 overtemperature fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod1_overtemp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module 1 is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The FAN and the SCMS don’t work correctly, verify if there is a short circuit or fire in the box. .
Possible LRU involved	See Table 3- Troubleshooting Table

8.17. Warning 6217- SC module 2 overtemperature fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod2_overtemp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module 2 is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The FAN, the SCMS don’t work correctly, verify if there is a short circuit or fire in the box. .
Possible LRU involved	See Table 3- Troubleshooting Table

8.18. Warning 6218- SC module 3 overtemperature fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod3_overtemp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module 3 is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The FAN, the SCMS don’t work correctly, verify if there is a short circuit or fire in the box. .
Possible LRU involved	See Table 3- Troubleshooting Table

8.19. Warning 6219- SC module 4 overtemperature fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod4_overtemp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module 4 is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The FAN, the SCMS don’t work correctly, verify if there is a short circuit or fire in the box. .
Possible LRU involved	See Table 3- Troubleshooting Table

8.20. Warning 6220- SC module 5 overtemperature fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod5_overtemp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module 5 is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The FAN, the SCMS don’t work correctly, verify if there is a short circuit or fire in the box. .
Possible LRU involved	See Table 3- Troubleshooting Table

8.21. Warning 6221- SC module 6 overtemperature fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod6_overtemp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module 6 is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The FAN, the SCMS don’t work correctly, verify if there is a short circuit or fire in the box. .
Possible LRU involved	See Table 3- Troubleshooting Table

8.22. Warning 6222- SC module 1-4 temperature dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod14_temp_disp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module1 and module 4 with the same distance from the FAN is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The SC and the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.23. Warning 6223- SC module 2-5 temperature dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod25_temp_disp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module2 and module 5 with the same distance from the FAN is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The SC and the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.24. Warning 6224- SC module 3-6 temperature dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod36_temp_disp
Type of fault :	instantaneous
Logging :	at appearance in “2_APPLI”
Description :	The temperature measured by the SCMS on module3 and module 6 with the same distance from the FAN is over the max-temperature threshold
Fault consequence :	Pulse Inhibition
Possible cause :	The SC and the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.25. Error 6225- Open-circuit in the SC branch

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_oc
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	An open-circuit in the SC branch is detected
Fault consequence :	Isolation and Inhibition
Possible cause :	The SC doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

8.26. Information 6227- SC module 1 voltage dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod1_vol_disp
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The module 1 voltage deviation from the modules voltage mean value is over the threshold
Fault consequence :	NO ACTION
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.27. Information 6228- SC module 2 voltage dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod2_vol_disp
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The module 2 voltage deviation from the modules voltage mean value is over the threshold
Fault consequence :	NO ACTION
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.28. Information 6229- SC module 3 voltage dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod3_vol_disp
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The module 3 voltage deviation from the modules voltage mean value is over the threshold
Fault consequence :	NO ACTION
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.29. Information 6230- SC module 4 voltage dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod4_vol_disp
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The module 4 voltage deviation from the modules voltage mean value is over the threshold
Fault consequence :	NO ACTION
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.30. Information 6231- SC module 5 voltage dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod5_vol_disp
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The module 5 voltage deviation from the modules voltage mean value is over the threshold
Fault consequence :	NO ACTION
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.31. Information 6232- SC module 6 voltage dispersion fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod6_vol_disp
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The module 6 voltage deviation from the modules voltage mean value is over the threshold
Fault consequence :	NO ACTION
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components.
Possible LRU involved	See Table 3- Troubleshooting Table

8.32. Error 6233- SC module 1 discharge residual voltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod1_disch_res_vol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The module 1 could not fully discharge
Fault consequence :	Isolation and inhibition
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components
Possible LRU involved	See Table 3- Troubleshooting Table

8.33. Error 6234- SC module 2 discharge residual voltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod2_disch_res_vol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The module 2 could not fully discharge
Fault consequence :	Isolation and inhibition
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components
Possible LRU involved	See Table 3- Troubleshooting Table

8.34. Error 6235- SC module 3 discharge residual voltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod3_disch_res_vol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The module 3 could not fully discharge
Fault consequence :	Isolation and inhibition
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components
Possible LRU involved	See Table 3- Troubleshooting Table

8.35. Error 6236- SC module 4 discharge residual voltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod4_disch_res_vol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The module 4 could not fully discharge
Fault consequence :	Isolation and inhibition
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components
Possible LRU involved	See Table 3- Troubleshooting Table

8.36. Error 6237- SC module 5 discharge residual voltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod5_disch_res_vol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The module 5 could not fully discharge
Fault consequence :	Isolation and inhibition
Possible cause :	The SC and/or the SCMS don’t work correctly, check the components
Possible LRU involved	See Table 3- Troubleshooting Table

