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# GCI RADAR AND ACCESSORIES MULTIYEAR PROGRAM

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## SYSTEM MAINTENANCE MANUAL (SMM)


OF THE  
INDONESIAN AIR DEFENCE SYSTEM  
(SOC, CRC & ADOC)

Prepared for :

THE MINISTRY OF DEFENCE, GOVERNMENT OF INDONESIA  
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## 1. PRELIMINARIES: SAFETY RULES

### 1.1 HAZARDS RESULTING FROM ELECTRICAL CURRENTS

Mortal high voltage is used during operation of this equipment.

Appropriate safety precautions must be permanently observed by staff.

- be suspicious of safety devices such as circuit breakers or drawers and doors.
- control that safety devices have perfectly operated.
- as much as possible, insulate power source before executing any operation inside equipment.
- never forget that safety devices are only provided for usual openings but that dangerous circuits can be reached during removing operations.

WARNING : Do not lead astray with the technical term " **Low Voltage**" (**LW**) because *50 Volts are sufficient to cause death.*

### 1.2 ELECTRICAL SHOCK – FIRST AID

Anybody in charge of installation, exploitation or maintenance for equipment must make themselves familiar , for both theory and practise, with following rules.

It's an obligation for all to be ready to give first aid in order to prevent lost of human live.

#### **YOUR OWN LIVE DEPENDS OF THAT**

Generally speaking, an electrical shock **DOES NOT KILL INSTANTANEOUSLY**, the victim can be escaped even when **SHE DOES NOT BREATHE ANYMORE**.

#### 1.2.1 1<sup>ST</sup> ACTION TO DO : MOVE THE VICTIM FROM ELECTRICAL CIRCUIT.

Use for this a dry and insulated matter (rubber gloves, textile) to move either electrical wire or victim.

Never use metallic or wet material.

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If it's impossible to insulate the power source, place yourself on an insulated stool and use an insulated and dry hook-stick to take out wire from the victim.

Do not make interring in contact the wire with any part of the victim.

When the victim is moved from the electrical circuit :

- do not try to evacuate the victim, initial treatment must begin on place immediately,
- stretch down the victim on back,
- undo dresses : neck, tie, .....
- with fingers, remove eventual foreign bodies from mouth (tobacco, denture).

**1.2.2 2<sup>ND</sup> ACTION TO DO : THE VICTIM DOES NOT BREATHE ANYMORE.**

Start immediately artificial respiration by mean of "mouth to mouth resuscitation".

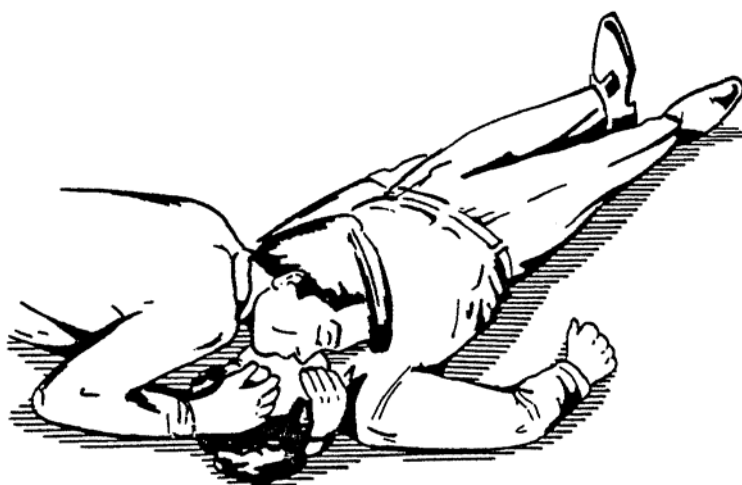


Figure 1 - Pulmonary insufflation made by one rescuer.

**ARTIFICIAL RESPIRATION BY MEAN OF "MOUTH TO MOUTH RESUSCITATION"**

1 - Take up position near victim's head, preferably on the left side

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**2** - Deflect victim's head backwards. This operation is essential for the aerial duct opening for the suffocated.

For this, the left hand goes under the victim's neck and lifts it, head falls backwards.

The right hand pinches the victim's nose and the palm of the hand placed on the victim's forehead hold the head in the deflected position.

**3** - After complete inflation of his own lungs, rescuer widely applies his mouth on the victim's one and vigorously blows until appearance of an expansion for the victim's thorax.

Rescuer removes his mouth to allow passive expiration for the victim.

**4** - This operation insufflation / expiration must be applied about 12 times per minute, until the victim can breath himself naturally.

### 1.2.3 3<sup>RD</sup> ACTION TO DO : THE VICTIM'S HEART DOES NOT BEAT ANYMORE.

Pulse is not palpable on big arteries (femoral – carotid).

External massage of the heart must be associated with mouth to mouth resuscitation.

#### EXTERNAL MASSAGE OF THE HEART

**1 - Principle** : Thorax, normally rigid and resistant becomes malleable and mobile for an unconscious person.

In these conditions, a pressure exerted on the rib cage compresses the heart on the backwards bone structure and drains blood from the heart.

The heart, elastic organ, dilates and fills passively as the pressure on the rib cage make is released.

**2 - Practical** : Refer to Figure 2

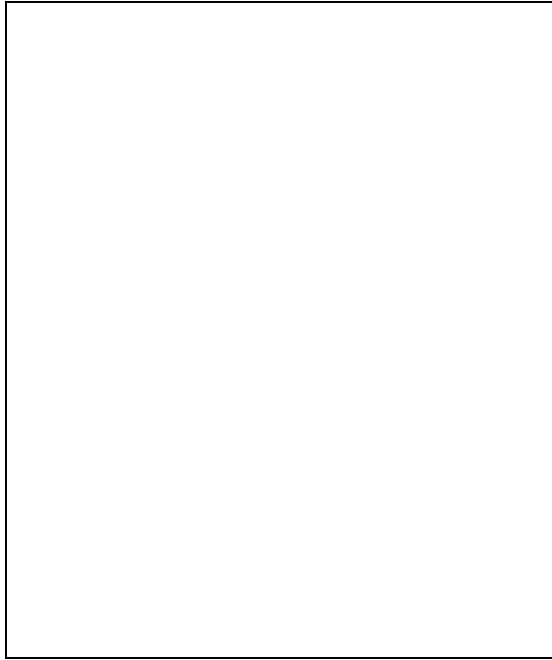


Figure 2 – External rib cage massage made by one rescuer

- Victim laid backwards on a rigid place (on the ground).
  
- Rescuer kneeled down perpendicularly to the victim's trunk. His two hands crossed one over the other are placed flat on the 1/3 lower part of the sternum in the middle of the thorax. Hands depress vigorously and quickly the sternum from 4 to 5 cm et release immediately pressure.
  
- Compression rhythm is 60 per minute (1 pressure per second) so 5 rib cage compressions for 1 pulmonary insufflation.
  
- This operation, quickly tiring for the rescuer, must be continued until heart beats again naturally.

### 3 – Important notes :

- Thorax compression must be median only.
  
- External rib cage massage is very efficacious and can ensure a sufficient blood circulation for 1 hour or more.
  
- Rhythmical thorax compression ensure circulation, respiration will be obtained by associating the "mouth to mouth resuscitation" method made preferably by a second rescuer (refer to figure 3).

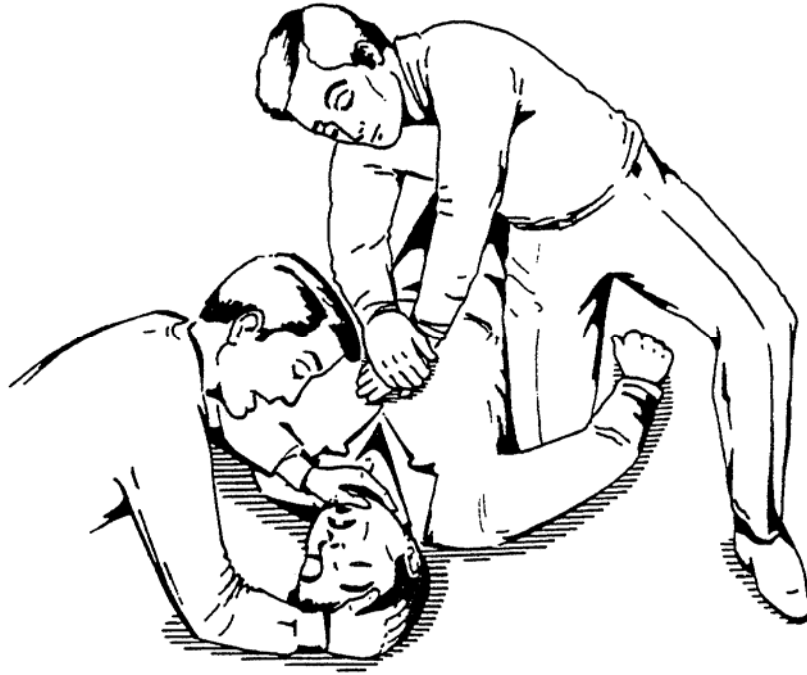


Figure 3 - External rib cage massage is made by the rescuer placed on the right side.

Mouth to mouth method is made by the rescuer placed on the left side.

#### 1.2.4 4<sup>TH</sup> ACTION TO DO : EVACUATE THE VICTIM TO A RESUSCITATION CENTRE.

- Without stopping the 2 previous actions, it's necessary to evacuate the victim to the nearest resuscitation centre.
- Transportation must be realised with an ambulance and at low speed (15 km/h). This allow the rescuers to continue the 2 actions.

These methods are very efficient if correctly executed with perseverance, but a written statement is generally insufficient for application. A training session, for practical application of these methods, is absolutely necessary for concerned staff.

## 2. SCOPE

### 2.1 IDENTIFICATION

The present document defines the maintenance procedures of the system identified as:

Project name :	GCI RADAR AND ACCESSORIES MULTIYEAR PROGRAM
System name :	Indonesian Air Defence System
Customer :	Indonesian Ministry of Defense
Document name :	SYSTEM MAINTENANCE MANUAL
Document short name :	SMM
TRS reference number :	61 118 698 - 194
CDRL reference number :	Not applicable

### 2.2 DOCUMENT PURPOSE

This document is the reference guide for all maintenance tasks related to the following Sector Operation Centres (SOC) and Control and Reporting Centres (CRC) of the program identified in §1.1:

- CRC 5 Merauke (MER),
- CRC 6 Saumlaki (SML),
- CRC 7 Timika (TIM).

As extension, out of scope of this program, it is also valid for the maintenance tasks of :

- ADOC Halim (ADOC),
- SOC 1 Halim (HLM),
- SOC 2 Makassar (MKR),
- SOC 3 Medan (MDN),
- SOC 4 Biak (BIK),
- CRC 1 Tankjung Kait (TKT),
- CRC 2 Cibalimbing (CBL),
- CRC 3 Tanjung Pinang (TPI),
- CRC 4 Biak (BIK).



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It provides all information and procedures necessary to support the Centre at Organisational and Intermediate level.

It is essentially a maintenance procedures collection which guides the maintenance staff through the suitable operations

This includes the maintenance procedures of the LRU items given in Figure 9: LRU detailed architecture of Centre.

The maintenance procedures in this document includes :

For CRC :

- The CRC hardware in the Centre building,
- The Radar-Centre link hardware in the Radar pallet if a MASTER-T is collocated with the CRC.

For SOC :

- The SOC hardware in the Centre building,
- The Airport-Civilian radars link hardware in the Airport room.

For ADOC :

- The ADOC hardware in the Centre building,
- The hardware for the laptop of the Commander named CMDR..

**In the following of the document, all this material will be named Centre.**

## 2.3 DOCUMENT STRUCTURE

The SYSTEM MAINTENANCE MANUAL document is divided into the following sections :

- Section 1 (Preliminaries: safety rules) provides safety precaution during maintenance operations,
- Section 2 (Scope) provides general information about the document,
- Section 3 (System overview) gives a global overview of the system,
- Section 4 (Centre system states) gives a description of the different states of the Centre : operational, degraded, failed,
- Section 5 (Maintenance principles) describes the overall maintenance activities, lists the types of maintenance procedures and presents the various maintenance aids,
- Section 6 ( this SMM document) gives maintenance task types and reports,
- Section 7 (Troubleshooting) explains how to troubleshoot the system,
- Section 8 (Maintenance tasks) gives a list and periodicity of the preventive maintenance tasks,
- Section 9 (Maintenance Equipment sheets) groups together all maintenance procedures gathered by equipment sheets,
- Section 10 (Administrative procedures) gives procedures for a good use of the system,
- Section 11 (Reports) gives forms to report the preventive and corrective tasks, and system technical problems,
- Section 12 (UNIX Commands) gives some aids to use the operating system.

## 2.4 APPLICABLE AND REFERENCE DOCUMENTS

The applicable change or revision level of each listed document is the one in effect on the issue date of this document unless indicated otherwise.

### 2.4.1 APPLICABLE DOCUMENTS

- [1] Technical proposal n° PRO/19742/06 Rev.1 - C2BB April 2007
- [2] Contract n° TRAK/382/II/2008

## 2.4.2 REFERENCE DOCUMENTS

- [3] Operator handbook for the TEC functions of the SOC, CRC & ADOC (OH TEC)  
61 118 698 A – 108
- [4] Detail install for the Indonesian Air Defence System 61 118 698 - 573
- [5] Simu\_MROC User Manual - rev. A - 17 January 2010

The manufacturer documents referenced in the equipment sheets are listed below and provided on the SMM documentation CD:

<b>Manufacturer Documentation</b>	<b>Reference</b>
SUN ULTRA 45 & 25 WORKSTATIONS SERVICE AND DIAGNOSTICS MANUAL	819-1892-12
SUN ULTRA 45 & 25 WORKSTATIONS GETTING STARTED GUIDE	819-1894-13
SUN BLADE 1500 SERVICE, DIAGNOSTICS, AND TROUBLESHOOTING MANUAL	817-5127-11
SUN BLADE 1500 TROUBLESHOOTING CARD	817-5125-11
SUN BLADE 1500 GETTING STARTED GUIDE	817-5129-11
SUN FIRE V215 AND V245 SERVERS – ADMINISTRATION GUIDE	819-3036-10
SUN FIRE V215 AND V245 SERVERS – SERVICE MANUAL	819-3038-10
SUN FIRE V215 AND V245 SERVERS – GETTING STARTED GUIDE	819-3041-10
SUN FIRE V210 AND V240 SERVERS - ADMINISTRATION GUIDE	816-4826-11
SUN FIRE V210 AND V240 SERVERS – PARTS REPLACEMENT MANUAL	817-0743-1
PLINESE4 AND PLINESE8 COMMUNICATION SERVER USER'S GUIDE	V1.
3COM SUPERSTACK 3 BASELINE 10/100 SWITCH 16 PORT USER GUIDE	DUA 1647-0AAA01
SAMSUNG SYNCMASTER 214T USER'S MANUAL	BN59-00395V-01
SAMSUNG SYNCMASTER 213T USER'S MANUAL	BN59-00361A-01
SCREEN 24 HP LP2475W QUICK SPEC	
SCREEN 24 HP LP2475W USER GUIDE	
USER'S MANUAL V34 FAX-MODEM – AJ 2885P	P/N 8000 601 953
USER'S MANUAL V34 FAX-MODEM – AJ 2885P	P/N 8000 601 953
AMS16 – SMART RACK, USER AND INSTALLATION MANUAL	P/N 8000 601 203
HP COLOR LASERJET 4700 USER GUIDE	Q7491-90953
HP LASERJET 4650 USER GUIDE	Q3668-90909
LEDI NETWORK OPERATING INSTRUCTION	FOR 19/F/529/A
LEDI NETWORK OPERATING INSTRUCTION	FOR 19/A/530/E
USER MANUAL RT B GPS	FOR 09/A/450B
BARCO IQ RREALITY 500 OWNER'S MANUAL	R5976693/00
BARCO LAMP KIT FOR IQ PROJECTORS, INSTALLATION MANUAL	R5976375/01
PLASMON MOD 910 USER MANUAL	ML-00698 (0)
DAT72 GETTING STARTED GUIDE	791-4770-01

### 3. SYSTEM OVERVIEW

#### 3.1 INDONESIAN AIR DEFENCE SYSTEM OVERVIEW

The Indonesian Air Defence System (IAD system) is one of the forces components whose major task is the defence of Indonesian nation and territory.

In this context the following operational missions are assigned to the IAD system:

- Airspace surveillance and coordination
- Airspace management (or management of the third dimension)
- Air policing
- Important sites protection against air threats

In other words, the IAD system has to:

- Detect any platform flying over the territory, whatever its velocity, shape, altitude
- Identify any platform
- Conduct the necessary counter measures (e.g. visual sighting, engagement, interception)

To fulfil these missions, Air Force has its own assets that are (not exhaustively):

- Sensors: radars TRS2215 & 2230, Master-T, BAe AR325D, Civilian radars
- Control and Command (C2) centres: ADOC, SOCs and CRCs
- Weapons: fighters, SAM batteries, helicopters, transports
- Other resources: airbases, squadrons
- Communications means: satellite system with equipment (SBM, fix or mobile) between centres and satellite antenna, HF communications between centres, airbases, and finally UHF/VHF communications for direct link to fighters

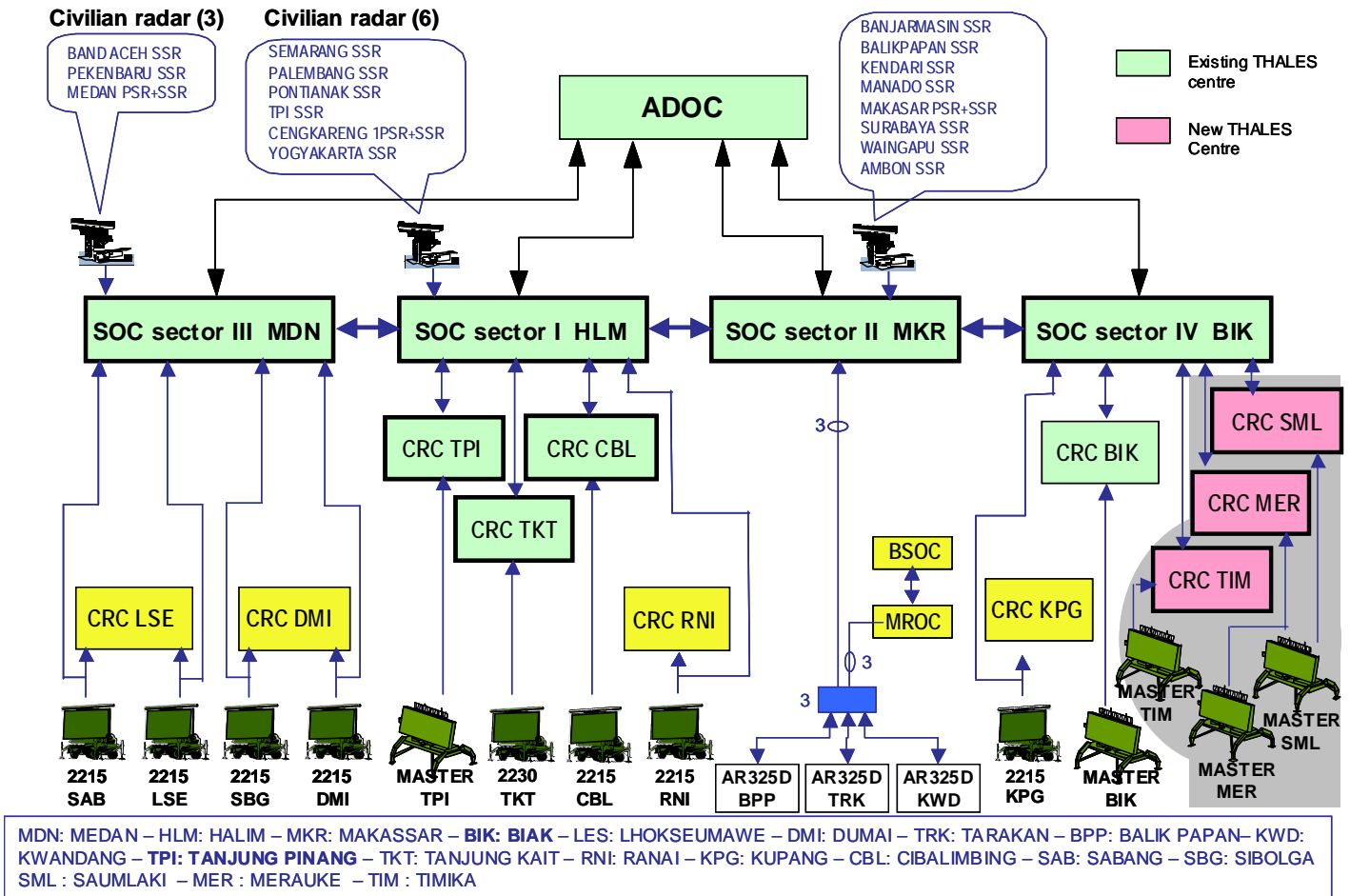


Figure 4 : System overview

### 3.2 SOC CENTRE OVERVIEW

The main operational functions performed by the SOC are :

- Establishment of the regional air situation thanks to the Regional Air Picture from the CRCs and lateral SOC in order to obtain a coherent picture of the air situation in the airspace and in its peripheral approach area. The Recognised Air Picture (RAP) enables the surveillance and the control,
- Surveillance of the airspace,
- Supervision of the air traffic,

- Diffusion of the air situation to the lateral SOC(s) if any, and ADOC,
- Manual and automatic threat evaluation according to the air situation,
- Flight Plan Management,
- Establishment of a synthetic status of the Air Defence means,
- Weapon trial for fighter and SAM interception,
- Engagement and control of Air Defence resources in order to accomplish the air defence missions and sky policy,
- Control of fighter interceptions in its area of responsibility,
- Supervision of SAM interceptions in its area of responsibility.

### 3.3 CRC CENTRE OVERVIEW

The main operational functions performed by the CRC are :

- Establishment of the local air situation thanks to the local radar, and the connected Early Warning (EW) radar,
- Surveillance of the airspace,
- Supervision of the air traffic,
- Reception of the Regional Air Picture from the SOC in order to obtain a coherent picture of the air situation in the airspace and in its peripheral approach area. The Recognised Air Picture (RAP) enables the surveillance and the control,
- Diffusion of the air situation to the relevant SOC,
- Manual and automatic threat evaluation according to the air situation,
- Flight Plan Management,
- Establishment of a synthetic status of the Air Defence means,
- Weapon trial for fighter interception,
- Engagement and control of Air Defence resources in order to accomplish the air defence missions and sky policy,
- Control of fighter interceptions in its area of responsibility under supervision of the relevant SOC in operational mode.
- Control of fighter interceptions in its area of responsibility in autonomous mode.

The information are presented to the Controllers in real time in a clearly structured manner in order to facilitate the comprehension of a given Air Situation.

### 3.4 ADOC CENTRE OVERVIEW

The main operational functions performed by the ADOC are :

- Surveillance of the airspace,

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- Supervision of the air traffic,
- Manual and automatic threat evaluation according to the air situation,
- Flight Plan Management,
- Establishment of a synthetic status of the Air Defence means,
- Weapon trial for fighter and SAM interception,
- Engagement and control of Air Defence resources in order to accomplish the air defence missions and sky policy,
- Control of fighter interceptions in its area of responsibility,
- Supervision of SAM interceptions in its area of responsibility.

### 3.5 PRESENTATION OF THE SECTOR OPERATION CENTRE (SOC)

#### 3.5.1 PHYSICAL PRESENTATION OF THE SOC

The following figures give :

- At the level NODE architecture :
  - The node detailed architecture of SOC1
  - The node detailed architecture of SOC2
  - The node detailed architecture of SOC3
  - The node detailed architecture of SOC4
  
- At the level LRU architecture :
  - The LRU detailed architecture for all SOCs
  - The LRU detailed architecture of external links for SOC1
  - The LRU detailed architecture of external links for SOC2
  - The LRU detailed architecture of external links for SOC3
  - The LRU detailed architecture of external links for SOC4



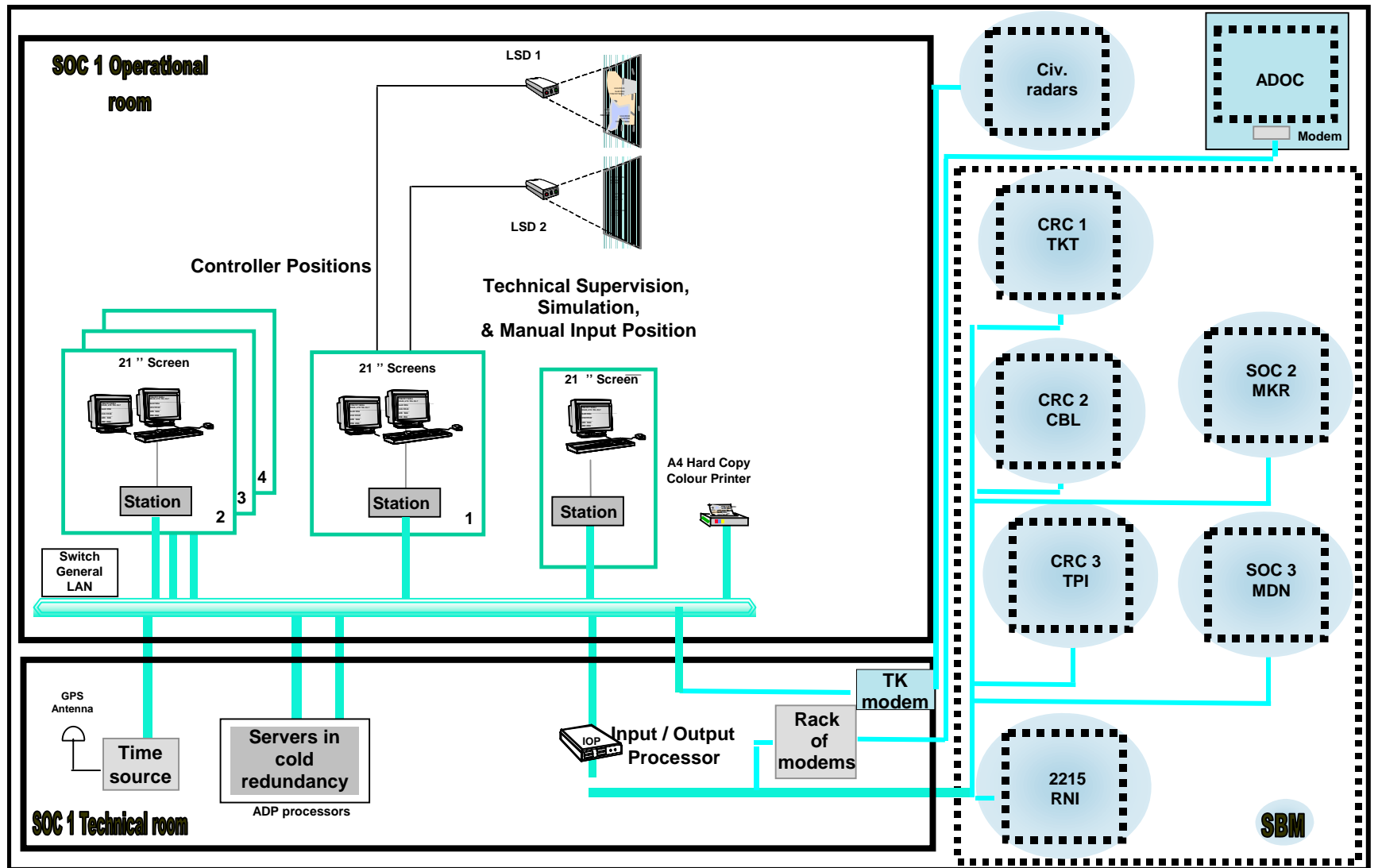


Figure 5 : NODE detailed architecture of Centre SOC 1

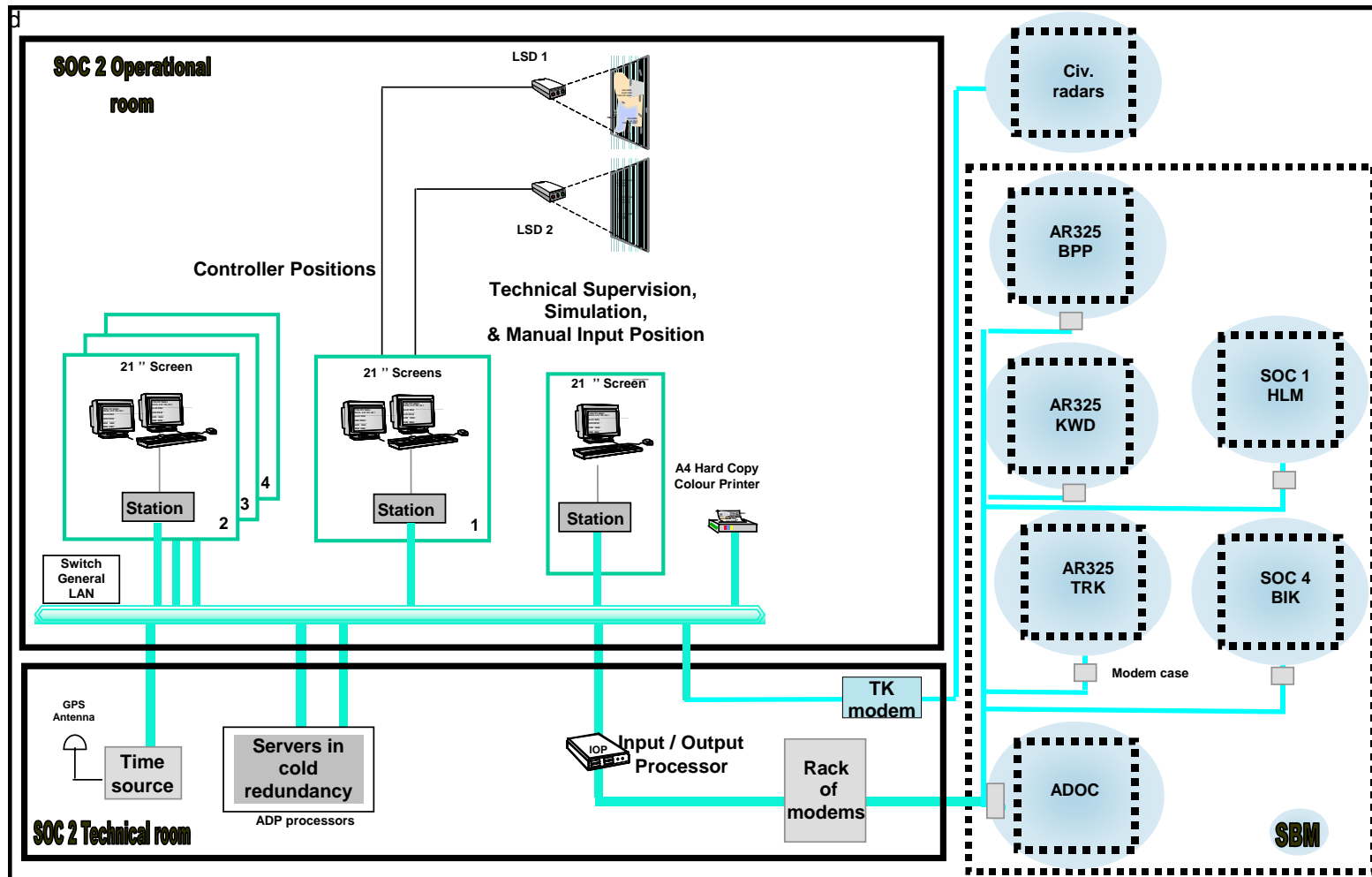


Figure 6 : NODE detailed architecture of Centre SOC 2

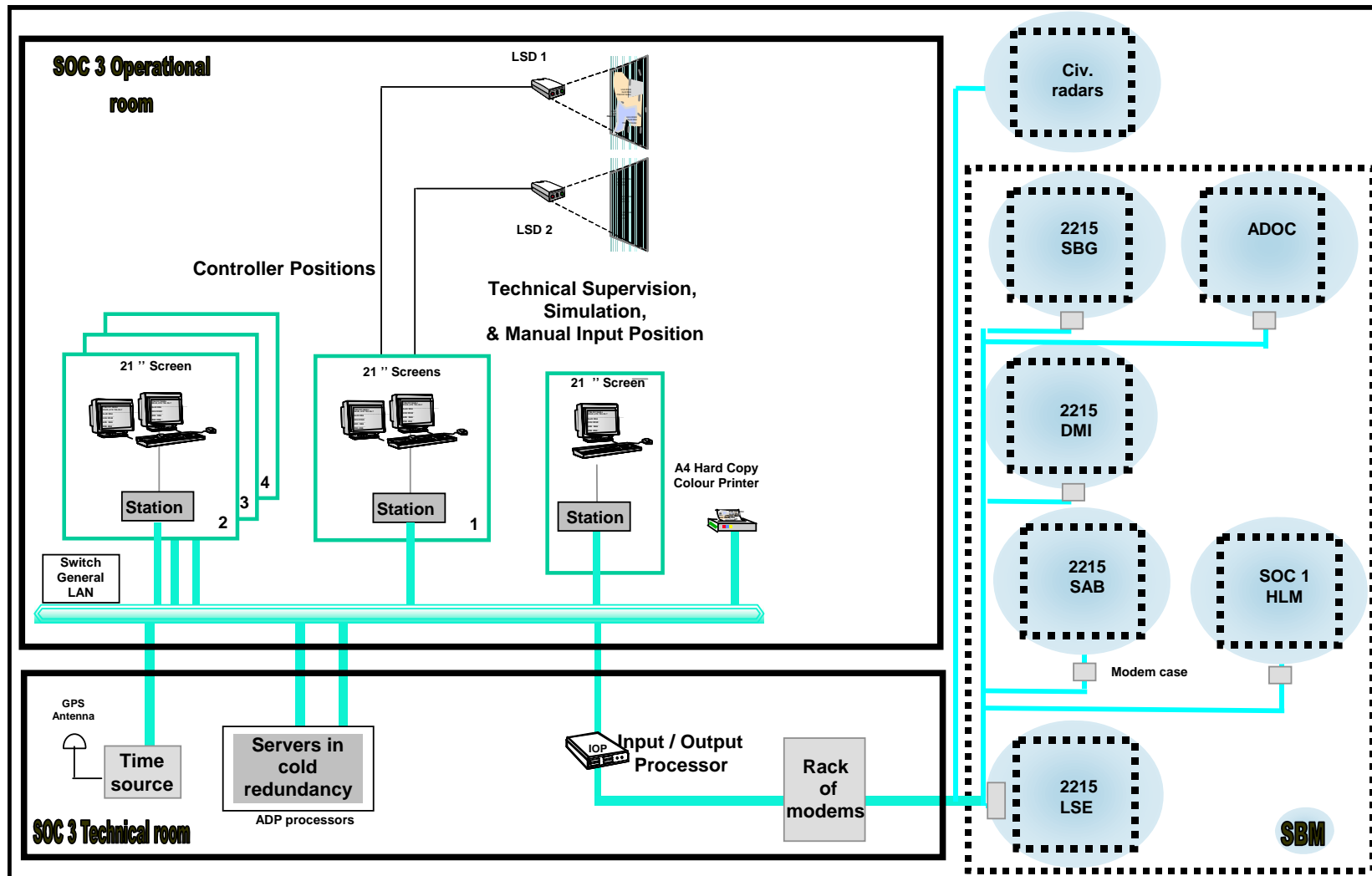


Figure 7 : NODE detailed architecture of Centre SOC 3

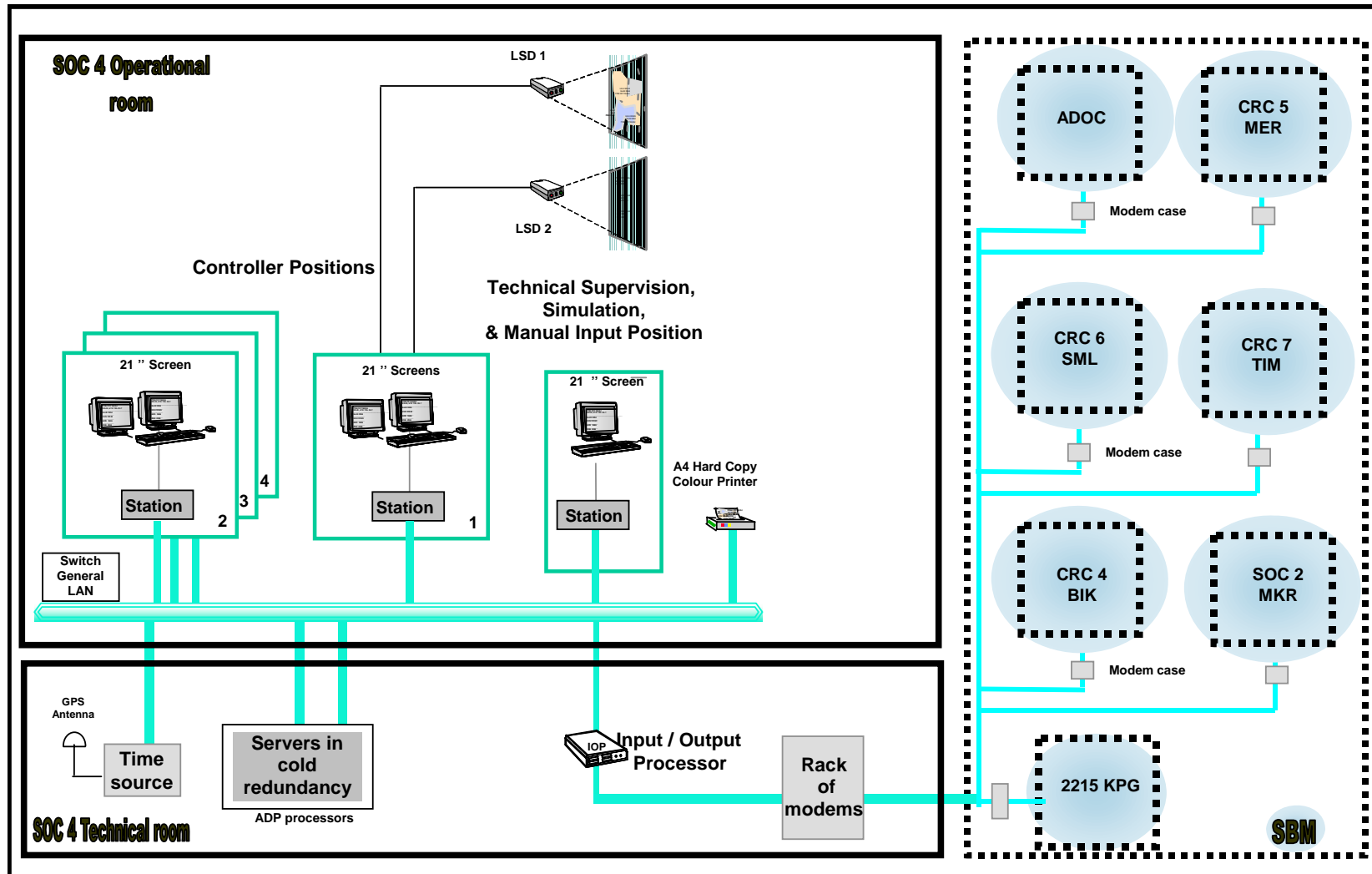


Figure 8 : NODE detailed architecture of Centre SOC 4

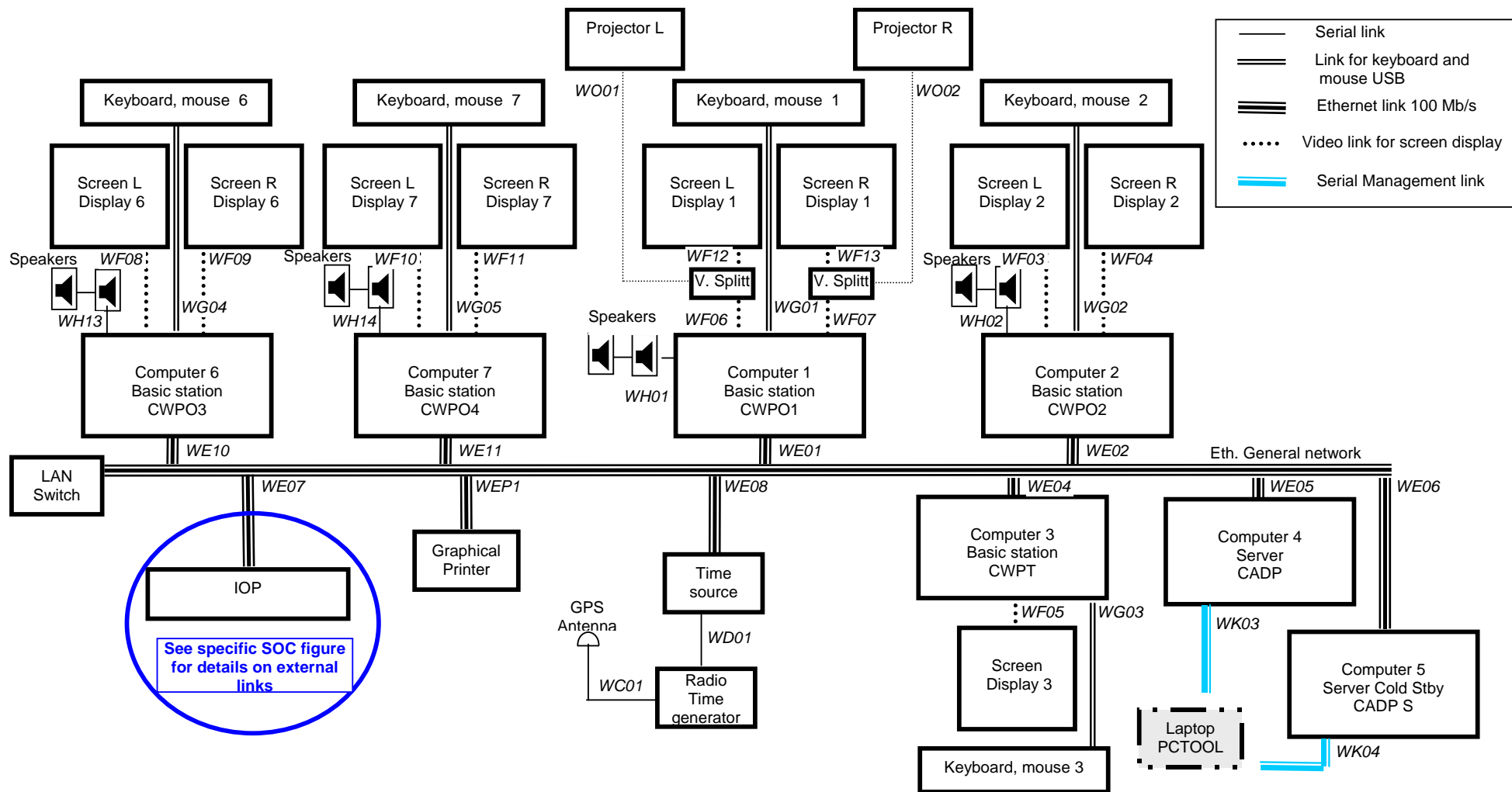


Figure 9 : LRU detailed architecture of Centre SOC

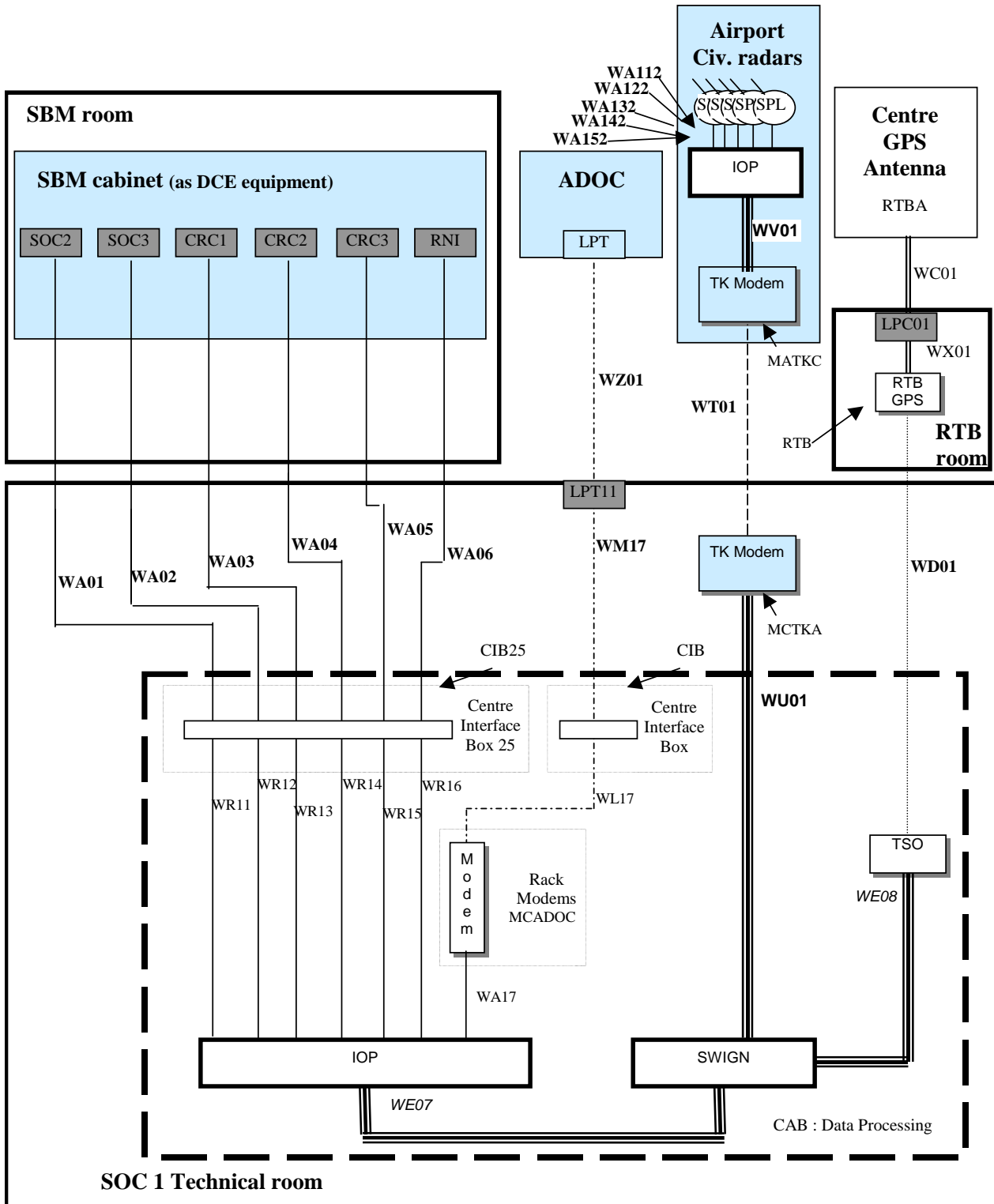


Figure 10 : LRU detailed architecture of external links for Centre SOC 1

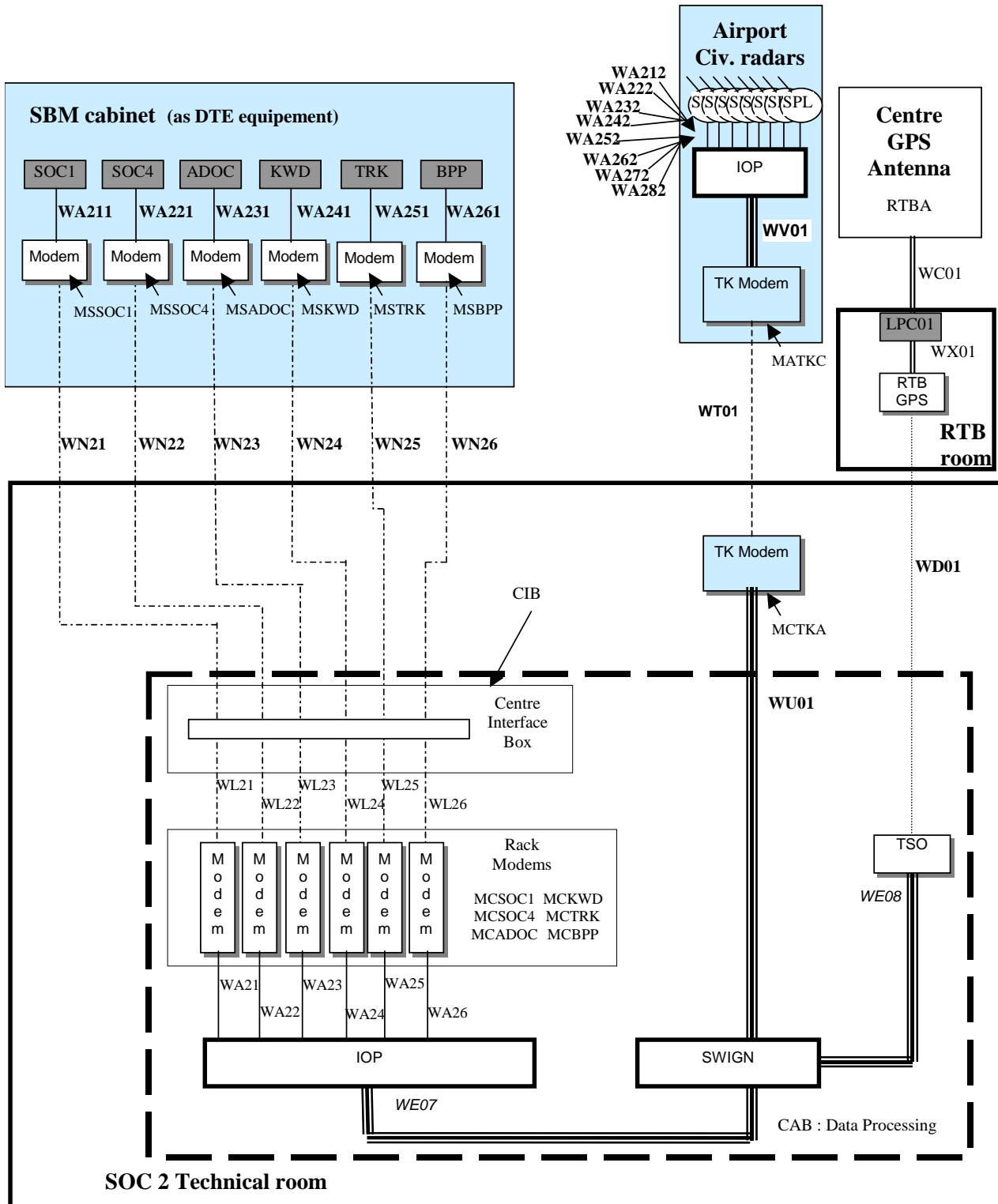


Figure 11 : LRU detailed architecture of external links for Centre SOC 2

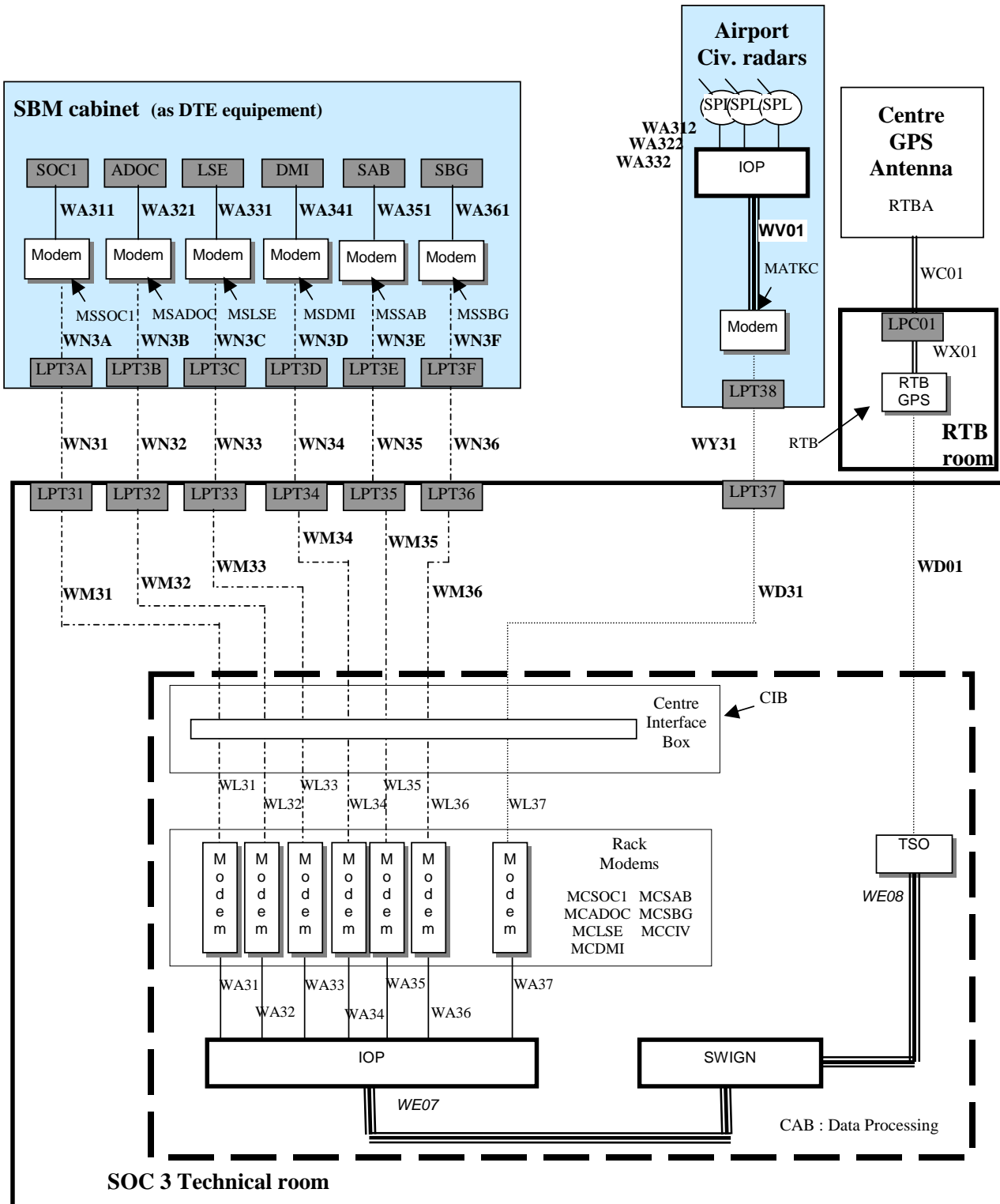


Figure 12 : LRU detailed architecture of external links for Centre SOC 3



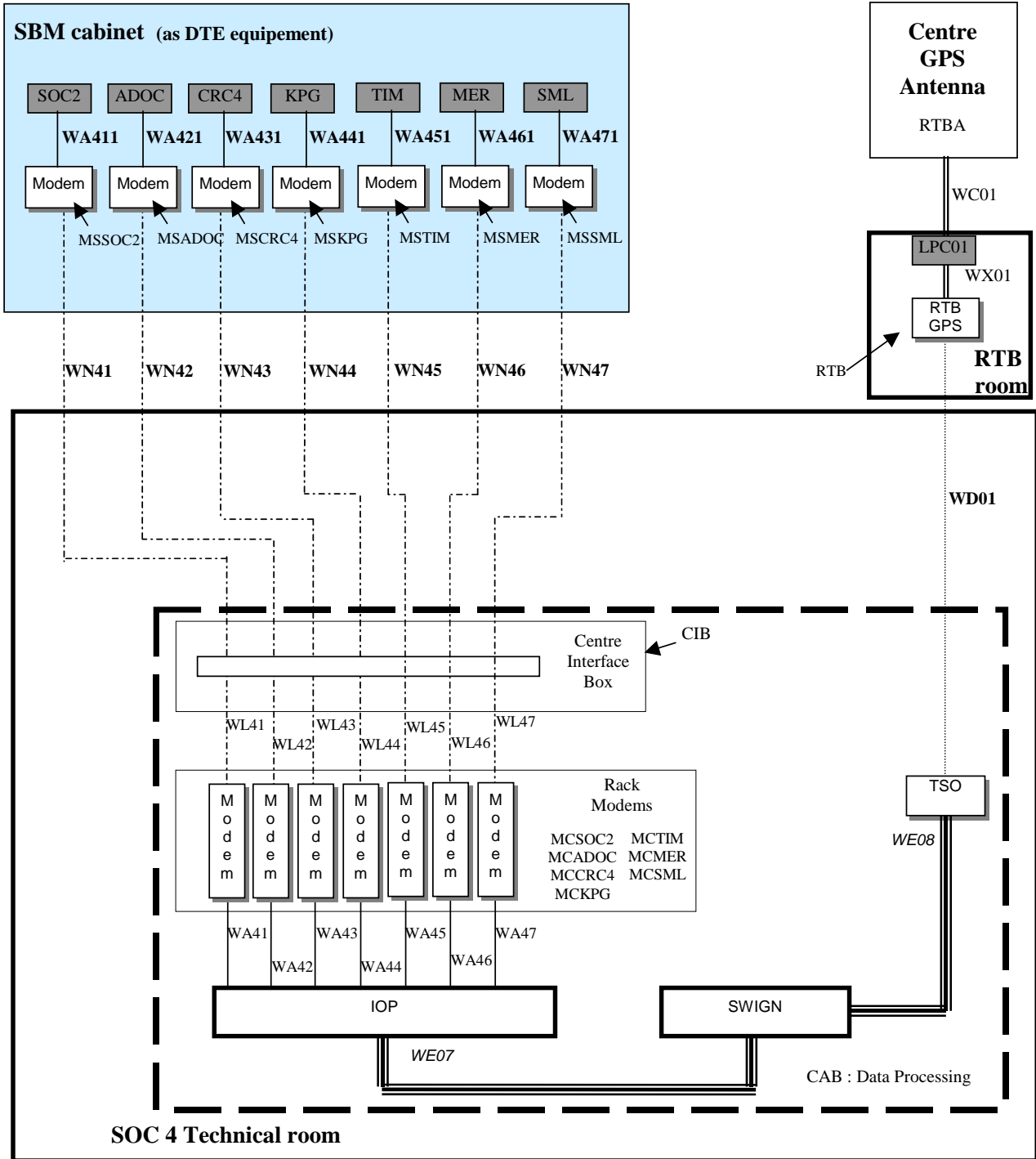


Figure 13 : LRU detailed architecture of external links for Centre SOC 4

### 3.5.2 SOC NETWORK TOPOGRAPHY

The purpose of this chapter is to give the hosts and addresses of each LRU connected on the General LAN of the SOC system:

- its name in the supervision window,
- its IP address,
- its UNIX hostname.

Name in supervision	IP address	Hostname	LRU
ADP	192.168.45.001	adp1	Air Data Processor
WPT	192.168.45.002	wpt1	Working Position : Technical
WPO1	192.168.45.003	wpo1	Working Position : Operational 1
WPO2	192.168.45.004	wpo2	Working Position : Operational 2
IOP_1	192.168.45.005	lin1	(First) Input Output Processor
GPR	192.168.45.006	pri1	Graphical Printer
TSO	192.168.45.007	tso1	Time Source
-	192.168.45.011	linL	Loading address for IOP
IOP_2	192.168.45.012	lin2	IOP AIRPORT (civilian radar)
-	192.168.45.013	-	Reserved
-	192.168.45.014	-	Reserved
-	192.168.45.015	-	Reserved
WPO3	192.168.45.016	wpo3	Working Position : Operational 1
WPO4	192.168.45.017	wpo4	Working Position : Operational 2
-	192.168.45.019	lin3	IOP for BAE radar
-	192.168.45.020	laptop	Tool laptop

Table 1 – General LAN addresses for SOC

Note : The IOP\_2 is applicable only for SOC system connected with civilian radars by a multiplexed link.

The IOP\_2 (IOP Airport) is in the airport interconnection room for SOC1 and SOC3.

The IOP\_2 (IOP Airport) is in the technical room of the centre for SOC2.

Note : The IOP\_3 is applicable only for SOC3 which controls the BAE radar.

### 3.5.3 CENTRE INTERFACES

### 3.5.3.1 Internal interfaces

All the internal interfaces gather standard links are given in Figure 9 to Figure 13:

- Serial links
- Ethernet links
- Telecommunication links
- Video links
- USB links.

### 3.5.3.2 External interfaces

The external interfaces depend on the centre type (SOC, CRC) and depend on the site.

The figures in paragraphs 3.5.1 and 3.6.1 give the external interfaces taken into account by the following centres of the system :

- SOC I HLM
- SOC II MKR
- SOC III MDN
- SOC IV BIK
- CRC1 TKT
- CRC2 CBL
- CRC3 TPI
- CRC4 BIK
- CRC5 MER
- CRC6 SML
- CRC7 TIM

The following tables give the external connections on the IOP(s) for all CRC centres:

- the IOP,
- the port number on the IOP,
- the name of the connected radar or centre.

IOP	port number	connected radar or centre
IOP_1	1	ADOC
IOP_1	2	SOC MKR
IOP_1	3	CRC TKT
IOP_1	4	CRC CBL
IOP_1	5	CRC TPI
IOP_1	6	-
IOP_1	7	CRC RNI
IOP_1	8	SOC MDN
IOP_2	1	civilian radar of CKG
IOP_2	2	civilian radar of TJP
IOP_2	3	civilian radar of YOGA

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IOP_2	4	civilian radar of PNK
IOP_2	5	civilian radar of SMG
IOP_2	6	civilian radar of PLB
IOP_2	7	-
IOP_2	8	-

Table 2 – External interfaces for the SOC of HLM

<b>IOP</b>	<b>port number</b>	<b>connected radar or centre</b>
IOP_1	1	ADOC
IOP_1	2	SOC BIK
IOP_1	3	BAE radar of BPP
IOP_1	4	BAE radar of KWD
IOP_1	5	BAE radar of TRK
IOP_1	6	-
IOP_1	7	-
IOP_1	8	SOC HLM
IOP_2	1	radar of MKR
IOP_2	2	radar of BJM
IOP_2	3	radar of BPN
IOP_2	4	radar of KDI
IOP_2	5	radar of MNO
IOP_2	6	radar of SBY
IOP_2	7	radar of WGP
IOP_2	8	Civilian radar of AMBON
IOP_3	1	BAE radar of BPP
IOP_3	2	BAE radar of KWD
IOP_3	3	BAE radar of TRK
IOP_3	4	-
IOP_3	5	-
IOP_3	6	-
IOP_3	7	-
IOP_3	8	-

Table 3 – External interfaces for the SOC of MKR

<b>IOP</b>	<b>port number</b>	<b>connected radar or centre</b>
IOP_1	1	ADOC
IOP_1	2	SOC HLM
IOP_1	3	CRC LSE

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IOP_1	4	CRC DMI
IOP_1	5	2215 radar of SAB
IOP_1	6	radar of SBG
IOP_1	7	2215 radar of SBG
IOP_1	8	-
IOP_2	1	radar of MDN
IOP_2	2	radar of BAC
IOP_2	3	radar of PKU
IOP_2	4	-
IOP_2	5	-
IOP_2	6	-
IOP_2	7	-
IOP_2	8	-

Table 4 – External interfaces for the SOC of MDN

<b>IOP</b>	<b>port number</b>	<b>connected radar or centre</b>
IOP_1	1	ADOC
IOP_1	2	-
IOP_1	3	CRC BIK
IOP_1	4	CRC TIM
IOP_1	5	CRC MER
IOP_1	6	CRC SML
IOP_1	7	radar of KPG
IOP_1	8	SOC MKR

Table 5 – External interfaces for the SOC of BIK

## 3.6 PRESENTATION OF THE CONTROL REPORTING CENTRE (CRC)

### 3.6.1 PHYSICAL PRESENTATION OF THE CRC

The following figures give :

- At the level NODE architecture :
  - The node detailed architecture of CRC1 TKT
  - The node detailed architecture of CRC2 CBL
  - The node detailed architecture of CRC3 TPI
  - The node detailed architecture of CRC4 BIK
  - The node detailed architecture of CRC5 MER
  - The node detailed architecture of CRC6 SML
  - The node detailed architecture of CRC7 TIM
  
- At the level LRU architecture :
  - The LRU detailed architecture for all CRCs
  - The LRU detailed architecture of external links for CRC1 TKT
  - The LRU detailed architecture of external links for CRC2 CBL
  - The LRU detailed architecture of external links for CRC3 TPI
  - The LRU detailed architecture of external links for CRC4 BIK
  - The LRU detailed architecture of external links for CRC5 MER
  - The LRU detailed architecture of external links for CRC6 SML
  - The LRU detailed architecture of external links for CRC7 TIM

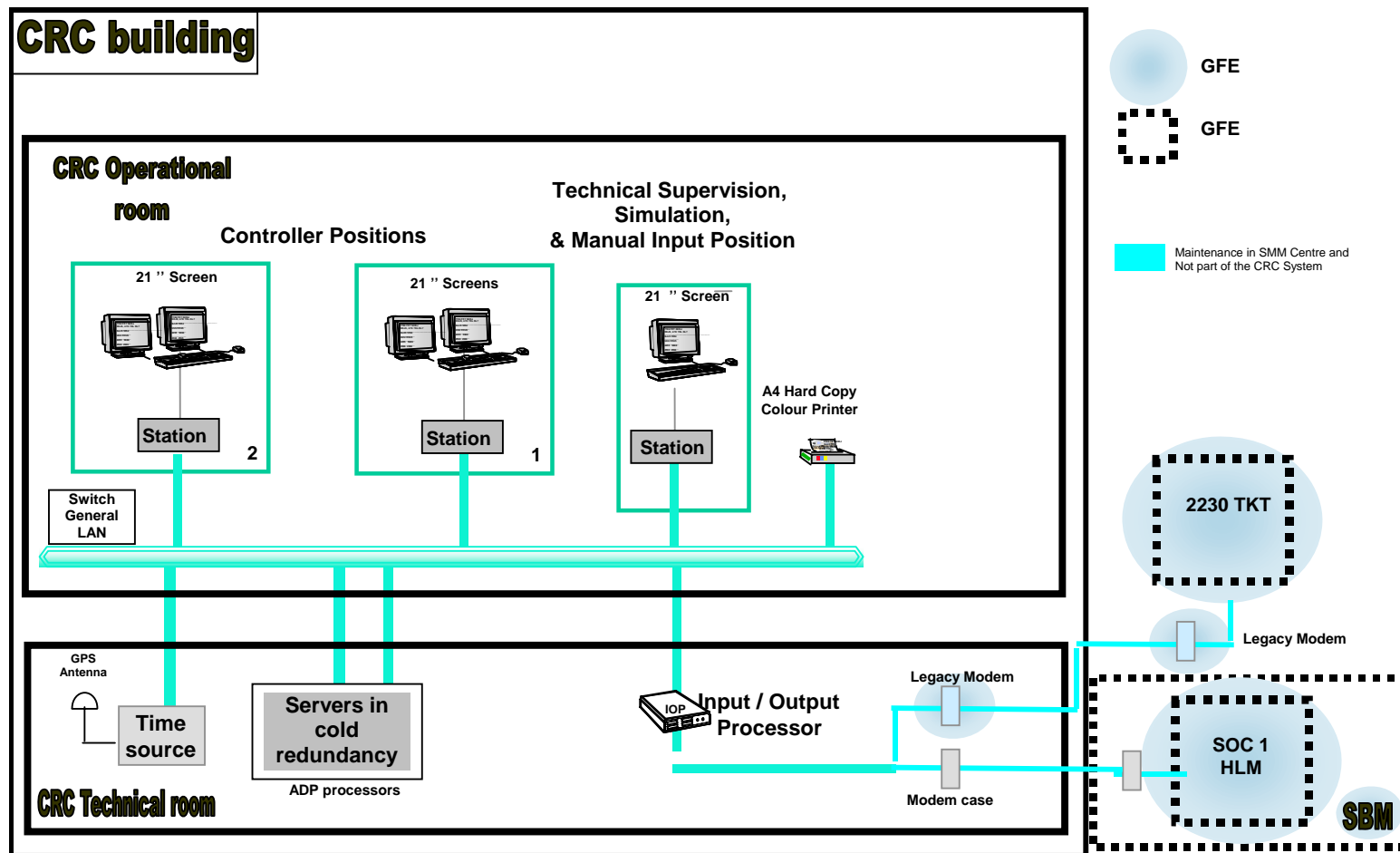


Figure 14 : NODE detailed architecture of Centre CRC1 TKT

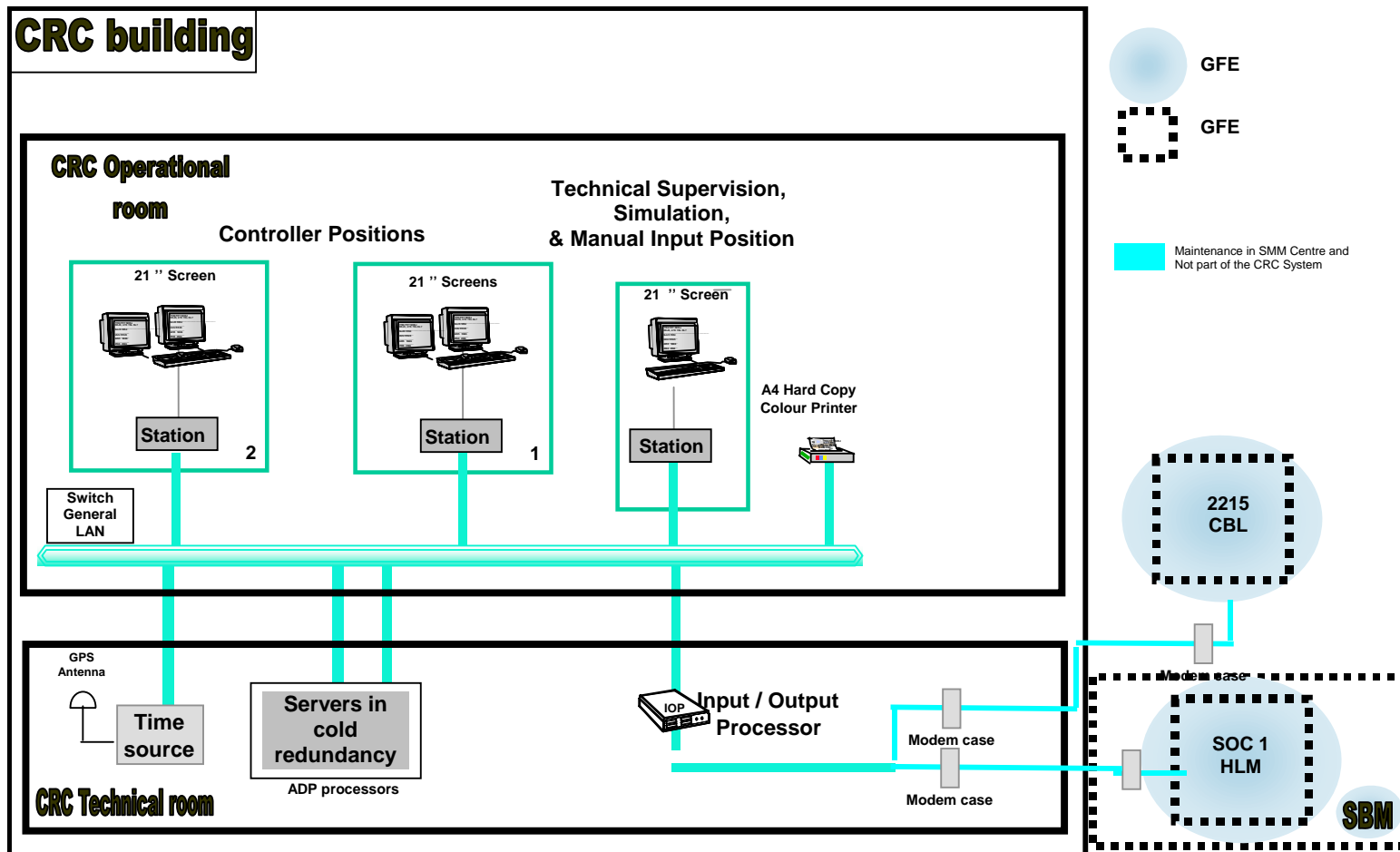


Figure 15 : NODE detailed architecture of Centre CRC2 CBL



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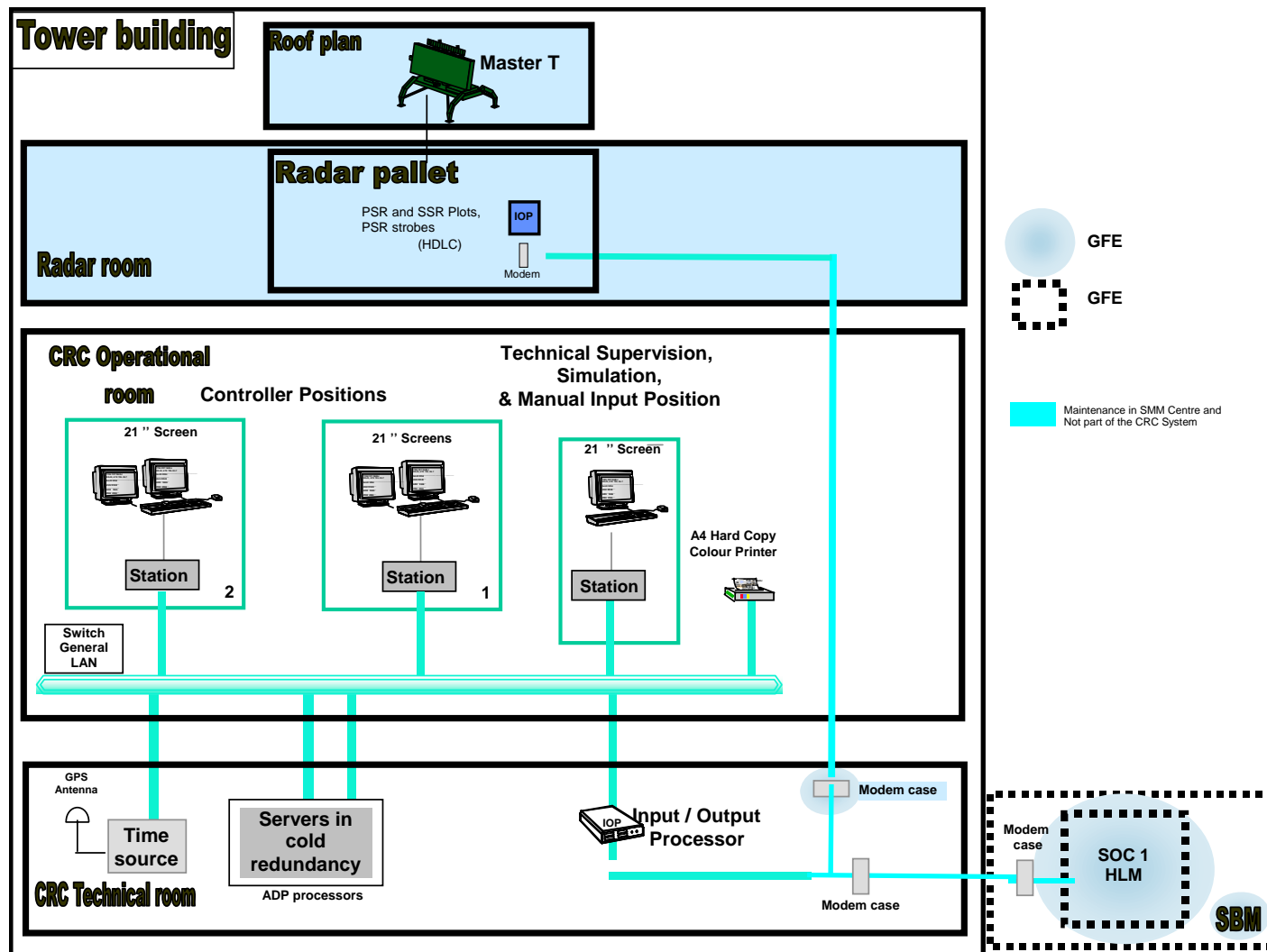


Figure 16 : NODE detailed architecture of Centre CRC3 TPI

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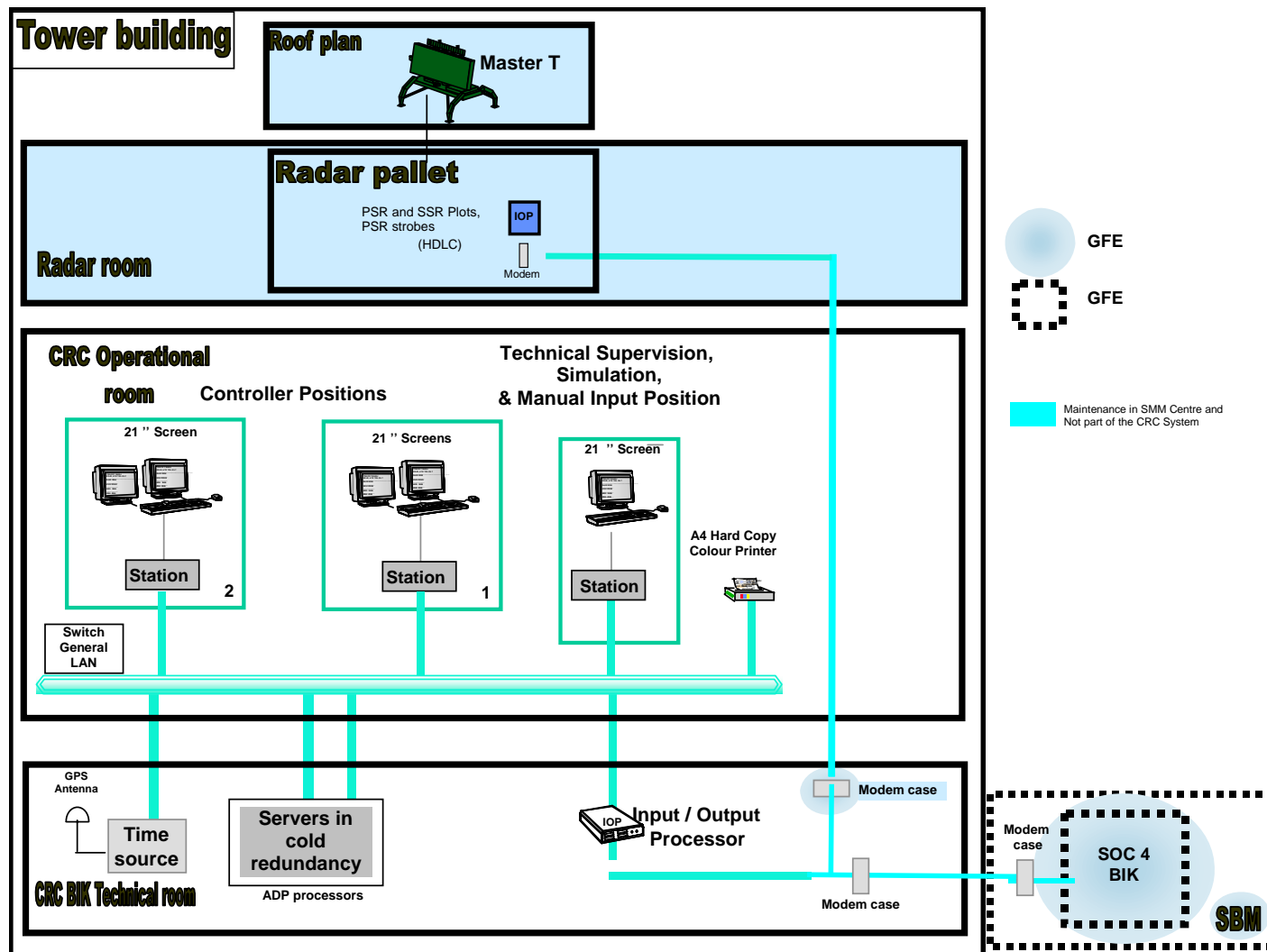


Figure 17 : NODE detailed architecture of Centre CRC4 BIK

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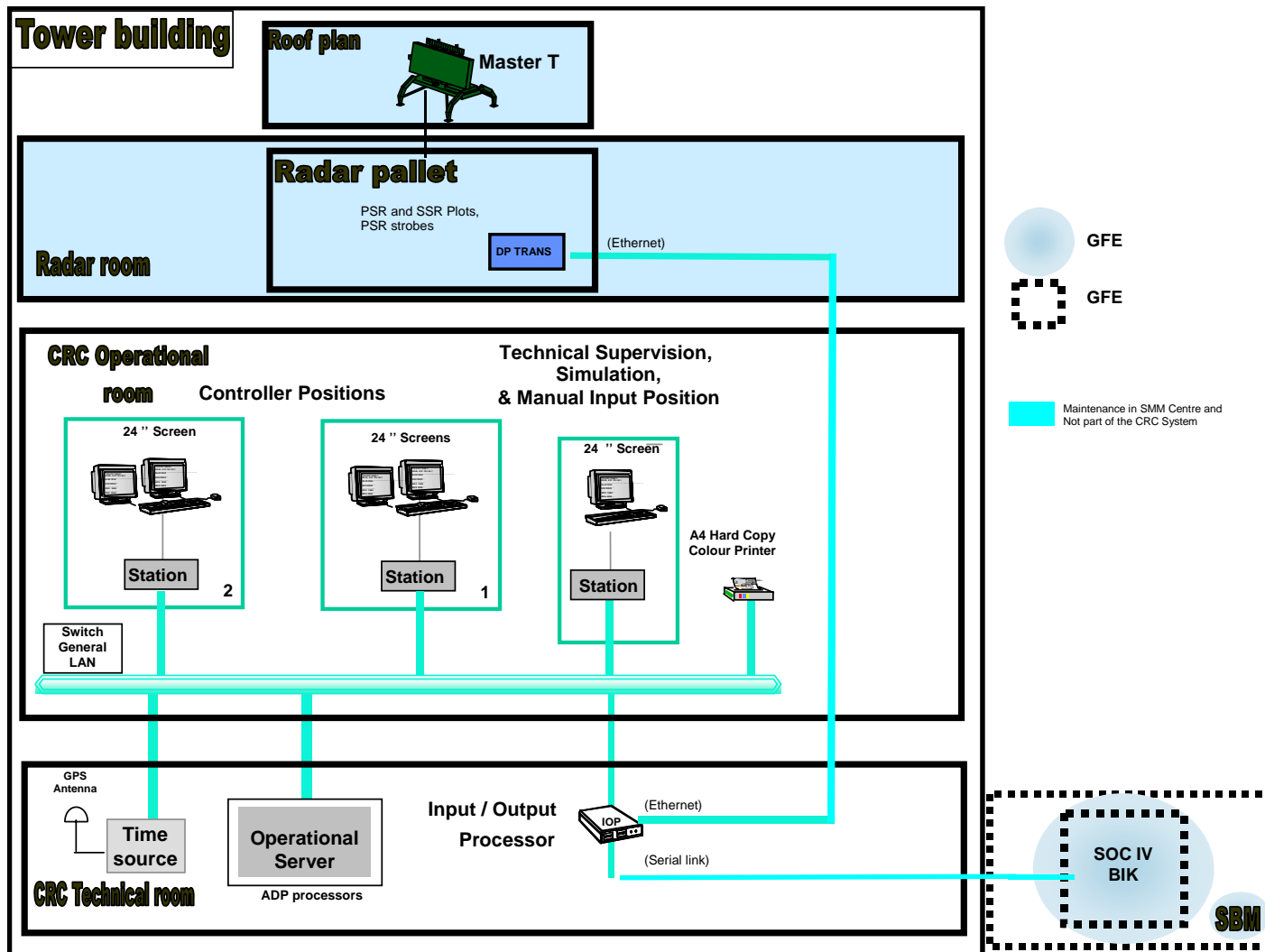


Figure 18 : NODE detailed architecture of CRC5 MER,CRC6 SML,CRC7 TIM

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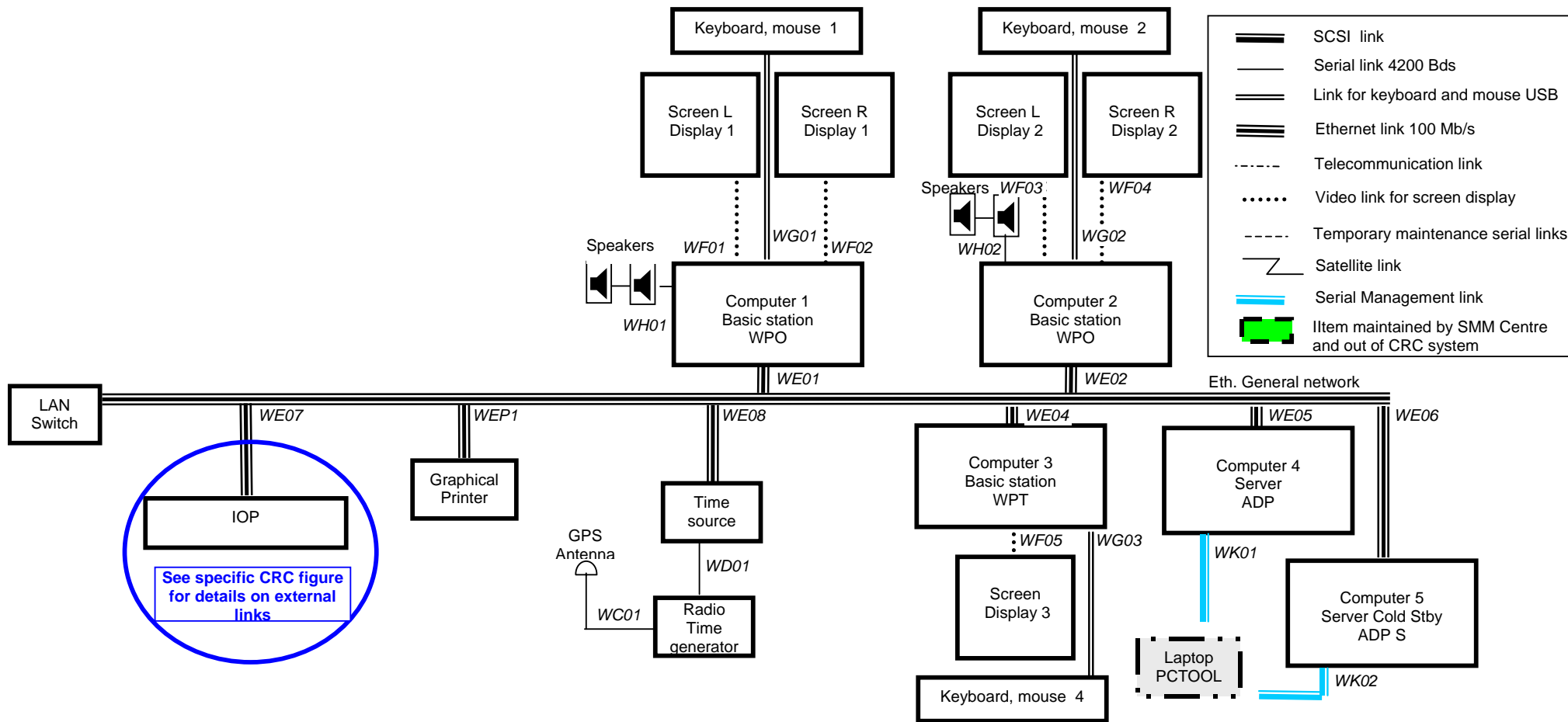


Figure 19 : LRU detailed architecture of Centre CRC

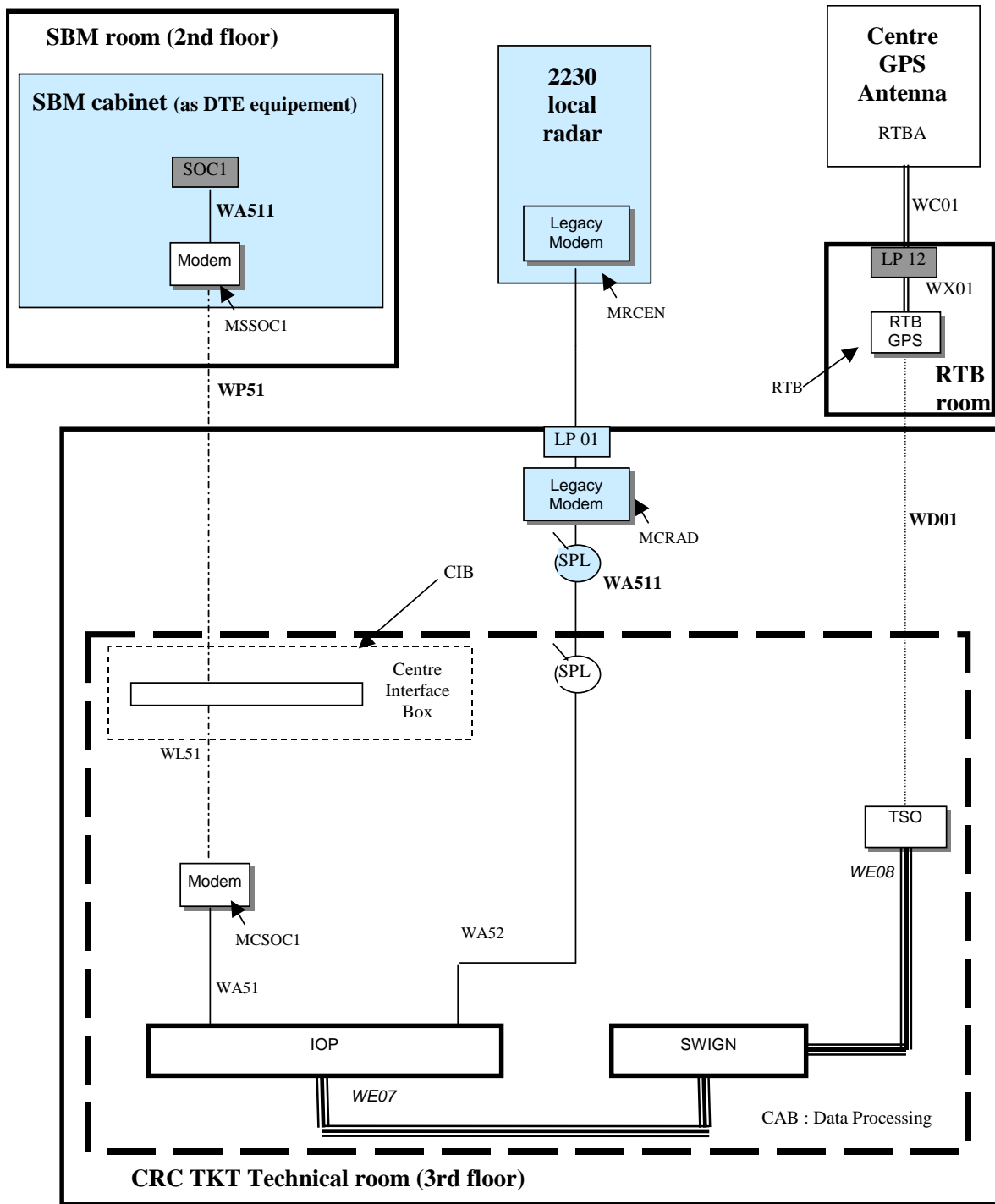


Figure 20 : LRU detailed architecture of external links for Centre CRC1 TKT

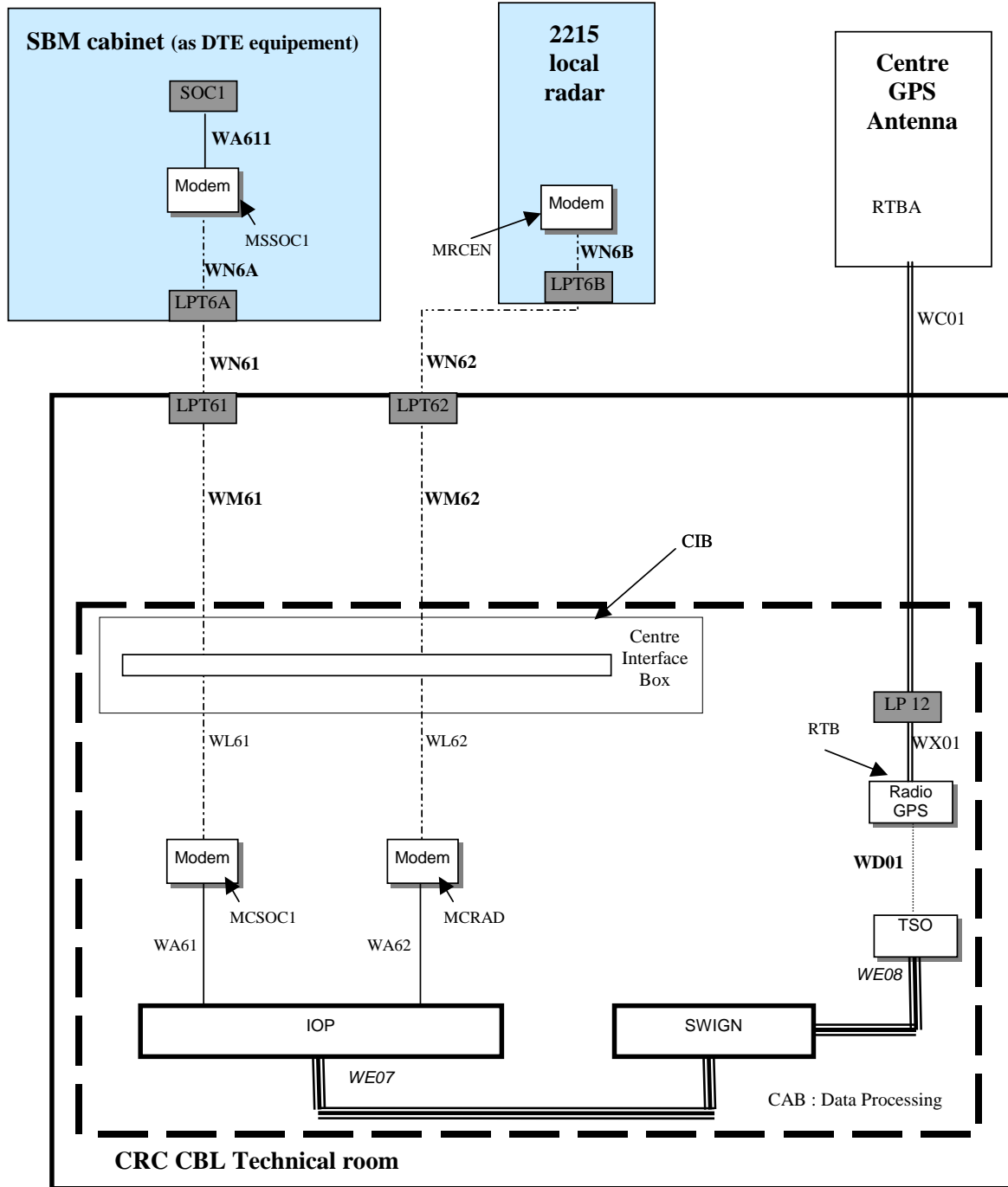


Figure 21 : LRU detailed architecture of external links for Centre CRC2 CBL

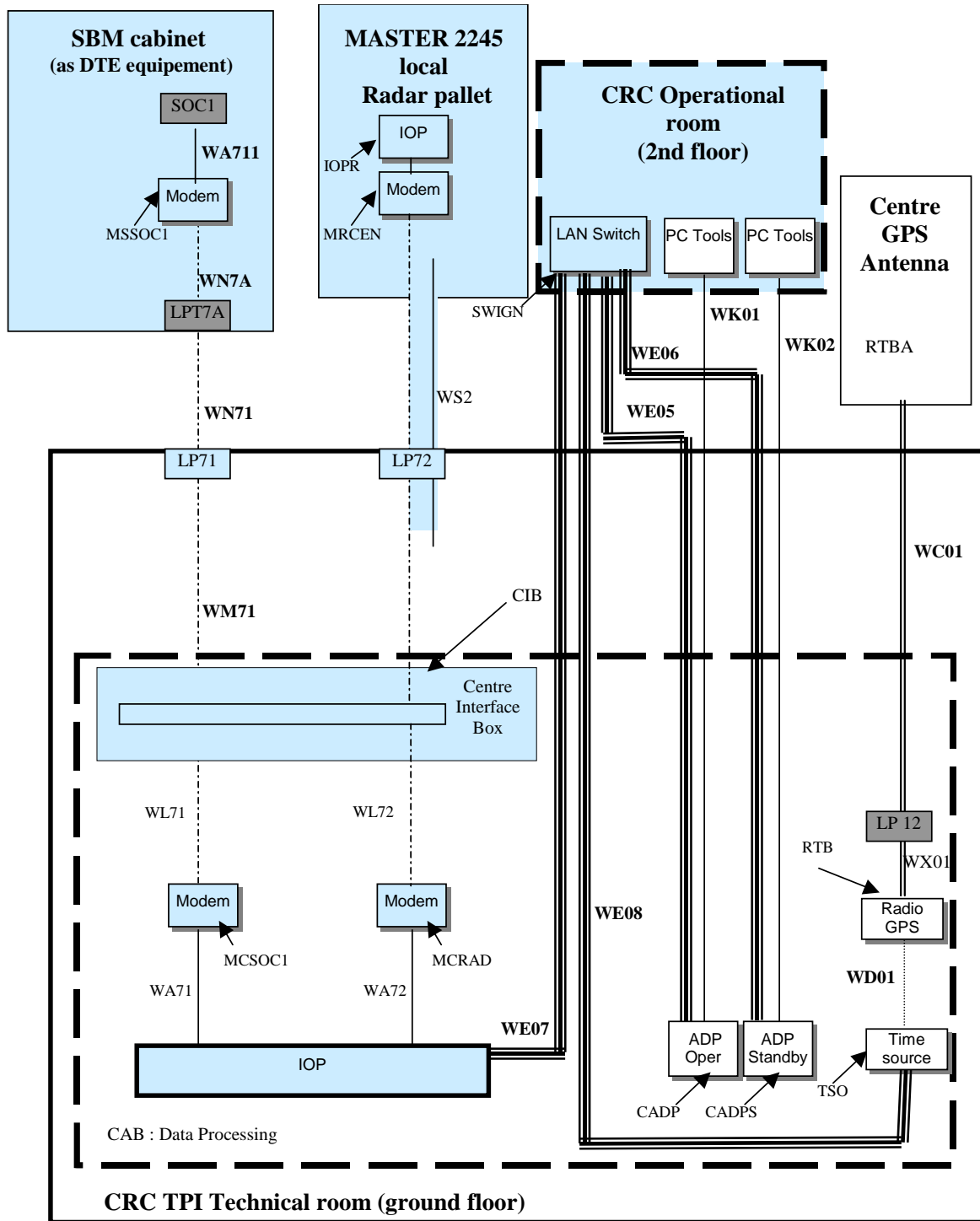


Figure 22 : LRU detailed architecture of external links for Centre CRC3 TPI

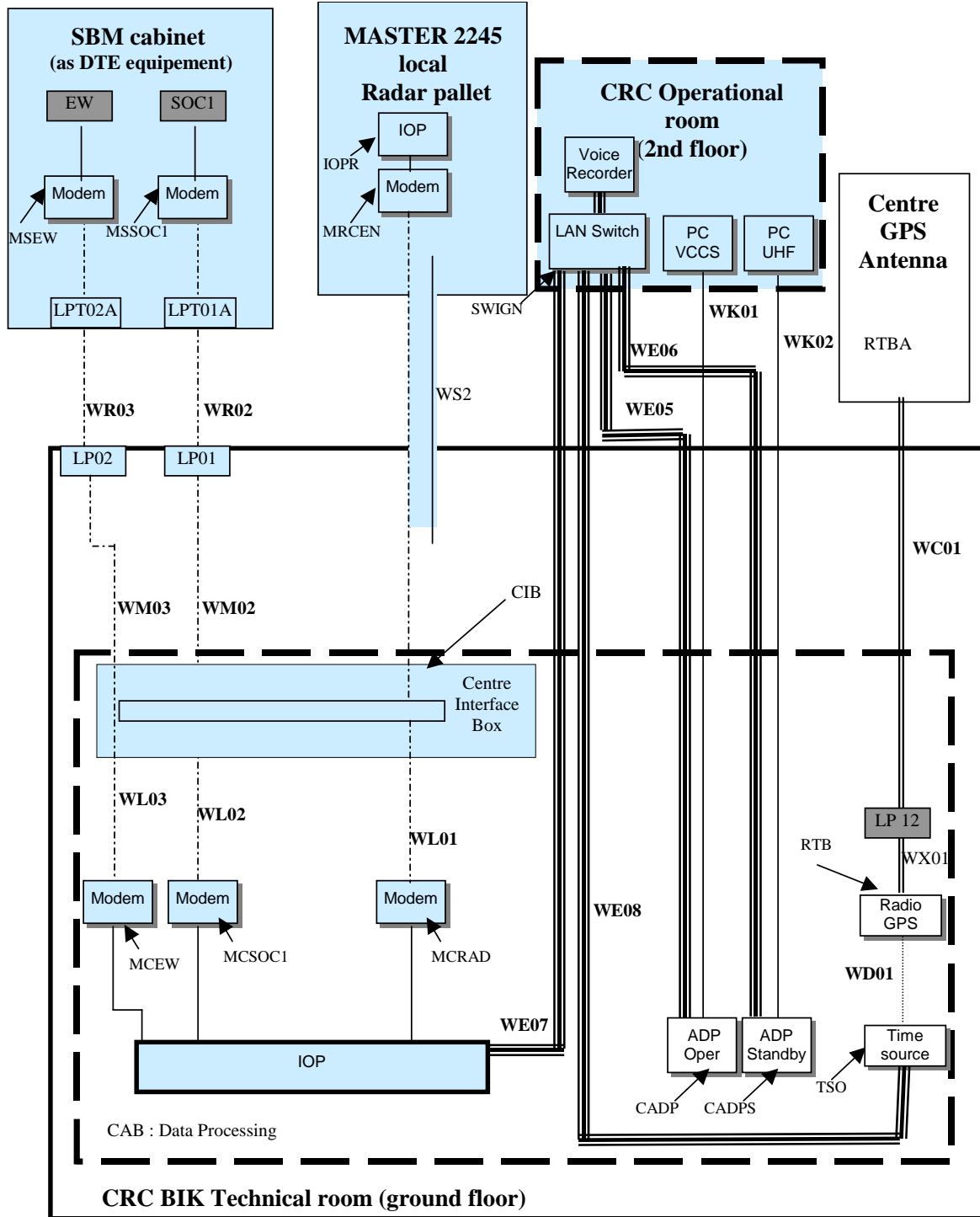


Figure 23 : LRU detailed architecture of external links for Centre CRC4 BIK



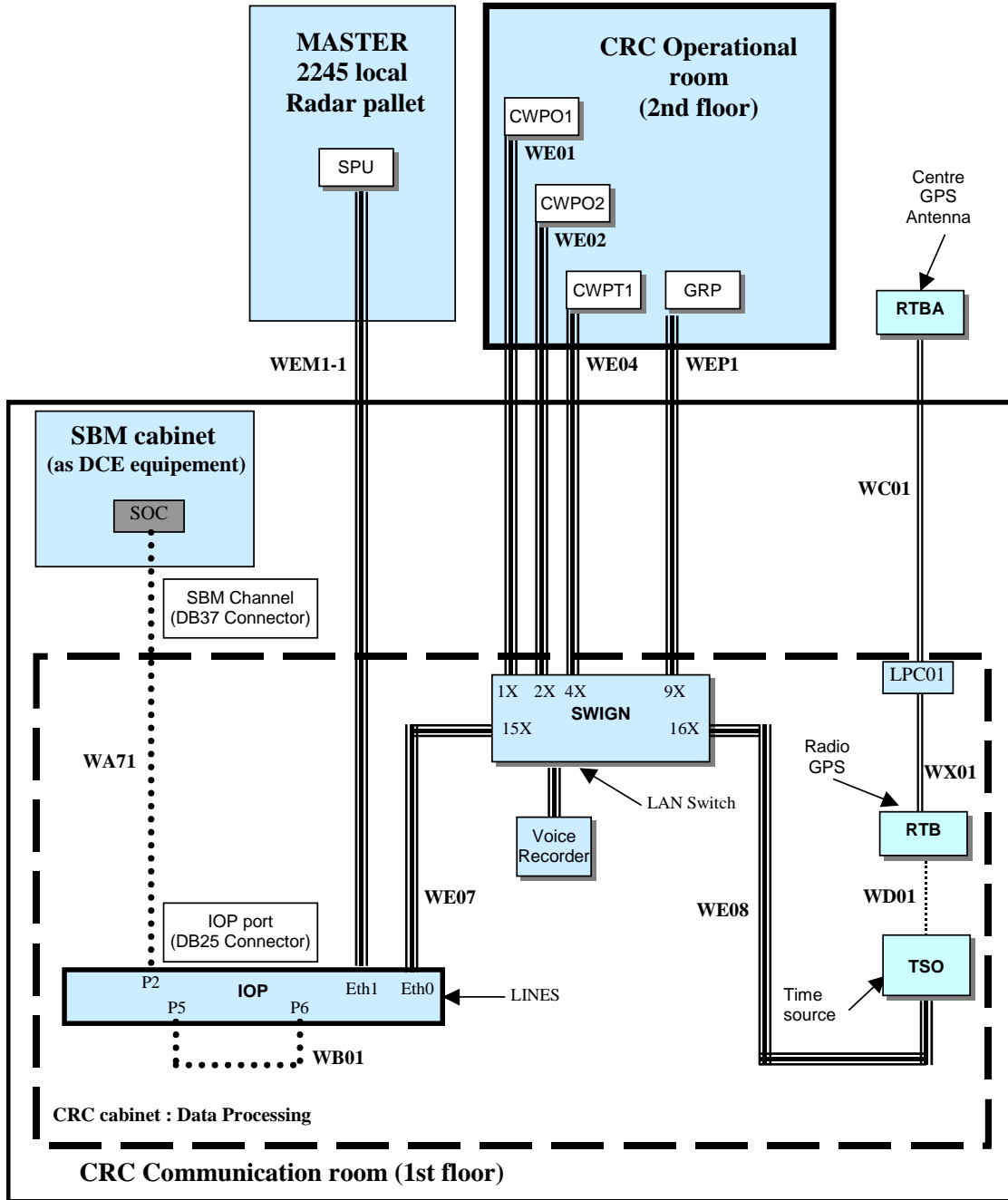


Figure 24 : LRU detailed architecture of external links for CRC5 MER, CRC6 SML, CRC7 TIM

### 3.6.2 CRC NETWORKS TOPOGRAPHY

The purpose of this chapter is to give the hosts and addresses of each LRU connected on the LAN of the CRC system:

- In the CRC house :
  - General LAN

- In the MASTER-T Radar house:
  - Master INTERFACE LAN (in the Radar shelter).

### 3.6.2.1 General LAN of CRC (except for CRC4, CRC5, CRC6, CRC7)

The following table gives for each LRU connected to the General Network LAN:

- its name in the supervision window,
- its IP address,
- its UNIX hostname.

Name in supervision	IP address	Hostname	LRU
ADP	192.168.45.001	adp1	Air Data Processor
WPT	192.168.45.002	wpt1	Working Position : Technical
WPO1	192.168.45.003	wpo1	Working Position : Operational 1
WPO2	192.168.45.004	wpo2	Working Position : Operational 2
IOP_1	192.168.45.005	lin1	(First) Input Output Processor
GPR	192.168.45.006	pri1	Graphical Printer
TSO	192.168.45.007	tso1	Time Source
-	192.168.45.011	linL	Loading address for IOP
-	192.168.45.012	-	Reserved
-	192.168.45.013	-	Reserved
-	192.168.45.014	-	Reserved
-	192.168.45.015	-	Reserved
-	192.168.45.016	-	Reserved
-	192.168.45.017	-	Reserved
-	192.168.45.018	-	Reserved
-	192.168.45.020	laptop	Tool laptop

Table 6 – General LAN addresses for CRC (except for the CRC4, CRC5, CRC6, CRC7)

### 3.6.2.2 General LAN of CRC 4

The following table gives for each LRU connected to the General Network LAN:

- its name in the supervision window,
- its IP address,
- its UNIX hostname.

Name in supervision	IP address	Hostname	LRU
ADP	192.168.24.001	adp1	Air Data Processor

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WPT	192.168.24.002	wpt1	Working Position : Technical
WPO1	192.168.24.003	wpo1	Working Position : Operational 1
WPO2	192.168.24.004	wpo2	Working Position : Operational 2
IOP_1	192.168.24.005	lin1	Input Output Processor
GPR	192.168.24.006	pri1	Graphical Printer
TSO	192.168.24.007	tso1	Time SOurce
-	192.168.24.011	linL	Loading address for IOP
-	192.168.24.012	rec1	Reserve or Recorder supervision PC
-	192.168.24.013	-	Reserved
-	192.168.24.014	-	Reserved
-	192.168.24.015	-	Reserved
-	192.168.24.016	-	Reserved
-	192.168.24.017	-	Reserved
-	192.168.24.019	-	Reserved
-	192.168.24.020	laptop	Tool laptop

Table 7 – General LAN addresses for CRC4

### 3.6.2.3 General LAN of CRC5, CRC6, CRC7

The following table gives for each LRU connected to the General Network LAN:

- its name in the supervision window,
- its IP address,
- its UNIX hostname.

Name in supervision	IP address	Hostname	LRU
ADP	192.168.45.001	adp1	Air Data Processor
WPT	192.168.45.002	wpt1	Working Position : Technical
WPO1	192.168.45.003	wpo1	Working Position : Operational 1
WPO2	192.168.45.004	wpo2	Working Position : Operational 2
IOP_1	192.168.45.005	lin1	(First) Input Output Processor
GPR	192.168.45.006	pri1	Graphical Printer
TSO	192.168.45.007	tso1	Time Source
-	192.168.45.011	linL	Loading address for IOP (eth0)
-	192.168.45.012	-	Reserved
-	192.168.45.013	-	Reserved
-	192.168.45.014	-	Reserved
-	192.168.45.015	-	Reserved
-	192.168.45.016	-	Reserved

-	192.168.45.017	-	Reserved
-	192.168.45.018	-	Reserved
-	192.168.45.020	laptop	Tool laptop
-	192.168.45.025	rec1	Reserve or Recorder supervision PC

Table 8 – General LAN addresses for CRC5, CRC6, CRC7

Name in supervision	IP address	Hostname	LRU
-	5.38.7.201	NA	Input Output Processor (eth1)

Table 9 – Eth1 address of IOP for CRC5, CRC6, CRC7

### 3.6.2.4 Master Interface LAN (except for CRC5, CRC6, CRC7)

This paragraph is applicable only for CRC3 & 4 collocated with a MASTER-T radar. This paragraph is not applicable to CRC5, CRC6 & CRC7.

The following address is the operational IP address of the IOP Master radar for centre interface in the MASTER shelter. This IP address has to be set in the IOP master, before plugging the IOP master in the MASTER shelter (See the PLines8 set-up procedure).

Name in supervision	IP address	Hostname	LRU
-	5.38.7.201	-	IOP MASTER (Centre link)

Table 10 – IOP MASTER-CENTRE LAN address

## 3.6.3 CENTRE INTERFACES

### 3.6.3.1 Internal interfaces

All the internal interfaces gather standard links are given in Figure 19 to Figure 24 :

- Serial links
- Ethernet links
- Telecommunication links
- Video links
- USB links.

### 3.6.3.2 External interfaces

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The external interfaces depend on the centre type (SOC, CRC) and depend on the site.

The figures in paragraphs 3.5.1 and 3.6.1 give the external interfaces taken into account by the following centres of the system :

- SOC I HLM
- SOC II MKR
- SOC III MDN
- SOC IV BIK
- CRC1 TKT
- CRC2 CBL
- CRC3 TPI
- CRC4 BIK
- CRC5 MER
- CRC6 SML
- CRC7 TIM

The following tables give the external connections on the IOP(s) for all CRC centres:

- the IOP,
- the port number on the IOP,
- the name of the connected radar or centre.

IOP	port number	connected radar or centre
IOP_1	2	SOC I
IOP_1	7	2230 radar of TKT

Table 11 – External interfaces for the CRC of TKT

IOP	port number	connected radar or centre
IOP_1	2	SOC I
IOP_1	5	MASTER radar of CBL

Table 12 – External interfaces for the CRC of TPI

IOP	port number	connected radar or centre
IOP_1	2	SOC I
IOP_1	7	2215 radar of CBL

Table 13 – External interfaces for the CRC of CBL

IOP	port number	connected radar or centre
IOP_1	2	SOC IV
IOP_1	5	MASTER radar of BIK

Table 14 – External interfaces for the CRC of BIK

IOP	port number	connected radar or centre
IOP_1	2	SOC IV

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IOP_1	5	MASTER input
IOP_1	6	MASTER output
IOP_1	Eth1	MASTER pallet LAN

Table 15 – External interfaces for the CRC5 MER, CRC6 SML & CRC7 TIM

## 3.7 PRESENTATION OF THE ADOC CENTRE

### 3.7.1 PHYSICAL PRESENTATION OF THE ADOC

The following figures give :

- At the level NODE architecture :
  - The node detailed architecture of ADOC
- At the level LRU architecture :
  - The LRU detailed architecture of ADOC Centre
  - The LRU detailed architecture of external links for ADOC Centre

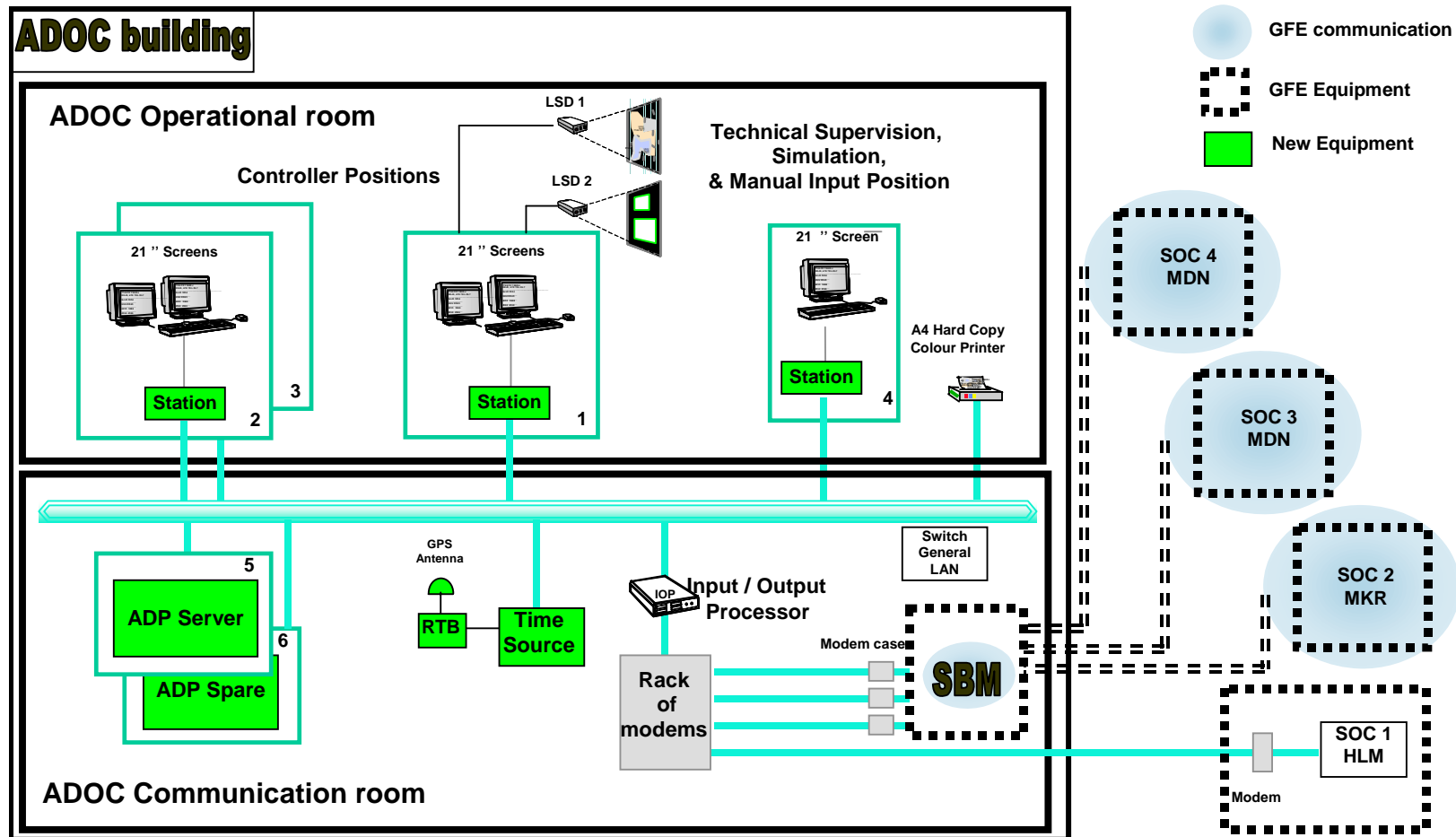


Figure 25 : NODE detailed architecture of ADOC Centre



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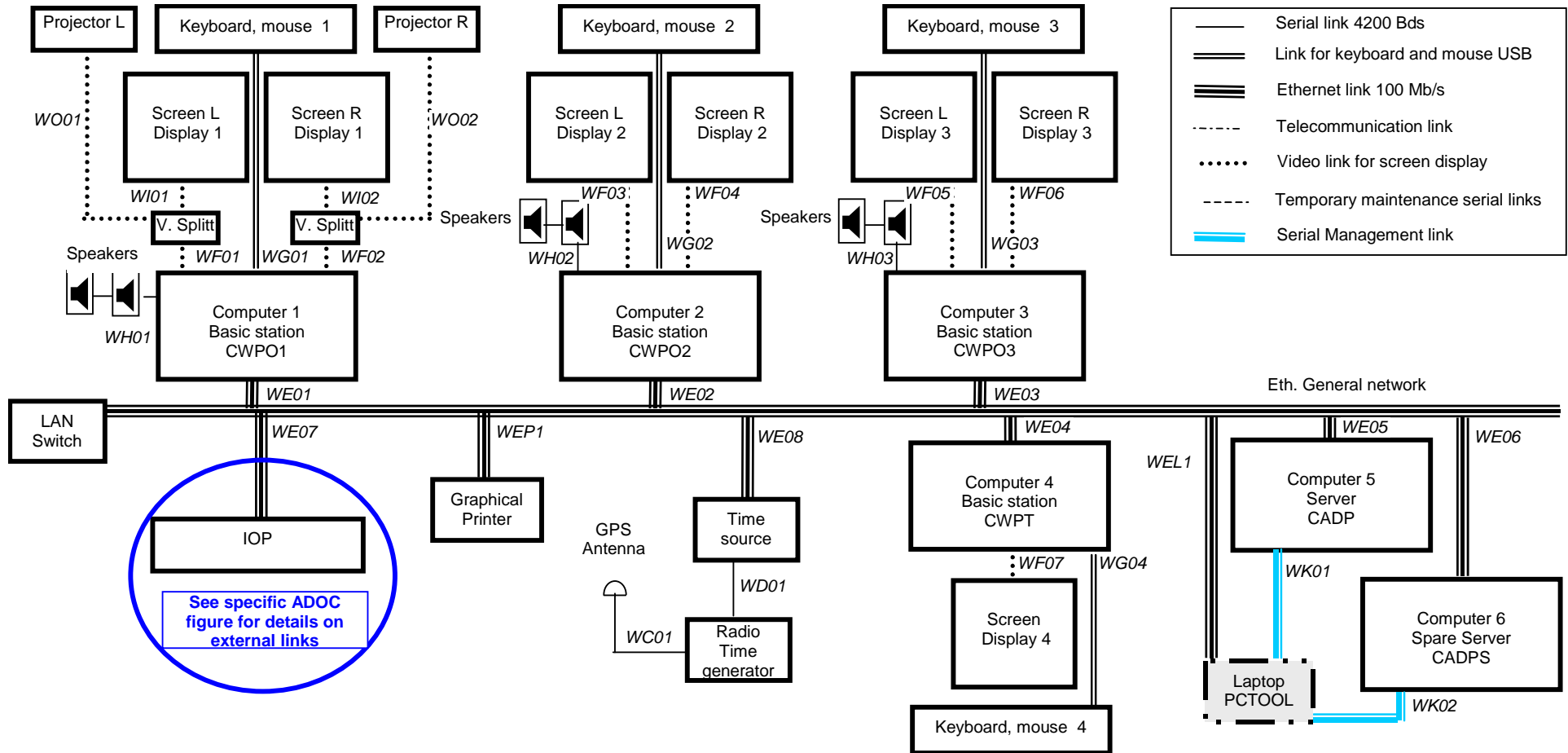


Figure 26 : LRU detailed architecture of ADOC Centre

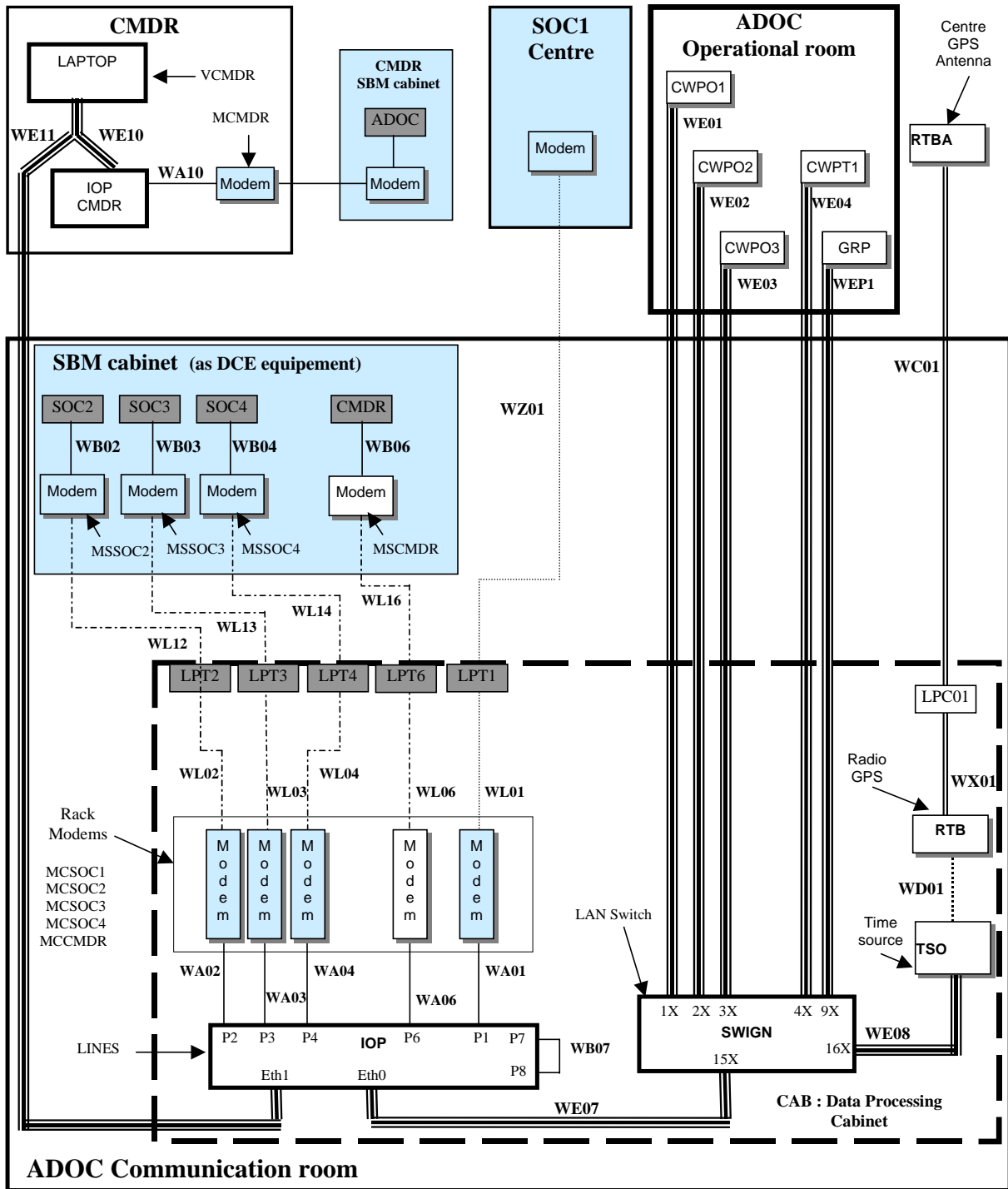


Figure 27 : LRU detailed architecture of external links for ADOC Centre

### 3.7.2 ADOC NETWORK TOPOGRAPHY

The purpose of this chapter is to give the hosts and addresses of each LRU connected on the LAN of the ADOC system:

- In the ADOC house : General LAN
- For the Laptop of the Commander

### 3.7.2.1 General LAN of ADOC centre

The following table gives for each LRU connected to the General Network LAN:

- its name in the supervision window,
- its IP address,
- its UNIX hostname.

Name in supervision	IP address	Hostname	LRU
ADP	192.168.45.001	adp1	Air Data Processor
WPT	192.168.45.002	wpt1	Working Position : Technical
WPO1	192.168.45.003	wpo1	Working Position : Operational 1
WPO2	192.168.45.004	wpo2	Working Position : Operational 2
IOP_1	192.168.45.005	lin1	(First) Input Output Processor
GPR	192.168.45.006	pri1	Graphical Printer
TSO	192.168.45.007	tso1	Time Source
-	192.168.45.011	linL	Loading address for IOP
-	192.168.45.012	-	Reserved
-	192.168.45.013	-	Reserved
-	192.168.45.014	-	Reserved
-	192.168.45.015	-	Reserved
WPO3	192.168.45.016	wpo3	Working Position : Operational 1
-	192.168.45.017	-	Reserved
-	192.168.45.019	-	Reserved
-	192.168.45.020	laptop	Tool laptop
-	192.168.45.025	-	Reserved

Table 16 – General LAN addresses for ADOC Centre

### 3.7.2.2 General LAN of CMDR

The following table gives for each LRU connected to the General Network LAN:

- its IP address,
- its UNIX hostname.

IP address	Hostname	LRU
192.168.50.005	lin1	Input Output Processor
192.168.50.030	vcmdr	Laptop of the Commander

Table 17 – General LAN addresses for CMDR

### 3.7.3 CENTRE INTERFACES

#### 3.7.3.1 Internal interfaces

All the internal interfaces gather standard links are given in Figure 26 to Figure 27 :

- Serial links
- Ethernet links
- Telecommunication links
- Video links
- USB links.

#### 3.7.3.2 External interfaces

The following tables give the external connections on the IOP for ADOC centre:

- the port number on the IOP,
- the name of the connected centre.

IOP	port number	connected centre
IOP_1	1	SOC1 HLM
IOP_1	2	SOC2 MKR
IOP_1	3	SOC3 MDN
IOP_1	4	SOC4 BIK
IOP_1	5	-
IOP_1	6	VCMDR
IOP_1	7	VCMD input
IOP_1	8	VCMD output
IOP_1	Eth1	Laptop VCMD

Table 18 – External interfaces for the ADOC Centre

IOP	port number	connected centre
-----	-------------	------------------

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IOP_CMDR	1	ADOC
IOP_CMDR	2	ADOC
IOP_CMDR	3	ADOC
IOP_CMDR	4	ADOC
IOP_CMDR	5	ADOC
IOP_CMDR	6	ADOC
IOP_CMDR	7	ADOC
IOP_CMDR	8	ADOC

Table 19 – External interfaces for the CMDR

## 4. CENTRE SYSTEM STATES

The Centre system states describe the Centre operational status.

Indeed, the Centre status may be:

- Operational
- Degraded
- Failed

### 4.1 CENTRE OPERATIONAL STATE

The Centre is in operational state if all its components are in operational state. Which means that no LRU is in failed state.

This is the normal functioning state of the Centre.

### 4.2 CENTRE DEGRADED STATE

The Centre is in degraded state if some of its components are in failed state, but the main functions are still operational. Which means that some non critical LRU are failed, and not replaced by spare parts.

### 4.3 CENTRE FAILED STATE

The Centre is in failed state if some of its components are in failed state and at least one of the main functions is not operational. Which means that some critical LRU are in failed state.

### 4.4 LRU STATE

A LRU may be either operational or failed.

A LRU is failed if it does not fulfil its operational function.

### 4.5 LRU CRITICALITY

A LRU is critical if its failed state implies that the Centre does not fulfil its operational function.

#### 4.5.1 LRU CRITICALLY FOR SOC 1 HLM, SOC 2 MKR, SOC 4 BIK

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The following table gives the LRU criticality for SOC 1 HLM, SOC 2 MKR, SOC 4 BIAK.

SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1	<b>SOC Centre building SOC 1 HLM SOC 2 MKR SOC 4 BIK</b>					
1.1	<b>DATA PROCESSING CABINET</b>					
1.1.1	<b>ADP</b>					
1.1.1.1	Sun Fire V245 ADP computer	RSP	SUN	Critical	Monthly	9.3
1.1.1.2	Sun Fire V245 ADP SP computer	RSP	SUN	Critical	Monthly	9.3
1.1.2	<b>IOP1</b>					
1.1.2.1	PLINES 8	RSP	Interface Concept	Critical	-	9.5
1.1.3	<b>Modems</b>					
1.1.3.1	Modem case CXR 2885P	PSP	CXR	Critical	-	9.14
1.1.3.2	Modem rack CXR 2885P	PSP	CXR	Critical	-	9.15
1.1.4	<b>General Ethernet network</b>					
1.1.4.1	SWITCH 16 ports SuperStack 3	PSP	3COM	Critical	-	9.6
1.1.5	<b>Time generator</b>					
1.1.5.1	Time source LEDI Network	RSP	GORGY	Non Critical	-	9.19
1.1.5.2	Radio GPS Generator RTB	RSP	GORGY	Non Critical	-	9.20
1.2	<b>TECHNICAL SUPERVISION CONSOLE WPT</b>					
1.2.1	Sun U25 WPT computer	RSP	SUN	Non Critical	Monthly	9.1
1.2.2	LCD 214T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.7
1.3	<b>OPERATIONAL CONTROLLER CONSOLE WPO1</b>					
1.3.1	Sun U25 WPO1 computer	RSP	SUN	Non Critical	Monthly	9.1

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SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1.3.2	LCD 214T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.7
1.3.3	Speakers	PSP	LOGITECH	Non Critical	-	9.11
1.4	<b>OPERATIONAL CONTROLLER CONSOLE WPO2</b>					
1.4.1	Sun U25 WPO2 computer	RSP	SUN	Non Critical	Monthly	9.1
1.4.2	LCD 214T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.7
1.4.3	Speakers	PSP	LOGITECH	Non Critical	-	9.11
1.5	<b>OPERATIONAL CONTROLLER CONSOLE WPO3</b>					
1.5.1	Sun U25 WPO3 computer	RSP	SUN	Non Critical	Monthly	9.1
1.5.2	LCD 214T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.7
1.5.3	Speakers	PSP	LOGITECH	Non Critical	-	9.11
1.6	<b>OPERATIONAL CONTROLLER CONSOLE WPO4</b>					
1.6.1	Sun U25 WPO4 computer	RSP	SUN	Non Critical	Monthly	9.1
1.6.2	LCD 214T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.7
1.6.3	Speakers	PSP	LOGITECH	Non Critical	-	9.11
1.7	<b>PRINTER</b>					
1.7.1	HP 4700n Graphical Printer	PSP	HP	Non Critical	-	9.16
1.8	<b>LSD</b>					
1.8.1	IQ R500 Projector	RSP	BARCO	Non Critical	-	9.21

Table 20 – LRU maintenance table for SOC 1 HLM, SOC 2 MKR, SOC 4 BIK

#### 4.5.2 LRU CRITICALLY FOR SOC 3 MDN, ADOC

The following table gives the LRU criticality for SOC 3 MDN.

SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
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SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1	<b>Centre building SOC 3 MDN ADOC</b>					
1.1	<b>DATA PROCESSING CABINET</b>					
1.1.1	<b>ADP</b>					
1.1.1.1	Sun Fire V245 ADP computer	RSP	SUN	Critical	Monthly	9.3
1.1.1.2	Sun Fire V245 ADP SP computer	RSP	SUN	Critical	Monthly	9.3
1.1.2	<b>IOP1</b>					
1.1.2.1	PLINES 8	RSP	Interface Concept	Critical	-	9.5
1.1.3	<b>Modems</b>					
1.1.3.1	Modem box CXR 2885P	PSP	CXR	Critical	-	9.14
1.1.3.2	Modem rack CXR 2885P	PSP	CXR	Critical	-	9.15
1.1.4	<b>General Ethernet network</b>					
1.1.4.1	SWITCH 16 ports SuperStack 3	PSP	3COM	Critical	-	9.6
1.1.5	<b>Time generator</b>					
1.1.5.1	Time source LEDI Network	RSP	GORGY	Non Critical	-	9.19
1.1.5.2	Radio GPS Generator RTB	RSP	GORGY	Non Critical	-	9.20
1.2	<b>TECHNICAL SUPERVISION CONSOLE WPT</b>					
1.2.1	Sun U25 WPT computer	RSP	SUN	Non Critical	Monthly	9.1
1.2.2	LCD NEC 2110 colour monitor	RSP	NEC	Non Critical	Weekly	9.9
1.3	<b>OPERATIONAL CONTROLLER CONSOLE WPO1</b>					
1.3.1	Sun U25 WPO1 computer	RSP	SUN	Non Critical	Monthly	9.1
1.3.2	LCD NEC 2110 colour monitor	RSP	NEC	Non Critical	Weekly	9.9
1.3.3	Speakers	PSP	CREATIVE	Non Critical	-	9.12
1.4	<b>OPERATIONAL CONTROLLER CONSOLE WPO2</b>					

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SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1.4.1	Sun U25 WPO2 computer	RSP	SUN	Non Critical	Monthly	9.1
1.4.2	LCD NEC 2110 colour monitor	RSP	NEC	Non Critical	Weekly	9.9
1.4.3	Speakers	PSP	CREATIVE	Non Critical	-	9.12
1.5	<b>OPERATIONAL CONTROLLER CONSOLE WPO3</b>					
1.5.1	Sun U25 WPO3 computer	RSP	SUN	Non Critical	Monthly	9.1
1.5.2	LCD NEC 2110 colour monitor	RSP	NEC	Non Critical	Weekly	9.9
1.5.3	Speakers	PSP	CREATIVE	Non Critical	-	9.12
1.6	<b>OPERATIONAL CONTROLLER CONSOLE WPO4</b>					
1.6.1	Sun U25 WPO4 computer	RSP	SUN	Non Critical	Monthly	9.1
1.6.2	LCD NEC 2110 colour monitor	RSP	NEC	Non Critical	Weekly	9.9
1.6.3	Speakers	PSP	CREATIVE	Non Critical	-	9.12
1.7	<b>PRINTER</b>					
1.7.1	HP 4700n Graphical Printer	PSP	HP	Non Critical	-	9.16
1.8	<b>LSD</b>					
1.8.1	IQ R500 Projector	RSP	BARCO	Non Critical	-	9.21

Table 21 – LRU maintenance table for SOC 3 MDN

#### 4.5.3 LRU CRITICALLY FOR CRC TKT, CRC CBL, CRC TPI

The following table gives the LRU criticality for CRC TKT, CBL and TPI:

SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1	<b>CRC / CRC Centre building</b>					

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SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
<b>1.1</b>	<b>DATA PROCESSING CABINET</b>					
<b>1.1.1</b>	<b>ADP</b>					
1.1.1.1	Sun Fire V245 ADP computer	RSP	SUN	Critical	Monthly	9.3
1.1.1.2	Sun Fire V245 ADP SP computer	RSP	SUN	Critical	Monthly	9.3
<b>1.1.2</b>	<b>IOP1</b>					
1.1.2.1	PLINES 8	RSP	Interface Concept	Critical	-	9.5
<b>1.1.3</b>	<b>Modems</b>					
1.1.3.1	Modem box CXR 2885P	PSP	CXR	Critical	-	9.14
1.1.3.2	Modem rack CXR 2885P	PSP	CXR	Critical	-	9.15
<b>1.1.4</b>	<b>General Ethernet network</b>					
1.1.4.1	SWITCH 16 ports SuperStack 3	PSP	3COM	Critical	-	9.6
<b>1.1.5</b>	<b>Time generator</b>					
1.1.5.1	Time source LEDI Network	RSP	GORGY	Non Critical	-	9.19
1.1.5.2	Radio GPS Generator RTB	RSP	GORGY	Non Critical	-	9.20
<b>1.2</b>	<b>TECHNICAL SUPERVISION CONSOLE WPT</b>					
1.2.1	Sun U25 WPT computer	RSP	SUN	Non Critical	Monthly	9.1
1.2.2	LCD 214T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.7
<b>1.3</b>	<b>OPERATIONAL CONTROLLER CONSOLE WPO1</b>					
1.3.1	Sun U25 WPO1 computer	RSP	SUN	Non Critical	Monthly	9.1
1.3.2	LCD 214T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.7
1.3.3	Speakers	PSP	LOGITECH	Non Critical	-	9.11
<b>1.4</b>	<b>OPERATIONAL CONTROLLER CONSOLE WPO2</b>					
1.4.1	Sun U25 WPO2 computer	RSP	SUN	Non Critical	Monthly	9.1
1.4.2	LCD 214T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.7

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SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1.4.3	Speakers	PSP	LOGITECH	Non Critical	-	9.11
1.7	<b>PRINTER</b>					
1.7.1	HP 4700n Graphical Printer	PSP	HP	Non Critical	-	9.16
2	<b>TPI MASTER / Radar shelter</b>					
2.1	<b>INTERFACE CABINET</b>					
2.1.1	<b>IOP_R</b>					
1.1.1.1	PLINES 8	RSP	Interface Concept	Critical	-	9.5
2.1.2	<b>Modem MASTER/Centre</b>					
2.1.2.1	Modem box CXR 2885P	PSP	CXR	Critical	-	9.14

Table 22 – LRU maintenance table for CRC1 TKT, CRC2 CBL & CRC3 TPI

#### 4.5.4 LRU CRITICALLY FOR CRC BIK

The following table gives the LRU criticality for CRC BIK:

SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1	<b>CRC / CRC Centre building</b>					
1.1	<b>DATA PROCESSING CABINET</b>					
1.1.1	<b>ADP</b>					
1.1.1.1	Sun Fire V240 ADP computer	RSP	SUN	Critical	Monthly	9.4

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SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1.1.1.2	Sun Fire V240 ADP SP computer	RSP	SUN	Critical	Monthly	9.4
1.1.2	<b>IOP1</b>					
1.1.2.1	PLINES 8	RSP	Interface Concept	Critical	-	9.5
1.1.3	<b>Modems</b>					
1.1.3.1	Modem box CXR 2885P (MASTER link)	PSP	CXR	Critical	-	9.14
1.1.4	<b>General Ethernet network</b>					
1.1.4.1	SWITCH 16 ports SuperStack 3	PSP	3COM	Critical	-	9.6
1.1.5	<b>Time generator</b>					
1.1.5.1	Time source LEDI Network	RSP	GORGY	Non Critical	-	9.18
1.1.5.2	Radio GPS Generator RTB	RSP	GORGY	Non Critical	-	9.20
1.2	<b>TECHNICAL SUPERVISION CONSOLE WPT</b>					
1.2.1	Sun SB 1500 WPT computer	RSP	SUN	Non Critical	Monthly	9.2
1.2.2	LCD 213T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.8
1.2.3	DAT Tape Drive	PSP	SUN	Non Critical	Scheduled	9.23
1.2.4	MOS Optical Disk Drive	PSP	PLASMON	Non Critical	-	9.22
1.3	<b>OPERATIONAL CONTROLLER CONSOLE WPO1</b>					
1.3.1	Sun SB 1500 WPO1 computer	RSP	SUN	Non Critical	Monthly	9.2
1.3.2	LCD 213T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.8
1.3.3	Speakers	PSP	JBL	Non Critical	-	9.13
1.4	<b>OPERATIONAL CONTROLLER CONSOLE WPO2</b>					
1.4.1	Sun SB 1500 WPO2 computer	RSP	SUN	Non Critical	Monthly	9.2
1.4.2	LCD 213T colour monitor	RSP	SAMSUNG	Non Critical	Weekly	9.8
1.4.3	Speakers	PSP	JBL	Non Critical	-	9.13
1.5	<b>PRINTER</b>					
1.5.1	HP 4650n Graphical Printer	PSP	HP	Non Critical	-	9.17

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SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
2	<b>BIK MASTER / Radar shelter</b>					
2.1	<b>INTERFACE CABINET</b>					
2.1.1	<b>IOP_R</b>					
1.1.1.1	PLINES 8	RSP	Interface Concept	Critical	-	9.5
2.1.2	<b>Modem MASTER/Centre</b>					
2.1.2.1	Modem box CXR 2885P	PSP	CXR	Critical	-	9.14

Table 23 – LRU maintenance table for CRC BIK

#### 4.5.5 LRU CRITICALLY FOR CRC MER, CRC SML, CRC TIM

The following table gives the LRU criticality for CRC MER, SML and TIM:

SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
1	<b>CRC / CRC Centre building</b>					
1.1	<b>DATA PROCESSING CABINET</b>					
1.1.1	<b>ADP</b>					
1.1.1.1	Sun Fire V245 ADP computer	RSP	SUN	Critical	Monthly	9.3
1.1.1.2	Sun Fire V245 ADP SP computer	RSP	SUN	Critical	Monthly	9.3
1.1.2	<b>IOP1</b>					
1.1.2.1	PLINES 8	RSP	Interface Concept	Critical	-	9.5

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SYSTEM LEVEL	DESIGNATION	LRU Type	SUPPLIER	CRITICALITY	MAINTENANCE PERIODICITY	EQUIP. SHEET N°
<b>1.1.3</b>	<b>General Ethernet network</b>					
<b>1.1.3.1</b>	SWITCH 16 ports SuperStack 3	PSP	3COM	Critical	-	9.6
<b>1.1.4</b>	<b>Time generator</b>					
<b>1.1.4.1</b>	Time source LEDI Network	RSP	GORGY	Non Critical	-	9.19
<b>1.1.4.2</b>	Radio GPS Generator RTB	RSP	GORGY	Non Critical	-	9.20
<b>1.2</b>	<b>TECHNICAL SUPERVISION CONSOLE WPT</b>					
<b>1.2.1</b>	Sun U25 WPT computer	RSP	SUN	Non Critical	Monthly	9.1
<b>1.2.2</b>	LCD LP2475W colour monitor	RSP	HP	Non Critical	Weekly	9.7
<b>1.3</b>	<b>OPERATIONAL CONTROLLER CONSOLE WPO1</b>					
<b>1.3.1</b>	Sun U25 WPO1 computer	RSP	SUN	Non Critical	Monthly	9.1
<b>1.3.2</b>	LCD LP2475W colour monitor	RSP	HP	Non Critical	Weekly	9.7
<b>1.3.3</b>	Speakers	PSP	LOGITECH	Non Critical	-	9.11
<b>1.4</b>	<b>OPERATIONAL CONTROLLER CONSOLE WPO2</b>					
<b>1.4.1</b>	Sun U25 WPO2 computer	RSP	SUN	Non Critical	Monthly	9.1
<b>1.4.2</b>	LCD LP2475W colour monitor	RSP	HP	Non Critical	Weekly	9.7
<b>1.4.3</b>	Speakers	PSP	LOGITECH	Non Critical	-	9.11
<b>1.7</b>	<b>PRINTER</b>					
<b>1.7.1</b>	HP 4700n Graphical Printer	PSP	HP	Non Critical	-	9.16

Table 24 – LRU maintenance table for CRC5 MER, CRC6 SML & CRC7 TIM

## 5. MAINTENANCE PRINCIPLES

### 5.1 DEFINITIONS

Explanations about a few terms :

<b>CENTRE</b>	The entire operational SOC or CRC system.
<b>NODE</b>	Part of the system bound to a basic function or control position (WPT position, WPO positions...).
<b>LRU</b>	Line Replaceable Unit (Complete equipment : i.e. Computer, Flat screen...). A LRU may be either: <b>PSP</b> : Primary Spare Part (Non reparable) <b>RSP</b> : Repairable Spare Part
<b>CONSUMABLES</b>	Media (DVD disks) , ...
<b>SITE</b>	Operational facility for the centre.
<b>DEPOT</b>	Storage facility for spare, consumables, tools...

### 5.2 MAINTENANCE ACTIVITIES

The maintenance activities consist of the following types of tasks:

- Corrective maintenance tasks: further to a failure in the Centre, the maintenance staff will have to identify the faulty item to remove it and to replace it by an already configured spare part.
- Preventive maintenance tasks: the maintenance staff will have to carry out scheduled tasks such as printer cartridges exchange, screen and filter cleaning...
- Administrative maintenance tasks: this includes all activities, scheduled or unscheduled related to network supervision, periodic backup...

### 5.3 MAINTENANCE PROCEDURES

For practical use, the maintenance procedures called by maintenance activities are gathered into equipment sheets, and administrative procedures sheets.



## 6. THIS SMM DOCUMENT

- For preventive maintenance tasks,
  - First of all use the table of preventive maintenance task to get the task to be done according to the schedule,
  - Secondly, use the preventive maintenance paragraph in the concerned equipment sheet to perform the task,
- For administration tasks,
  - Use the concerned administrative procedure to perform the task,
- For corrective maintenance
  - In case of obvious failure or clearly identified task, use the corrective maintenance procedure in the concerned equipment sheet,
  - In case of failure which requires to find out the faulty item:
    - use the corrective maintenance principle in chapter 7.1 and the maintenance aids to localise the faulty LRU,
    - use the concerned equipment sheet to identify the appropriate procedure to be run.

### 6.1 EQUIPMENT SHEETS

Each LRU has a dedicated Equipment Sheet which contains:

- a short description (functional and technical),
- its composition,
- the preventive maintenance procedure,
- the different aids for corrective maintenance (according to definition of § 7.3 hereafter), and the associated list of procedures
- the elementary procedures,
- the required configuration / settings,
- special tools if required,
- manufacturer documentation reference.

The Equipment Sheets are gathered in chapter 9.

### 6.2 MAINTENANCE REPORTS

The Maintenance Report form provided in chapter 11.1 have to be filled during preventive maintenance performance. It contains useful information such as the name and serial number of the equipment, the date of maintenance, the name of the operator, the result of the operation, and the eventual remarks. Filling Maintenance Reports is important to ensure the continuity and the follow-up of the preventive maintenance operations.

### 6.3 DEFECT RECORD SHEET

A blank Defect Record Sheet (DRS) is provided in chapter 11.2. A DRS must be filled anytime a technical problem occurs, and must clearly describe the context, and the nature of the problem. In order to insure a good follow-up of the corrections, the DRS must be completed anytime an action is performed to resolve the problem.

### 6.4 CENTRE LOGBOOK

The Centre logbook provided in chapter 11.3, is a form which must be filled anytime an event occurs in the centre: preventive or corrective maintenance, administrative task...

The Centre logbook insures the follow-up of the day to day life of the Centre and provides links to Maintenance reports and DRS.

This form contains a page number, and for each event, the date of the event, the name and serial number of the equipment concerned, the name of the operator, a description of the event, the eventual associated Maintenance report or DRS, the status of the Centre.

## 7. TROUBLESHOOTING

### 7.1 CORRECTIVE MAINTENANCE PRINCIPLE

The corrective maintenance covers actions performed on the equipment (fault finding, troubleshooting, corrective action) to return to a correct operational state. The corrective maintenance principle is represented on the figure hereafter.

Each step is in correspondence with an equipment sheet to search, check and replace if necessary the faulty equipment.