8.37. Error 6238- SC module 6 discharge residual voltage fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_mod6_disch_res_vol
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The module 6 could not fully discharge
Fault consequence :	Isolation and inhibition
Possible cause :	The SC and the SCMS don’t work correctly, check the components
Possible LRU involved	See Table 3- Troubleshooting Table

8.38. Error 6239- SCMS contact opened fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f62_sc_kscms
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	SCMS contact opened detection
Fault consequence :	Isolation and Inhibition
Possible cause :	An overvoltage of a module or a cell of module or an overtemperature of a module. If repetitive, check the SCMS board and/or Agate
Possible LRU involved	See Table 3- Troubleshooting Table

INTENTIONALLY EMPTY PAGE

9. NETWORK MANAGEMENT FAULT CODE

9.1. Error 7101- Network configuration fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f71_invalid_net_conf
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	Invalid network configuration
Fault consequence :	Isolation and inhibition
Possible cause :	The Agate doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

9.2. Error 7102- MVB board in fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f72_mvb_board
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The MVB board doesn’t work correctly
Fault consequence :	Isolation and inhibition
Possible cause :	The Agate doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

9.3. Error 7103- MVB life signal fault (isol)

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f72_ls_mvb
Type of fault :	instantaneous
Logging :	at appearance in “3_LOCK”
Description :	The MVB board doesn’t work correctly
Fault consequence :	Isolation and inhibition
Possible cause :	The Agate doesn’t work correctly, check the component.
Possible LRU involved	See Table 3- Troubleshooting Table

10. SCMS MANAGEMENT FAULT CODE

10.1. Information 8301- SCMS frame dead time fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_f83_dead_time_fault
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Error frame from the SCMS (dead time not respected)
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.2. Information 8302- SCMS frame high level fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_high_level_fault
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Error frame from the SCMS (number of valid samples out of range)
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.3. Information 8303- SCMS status not ok fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_not_ok
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	The SCMS board is in fault
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.4. Information 8304- SCMS relay false detection fault

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_relay_false_det
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	False fault detection by the SCMS board
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.5. Information 8305- SCMS modules voltage and voltage transducer inconsistency

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_v_incons
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	There are an inconsistency between the modules voltage and the voltage value measured by the TVSC
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.6. Information 8306- SCMS modules temperatures dispersion

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_t_dispers
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	There is a temperature dispersion on the modules(min-max)
Fault consequence :	NO ACTION
Possible cause :	The SCMS temperature measurement doesn’t work correctly , check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.7. Information 8307- SCMS selection mode fault on SC module 1

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc1_select_mode
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Selection mode on SC module 1 is incorrect.
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.8. Information 8308- SCMS selection mode fault on SC module 2

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc2_select_mode
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Selection mode on SC module 2 is incorrect.
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.9. Information 8309- SCMS selection mode fault on SC module 3

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc3_select_mode
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Selection mode on SC module 3 is incorrect.
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.10. Information 8310- SCMS selection mode fault on SC module 4

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc4_select_mode
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Selection mode on SC module 4 is incorrect.
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.11. Information 8311- SCMS selection mode fault on SC module 5

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc5_select_mode
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Selection mode on SC module 5 is incorrect.
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.12. Information 8312- SCMS selection mode fault on SC module 6

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc6_select_mode
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Selection mode on SC module 6 is incorrect.
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.13. Information 8313- SCMS temperature measured voltage fault on SC module 1 (bad value)

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc1_temp_nok
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Temperature measurement on SC module 1 is not correct
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.14. Information 8314- SCMS temperature measured voltage fault on SC module 2 (bad value

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc2_temp_nok
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Temperature measurement on SC module 2 is not correct
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.15. Information 8315- SCMS temperature measured voltage fault on SC module 3 (bad value

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc3_temp_nok
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Temperature measurement on SC module 3 is not correct
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.16. Information 8316- SCMS temperature measured voltage fault on SC module 4 (bad value

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc4_temp_nok
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Temperature measurement on SC module 4 is not correct
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.17. Information 8317- SCMS temperature measured voltage fault on SC module 5 (bad value

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc5_temp_nok
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Temperature measurement on SC module 5 is not correct
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table

10.18. Information 8318- SCMS temperature measured voltage fault on SC module 6 (bad value

FIELD	DESCRIPTION
Name/mnemonic:	FLT_ f83_scms_sc6_temp_nok
Type of fault :	instantaneous
Logging :	at appearance in “5_INFO”
Description :	Temperature measurement on SC module 6 is not correct
Fault consequence :	NO ACTION
Possible cause :	The SCMS doesn’t work correctly check the component
Possible LRU involved	See Table 3- Troubleshooting Table