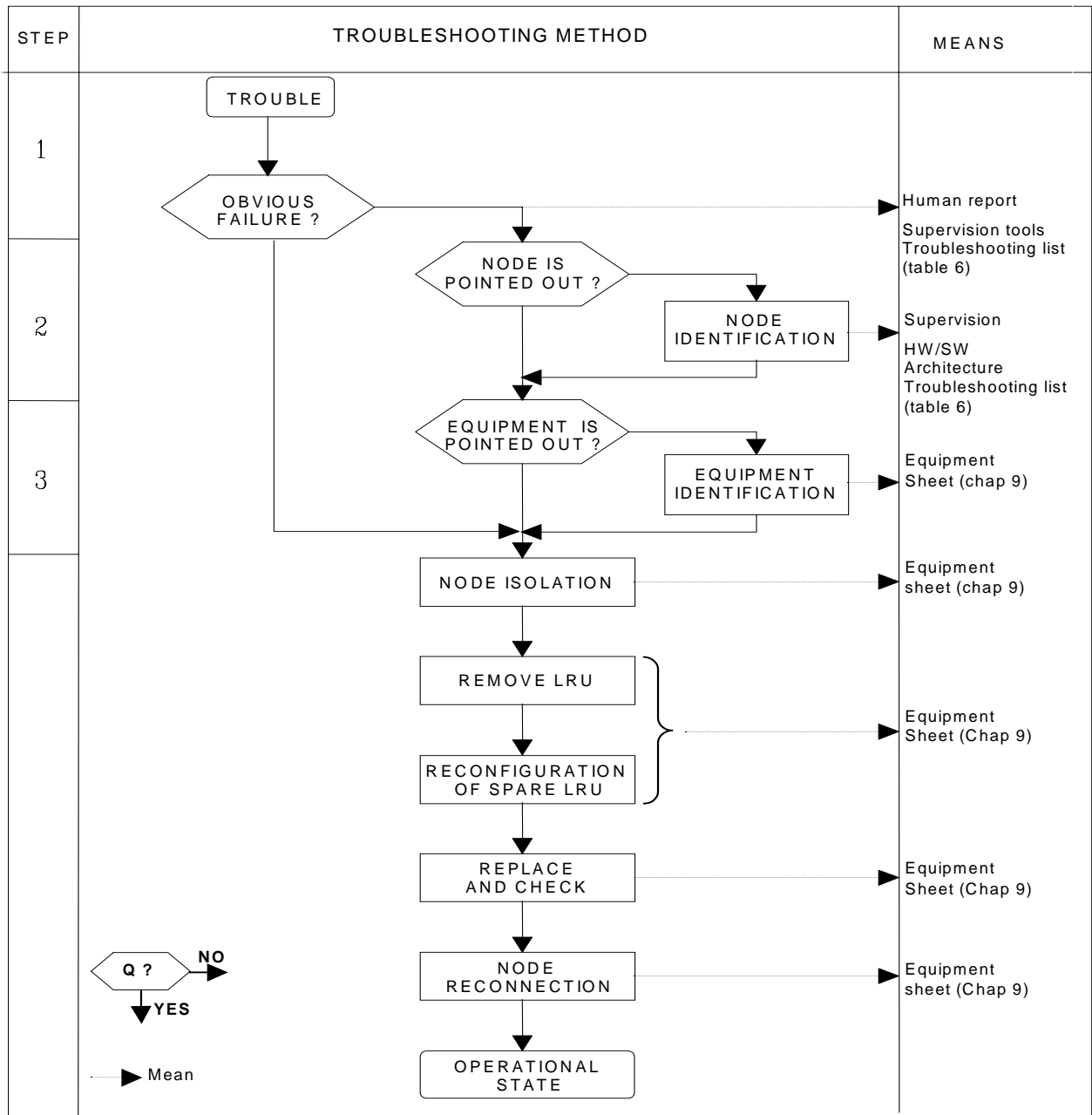


Figure 28 : Corrective Maintenance

The goal of corrective maintenance is to localise the faulty LRU, test it, and eventually exchange it with the appropriate spare part.

The troubleshooting is carried out by using a pragmatic method which is summarised on Figure 28.

When a trouble is detected, the troubleshooting process starts at the SYSTEM level and works down through the NODE level to the LRU level.

**Faulty LRU localisation:**

- First step: the technician must use information from the operator and from the supervision system (see the supervision aid on § 7.3.1) to see if the failure is obvious or not (Picture blackout, keyboard or mouse not operational...).
- Second step: the technician must use supervision means (see the supervision aid on § 7.3.1), written reports and knowledge of Centre to find the faulty NODE within the system.
- Third step: the technician must refer to the equipment sheets and use the troubleshooting aids to find the faulty LRU within the NODE.

**Faulty LRU replacement:**

After detection of the concerned LRU, the procedure is the following :

- Isolation of NODE (disconnection from the operational system),
- Removal of LRU,
- Reconfiguration of spare LRU,
- Replacement of Spare LRU, start and check,
- Reconfiguration of the NODE.

## 7.2 ASSOCIATED DOCUMENTS AND MEANS

The documents, means and procedures are pointed out on the right-hand side of Figure 28.

## 7.3 TROUBLESHOOTING AIDS

In order to identify the faulty item (LRU), the maintenance staff has at its disposal various maintenance aids for trouble shooting. Those maintenance aids are the following :

- The Supervision window on Technical Working Position (A1),
- Indicators lamps (A2),
- Visual Check (A3).
- Integrated test (A4),
- Operating System UNIX/SOLARIS facilities (A5),

For each LRU, the troubleshooting aids are detailed in the corresponding Equipment Sheet.

### 7.3.1 SUPERVISION WINDOW (A1)

The technician can use the SUPERVISION function running on WPT to:

- Check the status of the different LRU.

The SUPERVISION function displays, in a synthetic way, the current state of each component of the system connected to the network:

- All Sun Computers,
- All links through IOP,
- General LAN,

- Check the historic of events and LRU status.

The SUPERVISION function provides a log-file which lists LRU status and operators actions within the past 90 days.

For details on use of the SUPERVISION function, refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 7.3.2 INDICATOR LAMPS (A2)

The technician can watch the status of indicators on the faulty LRU and check this status in the corresponding documentation (Equipment Sheet, manufacturer documentation...).

### 7.3.3 VISUAL CHECK (A3)

The technician can visually check the faulty LRU (position of switches, display on screen, connection of cables, etc...) as described in the corresponding Equipment Sheet.

### 7.3.4 INTEGRATED TEST (A4)

The technician can perform integrated tests described in the Equipment Sheet of the faulty LRU.

Depending on the procedure, these tests can be either performed on line or off line.

### 7.3.5 OPERATING SYSTEM UNIX/SOLARIS10 FACILITIES (A5)

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The technician can use UNIX/SOLARIS10 commands to check parameters, to test computers, to check LRU link to the network...

A few introduction to SOLARIS10 ergonomics is provided in the SOLARIS10 Answerbook2 documentation installed on WPT Computer. To access to this documentation, use the following procedure:

- Start WPT Computer,
- Type your user name and password at the login prompt,
- Click on the Answerbook2 icon in the Taskbar,
- Click on the "Solaris Common Desktop Environment : User's Guide",
- Click on any menu to display it.

A few UNIX/SOLARIS10 commands useful for troubleshooting (*rlogin*, *hostname*, *ping*, *cd*, *cp*, *mv...*) are described in chapter UNIX COMMAND.

## 7.4 TROUBLESHOOTING AIDS BY EQUIPMENT

The troubleshooting aids facilities (A1 : Supervision, A2 : Indicators lamps, A3 : Visual check, A4 : Integrated tests, A5 : UNIX/SOLARIS) for each LRU are detailed in the corresponding Equipment Sheet. The LRU are listed in the maintenance table in the chapter 4.5 (LRU criticality), with the following items per LRU :

- Its type (PSP or RSP),
- The supplier,
- its corresponding Equipment Sheet chapter.

## 7.5 COMMON TROUBLESHOOTING LIST

The following table contains the most common troubleshooting:

Troubleshooting kind	Problem Description	Referenced paragraph
Supervision error messages	Hard disk error : " User disk full on ....."	§ 7.6.1
	DAT tape error : " Error when save on tape"	§ 7.6.2
	DAT tape error : " Error when load from tape " or " Error when list from tape"	§ 7.6.3
	MOS disk error : " Error when SAVE ON MOS"	§ 7.6.4
	MOS disk error : " Error when eject MOS"	§ 7.6.5
	DVD Error : "Error when SAVE on DVD"	§ 7.6.6
	DVD Error : "Error when Load from DVD" or "Error WHEN LIST from DVD"	§ 7.6.7
Data not displayed on WPO	Plots not displayed on WPO	§ 7.7.1

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Troubleshooting kind	Problem Description	Referenced paragraph
	AUTOMATIC Tracks and SAD not displayed on WPO	§ 7.7.2
	External tracks not displayed on WPO	§ 7.7.3
Computers according to the computer, refer to: § 9.1.4.2 for Sun Ultra 25 § 9.2.4.2 for Sun SB1500 § 9.3.4.2 for Sun SF V245 for Sun SF V240	The screen is black	§ 9.1.4.2.1 or § 9.2.4.2.1
	The Xserver does not start	§ 9.1.4.2.2 or § 9.2.4.2.2
	The state of a computer in supervision is FAILED	§ 9.1.4.2.3
	The state of a computer in supervision is OFF	§ 9.2.4.2.4
	The computer does not boot	§ 9.1.4.2.5
	An application does not start	§ 9.1.4.2.6
	An application does not stop	§ 9.1.4.2.7
	A computer does not shutdown	§ 9.2.4.2.8
	A computer is very slow	§ 9.1.4.2.9
	No sound is emitted by the speakers	§ 9.2.4.2.10
	A computer is synchronised on the bad equipment	§ 9.1.4.2.11
	All prints from one computer are printed with a grey square	§ 9.1.4.2.12
PLINES	The PLINES is FAILED on the supervision window	§ 9.5.4.2.1
	The links are FAILED on the supervision window	§ 9.5.4.2.2
LAN Switch	One LRU is failed on general LAN of supervision window	§ 9.6.4.2.1
	All LRU (except WPT) are failed on general LAN of supervision window	§ 9.6.4.2.2
LCD monitors according to the monitor, refer to: § 9.7.4.2 for Samsung LCD214T § 9.8.4.2 for Samsung LCD213T § 9.9.4.2 for Nec LCD 2110	The screen is black.	§ 9.7.4.2.1 or § 9.8.4.2.1 or § 9.9.4.2.1
	The OSM is displayed at 90°	§ 0
DAT drive	Error when save on tape	§ 9.23.4.2.1
	Error when load from tape	§ 9.23.4.2.2
MOS drive	Error when save on MOS	§ 9.22.4.2.1
	Error when eject MOS	§ 9.22.4.2.2
Speakers according to speakers, refer to: § 9.11.4.2 for Logitech X-140 § 9.12.4.2 for Creative SB270	No sound is emitted by the speakers	§ 9.11.4.2.1 or § 9.12.4.2.1 or § 9.13.4.2.1

Troubleshooting kind	Problem Description	Referenced paragraph
§ 9.13.4.2 for JBL speakers		
Modem	Tracks not displayed on WPO	§ 9.14.4.2.1 or § 9.15.4.2.1
	Plots and strobes not displayed on WPO	§ 9.14.4.2.2 or § 9.15.4.2.2
	The connection speed between two modems is lower than configured speed	§ 9.14.4.2.3 or § 9.15.4.2.3
Graphical printers according to the printer, refer to: § 9.16.4.2 for HP 4700 N § 9.17.4.2 for HP 4650 N	The graphical printer is failed on general LAN window of supervision	§ 9.16.4.2.1 or § 9.17.4.2.1
	The printing command is sent to the printer, but the printing is not effective.	§ 9.16.4.2.2 or § 9.17.4.2.2
	The printing command is not correctly sent to the printer	§ 9.16.4.2.3 or § 9.17.4.2.3
	A grey square is displayed on all prints	§ 9.16.4.2.4 or § 9.17.4.2.4
Time system according to the TSO, refer to: § 9.18.4.2 for time source LEDI Network § 9.19.4.2 for time source LEDI Network M1	The TSO is failed on general LAN window of supervision	§ 9.18.4.2.1 or § 9.19.4.2.1
	The TSO displays "NO TIME CODE!"	§ 9.19.4.2.2
	The TSO displays "LOCKED"	§ 9.19.4.2.3
	The WEB browser cannot open the TSO WEB interface	§ 9.19.4.2.4
Radio GPS generator	The TSO synchronisation indicator is not blinking	§ 9.20.4.2.1

Table 25 – Troubleshooting list

## 7.6 TROUBLESHOOTING FOR SUPERVISION ERROR MESSAGES

The purpose of this chapter is to describe how to react when error messages appear on the SUPERVISION.

Some error messages from the SUPERVISION application may need a troubleshooting action.

For each step, the procedure describes:

- The error message,
- The event on which the message may appear,
- The corrective actions to perform.



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This procedure is divided into 5 steps (for 5 types of error):

- Check if a Hard disk is full,
- Check a DAT tape,
- Check a MOS disk,
- Check a DVD disk,
- Unknown error message.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

## **7.6.1 HARD DISK ERROR : " USER DISK FULL ON ....."**

### **7.6.1.1 Event**

This message is displayed automatically when one partition of the hard disk is full at 90 % of its capacity on each computer.

After being acknowledged, this message will be displayed every thirty minutes until some disk space has been freed.

NOTE: The used and available disk space of each computer is displayed by the supervision window.

☞ Refer to the SUPERVISION program in the "OH TEC" documentation (Doc ref. [3]).

### **7.6.1.2 Corrective action**

When a hard disk partition is full (less than 10 % of its capacity is free), the good functioning of the system is no more guaranteed: as the system regularly writes data on the hard disk, it needs permanently some free disk space.

Some space must then be manually freed by the technician.

The methods to free some disk space differs depending on the type of disk:

- If the MOS disk is full, there is four solutions
  1. Insert a new disk in the drive.
  2. Change the disk side.
  3. Delete some central recording files on MOS using the "SAVE central recording data" function of the SUPERVISION.

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☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

4. Delete manually some central recording files on the MOS:

---

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window
[PROMPT_OPE] <code>cd /rmdisk/rmdisk0 ↵</code>	◆ Change directory to the mount point of MOS
[PROMPT_OPE] <code>ls -l</code>	◆ List the files of MOS
[PROMPT_OPE] <code>rm &lt;filename&gt;</code>	◆ Delete the file <filename>
[PROMPT_OPE] <code>rm &lt;filename&gt;</code>	◆ Repeat the delete operation for the desired files.

---

NOTE: Before being deleted from MOS, the central recording files may be saved on DAT tapes using the "SAVE central recording data" function of the SUPERVISION.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

- If the USERS disk partition of a computer is full, there are three solutions:

In operational use, the USER disk is dimensioned to remain under 90 % of its capacity. Nevertheless, some data may be added punctually by the technician, when a new version of the system is installed for example.

1. In this case, the best solution consists to use the cleanDisk procedure to remove the old SKYKEEPER software. To do it, open Unix terminal (on station) or connect a hyper terminal (on server), and execute the following commands:

---

[PROMPT_OPE] <code>su - ↵</code>	◆ Log in administrator.
password: xxxx	
[PROMPT_ADM] <code>cd /jade/TOOLS/CLEAN_DISK ↵</code>	◆ Go to the CLEAN_DISK directory.
[PROMPT_ADM] <code>cleanDisk.sh ↵</code>	◆ Execute the cleanDisk.sh procedure without parameter to display the options.
[PROMPT_ADM] <code>cleanDisk.sh REF ↵</code>	◆ Delete the old SKYKEEPER software.
	◆
[PROMPT_ADM] <code>exit ↵</code>	◆ Quit the administrator account.
[PROMPT_OPE] <code>exit ↵</code>	◆ Close the Unix terminal.

---

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2. An other solution consists to use the UNIX commands (refer to § 12) to remove old files from the disk.

Please contact THALES technical assistance to perform these operations.

3. If the previous solutions cannot free space on the disk, save the data, and restore the disk (from the "SKYKEEPER DVD Solaris Boot" DVD-ROM and then "SKYKEEPER Software by Distriref" CD-ROM).

- ☞ Refer to § 10.4 to save the data.
- ☞ Refer to § 10.7.2 and then 10.7.3 to restore the disk.

- If the USERS\_DATA disk partition of a computer is full, there are four solutions:

2. If the computer is the WPT, delete some central recording files from WPT disk using the "SAVE central recording data" function of the SUPERVISION.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

NOTE: Before being deleted from WPT disk, the central recording may be saved on formatted DVD or DAT tapes using the corresponding "SAVE" function of the SUPERVISION.

The Skykeeper data (offline data, central records, scenarios of training simulator, ...) are stored on the USERS\_DATA disk, so it is possible that the disk occupation reach or exceed 90%.

1. In this case, the best solution consists to use the supervision window to free space disk.

If the computer is the WPT, delete some central recording files from WPT disk using the "SAVE central recording data" function of the SUPERVISION.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

2. If the first solution (with the supervision window) does not resolve the problem of disk space, the technician can use the cleanDisk procedure to remove the old SKYKEEPER data. To do it, open Unix terminal (on station) or connect a hyper terminal (on server), and execute the following commands:

---

[PROMPT_OPE] <code>su - ↵</code>	◆ Log in administrator.
password: xxxx	
[PROMPT_ADM] <code>cd /jade/TOOLS/CLEAN_DISK ↵</code>	◆ Go to the CLEAN_DISK directory.
[PROMPT_ADM] <code>cleanDisk.sh ↵</code>	◆ Execute the cleanDisk.sh procedure without parameter to display the options.
[PROMPT_ADM] <code>cleanDisk.sh OFFLINE ↵</code>	◆ Delete the old offline.

---

---

[PROMPT_ADM] <i>cleanDisk.sh RECC</i> ↵	◆ Delete all central records.
	◆
[PROMPT_ADM] <i>exit</i> ↵	◆ Quit the administrator account.
[PROMPT_OPE] <i>exit</i> ↵	◆ Close the Unix terminal.

---

An other solution consist to use the UNIX commands (refer to § 12) to remove old files from the disk.

3. An other solution consists to use the UNIX commands (refer to § 12) to remove old files from the disk.

Please contact THALES technical assistance to perform these operations.

4. If the previous solutions cannot free space on the disk, save the data, and restore the disk (from the "SKYKEEPER DVD Solaris Boot" DVD-ROM and then "SKYKEEPER Software by Distriref" CD-ROM).

- ☞ Refer to § 10.4 to save the data.
- ☞ Refer to § 10.7.2 and then 10.7.3 to restore the disk.

- If the SYSTEM disk of a computer is full

In operational use, the SYSTEM disk is dimensioned to remain under 90 % of its capacity.

If this disk is full, it means that some data has been added accidentally.

In this case, the solution consists to:

1. Reboot the computer to empty the temporary system directory.

- ☞ Refer to § 9.1.5.2 and then 9.1.5.1.

2. Save the data, and restore the disk (from the "SKYKEEPER DVD Solaris Boot" DVD-ROM and then "SKYKEEPER Software by Distriref" CD-ROM).

- ☞ Refer to § 10.4 to save the data.
- ☞ Refer to § 10.7.2 and then 10.7.3 to restore the disk.

## 7.6.2 DAT TAPE ERROR : " ERROR WHEN SAVE ON TAPE"

### 7.6.2.1 Event:

This message is displayed when a SAVE on tape operation from SUPERVISION has failed.

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 7.6.2.2 Corrective action:

It is impossible to write on the tape.

Perform the following verifications in the described order, and check after each step if the error is corrected :

1. Check that the DAT drive is switched on.
2. Check that there is a cartridge in the tape drive.
3. Check that the cartridge is not write protected.
4. Try another tape.
  - ⇒ If the SAVE operation succeed with another tape, it means that the tape has been damaged. It is no more usable, data on this tape are lost.
5. Try to read or write data to tape with UNIX commands (tar)
6. Clean DAT drive heads.
7. Check DAT drive configuration (SCSI ID)
8. Check DAT drive connections with the WPT computer
  - ☞ Refer to the DAT drive connections details in § 9.23.2.
9. Reset the hardware configuration of the computer (reboot -- -r).
  - ☞ Refer to § 9.2.6.2
10. Exchange DAT drive.
  - ☞ Refer to § 9.23.5.2.
11. Exchange computer.
12. Exchange the DAT-computer SCSI cable.
13. Reset the hardware configuration of the computer (reboot -- -r).

### 7.6.3 DAT TAPE ERROR : " ERROR WHEN LOAD FROM TAPE " OR " ERROR WHEN LIST FROM TAPE "

### 7.6.3.1 Event:

These messages are displayed when a LOAD from tape operation from SUPERVISION has failed.

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 7.6.3.2 Corrective action

It is impossible to read from the tape.

Perform the following verifications in the described order, and check after each step if the error is corrected :

1. Check that the DAT drive is switched on.
2. Check that there is a cartridge in the tape drive.
3. Try another tape.
  - ⇒ If the LOAD or LIST operation succeed with another tape, it means that some data on the tape are corrupted. Data on this tape are lost.
  - ⇒ Nevertheless, it may be possible to write some new data on the tape. Then, try to execute a SAVE on tape operation from SUPERVISION.
    - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
  - If this operation fails, it means that the tape has been damaged. It is no more usable.
4. Try to read or write data to tape with UNIX commands (tar)
5. Clean DAT drive heads
6. Check DAT drive configuration (SCSI ID)
7. Check DAT drive connections with the WPT computer
  - ☞ Refer to the DAT drive connections details in § 9.23.2
8. Reset the hardware configuration of the computer (reboot -- -r)
  - ☞ Refer to § 9.2.6.2
9. Exchange DAT drive.
  - ☞ Refer to § 9.23.5.2

10. Exchange computer.

☞ Refer to § 9.2.5.7

11. Exchange the DAT-computer SCSI cable.

12. Reset the hardware configuration of the computer (reboot -- -r)

## 7.6.4 MOS DISK ERROR : " ERROR WHEN SAVE ON MOS"

### 7.6.4.1 Event:

This message is displayed when a SAVE on MOS operation from SUPERVISION has failed.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 7.6.4.2 Corrective action:

It is impossible to write data on MOS.

Perform the following verifications in the described order, and check after each step if the error is corrected :

1. Check that the MOS drive is switched on.
2. Check that a MOS disk is present in the MOS drive.
3. Check that the MOS disk is not write protected.
4. Try another MOS disk.  
⇒ If the SAVE operation succeed with another MOS, it means that the MOS has been damaged. It is no more usable, data on this MOS are lost.
5. Try to read or write data to disk with UNIX commands (cd, ls, cp).  
⇒ After the commands are done, close the Xterm. Otherwise the eject of the MOS is not possible.
6. Check that the MOS disk is correctly mounted.

---

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window
---	--------------------------

---

[PROMPT_OPE] df -k /rmdisk/rmdisk0 ↵	◆ Display the mount point of MOS
--------------------------------------	----------------------------------

---

⇒ If the mount point is displayed, the MOS disk is used by another application.  
Kill this application with the following command:

---

[PROMPT_OPE] fuser -ku /rmdisk/rmdisk0 ↵	◆ Kill all applications using the MOS
--	---------------------------------------

---

⇒ If the mount point is not displayed, the MOS disk is not mounted. Check that the MOS disk automatic detection process is running.

---

[PROMPT_OPE] ps -ef   grep vold ↵	◆ Display information about vold process.
-----------------------------------	---

---

- If vold is running but the MOS disk is not automatically mounted, it needs to be formatted.
  - ☞ Refer to the MOS disk formatting procedure in the MOS optical disc drive equipment sheet.
- If vold is not running, log on as user root and start this process:

---

[PROMPT_OPE] su - ↵	◆ Log on as user root
---------------------	-----------------------

password: xxxxxxxx

---

[PROMPT_ADM] /etc/init.d/volmgt start	◆ Start the process for automatic mounting of the MOS disk
	◆ The MOS disk is automatically mounted on the /rmdisk/rmdisk0 directory

---

7. Check the MOS drive configuration (Switches)

8. Check the SCSI termination LEDs on the MOS drive

☞ Refer to § 9.23.2

9. Check MOS drive connections.

☞ Refer to the MOS drive connections details in § 9.22.2.

10. Reconfigure WPT computer devices (reboot -- -r)

Refer to § 9.2.6.2

11. Exchange MOS drive

☞ Refer to § 9.22.5.2

12. Exchange DAT drive

☞ Refer to § 9.23.5.2



13. Exchange computer

☞ Refer to § 9.2.5.7

14. Exchange the SCSI cables.

## 7.6.5 MOS DISK ERROR : " ERROR WHEN EJECT MOS"

### 7.6.5.1 Event:

This message is displayed when an Eject MOS operation from SUPERVISION has failed.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 7.6.5.2 Corrective action:

It is impossible to eject the MOS.

Perform the following verifications in the described order, and check after each step if the error is corrected :

1. Check that the MOS drive is switched on.
2. Check that a MOS disk is present in the MOS drive.
3. Check that REP\_C function is not running.  
☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
4. Check that the MOS disk is correctly mounted (refer to step 6 of § 7.6.4.2 Corrective action:)
5. Check the MOS drive configuration (Switches)
6. Check the SCSI termination LEDs on the MOS drive  
☞ Refer to § 9.23.2
7. Check MOS drive connections.  
☞ Refer to the MOS drive connections details in § 9.22.2.

8. Reconfigure WPT computer devices (reboot -- -r)
  - ☞ Refer to § 9.2.6.2
  
9. Exchange MOS drive.
  - ☞ Refer to § 9.22.5.2
  
10. Exchange DAT drive.
  - ☞ Refer to § 9.23.5.2
  
11. Exchange computer.
  - ☞ Refer to § 9.2.5.7
  
12. Exchange the SCSI cables.

## 7.6.6 DVD ERROR : "ERROR WHEN SAVE ON DVD"

### 7.6.6.1 Event:

This message is displayed when a SAVE on DVD operation from SUPERVISION has failed.

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 7.6.6.2 Corrective action:

It is impossible to write data on DVD.

Perform the following verifications in the described order, and check after each step if the error is corrected:

1. Check that there is a DVD-RW present in the DVD writer drive.
2. Check that the DVD drive is not used by another activity (daily saving of central replay, ...).
3. The daily saving of central replay need a DVD with specific label. Do not use the DVD-RW that has already been used to save other data.
4. Try another DVD-RW disk.
  - ⇒ If the SAVE operation succeed with another DVD-RW, it means that the DVD has never been formatted, or the DVD has been damaged. In the first case, format the DVD. In the second case, data on this DVD-RW are lost, and the DVD-RW is no more usable.
5. Try to read data with UNIX commands (ls)

---

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window
[PROMPT_OPE] <code>ls -l /cdrom/cdrom0/ ↵</code>	◆ Display the content of the DVD
[PROMPT_OPE] <code>exit</code>	◆ Close the Xterm, otherwise the eject of the DVD is not possible.

---

6. Check that the DVD-RW disk is correctly mounted (only if you are sure that the DVD is not empty).

---

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window
[PROMPT_OPE] <code>svcadm enable</code> <code>svc:/system/filesystem/volfs:default ↵</code>	◆ Enable the auto mount.
Wait 30 seconds that the auto mount takes into account.	
[PROMPT_OPE] <code>df -h   grep cdrom</code>	◆ Display the mount point of the CR-ROM / DVD-ROM
[PROMPT_OPE] <code>df -h</code>	

---

⇒ If the mount point is not displayed, the DVD-ROM disk is not mounted. Are you sure that the CD-ROM / DVD-ROM has been formatted.

☞ Refer to the DVD-RW formatting procedure.

7. Restart the Supervision on WPT.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

8. Reset the hardware configuration of the computer (command "reboot -- -r").

☞ Refer to § 9.1.5.2.

9. Exchange the computer.

☞ Refer to § 9.1.5.7.

## 7.6.7 DVD ERROR : "ERROR WHEN LOAD FROM DVD" OR "ERROR WHEN LIST FROM DVD"

### 7.6.7.1 Event:

This message is displayed when a LOAD from DVD operation from SUPERVISION has failed.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 7.6.7.2 Corrective action:

It is impossible to read data from DVD.

Perform the following verifications in the described order, and check after each step if the error is corrected:

1. Check that a DVD is present in the DVD drive.
2. Try another DVD-RW disk.
  - ⇒ If the LOAD or LIST operation succeed with another DVD, it means that some data on the DVD are corrupted, or the data contained on the DVD are not the good type (offline data, central record, simulated scenario), or the DVD has never been formatted.
3. Try to read data with UNIX commands (ls)

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window
[PROMPT_OPE] ls -l /cdrom/cdrom0 ↵	◆ Display the content of the DVD
[PROMPT_OPE] exit	◆ Close the Xterm, otherwise the eject of the DVD is not possible.

4. Check that the DVD-RW disk is correctly mounted.

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window
[PROMPT_OPE] <i>svcadm enable</i> <i>svc:/system/filesystem/volfs:default</i> ↵	◆ Enable the auto mount.
Wait 30 seconds that the auto mount take into account.	
[PROMPT_OPE] df -h   grep cdrom	◆ Display the mount point of the CR-ROM / DVD-ROM
[PROMPT_OPE] df -h	

⇒ If the mount point is not displayed, the DVD-ROM disk is not mounted. Are you sure that the CD-ROM / DVD-ROM has been formatted.

☞ Refer to the DVD-RW formatting procedure.

5. Restart the Supervision on WPT.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
6. Reset the hardware configuration of the computer (reboot -- -r).
  - ☞ Refer to § 9.2.6.2
7. Exchange the computer.
  - ☞ Refer to § 9.2.5.7.

### 7.6.8 UNKNOWN ERROR MESSAGE

It may happen that some unknown errors appears.

In such a case, please note the message and contact THALES technical assistance.

## 7.7 TROUBLESHOOTING WHEN DATA NOT PRESENT ON WPO

The purpose of this chapter is to describe how to react when some data are not displayed by WPO.

The four kinds of data that should be displayed on WPO are :

- Plots and Stobes from plot radar (if any)
- Tracks and SAD generated from plot radar (if any)
- Tracks from track radar (if any)
- External tracks from remote centres

The troubleshooting method consists in following up the path of the concerned data from the WPO to the source.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

### 7.7.1 PLOTS NOT DISPLAYED ON WPO

Note: only the centres connected to plot radar can display plots.

If the centre is connected to plot radar and then there is no plot displayed on WPO, perform the following verifications in the described order, and check after each step if the error is corrected:

1. Check that plots data are also not displayed on the other WPO.
2. Check on WPO that the plots data filters are disabled.
3. Check on WPO that tracking is ON.
4. Check on supervision that the ADP is RUNNING.
5. Check on supervision that the state of the plot radar link is OK.
6. Check that the plot radar is started and sending data to the centre.
7. Check in SPM\_OFFLINE, that the radar sensor link is correctly configured.
8. Check on the PLINES indicators that the PLINES is receiving data on port (connected to the plot radar).
9. Check that the (plot radar) serial cable is correctly connected to the port of the PLINES.
10. Perform the flashing of the PLINES with the centre configuration.
11. Check on the modem indicators (if any) that the modem is receiving data.

12. Check that the modem serial cable is correctly connected (if any).
13. Check that the modem leased line cable is correctly connected (if any).
14. Perform the flashing of the modem with the adapted configuration (if any).
15. Exchange the PLINES.
16. Exchange the modem (if any).

### 7.7.2 AUTOMATIC TRACKS AND SAD NOT DISPLAYED ON WPO

Note: only the centres connected to plot radar can display SAD.

Perform the following verifications in the described order, and check after each step if the error is corrected:

1. Check that tracks data are also not displayed on the other WPO.
2. Check on WPO that the tracks data filters are disabled.
3. Check on supervision that the ADP is RUNNING.
4. Create a manual track on a WPO and check the track is displayed.
5. Check that plots are displayed (only if the centre is connected to plot radar).
6. Perform the troubleshooting for plots not displayed on WPO (only if the centre is connected to plot radar).
7. Perform the troubleshooting for external tracks not displayed on WPO.

### 7.7.3 EXTERNAL TRACKS NOT DISPLAYED ON WPO

Perform the following verifications in the described order, and check after each step if the error is corrected:

1. Check that external tracks are also not displayed on the other WPO.
2. Check on WPO that the tracks filters are disabled.
3. Check on supervision that the ADP is RUNNING.
4. Check on supervision that the state of the link (of remote centre or of radar track) is OK.
5. Check that the remote centre (respectively track radar) is started and sending data to the centre.
6. Check in SPM\_OFFLINE, that the sensor link is correctly configured.
7. Check on the PLINES indicators that the PLINES is receiving data on the port (connected to remote centre or track radar).
8. Check that the serial cable is correctly connected to port of the PLINES.
9. Perform the flashing of the PLINES with the centre configuration.
10. Check on the modem indicators (if any) that the modem is receiving data.
11. Check that the modem serial cable is correctly connected (if any).
12. Check that the modem leased line cable is correctly connected (if any).
13. Perform the flashing of the modem with the adapted configuration (if any).

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14. Exchange the PLINES.
15. Exchange the modem (if any).

## 8. MAINTENANCE TASKS

The preventive maintenance covers periodic servicing such as :

- Computer rebooting,
- Screen cleaning,
- Computer cleaning,
- Backup ...

The general state of Centre must be clean, the dust must be removed and the cables connections must be checked periodically.

### **Realisation:**

The preventive maintenance must be performed with the defined periodicity in the Equipment preventive table (See § 8.1) and the administrative preventive table (See § 8.2).

The preventive maintenance must be performed following the operations detailed in the Equipment Sheet of each LRU.

When the periodic maintenance has been performed, a Maintenance Report (cf. chapter 11.1 preventive maintenance reports) has to be completed with the eventual remarks.

### **Remark (available for preventive and corrective maintenance):**

For safety reasons, each NODE (or part of node) has to be logically or functionally disconnected from the operational system before intervention.

In the same way, after replacing an LRU, the NODE (or part of it) has to be reconnected to the system.

Before connecting or disconnecting any cable, or any LRU, the power supply of the concerned LRU must be switched off.

## 8.1 EQUIPMENT PREVENTIVE PROCEDURES

There are 2 equipment preventive procedures:

- Equipment maintenance procedure,
- Equipment overhaul procedure.

### 8.1.1 EQUIPMENT MAINTENANCE PROCEDURES

The maintenance table, in the chapter 4.5, gives the maintenance tasks sorted by equipment and gives for each LRU:

- Its type (PSP or RSP)
- its preventive maintenance periodicity,



- its corresponding Equipment Sheet chapter.

## 8.1.2 EQUIPMENT OVERHAUL PROCEDURE

The equipment overhaul procedure consists to:

- Execute the equipment maintenance procedure,
- Test the spare equipments,
- Clean equipments.

### 8.1.2.1 Test of spare equipments

Periodically, it is recommended to test all spare equipments. The following table gives the check period for all types of equipment.

Equipment	Periodicity	Remark
Computer	3-months	
IOP	3-months	
Modem	3-months	
switch LAN	Yearly	
Screen	Yearly	
Speaker	Yearly	
Printer	Yearly	Do not open the toner or the cartridges of spare printer. Use the toner or the cartridges of the operational printer
Time Source	Yearly	
RTB	Yearly	
MOS (optical disk drive)	Yearly	
DAT drive	Yearly	

Table 26 – Check period of spare equipments

The test consist, for all spare equipments, to

- Replace the operational equipment by the spare equipment (refer to the § "equipment exchange"),
- Execute the "good functioning test" of the equipment (refer to the § "equipment good functioning test"),
- Replace the spare equipment by the operational equipment.
- Execute the "good functioning test" of the equipment.

### 8.1.2.2 Cleaning equipments

Periodically, it is recommended to clean equipments. The following table gives the cleaning period for all types of equipment.

Equipment	Periodicity	Remark
Computer	yearly	
IOP	Never	
Modem	Never	
switch LAN	Never	
Screen	Never	
Speaker	Never	
Printer	Never	
Time Source	Never	
RTB	Never	
MOS (optical disk drive)	Never	
DAT drive	Never	Only the DAT tapes can be cleaned

Table 27 – Cleaning period of equipments

The cleaning activities are described in the § "preventive maintenance" of equipment sheets.

## 8.2 ADMINISTRATIVE PREVENTIVE PROCEDURES

The administrative preventive procedures include the procedures to save applications and data of the system and the procedures to clean the computers hard disk. They are given in the following table gathering for each one:

- Its back-up support
- Its back-up periodicity,
- When the back-up operation has to be performed.

Procedure	Support	Periodicity	To perform	Sheet
<b>Computer Software Update</b>	All computers Hard Disk	Punctual	When a new skykeeper software version is delivered.  From Installation DVD and CD.	§ 10.7.3 § 10.7.4
<b>Save Central recording</b>	DVD (1)	Manually: Punctual Automatic: Everyday	When needed by controllers  When indicated by SUP (system parameter)	§ 10.4.1

	DVD (2)	Punctual	When needed by controllers	§ 10.4.1
<b>Save Offline Parameters</b>	DVD (2)	Punctual	When SPM_OFFLINE parameters have been modified	§ 10.4.3
<b>Save SIM scenarios</b>	DVD-RW (2)	Punctual	When SIM scenario have been modified	§ 10.4.3
<b>Clean computers hard disk</b>	All computers Hard Disk	Weekly	Every week, control the available space of all computers hard disk	
(1) MOS for the CRC of Biak (2) DAT for the CRC of Biak				

Table 28 – Administrative maintenance table

NOTE: A DVD-RW disk may be re-written about 1000 times.

### 8.2.1 UPGRADE VERSION PERIODICITY

The hard disks of all kind of computers in the Centre (ADP, WPT, and WPO) have the same architecture; but each one have a specific configuration (hostname, operational process...).

These hard disks are generated from the Installation DVD-ROM and CD-ROM.

For each kind of computer, there is:

- The Operational disk (installed in the operational computer).
- The Spare disk (installed in the spare computer).

The Centre software is installed by TRS on the hard disk of each operational and spare computer.

The Installation DVD and CD are generated by TRS and provided with the delivery of the Centre.

In case of software upgrade of the Centre, a CD-ROM containing the new software version of the Centre is provided. The new upgrade CD replaces the previous one.

The Upgrade Version procedure installs the new software version of the Centre from the Upgrade CD. The new software version is installed directly on the local computer, or through the network from the WPT.

The new software version must be installed on all computers (operational and spare).

The Upgrade Version may then be run when a new software version is delivered, or after a dump disk from install DVD.

☞ For details on the Upgrade Version procedure, refer to § 10.7.3 or § 10.7.4.

### 8.2.2 SAVE CENTRAL RECORDING PERIODICITY

Central recording data are saved on the hard disk of the WPT while the central recording is running.

A transfer of central recording data on a DVD is automatically performed everyday by the SUPERVISION program (the data are then cancelled from the WPT disk). The time for central recording data automatic transfer to DVD may be set using the SPM program (Refer to the SPM part of the OH TEC: Doc. ref. [3]).

When the DVD is full, a message is displayed to indicate the operator whether to insert a new DVD in the drive.

Central recording data may be saved manually at any time, on a DVD.

The central recording data back-up and restore are performed using the SUPERVISION program.

☞ Refer to the § 10.4.1 and the § 10.5.1.

Several DVD-RW shall be specially reserved for the automatic save of central records.

The size of a 24 hours central recording file is between 1.5 and 2 GB, depending of the System load (quantity of data recorded). The storage capacity of DVD is 4.7 GB, it must be changed every two days by a new formatted DVD.

### 8.2.3 SAVE OFFLINE PARAMETERS PERIODICITY

Offline parameters have to be backed-up on a DVD after every modification or creation.

So that in case of WPT exchange, offline parameters may be restored from the back-up DVD to the WPT disk.

In this way, several offline configurations may be saved on several back-up DVD.

Offline parameters are saved on the hard disk of WPT by SPM. Anytime offline parameters are saved by SPM, the old offline parameters are cancelled from the WPT disk.

The offline parameters back-up and restore are performed using the SUPERVISION program.

☞ Refer to the § 10.4.3 and the § 10.5.2.

### 8.2.4 SAVE SIM SCENARIO PERIODICITY

SIM scenario have to be backed-up on a DVD after every modification or creation, so that in case of WPT exchange, SIM scenario may be restored from the back-up DVD to the WPT disk.

In this way, several SIM scenario may be saved on several back-up DVD.

SIM scenario are saved on the hard disk of WPT by SPM :

- With a new name to create a new SIM scenario.
- With an already existing name to replace the existing scenario.

The SIM scenario back-up and restore are performed using the SUPERVISION program.

☞ Refer to the § 10.4.4 and the § 10.5.3.

## 8.2.5 CLEAN COMPUTERS HARD DISK

The available space on each of hard disks of the computer of the system have to be checked every week.

In this way, you can use the Disk monitoring window of the SUPERVISION.

☞ Refer to the Operator handbook for the TEC functions [doc 3] Part I, §2.2

If some of the hard disks have not enough space for the well functioning of the system, you have to clean those hard disk using the Clean disk tool.

☞ Refer to the §10.8 CHD : Clean computer hard disk

## 9. MAINTENANCE EQUIPMENT SHEETS

For all works on the hardware, you must follow the safety rules described in § 1 of this document.

### 9.1 WPC : SUN ULTRA 25 WORKING POSITION COMPUTER

#### 9.1.1 SHORT DESCRIPTION

The Sun Ultra 25 Workstation offers dual Gigabit Ethernet, five I/O expansion slots—two PCI Express x16 slots, one PCI-Express x8 slot and two PCI-X 100-MHz full-length expansion slots—and support for up to four 250-GB internal SATA hard drives.

The Sun Ultra 25 supports SUN SOLARIS 10 operating system which provides UNIX facilities.

The Sun Ultra 25 uses a UltraSPARC-IIIi CPU processor module with 1 megabyte of cache.

The New PCI-Express-based graphics solutions offer faster data transfer for devices as new high-end XVR-2500 3-D graphics accelerator.

The Sun Ultra 25 includes the following features :

- One Processor UltraSPARC-IIIi Cu (64 bits), 1.34 GHz, 1 megabyte of L2 cache.
- Memory: 2 gigabytes.
- One Hard disk: 80 gigabytes
- One internal DVD-RW/CD-RW
- Standard interface:
  - Six USB 2.0 ports (two on the front panel, four on the rear panel),
  - Two RS-232C/RS-423 asynchronous (DB9-F) serial ports,
  - One set of audio port (Line in and line out, microphone and headphone),
  - Two Ethernet 10/100/1000 Base-T Gigabit Ethernet ports (two rear panel)
  - One graphic board Sun XVR2500 on PCI Express slot.

## 9.1.2 SUN ULTRA 25 COMPOSITION

This equipment sheet gathers the information on Sun Ultra 25 used as computer for the working positions (WPO, WPT).

### 9.1.2.1 Front panel

The Sun Ultra 25 front panel includes (see Figure 29) :

- (1) 5.25-inch drive bay (DVD-RW/CD-RW drive).
- (2) Power indicator LED : Lit when boot sequence has completed successfully.
- (3) Power switch
- (4) Fault LED
- (5) 2X USB 2.0 ports
  - port 1 – not connected.
  - port 2 – not connected.
- (6) Audio ports microphone and headphone : not connected.

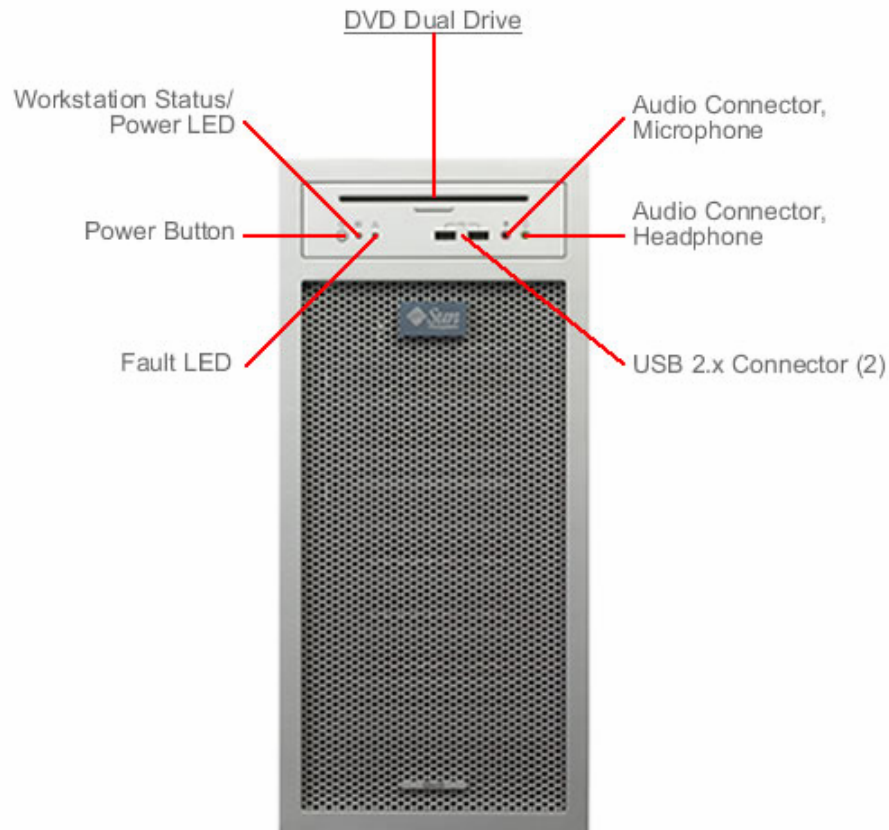


Figure 29 : SUN Ultra 25 front panel

### 9.1.2.2 Rear panel

The Sun Ultra 25 rear panel includes (see Figure 2):

- (1) Audio input port (Line in) : not connected
- (2) Audio output port (Line out) : connected to loud speakers for WPO
- (3) 2x serial ports : not connected.
  - The serial ports is DB-9-F connector which supports asynchronous transfers at up to 460 Kbaud.
- (4) 4x USB 2.2 ports
  - port 1 – connected to keyboard/mouse.
  - port 2 to 4 – not connected.
- (5) 2x Ethernet port :
  - port 0 – connected to the general LAN.
  - port 1 – not connected.
- (6) 6 PCI card slots :
  - **Slot 1** : PCI-E 2 (Upper slot) : Graphic card
  - **Slot 2** : Not used
  - **Slot 3** : PCI-E 1 : Not used
  - **Slot 1** : PCI-E 0 : Not used
  - **Slot 1** : PCI-X 1 : Not used
  - **Slot 1** : PCI-X 0 : Not used
- (7) Power inlet : Receptacle for the power cord.
-



WPC : sun Ultra 25 working position computer  
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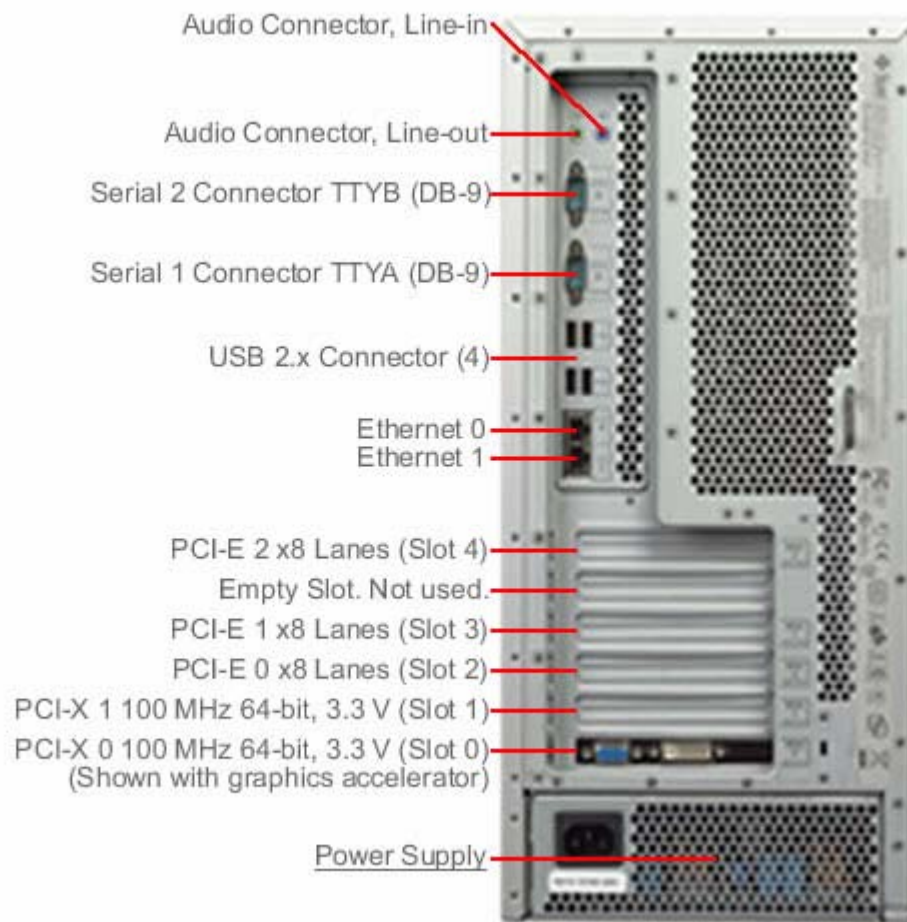


Figure 30 : SUN Ultra 25 rear panel

### 9.1.3 PREVENTIVE MAINTENANCE

#### 9.1.3.1 Reboot the unit

Procedure:

Stop and start the computer (refer to paragraph § 9.1.5.2 and § 9.1.5.1)

Periodicity:

Every month.

Report:

Complete a preventive maintenance report (See § 11.1).

### 9.1.3.2 Clean the unit

Procedure:

Clean the computer (refer to paragraph § 9.1.5.12).

Periodicity:

Every year.

Report:

Complete a preventive maintenance report (See § 11.1).

### 9.1.4 CORRECTIVE MAINTENANCE

#### 9.1.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the Sun Ultra 25 are the following :

A1	Supervision
A2	Indicators
A3	Visual check
A4	Integrated tests
A5	SOLARIS 10 facilities

- A1 (Supervision) aid is provided by the SUPERVISION function running on WPT: check the status of the faulty Sun Ultra 25, and check the historic of the past states of this LRU in the log-file.
  - If the state of a WPO becomes OFF, the corresponding Sun Ultra 25 must be shut down from the SUPERVISION Window, and then switched ON.
    - ☞ Refer to the Sun Ultra 25 Switch On/Off procedures in § 9.1.5.1.
  - If the states off all the components is OFF, the SUPERVISION program must be restarted.
    - ☞ Refer to the SUPERVISION program stop and start procedure in the "OH TEC" documentation (Doc ref. [3]).
- A2 (Indicators) aid is provided by the power-indicator of the Sun Ultra 25: refer to the Ultra 25 Workstation Getting started guide.

- A3 (visual check): check that all cables are well plugged on the faulty Sun Ultra 25 side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.
- A4 (Integrated tests) aid is provided by troubleshooting tests described in the SUN Ultra 25 Troubleshooting card and Ultra 25 Getting started guide.
- A5 (UNIX/SOLARIS 10 facilities) aid is provided by Solaris 10 Answerbook2 documentation.
  - ☞ Refer to UNIX/SOLARIS commands described in § 12
  - If the WPT computer takes a long time to execute UNIX commands, the computer may need to be restarted.

The directory TOOLS (/jade/TOOLS) contains two kinds of tools: Tools for equipment configurations, and Tools for troubleshooting aids. Each tool contains a file named readme.txt which describes the tool purpose and explains how to use the tool.

To exchange the computer, refer to § 9.1.5.7.

## 9.1.4.2 Common troubleshooting

### 9.1.4.2.1 The screen is black

Execute the following operations and check on each step if the problem is solved :

- Check that the screen is switched on.
- Check that the screen is correctly connected to the computer.
- Check that the mouse and the keyboard are correctly connected to the computer.
- Run "fsck" if asked by the system.
- Check OBP parameters setting.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the screen.
- Exchange the computer.

### 9.1.4.2.2 The Xserver does not start

Execute the following operations and check on each step if the problem is solved :

- Check the OBP configuration of computer.
- Update the "skykeeper system".

- Install the "Customized Operating System", and then the "skykeeper software".

#### 9.1.4.2.3 The state of a computer in supervision is FAILED

Execute the following operations and check on each step if the problem is solved:

- Check that the computer is switched on. If the computer does not boot, refer to § 9.1.4.2.5.
- Run "fsck" if asked by the system.
- Check that the computer General LAN Ethernet cable is correctly connected to Ethernet port 0 of the computer.
- Check that the computer General LAN Ethernet cable is correctly connected to the General LAN switch.
- Check the General LAN switch leds and try to plug the cable to another port of the switch.
- Check the IP address on the computer by the "ifconfig -a" command. If the IP address is not correct, update the "skykeeper system" on the computer.
- Check the IP address on the WPT computer by the "ifconfig -a" command. If the IP address is not correct, update the "skykeeper system" on the WPT computer.
- Ping the computer from the WPT by the command "ping -s <computer name>" (where <computer name> is wpt1, adp1, wpo1, wpo2, ...). If the IP address returned by the ping command is wrong, update the "skykeeper system" on the WPT computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the computer.
- Exchange the Ethernet cable.
- 

#### 9.1.4.2.4 The state of a computer in supervision is OFF

Execute the following operations and check on each step if the problem is solved:

- If the failed computer is WPO, check that the operator is logged on.
- The local supervision must be restarted. Execute the following command:  
*/jade/REF/common/bin/ReStartSystem.sh*
- Stop and start the supervision on WPT.
- Update the "skykeeper system".
- Update the "skykeeper tools".
- Update the "skykeeper reference software".
- On supervision, perform an update.
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the computer.

#### 9.1.4.2.5 The computer does not boot

When Sun Ultra 25 computer is booting, there are 2 levels of error:

- The OBP mode is not reached,
- The OBP mode is running, but the Operating System does not start.

##### 9.1.4.2.5.1 The OBP mode is not reached

Execute the following operations and check on each step if the problem is solved:

- Unplug the power cables during one minute, and plug them again.
- Clean the computer (refer to § 9.1.5.12).

##### 9.1.4.2.5.2 The OBP mode is running, but the OS does not start

Execute the following operations and check on each step if the problem is solved:

- Check the OBP parameters setting.
- Boot (manually) on the disk:

---

---

```
[PROMPT_OBP] boot disk ↵
```

 ◆ Boot (manually) on the disk.

- Check the equipment by the OBP commands:

---

---

```
[PROMPT_OBP] banner ↵
```

 ◆ Display the general data on the computer (memory, host id, ...)

Sun Fire V245, No Keyboard

Copyright 2006 Sun Microsystems, Inc. All rights reserved.

OpenBoot 4.22.18, 2048 MB memory installed,  
Serial #67158824.

Ethernet address 0:14:4f:0:c3:28, Host ID:  
8400c328.

---

```
[PROMPT_OBP] probe-scsi-all ↵
```

 ◆ Check the SCSI bus.

This command may hang the system if a Stop-A or halt command

has been executed. Please type reset-all to reset the system before executing this command.

Do you wish to continue? (y/n) y ↵

...

---

---

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- Execute the Power On Self Test:

---

---

[PROMPT\_OBP] *post* ↵

◆ Execute the Power On Self Test.

...

Requesting System Maintenance Mode

SINGLE USER MODE

---

---

- Boot on the SKYKEEPER DVD Solaris Boot to check the disk:

---

---

[PROMPT\_OBP] *boot cdrom -s* ↵

◆ Boot in SINGLE USER on the SKYKEEPER DVD Solaris Boot.

...

Requesting System Maintenance Mode

SINGLE USER MODE

---

[PROMPT\_ADM] *format* ↵

◆ Check that the disk is detected.

Searching for disks...done

◆ If the disk is not detected, unplug it, and then plug it again.

AVAILABLE DISK SELECTIONS:

0. c1t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>

[/pci@1e,600000/pci@0/pci@a/pci@0/pci@8/scsi@1/sd@0,0](#)

---

Specify disk (enter its number): 0 ↵

◆ Select one disk, ...

selecting c1t0d0

[disk formatted]

...

---

format> *quit* ↵

◆ ... And quit the format command.

---

[PROMPT\_ADM] *fsck -Y /dev/rdisk/c1t0d0s0* ↵

◆ Execute the File System Check on the root partition.

/dev/rdisk/c1t0d0s0

\*\* /dev/rdisk/c1t0d0s0

\*\* Last Mounted on /

\*\* Phase 1 - Check Blocks and Sizes

---

---

---

\*\* Phase 2 - Check Pathnames

\*\* Phase 3a - Check Connectivity

\*\* Phase 3b - Verify Shadows/ACLs

\*\* Phase 4 - Check Reference Counts

\*\* Phase 5 - Check Cylinder Groups

159966 files, 3950386 used, 12173528 free  
(34728 frags, 1517350 blocks, 0.2%  
fragmentation)

---

[PROMPT\_ADM] *fsck -Y /dev/rdisk/c1t0d0s3* ↵ ◆ Execute the File System Check on the users partitions.

[PROMPT\_ADM] *fsck -Y /dev/rdisk/c1t0d0s4* ↵

---

- Mount the disk, and take some information:

---

[PROMPT\_ADM] *mount /dev/dsk/c1t0d0s /mnt* ↵ ◆ Mount the root partition.

[PROMPT\_ADM] *cat /mnt/var/adm/messages* ↵ ◆ Display the /var/adm/messages, and note the last lines.

...

Jun 11 14:17:29 adp1 halt: [ID 662345 auth.crit]  
halted by root

---

- Return to the OBP mode, and reboot the computer with the OBP traces:

---

[PROMPT\_ADM] *halt* ↵ ◆ Stop the Operating System, and return to the OBP mode.

[PROMPT\_OBP] *setenv verbosity max* ↵ ◆ Enable the OBP traces.

[PROMPT\_OBP] *setenv diag-level max* ↵

[PROMPT\_OBP] *setenv diag-switch? true* ↵

[PROMPT\_OBP] *setenv diag-script? all* ↵

[PROMPT\_OBP] *reset-all* ↵ ◆ Take into account the new OBP parameters, and reboot the computer.

[PROMPT\_OBP] *setenv verbosity min* ↵ ◆ Disable the OBP traces.

[PROMPT\_OBP] *setenv diag-level min* ↵

[PROMPT\_OBP] *setenv diag-switch? none* ↵

[PROMPT\_OBP] *setenv diag-script? none* ↵

---

#### 9.1.4.2.6 An application does not start

Execute the following operations and check on each step if the problem is solved :

- Stop and restart supervision on WPT.
- Check that there is only one local supervision for the application running on the computer:

```
ps -ef | grep -i lmc
```

Eventually restart the local supervision of the computer with the command :

```
/jade/REF/common/bin/ReStartSystem.sh
```

- Check time synchronisation on this computer.
- On supervision, perform an update.
- Update the "skykeeper system".
- Update the "skykeeper tools".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange computer.

#### 9.1.4.2.7 An application does not stop

Execute the following operations and check on each step if the problem is solved :

- Stop and restart supervision on WPT.
- Check that there is only one local supervision for the application running on the computer :

```
ps -ef | grep -i lmc
```

Eventually restart the local supervision of the computer with the command :

```
/jade/REF/common/bin/ReStartSystem.sh
```

#### 9.1.4.2.8 A computer does not shutdown

Execute the following operations and check on each step if the problem is solved:

- Stop and restart supervision on WPT.
- If it is possible, enter the command "*init 5*", else press the button "power off".
- If the problem is systematic, install again the "skykeeper reference software" (and then perform an update from supervision).
- If the problem persists after the "skykeeper reference software" reinstallation, install again the "Customized Operating System" (and then the "skykeeper software").
- Exchange the computer.

#### 9.1.4.2.9 A computer is very slow



Execute the following operations and check on each step if the problem is solved :

- Switch off and then switch on the computer.
- On supervision, check the free disk space.
- Update the "skykeeper system".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Exchange computer.

#### 9.1.4.2.10 No sound is emitted by the speakers

Execute the following operations and check on each step if the problem is solved :

- Check that the speakers are switched on and that the volume level is loud enough.
- Check that the speakers are plugged to the computer.
- Open an Xterm window and run the command "sdtaudio". Check that the output volume level of the computer is loud enough. Check that the output devices are correctly selected.
- Update the "skykeeper system".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the speakers.
- Exchange computer.

#### 9.1.4.2.11 A computer is synchronised on the bad equipment

Execute the following operations and check on each step if the problem is solved:

- Check the synchronisation of all equipments.
- Check that the time source is connected to the General LAN switch (only for WPT).
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Check that the time source is synchronized with satellites.
- Check that the computer is connected to the General LAN switch.
- Reboot the computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".

#### 9.1.4.2.12 All prints from one computer are printed with a grey square

The snapshot script uses the Solaris program named "sdtimage". On the last version of Solaris 10, the information window "CDE's Image Viewer (aka sdtimage) has been declared Obsolete. Please ..."

that is automatically opened with sdtimage, create the grey square during the print. To never print the grey square, we need never display this warning window.

To remove this information window, execute the following commands in the Unix terminal:

[PROMPT_OPE] /usr/dt/bin/sdtimage ↵	◆ The information window "CDE's Image Viewer (aka sdtimage) has been declared Obsolete. Please ...".
Select the message "Do not show this message again", and click on the button OK.	◆ The information window is closed, and the program sdtimage is displayed.
Close the sdtimage program.	◆ Sdtimage program disappears.

## 9.1.5 ELEMENTARY PROCEDURES

### 9.1.5.1 Computer switch on

- Switch on the monitor (if needed).
  - ☞ Refer to the monitor switch on procedure.
- Switch on speakers (for WPO).
- Switch on the Sun Ultra 25 by pressing the power switch located on the front panel (See Figure 29),
  - The system boots automatically (while loading the UNIX system, the computer runs in OBP mode: see hereafter in this paragraph to have details on the OBP mode),
  - At the end of boot sequence, the "green" active indicator comes on (See Figure 29),
  - The Login screen is displayed
  - Note : If the "green" active indicator is not active, power off the computer by pressing the power switch during 30 seconds and then switch on again the computer.
- Log on as operational user on WPT and WPO computers. No need to log on ADP computer in operational use.
  - ☞ Refer to § 9.1.6.1 for details on users and passwords.

### 9.1.5.2 Computer switch off

To switch off a computer, you can use two methods:

- From supervision window on WPT,
- From Terminal window on the computer to be switched off.

**9.1.5.2.1 Switch off from supervision window (simplest way)**

- Shut down the desired computer using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

**9.1.5.2.2 Switch off manually**

- Stop the application using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- In a Terminal window, log on as Administrator user to be under system authority and power off the system:

Click on the Terminal icon in the task bar.	◆ Open a terminal window
[PROMPT_OPE] <i>su -</i> ↵	◆ Administrator user name
Password : .....	◆ Type the administrator password.
[PROMPT_ADM] <i>init 5</i> ↵	◆ Stop the Unix system, and power off the computer.

**9.1.5.3 Computer start in single user mode**

For troubleshooting (failure in the system file) or maintenance operations, the computer may need to be started in terminal mode.

- Start the computer in OBP mode.
  - ☞ Refer to § 9.1.5.4.
- When the OBP prompt is displayed, type the following command to boot in single user mode:

[OBP_PROMPT] <i>boot -s</i>	◆ Boot the computer in the single user mode.
-----------------------------	--

- After the computer reboot, the following message is displayed:  
INIT: SINGLE USER MODE  
Type control-d to proceed with normal start-up,  
(or give root password for system maintenance):
- Enter the root password

NOTE: the Unix system can start automatically in the single user mode, if failures are detected in the root file system. Logged into the root account, the administrator can repair the file system with the fsck command.

#### 9.1.5.4 Computer start in OBP mode (OpenBoot PROM)

For troubleshooting (the X server does not start) or maintenance operations (computer configuration, computer exchange, installation of the "Customized Operating System", ...), the computer may need to be started in OBP mode.

NOTE: In all this document, the OBP prompt will be named as follow:

[PROMPT\_OBP] (= OK\_)

##### 9.1.5.4.1 Access to OBP mode while switching the computer on:

- Press on the Sun Power button.
- On Sun keyboard, type the "stop + a" key sequence to stop the boot procedure and enter in OBP mode.
- The OBP prompt is displayed.

##### 9.1.5.4.2 Access to OBP mode while a UNIX session is running:

- Stop the application using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Log-in as Administrator user to be under system authority and halt the system:

Click on the Terminal icon in the task bar	◆ Open a terminal window
[PROMPT_OPE] <i>su -</i> ↵	◆ Administrator user name
password : .....	◆ and the corresponding password.
[PROMPT_ADM] <i>init 0</i> ↵	◆ The computer shuts the UNIX system down.
[OBP_PROMPT]	◆ The OBP prompt is displayed.

#### 9.1.5.5 Stop a working position computer running in OBP mode

There are two solutions to stop the computer in OBP mode :

- With the OBP command poweroff  
\_\_\_\_\_   
 [OBP\_PROMPT] poweroff                                      ♦ The computer switches off.  
\_\_\_\_\_
- Or turn off the unit by pressing the power switch located on the front panel of the Sun Ultra 25 until the power shuts down (See Figure 29).

#### 9.1.5.6 Computer system time setting

☞ Refer to the §10.6.2.

#### 9.1.5.7 Working position computer exchange

The purpose of the following lines is to describe the procedure : Exchange a Sun Ultra 25 computer.

This procedure is divided into 8 steps :

- Switch off the Sun Ultra 25.
- Disconnect the cables.
- Remove and replace the failed Sun Ultra 25 (if required).
- Reconnect the cables to the spare and switch ON the equipment on OBP mode.
- Set the Sun Ultra 25 system parameters.
- Restore and update offline parameters.
- Check computer time synchronisation.
- Test the good functioning of the Sun Ultra 25.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a Sun Ultra 25**

#### 9.1.5.7.1 Switch off the Sun Ultra 25

☞ Refer to the Sun Ultra 25 switch off procedure in § 9.1.5.2.

#### 9.1.5.7.2 Disconnect the cables

- Disconnect all the cables connected to the Sun Ultra 25.
  - ☞ Refer to Figure 30 to have details on the cabling of the different Sun Ultra 25 computers.

#### 9.1.5.7.3 Remove and replace the failed Sun Ultra 25

- Remove the failed Sun Ultra 25 from its module.
- Install the new Sun Ultra 25 in operational position.

#### 9.1.5.7.4 Reconnect the cables to the new Sun Ultra 25 and switch ON the equipment

- Reconnect all the cables to the rear panel of the new Sun Ultra 25, **except all LAN Ethernet cables.**
  - ☞ Refer to Figure 30 to have details on the cabling of the different Sun Ultra 25 computers.
- Switch on the Sun Ultra 25.
  - ☞ Refer to the Sun Ultra 25 switch on procedure in § 9.1.5.1.

#### 9.1.5.7.5 Set the Sun Ultra 25 system parameters

- ☞ Refer to the Sun Ultra 25 system parameters setting procedure in § 9.1.6.2.

#### 9.1.5.7.6 Restart the computer

After system parameters setting, the computer is restarted connected to the network, and its offline data have been updated.

#### 9.1.5.7.7 Check computer time synchronisation

- ☞ Refer to the Sun Ultra 25 system time setting procedure in § 10.6.2.

#### Test the good functioning of the Ultra 25

- ☞ Refer to the Sun Ultra 25 good functioning test in § 9.1.5.8.

**This is the end of the procedure to exchange a Sun Ultra 25**

### 9.1.5.8 Working position computer good functioning test

The Sun Ultra 25 must be plugged in operational position and switched on.

The General LAN Switch and the WPT must be plugged in operational position and switched on.

- Start the application using the SUPERVISION function running on WPT, and check that its state becomes "RUNNING".

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 9.1.5.9 Delete an entry from arp table of a computer

The purpose of this paragraph is to describe the procedure: Delete an entry from arp table of a computer. It is called when an equipment connected to a network is changed (PLINES, printer, ...).

The following commands are an example to explain how remove the entry "lin1" from the arp table of a computer. These commands are executed in a terminal window on the computer:

On WPT or WPOclick on the Terminal icon in the task bar.	◆ Open a terminal window, or, boot on a terminal.																									
[PROMPT_OPE] <code>su - ↵</code>  password .....	◆ Log on as Administrator user.																									
[PROMPT_ADM] <code>arp -a ↵</code>  Net to Media Table Ipv4:	◆ Print the arp table.																									
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Device</u></th> <th style="text-align: left;"><u>IP Address</u></th> <th style="text-align: left;"><u>Mask</u></th> <th style="text-align: left;"><u>Flag</u></th> <th style="text-align: left;"><u>Phys Addr</u></th> </tr> </thead> <tbody> <tr> <td>bge0 tso1</td> <td>255.255.255.255</td> <td>00:20:4a:63:18:82</td> <td></td> <td></td> </tr> <tr> <td>bge0 lin1</td> <td>255.255.255.255</td> <td>0:10:cd:3f:be:e8</td> <td></td> <td></td> </tr> <tr> <td>bge0 192.168.24.5</td> <td>255.255.255.255</td> <td>00:10:cd:3f:be:e8</td> <td></td> <td></td> </tr> <tr> <td>....</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	<u>Device</u>	<u>IP Address</u>	<u>Mask</u>	<u>Flag</u>	<u>Phys Addr</u>	bge0 tso1	255.255.255.255	00:20:4a:63:18:82			bge0 lin1	255.255.255.255	0:10:cd:3f:be:e8			bge0 192.168.24.5	255.255.255.255	00:10:cd:3f:be:e8			....					◆ Check that the hostname of the entry is present, and note the mac address that is associated.
<u>Device</u>	<u>IP Address</u>	<u>Mask</u>	<u>Flag</u>	<u>Phys Addr</u>																						
bge0 tso1	255.255.255.255	00:20:4a:63:18:82																								
bge0 lin1	255.255.255.255	0:10:cd:3f:be:e8																								
bge0 192.168.24.5	255.255.255.255	00:10:cd:3f:be:e8																								
....																										
[PROMPT_ADM] <code>arp -d lin1 ↵</code>  [PROMPT_ADM] <code>arp -d 192.168.24.5 ↵</code>  ...	◆ Remove all entries that are associated with the mac address. In our example we have two addresses: <i>lin1</i> and <i>192.168.24.5</i> .																									
[PROMPT_ADM] <code>arp -a ↵</code>	◆ Print the arp table.  ◆ Check that the entries are removed.																									

---

---

[PROMPT\_ADM] *exit* ↵

◆ Quit the Administrator account.

---

---

### 9.1.5.10 Battery exchange

The purpose of the following lines is to describe the procedure : Exchange the battery of the Sun Ultra 25 computer.

- Power off the Sun Ultra 25.
- Replace the battery.
- Restart the Sun Ultra 25.

**The anti-static kit must always be used to manipulate inside the computer.**

<b>This is the beginning of the procedure to exchange the battery of the Sun Ultra 25</b>
---

#### **Power off the Sun Ultra 25**

☞ Refer to § 9.1.5.2.

### 9.1.5.10.2 Replace the battery

- Disconnect the power cord(s).
- Open the lid.
- Attach the Anti-static wrist strap.
  - ☞ Refer to the Ultra 25 Service and Diagnostics Manual.
- Unclip the battery from its housing on the system board.



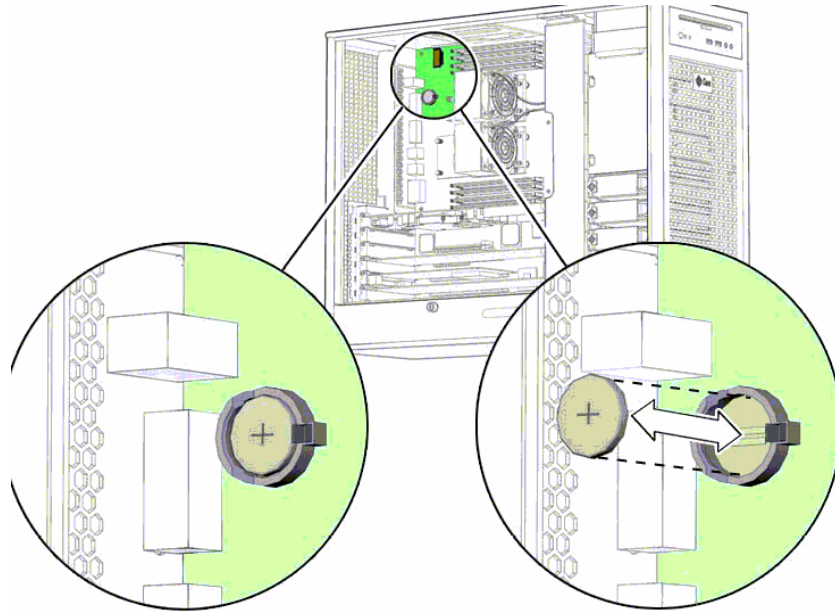


Figure 31 : SUN Ultra 25 battery location

- Locate the new battery in the housing and press down to secure it in place (push the retaining clip to one side to release the battery).
- Detach the Anti-static wrist strap.
- Close the back section of the lid.
- Reconnect the power cord(s).

#### 9.1.5.10.3 Restart the Sun Ultra 25

- ☞ Refer to § 9.1.5.1.

**This is the end of the procedure to exchange the battery of the Sun Ultra 25**

#### 9.1.5.11 Install the "Customized Operating System" (from bootable DVD and USB disk)

The purpose of the following lines is to describe the procedure: install customised operating system (Solaris 10) on a computer hard disk from the bootable DVD-ROM and the USB disk.

- ☞ Refer to the procedure CSU (Computer Software Update)

**To avoid interference during the install procedure, the computer must be disconnected from the network.**

**This procedure will erase all data contained on the computer hard disk; it is then recommended to save the data recorded on the hard disk before to start the install disk procedure.**

This procedure is divided into 8 steps:

- Execute the save procedure (WPT only).
- Unplug the computer from the general LAN.
- Start the computer in OBP mode.
- Boot on the SKYKEEPER DVD Solaris Boot.
- Eject the DVD, and store it with the USB disk,
- Set keyboard (if necessary),
- Set the computer name and IP address (if necessary).
- Install the computer in operational position.

**This is the beginning of the procedure to install the "Customised Operating System"**

#### **9.1.5.11.1 Execute the save procedure**

- If the install disk is run on the WPT computer, execute the necessary save operations for the data not already saved on DVD : Central recording, SIM scenario and offline data.
  - ☞ Refer to § 10.4.

#### **9.1.5.11.2 Unplug the computer from the general LAN**

- Switch off the Sun Ultra 25.
  - ☞ Refer to the Sun Ultra 25 switch off procedure in § 9.1.5.2.
- Unplug the computer from the general LAN.
  - ☞ Refer to Figure 30.

#### **9.1.5.11.3 Start the computer in OBP mode**

- Start the computer in OBP mode.
  - ☞ Refer to § 9.1.5.4.

#### **9.1.5.11.4 Boot on the SKYKEEPER DVD Solaris Boot**

- Insert the SKYKEEPER DVD Solaris Boot into the DVD-ROM drive.

WPC : sun Ultra 25 working position computer  
UNCLASSIFIED

- Do not connect the USB disk on the computer.

---

[PROMPT\_OBP] boot cdrom - install ↵

Boot device: /pci@1e,600000/ide@d/cdrom@0,0:f File  
and args: - install

SunOS Release 5.10 Version Generic\_118833-33 64-bit

Copyright 1983-2006 Sun Microsystems, Inc. All rights  
reserved.

Hardware watchdog enabled

Configuring /dev and /devices

Using RPC Bootparams for network configuration  
information.

- ◆ Boot on DVD-ROM with “- install”  
option.

---

Attempting to configure interface bge1...

Skipping interface bge1

Attempting to configure interface bge0...

Skipping interface bge0

- ◆ **When the system is configuring  
the Ethernet devices, plug the USB  
disk.**

---

Searching for configuration file(s) ...

syslog service starting.

savecore: open("/dev/dump"): No such file or directory

Running in command line mode

- ◆ The disk format and data extraction  
from the DVD-ROM takes about 20  
minutes.

Please wait while the system information is loaded

...

Extracting archive: SOIN\_V1.0 (8/8/2007)

Extracted 0.00 MB ( 0% of 1932.32 MB archive)

Extracted 1.00 MB ( 0% of 1932.32 MB archive)

Extracted 2.00 MB ( 0% of 1932.32 MB archive)

...

- 
- The computer reboot automatically.

#### 9.1.5.11.5 Eject the DVD, and store it with the USB disk.

- Unplug the USB disk, and store it.
- Connect the hyper terminal, and eject the DVD from the DVD drive with the following command:

---

[PROMPT\_OPE] **eject cdrom** ↵

- ◆ Eject the DVD.

- 
- Store the SKYKEEPER DVD Solaris Boot DVD with the USB disk.

#### 9.1.5.11.6 Set keyboard (if necessary)

Following the configuration (if the system cannot detect the keyboard type), sometime it is necessary to select keyboard. If you enter in this condition, execute the following action on the hyper terminal:

---

*Configure Keyboard Layout*  
qq  
qqqqqq

- ◆ Press on the keys "Esc" and "F2" to select the standard keyboard "US-English".

*Please specify the keyboard layout from the list below.*

> *To make a selection, use the arrow keys to highlight the option and*

*press Return to mark it [X].*

*Keyboard Layout*

qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqq

- Slovenian
- Slovakian
- Spanish
- Swedish
- Swiss-French
- Swiss-German
- Taiwanese
- TurkishQ
- TurkishF
- UK-English
- US-English

---

#### 9.1.5.11.7 Set the computer name and IP address

- If the computer is a workstation, a configuration script is automatically launched:

---

---

Refer to SMM in chapter Network Topography

- ◆ Enter the computer name.

to set computer name and computer address

Enter the computer name: **wpt1** ↵

---

The computer name is wpt1 (y/n) **y** ↵

- ◆ Confirm the computer name.

---

Enter the computer address: **192.168.45.2** ↵

- ◆ Enter the IP address.

---

The computer address is 192.168.45.2 (y/n) **y** ↵

- ◆ Confirm the IP address.

- 
- 
- The computer reboots automatically.

#### 9.1.5.11.8 Install the computer in operational position

Before to use the computer in operational position, it will necessary to:

- Install the latest software versions,
  - ☞ Refer to § CSU : Computer Software Update
- Update the database on the computer.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

If the computer will be used as workstation, open a Unix terminal and then enter the following commands:

---

---

[PROMPT\_OPE] /usr/dt/bin/sdtimage ↵

- ◆ The information window "CDE's Image Viewer (aka sdtimage) has been declared Obsolete. Please ...".

---

Select the message "Do not show this message again", and click on the button OK.

- ◆ The information window is closed, and the program sdtimage is displayed.

---

Close the sdtimage program.

- ◆ Sdtimage program disappears.

---

---

**This is the end of the procedure to install the "Customised Operating System"**

#### 9.1.5.12 Clean the computer

The purpose of the following lines is to describe the procedure: Clean a Sun Ultra 25 computer.

This procedure is divided into 7 steps:

- Switch off the Sun Ultra 25.
- Disconnect the cables.
- Open the computer (box).
- Clean the computer.
- Close the computer (box).
- Reconnect the cables, and switch on the computer.
- Test the good functioning of the Sun Ultra 25.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to clean a Sun Ultra 25**

#### 9.1.5.12.1 Switch off the Sun Ultra 25

☞ Refer to the Sun Ultra 25 switch off procedure in § 9.1.5.2.

#### 9.1.5.12.2 Disconnect the cables

- Disconnect all the cables connected to the Sun Ultra 25.
  - ☞ Refer to Figure 30 to have details on the cabling of the different Sun Ultra 25 computers.

#### 9.1.5.12.3 Open the computer (box)

- Open the side cover.
- Remove the access panel.
- Plug the electrostatic glove or strap between the computer and operator.
- Remove the wind director cover.

#### 9.1.5.12.4 Clean the computer

- To remove the humidity inside the air blower, run it for few seconds to outside direction.
- Run the air blower to the computer (inside the computer box, inside the hard disk slots, inside the power supply slots, ...).

#### 9.1.5.12.5 Close the computer (box)

- Plug the wind director cover.
- Unplug the electrostatic glove or strap.
- Put the access panel.
- Put the side cover.

#### 9.1.5.12.6 Reconnect the cables, and switch on the computer

- Reconnect all the cables to the rear panel of the new Sun Ultra 25.
  - ☞ Refer to Figure 30 to have details on the cabling of the different Sun Ultra 25 computers.
- Switch on the Sun Ultra 25.
  - ☞ Refer to the Sun Ultra 25 switch on procedure in § 9.1.5.1.

#### 9.1.5.12.7 Test the good functioning of the Ultra 25

- ☞ Refer to the Sun Ultra 25 good functioning test in § 9.1.5.8.

**This is the end of the procedure to clean a Sun Ultra 25**

### 9.1.6 CONFIGURATION REFERENCES

#### 9.1.6.1 Users and passwords

##### 9.1.6.1.1 UNIX session

When a Sun Ultra 25 is started, the user must open a UNIX session to be able to use the system. A UNIX session is opened by giving a username and its password.

Two users are set in every Sun Ultra 25:

- the operational login.
- The administrator login.

For details about the user concept in UNIX, refer to the description of “UNIX commands” in § 12

This paragraph also describes how to change a user password.

NOTE : In all this document, the operational and administrator prompts will be named as follow:

[PROMPT\_OPE] (= user@hostname> ex: jade@wpo1> )

[PROMPT\_ADM] (= user@hostname# ex: root@wpo1# )

### 9.1.6.1.2 Operational login

The operational login must be used to open a UNIX session in operational mode on WPT, and WPO computers.

Operational login procedure:

- When the login screen is displayed on WPT or WPO screen, type the Operational user name and password on the keyboard to open a UNIX session and use the system in operational mode.

Username: <b>jade</b>	◆ Enter operational user name
Password: <b>jade</b> ↵	◆ Enter operational user password
[PROMPT_OPE]	◆ The operational user prompt is displayed.

On WPT, the SUPERVISION program is launched automatically at logon.

### 9.1.6.1.3 Administrator login

The administrator login is used for some troubleshooting and maintenance procedures. This Super-user is able to perform any action in the system; the user must then be very careful when using the Administrator login.

It is recommended to always open a UNIX session with operational user.

When it is necessary to execute some commands with user root, open an Xterm window and login root.

Administrator login procedure:

Click on the Terminal icon in the task bar	◆ Open a terminal window
[PROMPT_OPE] <b>su</b> - ↵	◆ Administrator user name



password : <i>operator</i>	◆ and the corresponding password.
[PROMPT_ADM]	◆ The administrator user prompt is displayed.

### 9.1.6.2 OBP parameters setting

The following lines describe the main OBP (Open Boot Prom) parameters and detail how to modify an OBP parameter.

The main OBP parameters are the followings:

- output-device : *screen* power-on output device (the video card and the monitor connected to the server),
- input-device : *keyboard* power-on input device (keyboard and mouse connected to the server),
- auto-boot? : *true* if true, boot automatically after power on or reset
- auto-boot-on-error? : *false* boot stop if error
- boot-device : *disk* device(s) from which to boot if diag-switch? is false.
- boot-command : *boot* action following a boot command.
- auto-boot-on-error? : *false* boot stop if error
- error-reset-recovery : *boot* boot if reset
- diag-trigger : *error-reset*
- diag-script : *none*
- diag-level : *min*
- verbosity : *min*
- asr-policy : *normal*
- diag-switch : *false* if false, run in non diagnostic mode, and after a boot request, boot boot-file from boot-device, if true, run in diagnostic mode, and after a boot request, boot diag-file from diag-device.

The others OBP parameters shall have the following values:

- test-args: data not available.
- diag-passes=1
- local-mac-address?=true
- fcode-debug?=false

- scsi-initiator-id=7
- oem-logo: data not available.
- oem-logo?=false
- oem-banner: data not available.
- oem-banner?=false
- ansi-terminal?=true
- screen-#columns=80
- screen-#rows=34
- ttyb-rts-dtr-off=false
- ttyb-ignore-cd=true
- ttya-rts-dtr-off=false
- ttya-ignore-cd=true
- ttyb-mode=9600,8,n,1,-
- ttya-mode=9600,8,n,1,-
- load-base=16384
- network-boot-arguments: data not available.
- diag-file: data not available.
- diag-device=disk net
- boot-file: data not available.
- use-nvramrc?=false
- nvramrc: data not available.
- security-mode=none
- security-password: data not available.
- security-#badlogins=0
- verbosity=min
- service-mode?=false

The commands to display and modify the OBP parameters are the following:

- Start the computer in OBP mode
  - ☞ Refer to the § 9.1.5.4.
- Execute the following commands, to display, modify, and take into account the modifications:

---

[OBP\_PROMPT] *printenv* ↵ ◆ Display the OBP configuration.

---

[OBP\_PROMPT] *setenv input-device keyboard* ↵ ◆ Example of OBP parameters updating.

---

[OBP\_PROMPT] *setenv output-device screen* ↵

---

---

---

[OBP\_PROMPT] *reset-all* ↵

- ◆ Take into account the new OBP parameters and reboot the computer.
- 
- 

For more information about the OBP parameters, refer to SUN Ultra 25 Service, Diagnostics, and Troubleshooting Manual.

### 9.1.6.3 Sun Ultra 25 system parameters setting

The purpose of the following lines is to describe the procedure: Set the system parameters of a Sun Ultra 25.

This procedure is generally used before to install a new computer in the network (Sun Ultra 25 exchange) to set the system parameters of the computer (hostname...).

**To avoid interference during the procedure, the computer must be disconnected from the network.**

This procedure is divided into 4 steps (plus one optional step):

- Switch off the computer.
- Start the computer with no network connection.
- Set the system parameters.
- Restart the computer and check the system settings.
- Install the computer in operational position (optional).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to set the system parameters of a Sun Ultra 25**

#### 9.1.6.3.1 Switch off the computer

- Switch off the Sun Ultra 25.
  - ☞ Refer to the Sun Ultra 25 switch off procedure in § 9.1.5.2.

#### 9.1.6.3.2 Start the computer with no network connection

- If necessary, disconnect the Sun Ultra 25 from the network.

- ☞ Refer to Figure 30 : SUN Ultra 25 rear panel to have details on the cabling of the different Sun Ultra 25 computers.
- Start the computer and log on as operational user.
  - ☞ Refer to the Sun Ultra 25 switch on procedure in § 9.1.6.1.

### 9.1.6.3.3 Set the system parameters

- Open a Terminal window and log on as user root.
  - ☞ Refer to § 9.1.6.1.3 for details on administrator login.
- Change directory to the COMPUTER\_CONF directory, and run the SetComputerConf.sh program without parameter to display details about the available options:

[PROMPT_ADM] <code>cd /jade/TOOLS/COMPUTER_CONF ↵</code>	◆ Change directory to the COMPUTER_CONF directory.
[PROMPT_ADM] <code>./SetComputerConf.sh ↵</code>	◆ Run the script without parameter to display details about the available options. There are 3 mandatory parameters which are:
Usage: <code>./SetComputerConf.sh &lt;computer&gt; &lt;centerType&gt; &lt;vlan&gt; [&lt;carto&gt; &lt;conf&gt;]</code>	
<computer> = ADP1    WPT1 WPO1    WPO2    WPO3    WPO4 - Mandatory	◆ The name of the computer (ADP1, WPT1, WPO1, WPO2, WPO3 or WPO4).
<centerType> = ADIN (for ADOC Indonesian) SOIN (for SOC Indonesian) CRIN (for CRC Indonesian) COIN (for Corasie3 CRC Indonesian)	◆ The type of center
<vlan> = SOC (for ADOC, for SOC 1 to 4, for CRC TKT, CBL, TPI, MER, SML, TIM) COR (for CRC BIK)	◆ The vlan.  NOTE: the CRC of Biak does not use the same vlan.
<carto> = Indonesia - Not mandatory, default is Indonesia	◆ The 2 last parameters are optional.
<conf> = FACTORY    SITE - Not mandatory, default is SITE	
Must be run by user root	
[PROMPT_ADM] <code>./SetComputerConf.sh ADP1 SOIN</code>	◆ Run the SetComputerConf.sh

SOC ↵	program with the desired parameters.
	◆ In this exemple, the script installs the ADP in a SOC center.
Confirm the following installation ? (y/n)	◆ Confirm the parameters before to start the installation.
computer type = ADP1	
center type = SOIN	
vlan = COR	
carto = Indonesia	
configuration = SITE	
y ↵	
<ul style="list-style-type: none"> <li>- Every information messages of all the procedure steps are displayed on the screen while the system configuration is performed.</li> <li>- A message is displayed to indicate that the system configuration is finished:</li> </ul>	
** Computer configuration setting of adp1	◆ Last message of the SetComputerConf.sh program.
** as ADP1 with SITE configuration	
** has stopped on Tue Jul 17 17:29:57 MEST 2007	
** Results are stored in Result_SetComputerConf-ADP1-SITE-17_07_2007-17:29:57.log	
[PROMPT_ADM] ./ ↵	◆ Run the script without parameter to display details about the available options. There is one mandatory and 3 optional parameters which are:
Usage: ./sh <computer> <centerType> <vlan> [<carto> <conf>]	
<computer> = ADP1    WPT1 WPO1    WPO2    WPO3    WPO4 - Mandatory	◆ The name of the computer (ADP1, WPT1, WPO1, WPO2, WPO3 or WPO4).
<centerType> = ADIN (for ADOC Indonesian) SOIN (for SOC Indonesian) CRIN (for CRC Indonesian) COIN (for Corasie3 CRC Indonesian)	◆ The type of center, not mandatory (default is SOIN)
<conf> = FACTORY    SITE - Not mandatory, default is SITE	◆ The configuration

---

---

<vlan> = SOC (for ADOC,  
for SOC 1 to 4,  
for CRC TKT, CBL, TPI, MER, SML, TIM)  
COR (for CRC BIK)

◆ The vlan.

NOTE: the CRC of Biak does not use  
the same vlan.

Must be run by user root

#### 9.1.6.3.4 Restart the computer and check the system settings

- Reboot the computer.

---

---

[PROMPT\_ADM] *init 6* ↵

◆ Reboot the UNIX system.

- Check that the name of the desired computer is displayed on the login screen.

The computer is ready to be installed in operational position.

#### 9.1.6.3.5 Install the computer in operational position

- Log on as operational user.
  - ☞ Refer to § 9.1.6.1.2 for details on operational login.
- Switch off the Sun Ultra 25.
  - ☞ Refer to the Sun Ultra 25 switch off procedure in § 9.1.5.2.
- Install the Sun Ultra 25 in operational position and plug all the cables.
  - ☞ Refer to Figure 30 to have details on the cabling of the different Sun Ultra 25 computers.
- Start the computer and log on as operational user.
  - ☞ Refer to the Sun Ultra 25 switch on procedure in § 9.1.6.1.2.
- If the WPT has been changed, load the offline parameters from the back-up media.
  - ☞ Refer to the restore offline procedure in § 10.5.2.
- Execute the update procedure from SUPERVISION window.
  - ☞ Refer to the update procedure in § 10.3.
- Start the application using the SUPERVISION function running on WPT, and check that its state becomes "RUNNING".

☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

**This is the end of the procedure to set the system parameters of a Sun Ultra 25**

#### 9.1.6.4 Sun Ultra 25 hardware configuration reset

The purpose of the following lines is to describe the procedure : Reset the hardware configuration of a Sun Ultra 25.

This procedure may be used before to install a new computer in the network (Sun Ultra 25 exchange) or in case of malfunction of one of the computer's device.

This procedure may be performed either if the computer is connected or not to the network, but the computer must be connected to all its external devices (screen, keyboard, mouse, speakers, ...) and these devices must be switched on.

This procedure is divided into 2 steps (plus one optional step) :

- Start the computer in OBP mode.
- Boot the computer with `-r` option.
- Install the computer in operational position (optional).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to reset the hardware configuration of a Sun Ultra 25**

##### 9.1.6.4.1 Start the computer in OBP mode

- Start the computer in OBP mode.  
☞ Refer to § 9.1.5.4.

##### 9.1.6.4.2 Boot the computer with `-r` option

- Type the following command to boot the computer with hardware devices reconfiguration:

---

---

[OBP\_PROMPT] boot -r ↵

- ◆ Boot with hardware devices reconfiguration.
- 
- 

- During the boot sequence, the “Configuring /dev and /devices” message is displayed.
- At the end of the boot sequence, the login screen is displayed.

**This is the end of the procedure to reset the hardware configuration of a Sun Ultra 25**

### 9.1.7 STANDARD TOOLS

- Screwdriver.
- Air blower.

### 9.1.8 SPECIFIC TOOLS

- Anti-static kit (for handling static-sensitive materials safely).
- No. 2 Phillips screwdriver
- No. 0 Phillips screwdriver
- SKYKEEPER DVD Solaris Boot (DVD-ROM).
- USB disk of 8GB
- SKYKEEPER Software for Distrifref (CD-ROM).

### 9.1.9 MANUFACTURER DOCUMENTATION REFERENCE

SUN Ultra 45 & 25 Workstations Service and Diagnostics Manual	819-1892-12
SUN Ultra 45 & 25 Workstations Getting started guide	819-1894-13



## 9.2 WPC : SUN SB1500 WORKING POSITION COMPUTER

### 9.2.1 SHORT DESCRIPTION

The Sun SB1500 offers super scalar processor technology, multiprocessing, high-performance memory interconnection, high bandwidth input/output, and accelerated graphics.

The Sun SB1500 supports SUN SOLARIS 10 operating system which provides UNIX facilities.

The Sun SB1500 uses a UltraSPARC-IIIi CPU processor module with 1 megabyte of cache.

The PCI (Peripheral Component Interconnection) architecture delivers faster data transfer for devices such as SCSI2 (Small Computer System Interface) controllers and high-end video adapters.

The Sun SB1500 includes the following features :

- One Processor UltraSPARC-IIIi Cu (64 bits), 1.5 GHz, 1 megabyte of L2 cache.
- Memory: 1 gigabytes.
- One Hard disk: 120 gigabytes
- One internal DVD ROM
- Standard interface:
  - Four USB 1.1/1.0 ports (two on the front panel, two on the rear panel),
  - Three USB 2.0 ports and Two IEEE 1394a Firewire ports on PCI slot 0 (33MHz/32bit),
  - Two RS-232C/RS-423 asynchronous (DB25-F) serial ports,
  - One IEEE 1284 parallel port,
  - One set of audio port (Line in and line out in rear panel, microphone in and headphone out on front panel),
  - One Ethernet 10BASE-T/100BASE-T/1000BASE-T twisted-pair connectors,
  - One graphic board Sun XVR600 on PCI slot 4 (66MHz/64bit).
- I/O extensions :
  - Two Ultra 320SCSI connector on PCI slot 3,
  - One graphic board Sun XVR600 (for second screen) on PCI slot 2 (33MHz/64bit),
  - One empty PCI slot 1 (33MHz/32bit).

**WPC : sun SB1500 working position computer**  
**UNCLASSIFIED**

## 9.2.2 SUN SB1500 COMPOSITION

This equipment sheet gathers the information on Sun SB1500 used as computer for the working positions (WPO, WPT).

### 9.2.2.1 Front panel

The Sun SB1500 front panel includes (see Figure 32) :

- (1) Smart card drive
- (2) 5.25-inch drive bay (DVD-ROM drive).
- (3) Power switch and Power indicator LED : Lit when boot sequence has completed successfully.
- (4) 2X USB 1.1 ports
  - port 1 – not connected.
  - port 2 – not connected.
- (5) Audio ports microphone and headphone : not connected.

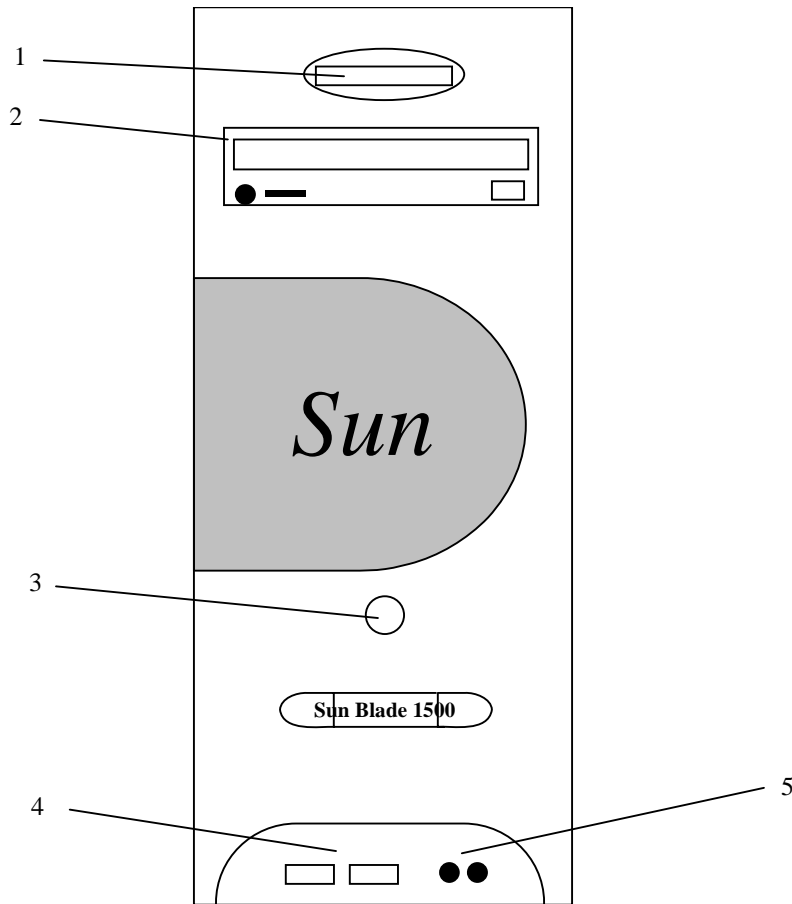


Figure 32 : SUN SB1500 front panel

### 9.2.2.2 Rear panel

The Sun SB1500 rear panel includes (see Figure 2):

- (1) Power inlet : Receptacle for the power cord.
- (2) 2x USB 1.1 ports
  - port 1 – connected to keyboard.
  - port 2 – connected to mouse.
- (3) 2x serial ports : not connected.
  - The serial ports is DB-9-F connector which supports asynchronous transfers at up to 460 Kbaud.
- (4) Parallel port (DB25-F) : not connected
- (5) Ethernet port : connected to the general LAN
- (6) Audio output port (Line out) : connected to loud speakers for WPO

## WPC : sun SB1500 working position computer

UNCLASSIFIED

- (7) Audio input port (Line in) : not connected
- (8) 5 PCI card slots :
  - **Slot 4** (Upper slot) : Graphic card (left screen)
  - **Slot 3** : Ultra 320 SCSI ports
    - on WPT computer, port A connected to DAT drive
    - on WPT computer, port B connected to MOS drive.
    - on others computers, port A and B not connected.
  - **Slot 2** : Graphic card (right screen) for WPO. Not used on WPT.
  - **Slot 1** : Not used
  - **Slot 0** (Lower slot) : 3x USB 2.0 ports and 2x IEEE 1394 ports : Not connected

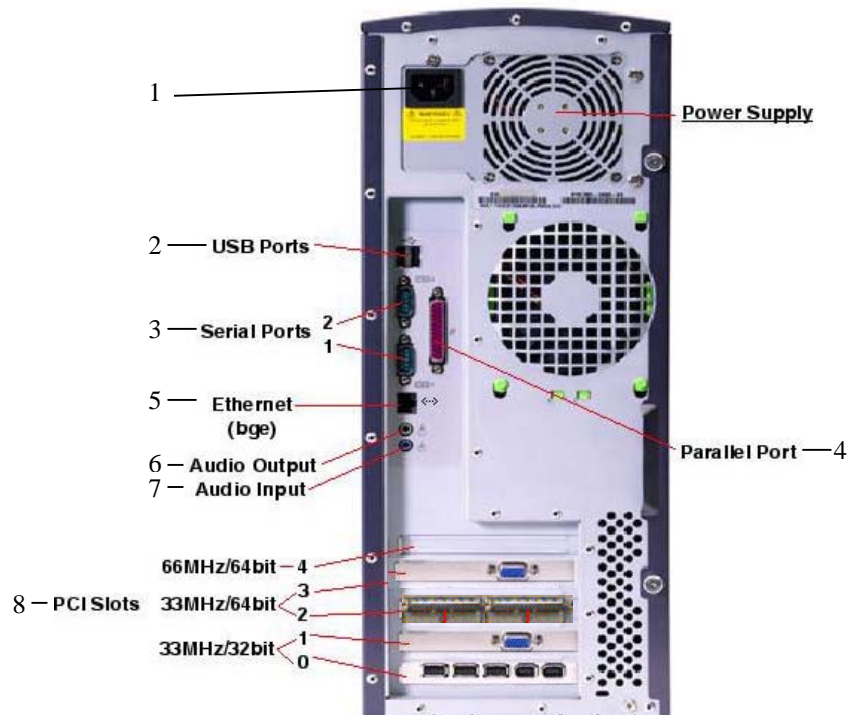


Figure 33 : SUN SB1500 rear panel

### 9.2.3 PREVENTIVE MAINTENANCE

#### 9.2.3.1 Reboot the unit

THALES RAYTHEON SYSTEMS FAHF1

61 118 698 - 194

C

A4

149/575

Procedure:

Stop and start the computer (refer to chapter 9.2.5.2 and 9.2.5.1)

Periodicity:

Every month.

Report:

Complete a preventive maintenance report (See § 11.1).

### 9.2.3.2 Clean the unit

Procedure:

Clean the computer (refer to paragraph § 9.2.5.12).

Periodicity:

Every year.

Report:

Complete a preventive maintenance report (See § 11.1).

## 9.2.4 CORRECTIVE MAINTENANCE

### 9.2.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the Sun SB1500 are the following :

A1	Supervision
A2	Indicators
A3	Visual check
A4	Integrated tests
A5	SOLARIS 10 facilities

- A1 (Supervision) aid is provided by the SUPERVISION function running on WPT: check the status of the faulty Sun SB1500, and check the historic of the past states of this LRU in the log-file.
  - If the state of a WPO becomes OFF, the corresponding Sun SB1500 must be shut down from the SUPERVISION Window, and then switched ON.

- ☞ Refer to the Sun SB1500 Switch On/Off procedures in § 9.2.5.1.
- If the states off all the components is OFF, the SUPERVISION program must be restarted.
  - ☞ Refer to the SUPERVISION program stop and start procedure in the “OH TEC” documentation (Doc ref. [3]).
- A2 (Indicators) aid is provided by the power-indicator of the Sun SB1500: refer to the SB1500 Workstation Getting started guide.
- A3 (visual check): check that all cables are well plugged on the faulty Sun SB1500 side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.
- A4 (Integrated tests) aid is provided by troubleshooting tests described in the SUN SB1500 Troubleshooting card and SB1500 Getting started guide.
- A5 (UNIX/SOLARIS 10 facilities) aid is provided by Solaris 10 Answerbook2 documentation.
  - ☞ Refer to UNIX/SOLARIS commands described in § 12
  - If the WPT computer takes a long time to execute UNIX commands, the computer may need to be restarted.

The directory TOOLS (/jade/TOOLS) contains two kinds of tools: Tools for equipment configurations, and Tools for troubleshooting aids. Each tool contains a file named readme.txt which describes the tool purpose and explains how to use the tool.

To exchange the computer, refer to § 9.2.5.7

## 9.2.4.2 Common troubleshooting

### 9.2.4.2.1 The screen is black

Execute the following operations and check on each step if the problem is solved :

- Check that the screen is switched on.
- Check that the screen is correctly connected to the computer.
- Check that the mouse and the keyboard are correctly connected to the computer.

- Run "fsck" if asked by the system.
- Check OBP parameters setting.
- Reset the hardware configuration of the computer.
- Reset the software configuration of the computer.
- Exchange the screen.
- Exchange the computer.

#### 9.2.4.2.2 The Xserver does not start

Execute the following operations and check on each step if the problem is solved :

- Check the OBP configuration of computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".

#### 9.2.4.2.3 The state of a computer in supervision is FAILED

Execute the following operations and check on each step if the problem is solved:

- Check that the computer is switched on. If the computer does not boot, refer to § 9.1.4.2.5.
- Run "fsck" if asked by the system.
- Check that the computer General LAN Ethernet cable is correctly connected to Ethernet port 0 of the computer.
- Check that the computer General LAN Ethernet cable is correctly connected to the General LAN switch.
- Check the General LAN switch leds and try to plug the cable to another port of the switch.
- Check the IP address on the computer by the "ifconfig -a" command. If the IP address is not correct, update the "skykeeper system" on the computer.
- Check the IP address on the WPT computer by the "ifconfig -a" command. If the IP address is not correct, update the "skykeeper system" on the WPT computer.
- Ping the computer from the WPT by the command "ping -s <computer name>" (where <computer name> is wpt1, adp1, wpo1, wpo2, ...). If the IP address returned by the ping command is wrong, update the "skykeeper system" on the WPT computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the computer.
- Exchange the Ethernet cable.



#### 9.2.4.2.4 The state of a computer in supervision is OFF

Execute the following operations and check on each step if the problem is solved:

- If the failed computer is WPO, check that the operator is logged on.
- The local supervision must be restarted. Execute the following command:  
*/jade/REF/common/bin/ReStartSystem.sh*
- Stop and start the supervision on WPT.
- Update the "skykeeper system".
- Update the "skykeeper tools".
- Update the "skykeeper reference software".
- On supervision, perform an update.
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the computer.

#### 9.2.4.2.5 The computer does not boot

When Sun SB1500 computer is booting, there are 2 levels of error:

- The OBP mode is not reached,
- The OBP mode is running, but the Operating System does not start.

##### 9.2.4.2.5.1 The OBP mode is not reached

Execute the following operations and check on each step if the problem is solved:

- Unplug the power cables during one minute, and plug them again.
- Clean the computer (refer to § 9.1.5.12).

##### 9.2.4.2.5.2 The OBP mode is running, but the OS does not start

Execute the following operations and check on each step if the problem is solved:

- Check the OBP parameters setting.
- Boot (manually) on the disk:

---

---

```
[PROMPT_OBP] boot disk ↵
```

◆ Boot (manually) on the disk.

---

---

- Check the equipment by the OBP commands:

---

---

[PROMPT\_OBP] *banner* ↵

- ◆ Display the general data on the computer (memory, host id, ...)

Sun Fire V245, No Keyboard

Copyright 2006 Sun Microsystems, Inc. All rights reserved.

OpenBoot 4.22.18, 2048 MB memory installed, Serial #67158824.

Ethernet address 0:14:4f:0:c3:28, Host ID: 8400c328.

---

[PROMPT\_OBP] *probe-scsi-all* ↵

- ◆ Check the SCSI bus.

This command may hang the system if a Stop-A or halt command

has been executed. Please type reset-all to reset the system before executing this command.

Do you wish to continue? (y/n) *y* ↵

...

---

- Execute the Power On Self Test:

---

[PROMPT\_OBP] *post* ↵

- ◆ Execute the Power On Self Test.

...

Requesting System Maintenance Mode

SINGLE USER MODE

---

- Boot on the SKYKEEPER DVD Solaris Boot to check the disk:

---

[PROMPT\_OBP] *boot cdrom -s* ↵

- ◆ Boot in SINGLE USER on the SKYKEEPER DVD Solaris Boot.

...

Requesting System Maintenance Mode

SINGLE USER MODE

---

[PROMPT\_ADM] *format* ↵

- ◆ Check that the disk is detected.

Searching for disks...done

- ◆ If the disk is not detected, unplug it, and then plug it again.

AVAILABLE DISK SELECTIONS:

0. c1t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec

---

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424>

[/pci@1e,600000/pci@0/pci@a/pci@0/pci@8/scsi@1/sd@0,0](#)

---

Specify disk (enter its number): 0 ↵ ◆ Select one disk, ...

selecting c1t0d0

[disk formatted]

...

---

format> quit ↵ ◆ ... And quit the format command.

---

[PROMPT\_ADM] fsck -Y /dev/rdisk/c1t0d0s0 ↵ ◆ Execute the File System Check on the root partition.

/dev/rdisk/c1t0d0s0

\*\* /dev/rdisk/c1t0d0s0

\*\* Last Mounted on /

\*\* Phase 1 - Check Blocks and Sizes

\*\* Phase 2 - Check Pathnames

\*\* Phase 3a - Check Connectivity

\*\* Phase 3b - Verify Shadows/ACLs

\*\* Phase 4 - Check Reference Counts

\*\* Phase 5 - Check Cylinder Groups

159966 files, 3950386 used, 12173528 free  
(34728 frags, 1517350 blocks, 0.2%  
fragmentation)

---

[PROMPT\_ADM] fsck -Y /dev/rdisk/c1t0d0s3 ↵ ◆ Execute the File System Check on the users partitions.

[PROMPT\_ADM] fsck -Y /dev/rdisk/c1t0d0s4 ↵

---

- Mount the disk, and take some information:

---

[PROMPT\_ADM] mount /dev/dsk/c1t0d0s /mnt ↵ ◆ Mount the root partition.

---

[PROMPT\_ADM] cat /mnt/var/adm/messages ↵ ◆ Display the /var/adm/messages, and note the last lines.

...

---

---

---

Jun 11 14:17:29 adp1 halt: [ID 662345 auth.crit]  
halted by root

---

- Return to the OBP mode, and reboot the computer with the OBP traces:
- 

[PROMPT_ADM] <i>halt</i> ↵	◆ Stop the Operating System, and return to the OBP mode.
[PROMPT_OBP] <i>setenv verbosity max</i> ↵	◆ Enable the OBP traces.
[PROMPT_OBP] <i>setenv diag-level max</i> ↵	
[PROMPT_OBP] <i>setenv diag-switch? true</i> ↵	
[PROMPT_OBP] <i>setenv diag-script? all</i> ↵	
[PROMPT_OBP] <i>reset-all</i> ↵	◆ Take into account the new OBP parameters, and reboot the computer.
[PROMPT_OBP] <i>setenv verbosity min</i> ↵	◆ Disable the OBP traces.
[PROMPT_OBP] <i>setenv diag-level min</i> ↵	
[PROMPT_OBP] <i>setenv diag-switch? none</i> ↵	
[PROMPT_OBP] <i>setenv diag-script? none</i> ↵	

---

#### 9.2.4.2.6 An application does not start

Execute the following operations and check on each step if the problem is solved :

- Stop and restart supervision on WPT.
- Check that there is only one local supervision for the application running on the computer:

```
ps -ef | grep -i lmc
```

Eventually restart the local supervision of the computer with the command :

```
/jade/REF/common/bin/ReStartSystem.sh
```

- Check time synchronisation on this computer.
- On supervision, perform an update.
- Update the "skykeeper system".
- Update the "skykeeper tools".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Install the "Customized Operating System", and then the "skykeeper software".

- Exchange computer.

#### 9.2.4.2.7 An application does not stop

Execute the following operations and check on each step if the problem is solved :

- Stop and restart supervision on WPT.
- Check that there is only one local supervision for the application running on the computer :

```
ps -ef | grep -i lmc
```

Eventually restart the local supervision of the computer with the command :

```
/jade/REF/common/bin/ReStartSystem.sh
```

#### 9.2.4.2.8 A computer does not shutdown

Execute the following operations and check on each step if the problem is solved:

- Stop and restart supervision on WPT.
- If it is possible, enter the command "*init 5*", else press the button "power off".
- If the problem is systematic, install again the "skykeeper reference software" (and then perform an update from supervision).
- If the problem persists after the "skykeeper reference software" reinstallation, install again the " Customized Operating System" (and then the "skykeeper software").
- Exchange the computer.

#### 9.2.4.2.9 A computer is very slow

Execute the following operations and check on each step if the problem is solved :

- Switch off and then switch on the computer.
- On supervision, check the free disk space.
- Update the "skykeeper system".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Exchange computer.

#### 9.2.4.2.10 No sound is emitted by the speakers

Execute the following operations and check on each step if the problem is solved :

- Check that the speakers are switched on and that the volume level is loud enough.
- Check that the speakers are plugged to the computer.
- Open an Xterm window and run the command "sdtaudio". Check that the output volume level of the computer is loud enough. Check that the output devices are correctly selected.
- Update the "skykeeper system".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the speakers.
- Exchange computer.

#### 9.2.4.2.11 A computer is synchronised on the bad equipment

Execute the following operations and check on each step if the problem is solved :

- Check the synchronisation of all equipments.
- Check that the time source is connected to the General LAN switch (only for WPT).
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Check that the time source is synchronized with satellites.
- Check that the computer is connected to the General LAN switch.
- Reboot the computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".

#### 9.2.4.2.12 All prints from one computer are printed with a grey square

The snapshot script uses the Solaris program named "sdtimage". On the last version of Solaris 10, the information window "CDE's Image Viewer (aka sdtimage) has been declared Obsolete. Please ..." that is automatically opened with sdtimage, create the grey square during the print. To never print the grey square, we need never display this warning window.

To remove this information window, execute the following commands in the Unix terminal:

---

[PROMPT\_OPE] /usr/dt/bin/sdtimage ↵

◆ The information window "CDE's Image Viewer (aka sdtimage) has been declared Obsolete. Please ...".

---

Select the message "Do not show this message again",

◆ The information window is closed,

---

---

---

and click on the button OK.	and the program sdtimage is displayed.
Close the sdtimage program.	◆ Sdtimage program disappears.

---

---

## 9.2.5 ELEMENTARY PROCEDURES

### 9.2.5.1 Computer switch on

- Switch on the monitor (if needed).
  - ☞ Refer to the monitor switch on procedure.
- Switch on the DAT and MOS drives (if needed).
- Switch on speakers (if needed).
- Switch on the Sun SB1500 by pressing the power switch located on the front panel (See Figure 32),
  - The system boots automatically (while loading the UNIX system, the computer runs in OBP mode: see hereafter in this paragraph to have details on the OBP mode),
  - At the end of boot sequence, the "green" active indicator comes on (See Figure 32),
  - The Login screen is displayed
  - Note : If the "green" active indicator is not active, power off the computer by pressing the power switch during 30 seconds and then switch on again the computer.
- Log on as operational user on WPT and WPO computers. No need to log on ADP computer in operational use.
  - ☞ Refer to § 9.2.6.1 for details on users and passwords.

### 9.2.5.2 Computer switch off

To switch off a computer, you can use two methods:

- From supervision window on WPT,
- From Terminal window on the computer to be switched off.

#### 9.2.5.2.1 Switch off from supervision window (simplest way)

- Shut down the desired computer using the SUPERVISION function running on WPT

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 9.2.5.2.2 Switch off manually

- Stop the application using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- In a Terminal window, log on as Administrator user to be under system authority and power off the system:

Click on the Terminal icon in the task bar.	◆ Open a terminal window
[PROMPT_OPE] <i>su -</i> ↵	◆ Administrator user name
Password : .....	◆ Type the administrator password.
[PROMPT_ADM] <i>init 5</i> ↵	◆ Stop the Unix system, and power off the computer.

### 9.2.5.3 Computer start in single user mode

For troubleshooting (failure in the system file) or maintenance operations, the computer may need to be started in terminal mode.

- Start the computer in OBP mode.
  - ☞ Refer to § 9.2.5.4.
- When the OBP prompt is displayed, type the following command to boot in single user mode :

[OBP_PROMPT] <i>boot -s</i>	◆ Boot the computer in the single user mode.
-----------------------------	--

- After the computer reboot, the following message is displayed:  
INIT: SINGLE USER MODE  
Type control-d to proceed with normal start-up,  
(or give root password for system maintenance):
- Enter the root password



NOTE: the Unix system can start automatically in the single user mode, if failures are detected in the root file system. Logged into the root account, the administrator can repair the file system with the fsck command.

#### 9.2.5.4 Computer start in OBP mode (OpenBoot PROM)

For troubleshooting (the X server does not start) or maintenance operations (computer configuration, computer exchange, installation of the "Customized Operating System", ...), the computer may need to be started in OBP mode.

NOTE: In all this document, the OBP prompt will be named as follow:

[PROMPT\_OBP] (= OK\_)

##### 9.2.5.4.1 Access to OBP mode while switching the computer on:

- Press on the Sun SB1500 Power button.
- On Sun keyboard, type the "stop + a" key sequence to stop the boot procedure and enter in OBP mode.
- The OBP prompt is displayed.

##### 9.2.5.4.2 Access to OBP mode while a UNIX session is running:

- Stop the application using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Log-in as Administrator user to be under system authority and halt the system:

Click on the Terminal icon in the task bar	◆ Open a terminal window
[PROMPT_OPE] su - ↵	◆ Administrator user name
password : .....	◆ and the corresponding password.
[PROMPT_ADM] init 0 ↵	◆ The computer shuts the UNIX system down.
[OBP_PROMPT]	◆ The OBP prompt is displayed.

### 9.2.5.5 Stop a working position computer running in OBP mode

There are two solutions to stop the computer in OBP mode :

- With the OBP command poweroff

---

---

[OBP\_PROMPT] poweroff

◆ The computer switches off.

---

---

- Or turn off the unit by pressing the power switch located on the front panel of the Sun SB1500 until the power shuts down (See Figure 32).

### 9.2.5.6 Computer system time setting

☞ Refer to the §10.6.2.

### 9.2.5.7 Working position computer exchange

The purpose of the following lines is to describe the procedure : Exchange a Sun SB1500 computer.

This procedure is divided into 9 steps :

- Switch off the Sun SB1500.
- Switch off the DAT and MOS drive (WPT only).
- Disconnect the cables.
- Remove and replace the failed Sun SB1500 (if required).
- Reconnect the cables to the spare and switch ON the equipment on OBP mode.
- Set the Sun SB1500 system parameters.
- Restore and update offline parameters.
- Check computer time synchronisation.
- Test the good functioning of the Sun SB1500.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a Sun SB1500**

#### 9.2.5.7.1 Switch off the Sun SB1500

- ☞ Refer to the Sun SB1500 switch off procedure in § 9.2.5.2.

#### 9.2.5.7.2 Switch off the DAT and MOS drives (WPT only)

Any device connected to the SCSI Bus must be disconnected before to unplug the SCSI cables.

Then for WPT exchange only, execute the following steps:

- Switch OFF the DAT drive.
  - ☞ Refer to the DAT drive switch OFF procedure.
- Switch OFF the MOS drive.
  - ☞ Refer to the MOS drive switch OFF procedure in § 9.22.4.2.2.

#### 9.2.5.7.3 Disconnect the cables

- Disconnect all the cables connected to the Sun SB1500.
  - ☞ Refer to Figure 33 to have details on the cabling of the different Sun SB1500 computers.

#### 9.2.5.7.4 Remove and replace the failed Sun SB1500

- Remove the failed Sun SB1500 from its module.
- Install the new Sun SB1500 in operational position.

#### 9.2.5.7.5 Reconnect the cables to the new Sun SB1500 and switch ON the equipment

- Reconnect all the cables to the rear panel of the new Sun SB1500, **except all LAN Ethernet cables.**
  - ☞ Refer to Figure 33 to have details on the cabling of the different Sun SB1500 computers.
- Switch on the Sun SB1500.
  - ☞ Refer to the Sun SB1500 switch on procedure in § 9.2.5.1.

#### 9.2.5.7.6 Set the Sun SB1500 system parameters

- ☞ Refer to the Sun SB1500 system parameters setting procedure in § 9.2.6.2.

#### 9.2.5.7.7 Restart the computer

After system parameters setting, the computer is restarted connected to the network, and its offline data have been updated.

#### 9.2.5.7.8 Check computer time synchronisation

☞ Refer to the Sun SB1500 system time setting procedure in § 10.6.2.

#### 9.2.5.7.9 Test the good functioning of the SB1500

☞ Refer to the Sun SB1500 good functioning test in § 9.2.5.8.

**This is the end of the procedure to exchange a Sun SB1500**

### 9.2.5.8 Working position computer good functioning test

The Sun SB1500 must be plugged in operational position and switched on.

The General LAN Switch and the WPT must be plugged in operational position and switched on.

- Start the application using the SUPERVISION function running on WPT, and check that its state becomes "RUNNING".

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 9.2.5.9 Delete an entry from arp table of a computer

The purpose of this paragraph is to describe the procedure: Delete an entry from arp table of a computer. It is called when an equipment connected to a network is changed (PLINES, printer, ...).

The following commands are an example to explain how remove the entry "lin1" from the arp table of a computer. These commands are executed in a terminal window on the computer:

On WPT or WPO click on the Terminal icon in the task bar.	◆ Open a terminal window, or, boot on a terminal.																									
[PROMPT_OPE] <i>su - ↵</i>  password .....	◆ Log on as Administrator user.																									
[PROMPT_ADM] <i>arp -a ↵</i>  Net to Media Table Ipv4:	◆ Print the arp table.																									
<table border="1"> <thead> <tr> <th>Device</th> <th>IP Address</th> <th>Mask</th> <th>Flag</th> <th>Phys Addr</th> </tr> </thead> <tbody> <tr> <td>bge0</td> <td>cortso1</td> <td>255.255.255.255</td> <td></td> <td>00:20:4a:63:18:82</td> </tr> <tr> <td>bge0</td> <td>corlin1</td> <td>255.255.255.255</td> <td></td> <td>0:10:cd:3f:be:e8</td> </tr> <tr> <td>bge0</td> <td>192.168.24.5</td> <td>255.255.255.255</td> <td></td> <td>00:10:cd:3f:be:e8</td> </tr> <tr> <td>....</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Device	IP Address	Mask	Flag	Phys Addr	bge0	cortso1	255.255.255.255		00:20:4a:63:18:82	bge0	corlin1	255.255.255.255		0:10:cd:3f:be:e8	bge0	192.168.24.5	255.255.255.255		00:10:cd:3f:be:e8	....					◆ Check that the hostname of the entry is present, and note the mac address that is associated.
Device	IP Address	Mask	Flag	Phys Addr																						
bge0	cortso1	255.255.255.255		00:20:4a:63:18:82																						
bge0	corlin1	255.255.255.255		0:10:cd:3f:be:e8																						
bge0	192.168.24.5	255.255.255.255		00:10:cd:3f:be:e8																						
....																										
[PROMPT_ADM] <i>arp -d lin1 ↵</i>  [PROMPT_ADM] <i>arp -d 192.168.24.5 ↵</i>  ...	◆ Remove all entries that are associated with the mac address. In our example we have two addresses: <i>lin1</i> and <i>192.168.24.5</i> .																									
[PROMPT_ADM] <i>arp -a ↵</i>	◆ Print the arp table.																									
	◆ Check that the entries are removed.																									
[PROMPT_ADM] <i>exit ↵</i>	◆ Quit the Administrator account.																									

### 9.2.5.10 Battery exchange

The purpose of the following lines is to describe the procedure : Exchange the battery of the Sun SB1500 computer.

- Power off the Sun SB1500.
- Replace the battery.
- Restart the Sun SB1500.

**The anti-static kit must always be used to manipulate inside the computer.**

**This is the beginning of the procedure to exchange the battery of the Sun SB1500**

### Power off the Sun SB1500

- ☞ Refer to § 9.2.5.2.

#### 9.2.5.10.2 Replace the battery

- Disconnect the power cord(s).
- Open the lid.
- Attach the Anti-static wrist strap.
  - ☞ Refer to the SB1500 Service, Diagnostics, and Troubleshooting Manual.
- Unclip the battery from its housing on the system board.
- Locate the new battery in the housing and press down to secure it in place (push the retaining clip to one side to release the battery).
- Detach the Anti-static wrist strap.
- Close the back section of the lid.
- Reconnect the power cord(s).

#### 9.2.5.10.3 Restart the Sun SB1500

- ☞ Refer to § 9.2.5.1.

**This is the end of the procedure to exchange the battery of the Sun SB1500**

#### 9.2.5.11 Install the "Customized Operating System" (from bootable DVD and USB disk)

The purpose of the following lines is to describe the procedure: install customised operating system (Solaris 10) on a computer hard disk from the bootable DVD-ROM and the USB disk.

- ☞ Refer to the procedure CSU (Computer Software Update)

**To avoid interference during the install procedure, the computer must be disconnected from the network.**

**This procedure will erase all data contained on the computer hard disk; it is then recommended to save the data recorded on the hard disk before to start the install disk procedure.**

This procedure is divided into 8 steps:

- Execute the save procedure (WPT only).
- Unplug the computer from the general LAN.
- Start the computer in OBP mode.
- Boot on the SKYKEEPER DVD Solaris Boot.
- Eject the DVD, and store it with the USB disk,
- Set keyboard (if necessary),
- Set the computer name and IP address (if necessary).
- Install the computer in operational position.

**This is the beginning of the procedure to install the "Customised Operating System"**

#### 9.2.5.11.1 Execute the save procedure

- If the install disk is run on the WPT computer, execute the necessary save operations for the data not already saved on DAT or MOS : Central recording, SIM scenario and offline data.

☞ Refer to § 10.4.

#### 9.2.5.11.2 Unplug the computer from the general LAN

- Switch off the Sun SB1500.
  - ☞ Refer to the Sun SB1500 switch off procedure in § 9.2.5.2.
- Unplug the computer from the general LAN.
  - ☞ Refer to Figure 33.

#### 9.2.5.11.3 Start the computer in OBP mode

- Start the computer in OBP mode.
  - ☞ Refer to § 9.2.5.4.

#### 9.2.5.11.4 Boot on the SKYKEEPER DVD Solaris Boot

- Insert the SKYKEEPER DVD Solaris Boot into the DVD-ROM drive.
- Do not connect the USB disk on the computer.

---

[PROMPT\_OBP] boot cdrom - install ↵

Boot device: /pci@1e,600000/ide@d/cdrom@0,0:f File  
and args: - install

SunOS Release 5.10 Version Generic\_118833-33 64-bit

Copyright 1983-2006 Sun Microsystems, Inc. All rights reserved.

Hardware watchdog enabled

Configuring /dev and /devices

Using RPC Bootparams for network configuration information.

- ◆ Boot on DVD-ROM with "- install" option.

---

Attempting to configure interface bge1...

Skipping interface bge1

Attempting to configure interface bge0...

Skipping interface bge0

- ◆ **When the system is configuring the Ethernet devices, plug the USB disk.**

---

Searching for configuration file(s) ...

syslog service starting.

savecore: open("/dev/dump"): No such file or directory

Running in command line mode

- ◆ The disk format and data extraction from the DVD-ROM takes about 20 minutes.

Please wait while the system information is loaded

...

Extracting archive: SOIN\_V1.0 (8/8/2007)

Extracted 0.00 MB ( 0% of 1932.32 MB archive)

Extracted 1.00 MB ( 0% of 1932.32 MB archive)

Extracted 2.00 MB ( 0% of 1932.32 MB archive)

...

- 
- The computer reboot automatically.

#### 9.2.5.11.5 Eject the DVD, and store it with the USB disk.

- Unplug the USB disk, and store it.
- Connect the hyper terminal, and eject the DVD from the DVD drive with the following command:

---

[PROMPT\_OPE] **eject cdrom** ↵

- ◆ Eject the DVD.

- 
- Store the SKYKEEPER DVD Solaris Boot DVD with the USB disk.



#### 9.2.5.11.6 Set keyboard (if necessary)

Following the configuration (if the system cannot detect the keyboard type), sometime it is necessary to select keyboard. If you enter in this condition, execute the following action on the hyper terminal:

---

*Configure Keyboard Layout*  
qq  
qqqqqq

◆ Press on the keys "Esc" and "F2" to select the standard keyboard "US-English".

*Please specify the keyboard layout from the list below.*

> *To make a selection, use the arrow keys to highlight the option and*

*press Return to mark it [X].*

*Keyboard Layout*

qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqq

^ [ ] *Slovenian*

x [ ] *Slovakian*

x [ ] *Spanish*

x [ ] *Swedish*

x [ ] *Swiss-French*

x [ ] *Swiss-German*

x [ ] *Taiwanese*

x [ ] *TurkishQ*

x [ ] *TurkishF*

x [ ] *UK-English*

- [X] *US-English*

---

**9.2.5.11.7 Set the computer name and IP address**

- If the computer is a workstation, a configuration script is automatically launched:

---

*Refer to SMM in chapter Network Topography  
to set computer name and computer address*

- ◆ Enter the computer name.

*Enter the computer name: wpt1 ↵*

---

*The computer name is wpt1 (y/n) y ↵*

- ◆ Confirm the computer name.

---

*Enter the computer address: 192.168.45.2 ↵*

- ◆ Enter the IP address.

---

*The computer address is 192.168.45.2 (y/n) y ↵*

- ◆ Confirm the IP address.
- 

- The computer reboots automatically.

**9.2.5.11.8 Install the computer in operational position**

Before to use the computer in operational position, it will necessary to:

- Install the latest software versions,
  - ☞ Refer to § CSU : Computer Software Update
- Update the database on the computer.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

If the computer will be used as workstation, open a Unix terminal and then enter the following commands:

---

*[PROMPT\_OPE] /usr/dt/bin/sdtimage ↵*

- ◆ The information window "CDE's Image Viewer (aka sdtimage) has been declared Obsolete. Please ...".

---

*Select the message "Do not show this message again", and click on the button OK.*

- ◆ The information window is closed, and the program sdtimage is displayed.

---

*Close the sdtimage program.*

- ◆ Sdtimage program disappears.
- 

<b>This is the end of the procedure to install the "Customised Operating System"</b>
--

### 9.2.5.12 Clean the computer

The purpose of the following lines is to describe the procedure: Clean a Sun SB1500 computer.

This procedure is divided into 7 steps:

- Switch off the Sun SB1500.
- Disconnect the cables.
- Open the computer (box).
- Clean the computer.
- Close the computer (box).
- Reconnect the cables, and switch on the computer.
- Test the good functioning of the Sun SB1500.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to clean a Sun SB1500**

#### 9.2.5.12.1 Switch off the Sun SB1500

☞ Refer to the Sun SB1500 switch off procedure in § 9.2.5.2.

#### 9.2.5.12.2 Switch off the DAT and MOS drives (WPT only)

Any device connected to the SCSI Bus must be disconnected before to unplug the SCSI cables.

Then for WPT exchange only, execute the following steps:

- Switch OFF the DAT drive.
  - ☞ Refer to the DAT drive switch OFF procedure.
- Switch OFF the MOS drive.
  - ☞ Refer to the MOS drive switch OFF procedure in § 9.22.4.2.2.

#### 9.2.5.12.3 Disconnect the cables

- Disconnect all the cables connected to the Sun SB1500.
  - ☞ Refer to Figure 33 to have details on the cabling of the different Sun SB1500 computers.

#### 9.2.5.12.4 Open the computer (box)

- Remove the lid.
- Plug the electrostatic glove or strap between the computer and operator.
  - ☞ Refer to the SB1500 Service, Diagnostics, and Troubleshooting Manual.
- Remove the wind director cover.

#### 9.2.5.12.5 Clean the computer

- To remove the humidity inside the air blower, run it for few seconds to outside direction.
- Run the air blower to the computer (inside the computer box, inside the hard disk slots, inside the power supply slots, ...).

#### 9.2.5.12.6 Close the computer (box)

- Plug the wind director cover.
- Unplug the electrostatic glove or strap.
- Put the lid.

#### 9.2.5.12.7 Reconnect the cables, and switch on the computer

- Reconnect all the cables to the rear panel of the new Sun SB1500.
  - ☞ Refer to Figure 33 to have details on the cabling of the different Sun SB1500 computers.
- Switch on the Sun SB1500.
  - ☞ Refer to the Sun SB1500 switch on procedure in § 9.2.5.1.

#### 9.2.5.12.8 Test the good functioning of the SB1500

- ☞ Refer to the Sun SB1500 good functioning test in § 9.2.5.8.

This is the end of the procedure to clean a Sun SB1500

## 9.2.6 CONFIGURATION REFERENCES

### 9.2.6.1 Users and passwords

#### 9.2.6.1.1 UNIX session

When a Sun SB1500 is started, the user must open a UNIX session to be able to use the system. A UNIX session is opened by giving a username and its password.

Two users are set in every Sun SB1500:

- the operational login.
- The administrator login.

For details about the user concept in UNIX, refer to the description of "UNIX commands" in § 12

This paragraph also describes how to change a user password.

NOTE : In all this document, the operational and administrator prompts will be named as follow:

[PROMPT\_OPE] (= user@hostname> ex: jade@wpo1> )

[PROMPT\_ADM] (= user@hostname# ex: root@wpo1# )

#### 9.2.6.1.2 Operational login

The operational login must be used to open a UNIX session in operational mode on WPT, and WPO computers.

Operational login procedure:

- When the login screen is displayed on WPT or WPO screen, type the Operational user name and password on the keyboard to open a UNIX session and use the system in operational mode.

---

---

Username: <b>jade</b>	◆ Enter operational user name
Password: <b>jade</b> ↵	◆ Enter operational user password
[PROMPT_OPE]	◆ The operational user prompt is displayed.

---

---

- On WPT, the SUPERVISION program is launched automatically at logon.

### 9.2.6.1.3 Administrator login

The administrator login is used for some troubleshooting and maintenance procedures. This Super-user is able to perform any action in the system; the user must then be very careful when using the Administrator login.

It is recommended to always open a UNIX session with operational user.

When it is necessary to execute some commands with user root, open an Xterm window and login root.

Administrator login procedure:

---

---

Click on the Terminal icon in the task bar	◆ Open a terminal window
[PROMPT_OPE] <b>su</b> - ↵	◆ Administrator user name
password : <b>operator</b>	◆ and the corresponding password.
[PROMPT_ADM]	◆ The administrator user prompt is displayed.

---

---

### 9.2.6.2 OBP parameters setting

The following lines describe the main OBP (Open Boot Prom) parameters and detail how to modify an OBP parameter.

The main OBP parameters are the following :

- output-device : *screen* power-on output device (the video card and the monitor connected to the server),
- input-device : *keyboard* power-on input device (keyboard and mouse)

THALES RAYTHEON SYSTEMS FAHF1 61 118 698 - 194 C A4 174/575

- auto-boot? : *true* connected to the server),  
if true, boot automatically after power on or reset
- boot-device : *disk0:a* device(s) from which to boot if diag-switch? is  
false.
- boot-command : *boot* action following a boot command.
- diag-switch : *false* if false, run in non diagnostic mode, and after a  
boot request, boot boot-file from boot-device,  
if true, run in diagnostic mode, and after a boot  
request, boot diag-file from diag-device.

The others OBP parameters shall have the following values:

- asr-policy=normal
- test-args: data not available.
- diag-passes=1
- local-mac-address?=true
- fcode-debug?=false
- scsi-initiator-id=7
- oem-logo: data not available.
- oem-logo?=false
- oem-banner: data not available.
- oem-banner?=false
- ansi-terminal?=true
- screen-#columns=80
- screen-#rows=34
- ttyb-rts-dtr-off=false
- ttyb-ignore-cd=true
- ttya-rts-dtr-off=false
- ttya-ignore-cd=true
- ttyb-mode=9600,8,n,1,-
- ttya-mode=9600,8,n,1,-
- output-device=screen
- input-device=keyboard
- auto-boot-on-error?=false
- error-reset-recovery=sync
- load-base=16384
- auto-boot?=true
- network-boot-arguments: data not available.

- boot-command=boot
- diag-file: data not available.
- diag-device=disk net
- boot-file: data not available.
- boot-device=/pci@1e,600000/ide@d/disk@0,0:a disk:a disk:f net
- use-nvramrc?=false
- nvramrc: data not available.
- security-mode=none
- security-password: data not available.
- security-#badlogins=0
- verbosity=min
- diag-trigger=none
- service-mode?=false
- diag-script=none
- diag-level=off
- diag-switch?=false

The commands to display and modify the OBP parameters are the following:

- Start the computer in OBP mode
  - ☞ Refer to the § 9.2.5.4.
- Execute the following commands, to display, modify, and take into account the modifications:

[OBP_PROMPT] <i>printenv</i> ↵	◆ Display the OBP configuration.
[OBP_PROMPT] <i>setenv input-device keyboard</i> ↵	◆ Example of OBP parameters updating.
[OBP_PROMPT] <i>setenv output-device screen</i> ↵	
[OBP_PROMPT] <i>reset-all</i> ↵	◆ Take into account the new OBP parameters and reboot the computer.

For more information about the OBP parameters, refer to SUN SB1500 Service, Diagnostics, and Troubleshooting Manual.

### 9.2.6.3 Sun SB1500 system parameters setting

The purpose of the following lines is to describe the procedure: Set the system parameters of a Sun SB1500.



This procedure is generally used before to install a new computer in the network (Sun SB1500 exchange) to set the system parameters of the computer (hostname...).

**To avoid interference during the procedure, the computer must be disconnected from the network.**

This procedure is divided into 4 steps (plus one optional step):

- Switch off the computer.
- Start the computer with no network connection.
- Set the system parameters.
- Restart the computer and check the system settings.
- Install the computer in operational position (optional).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to set the system parameters of a Sun SB1500**

#### 9.2.6.3.1 Switch off the computer

- Switch off the Sun SB1500.
  - ☞ Refer to the Sun SB1500 switch off procedure in § 9.2.5.2.

#### 9.2.6.3.2 Start the computer with no network connection

- If necessary, disconnect the Sun SB1500 from the network.
  - ☞ Refer to Figure 33 to have details on the cabling of the different Sun SB1500 computers.
- Start the computer and log on as operational user.
  - ☞ Refer to the Sun SB1500 switch on procedure in § 9.2.5.1.

#### 9.2.6.3.3 Set the system parameters

- Change directory to the COMPUTER\_CONF directory, and run the SetComputerConf.sh program without parameter to display details about the available options:

---

<p>[PROMPT_ADM] <code>cd /jade/TOOLS/COMPUTER_CONF ↵</code></p>	<ul style="list-style-type: none"> <li>◆ Change directory to the COMPUTER_CONF directory.</li> </ul>
---	--

---

<p>[PROMPT_ADM] <code>./SetComputerConf.sh ↵</code></p> <p>Usage: <code>./SetComputerConf.sh &lt;computer&gt; &lt;centerType&gt; &lt;vlan&gt; [&lt;carto&gt; &lt;conf&gt;]</code></p> <p>&lt;computer&gt; = ADP1    WPT1  WPO1    WPO2    WPO3    WPO4 - Mandatory</p> <p>&lt;centerType&gt; = ADIN (for ADOC Indonesian)  SOIN (for SOC Indonesian)  CRIN (for CRC Indonesian)  COIN (for Corasie3 CRC Indonesian)</p> <p>&lt;vlan&gt; = SOC (for ADOC,  for SOC 1 to 4,  for CRC TKT, CBL, TPI, MER, SML, TIM)  COR (for CRC BIK)</p> <p>&lt;carto&gt; = Indonesia - Not mandatory, default is Indonesia</p> <p>&lt;conf&gt; = FACTORY    SITE - Not mandatory, default is SITE</p> <p>Must be run by user root</p>	<ul style="list-style-type: none"> <li>◆ Run the script without parameter to display details about the available options. There are 3 mandatory parameters which are:</li> <li>◆ The name of the computer (ADP1, WPT1, WPO1, WPO2, WPO3 or WPO4).</li> <li>◆ The type of center</li> <li>◆ The vlan.  NOTE: the CRC of Biak does not use the same vlan.</li> <li>◆ The 2 last parameters are optional.</li> </ul>
---	---

---

<p>[PROMPT_ADM] <code>./SetComputerConf.sh ADP1 SOIN SOC ↵</code></p>	<ul style="list-style-type: none"> <li>◆ Run the SetComputerConf.sh program with the desired parameters.</li> <li>◆ In this exemple, the script installs the ADP in a SOC center.</li> </ul>
---	--

---

<p>Confirm the following installation ? (y/n)</p> <p>computer type = ADP1</p> <p>center type = SOIN</p> <p>vlan = SOC</p> <p>carto = Indonesia</p>	<ul style="list-style-type: none"> <li>◆ Confirm the parameters before to start the installation.</li> </ul>
--	--

---

---

configuration = SITE

y ↵

- 
- Every information messages of all the procedure steps are displayed on the screen while the system configuration is performed.
  - A message is displayed to indicate that the system configuration is finished:

---

```

** Computer configuration setting of adp1
** as ADP1 with SITE configuration
** has stopped on Tue Jul 17 17:29:57 MEST 2007
** Results are stored in Result_SetComputerConf-ADP1-
SITE-17_07_2007-17:29:57.log
    
```

---

```

[PROMPT_ADM] ./ ↵
Usage: ./sh <computer> <centerType> <vlan> [<carto>
<conf>]
    
```

---

```

<computer> = ADP1 || WPT1
            WPO1 || WPO2 || WPO3 || WPO4 - Mandatory
    
```

---

```

<centerType> = ADIN (for ADOC Indonesian)
              SOIN (for SOC Indonesian)
              CRIN (for CRC Indonesian)
              COIN (for Corasie3 CRC Indonesian)
    
```

---

```

<conf> = FACTORY || SITE - Not mandatory, default is
SITE
    
```

---

```

<vlan> = SOC (for ADOC,
            for SOC 1 to 4,
            for CRC TKT, CBL, TPI, MER, SML, TIM)
            COR (for CRC BIK)
    
```

Must be run by user root

#### 9.2.6.3.4 Restart the computer and check the system settings

- Reboot the computer.

---

---

[PROMPT\_ADM] *init 6* ↵

◆ Reboot the UNIX system.

---

---

- Check that the name of the desired computer is displayed on the login screen.

The computer is ready to be installed in operational position.

#### 9.2.6.3.5 Install the computer in operational position

- Log on as operational user.
  - ☞ Refer to § 9.2.6.1.2. for details on operational login.
- Switch off the Sun SB1500.
  - ☞ Refer to the Sun SB1500 switch off procedure in § 9.2.5.2.
- Install the Sun SB1500 in operational position and plug all the cables.
  - ☞ Refer to Figure 33 to have details on the cabling of the different Sun SB1500 computers.
- Start the computer and log on as operational user.
  - ☞ Refer to the Sun SB1500 switch on procedure in § 9.2.5.1.
- If the WPT has been changed, load the offline parameters from the back-up DAT.
  - ☞ Refer to the restore offline procedure in § 10.5.2.
- Execute the update procedure from SUPERVISION window.
  - ☞ Refer to the update procedure in § 10.3.
- Start the application using the SUPERVISION function running on WPT, and check that its state becomes "RUNNING".
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

**This is the end of the procedure to set the system parameters of a Sun SB1500**

#### 9.2.6.4 Sun SB1500 hardware configuration reset

The purpose of the following lines is to describe the procedure : Reset the hardware configuration of a Sun SB1500.

This procedure may be used before to install a new computer in the network (Sun SB1500 exchange) or in case of malfunction of one of the computer's device.

This procedure may be performed either if the computer is connected or not to the network, but the computer must be connected to all its external devices (screen, keyboard, mouse, speakers, DAT, MOS, ...) and these devices must be switched on.

This procedure is divided into 2 steps (plus one optional step) :

- Start the computer in OBP mode.
- Boot the computer with `-r` option.
- Install the computer in operational position (optional).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to reset the hardware configuration of a Sun SB1500**

#### 9.2.6.4.1 Start the computer in OBP mode

- Start the computer in OBP mode.
  - ☞ Refer to § 9.2.5.4

#### 9.2.6.4.2 Boot the computer with `-r` option

- Type the following command to boot the computer with hardware devices reconfiguration:

---

---

```
[OBP_PROMPT] boot -r ↵
```

◆ Boot with hardware devices reconfiguration..

---

---

- During the boot sequence, the "Configuring /dev and /devices" message is displayed.
- At the end of the boot sequence, the login screen is displayed.

This is the end of the procedure to reset the hardware configuration of a Sun SB1500

### 9.2.7 STANDARD TOOLS

- Screwdriver.
- Air blower.

### 9.2.8 SPECIFIC TOOLS

- Anti-static kit (for handling static-sensitive materials safely).
- SKYKEEPER DVD Solaris Boot (DVD-ROM).
- USB disk of 8GB
- SKYKEEPER Software for Distriref (CD-ROM).

### 9.2.9 MANUFACTURER DOCUMENTATION REFERENCE

SUN BLADE 1500 Service, Diagnostics, and Troubleshooting Manual	817-5127-11
SUN BLADE 1500 Troubleshooting card	817-5125-11
SUN BLADE 1500 Getting started guide	817-5129-11

**WPC : sun SB1500 working position computer**  
**UNCLASSIFIED**

## 9.3 COMP : SUN SF V245 COMPUTER

### 9.3.1 SHORT DESCRIPTION

Powered by two 1.5-GHz UltraSPARC IIIi processors and the Solaris™ Operating System, the Sun Fire™ V245 server provides high-availability and scalability in a compact 2U package. Four auto-negotiating Gigabit Ethernet ports provide multiple connectivity for high-speed, high-bandwidth networking, while hotplug, front-accessible disk drives and redundant, hot-swappable power supplies ease serviceability and enhance system performance.

The Sun SF V245 supports SUN SOLARIS 10 operating system which provides UNIX facilities.

The Sun SF V245 includes the following features :

- Two Processors UltraSPARC-IIIi Cu (64 bits), 1.5 GHz, 1 megabyte of external cache per processor.
- Memory: 2 gigabytes.
- One Hard disk: 73 gigabytes
- One internal DVD ROM
- Standard interface:
  - One TIA/EIA-232-F (RJ45) port
  - One asynchronous RJ-45 serial port
  - One Ultra160SCSI connector
  - Two universal serial bus USB1.1 connectors
  - Two universal serial bus USB2.0 connectors
  - Four Ethernet 10BASE-T/100BASE-T/1000BASE-T twisted-pair connectors
- I/O extensions :
  - Two PCI-X 133 MHz/64-bit full height slots; one full-length and one short slot.
  - Two PCIe low-profile/short slots with 16-way connector; one x8 lane and one x4 lane
  -



### 9.3.2 SUN SF V245 COMPOSITION

#### 9.3.2.1 Front panel

The Sun SF V245 front panel includes (see Figure 34 and Figure 35) :

- (1) LEDs indicators and Power switch.
- (2) Two USB 1.1 connectors
- (3) 5.25-inch drive bay (DVD-ROM drive).
- (5) Four hard drive slots.
  - (5a) "Ready to remove" indicator LED
  - (5b) Activity indicator LED

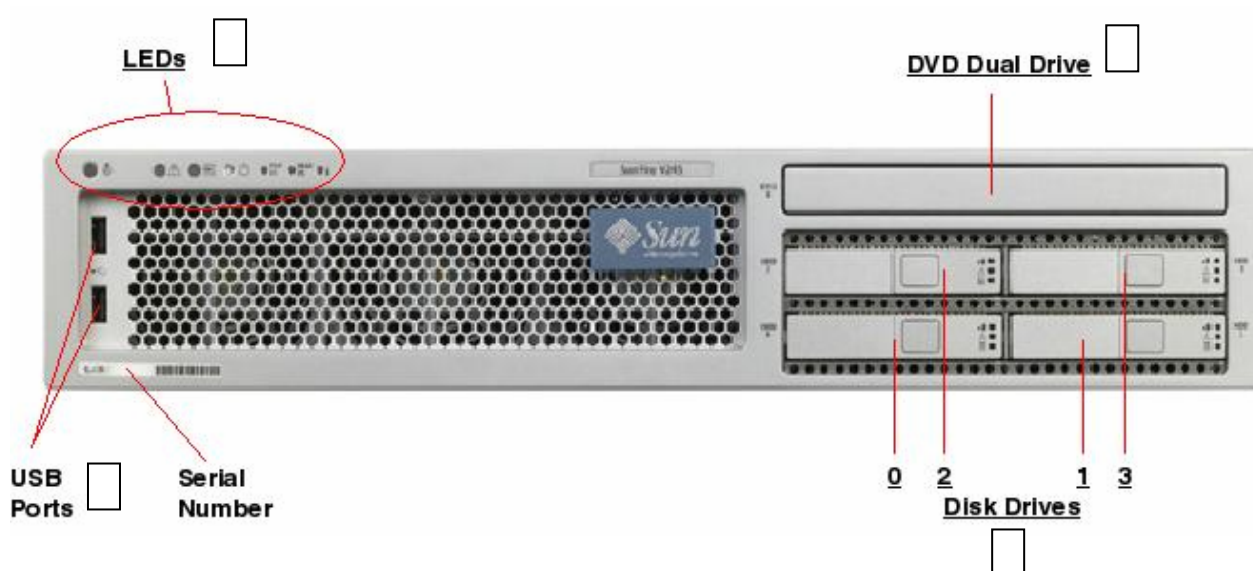


Figure 34 : SUN SF V245 front panel

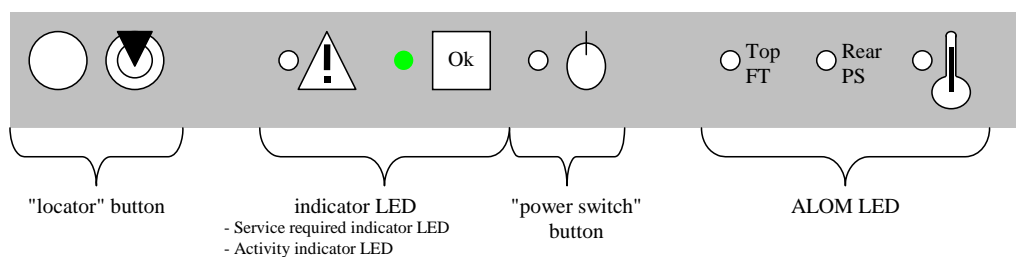


Figure 35 : SUN SF V245 LED indicators and Power switch

The SUN SF V245 LED indicators are:

- "Locator" LED button: this white LED blinks when the locator function is used. This function can be called by command or by pressing on the "locator" button.
- "Service required indicator" LED: This amber LED indicates that the server needs maintenance (refer to § 9.3.5.11).
- "Activity indicator" LED: The green LED:
  - Is OFF when the computer is not plugged to power,
  - Blinks when the computer is not started but it is plugged to power,
  - Is ON when the Operating System is started.
- "Power switch" button: this button starts or stops the computer.
- "Top FT" LED: This amber LED is ON when problem is present on fan trays.
- "Rear PS": This amber LED is ON when one power supply is not connected or is in failure. When this LED is ON, the "Service required indicator" LED is ON too.
- "Temperature" LED: This amber LED is on when the computer temperature is outside the operating temperature.

### 9.3.2.2 Rear panel

The Sun SF V245 rear panel includes (see Figure 36) :

- (1) Power inlet(s) : Receptacle for the power cord.
  - 2 power connectors.
- (2) Ethernet Mgt port.
- (3) 2 serial ports.
  - The serial A port is RJ45 connector. This port is used to start the computer in terminal mode (refer to § 9.3.5.4).
  - The serial B port is DB-9 connector which supports asynchronous transfers at up to 460 Kbaud.
- (4) 2 USB 2.0 connectors
  - port 1 – not connected.
  - port 2 – not connected.
- (5) 4 Ethernet ports

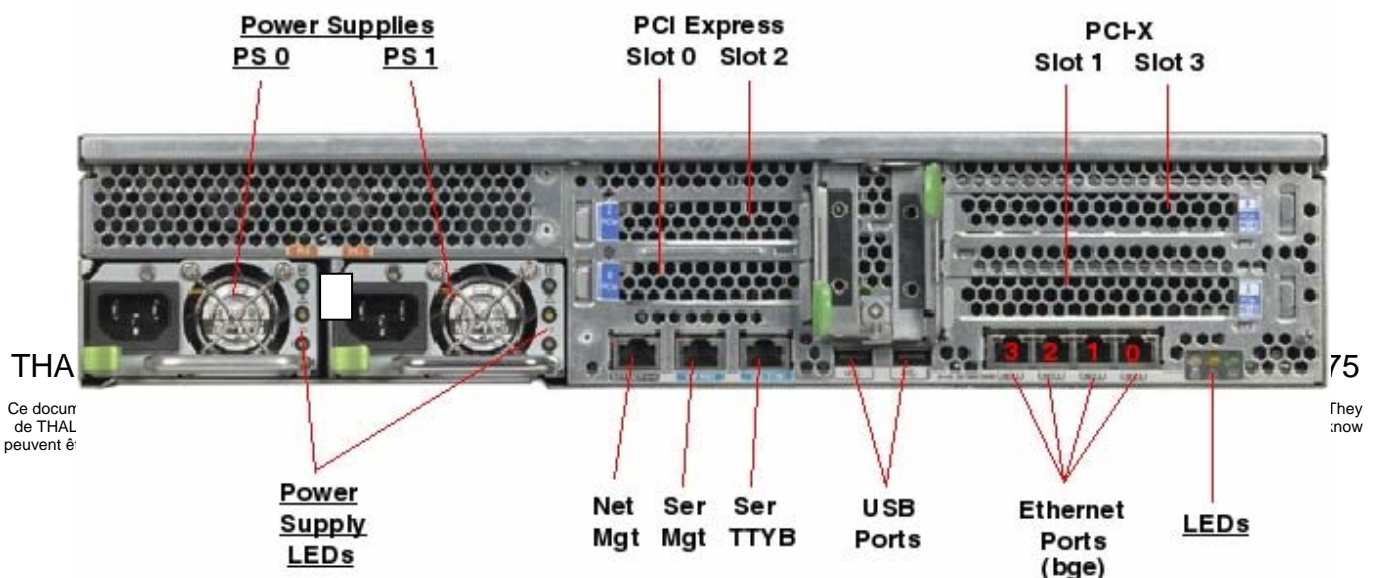


Figure 36 : SUN SF V245 rear panel

### 9.3.3 PREVENTIVE MAINTENANCE

#### 9.3.3.1 Reboot the unit

Procedure:

Stop and start the computer (refer to paragraph § 9.3.5.2 and § 9.3.5.1).

Periodicity:

Every month.

Report:

Complete a preventive maintenance report (See § 11.1).

#### 9.3.3.2 Clean the unit

Procedure:

Clean the computer (refer to paragraph § 9.3.5.14).

Periodicity:

Every year.

Report:

Complete a preventive maintenance report (See § 11.1).

### 9.3.4 CORRECTIVE MAINTENANCE

#### 9.3.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the Sun SF V245 are the following  
:

A1	Supervision
A2	Indicators
A3	Visual check
A4	Integrated tests

**comp : sun SF V245 computer**  
**UNCLASSIFIED**

A5

SOLARIS 10 facilities

- A1 (Supervision) aid is provided by the SUPERVISION function running on WPT: check the status of the faulty Sun SF V245, and check the historic of the past states of this LRU in the log-file.
  - If the state of ADP becomes OFF, the Sun SF V245 must be shut down from the SUPERVISION Window, and then switched ON.
    - ☞ Refer to the Sun SF V245 Switch On/Off procedures in § 9.3.5.1.
  - If the states off all the components is OFF, the SUPERVISION program must be restarted.
    - ☞ Refer to the SUPERVISION program stop and start procedure in the “OH TEC” documentation (Doc ref. [3]).
- A2 (Indicators) aid is provided by the power-indicator of the Sun SF V245: refer to the SUN FIRE V245 Servers – Administration Guide, chapter Controlling Server Power.
  - ☞ Refer to the Indicator LED Diagnostics in § 9.3.5.11.
- A3 (visual check): check that all cables are well plugged on the faulty Sun SF V245 side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.
- A4 (Integrated tests) aid is provided by troubleshooting tests described in the SUN FIRE V245 Server – Administration Guide.
- A5 (UNIX/SOLARIS 10 facilities) aid is provided by SOLARIS 10 Answerbook2 documentation.
  - ☞ Refer to UNIX/SOLARIS commands described in § 12
  - If the computer takes a long time to execute UNIX commands, the computer may need to be restarted.
    - ☞ The directory TOOLS (/jade/TOOLS) contains two kinds of tools: Tools for equipment configurations, and Tools for troubleshooting aids. Each tool contains a file named readme.txt which describes the tool purpose and explains how to use the tool.

To exchange the compute, refer to § 9.3.5.8.

### 9.3.4.2 Common troubleshooting

THALES RAYTHEON SYSTEMS FAHF1 61 118 698 - 194 C A4 188/575

#### 9.3.4.2.1 The screen is black

Not applicable.

#### 9.3.4.2.2 The Xserver does not start

Not applicable. **The state of a computer in supervision is FAILED**

Execute the following operations and check on each step if the problem is solved:

- Check that the computer is switched on. If there is no video board, it will be necessary to connect a hyper terminal. If the computer does not boot, refer to § 9.1.4.2.5.
- Run "fsck" if asked by the system.
- Check that the computer General LAN Ethernet cable is correctly connected to Ethernet port 0 of the computer.
- Check that the computer General LAN Ethernet cable is correctly connected to the General LAN switch.
- Check the General LAN switch leds and try to plug the cable to another port of the switch.
- Check the IP address on the computer by the "ifconfig -a" command. If the IP address is not correct, update the "skykeeper system" on the computer.
- Check the IP address on the WPT computer by the "ifconfig -a" command. If the IP address is not correct, update the "skykeeper system" on the WPT computer.
- Ping the computer from the WPT by the command "ping -s <computer name>" (where <computer name> is wpt1, adp1, wpo1, wpo2, ...). If the IP address returned by the ping command is wrong, update the "skykeeper system" on the WPT computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the computer.
- Exchange the Ethernet cable.

#### 9.3.4.2.4 The state of a computer in supervision is OFF

Execute the following operations and check on each step if the problem is solved:

- If the failed computer is WPO, check that the operator is logged on.
- The local supervision must be restarted. Execute the following command:  
*/jade/REF/common/bin/ReStartSystem.sh*
- Stop and start the supervision on WPT.

- Update the "skykeeper system".
- Update the "skykeeper tools".
- Update the "skykeeper reference software".
- On supervision, perform an update.
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the computer.

#### 9.3.4.2.5 The computer does not boot

When Sun SF V245 computer is booting, there are 2 levels of error:

- The OBP mode is not reached,
- The OBP mode is running, but the Operating System does not start.

##### 9.3.4.2.5.1 The OBP mode is not reached

Execute the following operations and check on each step if the problem is solved:

- Unplug the power cables during one minute, and plug them again.
- Clean the computer (refer to § 9.3.5.14).
- Verify the closure detection mechanism of the computer box (refer to § 9.3.5.15).

##### 9.3.4.2.5.2 The OBP mode is running, but the OS does not start

Execute the following operations and check on each step if the problem is solved:

- Check the OBP parameters setting.
- Boot (manually) on the disk:

---

[PROMPT\_OBP] *boot disk* ↵

◆ Boot (manually) on the disk.

- 
- Check the equipment by the OBP commands:
- 

[PROMPT\_OBP] *banner* ↵

◆ Display the general data on the computer (memory, host id, ...)

Sun Fire V245, No Keyboard

Copyright 2006 Sun Microsystems, Inc. All rights reserved.

OpenBoot 4.22.18, 2048 MB memory installed,  
Serial #67158824.

Ethernet address 0:14:4f:0:c3:28, Host ID:

---

---

---

8400c328.

---

[PROMPT\_OBP] *probe-scsi-all* ↵ ◆ Check the SCSI bus.

This command may hang the system if a Stop-A or halt command

has been executed. Please type reset-all to reset the system before executing this command.

Do you wish to continue? (y/n) *y* ↵

...

---

---

- Execute the Power On Self Test:

---

[PROMPT\_OBP] *post* ↵ ◆ Execute the Power On Self Test.

...

Requesting System Maintenance Mode

SINGLE USER MODE

---

---

- Boot on the SKYKEEPER DVD Solaris Boot to check the disk:

---

[PROMPT\_OBP] *boot cdrom -s* ↵ ◆ Boot in SINGLE USER on the SKYKEEPER DVD Solaris Boot.

...

Requesting System Maintenance Mode

SINGLE USER MODE

---

[PROMPT\_ADM] *format* ↵ ◆ Check that the disk is detected.

Searching for disks...done ◆ If the disk is not detected, unplug it, and then plug it again.

AVAILABLE DISK SELECTIONS:

0. c1t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>

[/pci@1e,600000/pci@0/pci@a/pci@0/pci@8/scsi@1/sd@0,0](#)

---

Specify disk (enter its number): *0* ↵ ◆ Select one disk, ...

selecting c1t0d0

[disk formatted]

---

---

---

---

...	
format> quit ↵	◆ ... And quit the format command.
[PROMPT_ADM] fsck -Y /dev/rdisk/c1t0d0s0 ↵	◆ Execute the File System Check on the root partition.
/dev/rdisk/c1t0d0s0	
** /dev/rdisk/c1t0d0s0	
** Last Mounted on /	
** Phase 1 - Check Blocks and Sizes	
** Phase 2 - Check Pathnames	
** Phase 3a - Check Connectivity	
** Phase 3b - Verify Shadows/ACLs	
** Phase 4 - Check Reference Counts	
** Phase 5 - Check Cylinder Groups	
159966 files, 3950386 used, 12173528 free (34728 frags, 1517350 blocks, 0.2% fragmentation)	
[PROMPT_ADM] fsck -Y /dev/rdisk/c1t0d0s3 ↵	◆ Execute the File System Check on the users partitions.
[PROMPT_ADM] fsck -Y /dev/rdisk/c1t0d0s4 ↵	
- Mount the disk, and take some information:	
[PROMPT_ADM] mount /dev/dsk/c1t0d0s /mnt ↵	◆ Mount the root partition.
[PROMPT_ADM] cat /mnt/var/adm/messages ↵	◆ Display the /var/adm/messages, and note the last lines.
...	
Jun 11 14:17:29 adp1 halt: [ID 662345 auth.crit] halted by root	
- Return to the OBP mode, and reboot the computer with the OBP traces:	
[PROMPT_ADM] halt ↵	◆ Stop the Operating System, and return to the OBP mode.
[PROMPT_OBP] setenv verbosity max ↵	◆ Enable the OBP traces.
[PROMPT_OBP] setenv diag-level max ↵	

---

---



---

---

```
[PROMPT_OBP] setenv diag-switch? true ↵
```

```
[PROMPT_OBP] setenv diag-script? all ↵
```

---

```
[PROMPT_OBP] reset-all ↵
```

- ◆ Take into account the new OBP parameters, and reboot the computer.

---

```
[PROMPT_OBP] setenv verbosity min ↵
```

- ◆ Disable the OBP traces.

```
[PROMPT_OBP] setenv diag-level min ↵
```

```
[PROMPT_OBP] setenv diag-switch? none ↵
```

```
[PROMPT_OBP] setenv diag-script? none ↵
```

---

---

#### 9.3.4.2.6 An application does not start

Execute the following operations and check on each step if the problem is solved :

- Stop and restart supervision on WPT.
- Check that there is only one local supervision for the application running on the computer:

```
ps -ef | grep -i lmc
```

Eventually restart the local supervision of the computer with the command :

```
/jade/REF/common/bin/ReStartSystem.sh
```

- Check time synchronisation on this computer.
- On supervision, perform an update.
- Update the "skykeeper system".
- Update the "skykeeper tools".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange computer.

#### 9.3.4.2.7 An application does not stop

Execute the following operations and check on each step if the problem is solved:

- Stop and restart supervision on WPT.
- Check that there is only one local supervision for the application running on the computer :

```
ps -ef | grep -i lmc
```

Eventually restart the local supervision of the computer with the command :  
*/jade/REF/common/bin/ReStartSystem.sh*

#### 9.3.4.2.8 A computer does not shutdown

Execute the following operations and check on each step if the problem is solved:

- Stop and restart supervision on WPT.
- If it is possible, enter the command "*init 5*", else press the button "power off".
- If the problem is systematic, install again the "skykeeper reference software" (and then perform an update from supervision).
- If the problem persists after the "skykeeper reference software" reinstallation, install again the " Customized Operating System" (and then the "skykeeper software").
- Exchange the computer.

#### 9.3.4.2.9 A computer is very slow

Execute the following operations and check on each step if the problem is solved :

- Switch off and then switch on the computer.
- On supervision, check the free disk space.
- Update the "skykeeper system".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Exchange computer.

#### 9.3.4.2.10 No sound is emitted by the speakers

Not applicable.

#### 9.3.4.2.11 A computer is synchronised on the bad equipment

Execute the following operations and check on each step if the problem is solved :

- Check the synchronisation of all equipments.
- Check that the time source is connected to the General LAN switch (only for WPT).
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Check that the time source is synchronized with satellites.

- Check that the computer is connected to the General LAN switch.
- Reboot the computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".

#### 9.3.4.2.12 All prints from one computer are printed with a grey square

Not applicable.

### 9.3.5 ELEMENTARY PROCEDURES

#### 9.3.5.1 Computer switch on

- Switch on the Sun SF V245 by pressing the power switch located on the front panel (See Figure 34),
- The system boots automatically (while loading the UNIX system, the computer runs in OBP mode: see hereafter in this paragraph to have details on the OBP mode),
- At the end of boot sequence, the "green" active indicator comes on (See Figure 35). The state of ADP in the supervision window goes from FAILED to OFF, then to READY.
- **Note :** If the "green" active indicator is not active, power off the computer by pressing the power switch during 30 seconds and then switch on again the computer.

#### Computer switch off

To switch off a computer, you can use two methods:

- From supervision window on WPT,
- From Terminal window on the computer to be switched off.

#### 9.3.5.2.1 Switch off from supervision window (simplest way)

- Shut down the desired computer using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 9.3.5.2.2 Switch off manually

- Stop the application using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Connect the Windows Hyper Terminal, log on as Administrator user to be under system authority and power off the system:
  - Refer to the § 9.3.5.4.

---

---

[PROMPT_OPE] <i>su -</i> ↵	◆ Administrator user name
Password : .....	◆ Type the administrator password.
[PROMPT_ADM] <i>init 5</i> ↵	◆ Stop the Unix system, and power off the computer.

---

---

### 9.3.5.3 Computer start in single user mode

For troubleshooting (failure in the system file) or maintenance operations, the computer may need to be started in terminal mode.

- Connect the Windows Hyper Terminal, log on as Administrator user to be under system authority and power off the system:
  - ☞ Refer to the § 9.3.5.4.

---

---

[PROMPT_OPE] <i>su -</i> ↵	◆ Administrator user name
Password : .....	◆ Type the administrator password.
[PROMPT_ADM] <i>init 0</i> ↵	◆ Stop the Unix system, and go to the OBP menu
[OBP_PROMPT] <i>boot -s</i>	◆ Boot the computer in the single user mode.

---

---

- After the computer reboot, the following message is displayed:  
INIT: SINGLE USER MODE  
Type control-d to proceed with normal start-up,  
(or give root password for system maintenance):
- Enter the root password

NOTE: the Unix system can start automatically in the single user mode, if failures are detected in the root file system. Logged into the root account, the administrator can repair the file system with the fsck command.

#### 9.3.5.4 Computer start in terminal mode

For troubleshooting or maintenance operations (on ADP computer), the computer may need to be started in terminal mode with a PC connected to its Serial management port. To connect a PC, see the paragraph 9.3.6.2 "Connect a PC to a computer".

#### 9.3.5.5 Computer start in OBP mode (OpenBoot PROM)

For troubleshooting (the X server does not start) or maintenance operations (computer configuration, computer exchange, installation of the "Customized Operating System", ...), the computer may need to be started in OBP mode.

If the computer does not have screen and keyboard, the computer shall be connected to the Windows hyper terminal (of the tools laptop).

☞ Refer to the § 9.3.5.4.

NOTE: In all this document, the OBP prompt will be named as follow:

[PROMPT\_OBP] (= OK\_)

##### 9.3.5.5.1 Access to OBP mode while switching the computer on:

- Press on the Sun SF V245 Power button.
- On the PC running the Windows HyperTerminal, type the "Ctrl +Pause" key sequence to stop the boot procedure and enter in OBP mode.
- The OBP prompt is displayed.

##### 9.3.5.5.2 Access to OBP mode while a UNIX session is running:

- Stop the application using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Log-in as Administrator user to be under system authority and halt the system:

---

---

[PROMPT_OPE] <i>su</i> - ↵	◆ Administrator user name
password : .....	◆ and the corresponding password.
[PROMPT_ADM] <i>init 0</i> ↵	◆ The computer shuts the UNIX system down.
[OBP_PROMPT]	◆ The OBP prompt is displayed.

---

---

### 9.3.5.6 Stop a computer running in OBP mode

There are two solutions to stop the computer in OBP mode :

- With the OBP command `poweroff`

---

---

[OBP_PROMPT] <code>poweroff</code>	◆ The computer switches off.
------------------------------------	------------------------------

---

---

- Or turn off the unit by pressing the power switch located on the front panel of the Sun SF V245 until the power shuts down (see Figure 34).

### 9.3.5.7 Computer system time setting

☞ Refer to the §10.6.2.

### 9.3.5.8 Computer exchange

The purpose of the following lines is to describe the procedure: Exchange a Sun SF V245 computer.

This procedure is divided into 8 steps:

- Switch off the Sun SF V245.
- Disconnect the cables.
- Remove and replace the failed Sun SF V245 (if required).
- Reconnect the cables to the spare and switch ON the equipment on OBP mode.
- Set the Sun SF V245 system parameters.
- Restore and update offline parameters.
- Check computer time synchronisation.
- Test the good functioning of the Sun SF V245.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a Sun SF V245**

#### 9.3.5.8.1 Switch off the Sun SF V245

☞ Refer to the Sun SF V245 switch off procedure in § 9.3.5.2.

##### **Disconnect the cables**

- Disconnect all the cables connected to the Sun SF V245.
  - ☞ Refer to Figure 36 to have details on the cabling of the Sun SF V245 computers.

#### 9.3.5.8.3 Remove and replace the failed Sun SF V245

- Remove the failed Sun SF V245 from its module.
- Install the new Sun SF V245 in operational position.

#### 9.3.5.8.4 Reconnect the cables to the new Sun SF V245 and switch on the equipment

- Reconnect all the cables to the rear panel of the new Sun SF V245, **except all LAN Ethernet cables.**
  - ☞ Refer to Figure 36 to have details on the cabling of the Sun SF V245 computers.
- Switch on the Sun SF V245.
  - ☞ Refer to the Sun SF V245 switch on procedure in § 9.3.5.1.

#### 9.3.5.8.5 Set the Sun SF V245 system parameters

☞ Refer to the Sun SF V245 system parameters setting procedure in §9.3.6.4.

#### 9.3.5.8.6 Restart the computer

After system parameters setting, the computer is restarted connected to the network, and its offline data have been updated.

#### 9.3.5.8.7 Check computer time synchronisation

☞ Refer to the Sun SF V245 system time setting procedure in § 10.6.2.

#### 9.3.5.8.8 Test the good functioning of the SF V245

☞ Refer to the Sun SF V245 good functioning test in §9.3.5.9.

<b>This is the end of the procedure to exchange a Sun SF V245</b>
---

#### 9.3.5.9 Computer good functioning test

The Sun SF V245 must be plugged in operational position and switched on.

The General LAN Switch and the WPT must be plugged in operational position and switched on.

- Start the application using the SUPERVISION function running on WPT, and check that its state becomes "RUNNING".

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

- All applications are stopped and the computer restart.

#### 9.3.5.10 Delete an entry from arp table of a computer

The purpose of this paragraph is to describe the procedure: Delete an entry from the arp table of a computer. It is called when an equipment connected to a network is changed (PLINES, printer, ...).

The following commands are an example to explain how to remove the entry "lin1" from the arp table of a computer. For ADP computer, these commands are executed from the Windows hyper-terminal (refer to the § 9.3.5.4):



---

On ADP, boot in terminal mode	◆ Boot on a terminal.																									
[PROMPT_OPE] <i>su - ↵</i> password .....	◆ Log on as Administrator user.																									
[PROMPT_ADM] <i>arp -a ↵</i> Net to Media Table Ipv4:	◆ Print the arp table.																									
<table><thead><tr><th><u>Device</u></th><th><u>IP Address</u></th><th><u>Mask</u></th><th><u>Flag</u></th><th><u>Phys Addr</u></th></tr></thead><tbody><tr><td>bge0</td><td>tso1</td><td>255.255.255.255</td><td></td><td>00:20:4a:63:18:82</td></tr><tr><td>bge0</td><td>lin1</td><td>255.255.255.255</td><td></td><td>00:10:cd:3f:be:e8</td></tr><tr><td>bge0</td><td>wpt1</td><td>255.255.255.255</td><td></td><td>255.255.255.255</td></tr><tr><td colspan="5">....</td></tr></tbody></table>	<u>Device</u>	<u>IP Address</u>	<u>Mask</u>	<u>Flag</u>	<u>Phys Addr</u>	bge0	tso1	255.255.255.255		00:20:4a:63:18:82	bge0	lin1	255.255.255.255		00:10:cd:3f:be:e8	bge0	wpt1	255.255.255.255		255.255.255.255	....					◆ Check that the hostname of the entry is present, and note the mac address that is associated.
<u>Device</u>	<u>IP Address</u>	<u>Mask</u>	<u>Flag</u>	<u>Phys Addr</u>																						
bge0	tso1	255.255.255.255		00:20:4a:63:18:82																						
bge0	lin1	255.255.255.255		00:10:cd:3f:be:e8																						
bge0	wpt1	255.255.255.255		255.255.255.255																						
....																										
[PROMPT_ADM] <i>arp -d lin1 ↵</i> [PROMPT_ADM] <i>arp -d 192.168.45.5 ↵</i> ...	◆ Remove all entries that are associated with the mac address. In our example we have two addresses: <i>lin1</i> and <i>192.168.45.5</i> .																									
[PROMPT_ADM] <i>arp -a ↵</i>	◆ Print the arp table.																									
	◆ Check that the entries are removed.																									
[PROMPT_ADM] <i>exit ↵</i>	◆ Quit the Administrator account.																									

---

### 9.3.5.11 Indicator LED Diagnostics

The purpose of this paragraph is to help the maintenance operator to diagnostic why the Service Required indicator LED (see Figure 35) is ON.

#### 9.3.5.11.1 Diagnostic overview

On the SUN SF V245, there are 3 subsystems to diagnostic problems:

- From the Operating System,
- From the OBP (OpenBoot PROM),
- From ALOM (Advanced Lights-Out Manager)

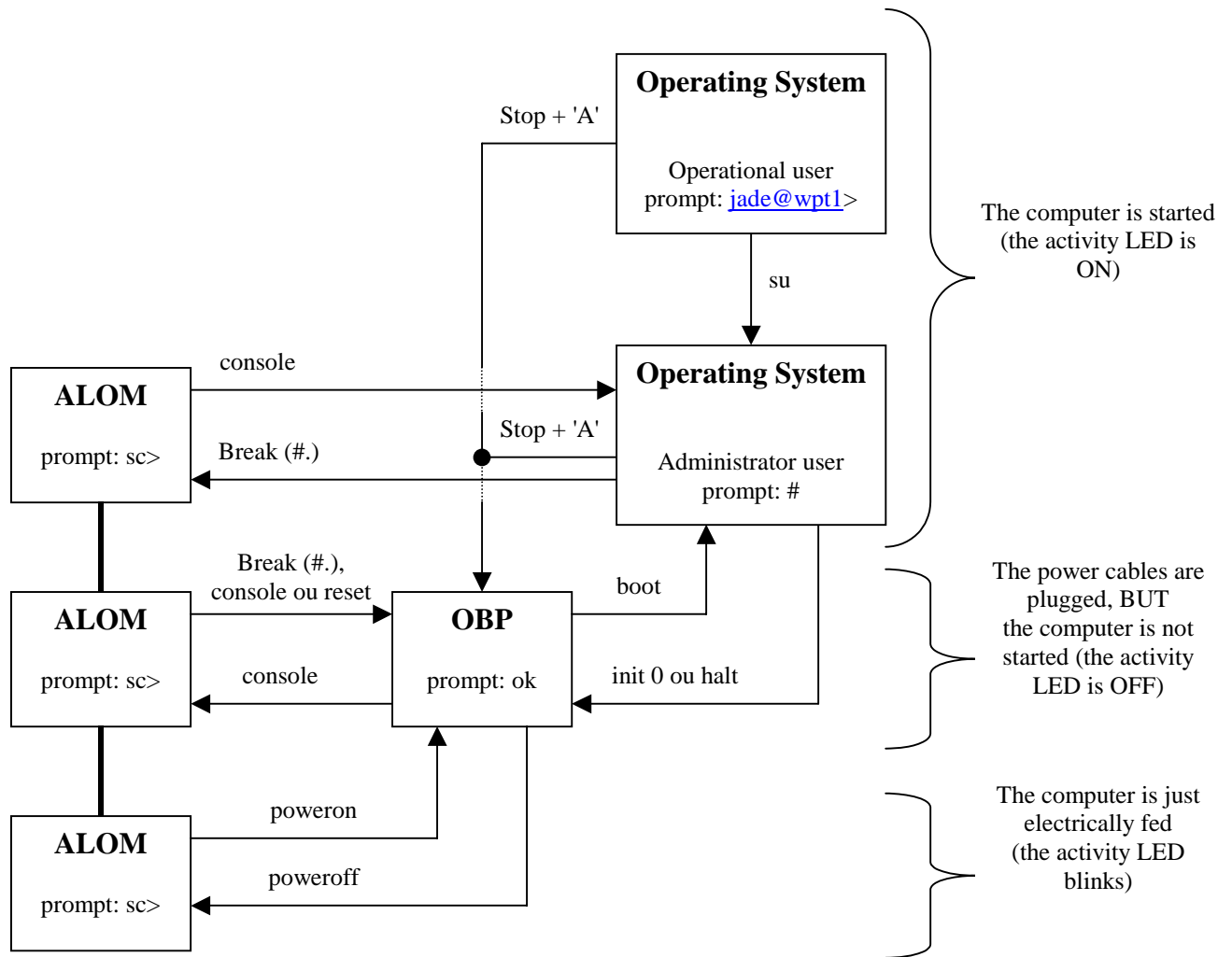


Figure 37: diagram of V245 subsystems (OS, OBP, ALOM)

When the service LED is ON, we may combine these 3 subsystems to find the problem origin:

- In first, check the ALOM LEDs (refer to Figure 35),
- From the Operating System (logged in administrator account), we can use the Operating Environment Diagnostic tools (refer to § 9.3.5.11.2),
- From the OBP, we can check the configuration (refer to § 9.3.5.11.3),
- From the ALOM, we can enter ALOM commands (refer to § 9.3.5.11.4).

NOTE: In this entire document, the ALOM prompt will be named as follow:

[PROMPT\_ALOM] ( = SC> )

### 9.3.5.11.2 Operating Environment Diagnostic tools

#### 9.3.5.11.2.1 prtdiag tool

The prtdiag tool displays a table of diagnostic information that summarises the status of system components.

Connect the Windows Hyper Terminal.

☞ Refer to the §9.3.5.4.

To execute the prtdiag tool, execute the following commands:

---

---

[PROMPT_OPE] <i>su -</i>	◆ Administrator user name
Password : .....	◆ and the corresponding password.
[PROMPT_ADM] <i>prtdiag -v</i>	◆ Execute prtdiag tool with the verbose option (-v).

---

---

#### 9.3.5.11.2.2 System Controller Administration (scadm) tool

The scadm tool, which is part of Solaris operating system, allows you to perform many ALOM tasks while logged in to the host server.

Connect the Windows Hyper Terminal.

☞ Refer to the §9.3.5.4.

To execute the scadm tool, execute the following commands:

---

---

[PROMPT_OPE] <i>su -</i>	◆ Administrator user name
Password : .....	◆ and the corresponding password.
[PROMPT_ADM] <i>scadm help</i>	◆ Print the help of the scadm tool
[PROMPT_ADM] <i>scadm loghistory</i>	◆ Print the SC event log

---

---

#### 9.3.5.11.3 OpenBoot PROM (OBP) commands

- Start the Sun SF V245 in OBP mode.

☞ Refer to § 9.3.5.5.

---

---

[PROMPT_OBP] <i>banner</i>	◆ Display the general data on the computer (memory, host id, ...).
[PROMPT_OBP] <i>probe-scsi-all</i>	◆ Check the SCSI bus.
[PROMPT_OBP] <i>printenv</i>	◆ Change the OBP parameters setting (refer to § 9.3.6.3).
[PROMPT_OBP] <i>setenv &lt;variable&gt; &lt;value&gt;</i>	
[PROMPT_OBP] <i>boot</i>	◆ Start the Operating System.

---

---

#### 9.3.5.11.4 Advanced Lights-Out Manager (ALOM) commands

- Start the Sun SF V245 in terminal mode.
  - ☞ Refer to § 9.3.5.4.
- On the Windows HyperTerminal, log on as Administrator user:
  - ☞ Refer to § 9.3.6.1.3 for details on users and passwords.

---

---

[PROMPT_ADM] <i>#.</i>	◆ Switch from the console mode to the ALOM mode.
[PROMPT_ALOM] <i>showlogs -v</i>	◆ Print the SC event log.
[PROMPT_ALOM] <i>consolehistory -v</i>	◆ Print the console history log.
[PROMPT_ALOM] <i>console</i>	◆ Switch from the ALOM mode to the console mode
[PROMPT_ADM]	◆

---

---

- Restart the Sun SF V245 in normal mode
  - ☞ Refer to § for details to restart a computer in normal mode.

#### 9.3.5.12 Battery exchange

The purpose of the following lines is to describe the procedure: Exchange the battery of the Sun SF V245 server.

- Check the battery with the diagnostic tools.
- Power off the Sun SF V245.
- Replace the battery.
- Restart the Sun SF V245.

The anti-static kit must always be used to manipulate inside the computer.

This is the beginning of the procedure to exchange the battery of the Sun SF V245

#### 9.3.5.12.1 Check the battery with the diagnostic tools

When the battery is low, the Indicator LED is ON, and the prtdiag tool displays failure on the MB/BAT V\_BAT voltage sensor.

- ☞ Refer to Figure 35 and § 9.3.5.11 for detail on the Indicator LED.
- ☞ Refer to § 9.3.5.11.2.1 for detail on the prtdiag tool.

#### 9.3.5.12.2 Power off the Sun SF V245

- ☞ Refer to §9.3.5.2.

#### 9.3.5.12.3 Replace the battery

- Disconnect the power cord(s).
- Open the back section of the lid.
- Attach the Anti-static wrist strap.

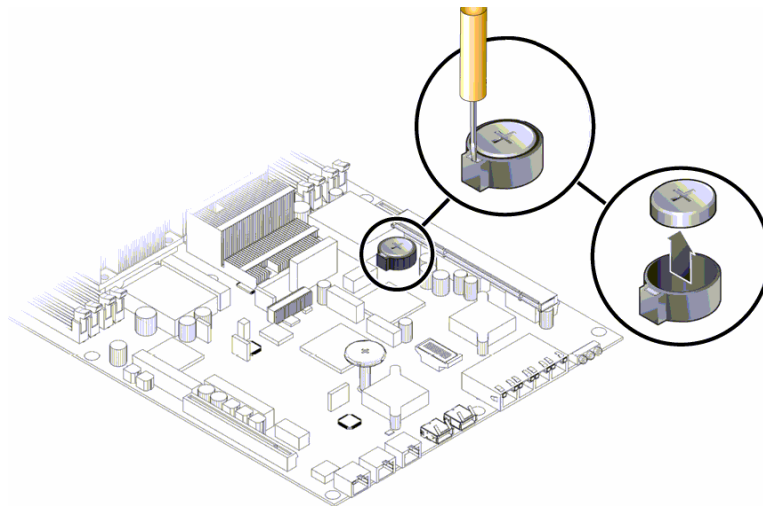


Figure 38 : SUN SF V245 battery location

☞ Refer to the Sun FIRE V245 Servers – Service manual, §3.3.25 and §3.3.26.

- Unclip the battery from its housing on the system board.
- Locate the new battery in the housing and press down to secure it in place (push the retaining clip to one side to release the battery).
- Detach the Anti-static wrist strap.
- Close the back section of the lid.
- Reconnect the power cord(s).

#### 9.3.5.12.4 Restart the Sun SF V245

- ☞ Refer to §9.3.5.1.

**This is the end of the procedure to exchange the battery of the Sun SF V245**

#### 9.3.5.13 Install the "Customized Operating System" (from bootable DVD and USB disk)

The purpose of this paragraph is to describe how install the "Customized Operating System" (Solaris 10) on a computer hard disk from the bootable DVD-ROM and the USB disk.

☞ Refer to the procedure CSU (Computer Software Update)

**To avoid interference during this procedure, the computer must be disconnected from the network.**

**This procedure will erase all data contained on the computer hard disk; it is then recommended to save the data recorded on the hard disk before to start the install disk procedure.**

This procedure is divided into 7 steps:

- Unplug the computer from the general LAN,
- Start the computer in OBP mode,
- Boot on the SKYKEEPER DVD Solaris Boot,
- Eject the DVD, and store it with the USB disk,
- Set keyboard (if necessary),
- Set the computer name and IP address (if necessary),

- Install the computer in operational position.

**This is the beginning of the procedure to install the "Customised Operating System"**

#### 9.3.5.13.1 Unplug the computer from the general LAN

- Switch off the Sun SF V245.
  - ☞ Refer to the Sun SF V245 switch off procedure in §9.3.5.2.
- Unplug the computer from the general LAN.
  - ☞ Refer to Figure 36.

#### 9.3.5.13.2 Start the computer in OBP mode

- Start the computer in OBP mode.
  - ☞ Refer to §9.3.5.5.

#### 9.3.5.13.3 Boot on the SKYKEEPER DVD Solaris Boot

- Insert the SKYKEEPER DVD Solaris Boot into the DVD-ROM drive.
- Do not connect the USB disk on the computer.

---

```
[PROMPT_OBP] boot cdrom - install ↵
```

- ◆ Boot on DVD-ROM with “- install” option.

*Boot device:*

```
/pci@1e,600000/pci@0/pci@1/pci@0/ide@1f/cdrom@0,0  
:f File and args: - install
```

*SunOS Release 5.10 Version Generic\_118833-33 64-bit*

*Copyright 1983-2006 Sun Microsystems, Inc. All rights reserved.*

*Use is subject to license terms.*

*Hardware watchdog enabled*

*Configuring devices.*

*Using RPC Bootparams for network configuration information.*

*Attempting to configure interface bge3...*

*Skipped interface bge3*

*Attempting to configure interface bge2...*

---

---

Skipped interface bge2

Attempting to configure interface bge1...

Skipped interface bge1

Attempting to configure interface bge0...

Skipped interface bge0

internal error: Bad file number

svc:/system/filesystem/local:default: WARNING:  
/usr/sbin/zfs mount -a failed: exit status 134

Oct 12 06:02:34 svc.startd[7]:  
svc:/system/filesystem/local:default: Method  
"/lib/svc/method/fs-local" failed with exit status 95.

Oct 12 06:02:34 svc.startd[7]:  
system/filesystem/local:default failed fatally: transitioned  
to maintenance (see 'svcs -xv' for details)

Setting up Java. Please wait...

Beginning system identification...

Searching for configuration file(s)...

Search complete.

Discovering additional network configuration...

---

What type of terminal are you using?

- 1) ANSI Standard CRT
- 2) DEC VT52
- 3) DEC VT100
- 4) Heathkit 19
- 5) Lear Siegler ADM31
- 6) PC Console
- 7) Sun Command Tool
- 8) Sun Workstation
- 9) Televideo 910
- 10) Televideo 925
- 11) Wyse Model 50
- 12) X Terminal Emulator (xterms)
- 13) Other

Type the number of your choice and press Return:

---

Type the number of your choice and press Return: 3 ↵

- ◆ Connect the USB disk. For rapidity reasons, it is recommended to connect the disk on USB 2.0 port.

- ◆ When the USB has been plugged, select the type of terminal that you are using (DEC VT100).





---

---

*the option and*

*press Return to mark it [X].*

*Keyboard Layout*

*qqqqqqqqqqqqqqqqqqqqqqqqqqqqqq*

- ^ [ ] Slovenian*
- x [ ] Slovakian*
- x [ ] Spanish*
- x [ ] Swedish*
- x [ ] Swiss-French*
- x [ ] Swiss-German*
- x [ ] Taiwanese*
- x [ ] TurkishQ*
- x [ ] TurkishF*
- x [ ] UK-English*
- [X] US-English*

---

---

**9.3.5.13.6 Set the computer name and IP address**

- If the computer is a workstation, a configuration script is automatically launched:

---

---

*Refer to SMM in chapter Network Topography*

- ◆ Enter the computer name.

*to set computer name and computer address*

*Enter the computer name: wpt1 ↵*

---

---

*The computer name is wpt1 (y/n) y ↵*

- ◆ Confirm the computer name.

---

---

Enter the computer address: **192.168.45.2** ↵

◆ Enter the IP address.

---

The computer address is 192.168.45.2 (y/n) **y** ↵

◆ Confirm the IP address.

---

---

- The computer reboots automatically.

### 9.3.5.13.7 Install the computer in operational position

Before to use the computer in operational position, it will necessary to:

- Install the latest software versions,
  - ☞ Refer to § CSU : Computer Software Update
- Update the database on the computer.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

If the computer will be used as workstation, open a Unix terminal and then enter the following commands:

---

---

[PROMPT\_OPE] /usr/dt/bin/sdtimage ↵

◆ The information window "CDE's Image Viewer (aka sdtimage) has been declared Obsolete. Please ...".

---

Select the message "Do not show this message again", and click on the button OK.

◆ The information window is closed, and the program sdtimage is displayed.

---

Close the sdtimage program.

---

---

◆ Sdtimage program disappears.

**This is the end of the procedure to install the "Customised Operating System"**

### 9.3.5.14 Clean the computer

The purpose of the following lines is to describe the procedure: Clean a Sun SF V245 computer.

This procedure is divided into 7 steps:

- Switch off the Sun SF V245.
- Disconnect the cables.
- Open the computer (box).
- Clean the computer.
- Close the computer (box).

**comp : sun SF V245 computer**  
**UNCLASSIFIED**

- Reconnect the cables, and switch on the computer.
- Test the good functioning of the Sun SF V245.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to clean a Sun SF V245**

#### **9.3.5.14.1 Switch off the Sun SF V245**

- ☞ Refer to the Sun SF V245 switch off procedure in § 9.3.5.2.

#### **9.3.5.14.2 Disconnect the cables**

- Disconnect all the cables connected to the Sun SF V245.
  - ☞ Refer to Figure 36 to have details on the cabling of the Sun SF V245 computers.

#### **9.3.5.14.3 Open the computer (box)**

- Open the top cover.
- Plug the electrostatic glove or strap between the computer and operator.
- Remove the wind director cover.

#### **9.3.5.14.4 Clean the computer**

- To remove the humidity inside the air blower, run it for few seconds to outside direction.
- Run the air blower to the computer (inside the computer box, inside the hard disk slots, inside the power supply slots, ...).

#### **9.3.5.14.5 Close the computer (box)**

- Plug the wind director cover.

- Unplug the electrostatic glove or strap.
- Put the top cover.

#### 9.3.5.14.6 Reconnect the cables, and switch on the computer

- Reconnect all the cables to the rear panel of the new Sun SF V245.
  - ☞ Refer to Figure 36 to have details on the cabling of the Sun SF V245 computers.
- Switch on the Sun SF V245.
  - ☞ Refer to the Sun SF V245 switch on procedure in § 9.3.5.1.

#### 9.3.5.14.7 Test the good functioning of the SF V245

- ☞ Refer to the Sun SF V245 good functioning test in §9.3.5.9.

**This is the end of the procedure to clean a Sun SF V245**

#### 9.3.5.15 Verify the closure detection mechanism of the computer box

The purpose of the following lines is to describe the procedure: Verify the closure detection mechanism of a Sun SF V245 computer box.

This procedure is divided into 7 steps:

- Disconnect the cables.
- Open the computer (box).
- Verify the state of the top cover
- Verify the state of the push-button.
- Close the computer (box).
- Reconnect the cables, and switch on the computer.
- Test the good functioning of the Sun SF V245.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to verify the closure detection mechanism of a Sun SF V245**

#### 9.3.5.15.1 Disconnect the cables

- Disconnect all the cables connected to the Sun SF V245.
  - ☞ Refer to Figure 36 to have details on the cabling of the Sun SF V245 computers.

#### 9.3.5.15.2 Open the computer (box)

- Open the top cover.
- Remove the front panel (Don't forget to remove the screw before)
- Remove the second top cover.

#### 9.3.5.15.3 Verify the state of the top cover

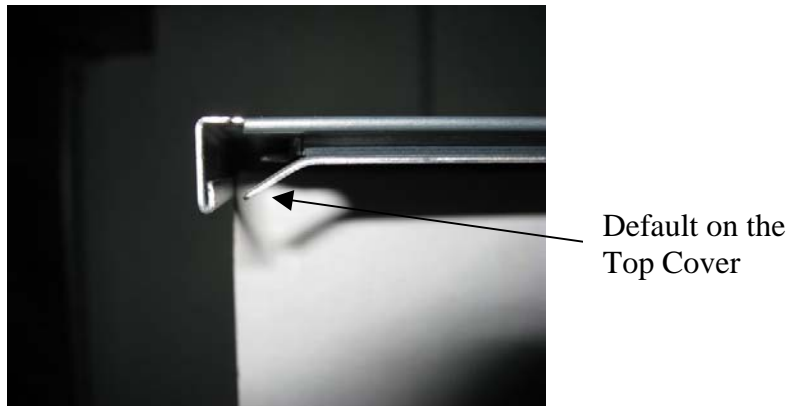


Figure 39 : SUN SF V245 Top Cover

- On the top cover, knock out the metallic part if it is bent like on the Figure 39.

#### 9.3.5.15.4 Verify the state of the push-button

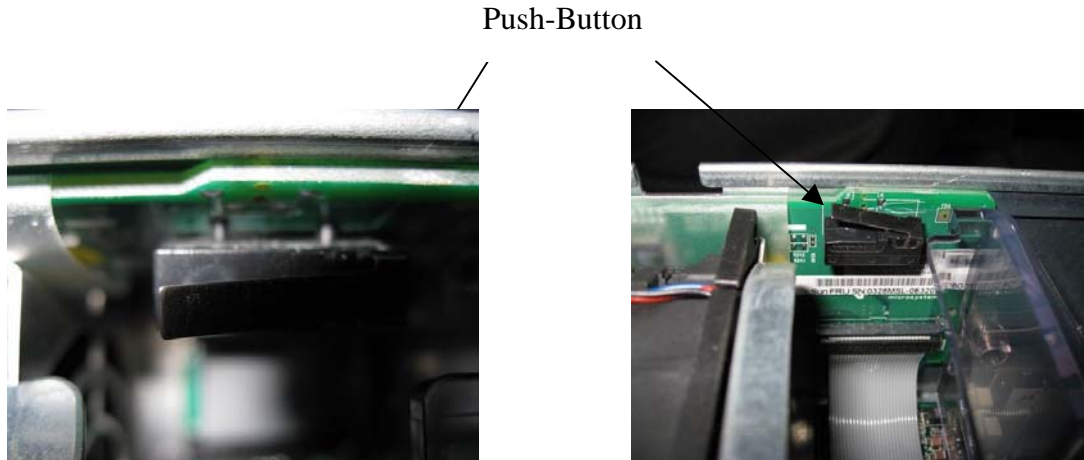


Figure 40 : SUN SF V245 Push-Button

- On the right of the computer box, knock out the black push button carefully if it isn't straight or if it doesn't lean against the green card like on the Figure 40.

#### 9.3.5.15.5 Close the computer (box)

- Put the second top cover.
- Replace the front panel (Don't forget to put the screw).
- Put the top cover.

#### 9.3.5.15.6 Reconnect the cables, and switch on the computer

- Reconnect all the cables to the rear panel of the new Sun SF V245.
  - ☞ Refer to Figure 36 to have details on the cabling of the Sun SF V245 computers.
- Switch on the Sun SF V245.
  - ☞ Refer to the Sun SF V245 switch on procedure in § 9.3.5.1.

#### 9.3.5.15.7 Test the good functioning of the SF V245

- ☞ Refer to the Sun SF V245 good functioning test in §9.3.5.9.

**This is the end of the procedure to verify the closure detection mechanism of a Sun SF V245**

## 9.3.6 CONFIGURATION REFERENCES

### 9.3.6.1 Users and passwords

#### 9.3.6.1.1 UNIX session

When a Sun SF V245 is started, the user must open a UNIX session to be able to use the system. A UNIX session is opened by giving a username and its password.

Two users are set in every Sun SF V245:

- the operational login.
- The administrator login.

For details about the user concept in UNIX, refer to the description of “UNIX commands” in § 12

This paragraph also describes how to change a user password.

NOTE : In all this document, the operational and administrator prompts will be named as follow:

[PROMPT\_OPE] (= user@hostname>    ex: jade@wpo1> )  
[PROMPT\_ADM] (= user@hostname#    ex: root@wpo1# )

#### 9.3.6.1.2 Operational login

The operational login must be used to open a UNIX session in operational mode on WPT, and WPO computers.

On WPT, the SUPERVISION program is launched automatically at logon.

As ADP applications run without display, it is not necessary to open a UNIX session on ADP to run in operational mode.

#### 9.3.6.1.3 Administrator login

The administrator login is used for some troubleshooting and maintenance procedures. This Super-user is able to perform any action in the system; the user must then be very careful when using the Administrator login.

It is recommended to always open a UNIX session with operational user.



When it is necessary to execute some commands with user root, open an Xterm window and login root.

Administrator login procedure:

Boot in terminal mode	◆ Connect on the Windows Hyper Terminal
login : <b>root</b> ↵	◆ Administrator user name
password : <b>operator</b>	◆ and the corresponding password.
[PROMPT_ADM]	◆ The administrator user prompt is displayed.

### 9.3.6.2 Connect a PC to computer

For troubleshooting or maintenance operations (on ADP computer), the computer may need to be connected to the computer.

- Switch off the Sun SF V245 computer.
- Connect the PC (COM1 port) to the Sun SF V245 (SERIAL MGT port).
- On the PC, start the Windows HyperTerminal with the following configuration:

Port:

Speed : 9600 bauds

Data bits 8

Parity None

Stop bit 1

Flux control None

Terminal keys

Emulation automatic detection

- Start the Sun SF V245.
- Observe that the boot information are displayed in the HyperTerminal.

### 9.3.6.3 OBP parameters setting

The following lines describe the main OBP (Open Boot Prom) parameters and detail how to modify an OBP parameter.

The main OBP parameters are the following:

- output-device : *ttya* power-on output device (Serial-mgt port).
- input-device : *ttya* power-on input device (serial-mgt port).
- auto-boot? : *true* if true, boot automatically after power on or reset
- auto-boot-on-error? : *false* boot stop if error
- boot-device : *disk* device(s) from which to boot if diag-switch? is false.
- boot-command : *boot* action following a boot command.
- error-reset-recovery : *boot* boot if reset
- diag-trigger : *error-reset*
- diag-script : *none* Specifies the set of tests for OpenBoot Diagnostics to run. Selecting all is equivalent to running test-all from the OpenBoot command line.
- diag-level : *min* Defines how diagnostic tests are run (none, min, max)
- verbosity : *min*
- diag-switch : *false* if false, run in non diagnostic mode, and after a boot request, boot boot-file from boot-device, if true, run in diagnostic mode, and after a boot request, boot diag-file from diag-device.

The others OBP parameters shall have the following values:

- asr-policy=normal
- test-args: data not available.
- diag-passes=1
- local-mac-address?=true
- fcode-debug?=false
- scsi-initiator-id=7
- oem-logo: data not available.
- oem-logo?=false
- oem-banner: data not available.
- oem-banner?=false
- ansi-terminal?=true
- screen-#columns=80
- screen-#rows=34

- ttyb-rts-dtr-off=false
- ttyb-ignore-cd=true
- ttya-rts-dtr-off=false
- ttya-ignore-cd=true
- ttyb-mode=9600,8,n,1,-
- ttya-mode=9600,8,n,1,-
- load-base=16384
- network-boot-arguments: data not available.
- diag-file: data not available.
- boot-file: data not available.
- boot-device=/pci@1c,600000/scsi@2/disk@0,0:a disk0:b or disk0:b
- use-nvramrc?=false
- nvramrc: data not available.
- security-mode=none
- security-password: data not available.
- security-#badlogins=0
- service-mode?=false

The commands to display and modify the OBP parameters are the following:

- Start the computer in OBP mode
  - ☞ Refer to the § 9.3.5.5.
- Execute the following commands, to display, modify, and take into account the modifications:

---

[OBP_PROMPT] <i>printenv</i> ↵	◆ Display the OBP configuration.
[OBP_PROMPT] <i>setenv input-device keyboard</i> ↵	◆ Example of OBP parameters updating.
[OBP_PROMPT] <i>setenv output-device screen</i> ↵	
[OBP_PROMPT] <i>reset-all</i> ↵	◆ Take into account the new OBP parameters and reboot the computer.

---

For more information about the OBP parameters, refer to SUN Fire V215 and V245 Servers - Administration Guide.

#### 9.3.6.4 Sun SF V245 system parameters setting

The purpose of the following lines is to describe the procedure: Set the system parameters of a Sun SF V245.

This procedure is generally used before to install a new computer in the network (Sun SF V245) to set the system parameters of the computer (hostname...).

**To avoid interference during the procedure, the computer must be disconnected from the network.**

This procedure is divided into 4 steps (plus one optional step):

- Switch off the computer.
- Start the computer with no network connection.
- Set the system parameters.
- Restart the computer and check the system settings.
- Install the computer in operational position (optional).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to set the system parameters of a Sun SF V245**

#### 9.3.6.4.1 Switch off the computer

- Switch off the Sun SF V245.
  - ☞ Refer to the Sun SF V245 switch off procedure in § 9.3.5.2.

#### 9.3.6.4.2 Start the computer with no network connection

- If necessary, disconnect the Sun SF V245 from the network.
  - ☞ Refer to Figure 36 to have details on the cabling of the Sun SF V245 computer.
- Start the computer in Terminal mode and log on as super user.
  - ☞ Refer to the Sun SF V245 Terminal mode switch on procedure in § 9.3.5.4.
  - ☞ Refer to § 9.3.6.1.3 for details on administrator login.

#### 9.3.6.4.3 Set the system parameters

comp : sun SF V245 computer  
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- Change directory to the COMPUTER\_CONF directory, and run the SetComputerConf.sh program without parameter to display details about the available options:

---

[PROMPT_ADM] <code>cd /jade/TOOLS/COMPUTER_CONF ↵</code>	◆ Change directory to the COMPUTER_CONF directory.
[PROMPT_ADM] <code>./SetComputerConf.sh ↵</code>	◆ Run the script without parameter to display details about the available options. There are 3 mandatory parameters which are:
Usage: <code>./SetComputerConf.sh &lt;computer&gt; &lt;centerType&gt; &lt;vlan&gt; [&lt;carto&gt; &lt;conf&gt;]</code>	
<computer> = ADP1    WPT1 WPO1    WPO2    WPO3    WPO4 - Mandatory	◆ The name of the computer (ADP1, WPT1, WPO1, WPO2, WPO3 or WPO4).
<centerType> = ADIN (for ADOC Indonesian) SOIN (for SOC Indonesian) CRIN (for CRC Indonesian) COIN (for Corasie3 CRC Indonesian)	◆ The type of center
<vlan> = SOC (for ADOC, for SOC 1 to 4, for CRC TKT, CBL, TPI, MER, SML, TIM) COR (for CRC BIK)	◆ The vlan. NOTE: the CRC of Biak does not use the same vlan.
<carto> = Indonesia - Not mandatory, default is Indonesia	◆ The 2 last parameters are optional.
<conf> = FACTORY    SITE - Not mandatory, default is SITE	
Must be run by user root	
[PROMPT_ADM] <code>./SetComputerConf.sh ADP1 SOIN SOC ↵</code>	◆ Run the SetComputerConf.sh program with the desired parameters. ◆ In this exemple, the script installs the ADP in a SOC center.
Confirm the following installation ? (y/n) computer type = ADP1 center type = SOIN	◆ Confirm the parameters before to start the installation.

---

comp : sun SF V245 computer  
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---

vlan = COR  
carto = Indonesia  
configuration = SITE

y ↵

- 
- Every information messages of all the procedure steps are displayed on the screen while the system configuration is performed.
  - A message is displayed to indicate that the system configuration is finished:

---

\*\* Computer configuration setting of adp1                      ♦ Last message of the SetComputerConf.sh program.  
\*\* as ADP1 with SITE configuration  
\*\* has stopped on Tue Jul 17 17:29:57 MEST 2007  
\*\* Results are stored in Result\_SetComputerConf-ADP1-SITE-17\_07\_2007-17:29:57.log

---

[PROMPT\_ADM] ./ ↵                      ♦ Run the script without parameter to display details about the available options. There is one mandatory and 3 optional parameters which are:  
Usage: ./sh <computer> <centerType> <vlan> [<carto> <conf>]

---

<computer> = ADP1 || WPT1                      ♦ The name of the computer (ADP1, WPT1, WPO1, WPO2, WPO3 or WPO4).  
                    WPO1 || WPO2 || WPO3 || WPO4 - Mandatory

---

<centerType> = ADIN (for ADOC Indonesian)                      ♦ The type of center, not mandatory (default is SOIN)  
                    SOIN (for SOC Indonesian)  
                    CRIN (for CRC Indonesian)  
                    COIN (for Corasie3 CRC Indonesian)

---

<conf> = FACTORY || SITE - Not mandatory, default is SITE                      ♦ The configuration

---

<vlan> = SOC (for ADOC,                      ♦ The vlan.  
                    for SOC 1 to 4,                      NOTE: the CRC of Biak does not use  
                    for CRC TKT, CBL, TPI, MER, SML, TIM)                      the same vlan.

---

---

COR (for CRC BIK)

Must be run by user root

#### 9.3.6.4.4 Restart the computer and check the system settings

- Reboot the computer.

---

---

[PROMPT\_ADM] *init 6* ↵

◆ Reboot the UNIX system.

---

---

- Check that the name of the desired computer is displayed on the login screen.

The computer is ready to be installed in operational position.

#### 9.3.6.4.5 Install the computer in operational position

Switch off the Sun SF V245.

☞ Refer to the Sun SF V245 switch off procedure in § 9.3.5.1.

- Install the Sun SF V245 in operational position and plug all the cables.
  - ☞ Refer to Figure 36 to have details on the cabling of the different Sun SF V245 computers.
- Start the computer and log on as operational user.
  - ☞ Refer to the Sun SF V245 switch on procedure in § 9.3.5.1.
  - Execute the update procedure from SUPERVISION window.
  - ☞ Refer to the update procedure in § 10.3.
- Start the application using the SUPERVISION function running on WPT, and check that its state becomes "RUNNING".
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

**This is the end of the procedure to set the system parameters of a Sun V245**

#### 9.3.6.5 Sun SF V245 hardware configuration reset

The purpose of the following lines is to describe the procedure : Reset the hardware configuration of a Sun SF V245.

This procedure may be used before to install a new computer in the network (Sun SF V245 exchange) or in case of malfunction of one of the computer's device.

This procedure may be performed either if the computer is connected or not to the network.

This procedure is divided into 2 steps (plus one optional step):

- Start the computer in OBP mode.
- Boot the computer with `-r` option.
- Install the computer in operational position (optional).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to reset the hardware configuration of a Sun SF V245**

#### 9.3.6.5.1 Start the computer in OBP mode

- Start the computer in OBP mode.
  - ☞ Refer to § 9.3.5.5.

#### 9.3.6.5.2 Boot the computer with `-r` option

- Type the following command to boot the computer with hardware devices reconfiguration:

---

---

```
[OBP_PROMPT] boot -r ↵
```

◆ Boot with hardware devices reconfiguration.

---

---

- During the boot sequence, the "Configuring /dev and /devices" message is displayed.
- At the end of the boot sequence, the login screen is displayed.

**This is the end of the procedure to reset the hardware configuration of a Sun SF V245**



### 9.3.7 STANDARD TOOLS

- Screwdriver.
- Air blower.

### 9.3.8 SPECIFIC TOOLS

- Anti-static kit (for handling static-sensitive materials safely).
- No. 2 Phillips screwdriver
- No. 1 Flat-blade screwdriver (battery removal)
- Pen or pencil (power on server)
- SKYKEEPER DVD Solaris Boot (DVD-ROM).
- USB disk of 8GB
- SKYKEEPER Software for Distriref (CD-ROM).

### 9.3.9 MANUFACTURER DOCUMENTATION REFERENCE

SUN Fire V215 and V245 Servers – Administration Guide	819-3036-10
SUN Fire V215 and V245 Servers – Service Manual	819-3038-10
SUN Fire V215 and V245 Servers – Getting started guide	819-3041-10

comp : sun SF V245 computer  
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## 9.4 COMP : SUN SF V240 COMPUTER

### 9.4.1 SHORT DESCRIPTION

The Sun SF V240 offers super scalar processor technology, multiprocessing, high-performance memory interconnection, high bandwidth input/output, and accelerated graphics.

The Sun SF V240 supports SUN SOLARIS 10 operating system which provides UNIX facilities.

The Sun SF V240 uses a UltraSPARC-IIIi CPU processor module with 1 megabyte of external cache.

The PCI (Peripheral Component Interconnection) architecture delivers faster data transfer for devices such as SCSI2 (Small Computer System Interface) controllers and high-end video adapters.

The Sun SF V240 includes the following features :

- Two Processors UltraSPARC-IIIi Cu (64 bits), 1.28 GHz, 1 megabyte of external cache per processor.
- Memory : 2 gigabytes
- One Hard disk: 73 33 gigabytes
- One internal DVD ROM
- Standard interface:
  - One TIA/EIA-232-F asynchronous (DB9) serial port
  - One RJ-45 serial port
  - One Ultra160SCSI connector
  - Two universal serial bus (USB) connectors
  - Four Ethernet 10BASE-T/100BASE-T twisted-pair connectors
  - One Ethernet 10BASE-T connector
- I/O extensions :
  - Two 64-bit PCI slots 33 MHz,
  - One 64-bit PCI slot 33/66 MHz,

## 9.4.2 SUN SF V240 COMPOSITION

### 9.4.2.1 Front panel

The Sun SF V240 front panel includes (see Figure 41 and Figure 42) :

- (1) Locator indicator LED
- (2) Service required indicator LED
- (3) Active indicator LED
- (4) 5.25-inch drive bay (DVD-ROM drive).
- (5) Four hard drive slots.
  - (5a) "Ready to remove" indicator LED
  - (5b) Activity indicator LED
- (6) Smart card drive with its system configuration card.
- (7) Power switch.
- (8) Key switch (see Figure 43)
  - Forced standby : Force computer into standby mode.
  - Normal : Normal operation.
  - Locked : Disable power switch.
  - Diagnostics : Full diagnostic messages displayed during system start and stop.

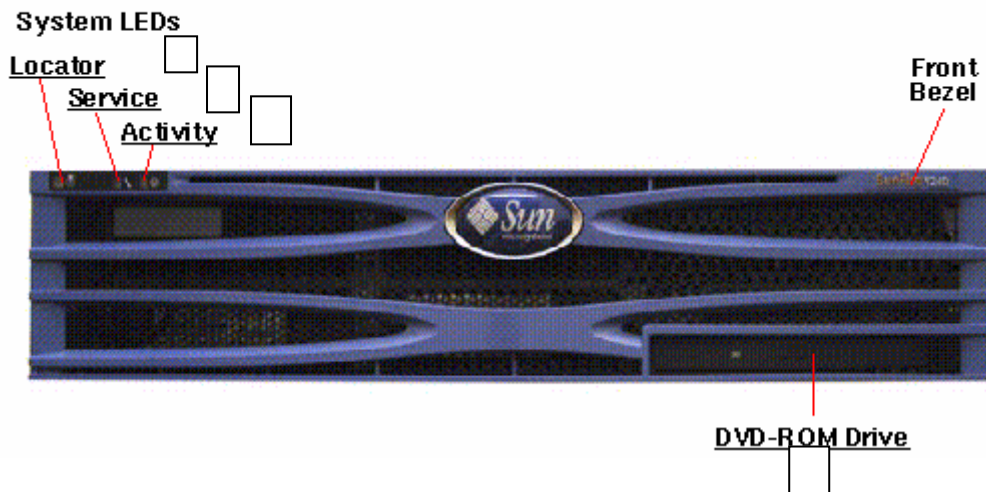


Figure 41 : SUN SF V240 front panel (closed bezel)

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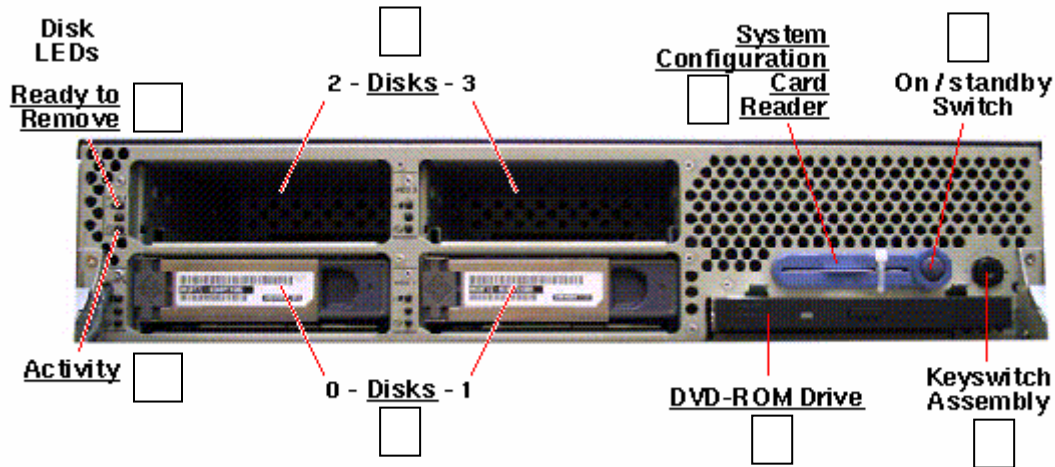


Figure 42 : SUN SF V240 front panel (opened bezel)

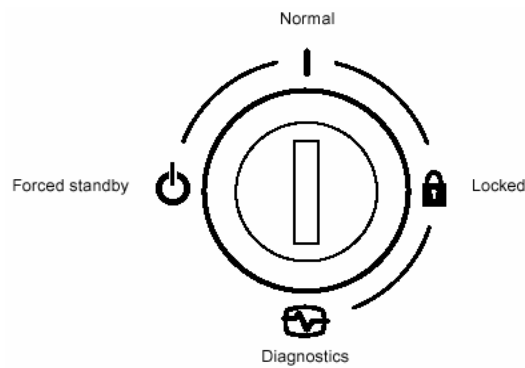


Figure 43 : SUN SF V240 key switch

### 9.4.2.2 Rear panel

The Sun SF V240 rear panel includes (see Figure 44) :

- (1) Power inlet(s) : Receptacle for the power cord.
  - 2 power connectors.
- (2) Ethernet Mgt port.
- (3) 2 serial ports.
  - The serial A port is RJ45 connector. This port is used to start the computer in terminal mode (refer to § 9.4.5.4).
  - The serial B port is DB-9 connector which supports asynchronous transfers at up to 460 Kbaud.

- (4) 4 Ethernet ports
  - port 1 – connected to the general LAN
  - port 2 – not connected
  - port 3 – not connected
  - port 4 – not connected
- (5) 2 USB ports
  - port 1 – not connected.
  - port 2 – not connected.
- (6) Ultra 160 SCSI port
  - not connected.
- (7) 3 PCI 2.2 card slots : not used

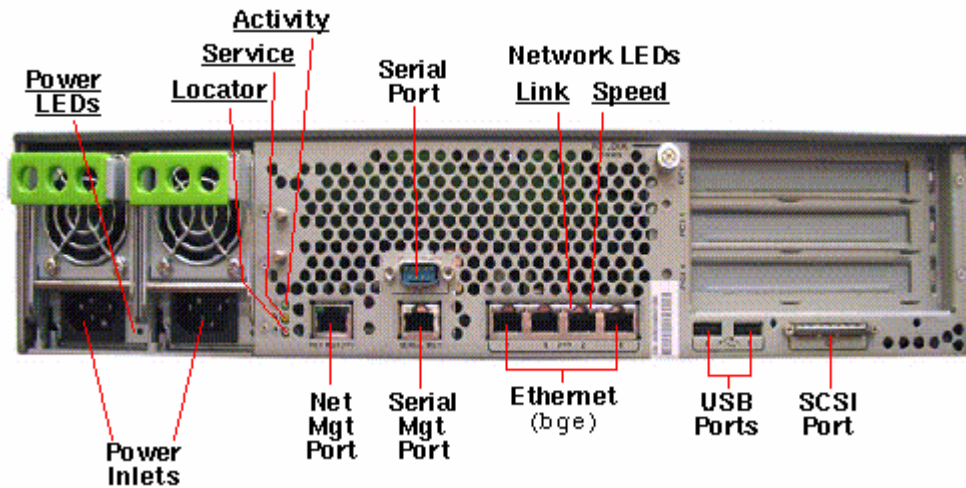


Figure 44 : SUN SF V240 rear panel

## 9.4.3 PREVENTIVE MAINTENANCE

### 9.4.3.1 Reboot the unit

Procedure:

Stop and start the computer (refer to paragraph § 9.4.5.2 and § 9.4.5.1).

Periodicity:

Every month.

Report:

Complete a preventive maintenance report (See § 11.1).

### 9.4.3.2 Clean the unit

Procedure:

Clean the computer (refer to paragraph § 9.3.5.14).

Periodicity:

Every year.

Report:

Complete a preventive maintenance report (See § 11.1).

## 9.4.4 CORRECTIVE MAINTENANCE

### 9.4.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the Sun SF V240 are the following :

A1	Supervision
A2	Indicators
A3	Visual check
A4	Integrated tests
A5	SOLARIS 10 facilities

- A1 (Supervision) aid is provided by the SUPERVISION function running on WPT: check the status of the faulty Sun SF V240, and check the historic of the past states of this LRU in the log-file.
  - If the state of ADP becomes OFF, the Sun SF V240 must be shut down from the SUPERVISION Window, and then switched ON.
    - ☞ Refer to the Sun SF V240 Switch On/Off procedures in § 9.4.5.1.
  - If the states off all the components is OFF, the SUPERVISION program must be restarted.
    - ☞ Refer to the SUPERVISION program stop and start procedure in the "OH TEC" documentation (Doc ref. [3]).

- A2 (Indicators) aid is provided by the power-indicator of the Sun SF V240: refer to the SUN FIRE V210 and V240 Servers – Administration Guide, chapter Controlling Server Power.
  - ☞ Refer to the Indicator LED Diagnostics in § 9.4.5.11.
- A3 (visual check): check that all cables are well plugged on the faulty Sun SF V240 side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.
- A4 (Integrated tests) aid is provided by troubleshooting tests described in the SUN FIRE V210 and V240 Server – Administration Guide.
- A5 (UNIX/SOLARIS 10 facilities) aid is provided by SOLARIS 10 Answerbook2 documentation.
  - ☞ Refer to UNIX/SOLARIS commands described in § 12
  - If the computer takes a long time to execute UNIX commands, the computer may need to be restarted.
    - ☞ The directory TOOLS (/jade/TOOLS) contains two kinds of tools: Tools for equipment configurations, and Tools for troubleshooting aids. Each tool contains a file named readme.txt which describes the tool purpose and explains how to use the tool.

To exchange the compute, refer to § 9.4.5.8

## 9.4.4.2 Common troubleshooting

### 9.4.4.2.1 The screen is black

Not applicable.

### 9.4.4.2.2 The Xserver does not start

Not applicable. **The state of a computer in supervision is FAILED**

Execute the following operations and check on each step if the problem is solved:



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- Check that the computer is switched on. If there is no video board, it will be necessary to connect a hyper terminal. If the computer does not boot, refer to § 9.1.4.2.5.
- Run "fsck" if asked by the system.
- Check that the computer General LAN Ethernet cable is correctly connected to Ethernet port 0 of the computer.
- Check that the computer General LAN Ethernet cable is correctly connected to the General LAN switch.
- Check the General LAN switch leds and try to plug the cable to another port of the switch.
- Check the IP address on the computer by the "ifconfig -a" command. If the IP address is not correct, update the "skykeeper system" on the computer.
- Check the IP address on the WPT computer by the "ifconfig -a" command. If the IP address is not correct, update the "skykeeper system" on the WPT computer.
- Ping the computer from the WPT by the command "ping -s <computer name>" (where <computer name> is wpt1, adp1, wpo1, wpo2, ...). If the IP address returned by the ping command is wrong, update the "skykeeper system" on the WPT computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the computer.
- Exchange the Ethernet cable.

#### **9.4.4.2.4 The state of a computer in supervision is OFF**

Execute the following operations and check on each step if the problem is solved:

- If the failed computer is WPO, check that the operator is logged on.
- The local supervision must be restarted. Execute the following command:  
*/jade/REF/common/bin/ReStartSystem.sh*
- Stop and start the supervision on WPT.
- Update the "skykeeper system".
- Update the "skykeeper tools".
- Update the "skykeeper reference software".
- On supervision, perform an update.
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange the computer.

#### **9.4.4.2.5 The computer does not boot**

When Sun SF V240 computer is booting, there are 2 levels of error:

- The OBP mode is not reached,
- The OBP mode is running, but the Operating System does not start.

#### 9.4.4.2.5.1 The OBP mode is not reached

Execute the following operations and check on each step if the problem is solved:

- Unplug the power cables during one minute, and plug them again.
- Clean the computer (refer to § 9.3.5.14).

#### 9.4.4.2.5.2 The OBP mode is running, but the OS does not start

Execute the following operations and check on each step if the problem is solved:

- Check the OBP parameters setting.
- Boot (manually) on the disk:

---

---

[PROMPT\_OBP] *boot disk* ↵

◆ Boot (manually) on the disk.

- 
- 
- Check the equipment by the OBP commands:

---

---

[PROMPT\_OBP] *banner* ↵

◆ Display the general data on the computer (memory, host id, ...)

Sun Fire V240, No Keyboard

Copyright 2006 Sun Microsystems, Inc. All rights reserved.

OpenBoot 4.22.18, 2048 MB memory installed,  
Serial #67158824.

Ethernet address 0:14:4f:0:c3:28, Host ID:  
8400c328.

---

---

[PROMPT\_OBP] *probe-scsi-all* ↵

◆ Check the SCSI bus.

This command may hang the system if a Stop-A or halt command

has been executed. Please type reset-all to reset the system before executing this command.

Do you wish to continue? (y/n) *y* ↵

...

- 
- 
- Execute the Power On Self Test:

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---

[PROMPT\_OBP] *post* ↵ ◆ Execute the Power On Self Test.

...

Requesting System Maintenance Mode

SINGLE USER MODE

---

---

- Boot on the SKYKEEPER DVD Solaris Boot to check the disk:

---

---

[PROMPT\_OBP] *boot cdrom -s* ↵ ◆ Boot in SINGLE USER on the SKYKEEPER DVD Solaris Boot.

...

Requesting System Maintenance Mode

SINGLE USER MODE

---

[PROMPT\_ADM] *format* ↵ ◆ Check that the disk is detected.

Searching for disks...done ◆ If the disk is not detected, unplug it, and then plug it again.

AVAILABLE DISK SELECTIONS:

0. c1t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>

[/pci@1e,600000/pci@0/pci@a/pci@0/pci@8/scsi@1/sd@0,0](#)

---

Specify disk (enter its number): 0 ↵ ◆ Select one disk, ...

selecting c1t0d0

[disk formatted]

...

---

format> *quit* ↵ ◆ ... And quit the format command.

---

[PROMPT\_ADM] *fsck -Y /dev/rdisk/c1t0d0s0* ↵ ◆ Execute the File System Check on the root partition.

/dev/rdisk/c1t0d0s0

\*\* /dev/rdisk/c1t0d0s0

\*\* Last Mounted on /

\*\* Phase 1 - Check Blocks and Sizes

---

---

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---

\*\* Phase 2 - Check Pathnames

\*\* Phase 3a - Check Connectivity

\*\* Phase 3b - Verify Shadows/ACLs

\*\* Phase 4 - Check Reference Counts

\*\* Phase 5 - Check Cylinder Groups

159966 files, 3950386 used, 12173528 free  
(34728 frags, 1517350 blocks, 0.2%  
fragmentation)

---

[PROMPT\_ADM] *fsck -Y /dev/rdisk/c1t0d0s3* ↵ ◆ Execute the File System Check on the users partitions.

[PROMPT\_ADM] *fsck -Y /dev/rdisk/c1t0d0s4* ↵

---

- Mount the disk, and take some information:

---

[PROMPT\_ADM] *mount /dev/dsk/c1t0d0s /mnt* ↵ ◆ Mount the root partition.

---

[PROMPT\_ADM] *cat /mnt/var/adm/messages* ↵ ◆ Display the /var/adm/messages, and note the last lines.

...

Jun 11 14:17:29 adp1 halt: [ID 662345 auth.crit]  
halted by root

---

- Return to the OBP mode, and reboot the computer with the OBP traces:

---

[PROMPT\_ADM] *halt* ↵ ◆ Stop the Operating System, and return to the OBP mode.

---

[PROMPT\_OBP] *setenv verbosity max* ↵ ◆ Enable the OBP traces.

[PROMPT\_OBP] *setenv diag-level max* ↵

[PROMPT\_OBP] *setenv diag-switch? true* ↵

[PROMPT\_OBP] *setenv diag-script? all* ↵

---

[PROMPT\_OBP] *reset-all* ↵ ◆ Take into account the new OBP parameters, and reboot the computer.

---

[PROMPT\_OBP] *setenv verbosity min* ↵ ◆ Disable the OBP traces.

[PROMPT\_OBP] *setenv diag-level min* ↵

[PROMPT\_OBP] *setenv diag-switch? none* ↵

---

---

---

```
[PROMPT_OBP] setenv diag-script? none ↵
```

---

---

#### 9.4.4.2.6 An application does not start

Execute the following operations and check on each step if the problem is solved :

- Stop and restart supervision on WPT.
- Check that there is only one local supervision for the application running on the computer:

```
ps -ef | grep -i lmc
```

Eventually restart the local supervision of the computer with the command :

```
/jade/REF/common/bin/ReStartSystem.sh
```

- Check time synchronisation on this computer.
- On supervision, perform an update.
- Update the "skykeeper system".
- Update the "skykeeper tools".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Install the "Customized Operating System", and then the "skykeeper software".
- Exchange computer.

#### 9.4.4.2.7 An application does not stop

Execute the following operations and check on each step if the problem is solved :

- Stop and restart supervision on WPT.
- Check that there is only one local supervision for the application running on the computer :

```
ps -ef | grep -i lmc
```

Eventually restart the local supervision of the computer with the command :

```
/jade/REF/common/bin/ReStartSystem.sh
```

#### 9.4.4.2.8 A computer does not shutdown

Execute the following operations and check on each step if the problem is solved:

- Stop and restart supervision on WPT.
- If it is possible, enter the command "*init 5*", else press the button "power off".

- If the problem is systematic, install again the "skykeeper reference software" (and then perform an update from supervision).
- If the problem persists after the "skykeeper reference software" reinstallation, install again the " Customized Operating System" (and then the "skykeeper software").
- Exchange the computer.

#### 9.4.4.2.9 A computer is very slow

Execute the following operations and check on each step if the problem is solved :

- Switch off and then switch on the computer.
- On supervision, check the free disk space.
- Update the "skykeeper system".
- Update the "skykeeper reference software" (and then perform an update from supervision).
- Exchange computer.

#### 9.4.4.2.10 No sound is emitted by the speakers

Not applicable.

#### 9.4.4.2.11 A computer is synchronised on the bad equipment

Execute the following operations and check on each step if the problem is solved :

- Check the synchronisation of all equipments.
- Check that the time source is connected to the General LAN switch (only for WPT).
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Check that the time source is synchronized with satellites.
- Check that the computer is connected to the General LAN switch.
- Reboot the computer.
- Update the "skykeeper system".
- Install the "Customized Operating System", and then the "skykeeper software".

#### 9.4.4.2.12 All prints from one computer are printed with a grey square

Not applicable.

## 9.4.5 ELEMENTARY PROCEDURES

### 9.4.5.1 Computer switch on

- Set the key switch on normal position (See Figure 42 and Figure 43),
- Switch on the Sun SF V240 by pressing the power switch located on the front panel (See Figure 42),
- The system boots automatically (while loading the UNIX system, the computer runs in OBP mode: see hereafter in this paragraph to have details on the OBP mode),
- At the end of boot sequence, the "green" active indicator comes on (See Figure 41). The state of ADP in the supervision window goes from FAILED to OFF, then to READY.
- **Note :** If the "green" active indicator is not active, power off the computer by pressing the power switch during 30 seconds and then switch on again the computer.

#### Computer switch off

To switch off a computer, you can use two methods:

- From supervision window on WPT,
- From Terminal window on the computer to be switched off.

#### 9.4.5.2.1 Switch off from supervision window (simplest way)

- Shut down the desired computer using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

#### 9.4.5.2.2 Switch off manually

- Stop the application using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Connect the Windows Hyper Terminal, log on as Administrator user to be under system authority and power off the system:

Refer to the § 9.4.5.4.

---

---

[PROMPT_OPE] <i>su -</i> ↵	◆ Administrator user name
Password : .....	◆ Type the administrator password.
[PROMPT_ADM] <i>init 5</i> ↵	◆ Stop the Unix system, and power off the computer.

---

---

### 9.4.5.3 Computer start in single user mode

For troubleshooting (failure in the system file) or maintenance operations, the computer may need to be started in terminal mode.

- Connect the Windows Hyper Terminal, log on as Administrator user to be under system authority and power off the system:

☞ Refer to the § 9.4.5.4.

---

---

[PROMPT_OPE] <i>su -</i> ↵	◆ Administrator user name
Password : .....	◆ Type the administrator password.
[PROMPT_ADM] <i>init 0</i> ↵	◆ Stop the Unix system, and go to the OBP menu
[OBP_PROMPT] <i>boot -s</i>	◆ Boot the computer in the single user mode.

---

---

- After the computer reboot, the following message is displayed:  
INIT: SINGLE USER MODE  
Type control-d to proceed with normal start-up,  
(or give root password for system maintenance):
- Enter the root password

NOTE: the Unix system can start automatically in the single user mode, if failures are detected in the root file system. Logged into the root account, the administrator can repair the file system with the fsck command.

### 9.4.5.4 Computer start in terminal mode



For troubleshooting or maintenance operations (on ADP computer), the computer may need to be started in terminal mode with a PC connected to its Serial management port. To connect a PC, see the paragraph 9.4.6.2 "Connect a PC to a computer".

#### 9.4.5.5 Computer start in OBP mode (OpenBoot PROM)

For troubleshooting (the X server does not start) or maintenance operations (computer configuration, computer exchange, installation of the "Customized Operating System", ...), the computer may need to be started in OBP mode.

If the computer does not have screen and keyboard, the computer shall be connected to the Windows hyper terminal (of the tools laptop).

☞ Refer to the § 9.4.5.4.

NOTE: In this entire document, the OBP prompt will be named as follow:

[PROMPT\_OBP] (= OK\_)

##### 9.4.5.5.1 Access to OBP mode while switching the computer on:

- Press on the Sun SF V240 Power button.
- On the PC running the Windows HyperTerminal, type the "Ctrl +Pause" key sequence to stop the boot procedure and enter in OBP mode.
- The OBP prompt is displayed.

##### 9.4.5.5.2 Access to OBP mode while a UNIX session is running:

- Stop the application using the SUPERVISION function running on WPT
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Log-in as Administrator user to be under system authority and halt the system:

---

[PROMPT_OPE] <i>su</i> - ↵	◆ Administrator user name
password : .....	◆ and the corresponding password.
[PROMPT_ADM] <i>init 0</i> ↵	◆ The computer shuts the UNIX system down.
[OBP_PROMPT]	◆ The OBP prompt is displayed.

---

#### 9.4.5.6 Stop a computer running in OBP mode (OpenBoot PROM)

There are two solutions to stop the computer in OBP mode :

- With the OBP command poweroff

---

---

[OBP\_PROMPT] poweroff

◆ The computer switches off.

---

---

- Or turn off the unit by pressing the power switch located on the front panel of the Sun SF V240 until the power shuts down (See Figure 42).

#### 9.4.5.7 Computer system time setting

☞ Refer to the §10.6.2.

#### 9.4.5.8 Computer exchange

The purpose of the following lines is to describe the procedure : Exchange a Sun SF V240 computer.

This procedure is divided into 8 steps :

- Switch off the Sun SF V240.
- Disconnect the cables.
- Remove and replace the failed Sun SF V240 (if required).
- Reconnect the cables to the spare and switch ON the equipment on OBP mode.
- Set the Sun SF V240 system parameters.
- Restore and update offline parameters.
- Check computer time synchronisation.
- Test the good functioning of the Sun SF V240.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a Sun SF V240**

#### 9.4.5.8.1 Switch off the Sun SF V240

☞ Refer to the Sun SF V240 switch off procedure in §9.4.5.2.

##### **Disconnect the cables**

- Disconnect all the cables connected to the Sun SF V240.
  - ☞ Refer to Figure 44 to have details on the cabling of the Sun SF V240 computers.

#### 9.4.5.8.3 Remove and replace the failed Sun SF V240

- Remove the failed Sun SF V240 from its module.
- Install the new Sun SF V240 in operational position.

#### 9.4.5.8.4 Reconnect the cables to the new Sun SF V240 and switch ON the equipment

- Reconnect all the cables to the rear panel of the new Sun SF V240, **except all LAN Ethernet cables.**
  - ☞ Refer to Figure 44 to have details on the cabling of the Sun SF V240 computers.
- Switch on the Sun SF V240.
  - ☞ Refer to the Sun SF V240 switch on procedure in § 9.4.5.1.

#### 9.4.5.8.5 Set the Sun SF V240 system parameters

☞ Refer to the Sun SF V240 system parameters setting procedure in § 9.4.6.4.

#### 9.4.5.8.6 Restart the computer

After system parameters setting, the computer is restarted connected to the network, and its offline data have been updated.

#### 9.4.5.8.7 Check computer time synchronisation

☞ Refer to the Sun SF V240 system time setting procedure in § 10.6.2.

#### 9.4.5.8.8 Test the good functioning of the SF V240

☞ Refer to the Sun SF V240 good functioning test in § 9.4.5.9.

**This is the end of the procedure to exchange a Sun SF V240**

#### 9.4.5.9 Computer good functioning test

The Sun SF V240 must be plugged in operational position and switched on.

The General LAN Switch and the WPT must be plugged in operational position and switched on.

- Start the application using the SUPERVISION function running on WPT, and check that its state becomes "RUNNING".

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

- All applications are stopped and the computer restart.

#### 9.4.5.10 Delete an entry from arp table of a computer

The purpose of this paragraph is to describe the procedure: Delete an entry from the arp table of a computer. It is called when an equipment connected to a network is changed (μLINES, PLINES, printer, ...).

The following commands are an example to explain how to remove the entry "lin1" from the arp table of a computer. For ADP computer, these commands are executed from the Windows hyper-terminal (refer to the § 9.4.5.4):

On ADP, boot in terminal mode	◆ Boot on a terminal.
[PROMPT_OPE] <i>su - ↵</i>	◆ Log on as Administrator user.
password .....	
[PROMPT_ADM] <i>arp -a ↵</i>	◆ Print the arp table.
Net to Media Table Ipv4:	◆ Check that the hostname of the entry is present, and note the mac address that is associated.
<u>Device</u> <u>IP Address</u> <u>Mask</u> <u>Flag</u> <u>Phys Addr</u>	
bge0 tso1 255.255.255.255 00:20:4a:63:18:82	

---

```
bge0  lin1      255.255.255.255  00:10:cd:3f:be:e8
bge0  wpt1      255.255.255.255  255.255.255.255
```

....

---

```
[PROMPT_ADM] arp -d lin1 ↵
```

- ◆ Remove all entries that are associated with the mac address. In our example we have two addresses: *lin1* and *192.168.45.5*.

```
[PROMPT_ADM] arp -d 192.168.45.5 ↵
```

...

---

```
[PROMPT_ADM] arp -a ↵
```

- ◆ Print the arp table.
- ◆ Check that the entries are removed.

---

```
[PROMPT_ADM] exit ↵
```

- ◆ Quit the Administrator account.

---

```
[PROMPT_ADM] exit ↵
```

- ◆ Quit the Administrator account.
- 

#### 9.4.5.11 Indicator LED Diagnostics

The purpose of this paragraph is to help the maintenance operator to diagnostic why the Service Required indicator LED (see Figure 41) is ON.

##### 9.4.5.11.1 Diagnostic overview

On the SUN SF V240, there are 3 subsystems to diagnostic problems:

- From the Operating System,
- From the OBP (OpenBoot PROM),
- From ALOM (Advanced Lights-Out Manager)

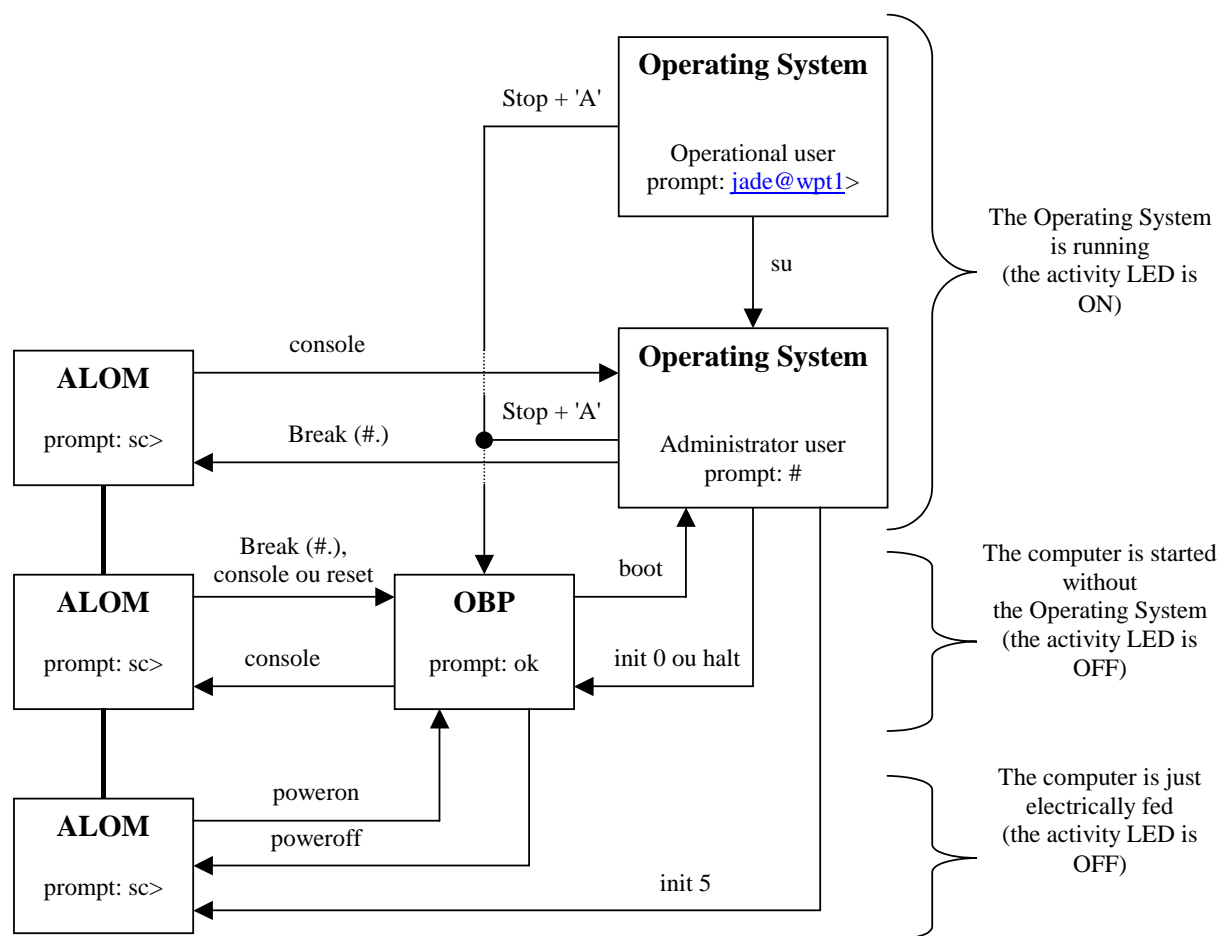


Figure 45: diagram of V240 subsystems (OS, OBP, ALOM)

When the service LED is ON, we may combine these 3 subsystems to find the problem origin:

- In first, check the power cables, and Power Supply LEDs,
- From the Operating System (logged in administrator account), we can use the Operating Environment Diagnostic tools (refer to § 9.3.5.11.2),
- From the OBP, we can check the configuration (refer to § 9.3.5.11.3),
- From the ALOM, we can enter ALOM commands (refer to § 9.3.5.11.4).

NOTE: In this entire document, the ALOM prompt will be named as follow:

[PROMPT\_ALOM] (= SC> )

#### 9.4.5.11.2 Operating Environment Diagnostic tools

#### 9.4.5.11.2.1 prtdiag tool

The prtdiag tool displays a table of diagnostic information that summarises the status of system components.

Connect the Windows Hyper Terminal.

☞ Refer to the §9.3.5.4.

To execute the prtdiag tool, execute the following commands:

---

---

[PROMPT_OPE] <i>su -</i>	◆ Administrator user name
Password : .....	◆ and the corresponding password.
[PROMPT_ADM] <i>prtdiag -v</i>	◆ Execute prtdiag tool with the verbose option (-v).

---

---

#### 9.4.5.11.2.2 System Controller Administration (scadm) tool

The scadm tool, which is part of Solaris operating system, allows you to perform many ALOM tasks while logged in to the host server.

Connect the Windows Hyper Terminal.

☞ Refer to the § 9.4.6.1.3.

To execute the scadm tool, execute the following commands:

---

---

[PROMPT_OPE] <i>su -</i>	◆ Administrator user name
Password : .....	◆ and the corresponding password.
[PROMPT_ADM] <i>scadm help</i>	◆ Print the help of the scadm tool
[PROMPT_ADM] <i>scadm loghistory</i>	◆ Print the SC event log

---

---

#### 9.4.5.11.3 OpenBoot PROM (OBP) commands

- Start the Sun SF V240 in OBP mode.

☞ Refer to § 9.4.5.5.

---

---

[PROMPT_OBP] <i>banner</i>	◆ Display the general data on the computer (memory, host id, ...).
----------------------------	--

---

---

---



---

[PROMPT_OBP] <i>probe-scsi-all</i>	◆ Check the SCSI bus.
[PROMPT_OBP] <i>printenv</i>	◆ Change the OBP parameters setting (refer to § 9.4.6.3).
[PROMPT_OBP] <i>setenv &lt;variable&gt; &lt;value&gt;</i>	
[PROMPT_OBP] <i>boot</i>	◆ Start the Operating System.

---



---

#### 9.4.5.11.4 Advanced Lights-Out Manager (ALOM) commands

- Start the Sun SF V240 in terminal mode.
  - ☞ Refer to § 9.4.5.4.
- On the Windows HyperTerminal, log on as Administrator user:
  - ☞ Refer to § 9.4.6.1.3 for details on users and passwords.

---



---

[PROMPT_ADM] #.	◆ Switch from the console mode to the ALOM mode.
[PROMPT_ALOM] <i>showlogs -v</i>	◆ Print the SC event log.
[PROMPT_ALOM] <i>consolehistory -v</i>	◆ Print the console history log.
[PROMPT_ALOM] <i>console</i>	◆ Switch from the ALOM mode to the console mode
[PROMPT_ADM]	◆

---



---

- Restart the Sun SF V240 in normal mode
  - ☞ Refer to § for details to restart a computer in normal mode.

#### 9.4.5.12 Battery exchange

The purpose of the following lines is to describe the procedure : Exchange the battery of the Sun SF V240 server.

- Check the battery with the diagnostic tools.
- Power off the Sun SF V240.
- Replace the battery.
- Restart the Sun SF V240.

**The anti-static kit must always be used to manipulate inside the computer.**



**This is the beginning of the procedure to exchange the battery of the Sun SF V240**

#### 9.4.5.12.1 Check the battery with the diagnostic tools

When the battery is low, the Indicator LED is ON, and the prtdiag tool displays failure on the MB/BAT V\_BAT voltage sensor.

- ☞ Refer to Figure 41 and § 9.4.5.11 for detail on the Indicator LED.
- ☞ Refer to § 9.3.5.11.2.1 for detail on the prtdiag tool.

#### 9.4.5.12.2 Power off the Sun SF V240

- ☞ Refer to §9.4.5.2.

#### 9.4.5.12.3 Replace the battery

- Disconnect the power cord(s).
- Open the back section of the lid.
- Attach the Anti-static wrist strap.
  - ☞ Refer to the Sun FIRE V210 and V240 Servers – Parts Replacement Manual, figure 1-1.
- Unclip the battery from its housing on the system board.
- Locate the new battery in the housing and press down to secure it in place (push the retaining clip to one side to release the battery).
- Detach the Anti-static wrist strap.
- Close the back section of the lid.
- Reconnect the power cord(s).

#### 9.4.5.12.4 Restart the Sun SF V240

- ☞ Refer to §9.4.5.1.

**This is the end of the procedure to exchange the battery of the Sun SF V240**

#### 9.4.5.13 Install customised Operating System Solaris 10 (from bootable DVD and USB disk)

THALES RAYTHEON SYSTEMS FAHF1 61 118 698 - 194 C A4 249/575

The purpose of the following lines is to describe the procedure: install customised operating system (Solaris 10) on a computer hard disk from the bootable DVD-ROM and the USB disk.

☞ Refer to the procedure CSU (Computer Software Update)

**To avoid interference during the dump procedure, the computer must be disconnected from the network.**

**This procedure will erase all data contained on the computer hard disk; it is then recommended to save the data recorded on the hard disk before to start the install disk procedure.**

This procedure is divided into 7 steps:

- Unplug the computer from the general LAN.
- Start the computer in OBP mode.
- Boot on the SKYKEEPER DVD Solaris Boot.
- Eject the DVD, and store it with the USB disk,
- Set keyboard (if necessary),
- Set the computer name and IP address (if necessary).
- Install the computer in operational position.

**This is the beginning of the procedure to install the "Customised Operating System"**

#### **9.4.5.13.1 Unplug the computer from the general LAN**

- Switch off the Sun SF V240.
  - ☞ Refer to the Sun SF V240 switch off procedure in §9.4.5.2.
- Unplug the computer from the general LAN.
  - ☞ Refer to Figure 44.

#### **9.4.5.13.2 Start the computer in OBP mode**

- Start the computer in OBP mode.
  - ☞ Refer to §9.4.5.5.

#### **9.4.5.13.3 Boot on the SKYKEEPER DVD Solaris Boot**

comp : sun SF V240 computer  
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- Insert the SKYKEEPER DVD Solaris Boot into the DVD-ROM drive.
- Do not connect the USB disk on the computer.

---

[PROMPT\_OBP] boot cdrom - install ↵

- ◆ Boot on DVD-ROM with "- install" option.

Boot device:

/pci@1e,600000/pci@0/pci@1/pci@0/ide@1f/cdrom@0,0  
:f File and args: - install

SunOS Release 5.10 Version Generic\_118833-33 64-bit

Copyright 1983-2006 Sun Microsystems, Inc. All rights reserved.

Use is subject to license terms.

Hardware watchdog enabled

Configuring devices.

Using RPC Bootparams for network configuration information.

Attempting to configure interface bge3...

Skipped interface bge3

Attempting to configure interface bge2...

Skipped interface bge2

Attempting to configure interface bge1...

Skipped interface bge1

Attempting to configure interface bge0...

Skipped interface bge0

internal error: Bad file number

svc:/system/filesystem/local:default: WARNING:  
/usr/sbin/zfs mount -a failed: exit status 134

Oct 12 06:02:34 svc.startd[7]:  
svc:/system/filesystem/local:default: Method  
"/lib/svc/method/fs-local" failed with exit status 95.

Oct 12 06:02:34 svc.startd[7]:  
system/filesystem/local:default failed fatally: transitioned  
to maintenance (see 'svcs -xv' for details)

Setting up Java. Please wait...

Beginning system identification...

Searching for configuration file(s)...

Search complete.

Discovering additional network configuration...

---

What type of terminal are you using?

- ◆ Connect the USB disk. For rapidity
- 

THALES RAYTHEON SYSTEMS FAHF1 61 118 698 - 194 C A4 251/575

- 
- 1) ANSI Standard CRT
  - 2) DEC VT52
  - 3) DEC VT100
  - 4) Heathkit 19
  - 5) Lear Siegler ADM31
  - 6) PC Console
  - 7) Sun Command Tool
  - 8) Sun Workstation
  - 9) Televideo 910
  - 10) Televideo 925
  - 11) Wyse Model 50
  - 12) X Terminal Emulator (xterms)
  - 13) Other

reasons, it is recommended to connect the disk on USB 2.0 port.

Type the number of your choice and press Return:

---

Type the number of your choice and press Return: 3 ↵

- ◆ Select the type of terminal that you are using (DEC VT100).

---

*syslog service starting.*

*savecore: open("/dev/dump"): No such file or directory*

*Running in command line mode*

- ◆ The disk format and data extraction from the DVD-ROM takes about 20 minutes.

*Please wait while the system information is loaded*

...

*Extracting archive: SOIN\_V1.0 (8/8/2007)*

*Extracted 0.00 MB ( 0% of 1932.32 MB archive)*

*Extracted 1.00 MB ( 0% of 1932.32 MB archive)*

*Extracted 2.00 MB ( 0% of 1932.32 MB archive)*

...

- 
- The computer reboot automatically.

#### 9.4.5.13.4 Eject the DVD, and store it with the USB disk.

- Unplug the USB disk, and store it.
- Connect the hyper terminal, and eject the DVD from the DVD drive with the following command:

---

[PROMPT\_OPE] eject cdrom ↵

---

◆ Eject the DVD.

---

- Store the SKYKEEPER DVD Solaris Boot DVD with the USB disk.

#### 9.4.5.13.5 Set keyboard (if necessary)

Following the configuration (if the system cannot detect the keyboard type), sometime it is necessary to select keyboard. If you enter in this condition, execute the following action on the hyper terminal:

---

*Configure Keyboard Layout*

qq  
qqqqqq

◆ Press on the keys "Esc" and "F2" to select the standard keyboard "US-English".

*Please specify the keyboard layout from the list below.*

*> To make a selection, use the arrow keys to highlight the option and*

*press Return to mark it [X].*

*Keyboard Layout*

qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqq

- Slovenian
  - Slovakian
  - Spanish
  - Swedish
  - Swiss-French
  - Swiss-German
  - Taiwanese
  - TurkishQ
  - TurkishF
-

---

---

x [ ] UK-English

- [X] US-English

---

---

#### 9.4.5.13.6 Set the computer name and IP address

- If the computer is a workstation, a configuration script is automatically launched:

---

---

Refer to SMM in chapter Network Topography

◆ Enter the computer name.

to set computer name and computer address

Enter the computer name: **wpt1** ↵

---

The computer name is wpt1 (y/n) **y** ↵

◆ Confirm the computer name.

---

Enter the computer address: **192.168.45.2** ↵

◆ Enter the IP address.

---

The computer address is 192.168.45.2 (y/n) **y** ↵

◆ Confirm the IP address.

---

---

- The computer reboots automatically.
- Logon on the computer, and eject the DVD-ROM with the command *eject cdrom*.
- Store the SKYKEEPER DVD Solaris Boot DVD.

#### 9.4.5.13.7 Install the computer in operational position

Before to use the computer in operational position, it will necessary to:

- Install the latest software versions,
  - ☞ Refer to § CSU : Computer Software Update
- Update the database on the computer.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

If the computer will be used as workstation, open an Unix terminal and then enter the following commands:

---

---

[PROMPT\_OPE] /usr/dt/bin/sdtimage ↵

◆ The information window "CDE's Image Viewer (aka sdtimage) has been declared Obsolete. Please ...".

---

Select the message "Do not show this message again",

◆ The information window is closed,

---

---

---

---

and click on the button OK.

and the program sdtimage is displayed.

---

Close the sdtimage program.

◆ Sdtimage program disappears.

---

---

**This is the end of the procedure to install the "Customised Operating System"**

#### 9.4.5.14 Clean the computer

The purpose of the following lines is to describe the procedure: Clean a Sun SF V240 computer.

This procedure is divided into 7 steps:

- Switch off the Sun SF V240.
- Disconnect the cables.
- Open the computer (box).
- Clean the computer.
- Close the computer (box).
- Reconnect the cables, and switch on the computer.
- Test the good functioning of the Sun SF V240.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to clean a Sun SF V240**

##### 9.4.5.14.1 Switch off the Sun SF V240

☞ Refer to the Sun SF V240 switch off procedure in §9.4.5.2.

##### 9.4.5.14.2 Disconnect the cables

- Disconnect all the cables connected to the Sun SF V240.

**comp : sun SF V240 computer**  
**UNCLASSIFIED**

☞ Refer to Figure 44 to have details on the cabling of the Sun SF V240 computers.

**9.4.5.14.3 Open the computer (box)**

- Open the top cover.
- Plug the electrostatic glove or strap between the computer and operator.
- Remove the wind director cover.

**9.4.5.14.4 Clean the computer**

- To remove the humidity inside the air blower, run it for few seconds to outside direction.
- Run the air blower to the computer (inside the computer box, inside the hard disk slots, inside the power supply slots, ...).

**9.4.5.14.5 Close the computer (box)**

- Plug the wind director cover.
- Unplug the electrostatic glove or strap.
- Put the top cover.

**9.4.5.14.6 Reconnect the cables, and switch on the computer**

- Reconnect all the cables to the rear panel of the new Sun SF V240.
  - ☞ Refer to Figure 44 to have details on the cabling of the Sun SF V240 computers.
- Switch on the Sun SF V240.
  - ☞ Refer to the Sun SF V240 switch on procedure in § 9.4.5.1.

**9.4.5.14.7 Test the good functioning of the SF V240**

☞ Refer to the Sun SF V240 good functioning test in § 9.4.5.9.

**This is the end of the procedure to clean a Sun SF V240**



## 9.4.6 CONFIGURATION REFERENCES

### 9.4.6.1 Users and passwords

#### 9.4.6.1.1 UNIX session

When a Sun SF V240 is started, the user must open a UNIX session to be able to use the system. A UNIX session is opened by giving a username and its password.

Two users are set in every Sun SF V240:

- the operational login.
- the administrator login.

For details about the user concept in UNIX, refer to the description of “UNIX commands” in § 12

This paragraph also describes how to change a user password.

NOTE : In all this document, the operational and administrator prompts will be named as follow:

[PROMPT\_OPE] (= user@hostname> ex: jade@wpo1> )  
[PROMPT\_ADM] (= user@hostname# ex: root@wpo1# )

#### 9.4.6.1.2 Operational login

The operational login must be used to open a UNIX session in operational mode on WPT, and WPO computers.

On WPT, the SUPERVISION program is launched automatically at logon.

As ADP applications run without display, it is not necessary to open a UNIX session on ADP to run in operational mode.

#### 9.4.6.1.3 Administrator login

The administrator login is used for some troubleshooting and maintenance procedures. This Super-user is able to perform any action in the system; the user must then be very careful when using the Administrator login.

It is recommended to always open a UNIX session with operational user.

When it is necessary to execute some commands with user root, open an Xterm window and login root.

Administrator login procedure:

Boot in terminal mode	◆ Connect on the Windows Hyper Terminal
login : <b>root</b> ↵	◆ Administrator user name
password : <b>operator</b>	◆ and the corresponding password.
[PROMPT_ADM]	◆ The administrator user prompt is displayed.

#### 9.4.6.2 Connect a PC to computer

For troubleshooting or maintenance operations (on ADP computer), the computer may need to be connected to the computer.

- Switch off the Sun SF V240 computer.
- Connect the PC (COM1 port) to the Sun SF V240 (SERIAL MGT port).
- On the PC, start the Windows HyperTerminal with the following configuration:

Port:

Speed : 9600 bauds

Data bits 8

Parity None

Stop bit 1

Flux control None

Terminal keys

Emulation automatic detection

- Start the Sun SF V240.
- Observe that the boot information are displayed in the HyperTerminal.

#### 9.4.6.3 OBP parameters setting

The following lines describe the main OBP (Open Boot Prom) parameters and detail how to modify an OBP parameter.

**comp : sun SF V240 computer**  
**UNCLASSIFIED**

The OBP (also known as nvram) data are located in the System Configuration Card which is housed in a slot behind the front bezel of the Sun SF V240 (see Figure 42). The card, mandatory for the server boot, contains also the unique network identity information including the MAC address and hostid.

The main OBP parameters are the followings:

- output-device : *tya* power-on output device (Serial-mgt port).
- input-device : *tya* power-on input device (serial-mgt port).
- auto-boot? : *true* if true, boot automatically after power on or reset
- boot-device : *disk* device(s) from which to boot if diag-switch? is false.
- boot-command : *boot* action following a boot command.
- diag-script : *none* Specifies the set of tests for OpenBoot Diagnostics to run. Selecting all is equivalent to running test-all from the OpenBoot command line.
- diag-level : *min* Defines how diagnostic tests are run (none, min, max)
- diag-switch : *false* if false, run in non diagnostic mode, and after a boot request, boot boot-file from boot-device, if true, run in diagnostic mode, and after a boot request, boot diag-file from diag-device.

The others OBP parameters shall have the following values:

- test-args: data not available.
- diag-passes=1
- asr-policy=normal
- local-mac-address?=true
- fcode-debug?=false
- silent-mode?=false
- scsi-initiator-id=7
- oem-logo: data not available.
- oem-logo?=false
- oem-banner: data not available.
- oem-banner?=false
- ansi-terminal?=true
- screen-#columns=80
- screen-#rows=34

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UNCLASSIFIED

- ttyb-rts-dtr-off=false
- ttyb-ignore-cd=true
- ttya-rts-dtr-off=false
- ttya-ignore-cd=true
- ttyb-mode=9600,8,n,1,-
- ttya-mode=9600,8,n,1,-
- output-device=ttya
- input-device=ttya
- auto-boot-on-error?=false
- load-base=16384
- auto-boot?=true
- boot-command=boot
- diag-file: data not available.
- diag-device=disk0:a
- boot-file: data not available.
- boot-device=/pci@1c,600000/scsi@2/disk@0,0:a disk0:a
- use-nvramrc?=false
- nvramrc: data not available.
- security-mode=none
- security-password: data not available.
- security-#badlogins=0
- post-trigger=power-on-reset
- diag-script=none
- diag-level=min
- diag-switch?=false
- obdiag-trigger=power-on-reset
- error-reset-recovery=boot

The commands to display and modify the OBP parameters are the following:

- Start the computer in OBP mode
  - ☞ Refer to the § 9.4.5.5.
- Execute the following commands, to display, modify, and take into account the modifications:

---

[OBP\_PROMPT] *printenv* ↵ ◆ Display the OBP configuration.

---

[OBP\_PROMPT] *setenv input-device keyboard* ↵ ◆ Example of OBP parameters updating.

---

---

---

[OBP\_PROMPT] *setenv output-device screen ↵*

---

[OBP\_PROMPT] *reset-all ↵*

- ◆ Take into account the new OBP parameters and reboot the computer.
- 
- 

For more information about the OBP parameters, refer to SUN Fire V210 and V240 Servers - Administration Guide.

#### 9.4.6.4 Sun SF V240 system parameters setting

The purpose of the following lines is to describe the procedure : Set the system parameters of a Sun SF V240.

This procedure is generally used before to install a new computer in the network (Sun SF V240) to set the system parameters of the computer (hostname...).

**To avoid interference during the procedure, the computer must be disconnected from the network.**

This procedure is divided into 4 steps (plus one optional step):

- Switch off the computer.
- Start the computer with no network connection.
- Set the system parameters.
- Restart the computer and check the system settings.
- Install the computer in operational position (optional).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to set the system parameters of a Sun SF V240**

##### 9.4.6.4.1 Switch off the computer

- Switch off the Sun SF V240.
  - ☞ Refer to the Sun SF V240 switch off procedure in § 9.4.5.2.

#### 9.4.6.4.2 Start the computer with no network connection

- If necessary, disconnect the Sun SF V240 from the network.
  - ☞ Refer to Figure 44 to have details on the cabling of the Sun SF V240 computer.
- Start the computer in Terminal mode and log on as super user.
  - ☞ Refer to the Sun SF V240 Terminal mode switch on procedure in § 9.4.5.4.
  - ☞ Refer to § 9.4.6.1.3. for details on administrator login.

#### 9.4.6.4.3 Set the system parameters

- Change directory to the COMPUTER\_CONF directory, and run the SetComputerConf.sh program without parameter to display details about the available options:

---

[PROMPT_ADM] <code>cd /jade/TOOLS/COMPUTER_CONF ↵</code>	◆ Change directory to the COMPUTER_CONF directory.
[PROMPT_ADM] <code>./SetComputerConf.sh ↵</code>	◆ Run the script without parameter to display details about the available options. There are 3 mandatory options which are:
Usage: <code>./SetComputerConf.sh &lt;computer&gt; &lt;centerType&gt; &lt;vlan&gt; [&lt;carto&gt; &lt;conf&gt;]</code>	
<code>&lt;computer&gt; = ADP1    WPT1 WPO1    WPO2    WPO3    WPO4 - Mandatory</code>	◆ The name of the computer (ADP1, WPT1, WPO1, WPO2, WPO3 or WPO4).
<code>&lt;centerType&gt; = ADIN (for ADOC Indonesian) SOIN (for SOC Indonesian) CRIN (for CRC Indonesian) COIN (for Corasie3 CRC Indonesian)</code>	◆ The type of center
<code>&lt;vlan&gt; = SOC (for ADOC, for SOC 1 to 4, for CRC TKT, CBL, TPI, MER, SML, TIM) COR (for CRC BIK)</code>	◆ The vlan.  NOTE: the CRC of Biak does not use the same vlan.
<code>&lt;carto&gt; = Indonesia - Not mandatory, default is Indonesia</code>	◆ The 2 last options are optional.
<code>&lt;conf&gt; = FACTORY    SITE - Not mandatory, default is</code>	

---

comp : sun SF V240 computer  
UNCLASSIFIED

SITE

Must be run by user root

---

[PROMPT_ADM] ./SetComputerConf.sh ADP1 SOIN SOC ↵	<ul style="list-style-type: none"><li>◆ Run the SetComputerConf.sh program with the desired parameters.</li> <li>◆ In this exemple, the script installs the ADP in a SOC center.</li></ul>
--	--

---

Confirm the following installation ? (y/n)  computer type = WPT1  center type = SOIN  vlan = COR  carto = Indonesia  configuration = SITE	<ul style="list-style-type: none"><li>◆ Confirm the parameters before to start the installation.</li></ul>
---	--

y ↵

- 
- Every information messages of all the procedure steps are displayed on the screen while the system configuration is performed.
  - A message is displayed to indicate that the system configuration is finished:
- 

---

** Computer configuration setting of adp1  ** as ADP1 with SITE configuration  ** has stopped on Tue Jul 17 17:29:57 MEST 2007  ** Results are stored in Result_SetComputerConf-ADP1- SITE-17_07_2007-17:29:57.log	<ul style="list-style-type: none"><li>◆ Last message of the SetComputerConf.sh program.</li></ul>
---	---

---

---

[PROMPT_ADM] ./ ↵  Usage: ./sh <computer> <centerType> <vlan> [<carto> <conf>]	<ul style="list-style-type: none"><li>◆ Run the script without parameter to display details about the available options. There is one mandatory and 3 optional parameters which are:</li></ul>
 <computer> = ADP1    WPT1  WPO1    WPO2    WPO3    WPO4 - Mandatory	<ul style="list-style-type: none"><li>◆ The name of the computer (ADP1, WPT1, WPO1, WPO2, WPO3 or WPO4).</li></ul>
 <centerType> = ADIN (for ADOC Indonesian)  SOIN (for SOC Indonesian)	<ul style="list-style-type: none"><li>◆ The type of center, not mandatory (default is SOIN)</li></ul>

---

---

---

CRIN (for CRC Indonesian)

COIN (for Corasie3 CRC Indonesian)

---

<conf> = FACTORY || SITE - Not mandatory, default is SITE ♦ The configuration

---

<vlan> = SOC (for ADOC,

for SOC 1 to 4,

for CRC TKT, CBL, TPI, MER, SML, TIM)

COR (for CRC BIK)

♦ The vlan.

NOTE: the CRC of Biak does not use the same vlan.

Must be run by user root

#### 9.4.6.4.4 Restart the computer and check the system settings

- Reboot the computer.

---

---

[PROMPT\_ADM] *init 6* ↵

---

---

♦ Reboot the UNIX system.

- Check that the name of the desired computer is displayed on the login screen.

The computer is ready to be installed in operational position.

#### 9.4.6.4.5 Install the computer in operational position

Switch off the Sun SF V240.

☞ Refer to the Sun SF V240 switch off procedure in § 9.4.5.2.

- Install the Sun SF V240 in operational position and plug all the cables.

☞ Refer to Figure 44 to have details on the cabling of the different Sun SF V240 computers.

- Start the computer and log on as operational user.

☞ Refer to the Sun SF V240 switch on procedure in § 9.4.5.1.

Execute the update procedure from SUPERVISION window.

☞ Refer to the update procedure in § 10.3.



- Start the application using the SUPERVISION function running on WPT, and check that its state becomes "RUNNING".
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

**This is the end of the procedure to set the system parameters of a Sun V240**

#### 9.4.6.5 Sun SF V240 hardware configuration reset

The purpose of the following lines is to describe the procedure : Reset the hardware configuration of a Sun SF V240.

This procedure may be used before to install a new computer in the network (Sun SF V240 exchange) or in case of malfunction of one of the computer's device.

This procedure may be performed either if the computer is connected or not to the network, but the computer must be connected to all its external devices (screen, keyboard, mouse, speakers, DAT, MOS, ...) and these devices must be switched on.

This procedure is divided into 2 steps (plus one optional step):

- Start the computer in OBP mode.
- Boot the computer with -r option.
- Install the computer in operational position (optional).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to reset the hardware configuration of a Sun SF V240**

##### 9.4.6.5.1 Start the computer in OBP mode

- Start the computer in OBP mode.
  - ☞ Refer to § 9.4.5.5.

##### 9.4.6.5.2 Boot the computer with -r option

- Type the following command to boot the computer with hardware devices reconfiguration:

---

---

[OBP\_PROMPT] boot -r ↵

- ◆ Boot with hardware devices reconfiguration.
- 
- 

- During the boot sequence, the “Configuring /dev and /devices” message is displayed.
- At the end of the boot sequence, the login screen is displayed.

**This is the end of the procedure to reset the hardware configuration of a Sun SF V240**

#### 9.4.7 STANDARD TOOLS

- Screwdriver.
- Air blower.

#### 9.4.8 SPECIFIC TOOLS

- Anti-static kit (for handling static-sensitive materials safely).
- SKYKEEPER DVD Solaris Boot (DVD-ROM).
- USB disk of 8GB
- SKYKEEPER Software for Distriref (CD-ROM).

#### 9.4.9 MANUFACTURER DOCUMENTATION REFERENCE

SUN Fire V210 and V240 Servers - Administration Guide 816-4826-11

SUN Fire V210 and V240 Servers – Parts Replacement Manual 817-0743-1

## 9.5 IOP : PLINES8

### 9.5.1 SHORT DESCRIPTION

The PLines8 (Link Interface Node for External System) is designed to allow communication between the local network and up to eight serial links connected to Centre.

The hardware architecture and the software contents are built up in order to provide the management and the supervision of the external lines.

To perform these functions, the PLines8 uses a processor unit based on two 200 MHz MPC8250.

### 9.5.2 IOP PLINES8 COMPOSITION

#### 9.5.2.1 Front panel

The IOP front view includes) :

- (1) Set of LED,
- (2) Console port : not connected,
- (3) Keyboard,
- (4) LCD screen display,

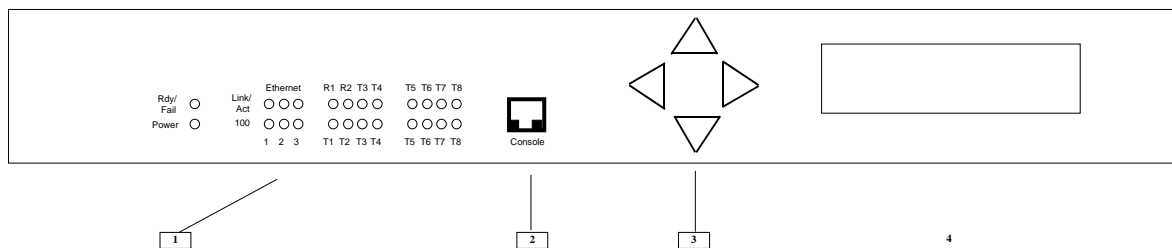


Figure 46 : PLines8 front panel

#### 9.5.2.2 Rear panel

The IOP rear view includes :

- (5) Serial ports,
- (6) Ethernet 10BT ports,
- (7) Power supply connector.

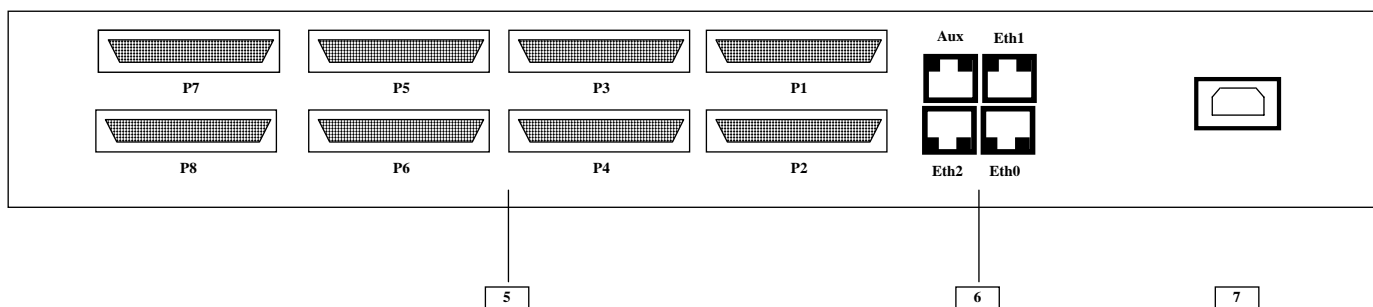


Figure 47 : PLines8 rear panel

#### IOP Connections details:

- 110v/220v AC: power supply connector,
- Eth0: Ethernet port connected to General LAN Switch (Ethernet 1 LED on the front panel),

Note: On the departed lines, the connexion from the port Eth0 to the General LAN Switch may pass throw BJ45/V35 converter, modem, ...

- Eth1: Ethernet port. Not connected,
- Eth2: Ethernet port. Not connected,
- Aux: not used, for a terminal,
- P1 to P8: Serial port. For connexions, refer to paragraph "External interface" of the appropriate centre.

### 9.5.3 PREVENTIVE MAINTENANCE

Not applicable.

### 9.5.4 CORRECTIVE MAINTENANCE

#### 9.5.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the PLines8 are the following :

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A1	Supervision
A2	Indicators
A3	Visual check
A5	SOLARIS 10 facilities

- A1 (Supervision) aid is provided by the SUPERVISION function running on WPT: check the status of the faulty PLines8, and check the historic of the past states of this LRU in the log-file.
- A2 (Indicators) aid is provided by the dual LEDs located on the front panel of the PLINES8 (Figure 46). The following table gives the meaning of the different dual LEDs:

State	Rdy/Fail	Red lit during the boot software test
Power supply state	Power	Green lit when the PLINES8 is inline
Ethernet 0	Ethernet Link/Act 0	Green lit when there is Ethernet traffic Yellow lit when there is collision
Status	100	Green lit when there is 100BT traffic
Ethernet 1	Ethernet Link/Act 1	Green lit when there is Ethernet traffic Yellow lit when there is collision
Status	100	Green lit when there is 100BT traffic
Ethernet 2	Ethernet Link/Act 2	Green lit when there is Ethernet traffic Yellow lit when there is collision
Status	100	Green lit when there is 100BT traffic
Serial port P1	R1 T1	Yellow lit when receiving data on P1 channel Green lit when transmitting on P1 channel
Serial port P2	R2 T2	Yellow lit when receiving data on P2 channel Green lit when transmitting on P2 channel
Serial port P3	R3 T3	Yellow lit when receiving data on P3 channel Green lit when transmitting on P3 channel
Serial port P4	R4 T4	Yellow lit when receiving data on P4 channel Green lit when transmitting on P4 channel
Serial port P5	R5 T5	Yellow lit when receiving data on P5 channel Green lit when transmitting on P5 channel
Serial port P6	R6 T6	Yellow lit when receiving data on P6 channel Green lit when transmitting on P6 channel
Serial port P7	R7 T7	Yellow lit when receiving data on P7 channel Green lit when transmitting on P7 channel

Serial port	R8	Yellow lit when receiving data on P8 channel
P8	T8	Green lit when transmitting on P8 channel

- A3 (visual check): check that all cables are well plugged on the faulty PLines8 side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.
- A4 (Integrated tests) aid is provided by the PLines8 off-line Acceptance test.
- A5 (UNIX/SOLARIS 10 facilities) aid is provided by
  - Solaris 10 Answerbook2 documentation installed on each SUN Computer.
  - UNIX/SOLARIS commands described in § 12

To exchange a PLines8, refer to § 9.5.5.2.

## 9.5.4.2 Common troubleshooting

### 9.5.4.2.1 The PLINES is FAILED on the supervision window

Execute the following operations and check on each step if the problem is solved :

- Check that the PLINES is switched on.
- Check that the PLINES Ethernet cable is correctly connected to port Eth0 of PLINES.
- Check that the PLINES Ethernet cable is correctly connected to the general LAN switch.
- Check that the IP address of the PLINES is good.
  - ☞ Refer to § 3.5.2 or § 3.6.2.
- Delete the "lin1" entry from the arp table of WPT.
- Exchange the PLINES.
  - ☞ Refer to § 9.5.5.2.

### 9.5.4.2.2 The links are FAILED on the supervision window

Execute the following operations and check on each step if the problem is solved :

- Check that the PLINES Serial connectors are correctly connected.
- Check in SPM\_OFFLINE, that the links are correctly configured :
  - ☞ Refer to § 9.5.2.2 for IOP connection details
- Perform the flashing of the PLINES with the centre configuration.

- ☞ Refer to § 9.5.6.1.2 for IOP software configuration.
- Exchange the PLINES.

## 9.5.5 ELEMENTARY PROCEDURES

### 9.5.5.1 Switch on / switch off the unit

- To switch ON the PLines8, plug the power supply cable on the rear panel of the unit (See § Figure 47).
  - When the PLines8 starts, it automatically runs its self-test (the self test does not run after pressing the reset button). During this time, the "Fail" LED is red lit.
  - When the self-test is passed, the PLines8 is inline. The "Fail" LED stops, and the "Power" LED is green lit.
  - When the self-test fails, the "Fail" LED remains red lit. Then try to restart the unit, or replace the IOP by the spare part.
- To switch OFF the PLines8, unplug the power supply cable on the rear panel of the unit (See Figure 47).
  - The "Power" LED stops.

### 9.5.5.2 IOP PLINES8 exchange

The purpose of the following lines is to describe the procedure : Exchange a PLines8.

This procedure is divided into 5 steps :

- Switch off the PLINES8 and disconnect the cables.
- Remove and replace the failed PLines8.
- Connect the cables to the new PLINES8 and switch ON the equipment.
- Set the new PLINES8 configuration
- Put the new PLINES8 in operational position.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a PLines8**

#### 9.5.5.2.1 Switch off the PLINES8 and Disconnect the cables

- Pull out the PLINES8 from its module in order to access to the rear panel.
- Unplug the power supply cable in order to switch off the PLines8.
  - ☞ Refer to the PLINES8 switch OFF procedure in § 9.5.5.1.
- Disconnect all the cables connected to the PLines8.
  - ☞ Refer to Figure 47.

#### 9.5.5.2.2 Remove and replace the failed PLINES8

- Replace the failed PLINES8 by the new one.

#### 9.5.5.2.3 Connect the cables to the new PLINES8 and switch ON the equipment

- Reconnect all the cables to the rear panel of the spare PLines8, finishing by the power supply cable (this will start the unit).
  - ☞ Refer to Figure 47.

#### 9.5.5.2.4 Set the new PLINES8 configuration

- Set IP address of the PLINES8
  - ☞ Refer to 9.5.6.2.
- Reset arp table on WPT.
  - ☞ Refer to 9.2.5.9.
- Load the software configuration in the new PLines8.
  - ☞ Refer to the PLINES8 Software configuration in § 9.5.6.1.2.

#### 9.5.5.2.5 Put the new PLINES8 in operational position

##### 9.5.5.2.5.1 In the centre building

- As the PLINES8 is switched on when the power supply cable is plugged in, check that the unit is correctly started before setting it in its module.
- Install the spare PLINES8 in operational position.



#### 9.5.5.2.5.2 In the radar cabin

- As the PLINES8 is switched on when the power supply cable is plugged in, check that the unit is correctly started before setting it in its module.
- Install the spare PLINES8 in operational position.
  - ☞ Refer to the xxxx to have more details on the procedure to install the PLINES8 in its module.

#### 9.5.5.2.5.3 In the civil radar building

- As the PLINES8 is switched on when the power supply cable is plugged in, check that the unit is correctly started before setting it in its module.
- Install the spare PLINES8 in operational position.

#### 9.5.5.2.6 Test the good functioning of the PLines8

- ☞ Refer to the PLINES8 good functioning test in § 9.5.5.3.

**This is the end of the procedure to exchange a PLINES8**

#### 9.5.5.3 IOP good functioning test

The PLINES8 must be plugged in operational position and switched on.

The General LAN Switch and the WPT must be plugged in operational position and switched on.

- Check that the state of sensor links becomes READY or OK in the SUPERVISION window.
- Check that the state of IOP becomes OK in the general LAN window.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 9.5.6 CONFIGURATION REFERENCES

#### 9.5.6.1 IOP PLINES8 set up

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### 9.5.6.1.1 Hardware configuration

All the settings must remain on the delivery default position described as “factory set” in the documentation.

### 9.5.6.1.2 Software configuration

The configuration files are on the WPT computer in the following directory:

`/jade/TOOLS/LINES_SUN`

There are 4 procedures to configure the 4 IOP locations:

- `load_IOP1_center.sh` to configure the IOP in the center building.
- `load_IOP2_civil_radar.sh` to configure the IOP in the civil radar building.
- `load_IOP3_BAE_radar_pc.sh` to configure the IOP used to control the BAE radar from the laptop.
- `load_IOP_master_radar.sh` to configure the IOP in the master radar palet.

**The procedure to set the original configuration of the IOP is the following:**

- If necessary, set the PLines8 IP address.
  - ☞ Refer to § 9.5.6.2.
- Check that the PLines8 is switched on and connected to the General LAN network (See Figure 47).
- Execute the following commands in a terminal window on WPT computer:

---

---

Click on the Terminal icon in the task bar	◆ Open a terminal window
<code>[PROMPT_OPE] cd /jade/TOOLS/LINES_SUN ↵</code>	◆ Change directory to the Lines8 configuration files directory
<code>[PROMPT_OPE] ./load_IOP1_centre.sh ↵</code>	◆ Execute the IOP software loading program.

---

---

List of centres:

- 1 - SOC HLM
- 2 - SOC MKR
- 3 - SOC MDN
- 4 - SOC BIK
- 5 - CRC SOCINDO
- 6 - CRC Corasie3
- 7 - ADOC

◆ Select the centre.

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8 - VCMDR

Select the centre: 1 ↵

---

List of loading points:

- 1 - operational point
- 2 - tool point

◆ Select the loading point:

Operational point: the IOP is set with its operational address (hostname=lin1)

Select the loading point: 1 ↵

Tool point: the IOP is set with the IOP maintenance address (hostname=linL)

---

\*\* IOP type : pLines  
\*\* IOP address : lin1  
\*\* Configuration : ocp\_CTR-SOCHLM.cfg

◆ A confirmation is requested before the execution of the IOP loading

\*\* Do you want to load ocp software  
in IOP with the displayed parameters  
? (y/n)

- 
- Every information messages of the load steps are displayed on the screen while the IOP configuration is performed.
  - A message is displayed to indicate that the load is finished (last message of the load\_ocp program):

---

```
returned code of send_and_wait = 0
      0 1 2 3 4 5 6 7 8 9 A B C D E F
      -----
00000000 56 34 2E 30 00 00 00 00 55 50 44 54 20 4F 4B 20   V4.0....UPDT OK
00000010 00 00 1A 84                                     ....
      -----
      0 1 2 3 4 5 6 7 8 9 A B C D E F
```

\*\* The IOP software configuration setting

\*\* has stopped on Tue Sep 7 12:37:24 GMT 2004

\*\* Results are stored in /jade/TOOLS/LINES\_SUN/Result\_load\_ocp\_centre-07\_09\_04-12:36:39.log

---

- Close the Xterm window on WPT:

---

[PROMPT\_OPE] *exit* ↵

- ◆ Exit command to close the Xterm window.
- 

- The IOP is now loaded with its new software and operational IP address. It is in operational state.
- Stop and restart the ADP application.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Check that the IOP is functioning correctly.
  - ☞ Refer to the PLINES8 good functioning test in § 9.5.5.3.

### 9.5.6.2 IP address setting

The IP address of the IOP is given in § 3.5.2 or § 3.6.2.

It is possible to set the IP address of a IOP directly from keyboard and LCD on its front panel.

There are two ways to enter the setting process:

- Switch OFF the IOP,
- Press and maintain the LEFT key,
- Switch ON the IOP,

or

- Press in the same time the LEFT and the RIGHT keys,
- Release the RIGHT key and maintain the LEFT key,

then :

- Release the LEFT key when the following message appears :

*Bootable Fcc?*

0

- Let 0 to select Eth0 as boot link (default configuration)
- Use the RIGHT key next times to scroll the different menus until :

*Client IP Address*

- Use the UP and DOWN keys to increase or decrease the first number of the IP address,
- Use the RIGHT key to go to the next number,
- Use the RIGHT key to scroll the different menus until :

*Client address mask*

- If necessary, use the UP and DOWN keys to increase or decrease the first number of the address mask, and use the right key to go to the next number, (default 255.255.255.0)

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- Use the RIGHT key to go to the next number,
- Use the RIGHT key to scroll the different menus until restart of the IOP:  
*Checking frq, ....*
- In fine, the message with Ethernet and IP address appears.
- Check that the IOP is functioning correctly.
  - ☞ Refer to the IOP good functioning test in § 9.5.5.3.

### **9.5.7 STANDARD TOOLS**

None.

### **9.5.8 SPECIFIC TOOLS**

- 2 Interface Concept Acceptance Test Kit (refer to Boot loader test user's manual.

None

### **9.5.9 MANUFACTURER DOCUMENTATION REFERENCE**

PLinesE4 and PLinesE8 Communication Server User's Guide V1.

## 9.6 SWI : SWITCH 16 PORT SUPERSTACK 3 BASELINE 10/100

### 9.6.1 SHORT DESCRIPTION

The Centre LAN (General Network) is conceived with a SuperStack 3 Baseline 10/100 Switch 16-Port. These Switch have 16 shielded RJ45 10/100 auto-negotiating ports half or full duplex ports which can be used to connect 10BASE-T (Ethernet), or 100BASE-TX (Fast Ethernet) devices. Each port supports automatic MDI/MDI-X detection.

The LAN supervision is provided by the SUPERVISION function running on WPT position.

### 9.6.2 SWITCH 16 PORT SUPERSTACK 3 BASELINE 10/100 COMPOSITION

#### 9.6.2.1 Switch 16 port SuperStack 3 baseline 10/100 front and rear panels

The Switch 16 port SuperStack 3 baseline 10/100 front panel is composed of (see Figure 48) :

- (1) 16 RJ45 10/100 ports.
- (2) Status LEDs, on the first row, show the state and speed status of the related port:
  - On : The link has been established.
  - Flashing : Packets are being received or transmitted on the port.
  - Off : The link pulse signal is not being received. Check that the attached device is powered on;
    - Check that the cable is correct type and is not faulty.
    - Check that the attached device is not faulty;
  - Green : A 100Mbps link pulse signal is received and the 100BASE-TX segment attached to the port is functional.
  - Yellow: A 10Mbps link pulse signal is received and the 10BASE-T segment attached to the port is functional
- (3) Duplex Status LEDs, on the second row, show the duplex status of the related ports:

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- Yellow : The port is operating in full-duplex mode.
- Off : The port is operating in half-duplex mode(4) Power LED, shows the power status of the switch:
- Green : The switch is powered on and ready for use.
- Off : The switch is not receiving power.(5) Self-adhesive pads.

The Switch 16 port SuperStack 3 baseline 10/100 rear panel is composed of (see Figure 48) :

- (6) Power supply

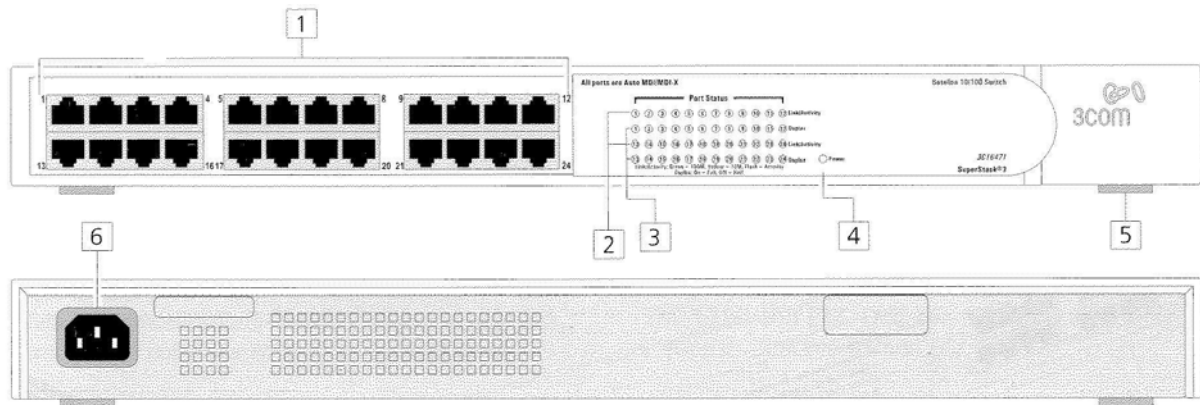


Figure 48 : Switch 16 port SuperStack 3 baseline 10/100 front and rear panels

### Connections details:

Only the power supply connector and RJ45 ports are connected.

The following description lists the LRU connected to the RJ45 ports of the Switch. Each LRU may be connected to any of the 16 ports of the switch.

- IOP,
- ADP,
- WPT,
- All WPO,
- Graphical printer,
- Time source .

### 9.6.3 PREVENTIVE MAINTENANCE

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Not applicable.

## 9.6.4 CORRECTIVE MAINTENANCE

### 9.6.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of Switch 16 port SuperStack 3 baseline 10/100 are the following :

A1	Supervision
A2	Indicators
A3	Visual check

- A1 (Supervision) aid is provided by the SUPERVISION function running on WPT: check the status of the LAN, and check the historic of the past states of these LRU in the log-file.
- A2 (Indicators) aid is provided by the LEDs located on the front panel of Switch 16 port SuperStack 3 baseline 10/100 (Figure 48). The role of the different LEDs is detailed in Figure 48 description.
- A3 (visual check): check that all cables are well plugged on the faulty Switch side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a Switch 16 port SuperStack 3 baseline 10/100, refer to the "Switch exchange" Procedure in § 9.6.5.2.

### 9.6.4.2 Common troubleshooting

#### 9.6.4.2.1 One LRU is failed on general LAN of supervision window

Execute the following operations and check on each step if the problem is solved :

- Check that the failed LRU is switched on.



- Check the connections of the failed LRU to the LAN switch.
- Connect the LRU to another port of the LAN switch.
- Reset the configuration of the LRU.
- Exchange the LRU.

#### 9.6.4.2.2 All LRU (except WPT) are failed on general LAN of supervision window

Execute the following operations and check on each step if the problem is solved :

- Check that the LAN switch is switched on.
- Check the WPT Ethernet cable.
- Check the connections of all LRU to the LAN switch.
- Exchange the LRU.

### 9.6.5 ELEMENTARY PROCEDURES

#### 9.6.5.1 Switch on / switch off the unit

- To switch ON the Switch 16 port SuperStack 3 baseline 10/100, plug the power supply cable on the rear panel of the unit (refer to Figure 48). A self-test is performed after power-up. The Power LED located on the front panel indicates the operational status of the unit (refer to Figure 48).
- To switch OFF the Switch 16 port SuperStack 3 baseline 10/100, unplug the power supply cable on the rear panel of the unit (refer to Figure 48).

#### 9.6.5.2 Switch exchange

The purpose of the following lines is to describe the procedure: Exchange a Switch.

This procedure is divided into 4 steps :

- Switch off the equipment and disconnect the cables.
- Remove and replace the failed Switch.
- Connect the cables to the new Switch and switch ON the equipment.
- Put the new Switch in operational position.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a Switch**

#### 9.6.5.2.1 Switch off the Switch and Disconnect the cables

- Extract the failed Switch from its module.
- Unplug the power supply cable in order to switch off the Switch.
  - ☞ Refer to the Switch switch OFF procedure in § 9.6.5.1
- Disconnect all the cables connected to the Switch.
  - ☞ Refer to Figure 48.

#### 9.6.5.2.2 Remove and replace the failed Switch

- Replace the failed switch by the new one.

#### 9.6.5.2.3 Connect the cables to the new Switch and switch ON the equipment

- Reconnect all the cables to the spare Switch, finishing by the power supply cable (this will start the unit).
  - ☞ Refer to Figure 48.

#### 9.6.5.2.4 Put the new Switch in operational position

- As the Switch is switched on when the power supply cable is plugged in, check that the unit is correctly started before setting it in its module.
- Put the new Switch in operational position.

#### 9.6.5.2.5 Test the good functioning of the Switch

- ☞ Refer to the Switch good functioning test in § 9.6.5.3.

**This is the end of the procedure to exchange a Switch**

### 9.6.5.3 Switch good functioning test

The Switch must be plugged in operational position and switched on.

The WPT must be plugged in operational position and switched on.

- Check that the state of General LAN is OK or DEG in the SUPERVISION window.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

### 9.6.6 CONFIGURATION REFERENCES

Not applicable.

### 9.6.7 STANDARD TOOLS

None.

### 9.6.8 SPECIFIC TOOLS

None.

### 9.6.9 MANUFACTURER DOCUMENTATION REFERENCE

3COM SuperStack 3 Baseline 10/100 Switch 16 port User guide DUA 1647-0AAA01

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## 9.7 LCD : SAMSUNG LCD 214T COLOUR MONITOR

### 9.7.1 SHORT DESCRIPTION

The SAMSUNG LCD214T colour monitor is a display terminal used on WPO, WPT positions to dialogue with the associated working position computer Sun.

The LCD214T colour monitor includes the following features :

- Screen wide: 21.3 inches (54.1 cm)
- Resolution : 1600 x 1200 at 60 Hz
- Input video signal : Analog RGB, DVI Digital link
- Input connectors : 15-Pin D-Sub, DVI-D
- Consumption : 63 W (Max)
- Controls: OSD (On Screen Display) type interactive menu with keyboard on front panel

### 9.7.2 SAMSUNG LCD214T COLOUR MONITOR COMPOSITION

The control panel of the SAMSUNG LCD214T colour monitor control panel includes (See Figure 49) :

- (1) Menu button: Opens the OSD.
- (2)(3) Up and Down buttons: These buttons allow you to adjust items in the menu.
- (2) Optimum mode button: The Monitor has four automatic picture settings ("Dynamic", "Standard", "Movie" and "Custom") that are preset at the factory. You can activate either Dynamic, Standard, Movie, or Custom. You can select "Custom" which automatically recalls your personalized picture settings.
  - 1) Dynamic: Select this mode to view a sharper image than in "Standard" mode.
  - 2) Standard: Select this mode when the surroundings are bright. This also provides a sharp image.
  - 3) Movie: Select this mode when the surroundings are dark. This will save power and reduce eye fatigue.
  - 4) Custom: Select this mode when you want to adjust the image according to your preferences.
- (3) Brightness button: Not available in DVI mode.

LCD : SAMSUNG LCD 214T colour monitor  
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- (4) Enter/Source button: Activates a highlighted menu item / Push the 'SOURCE', then selects the video signal while the OSD is off.
- (5) Auto button: Not available in DVI mode.
- (6) Pip button: Not available in Sun DVI mode.
- (7) Power button: Switches the screen ON/OFF.
- (8) Power indicator: This will enable you to see the overall power status of the system. For more information, see the PowerSaver section..

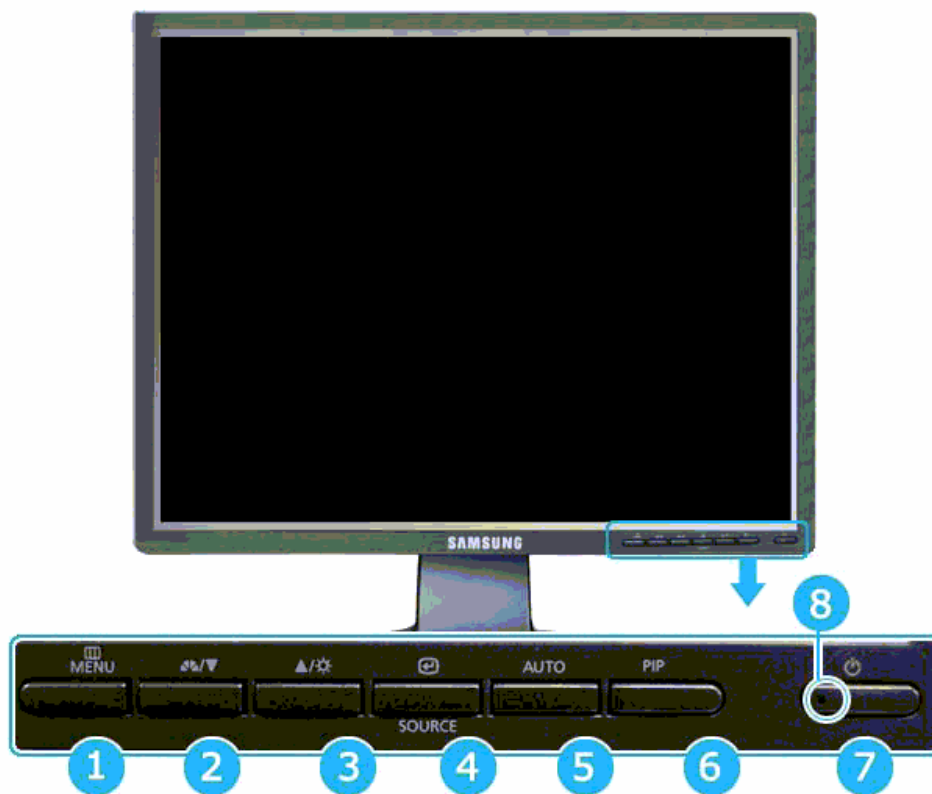


Figure 49 : SAMSUNG LCD214T Control panel

The connection panel of the SAMSUNG LCD214T colour monitor under a cover on the rear panel includes (See Figure 50) :

- (9) AC power connector: to plug the mains power cable.
- (10) DVI-D digital video input connector: to plug the DVI connector of the video cable from the working position computer,
- (11) D-Sub analogic video input connector: not connected,

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- (12) Power key : Switches the screen ON/OFF.

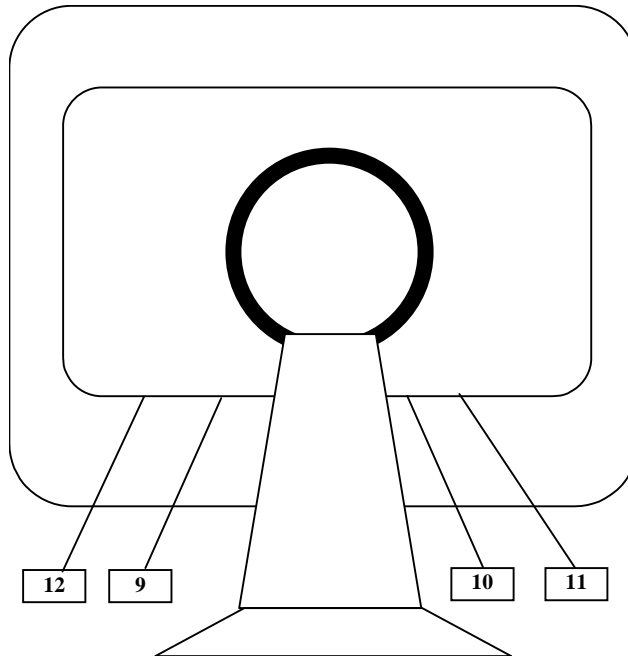


Figure 50: : SAMSUNG LCD214T connection panel

### **9.7.3 PREVENTIVE MAINTENANCE**

#### **9.7.3.1 Clean LCD screen**

Procedure:

Clean the screen of the colour monitor with a soft tissue.

Periodicity:

Every week.

Report:

Complete a preventive maintenance report (See § 11.1).

### **9.7.4 CORRECTIVE MAINTENANCE**

#### 9.7.4.1 Maintenance aids

The maintenance aid used for the troubleshooting of the LCD214T colour monitor is the following :

A3	Visual check
----	--------------

- A3 (visual check) :
  - If the screen is black, check the contrast and brightness controls. Refer to the description of the control panel on Figure 49.
  - Check that all cables are well plugged on the screen side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a LCD214T colour monitor, refer to the “LCD214T colour monitor exchange” Procedure in § 9.7.5.2.

#### 9.7.4.2 Common troubleshooting

##### 9.7.4.2.1 The screen is black.

☞ Refer to the computer troubleshooting procedure § 7.5.

#### 9.7.5 ELEMENTARY PROCEDURES

##### 9.7.5.1 Procedures to switch on / switch off the unit

- To switch on the LCD214T colour monitor, check that the power switch located on the rear panel of the screen is ON; then push-on the Power switch located on the front panel and watch for power indicator to turn on. Wait about 30 seconds for video display to appear with the incoming signal from Workstation Position Computer Sun. The power LED is then lit.
- To switch off the monitor, push-off the power switch located on the front panel; then push-off the power switch located on the rear panel of the screen.

##### 9.7.5.2 Colour monitor exchange



**LCD : SAMSUNG LCD 214T colour monitor**  
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The purpose of the following lines is to describe the procedure : Exchange a LCD 214T colour monitor.

This procedure is divided into 6 steps:

- Switch off the monitor.
- Disconnect the cables.
- Remove and replace the failed monitor.
- Reconnect the cables to the new monitor.
- Switch ON the unit.
- Test the good functioning of the monitor

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a LCD 214T colour monitor**

#### **9.7.5.2.1 Switch off the monitor**

☞ Refer to the switch OFF procedure of the LCD 214T colour monitor in § 9.7.5.1.

#### **9.7.5.2.2 Disconnect the cables**

- Disconnect all the cables connected to the monitor.  
☞ Refer to Figure 50.

#### **9.7.5.2.3 Remove and replace the failed monitor**

- Remove the failed monitor from its module.
- Install the new monitor in operational position.

#### **9.7.5.2.4 Reconnect the cables to the new monitor**

- Reconnect all the cables to the new monitor.  
☞ Refer to Figure 50.

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#### 9.7.5.2.5 Switch on the unit

- Switch on the new monitor.
  - ☞ Refer to the switch ON procedure of the LCD 214T colour monitor in § 9.7.5.1.

#### 9.7.5.2.6 Test the good functioning of the monitor

- ☞ Refer to the LCD 214T colour monitor good functioning test in § 9.7.5.3.

**This is the end of the procedure to exchange a monitor**

#### 9.7.5.3 Colour monitor good functioning test

The monitor must be plugged in operational position and switched on.

The computer connected to the monitor must be plugged in operational position and switched on.

- To check the good functioning of the monitor, check if the image coming from the computer is correctly displayed.

### 9.7.6 CONFIGURATION REFERENCE

For details on the OSD function controls, refer to the LCD214T User's Manual.

#### 9.7.6.1 Adjusting the OSD (On Screen Display)

To increase the working life of monitor, it is recommended to reduce the Brightness to 50%. To do that, execute the following action (refer to Figure 49):

- Press the "Brightness" button.
- Adjust the brightness with "Up" and "Down" buttons.
- Wait few seconds to quit the OSM brightness menu.

### 9.7.7 STANDARD TOOLS

None.

### 9.7.8 SPECIFIC TOOLS

None.

### 9.7.9 MANUFACTURER DOCUMENTATION REFERENCE

SAMSUNG SyncMaster 214T User's manual

BN59-00395V-01

**LCD : SAMSUNG LCD 214T colour monitor**  
**UNCLASSIFIED**

## 9.8 LCD : SAMSUNG LCD 213T COLOUR MONITOR

### 9.8.1 SHORT DESCRIPTION

The SAMSUNG LCD213T colour monitor is a display terminal used on WPO, WPT positions to dialogue with the associated working position computer Sun Blade 1500.

The LCD213T colour monitor includes the following features :

- Screen wide: 21.3 inches (54.1 cm)
- Resolution : 1600 x 1200 at 60 Hz
- Input video signal : Analog RGB, DVI Digital link
- Input connectors : 15-Pin D-Sub, DVI-D
- Consumption : 75 W (Max)
- Controls: OSD (On Screen Display) type interactive menu with keyboard on front panel

### 9.8.2 SAMSUNG LCD213T COLOUR MONITOR COMPOSITION

The control panel of the SAMSUNG LCD213T colour monitor control panel includes (See Figure 51) :

- (1) Auto key: Activates Auto Adjust.
- (2) Exit key: In a menu, exits the OSD controls or in a sub-menu, exits to the OSD main menu. When the OSD is off, alternates analog/digital inputs sources.
- (3) Adjust left and right keys: Moves the highlighted area to select one of the controls.
- (4) Menu key : Opens the OSD.
- (5) Power key : Switches the screen ON/OFF.
- (6) Power indicator: lit when the power is ON.

LCD : SAMSUNG LCD 213T colour monitor  
UNCLASSIFIED

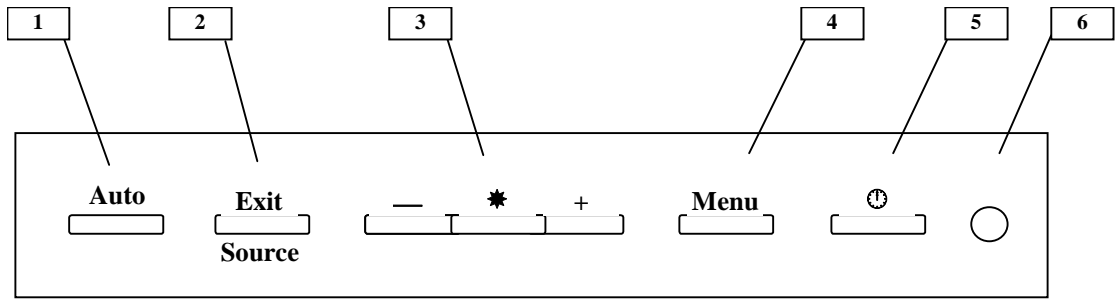


Figure 51 : SAMSUNG LCD213T Control panel

The connection panel of the SAMSUNG LCD213T colour monitor under a cover on the rear panel includes (See Figure 52) :

- (7) AC power connector: to plug the mains power cable.
- (8) DVI-D digital video input connector: to plug the DVI connector of the video cable from the working position computer,
- (9) D-Sub analogic video input connector: not connected,
- (10) Power key : Switches the screen ON/OFF.

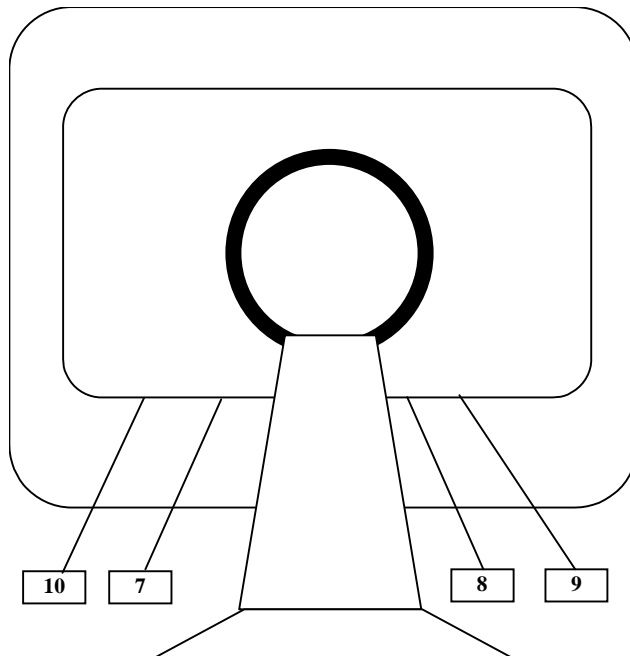


Figure 52: : SAMSUNG LCD213T connection panel

### 9.8.3 PREVENTIVE MAINTENANCE

#### 9.8.3.1 Clean LCD screen

Procedure:

Clean the screen of the colour monitor with a soft tissue.

Periodicity:

Every week.

Report:

Complete a preventive maintenance report (See § 11.1).

### 9.8.4 CORRECTIVE MAINTENANCE

#### 9.8.4.1 Maintenance aids

The maintenance aid used for the troubleshooting of the LCD213T colour monitor is the following :

A3	Visual check
----	--------------

- A3 (visual check) :
  - If the screen is black, check the contrast and brightness controls. Refer to the description of the control panel on Figure 51.
  - Check that all cables are well plugged on the screen side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a LCD213T colour monitor, refer to the “LCD213T colour monitor exchange” Procedure in § 9.8.5.2.

#### 9.8.4.2 Common troubleshooting

##### 9.8.4.2.1 The screen is black.

☞ Refer to the computer troubleshooting procedure § 7.5.

## 9.8.5 ELEMENTARY PROCEDURES

### 9.8.5.1 Procedures to switch on / switch off the unit

- To switch on the LCD213T colour monitor, check that the power switch located on the rear panel of the screen is ON; then push-on the Power switch located on the front panel and watch for power indicator to turn on. Wait about 30 seconds for video display to appear with the incoming signal from Workstation Position Computer Sun. The power LED is then lit.
- To switch off the monitor, push-off the power switch located on the front panel; then push-off the power switch located on the rear panel of the screen.

### 9.8.5.2 Colour monitor exchange

The purpose of the following lines is to describe the procedure : Exchange a LCD 213T colour monitor.

This procedure is divided into 6 steps :

- Switch off the monitor.
- Disconnect the cables.
- Remove and replace the failed monitor.
- Reconnect the cables to the new monitor.
- Switch ON the unit.
- Test the good functioning of the monitor

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a LCD 213T colour monitor**

#### 9.8.5.2.1 Switch off the monitor



**LCD : SAMSUNG LCD 213T colour monitor**  
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☞ Refer to the switch OFF procedure of the LCD 213T colour monitor in § 9.8.5.1.

**9.8.5.2.2 Disconnect the cables**

- Disconnect all the cables connected to the monitor.
  - ☞ Refer to Figure 52.

**9.8.5.2.3 Remove and replace the failed monitor**

- Remove the failed monitor from its module.
- Install the new monitor in operational position.

**9.8.5.2.4 Reconnect the cables to the new monitor**

- Reconnect all the cables to the new monitor.
  - ☞ Refer to Figure 52.

**9.8.5.2.5 Switch on the unit**

- Switch on the new monitor.
  - ☞ Refer to the switch ON procedure of the LCD 213T colour monitor in § 9.8.5.1.

**9.8.5.2.6 Test the good functioning of the monitor**

☞ Refer to the LCD 213T colour monitor good functioning test in § 9.8.5.3.

**This is the end of the procedure to exchange a monitor**

**9.8.5.3 Colour monitor good functioning test**

The monitor must be plugged in operational position and switched on.

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**LCD : SAMSUNG LCD 213T colour monitor**  
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The computer connected to the monitor must be plugged in operational position and switched on.

- To check the good functioning of the monitor, check if the image coming from the computer is correctly displayed.

## **9.8.6 CONFIGURATION REFERENCE**

For details on the OSD function controls, refer to the LCD213T User's Manual.

### **9.8.6.1 Adjusting the OSD (On Screen Display)**

To increase the working life of monitor, it is recommended to reduce the Brightness to 50%. To do that, execute the following action:

- Press on the "Menu" button.
- Select the "Brightness" menu by using [-] or [+] button and then push the "Menu" button.
- Adjust the brightness with [-] and [+] buttons.
- Quit the OSM menu by pressing on "Exit" button.

## **9.8.7 STANDARD TOOLS**

None.

## **9.8.8 SPECIFIC TOOLS**

None.

## **9.8.9 MANUFACTURER DOCUMENTATION REFERENCE**

SAMSUNG SyncMaster 213T User's manual

BN59-00361A-01

**LCD : SAMSUNG LCD 213T colour monitor**  
**UNCLASSIFIED**

## 9.9 LCD : NEC MULTISYNC LCD 2110 COLOUR MONITOR

### 9.9.1 SHORT DESCRIPTION

The NEC MultiSync LCD2110 colour monitor is a display terminal used on WPO, WPT and ADP positions to dialogue with the associated Sun Blade 2000.

The LCD2110 colour monitor includes the following features :

- Screen wide: 21.3 inches (54.1 cm)
- Resolution : 1600 x 1200 at 60 Hz
- Scanning Frequency : Horizontal = 24-82 kHz, Vertical = 56-76 Hz
- consumption : 90W
- Controls: OSM (On Screen Menu) type interactive menu with keyboard on front panel

### 9.9.2 NEC MULTISYNC LCD2110 COLOUR MONITOR COMPOSITION

The control panel of the NEC MultiSync LCD2110 colour monitor control panel includes (See Figure 53) :

- (1) Exit key: In a menu, exits the OSM controls or in a sub-menu, exits to the OSM main menu.
- (2) Control left and right arrow keys: Moves the highlighted area up/down to select one of the controls.
- (3) Control up and down arrow keys: In a menu, Moves the highlighted area left/right to select control menus, or in a sub-menu, moves the bar left/right to increase/decrease the adjustment.
- (4) Proceed key : Activates Auto Adjust and All Reset functions in a sub-menu.
- (5) Reset key : Rotate OSM between landscape and portrait modes, or resets the highlighted control to the factory setting.
- (5) Power LED: lit when the power is ON.
- (6) ON/OFF key.

NOTE : To access to OSM, press any 1, 2, 3, 4 key.

LCD : nec multisync LCD 2110 colour monitor  
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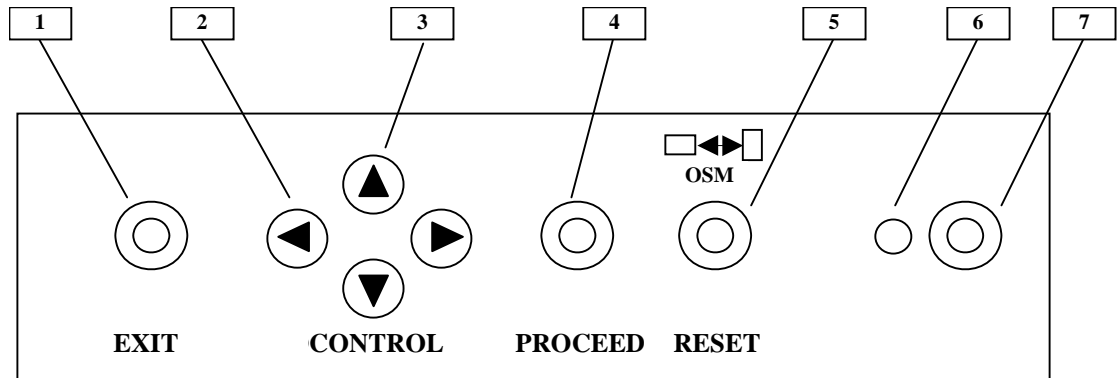


Figure 53 : NEC MultiSync LCD2110 Control panel

The connection panel of the NEC MultiSync LCD2110 colour monitor under a cover on the rear panel includes (See Figure 54) :

- (8) Red video input connector: to plug the red connector of the RGB video cable,
- (9) Green video input connector: to plug the green connector of the RGB video cable,
- (10) Blue video input connector: to plug the blue connector of the RGB video cable,
- (11) an Horizontal synchronising signal / composite synchronising signal connector: to plug the white connector of the RGB video cable,
- (12) a vertical synchronising signal connector: to plug the black connector of the RGB video cable,
- (13) AC power connector: to plug the mains power cable.

LCD : nec multisync LCD 2110 colour monitor  
UNCLASSIFIED

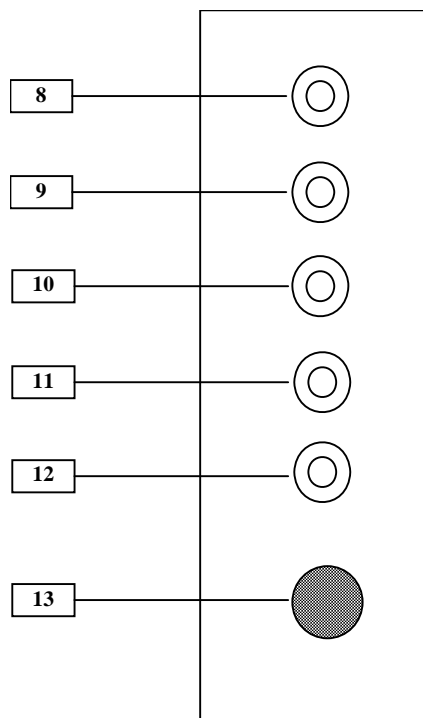


Figure 54: : NEC MultiSync LCD2110 connection panel

### 9.9.3 PREVENTIVE MAINTENANCE

#### 9.9.3.1 Clean LCD screen

Procedure:

Clean the screen of the LCD2110 colour monitor with a soft tissue.

Periodicity:

Every week.

Report:

Complete a preventive maintenance report (See § 11.1).

### 9.9.4 CORRECTIVE MAINTENANCE

#### 9.9.4.1 Maintenance aids

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The maintenance aid used for the troubleshooting of the LCD2110 colour monitor is the following:

A3	Visual check
----	--------------

- A3 (visual check) :
  - If the screen is black, check the contrast and brightness controls. Refer to the description of the front panel on **Figure 48**.
  - Check that all cables are well plugged on the screen side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a LCD2110 colour monitor, refer to the “LCD2110 colour monitor exchange” Procedure in § 9.9.5.2.

## 9.9.4.2 Common troubleshooting

### 9.9.4.2.1 The screen is black.

☞ Refer to the computer troubleshooting procedure § 7.5.

### 9.9.4.2.2 The OSM is displayed at 90°

The LCD 2110 monitor can be used in landscape or in portrait mode. To switch between these two modes, execute the following actions:

- Press on the “Reset / OSM button” to display the OSM.
- Press on the “Exit” button
- Press again on the “Reset / OSM button” to display the OSM which can be displayed in the other mode.

## 9.9.5 ELEMENTARY PROCEDURES

### 9.9.5.1 Procedures to switch on / switch off the unit

- To switch on the LCD2110 colour monitor, push-on the Power switch located on the front panel and watch for power indicator to turn on. Wait about 30 seconds for video display to appear with the incoming signal from Sun Blade 2000. The power LED is then lit.
- To switch off the monitor, push-off the power switch.

### 9.9.5.2 Colour monitor exchange

The purpose of the following lines is to describe the procedure : Exchange a LCD 2110 colour monitor.

This procedure is divided into 6 steps :

- Switch off the monitor.
- Disconnect the cables.
- Remove and replace the failed monitor.
- Reconnect the cables to the new monitor.
- Switch ON the unit.
- Test the good functioning of the monitor

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a LCD 2110 colour monitor**

#### 9.9.5.2.1 Switch off the monitor

☞ Refer to the switch OFF procedure of the LCD 2110 colour monitor in § 9.8.5.1.

#### 9.9.5.2.2 Disconnect the cables

- Disconnect all the cables connected to the monitor.  
☞ Refer to Figure 52.

#### 9.9.5.2.3 Remove and replace the failed monitor



- Remove the failed monitor from its module.
- Install the new monitor in operational position.

#### 9.9.5.2.4 Reconnect the cables to the new monitor

- Reconnect all the cables to the new monitor.
  - ☞ Refer to Figure 52.

#### 9.9.5.2.5 Switch on the unit

- Switch on the new monitor.
  - ☞ Refer to the switch ON procedure of the LCD 2110 colour monitor in § 9.8.5.1.

#### 9.9.5.2.6 Test the good functioning of the monitor

- ☞ Refer to the LCD 2110 colour monitor good functioning test in § 9.8.5.3.

**This is the end of the procedure to exchange a monitor**

#### 9.9.5.3 Colour monitor good functioning test

The monitor must be plugged in operational position and switched on.

The computer connected to the monitor must be plugged in operational position and switched on.

- To check the good functioning of the monitor, check if the image coming from the computer is correctly displayed.

#### 9.9.6 CONFIGURATION REFERENCE

For details on the OSM function controls, refer to the "NEC MultiSync LCD2110 User's Manual", on p.E-14: OSM controls (Doc. Ref. [9]).

### 9.9.6.1 Adjusting the OSD (On Screen Display)

To increase the working life of monitor, it is recommended to reduce the Brightness to 50%. To do that, execute the following action (refer to Figure 53):

- Press on the "Exit" button to display the OSM menu.
- Select the "brightness level" with control buttons ("UP" and "DOWN").
- Adjust the brightness with control buttons ("LEFT" and "RIGHT").
- Wait few seconds to quit the OSM menu.

### 9.9.7 STANDARD TOOLS

None.

### 9.9.8 SPECIFIC TOOLS

None.

### 9.9.9 MANUFACTURER DOCUMENTATION REFERENCE

REFERENCE	DOCUMENTATION
LA-2141 JMW	NEC MultiSync LCD2110 User's Manual

LCD : nec multisync LCD 2110 colour monitor  
UNCLASSIFIED

## 9.10 LCD24 : HP LP2475W COLOUR MONITOR

### 9.10.1 SHORT DESCRIPTION

The HP LP2475W colour monitor is a display terminal used on WPO, WPS, WPCC and WPT working positions to dialogue with the associated computers.

The HP LP2475W colour monitor includes the following features :

- Screen wide: 24 inches
- Resolution : 1920 x 1200 at 60 Hz (native)
- Scanning Frequency : Horizontal = 30-94 kHz, Vertical = 48-85 Hz
- consumption : 75W typical, 120W maximum
- Controls: OSM (On Screen Menu) type interactive menu with keyboard on front panel
- Input signal : DVI-I (x2)

### 9.10.2 HP LP2475W COLOUR MONITOR COMPOSITION

The control panel of the HP LP2475W colour monitor includes (See Figure 55) :

- (1) Input / Scan : Scans all video inputs for valid signals.
- (2) Input / Quick Select : Displays valid video input signals for quick selection.
- (3) Menu : Opens, selects or exits the OSD menu.
- (4) -(Minus) / Auto :
  - Navigates backward through the OSD menu and decreases adjustment levels.
  - When the OSD menu is inactive, activates the auto adjustment feature to optimize the screen image.
- (5) +(Plus) / Reset :
  - Navigates forward through the OSD menu and increases adjustment levels.
  - When the OSD menu is inactive, resets the monitor settings to factory default settings.
- (6) PIP / POP : Turns Picture-In-Picture or Picture-Outside-Picture on or off.
- (7) Power LED :

**LCD24 : HP LP2475W colour monitor**  
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- Fully powered = Green.
- Sleep mode = Amber.
- Sleep Timer mode = Flashing Amber.
- (8) Power : Turns the monitor on or off.

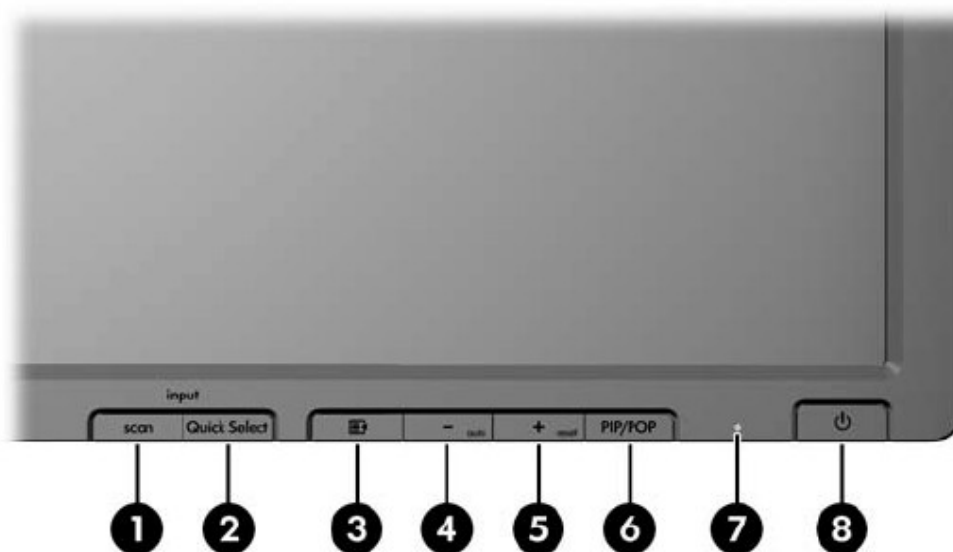


Figure 55 : HP LP2475W Control panel

The connection panel of the HP LP2475W colour monitor on the rear panel includes (See Figure 56) :

- (1) Cable Lock Provision : Provides slot for use with cable security locks.
- (2) Master Power Switch : Turns off all power to the monitor.
- (3) AC Power Connector : Connects the AC power cord to the monitor.
- (4) DisplayPort Connector : Connects the DisplayPort signal cable to the monitor.
- (5) HDMI Connector : Connects the HDMI signal cable to the monitor.
- (6) DVI-I Connectors : Connect the DVI to VGA signal cable or DVI to DVI signal cable to the monitor.
- (7) SPDIF Audio Connector : Connects an audio cable from a digital audio input on an external receiver or amplifier to the monitor.
- (8) S-Video Connector : Connects an S-Video signal cable to the monitor.
- (9) Composite Connector : Connects a Composite signal cable to the monitor.

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- (10) Component Connectors : Connect Component signal cables to the monitor.
- (11) USB Upstream Connector : Connects the monitor USB hub cable to a host USB port/hub.
- (12) USB Downstream Connectors : Connect optional USB devices to the monitor.
- (13) USB Downstream Connectors (side panel) : Connect optional USB devices to the monitor.



Figure 56 : HP LP2475W connection panel

### 9.10.3 PREVENTIVE MAINTENANCE

#### 9.10.3.1 Clean LCD screen

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Procedure:

Clean the screen of the HP LP2475W colour monitor with a soft tissue.

Periodicity:

Every week.

Report:

Complete a preventive maintenance report (See § 11.1).

## 9.10.4 CORRECTIVE MAINTENANCE

### 9.10.4.1 Maintenance aids

The maintenance aid used for the troubleshooting of the HP LP2475W colour monitor is the following:

A3	Visual check
----	--------------

- A3 (visual check) :
  - If the screen is black, check the contrast and brightness controls. Refer to the description of the front panel on Figure 55.
  - Check that all cables are well plugged on the screen side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a HP LP2475W colour monitor, refer to the “HP LP2475W colour monitor exchange” Procedure in § 9.10.5.2.

### 9.10.4.2 Common troubleshooting

#### 9.10.4.2.1 The screen is black.

☞ Refer to the computer troubleshooting procedure § 7.5.

#### 9.10.4.2.2 The OSD is displayed at 90°

The HP LP2475W monitor can be used in landscape or in portrait mode. To switch between these two modes, execute the following actions:

- Press on the "Reset / OSM button" to display the OSM.
- Press on the "Exit" button
- Press again on the "Reset / OSM button" to display the OSM which can be displayed in the other mode.

## 9.10.5 ELEMENTARY PROCEDURES

### 9.10.5.1 Procedures to switch on / switch off the unit

- To switch on the HP LP2475W colour monitor, push-on the Master Power Switch located on the rear panel and then the Power Switch located on the front panel and watch for power indicator to turn on (green). Wait about 30 seconds for video display to appear with the incoming signal from the workstation. The power LED is then lit.
- To switch off the monitor, push-off the Power Switch located on the front panel and then the Master Power Switch located on the rear panel.

### 9.10.5.2 Colour monitor exchange

The purpose of the following lines is to describe the procedure : Exchange a HP LP2475W colour monitor.

This procedure is divided into 7 steps :

- Switch off the monitor.
- Disconnect the cables.
- Remove and replace the failed monitor.
- Reconnect the cables to the new monitor.
- Switch on the unit.
- Adjust the brightness
- Test the good functioning of the monitor

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a HP LP2475W colour monitor**



#### 9.10.5.2.1 Switch off the monitor

☞ Refer to § 9.10.5.1.

#### 9.10.5.2.2 Disconnect the cables

- Disconnect all the cables connected to the monitor.  
☞ Refer to Figure 56.

#### 9.10.5.2.3 Remove and replace the failed monitor

- Remove the failed monitor from its module.
- Install the new monitor in operational position.

#### 9.10.5.2.4 Reconnect the cables to the new monitor

- Reconnect all the cables to the new monitor.  
☞ Refer to Figure 56.

#### 9.10.5.2.5 Switch on the unit

- Switch on the new monitor.  
☞ Refer to § 9.10.5.1.

#### 9.10.5.2.6 Adjust the brightness

- Adjust the brightness.  
☞ Refer to § 9.10.6.1.

#### 9.10.5.2.7 Test the good functioning of the monitor

☞ Refer to the HP LP2475W colour monitor good functioning test in § 9.10.5.3.

**This is the end of the procedure to exchange a monitor**

### 9.10.5.3 Colour monitor good functioning test

The monitor must be plugged in operational position and switched on.

The computer connected to the monitor must be plugged in operational position and switched on.

- To check the good functioning of the monitor, check if the image coming from the computer is correctly displayed.

### 9.10.6 CONFIGURATION REFERENCE

#### 9.10.6.1 Adjusting the Brightness with the OSD (On Screen Display)

For details on the OSD function controls, refer to the " Screen 24 HP LP2475w User Guide ".

To increase the working life of monitor, it is recommended to reduce the Brightness to 50%. To do that, execute the following actions

- Press the **Menu** button on the monitor front panel (refer to Figure 55) to display the OSD Menu (see Figure 57).



Figure 57 : OSD main menu windows

- To navigate through the OSD Menu, press the **+** (**Plus**) button on the monitor's front panel to scroll up, or the **-** (**Minus**) button to scroll in reverse.
- Select the "Brightness level" with control buttons: to select an item from the OSD Menu, use the **+** or **-** buttons to scroll to and **highlight** your selection, then press the **Menu** button to select that function.
- Adjust the Brightness using the **+** or **-** buttons on the front panel to adjust the scale.

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· After adjusting the function, select **Save and Return**, or **Cancel** if you don't want to save the setting, then select **Exit** from the Main Menu.

**Note:** If the buttons remain untouched for 10 seconds while displaying a menu, new adjustments will be discarded and the settings will revert to previous settings and exit the menu.

### 9.10.7 STANDARD TOOLS

None.

### 9.10.8 SPECIFIC TOOLS

None.

### 9.10.9 MANUFACTURER DOCUMENTATION REFERENCE

Screen 24 HP LP2475w Quick Spec

Screen 24 HP LP2475w User Guide

LCD24 : HP LP2475W colour monitor  
UNCLASSIFIED

## 9.11 SPK : LOGITECH X-140 SPEAKERS

### 9.11.1 SHORT DESCRIPTION

Logitech X-140 speakers is a powerful 2-piece speaker solution to enhance the quality of your computer audio performance.

The Logitech X-140 speakers include the following features :

- Output power: 2 x 2.5W RMS
- Frequency response: 80 Hz to 18 kHz
- Controls: volume and tone
- Headphone connector

### 9.11.2 LOGITECH SPEAKERS COMPOSITION

#### 9.11.2.1 Front panels

The Logitech speakers front panel (right channel speaker) includes (See Figure 62) :

- (1) Power and Volume control: Turn the power switch clockwise to turn on the speakers. Then use this control to set the volume level. Turn it clockwise to increase the volume, and counterclockwise to reduce it or power off speakers.
- (2) Headphone jack: Use this jack to connect stereo headphones for monitoring. No sound is output from the speakers or the output (Adj. Vol.) jack when headphones are connected.
- (3) Power indicator: Remain lit while the power is on.
- (4) input jack: Not used
- (5) Tone control

SPK : LOGITECH X-140 speakers  
UNCLASSIFIED

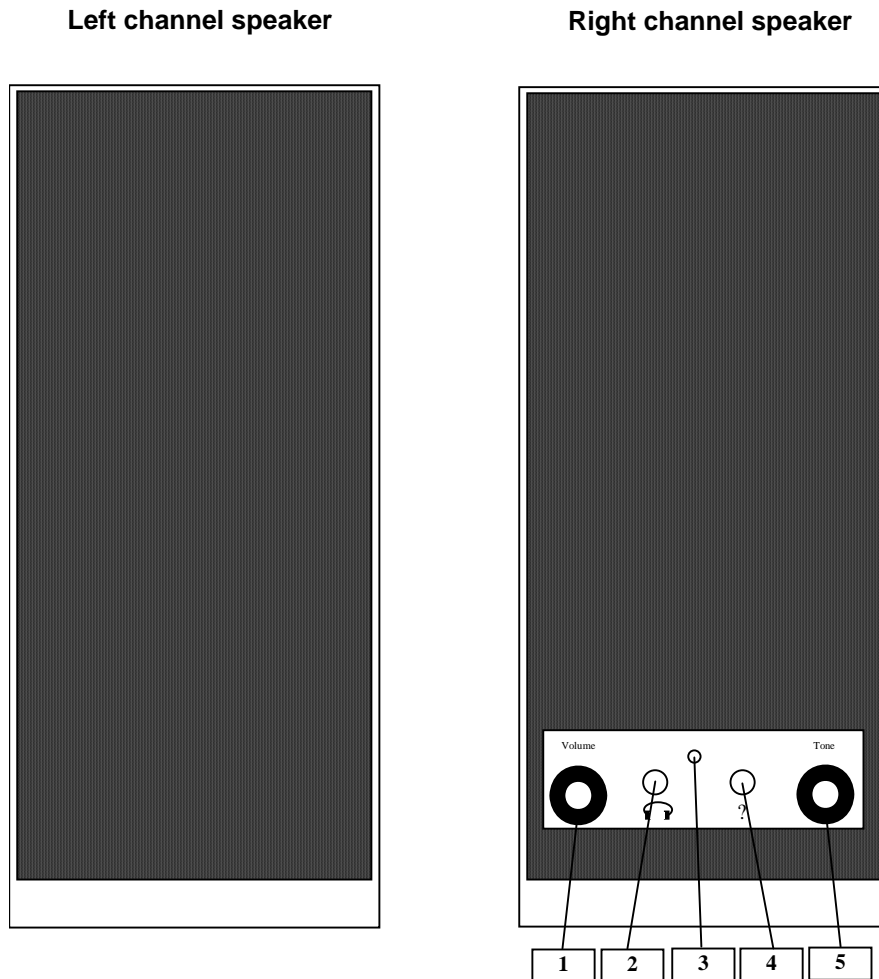


Figure 58 : Logitech X-140 speakers front panels

### 9.11.2.2 Rear panels

The JBL speakers rear panel (right channel speaker) includes (See **Figure 63**):

- (6) audio cable: connected to WPO.
- (7) power and audio cable between the 2 speakers.
- (8) power cord.

The Logitech X-140 speakers rear panel (left channel speaker) includes connection to right speaker (See Figure 59).

SPK : LOGITECH X-140 speakers  
UNCLASSIFIED

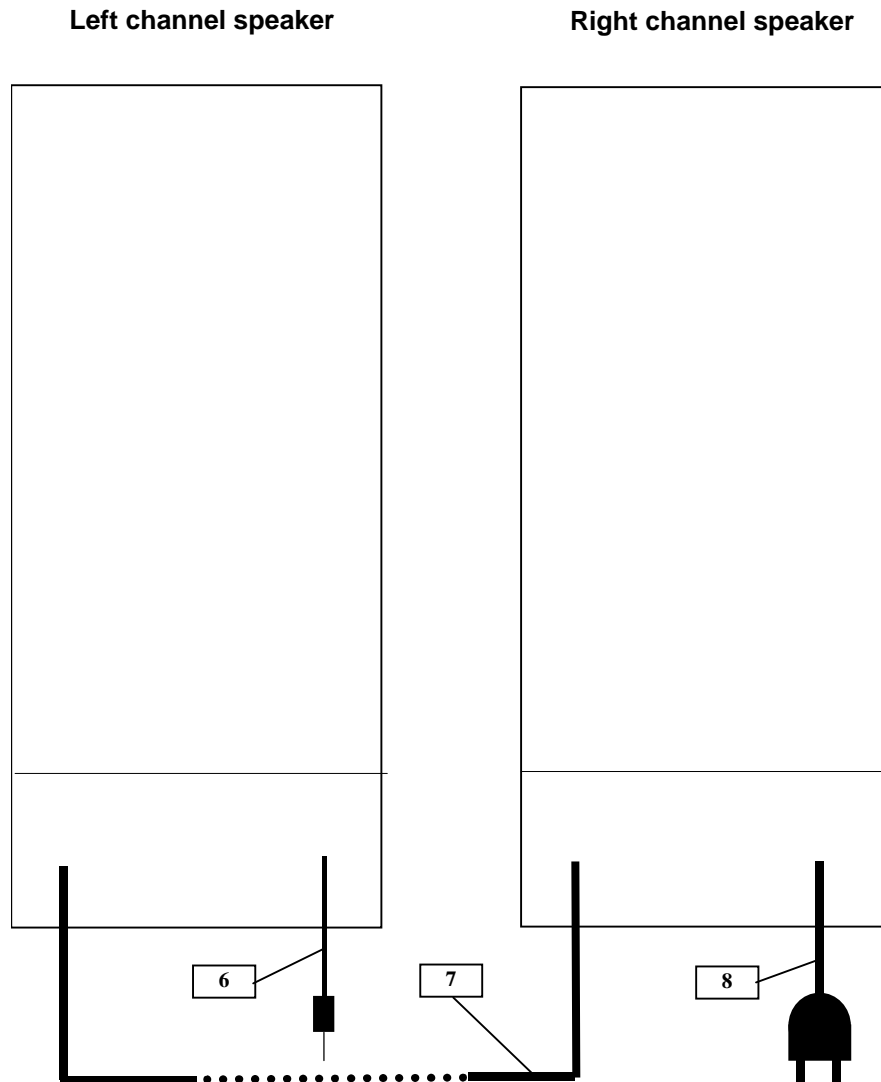


Figure 59 : Logitech X-140 speakers rear panels

**9.11.3 PREVENTIVE MAINTENANCE**

Not applicable.

**9.11.4 CORRECTIVE MAINTENANCE**

**SPK : LOGITECH X-140 speakers**  
**UNCLASSIFIED**

#### 9.11.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the JBL speakers are the following:

A2	Indicators
A3	Visual check

- A2 (Indicators) aid: Refer to the front panel LED Figure 58.
- A3 (visual check): check that all cables are well plugged on the Speakers side, as well as on the others LRU side. Refer to the Figure 59.

To exchange Logitech X-140 speakers, refer to the "Logitech X-140 Speakers exchange" Procedure in § 9.11.5.2.

#### 9.11.4.2 Common troubleshooting

##### 9.11.4.2.1 No sound is emitted by the speakers

Execute the following operations and check on each step if the problem is solved :

- Check that the speakers are switched on and that the volume level is loud enough.
- Check that the speakers are plugged to the computer.
- Open an Xterm window and run the command "sdaudiocontrol". Check that the output volume level of the computer is loud enough. Check that the "Line Out" output source is selected.
- Reset computer hardware configuration (refer to § 9.2.6.4).
- Reset computer software configuration (refer to § 9.2.6.3).
- Exchange the speakers (refer to § 9.11.5.2).
- Re-install the whole SKYKEEPER software on the computer (refer to § 10.7.3).
- Exchange computer (refer to § 9.2.5.7).

#### 9.11.5 ELEMENTARY PROCEDURES

##### 9.11.5.1 Switch on / switch off the unit

THALES RAYTHEON SYSTEMS FAHF1 61 118 698 - 194 C A4 320/575



**SPK : LOGITECH X-140 speakers**  
**UNCLASSIFIED**

- To switch ON the Logitech X-140 speakers, turn clockwise the Volume control located on the front panel of the unit (see Figure 58). The power indicator comes on.
- To switch OFF the Logitech X-140 speakers, turn counter clockwise the Volume control located on the front panel of the unit (see Figure 58). The power indicator comes off.

### **9.11.5.2 Speakers exchange**

The purpose of the following lines is to describe the procedure : Exchange a speakers pair.

This procedure is divided into 4 steps.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

<b>This is the beginning of the procedure to exchange a speakers pair</b>
---

#### **9.11.5.2.1 Switch off the speakers and Disconnect the cables**

- Switch OFF the Speakers.
  - ☞ Refer to the switch OFF procedure in § 9.11.5.1.
- Disconnect all the cables connected to the Speakers.
  - ☞ Refer to Figure 59.

#### **9.11.5.2.2 Remove and replace the failed Speakers**

- Remove the failed Speakers from their module.
- Install the new Speakers in operational position.

#### **9.11.5.2.3 Reconnect the cables to the new Speakers and switch ON the equipment**

- Reconnect all the cables to the rear panel of the new Speakers.
  - ☞ Refer to Figure 59.
- Switch ON the Speakers.

- ☞ Refer to the switch ON procedure in § 9.11.5.1.

#### 9.11.5.2.4 Test the good functioning of the speakers

- ☞ Refer to the speakers good functioning test in § 9.11.5.2.4.

**This is the end of the procedure to exchange a Speakers pair**

#### 9.11.5.3 Speakers good functioning test

The speakers must be plugged in operational position and switched on.

All material connected to the speakers must be plugged in operational position and switched on.

- Log on the WPO connected to the speakers as operational user and execute the following commands:

Click on the Terminal icon in the task bar of WPO	◆	Open a terminal window.
[PROMPT_OPE] <i>sdtaudio</i> <i>/jade/REF/MMI/RUNTIME/beep.au</i> ↵	◆	Send the alarm audio file to the audio device.
Click on the PLAY button.	◆	The alarm sound is emitted through the speakers.
Click on the Terminal icon in the task bar of WPO	◆	Open a terminal window.
[PROMPT_OPE] exit ↵	◆	Close the terminal window.

- The speakers are functioning correctly.

#### 9.11.6 CONFIGURATION REFERENCES

Not applicable

#### 9.11.7 STANDARD TOOLS

None.

#### 9.11.8 SPECIFIC TOOLS

None.

#### 9.11.9 MANUFACTURER DOCUMENTATION REFERENCE

None.

**SPK : LOGITECH X-140 speakers**  
**UNCLASSIFIED**

## **9.12 SPK : SBS270 SPEAKERS**

### **9.12.1 SHORT DESCRIPTION**

Creative Sound Blaster SBS270 is a powerful 2-piece speaker solution to enhance the quality of your computer audio performance.

The SBS270 speakers include the following features :

- Output power: 5W RMS per channel
- Frequency response: 110 Hz to 20 kHz
- Controls: volume and tone

### **9.12.2 SBS270 SPEAKERS COMPOSITION**

#### **9.12.2.1 Front panels**

The SBS270 speakers front panel (right channel speaker) includes (See Figure 62) :

- (1) Power indicator: Remain lit while the power is on
- (2) Power and Volume control: Turn the power switch clockwise to turn on the speakers. Then use this control to set the volume level. Turn it clockwise to increase the volume, and counterclockwise to reduce it or power off speakers.
- (3) Headphone and microphone jacks: Use these jacks to connect stereo headphones for monitoring and a microphone. No sound is output from the speakers or the output (Adj. Vol.) jack when headphones are connected.
- (4) Tone control: This control allows frequency boost and cut up to  $\pm 7$  dB at 10 kHz. This tends to emphasise vocals, providing a warmer intimate sound. Turn it clockwise to boost, and counterclockwise to cut.

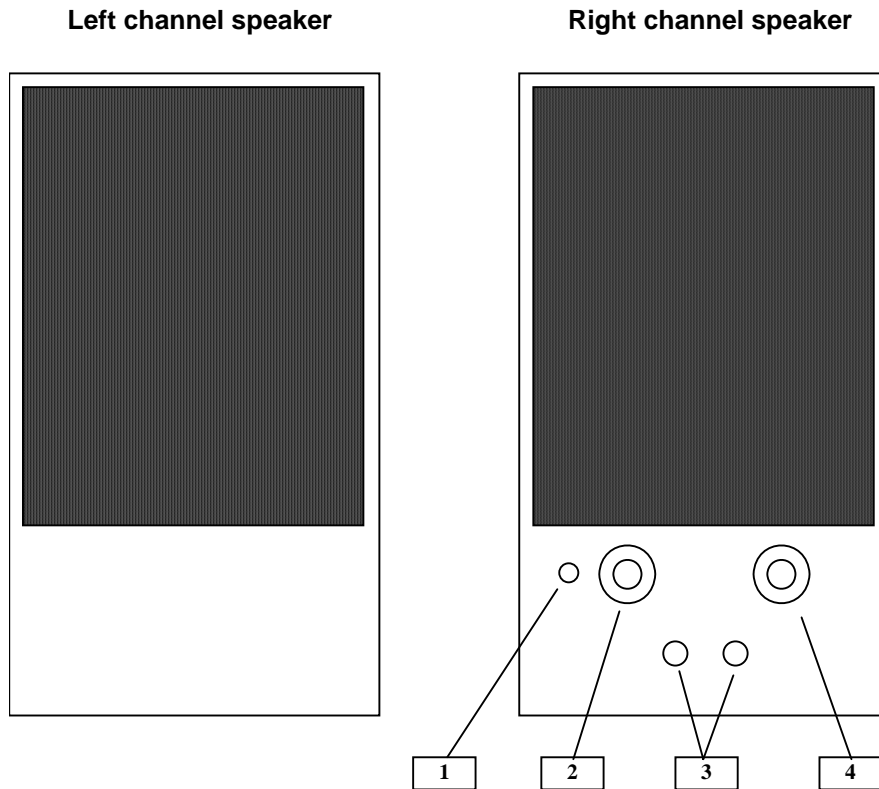


Figure 60 : SBS270 speakers front panels

### 9.12.2.2 Rear panels

The SBS270 speakers rear panel (right channel speaker) includes (See **Figure 63**):

- (5) DC 12V: To connect the supplied AC adapter.
- (6) Input red to microphone: 3.5 mm jack connections to input signals to the speakers from microphone. Not connected.
- (7) Input green to computer: 3.5 mm jack connections to input signals to the speakers. Connected to WPO.

The SBS270 speakers rear panel (left channel speaker) includes connection to right speaker (See Figure 63).

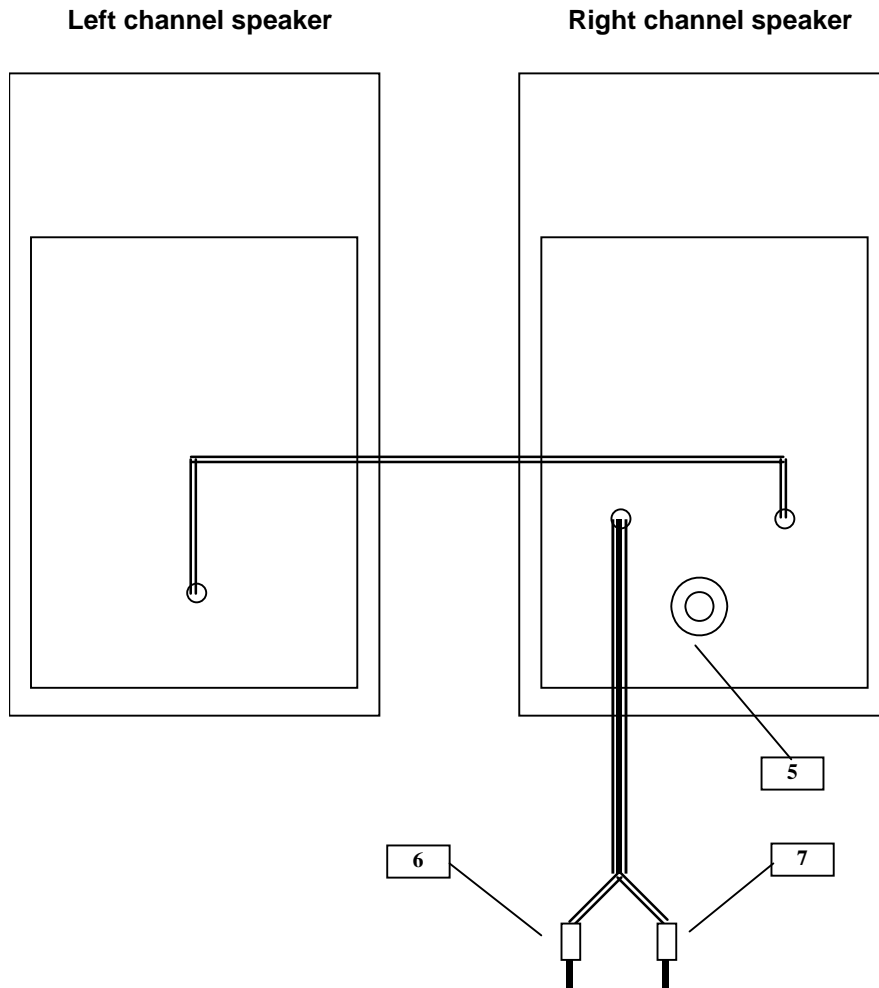


Figure 61 : SBS270 speakers rear panels

### 9.12.3 PREVENTIVE MAINTENANCE

Not applicable.

### 9.12.4 CORRECTIVE MAINTENANCE

#### 9.12.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the SBS270 speakers are the following :

THALES RAYTHEON SYSTEMS FAHF1 61 118 698 - 194 C A4 327/575

A2	Indicators
A3	Visual check

- A2 (Indicators) aid: Refer to the front panel LED **Figure 62**.
- A3 (visual check): check that all cables are well plugged on the Speakers side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange SBS270 speakers, refer to the "SBS270 Speakers exchange" Procedure in § 9.13.5.2.

#### **9.12.4.2 Common troubleshooting**

##### **9.12.4.2.1 No sound is emitted by the speakers**

Execute the following operations and check on each step if the problem is solved :

- Check that the speakers are switched on and that the volume level is loud enough.
- Check that the speakers are plugged to the computer.
- Open an Xterm window and run the command "sdtudiocontrol". Check that the output volume level of the computer is loud enough. Check that the "Line Out" output source is selected.
- Reset computer hardware configuration (refer to § 9.2.6.4).
- Reset computer software configuration (refer to § 9.2.6.3).
- Exchange the speakers (refer to § 9.11.5.2).
- Re-install the whole SKYKEEPER software on the computer (refer to § 10.7.3).
- Exchange computer (refer to § 9.2.5.7).

#### **9.12.5 ELEMENTARY PROCEDURES**

##### **9.12.5.1 Procedures to switch on / switch off the unit**



- To switch ON the SBS270 speakers, turn clockwise the Volume control located on the front panel of the unit (Figure 62). The power indicator comes on.
- To switch OFF the YST-M8 speakers, turn counterclockwise the Volume control located on the front panel of the unit (Figure 62). The power indicator comes off.

### 9.12.5.2 Speakers exchange

The purpose of the following lines is to describe the procedure : Exchange a speakers pair.

This procedure is divided into 4 steps :

- Switch off the Speakers and disconnect the cables.
- Remove and replace the failed speakers.
- Reconnect the cables to the new speakers and switch ON the equipment.
- Put the new speakers in operational position.
- Test the good functioning of the speakers.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a speakers pair**

#### 9.12.5.2.1 Switch off the speakers and Disconnect the cables

- Switch OFF the Speakers.
  - ☞ Refer to the switch OFF procedure in § 9.13.5.1
- Disconnect all the cables connected to the Speakers.
  - ☞ Refer to Figure 63.

#### 9.12.5.2.2 Remove and replace the failed Speakers

- Remove the failed Speakers from their module.
- Install the new Speakers in operational position.

#### 9.12.5.2.3 Reconnect the cables to the new Speakers and switch ON the equipment

- Reconnect all the cables to the rear panel of the new Speakers.
  - ☞ Refer to Figure 63.
- Switch ON the Speakers.
  - ☞ Refer to the switch ON procedure in § 9.13.5.1

#### 9.12.5.2.4 Test the good functioning of the speakers

- ☞ Refer to the speakers good functioning test in § 9.13.5.3.

**This is the end of the procedure to exchange a Speakers pair**

#### 9.12.5.3 Speakers good functioning test

The speakers must be plugged in operational position and switched on.

All material connected to the speakers must be plugged in operational position and switched on.

- Log on the WPO connected to the speakers as operational user and execute the following commands:

---

---

Click on the Terminal icon in the task bar of WPO     ♦     Open a terminal window.

---

[PROMPT\_OPE] cat /jade/REF/MMI/RUNTIME/beep.au > /dev/audio ↵     ♦     Send the alarm audio file to the audio device.

---

- The alarm sound is emitted through the speakers.
- 

---

---

Click on the Terminal icon in the task bar of WPO     ♦     Open a terminal window.

---

[PROMPT\_OPE] exit ↵     ♦     Close the terminal window.

---

- 
- The speakers are functioning correctly.

#### 9.12.6 CONFIGURATION REFERENCE

Not applicable

#### **9.12.7 STANDARD TOOLS**

None.

#### **9.12.8 SPECIFIC TOOLS**

None.

#### **9.12.9 MANUFACTURER DOCUMENTATION REFERENCE**

None.

**SPK : SBS270 speakers**  
**UNCLASSIFIED**

## 9.13 SPK : JBL SPEAKERS

### 9.13.1 SHORT DESCRIPTION

JBL speakers is a powerful 2-piece speaker solution to enhance the quality of your computer audio performance.

The JBL speakers include the following features :

- Output power: 3W RMS per channel
- Frequency response: 100 Hz to 20 kHz
- Controls: volume and tone

### 9.13.2 JBL SPEAKERS COMPOSITION

#### 9.13.2.1 Front panels

The JBL speakers front panel (right channel speaker) includes (See Figure 62) :

- (1) Power indicator: Remain lit while the power is on.
- (2) Power and Volume control: Turn the power switch clockwise to turn on the speakers. Then use this control to set the volume level. Turn it clockwise to increase the volume, and counterclockwise to reduce it or power off speakers.
- (3) Headphone jack: Use this jack to connect stereo headphones for monitoring. No sound is output from the speakers or the output (Adj. Vol.) jack when headphones are connected.

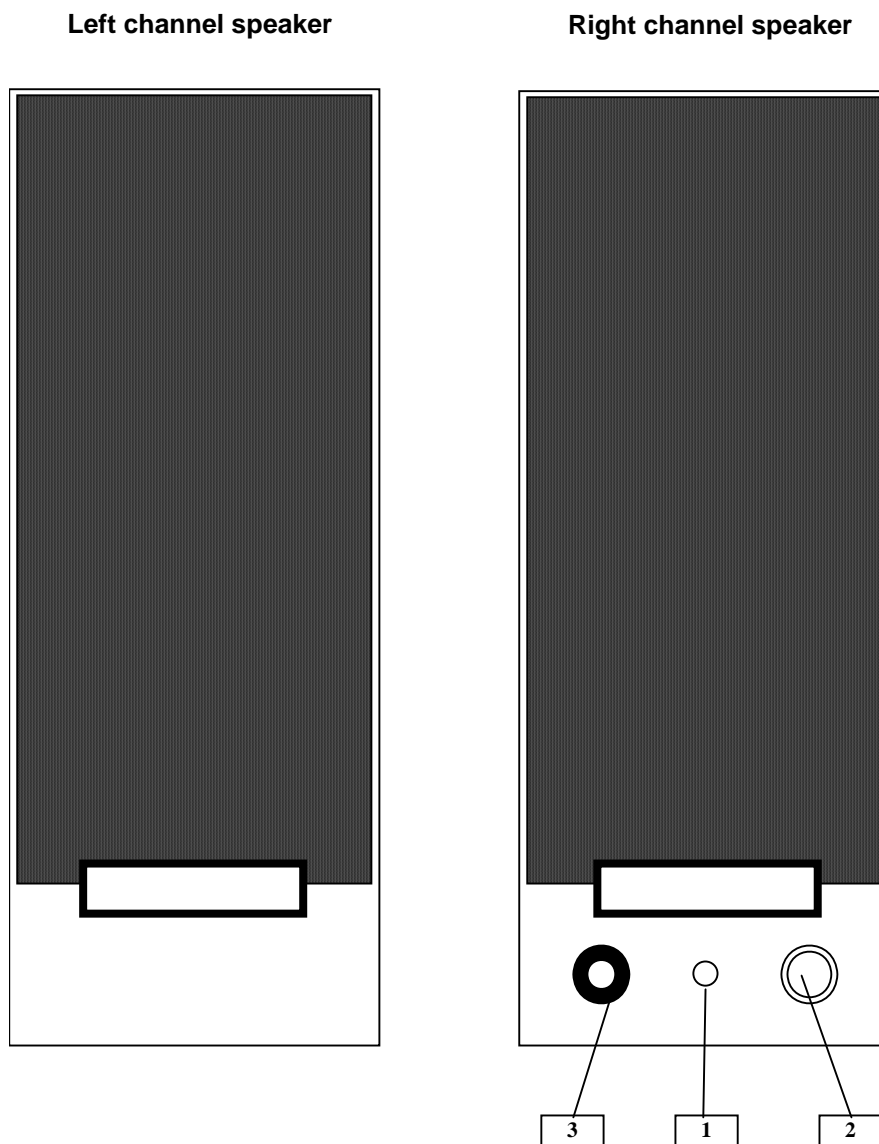


Figure 62 : JBL speakers front panels

### 9.13.2.2 Rear panels

The JBL speakers rear panel (right channel speaker) includes (See Figure 63):

- (4) DC 12V: To connect the supplied AC adapter.
- (5) Cable Input green to computer: 3.5 mm jack connections to input signals to the speakers. Connected to WPO.
- (6) To connect left speaker: RCA white plug.
- (7) Cable to be connected to right speaker: RCA white jack.

**SPK : JBL speakers**  
**UNCLASSIFIED**

The JBL speakers rear panel (left channel speaker) includes connection to right speaker  
(See Figure 63).

**Left channel speaker**

**Right channel speaker**

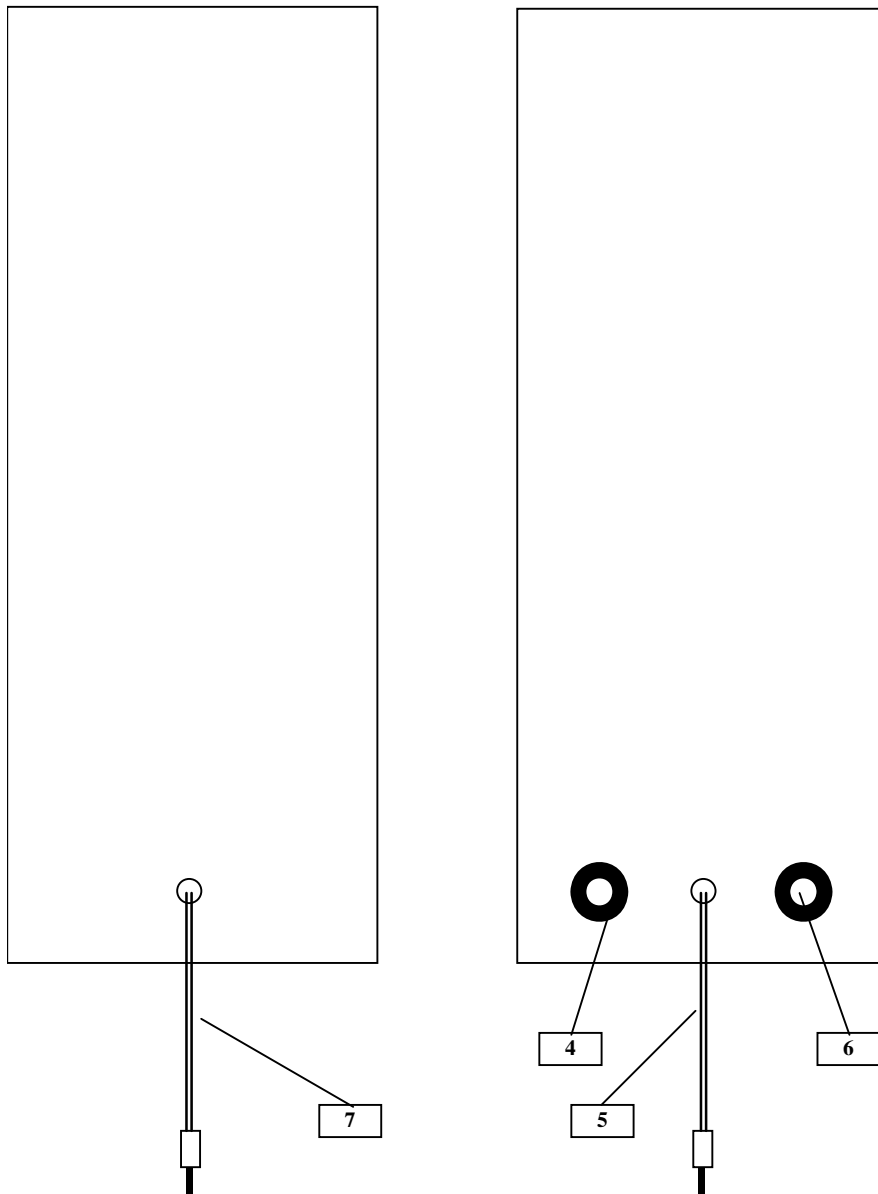


Figure 63 : JBL speakers rear panels

### 9.13.3 PREVENTIVE MAINTENANCE

Not applicable.

### 9.13.4 CORRECTIVE MAINTENANCE

#### 9.13.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the JBL speakers are the following:

A2	Indicators
A3	Visual check

- A2 (Indicators) aid: Refer to the front panel LED Figure 62 .
- A3 (visual check): check that all cables are well plugged on the Speakers side, as well as on the others LRU side. Refer to the Figure 63 .

To exchange JBL speakers, refer to the "JBL Speakers exchange" Procedure in § 9.13.5.2.

#### 9.13.4.2 Common troubleshooting

##### 9.13.4.2.1 No sound is emitted by the speakers

Execute the following operations and check on each step if the problem is solved :

- Check that the speakers are switched on and that the volume level is loud enough.
- Check that the speakers are plugged to the computer.
- Open an Xterm window and run the command "audiocontrol". Check that the output volume level of the computer is loud enough.
- Reset computer hardware configuration (refer to § 9.2.6.4).
- Reset computer software configuration (refer to § 9.2.6.3).
- Exchange the speakers (refer to § 9.13.5.2).
- Re-install the whole SKYKEEPER software on the computer (refer to § 10.7.3).



- Exchange computer (refer to § 9.2.5.7).

## 9.13.5 ELEMENTARY PROCEDURES

### 9.13.5.1 Switch on / switch off the unit

- To switch ON the JBL speakers, turn clockwise the Volume control located on the front panel of the unit (Figure 62). The power indicator comes on.
- To switch OFF the JBL speakers, turn counter clockwise the Volume control located on the front panel of the unit (Figure 62). The power indicator comes off.

### 9.13.5.2 Speakers exchange

The purpose of the following lines is to describe the procedure : Exchange a speakers pair.

This procedure is divided into 4 steps.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a speakers pair**

#### 9.13.5.2.1 Switch off the speakers and Disconnect the cables

- Switch OFF the Speakers.
  - ☞ Refer to the switch OFF procedure in § 9.13.5.1
- Disconnect all the cables connected to the Speakers.
  - ☞ Refer to Figure 63.

#### 9.13.5.2.2 Remove and replace the failed Speakers

- Remove the failed Speakers from their module.
- Install the new Speakers in operational position.

### 9.13.5.2.3 Reconnect the cables to the new Speakers and switch ON the equipment

- Reconnect all the cables to the rear panel of the new Speakers.
  - ☞ Refer to Figure 63.
- Switch ON the Speakers.
  - ☞ Refer to the switch ON procedure in § 9.13.5.1

### 9.13.5.2.4 Test the good functioning of the speakers

- ☞ Refer to the speakers good functioning test in § 9.13.5.3.

**This is the end of the procedure to exchange a Speakers pair**

### 9.13.5.3 Speakers good functioning test

The speakers must be plugged in operational position and switched on.

All material connected to the speakers must be plugged in operational position and switched on.

- Log on the WPO connected to the speakers as operational user and execute the following commands:

Click on the Terminal icon in the task bar of WPO	◆	Open a terminal window.
[PROMPT_OPE] <i>sdtaudio</i> <i>/jade/REF/MMI/RUNTIME/beep.au</i> ↵	◆	Send the alarm audio file to the audio device.
Click on the PLAY button.	◆	The alarm sound is emitted through the speakers.
Click on the Terminal icon in the task bar of WPO	◆	Open a terminal window.
[PROMPT_OPE] exit ↵	◆	Close the terminal window.

- The speakers are functioning correctly.

### 9.13.6 CONFIGURATION REFERENCES

Not applicable

### 9.13.7 STANDARD TOOLS

None.

### 9.13.8 SPECIFIC TOOLS

None.

### 9.13.9 MANUFACTURER DOCUMENTATION REFERENCE

None.

**SPK : JBL speakers**  
**UNCLASSIFIED**

## 9.14 MOD : MODEM BOX CXR 2885P

### 9.14.1 SHORT DESCRIPTION

The Anderson Jacobson CXR 2885P modem is a multimode modem operating in full-duplex on 2-wire or 4-wire leased line (LL) and on the public switch telephone network (PSTN).

The CXR 2885P includes the following features :

- Data modes : V34, V34Bis, V32, V22Bis, V22, V23, V21.
- Error correction and data compression: V42, V42Bis, MNP4, MNP5.
- Data rates : 300 to 115200 BPS in asynchronous mode, and 1200 to 33600 BPS in synchronous mode.
- Terminal modes : V24-V28 or RS232.
- Configuration by means of a complete set of AT and V.25 bis commands.

This equipment sheet is about the version CXR 2885P SDIF, Standalone version with LCD.

### 9.14.2 MODEM CXR 2885P COMPOSITION

#### 9.14.2.1 Front panel

The CXR 2885P modem standalone front panel includes (see Figure 64) :

- (1) LCD screen
- (2) Control panel with :
  - DTR-108: Data Terminal Ready indicator. Lit when the equipment connected to the modem is ready for data communication, and flashing if not ready. During power up test, lit if bad eeprom checksum.
  - DSR/RI-107/125: Data Set Ready or Ring Indicator. Flashes when an incoming ring is received, then lit when connecting. On leased line, the Originate (master) modem flashes 10 times per second, the Answer (slave) modem flashes 4 times per second. During power up test, flashes if bad RAM.

- CD-109: Carrier Detect indicator. Lit when the remote modem's carrier has been received by the modem. During power up test, lit if bad non volatile RAM checksum, or flashes if the test is negative.
- DATA-103/104: Data indicator. Flashes when the modem is transmitting or receiving data.
- LEFT keypad: Switch between configuration and connected mode, or go back in previous menu.
- DOWN keypad: Display next configuration menu on LCD.
- ENTER keypad: Select current menu or parameter displayed on LCD.

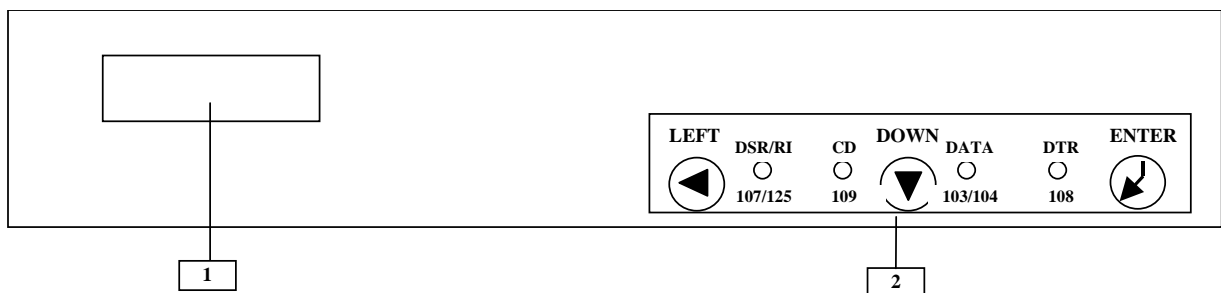


Figure 64: CXR 2885P, standalone version with LCD – front view

### 9.14.2.2 Rear panel

The CXR 2885P modem standalone rear panel includes (Figure 65) :

- (3) Alarm RJ11 junction, not connected.
- (4) Tel Line RJ11-PSTN junction, not connected.
- (5) Leased Line RJ11-LL junction, connected to remote modem.
- (6) Terminal DB 25 junction, connected to IOP PLINES.
- (7) Power connector: Receptacle for the power cord.

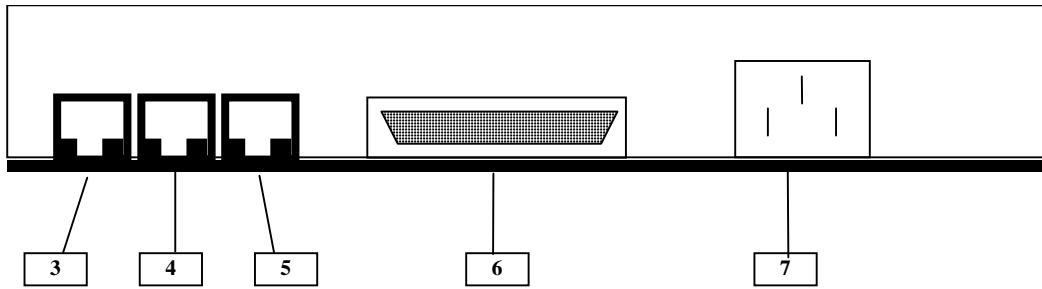


Figure 65: CXR 2885P, standalone version – rear view

### 9.14.3 PREVENTIVE MAINTENANCE

Not applicable.

### 9.14.4 CORRECTIVE MAINTENANCE

#### 9.14.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the CXR 2885P modem are the following :

A2	Indicators
A3	Visual check
A4	Integrated tests

- A2 (Indicators) aid is provided by the LEDs located on the front panel of the modem (Figure 64). The role of the different LEDs is detailed in the figures descriptions.
- A3 (visual check):
  - Check that all cables are well plugged on the Modem side, as well as on the others LRU side (Refer to Figure 65).
- A4 (Integrated test) aid is provided by the power supply test, and by the two loop-back tests.

☞ Refer to § 9.14.5.4, 9.14.5.5, 9.14.5.6.

To exchange modems, refer to the modems exchange procedure in § 9.14.5.2

#### 9.14.4.2 Common troubleshooting

##### 9.14.4.2.1 Tracks not displayed on WPO

☞ Refer to § 7.7.2 or § 7.7.3.

##### 9.14.4.2.2 Plots and strobes not displayed on WPO

☞ Refer to § 7.7.1.

##### 9.14.4.2.3 The connection speed between two modems is lower than configured speed

Execute the following operations simultaneously on the two modems:

- Disconnect the modem, and restart them:
  - Switch off the rack modem.
  - Unplug the cable from the Leased line cable. The modem shall stay connect to the IOP.
  - Switch on the rack modem.
  - Wait one minute that the synchronisation between the IOP and the modem is done.
  - Plug again the leased line cable.
- Configure the modems.
- Exchange one modem.
- Exchange the second modem.

#### 9.14.5 ELEMENTARY PROCEDURES

##### 9.14.5.1 Procedure to switch on / switch off the unit

- To switch ON the modem, plug the power supply cable on the rear of the modem (Figure 65).
  - The LCD (Figure 64) comes on.



- The modem performs an auto-test (refer to § 9.14.5.4).
  - The modem is ready to operate.
- To switch OFF the modem, unplug the power supply cable on the rear of the modem (Figure 65).

### 9.14.5.2 Modem exchange

The purpose of the following lines is to describe the procedure : Exchange a Modem.

This procedure is divided into 6 steps.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

<b>This is the beginning of the procedure to exchange a Modem</b>
---

#### 9.14.5.2.1 Switch off the Modem and Disconnect the cables

- Unplug the power supply cable in order to switch OFF the modem.
- Disconnect all the cables connected to the Modem.

#### 9.14.5.2.2 Remove and replace the failed Modem

- Extract the failed Modem from its module and install the new modem.

#### 9.14.5.2.3 Reconnect the cables to the new modem and switch ON the equipment

- Reconnect all the cables to the new Modem (Refer to Figure 65).

#### 9.14.5.2.4 Insert the new modem in its module

- As the modem is switched on when the power supply cable is plugged in, check that the unit is correctly started before setting it in its module.
- Put the new Modem in operational position.

#### 9.14.5.2.5 Configure the new modem

- ☞ Refer to § 0 to execute the modem configuration procedure.

#### 9.14.5.2.6 Test the good functioning of the new modem

- ☞ Refer to the modem good functioning test in § 9.14.5.3.

**This is the end of the procedure to exchange a Modem**

### 9.14.5.3 Modem good functioning test

The modem must be plugged in operational position and switched on.

The corresponding remote modem must be plugged in operational position and switched on.

The IOP must be plugged in operational position and switched on.

The WPT, the ADP, and the WPO must be plugged in operational position and switched on.

- Check that the state of external link corresponding to the modem is OK in the SUPERVISION window when data are incoming to this modem.

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

- Check that the data incoming through the modem are correctly displayed on WPO (plots or tracks data).

### 9.14.5.4 Power supply test

- Switch ON the modem (see § 9.14.5.1).

All the led of the modem lit for a few seconds, then the modem performs an automatic self test which tests its :

- program memory
- data memory
- stored memory
- data processing unit.

- At the end of the test, a series of different tones are emitted.
  - If a failure is detected:
    - No tone
    - A single and continuous tone
    - Led 108 is lit
    - Led 109 is lit or flashing
    - Led 107 is flashing
- then restart the self test (switch off and switch on the modem).
- If it occurs again, refer to the "Troubleshooting" paragraph in the modem Users Manual.
  - If the error remains, replace the modem by the spare part (refer to §9.14.5.2).

#### 9.14.6 CONFIGURATION REFERENCES

Each modem has a different configuration, depending on the external equipment to which it is connected.

In consequence, the configuration of each modem must be performed individually after each installation of a new modem.

##### 9.14.6.1 Overview of configurations

All modem configurations use the following syntax: `<MODEM_NAME>_<SPEED>_<SOURCE>_<CLOCK> [_<OTHERS>]`, where

- `<MODEM_NAME>` = CXR2885
- `<SPEED>` = "4800", "9600" or "19200" (for the speed in bauds)
- `<SOURCE>` = "ORI" (for originate) or "ANS" (for answer)
- `<CLOCK>` = "ICLOCK" (for internal clock) or "ECLOCK" (for external clock)
- `<OTHERS>`: this optional parameter may be "DTR" (when the Data Terminal Ready signal is disable), "8dBm" (when the signal is increased on the lease line) or "2wires" (when the modem use only 4 wires on the lease line).

On the WPT of each sites, the directory `/jade/TOOLS/MODEM/SITE_<SITE_NAME>/` contains:

- The file `MOD_tableConfiguration_<SITE_NAME>.txt` which gives the name of the configuration file to be used for each modem present (on the site),
- All the modem configuration files used on the site.

The detailed configuration of all the modems is described in the file on WPT:

**/jade/TOOLS/MODEM/CXR2885\_conf\_modem.txt**

This file contains:

- 
- The detailed AT commands to configure the modems.
- The modems configurations attribution.
- The details of terminal parameters setting for connection with the modem.

### 9.14.6.2 Modem to Terminal connection

The configuration of a modem is performed by AT commands sent to the modem by a Terminal.

The Terminal may be a HyperTerminal window on a standard PC .

The modem must be set in configuration mode by pressing the "LEFT" button (plus the "ENTER" button if the modem is connected and synchronised with the remote modem) (Refer to Figure 64).

#### 9.14.6.2.1 Modem – PC connection

The Modem must be connected from its "Terminal" port (Refer to Figure 65) to the "COM1" port of the PC with the Modem / PC cable tool.

The "HyperTerminal" window must be configured as follow:

19200 baud configuration :

- speed (bit/sec): 19200
- data bit: 8
- parity: none
- stop bit: 1
- flow control: Xon/Xoff

9600 baud configuration :

- speed (bit/sec): 9600
- data bit: 8

- parity: none
- stop bit: 1
- flow control: Xon/Xoff

4800 baud configuration :

- speed (bit/sec): 4800
- data bit: 8
- parity: none
- stop bit: 1
- flow control: Xon/Xoff

NOTE : The "Hyper Terminal " speed must be the same as the modem speed. The modem speed is displayed on the modem LCD when the modem is switched on.

When the modem is connected to the Terminal in configuration mode, any AT command may be passed:

Example:

AT&S./ => Display the complete configuration of the modem.

### Modem configuration procedure

- Disconnect the link from the remote modem.
- Plug the modem to the terminal (Refer to § 0).
- The modem must be set in configuration mode by pressing the "LEFT" button (Refer to Figure 64).
- On a PC, use an "HyperTerminal" window to pass the appropriate AT command described in the files

**/jade/TOOLS/MODEM/SITE\_<SITE\_NAME>/MOD\_tableConfiguration-  
<SITE\_NAME>.txt** (Refer to § 9.14.6.2.1)

- 9.14.6.2.1 The configuration is automatically loaded to the modem as "user 0" (default active configuration), so that this configuration is loaded anytime the modem restart.
- The new active configuration of the modem is displayed.
- Press Left key : the modem is configured and operational.

### 9.14.7 STANDARD TOOLS

**MOD : modem box CXR 2885P**  
**UNCLASSIFIED**

- 1 PC

**9.14.8 SPECIFIC TOOLS**

- 1 Configuration Modem cable.

**9.14.9 MANUFACTURER DOCUMENTATION REFERENCE**

User's Manual V34 Fax-Modem – AJ 2885P

P/N 8000 601 953

## 9.15 MOD : MODEM RACK CXR 2885P

### 9.15.1 SHORT DESCRIPTION

The Anderson Jacobson CXR 2885P modem is a multimode modem operating in full-duplex on 2-wire or 4-wire leased line (LL) and on the public switch telephone network (PSTN).

The CXR 2885P includes the following features :

- Data modes : V34, V34Bis, V32, V22Bis, V22, V23, V21.
- Error correction and data compression: V42, V42Bis, MNP4, MNP5.
- Data rates : 300 to 115200 BPS in asynchronous mode, and 1200 to 33600 BPS in synchronous mode.
- Terminal modes : V24-V28 or RS232.
- Configuration by means of a complete set of AT and V.25 bis commands.

This equipment sheet is about the version CXR 2885P FPRF, rackmount version for AMS16 4U rack. The rack capacity is 16 cards.

This equipment sheet is about the version CXR 2885P SDIF, Standalone version with LCD.

- The CXR 2885P FPRF, rackmount version for AMS16 4U rack. The rack capacity is 16 cards.
- The CXR 2885P SDIF, Standalone version with LCD.

### 9.15.2 MODEM CXR 2885P COMPOSITION

#### 9.15.2.1 CXR 2885P modem : rackmount version

##### 9.15.2.1.1 Front panel

The CXR 2885P rackmount modem card front panel includes (see Figure 70) :

- DTR-108: Data Terminal Ready indicator. Lit when the equipment connected to the modem is ready for data communication, and flashing if not ready. During power up test, lit if bad eeprom checksum.

- DSR-107: Data Set Ready or Ring Indicator. Flashes when an incoming ring is received, then lits when connecting. On leased line, the Originate modem flashes 10 times per second, the Answer modem flashes 4 times per second. During power up test, flashes if bad RAM.
- CD-109: Carrier Detect indicator. Lit when the remote modem's carrier has been received by the modem. During power up test, lit if bad non volatile RAM checksum, or flashes if the test is negative.
- TXD-103: Transmit Data indicator. Flashes when the modem is transmitting data.
- RXD-104: Receive Data indicator. Flashes when the modem is receiving data.
- LINE: Connection mode indicator : Lit if leased line or 33600 bps PSTN, flashes if other PSTN speeds, off in command mode or during power up test if bad DSP
- MODE : Switch mode key.
  - Switch between configuration mode and connected mode if pressed one time (one flash from DSR led).
  - Initiates the start-up test if held 10 seconds (three flashes from DSR led).
  - Reset factory default configuration if pressed during start-up.
- Two fixing screws: The modem card must be well screwed to insure a good connection with the modem rack.



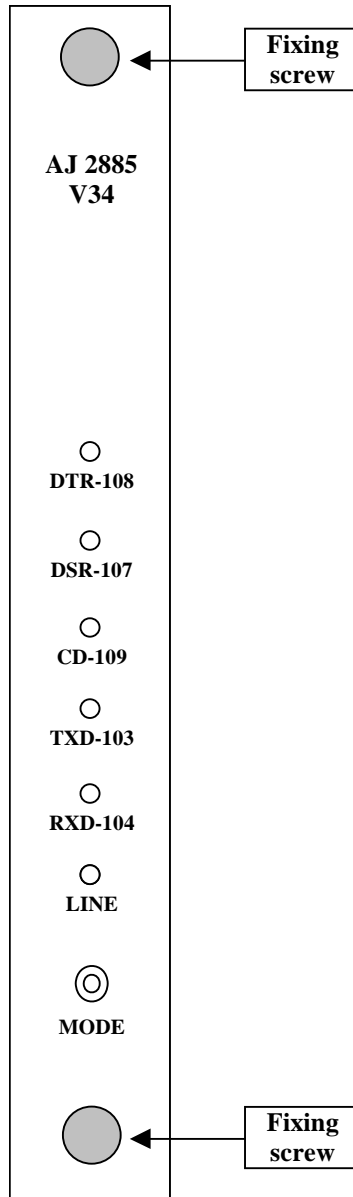


Figure 68: CXR 2885P, rackmount version – front view

#### 9.15.2.1.2 Rear panel

The CXR 2885P rackmount modem card rear panel includes (see Figure 71) :

- (1) Alarm RJ11 junction, not connected
- (2) Tel Line RJ11-PSTN junction, not connected
- (3) Leased Line RJ11-LL junction,

- (4) Rack interface,
- (5) Power supply connector

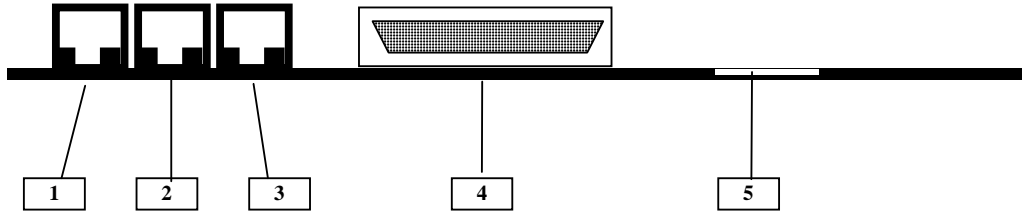


Figure 69: CXR 2885P, rackmount version – rear view

### 9.15.2.2 Rack AMS16

#### 9.15.2.2.1 Rack front view

The rack front view include (see Figure 70) :

- (6) (7) Guides for Modem card number 1 (6) to number 16 (7),
- (8) Adaptation / power supply card,
- (9) Power supply Led: lit when power is on.

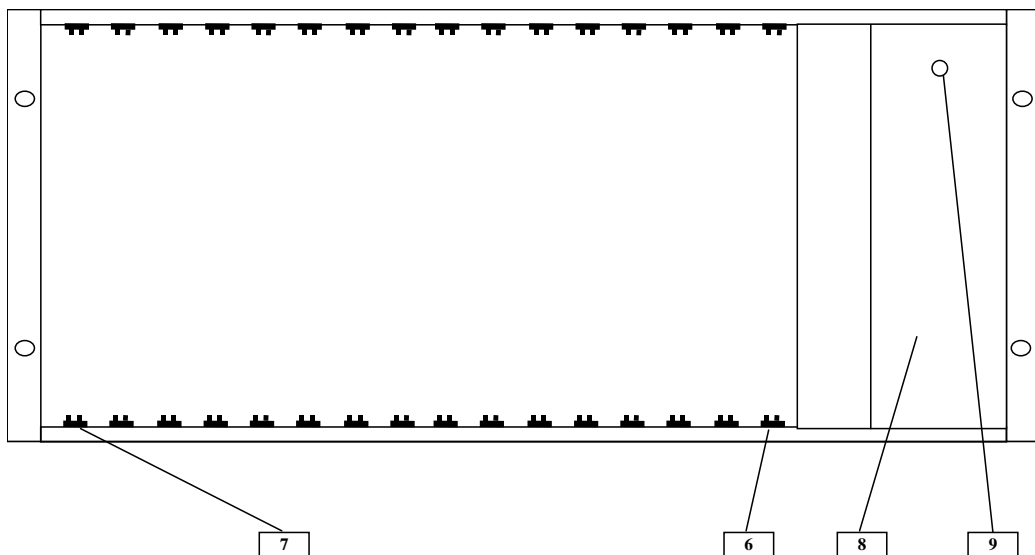


Figure 70: AMS 16 rack – front view

**9.15.2.2.2 Rack rear view**

The rack rear view includes (Figure 71):

- (10) On/Off switch: Used to switch power on or off.
- (11) Power connector: Receptacle for the power cord.
- (12) Rear accessibility for modem cards.

Note: A new modem card must always be added just beside another one, so that the electrical isolation link between the two cards is safe.

The slot position of each modem card in its rack is given in the description paragraph of each centre.

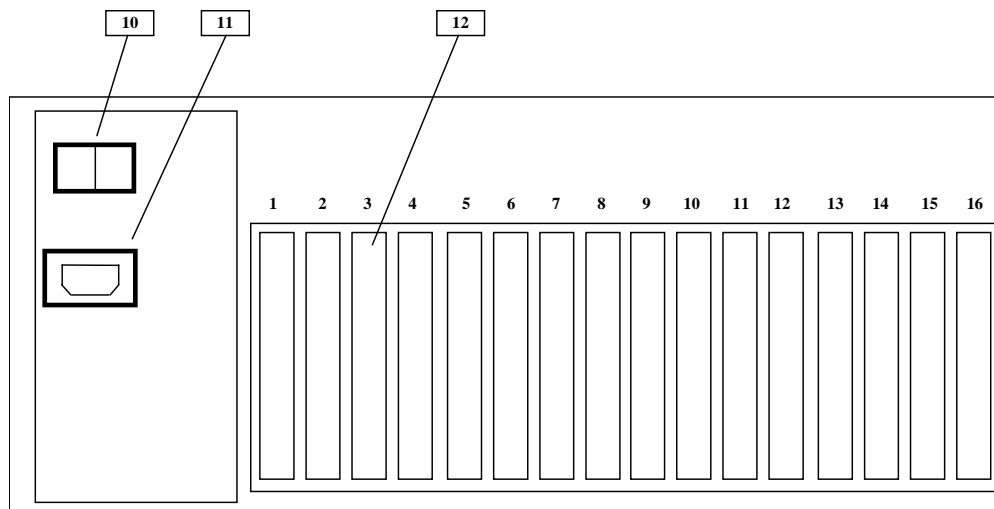


Figure 71 : AMS 16 rack – rear view

**9.15.3 PREVENTIVE MAINTENANCE**

Not applicable.

**9.15.4 CORRECTIVE MAINTENANCE**

**9.15.4.1 Maintenance aids**

The Maintenance aids used for the troubleshooting of the CXR 2885P modem are the following :

A2	Indicators
A3	Visual check
A4	Integrated tests

- A2 (Indicators) aid is provided by the LEDs located on the front panel of the modem (Figure 68). The role of the different LEDs is detailed in the figures descriptions.
- A3 (visual check):
  - Check that the power supply card is correctly inserted and plugged in the rack,
  - Check that the modem card is correctly inserted and plugged in the rack,
  - Check that all cables are well plugged on the Modem side, as well as on the others LRU side (Refer to § Figure 69).
- A4 (Integrated test) aid is provided by the power supply test, and by the two loop-back tests.
  - ☞ Refer to § 9.15.5.4, 9.15.5.5 and 9.15.5.6.

To exchange modems, refer to the modems exchange procedure in § 9.15.5.2.

## 9.15.4.2 Common troubleshooting

### 9.15.4.2.1 Tracks not displayed on WPO

☞ Refer to § 7.7.2 or § 7.7.3.

### 9.15.4.2.2 Plots and strobes not displayed on WPO

☞ Refer to § 7.7.1.

### 9.15.4.2.3 The connection speed between two modems is lower than configured speed

Execute the following operations simultaneously on the two modems:

- Disconnect the modem, and restart them:
  - Switch off the rack modem.

- Unplug the cable from the Leased line cable. The modem shall stay connect to the IOP.
  - Switch on the rack modem.
  - Wait one minute that the synchronisation between the IOP and the modem is done.
  - Plug again the leased line cable.
- Configure the modems.
  - Exchange one modem.
  - Exchange the second modem.

## **9.15.5 ELEMENTARY PROCEDURES**

### **9.15.5.1 Procedure to switch on / switch off the unit**

The power supply off all modem cards connected to the rack are controlled by the power supply card of the rack. When the rack is On, the modems are On. When the rack is Off, the modems are Off.

A modem card may be inserted or removed from the rack when the rack is On:

- If a modem card is inserted when the rack is On, it is automatically switched On.
  - If a modem card is removed when the rack is On, it is automatically switched Off.
- To switch ON the rack, press the On/Off switch located on the rear panel of the power supply card (see Figure 71).
    - The power indicator of the rack (see Figure 70) comes on.
    - All modems perform an auto-test (refer to § 9.15.5.4).
    - The modems are ready to operate.
  - To switch OFF the rack, press the On/Off switch located on the rear panel of the power supply card (see Figure 71).
    - The power indicator (see Figure 70) goes out.

### **9.15.5.2 Modem card exchange**

The purpose of the following lines is to describe the procedure : Exchange a modem card.

This procedure is divided into 5 steps :

- Disconnect the cables from the failing card.
- Remove and replace the failing card.
- Reconnect the cables to the new card.
- Configure the new card.
- Test the good functioning of the new modem card.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a modem card**

#### 9.15.5.2.1 Disconnect the cables from the failing card

- Disconnect all the cables connected to the failing card.

#### 9.15.5.2.2 Remove and replace the failing card

- On the front panel, unscrew the two fixing screws and pull the failing card lightly.
- Insert the new card in the rack, in operational position (refer to the description paragraph of the concerning centre for details on the modems cards positions).

#### 9.15.5.2.3 Reconnect the cables to the new card

- Reconnect all the cables to the rear panel of the new modem card.

#### 9.15.5.2.4 Configure the new card

- ☞ Refer to § 0 to execute the modem configuration procedure.

#### 9.15.5.2.5 Test the good functioning of the new modem card

- ☞ Refer to the modem card good functioning test in § 9.15.5.4.

**This is the end of the procedure to exchange a modem card**

### 9.15.5.3 Modem rack exchange

The purpose of the following lines is to describe the procedure : Exchange a modem rack.

This procedure is divided into 6 steps :

- Switch off the modem rack and disconnect the cables.
- Remove all the modem cards from the rack.
- Remove and replace the failed modem rack.
- Reconnect all the cards.
- Reconnect the cables to the new rack and switch ON the equipment.
- Test the good functioning of the new modem rack.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a modem rack**

#### 9.15.5.3.1 Switch off the modem rack and disconnect the cables

- Switch OFF the modem rack
  - ☞ Refer to the modem rack switch off procedure in § 9.15.5.1.
- Disconnect the power supply cable of the failed rack.
- Disconnect all the cables of all the modem cards of the rack.

#### 9.15.5.3.2 Remove all the modem cards from the rack

- For each modem card, unscrew the two fixing screws on the front panel and pull the card lightly.

#### 9.15.5.3.3 Remove and Replace the failed modem rack

- Extract the failed modem rack from its module and install the new rack in operational position.

#### 9.15.5.3.4 Reconnect all the cards

- Insert all the modem cards in operational position in the spare modem rack (refer to the description paragraph of the concerning centre for details on the modems cards positions).

#### 9.15.5.3.5 Reconnect the cables to the new modem rack and Switch ON the equipment

- Put the new modem rack in operational position.
- Switch ON the modem rack
  - ☞ Refer to the modem rack switch on procedure in § 9.15.5.1.

#### 9.15.5.3.6 Test the good functioning of the new modem rack

- ☞ Refer to the modem rack good functioning test in § 9.15.5.5.

**This is the end of the procedure to exchange a modem rack**

#### 9.15.5.4 Modem card good functioning test

The modem card must be plugged in operational position and switched on.

The IOP must be plugged in operational position and switched on.

The WPT must be plugged in operational position and switched on.

- Check that the state of external link corresponding to the modem is OK in the SUPERVISION window when data are incoming to this modem.

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

#### 9.15.5.5 Modem rack good functioning test



The modem rack must be plugged in operational position and switched on.

The modem cards must be installed in the modem rack in operational position.

- Check that the modem cards are on when the modem rack is switched on.

### **9.15.5.6 Power supply test**

- Switch ON the modem (see § 9.14.5).  
All the led of the modem lit for a few seconds, then the modem performs an automatic self test which tests its :
  - program memory
  - data memory
  - stored memory
  - data processing unit.
- At the end of the test, a series of different tones are emitted.
- If a failure is detected:
  - No tone
  - A single and continuous tone
  - Led 108 is lit
  - Led 109 is lit or flashing
  - Led 107 is flashingthen restart the self test (switch off and switch on the modem).
- If it occurs again, refer to the "Troubleshooting" paragraph in the modem Users Manual.
- If the error remains, replace the modem by the spare part.
  - To exchange a modem card, refer to § 9.15.5.2.
  - To exchange a modem rack, refer to § 9.15.5.3.
  - To exchange a Standalone modem, refer to 9.14.5.2.
- **CONFIGURATION REFERENCES**

### **9.15.6.1 Overview of configurations**

All modem configurations use the following syntax:  
<MODEM\_NAME>\_<SPEED>\_<SOURCE>\_<CLOCK> [\_<OTHERS>], where

- <MODEM\_NAME> = CXR2885
- <SPEED> = "4800", "9600" or "19200" (for the speed in bauds)
- <SOURCE> = "ORI" (for originate) or "ANS" (for answer)
- <CLOCK> = "ICLOCK" (for internal clock) or "ECLOCK" (for external clock)
- <OTHERS>: this optional parameter may be "DTR" (when the Data Terminal Ready signal is disable), "8dBm" (when the signal is increased on the lease line) or "2wires" (when the modem use only 4 wires on the lease line).

On the WPT of each sites, the directory **/jade/TOOLS/MODEM/SITE\_<SITE\_NAME>/** contains:

- The file **MOD\_tableConfiguration\_<SITE\_NAME>.txt** which gives the name of the configuration file to be used for each modem present (on the site),
- All the modem configuration files used on the site.

The detailed configuration of all the modems is described in the file on WPT:

**/jade/TOOLS/MODEM/CXR2885\_conf\_modem.txt**

This file contains:

- 
- The detailed AT commands to configure the modems.
- The modems configurations attribution.
- The details of terminal parameters setting for connection with the modem.

### 9.15.6.2 Modem to Terminal connection

The configuration of a modem is performed by AT commands send to the modem by a Terminal.

The Terminal may be either an HyperTerminal window on a standard PC The modem must be set in configuration mode by pressing by pressing and maintaining the switch button "Mode" until the modem enters in configuration mode (Refer to Figure 68).

The Modem must be connected from its "Terminal" port (Refer to Figure 69) to the "COM1" port of the PC with the Modem / PC cable tool.

The "HyperTerminal" window must be configured as follow:

19200 baud configuration :

- speed (bit/sec): 19200
- data bit: 8
- parity: none
- stop bit: 1
- flow control: Xon/Xoff

9600 baud configuration :

- speed (bit/sec): 9600
- data bit: 8
- parity: none
- stop bit: 1
- flow control: Xon/Xoff

4800 baud configuration :

- speed (bit/sec): 4800
- data bit: 8
- parity: none
- stop bit: 1
- flow control: Xon/Xoff

NOTE : The "Hyper Terminal " speed must be the same as the modem speed. The modem speed is displayed on the modem LCD when the modem is switched on.

When the modem is connected to the Terminal in configuration mode, any AT command may be passed:

Example:

AT&S => Display the complete configuration of the modem.

**Modem configuration procedure**

- Disconnect the link from the remote modem.
- Plug the modem to the terminal (Refer to § 9.15.6.2).
- The modem must be set in configuration mode by pressing and maintaining the switch button "Mode" until the modem enters in configuration mode (Refer to Figure 68).

- On a PC, use an "HyperTerminal" window to pass the appropriate AT command described in the files

**/jade/TOOLS/MODEM/SITE\_<SITE\_NAME>/MOD\_tableConfiguration-<SITE\_NAME>.txt** (Refer to § 9.15.6.1)

- § 9.15.6.1 The configuration is automatically loaded to the modem as "user 0" (default active configuration), so that this configuration is loaded anytime the modem restart.
- The new active configuration of the modem is displayed.
- Type the following command to switch to connected mode: **ATO**

### 9.15.7 STANDARD TOOLS

- 1 PC

### 9.15.8 SPECIFIC TOOLS

- 1 Configuration / Modem cable.

### 9.15.9 MANUFACTURER DOCUMENTATION REFERENCE

User's Manual V34 Fax-Modem – AJ 2885P

P/N 8000 601 953

AMS16 – Smart Rack, User and Installation Manual

P/N 8000 601 203

## **9.16 GPR : GRAPHICAL PRINTER HP4700 N**

### **9.16.1 SHORT DESCRIPTION**

The laser printer HP 4700 N is used in Centre system to print log file from WPT position and screens snapshots from WPO or WPT positions.

The printer includes the following features :

- Print technology : colour laser
- Print speed : Up to 31 ppm
- Print resolution : 600 by 600 dpi
- Processor : 533 MHz
- Memory : 160 Mb

### **9.16.2 GRAPHICAL PRINTER HP4700 COMPOSITION**

#### **9.16.2.1 Front view**

The HP4700 N front panel includes:

- (1) : Output bin.
- (2) : Printer control panel.
- (3) : Top cover.
- (4) : Tray 1.
- (5) : Tray 2.
- (6) : Access to print cartridges, transfer unit and fuser.
- (7) : On/Off switch

**GPR : Graphical printer HP4700 N**  
**UNCLASSIFIED**



Figure 74 : Graphical printer HP4700 N front view

### 9.16.2.2 Rear view

The HP4700 N rear panel includes (see Figure 78) :

- (1) : Output bin.
- (2) : Auxiliary connector.
- (3) : On/Off switch.
- (4) : Ethernet connection.
- (5) : Power plug.

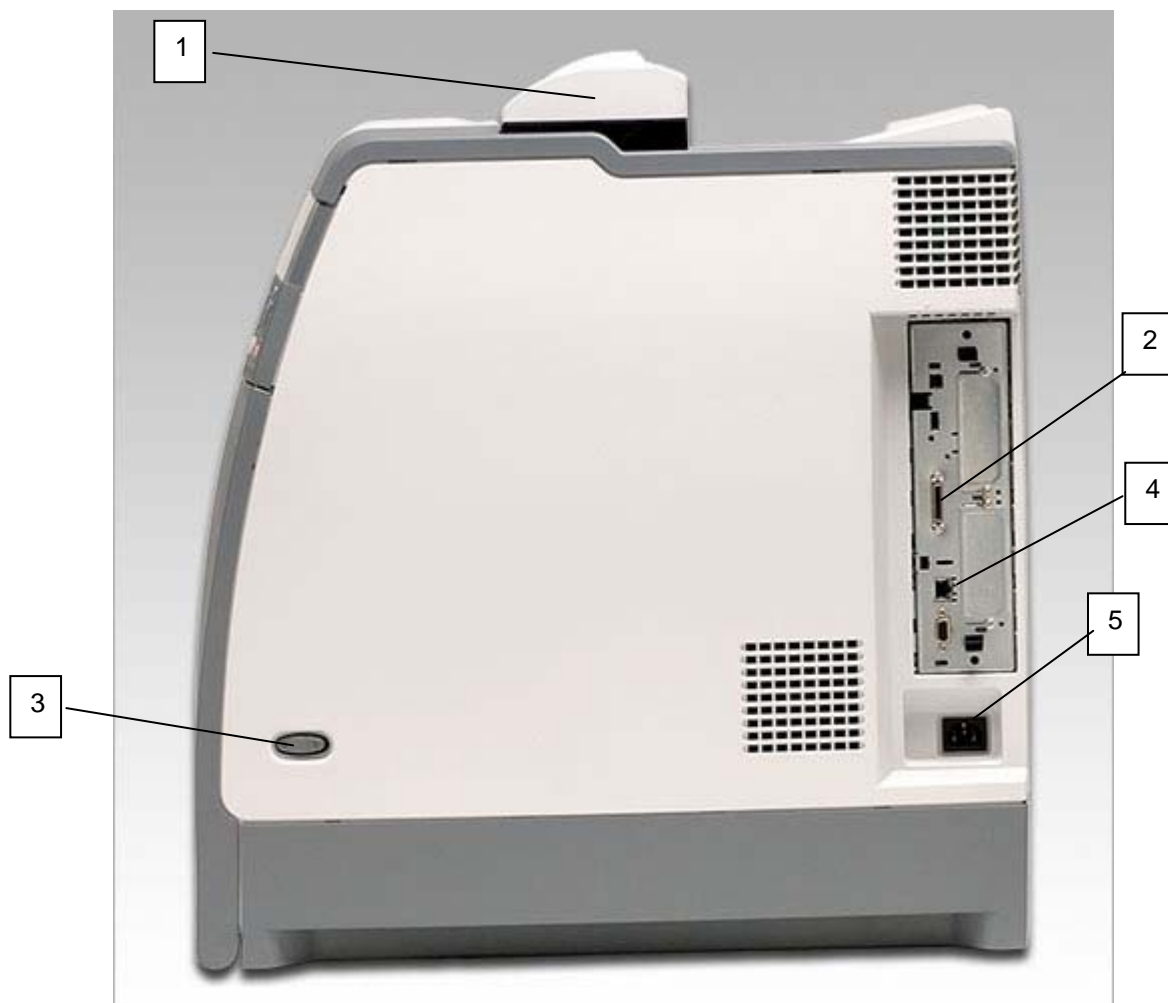


Figure 75 : Graphical printer HP4700 N rear panel

### 9.16.2.3 Control panel

The HP4700 N control panel includes (see Figure 79) :

- (1) : Display
  - (2) : Up arrow ( ) button: Navigates menus and text, and increases or decreases the values of numerical items in the display.
  - (3) : Select ( ) button: Makes selections and resumes printing after recovery errors
  - (4) : Down arrow ( ) button: Navigates menus and text, and increases or decreases the values of numerical items in the display.

**GPR : Graphical printer HP4700 N**  
**UNCLASSIFIED**

- (5) : Stop button: Pauses the current job and provides options to resume printing or to cancel the current job.
- (6) : Attention light
- (7) : Data light
- (8) : Ready light
- (9) : Menu button: Accesses and exits the menus.
- (10) : Back/Exit ( ) button: Navigates backward in nested menus, or quits menus or help.
- (11) : Help ( ) button: Provides animated graphics and detailed information on printer messages or menus.

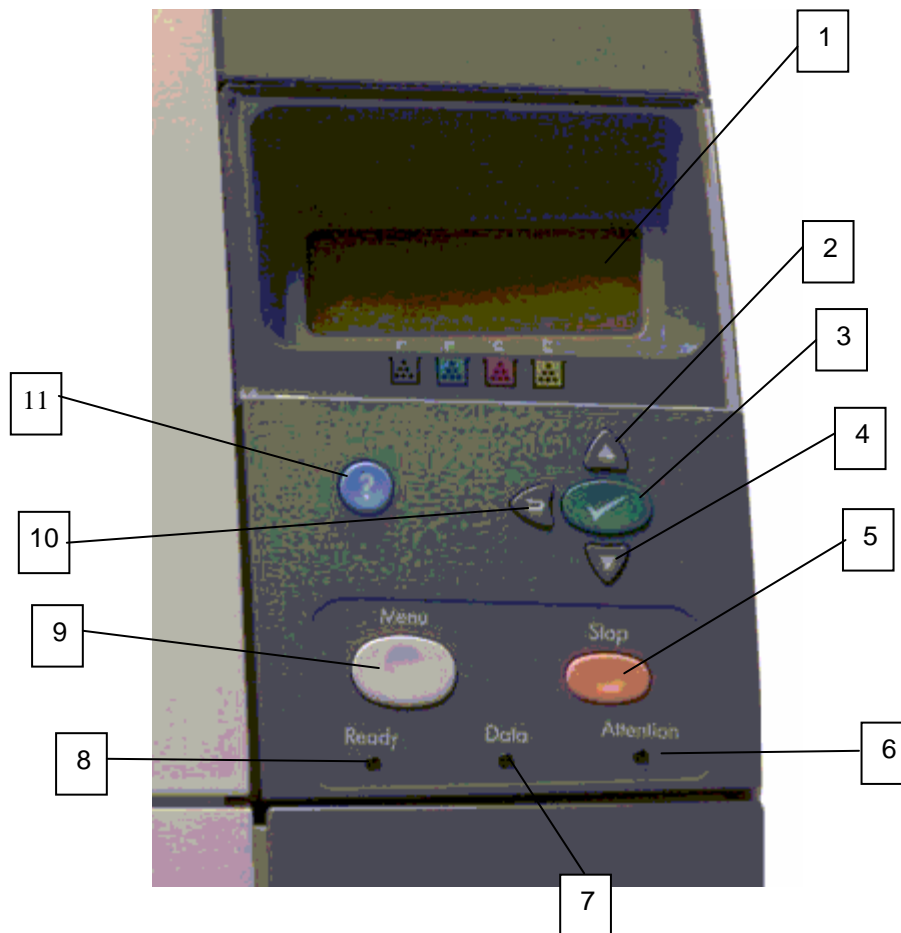


Figure 76 : Graphical printer HP4700 N control panel



### 9.16.3 PREVENTIVE MAINTENANCE

Not applicable.

### 9.16.4 CORRECTIVE MAINTENANCE

#### 9.16.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the Graphical printer HP4700 N are the following :

A2	Indicators
A3	Visual check

- A2 (Indicators) aid is provided by the LED located on the control panel of the printer and by the information messages displayed on the control panel display (Figure 79).

Indicator LED :

Indicator	On	Off	Flashing
<b>READY (green)</b>	Printer is online (able to accept and process data).	Printer is offline or is Turned off.	Printer is attempting to stop printing and go offline.
<b>DATA (green)</b>	Processed data is present in the printer, but more data is needed to complete the job.	Printer is not Processing or Receiving data.	Printer is processing and receiving data.
<b>ATTENTION (amber)</b>	A critical error has occurred. Printer requires attention.	No conditions exist that require attention.	An error has occurred. Printer requires attention.

- A3 (visual check): check that all cables are well plugged on the printer side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a graphical printer, refer to the § 9.16.5.3.

## **9.16.4.2 Common troubleshooting**

### **9.16.4.2.1 The graphical printer is failed on general LAN window of supervision**

Execute the following operations and check on each step if the problem is solved :

- Check that the graphical printer is switched on.
- Check that the graphical printer Ethernet cable is correctly connected to the Ethernet port of the graphical printer.
- Check that the graphical printer Ethernet cable is correctly connected to the general LAN switch.
- Check that the IP address of the graphical printer is good.
- Exchange the graphical printer.

### **9.16.4.2.2 The printing command is sent to the printer, but the printing is not effective.**

Execute the following operations and check on each step if the problem is solved :

- Check on the printer control panel that the status of the printer is ready.
- Check that there is paper in the paper tray.
- Check that the ink toner is not empty.
- Exchange the graphical printer.

### **9.16.4.2.3 The printing command is not correctly sent to the printer**

Execute the following operations and check on each step if the problem is solved :

- Try to print from another computer.
- Check the computer setting (for printer access).
- Re-install the whole SKYKEEPER software on the computer (refer to § 10.7.3).
- Exchange the graphical printer.

### **9.16.4.2.4 A grey square is displayed on all prints**

☞ Refer to § 9.1.4.2.12 or § 9.2.4.2.12.

☞ For specific troubleshooting, refer to the HP laserjet 4700 User guide – Chapter 7 : “Maintenance” and Chapter 8 : “Problem solving”.

## **9.16.5 ELEMENTARY PROCEDURES**

### **9.16.5.1 Switch on the unit**

- Start the printer by pressing the ON/OFF switch button.
- When the printer starts, it takes several minutes to warm up. The indicator are blinking and the initialising message is displayed on the control panel display.
  - ☞ Refer to Figure 79.
- When the printer is ready to print, the ready indicator remains lit.

### **9.16.5.2 Switch off the unit**

- Stop the printer by pressing the ON/OFF switch button.

### **9.16.5.3 Graphical printer exchange**

The purpose of the following lines is to describe the procedure : Exchange the graphical printer.

This procedure is divided into 5 steps :

- Switch off the graphical printer and disconnect the cables.
- Remove and replace the failed graphical printer.
- Reconnect the cables to the spare and switch ON the equipment.
- Set the IP address of the graphical printer.
- Test the good functioning of the graphical printer.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a HP4700 N graphical printer**

#### **9.16.5.3.1 Switch off the graphical printer and Disconnect the cables**

- Switch OFF the graphical printer.
  - ☞ Refer to the graphical printer switch OFF procedure in § 9.16.5.2.
- Disconnect all the cables connected from the printer.
  - ☞ Refer to Figure 78.

#### **9.16.5.3.2 Remove and replace the failed graphical printer**

- As the spare parts for the graphical printer are stored in DEPOT, the procedure is to extract the failed graphical printer from its module before installing the spare unit.

#### **9.16.5.3.3 Reconnect the cables to the spare and switch ON the equipment**

- Reconnect all the cables to the rear panel of the spare graphical printer.
  - ☞ Refer to Figure 78.
- Switch ON the graphical printer.
  - ☞ Refer to the graphical printer switch ON procedure in § 9.16.5.1.

#### **9.16.5.3.4 Set the IP address of the graphical printer**

- Set the IP address of the graphical printer.
  - ☞ Refer to the graphical printer IP address setting procedure in § 9.16.6.1.

#### **9.16.5.3.5 Test the good functioning of the new graphical printer**

- ☞ Refer to the graphical printer good functioning test in § 9.16.5.4.

**This is the end of the procedure to exchange a HP4700 N graphical printer**

#### **9.16.5.4 Graphical printer good functioning test**

The graphical printer must be plugged in operational position and switched on.

The WPT must be plugged in operational position and switched on.

- Execute the "print log file" function from the SUPERVISION window to send the log file to the graphical printer:
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).
- Check that the file is correctly printed by the graphical printer.

#### **9.16.6 CONFIGURATION REFERENCES**

##### **9.16.6.1 Graphical printer IP address setting**

Before to start this procedure, check that:

- The printer is switched on.

The IP address of the HP4700 N graphical printer is defined in the "Network Topography of the General LAN" in § 3.5.2 or § 3.6.2.

- Set the IP address using the printer control panel :
  1. Press MENU to enter the MENUS.
  2. Press DOWN to highlight CONFIGURE DEVICE.
  3. Press SELECT to select CONFIGURE DEVICE.
  4. Press DOWN to highlight I/O.
  5. Press SELECT to select I/O.
  6. Press DOWN to highlight JETDIRECT.
  7. Press SELECT to select JETDIRECT.
  8. Press DOWN to highlight TCP/IP.
  9. Press SELECT to select TCP/IP.
  10. Press DOWN to highlight MANUAL. SETTINGS
  11. Press SELECT to select MANUAL. SETTINGS
  12. Press DOWN to highlight IP Address.

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13. Press SELECT to select IP Address:

Note: The first set of numbers is highlighted. If there is no number highlighted, a highlighted empty underscore appears.

14. Press UP or DOWN to increase or decrease the number for configuring the IP address.

15. Press SELECT to move to the next set of numbers.

16. Repeat steps 16 and 17 until the correct IP address is entered.

17. Press the MENU button to return to the Ready state.

### **9.16.7 STANDARD TOOLS**

None.

### **9.16.8 SPECIFIC TOOLS**

None.

### **9.16.9 MANUFACTURER DOCUMENTATION REFERENCE**

HP Color Laserjet 4700 User guide

Q7491-90953

**GPR : Graphical printer HP4700 N**  
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## **9.17 GPR : GRAPHICAL PRINTER HP4650 N**

### **9.17.1 SHORT DESCRIPTION**

The laser printer HP 4650 N is used in Centre system to print log file from WPT position and screens snapshots from WPO or WPT positions.

The printer includes the following features :

- Print technology : colour laser
- Print speed : Up to 22 ppm
- Print resolution : 2400 Image quality
- Processor : 266 MHz
- Memory : 160 Mb

### **9.17.2 GRAPHICAL PRINTER HP4650 COMPOSITION**

#### **9.17.2.1 Front view**

The HP4650 N front panel includes:

- (1) : Output bin.
- (2) : Printer control panel.
- (3) : Top cover.
- (4) : Tray 1.
- (5) : Tray 2.
- (6) : Access to print cartridges, transfer unit and fuser.
- (7) : On/Off switch



**GPR : Graphical printer HP4650 N**  
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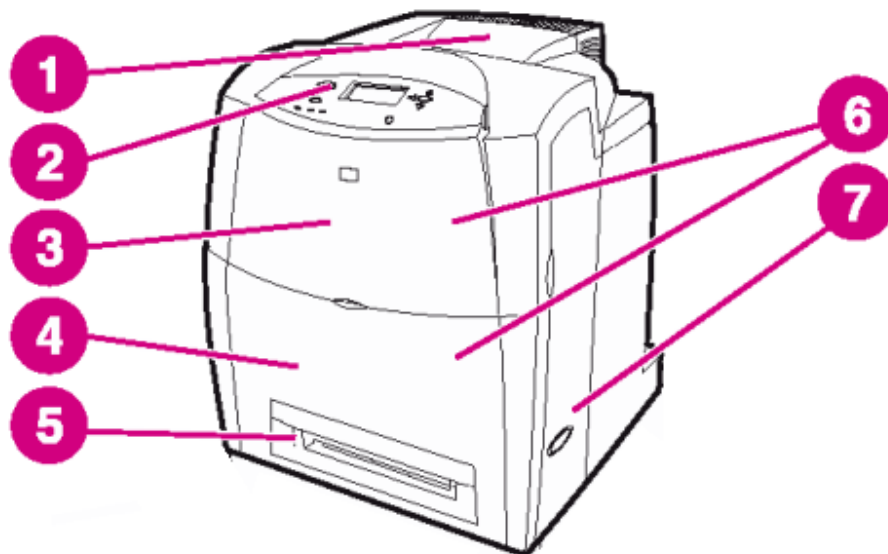


Figure 77 : Graphical printer HP4650 N front view

### 9.17.2.2 Rear view

The HP4650 N rear panel includes (see Figure 78) :

- (1) : Output bin.
- (2) : Auxiliary connector.
- (3) : Parallel connection.
- (4) : On/Off switch.
- (5) : EIO connection.
- (6) : Memory access.
- (7) : USB connection.

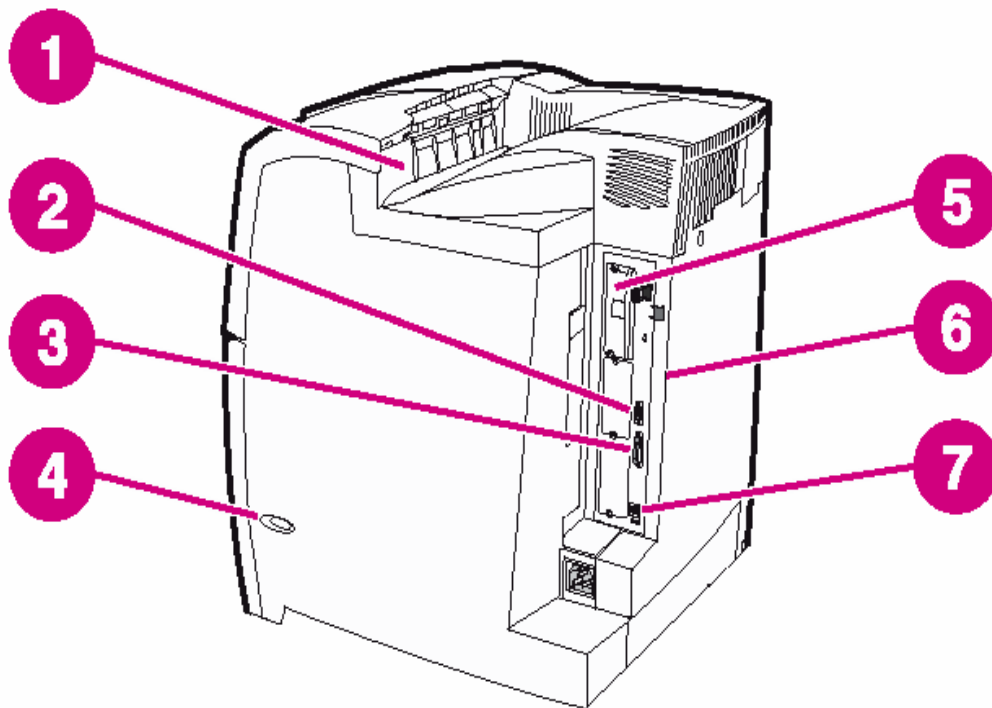


Figure 78 : Graphical printer HP4650 N rear panel

### 9.17.2.3 Control panel

The HP4650 N control panel includes (see Figure 79) :

- (1) : Menu button : Accesses and exits the menus.
- (2) : Stop button : Pauses the current job and provides options to resume printing or to cancel the current job.
- (3) : Read light.
- (4) : Data light.
- (5) : Attention light.
- (6) : Help button : Provides animated graphics and detailed information on printer messages or menus.
- (7) : Back/Exit button : Navigates backward in nested menus, or quits menus or help.
- (8) : Down arrow button : Navigates menus and text, and decreases the values of numerical items in the display.
- (9) : Select button : Makes selections and resumes printing after recovery errors.

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- (10) : Up arrow button : Navigates menus and text, and increases the values of numerical items in the display.
- (11) : Display.

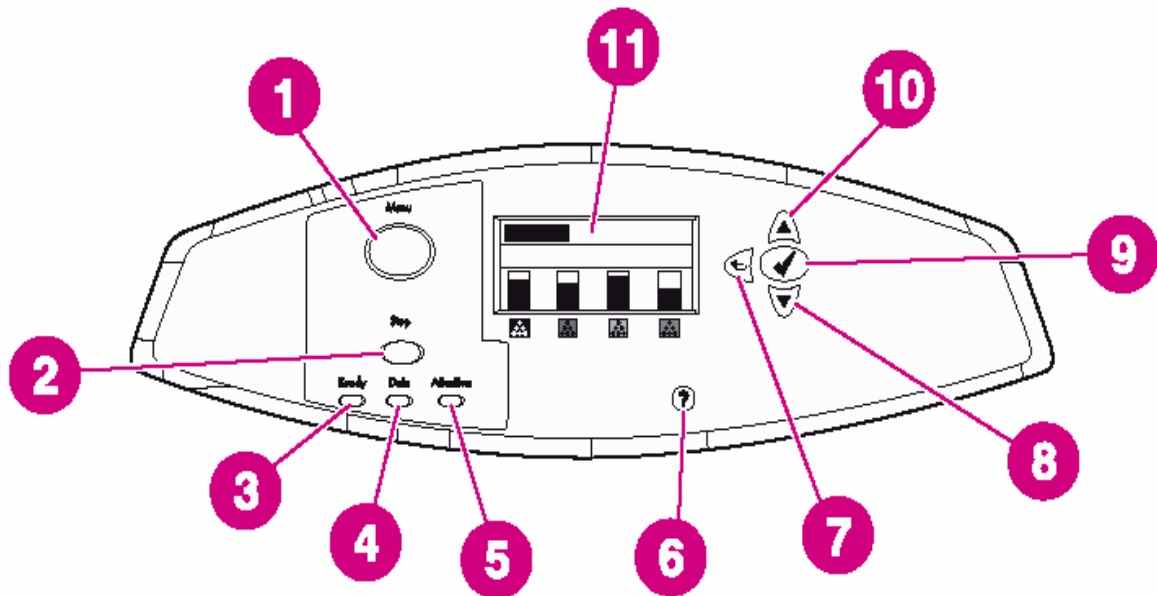


Figure 79 : Graphical printer HP4650 N control panel

### 9.17.3 PREVENTIVE MAINTENANCE

Not applicable.

### 9.17.4 CORRECTIVE MAINTENANCE

#### 9.17.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the Graphical printer HP4650 N are the following :

**GPR : Graphical printer HP4650 N**  
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A2	Indicators
A3	Visual check

- A2 (Indicators) aid is provided by the LED located on the control panel of the printer and by the information messages displayed on the control panel display (Figure 79).

Indicator LED :

Indicator	On	Off	Flashing
<b>READY (green)</b>	Printer is online (able to accept and process data).	Printer is offline or is Turned off.	Printer is attempting to stop printing and go offline.
<b>DATA (green)</b>	Processed data is present in the printer, but more data is needed to complete the job.	Printer is not Processing or Receiving data.	Printer is processing and receiving data.
<b>ATTENTION (amber)</b>	A critical error has occurred. Printer requires attention.	No conditions exist that require attention.	An error has occurred. Printer requires attention.

Messages from control panel display :

☞ Refer to the HP laserjet 4650 User guide – “Control panel messages” part.

- A3 (visual check): check that all cables are well plugged on the printer side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a graphical printer, refer to the § 9.17.5.3.

## 9.17.4.2 Common troubleshooting

### 9.17.4.2.1 The graphical printer is failed on general LAN window of supervision

Execute the following operations and check on each step if the problem is solved :

- Check that the graphical printer is switched on.
- Check that the graphical printer Ethernet cable is correctly connected to the Ethernet port of the graphical printer.
- Check that the graphical printer Ethernet cable is correctly connected to the general LAN switch.
- Check that the IP address of the graphical printer is good.
- Exchange the graphical printer.

#### **9.17.4.2.2 The printing command is sent to the printer, but the printing is not effective.**

Execute the following operations and check on each step if the problem is solved :

- Check on the printer control panel that the status of the printer is ready.
- Check that there is paper in the paper tray.
- Check that the ink toner is not empty.
- Exchange the graphical printer.

#### **9.17.4.2.3 The printing command is not correctly sent to the printer**

Execute the following operations and check on each step if the problem is solved :

- Try to print from another computer.
- Check the computer setting (for printer access).
- Re-install the whole SKYKEEPER software on the computer (refer to § 10.7.3).
- Exchange the graphical printer.

#### **9.17.4.2.4 A grey square is displayed on all prints**

☞ Refer to § 9.1.4.2.12 or § 9.2.4.2.12.

☞ For specific troubleshooting, refer to the HP laserjet 4650 User guide – Chapter 7 : “Maintenance” and Chapter 8 : “Problem solving”.

### **9.17.5 ELEMENTARY PROCEDURES**

#### 9.17.5.1 Switch on the unit

- Start the printer by pressing the ON/OFF switch button.
- When the printer starts, it takes several minutes to warm up. The indicator are blinking and the initialising message is displayed on the control panel display.
  - ☞ Refer to Figure 79.
- When the printer is ready to print, the ready indicator remains lit.

#### 9.17.5.2 Switch off the unit

- Stop the printer by pressing the ON/OFF switch button.

#### 9.17.5.3 Graphical printer exchange

The purpose of the following lines is to describe the procedure : Exchange the graphical printer.

This procedure is divided into 5 steps :

- Switch off the graphical printer and disconnect the cables.
- Remove and replace the failed graphical printer.
- Reconnect the cables to the spare and switch ON the equipment.
- Set the IP address of the graphical printer.
- Test the good functioning of the graphical printer.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a HP4650 N graphical printer**

##### 9.17.5.3.1 Switch off the graphical printer and Disconnect the cables

- Switch OFF the graphical printer.
  - ☞ Refer to the graphical printer switch OFF procedure in § 9.17.5.2
- Disconnect all the cables connected from the printer.

☞ Refer to Figure 78.

#### **9.17.5.3.2 Remove and replace the failed graphical printer**

- As the spare parts for the graphical printer are stored in DEPOT, the procedure is to extract the failed graphical printer from its module before installing the spare unit.

#### **9.17.5.3.3 Reconnect the cables to the spare and switch ON the equipment**

- Reconnect all the cables to the rear panel of the spare graphical printer.
  - ☞ Refer to Figure 78.
- Switch ON the graphical printer.
  - ☞ Refer to the graphical printer switch ON procedure in § 9.17.5.2.

#### **9.17.5.3.4 Set the IP address of the graphical printer**

- Set the IP address of the graphical printer.
  - ☞ Refer to the graphical printer IP address setting procedure in § 9.17.6.1.

#### **9.17.5.3.5 Test the good functioning of the new graphical printer**

☞ Refer to the graphical printer good functioning test in § 9.17.5.4.

**This is the end of the procedure to exchange a HP4650 N graphical printer**

#### **9.17.5.4 Graphical printer good functioning test**

The graphical printer must be plugged in operational position and switched on.

The WPT must be plugged in operational position and switched on.

- Execute the "print log file" function from the SUPERVISION window to send the log file to the graphical printer:
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

- Check that the file is correctly printed by the graphical printer.

## **9.17.6 CONFIGURATION REFERENCES**

### **9.17.6.1 Graphical printer IP address setting**

Before to start this procedure, check that:

- The printer is switched on.

The IP address of the HP4650 N graphical printer is defined in the "Network Topography of the General LAN" in § 3.5.2 or § 3.6.2.

- Set the IP address using the printer control panel :
  - 18.Press MENU to enter the MENUS.
  - 19.Press DOWN to highlight CONFIGURE DEVICE.
  - 20.Press SELECT to select CONFIGURE DEVICE.
  - 21.Press DOWN to highlight I/O.
  - 22.Press SELECT to select I/O.
  - 23.Press DOWN to highlight EIO X.
  - 24.Press SELECT to select EIO X.
  - 25.Press DOWN to highlight TCP/IP.
  - 26.Press SELECT to select TCP/IP.
  - 27.Press DOWN to highlight CONFIG METHOD.
  - 28.Press SELECT to select CONFIG METHOD.
  - 29.Press DOWN to highlight MANUAL.
  - 30.Press SELECT to select MANUAL.
  - 31.Press DOWN to highlight IP Address.
  - 32.Press SELECT to select IP Address:
    - Note : The first set of numbers is highlighted. If there is no number highlighted, a highlighted empty underscore appears.
  - 33.Press UP or DOWN to increase or decrease the number for configuring the IP address.
  - 34.Press SELECT to move to the next set of numbers.
  - 35.Repeat steps 16 and 17 until the correct IP address is entered.
  - 36.Press the MENU button to return to the Ready state.



### **1.1.6.2 HP Laser Jet 4650 driver installation**

#### **1.1.6.2.1 Install the HP printer driver packages**

#### **1.1.6.2.2 Create and configure the spooler with the hpnpl tool**

### **9.17.7 STANDARD TOOLS**

None.

### **9.17.8 SPECIFIC TOOLS**

None.

### **9.17.9 MANUFACTURER DOCUMENTATION REFERENCE**

HP laserjet 4650 User guide

Q3668-90909

**GPR : Graphical printer HP4650 N**  
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## 9.18 TSO : TIME SOURCE LEDI NETWORK

### 9.18.1 SHORT DESCRIPTION

The LEDI Network is used to broadcast the NTP (Network Time Protocol) protocol and update the time of the computer connected to the TCP/IP Ethernet network. The LEDI is synchronised with an AFNOR 87500 code input from the radio GPS generator.

The LEDI time source includes the following features :

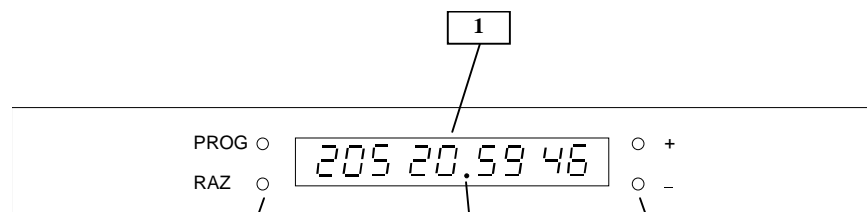
- AFNOR NFS87-500 UTC input
- NTP (RFC-1361) and UDP/Time (RFC-868) compatible UTC time output connection (10Base-T Ethernet)
- AFNOR local time output
- 230VAC /50-60Hz or 115VAC/50-60Hz power supply
- Operating temperature range: -25°C to +70°C
- Accuracy: 0.02s per 24 hours between 20°C and 30°C, and +/-0.33s per 24 hours between -20°C and 70°C

### 9.18.2 TIME SOURCE LEDI COMPOSITION

#### 9.18.2.1 Time source LEDI front view

The LEDI Network Time Source front panel includes (see Figure 80) :

- (1) 9-digit red display : day, hours, minutes, seconds display
- (2) Input synchronisation time display (AFNOR UTC). Blink every second when synchronised with the radio GPS generator RTB.
- (3) 4 configuration pushbuttons PROG, RAZ, +, - : for AFNOR output configuration (Summer/winter time change)



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Figure 80: Time source LEDI – front view

### 9.18.2.2 Time source LEDI rear panel

The LEDI Network Time Source rear panel includes (See Figure 81) :

- (4) Power connector : Receptacle for the power cord.
- (5) Fuse.
- (6) 4 LED : LED 1 : LEDI operating normally, LED 4 : Ethernet, LED 2 & 3 not used.
- (7) Ethernet (RJ45 connector) : connected to the General LAN Switch
- (8) RS232 port : configuration port
- (9) AFNOR NFS87-500 UTC terminal block SYNC input : connected to the radio GPS generator
- (10) AFNOR local time terminal block output : not connected

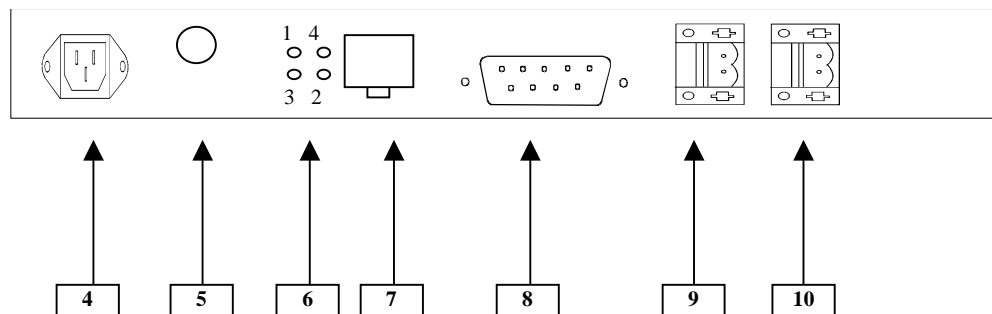


Figure 81: Time source LEDI – rear panel

### 9.18.3 PREVENTIVE MAINTENANCE

Not applicable.

### 9.18.4 CORRECTIVE MAINTENANCE

### 9.18.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the TSO are the following :

A1	Supervision
A2	Indicators
A3	Visual check

- A1 (Supervision) aid is provided by the SUPERVISION function running on WPT : check the status of the faulty TSO, and check the historic of the past states of this LRU in the log-file.
- A2 (Indicators) aid is provided by the dual LEDs located on the rear and front panel of the TSO. The following table gives the meaning of the different dual LEDs :

Operational mode	LED 1 Figure 81	LEDI operating normally
Ethernet	LED 4 Figure 81	Lit when there is Ethernet traffic
Synchronisation to RTB	LED 2 Figure 80	Blink when TSO is synchronised with RTB

- A3 (visual check): check that all cables are well plugged on the faulty TSO, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a Time Source LEDI, refer to § 9.18.5.2.

### 9.18.4.2 Common troubleshooting

#### 9.18.4.2.1 The TSO is failed on general LAN window of supervision

Execute the following operations and check on each step if the problem is solved:

- Check that the time source is switched on.
- Check that the time source Ethernet cable is correctly connected to the Ethernet port of the time source.
- Check that the time source Ethernet cable is correctly connected to the general LAN switch.
- Check that the IP address of the time source is good.

- Exchange the time source.

## 9.18.5 ELEMENTARY PROCEDURES

### 9.18.5.1 Switch on / switch off the unit

- To switch ON the Time Source LEDI, plug the power supply cable on the rear panel of the unit (See Figure 81: Time source LEDI – rear panel).
  - The time is displayed on the front panel.
- To switch OFF the Time Source LEDI, unplug the power supply cable on the rear panel of the unit (See Figure 81: Time source LEDI – rear panel).
  - The time is no longer displayed.

### 9.18.5.2 Time source LEDI exchange

The purpose of the following lines is to describe the procedure : Exchange a Time Source LEDI.

This procedure is divided into 5 steps.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a Time source LEDI**

#### 9.18.5.2.1 Switch off the unit and Disconnect the cables

- Pull out the Time Source LEDI from its module in order to access to the rear panel.
- Unplug the power supply cable in order to switch off the Time Source LEDI.
  - ☞ Refer to the Time Source LEDI switch OFF procedure in § 9.18.5.1.
- Disconnect all the cables connected to the Time Source LEDI.
  - ☞ Refer to Figure 81: Time source LEDI – rear panel.

#### 9.18.5.2.2 Remove and replace the failed Time Source LEDI

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- Replace the failed Time Source LEDI by the new one.

#### 9.18.5.2.3 Connect the cables to the new Time Source LEDI and switch ON the equipment

- Reconnect all the cables to the rear panel of the spare Time Source LEDI, finishing by the power supply cable (this will start the unit).
  - ☞ Refer to Figure 81: Time source LEDI – rear panel.

#### 9.18.5.2.4 Set the new Time Source LEDI configuration

- Set the IP address of the Time Source LEDI.
  - ☞ Refer to the Time Source LEDI IP address setting in § 9.18.6.1.2.
- Set the time display setting of the Time Source LEDI.
  - ☞ Refer to the Time Source LEDI display setting in § 9.18.6.3.

#### 9.18.5.2.5 Put the new Time Source LEDI in operational position

- As the Time Source LEDI is switched on when the power supply cable is plugged in, check that the unit is correctly started before setting it in its module.
- Install the spare Time Source LEDI in operational position.
- Remove the cortso1 entry from the arp table of WPT computer.
  - ☞ Refer to § 9.2.5.9.

#### 9.18.5.2.6 Test the good functioning of the Time Source LEDI

- ☞ Refer to the Time Source LEDI good functioning test in § 9.18.5.3.

**This is the end of the procedure to exchange a Time Source LEDI**

#### 9.18.5.3 TSO good functioning test

The Time Source LEDI must be plugged in operational position and switched on.

The Radio generator must be plugged in operational position, switched on, in navigation mode.

The WPT must be plugged in operational position and switched on.

- Check that the LED1 and LED 4 on the rear panel of the Time Source LEDI are lit.
- Check that the synchronisation indicator [2] in the display on the front panel of the Time Source LEDI is blinking.
- Check that the TSO state on the WPT supervision window is OK.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

## **9.18.6 CONFIGURATION REFERENCES**

### **9.18.6.1 TSO Time Source LEDI set up**

#### **9.18.6.1.1 Hardware configuration**

None.

#### **9.18.6.1.2 Software configuration**

None.

### **9.18.6.2 IP address setting**

The IP address of the Time Source LEDI is given in § 3.5.2 or § 3.6.2.

To set the IP address, you must connect the parallel cable between the LEDI (connector 8 on the rear panel) and a PC (COM1 serial port). To configure the IP address, you can use the HyperTerminal software, or the LNControlENG.exe software performed on the SMM documentation CD.

#### **IP address setting with HyperTerminal :**

- Connect the parallel cable between the LEDI (connector 8 on the rear panel) and a PC (COM1 serial port)
- Run the HyperTerminal application with following parameters :
  - port COM1



**TSO : Time source LEDI Network**  
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- 9600 Bauds
- 8 data bits
- 1 stop bit
- Switch OFF the Time Source LEDI,
- Press and maintain the lower-case x key on the PC keyboard,
- Switch ON the Time Source LEDI,
- Release the x key
- Press the F key
- Input the IP address , without DHCP, the subnet mask (255.255.255.0)
- Check the TSO state on Supervision window on WPT is OK.
- Stop the HyperTerminal application.
- Disconnect the parallel cable between the LEDI (connector 8 on the rear panel) and the PC (COM1 serial port).

**IP address setting with LNControlENG software :**

- Connect the parallel cable between the LEDI (connector 8 on the rear panel) and a PC (COM1 serial port)
- Insert the SMM documentation CD in the PC
- Run the LNControlENG.exe software
- The main menu with Configure, Get IP, Reset, Quit is displayed,
- Select Configure
- Enter the IP address, without DHCP (default), and the Subnet mask 255.255.255.0 (default)
- Select Configure>>
- Select COM1 port (default), then OK
- The message for correct downloaded configuration is displayed and main menu displayed again
- Select Quit and remove the CD
- Check the TSO state on Supervision window on WPT is OK.
- Disconnect the parallel cable between the LEDI (connector 8 on the rear panel) and the PC (COM1 serial port)

### **9.18.6.3 Display time setting**

The time displayed on the front panel can be configure as your choice. The time sent by the LEDI is not affected by this time display setting. For time output setting, see the radio GPS generator sheet.

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To set the time display, you must use the buttons PROG, +, - on the front panel of the Time Source LEDI.

- Press and release PROG
- When year displayed, press + or – to adjust the last 2 digits
- Press and release PROG
- When day, month are displayed, press + or – to adjust the day and month
- Press and release PROG
- When Hrs, min, sec are displayed, press + or – to adjust the hours
- Press and release PROG
- When Hrs, min, sec are displayed, press + or – to adjust the minutes
- If minutes are changed press and release PROG
- If minutes are changed, Syn.00 is displayed, then the synchronisation phase is performed
- Press and release PROG
- When Et.Hi is displayed, press + or – to choose the seasonal time change mode (non=no summer winter time adjustment, oui=summer/winter time change)
- Press and release PROG
- When "Deb" day, month are displayed, press + or – to adjust the day and month summer/winter change start date
- Press and release PROG
- When "Fin" day, month are displayed, press + or – to adjust the day and month summer/winter change end date
- Press and release PROG
- When TU hrs, min, sec are displayed, press + or – to adjust the UTC time hours
- Press and release PROG
- When hrs, min, sec are displayed, press + or – to adjust the brightness

### **9.18.7 STANDARD TOOLS**

PC computer with HyperTerminal application or CD drive.

### **9.18.8 SPECIFIC TOOLS**

- Parallel cable LEDI-PC.

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- SMM documentation CD for LNControlENG.exe software (only if HyperTerminal not used)

**9.18.9 MANUFACTURER DOCUMENTATION REFERENCE**

LEDI NETWORK operating instruction

FOR

19/F/529/A

**TSO : Time source LEDI Network**  
**UNCLASSIFIED**

## 9.19 TSO1 : TIME SOURCE LEDI NETWORK M1

### 9.19.1 SHORT DESCRIPTION

The LEDI Network is used to broadcast the NTP (Network Time Protocol) protocol and update the time of the computer connected to the TCP/IP Ethernet network. The LEDI is synchronised with an AFNOR 87500 code input from the radio GPS generator.

The LEDI time source includes the following features:

- AFNOR NFS87-500 UTC input
- NTP (RFC-1361) and UDP/Time (RFC-868) compatible UTC time output connection (10Base-T Ethernet)
- AFNOR local time output
- 230VAC /50-60Hz or 115VAC/50-60Hz power supply
- Operating temperature range: -25°C to +70°C
- Accuracy: 0.02s per 24 hours between 20°C and 30°C, and +/-0.33s per 24 hours between -20°C and 70°C

### 9.19.2 TIME SOURCE LEDI COMPOSITION

#### 9.19.2.1 Time source LEDI front view

The LEDI Network Time Source front panel includes (see Figure 82) :

- (1) 16-digit red display: day, hours, minutes, seconds display
- (2) Reset the LEDI Network SE
- (3) Switch between UTC and LOCAL time display
- 



Figure 82: Time source LEDI M1 – front view

### 9.19.2.2 Time source LEDI rear panel

The LEDI Network Time Source rear panel includes (See Figure 83) :

- (4) Power connector: Receptacle for the power cord.
- (5) Ethernet (RJ45 connector): connected to the General LAN Switch
- (6) Reset button
- (7) AFNOR NFS87-500 UTC terminal block SYNC input : connected to the radio GPS generator
- (8) AFNOR local time terminal block output : not connected

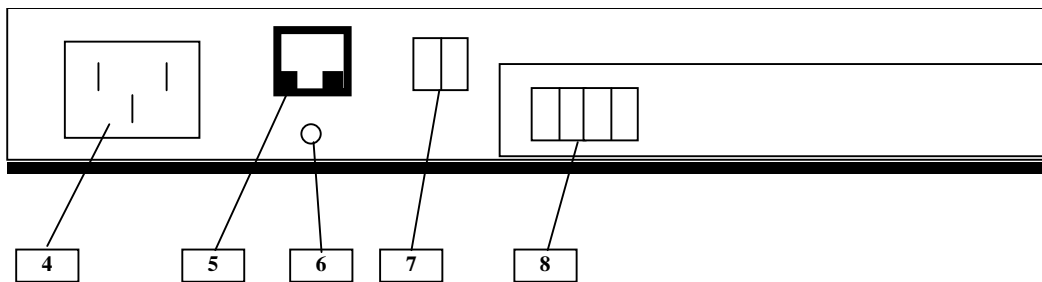


Figure 83: Time source LEDI M1 – rear panel

### 9.19.3 PREVENTIVE MAINTENANCE

Not applicable.

### 9.19.4 CORRECTIVE MAINTENANCE

#### 9.19.4.1 Maintenance aids

The Maintenance aids used for the troubleshooting of the TSO are the following :

A1	Supervision
----	-------------

A2	Indicators
A3	Visual check

- A1 (Supervision) aid is provided by the SUPERVISION function running on WPT: check the status of the faulty TSO, and check the historic of the past states of this LRU in the log-file.
- A2 (Indicators) aid is provided by the front display interface of the TSO (refer to Figure 82). The following table gives the meaning of the different displays:

All the dots are lightened	When the front display interface starts
"INIT"	TSO initialization
"no time code!"	There is no time code at the input, but the TSO can guarantee enough accuracy on its internal clock. This minor alarm is displayed alternatively with the date.
"Rescaling"	The time difference is too important, the TSO try to rescale its clock. This minor alarm is displayed alternatively with the date.
"NO TIME CODE!"	Without time code at the input, the TSO cannot guarantee accuracy, it stops deliver
"LOCKED"	The security threshold on synchronization input has been exceed. Outputs and NTP server are deactivated. To exit this state, refer to § 9.19.4.2.3.

- 
- A3 (visual check): check that all cables are well plugged on the faulty TSO, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a Time Source LEDI, refer to § 9.19.5.2.

## 9.19.4.2 Common troubleshooting

### 9.19.4.2.1 The TSO is failed on general LAN window of supervision

Execute the following operations and check on each step if the problem is solved:

- Check that the time source is switched on.
- Check that the time source Ethernet cable is correctly connected to the Ethernet port of the time source.
- Check that the time source Ethernet cable is correctly connected to the general LAN switch.

**TSO1 : Time source LEDI Network M1**  
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- Check that the IP address of the time source is good.
- Exchange the time source.

**9.19.4.2.2 The TSO displays "NO TIME CODE!"**

Execute the following operations and check on each step if the problem is solved:

- Check that the radio GPS generator RTB detects satellites.
- Check that the radio generator is correctly connected to the TSO.
- Exchange the time source.

**9.19.4.2.3 The TSO displays "LOCKED"**

This message indicates that the security threshold on synchronization input has been exceeded. To exit this state, you must unlock manually the TSO with a WEB browser.

Execute the following operations and check on each step if the problem is solved:

- Start the TSO WEB interface.
  - ☞ Refer to the § 9.19.5.3.
- Open the menu NTP menu



TSO1 : Time source LEDI Network M1  
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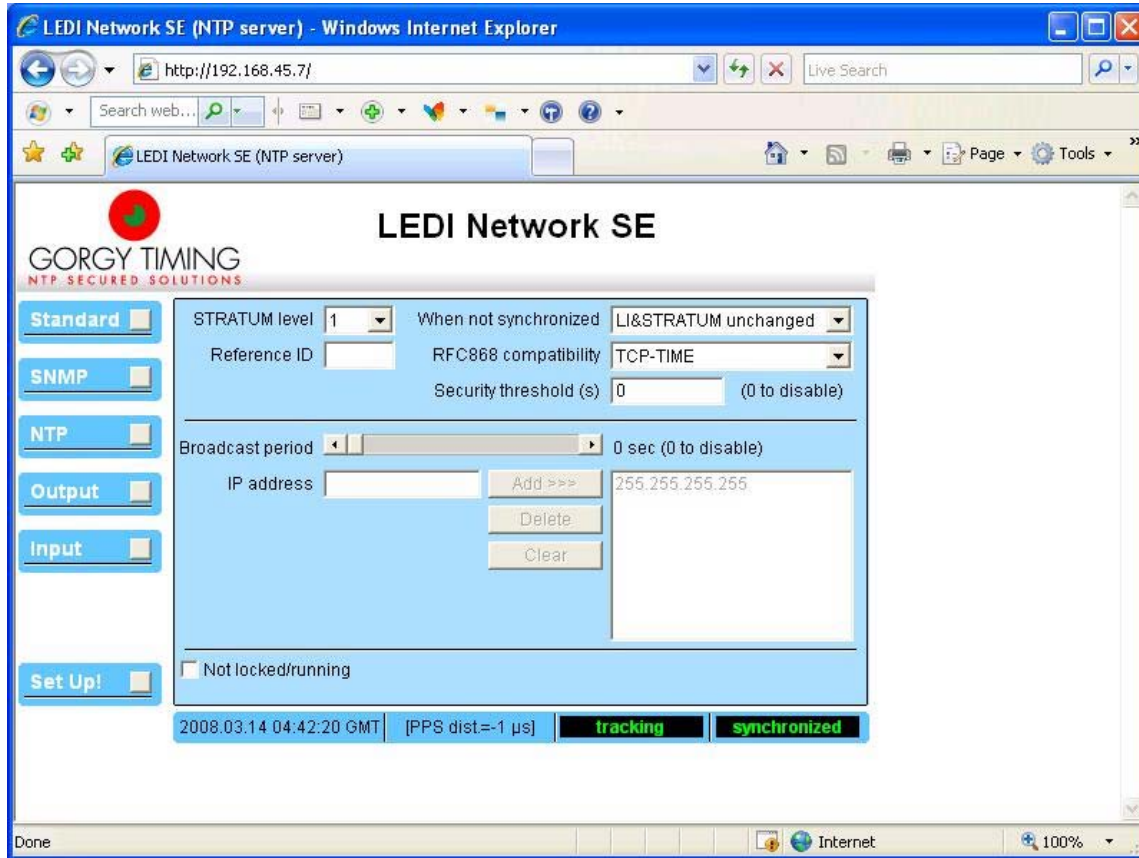


Figure 84: TSO WEB interface – NTP menu

You shall see the message "Locked because a rescaling may have overlap the security threshold". Unselect this option and then select the option "Not locked/running".

- If the "Security threshold" is different of "0", set "0" to disable it.
- Press on the button "Set Up!".
- After the TSO reboot and initialization, the TSO shall display the GMT time.

#### 9.19.4.2.4 The WEB browser cannot open the TSO WEB interface

Execute the following operations and check on each step if the problem is solved:

- Check the connection between the TSO and the laptop.
  - ☞ Refer to § 9.19.5.4.
- Check the IP address of laptop.
- Check the IP address of TSO.
  - ☞ Refer to § 9.19.6.2.

- Delete the history of your WEB browser. On Internet Explorer 7, select the option "Delete Browsing history" in the TOOLS menu, and then click on button "Delete all ...".
- Stop, and restart your WEB browser.

## 9.19.5 ELEMENTARY PROCEDURES

### 9.19.5.1 Switch on / switch off the unit

- To switch ON the Time Source LEDI, plug the power supply cable on the rear panel of the unit (See Figure 83).
  - The time is displayed on the front panel.
- To switch OFF the Time Source LEDI, unplug the power supply cable on the rear panel of the unit (See Figure 83).
  - The time is no longer displayed.

### 9.19.5.2 Time source LEDI exchange

The purpose of the following lines is to describe the procedure : Exchange a Time Source LEDI.

This procedure is divided into 5 steps.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a Time source LEDI**

#### 9.19.5.2.1 Switch off the unit and Disconnect the cables

- Pull out the Time Source LEDI from its module in order to access to the rear panel.
- Unplug the power supply cable in order to switch off the Time Source LEDI.
  - ☞ Refer to the Time Source LEDI switch OFF procedure in § 9.19.5.1.
- Disconnect all the cables connected to the Time Source LEDI.
  - ☞ Refer to Figure 83.

#### 9.19.5.2.2 Remove and replace the failed Time Source LEDI

- Replace the failed Time Source LEDI by the new one.

#### 9.19.5.2.3 Connect the cables to the new Time Source LEDI and switch ON the equipment

- Reconnect all the cables to the rear panel of the spare Time Source LEDI, finishing by the power supply cable (this will start the unit).
  - ☞ Refer to Figure 83.

#### 9.19.5.2.4 Set the new Time Source LEDI configuration

- Set the IP address of the Time Source LEDI.
    - ☞ Refer to the Time Source LEDI IP address setting in § 9.19.6.2.
- Put the new Time Source LEDI in operational position**
- As the Time Source LEDI is switched on when the power supply cable is plugged in, check that the unit is correctly started before setting it in its module.
  - Install the spare Time Source LEDI in operational position.
  - Remove the tso1 entry from the arp table of WPT computer.
    - ☞ Refer to § 9.2.5.9.

#### 9.19.5.2.6 Test the good functioning of the Time Source LEDI

- ☞ Refer to the Time Source LEDI good functioning test in § 9.19.5.5.

**This is the end of the procedure to exchange a Time Source LEDI**

#### 9.19.5.3 Start the TSO WEB interface

The TSO can be configured and supervised through a WEB interface. To access to this WEB page, you are 2 solutions:

- Use the Workstation WEB browser,
- Use the laptop WEB Browser.

# TSO1 : Time source LEDI Network M1

## UNCLASSIFIED

### 9.19.5.3.1 Use the workstation WEB browser

This solution has 2 advantages:

- The Solaris Operating System is delivered with the Mozilla WEB browser,
- The operational Sun computers are already connected on the general LAN.

To start the WEB browser, execute the following actions:

- Open an Unix terminal on the WPT,
- Enter the command:

---

```
[PROMPT_OPE] mozilla ↵
```

◆ The Mozilla WEB browser is displayed.

---

- In the Mozilla address bar, enter "<http://>" following by the IP address of the TSO.
  - ☞ Refer to § 3.5.2 or § 3.6.2.
- After few seconds, the WEB page is loaded.

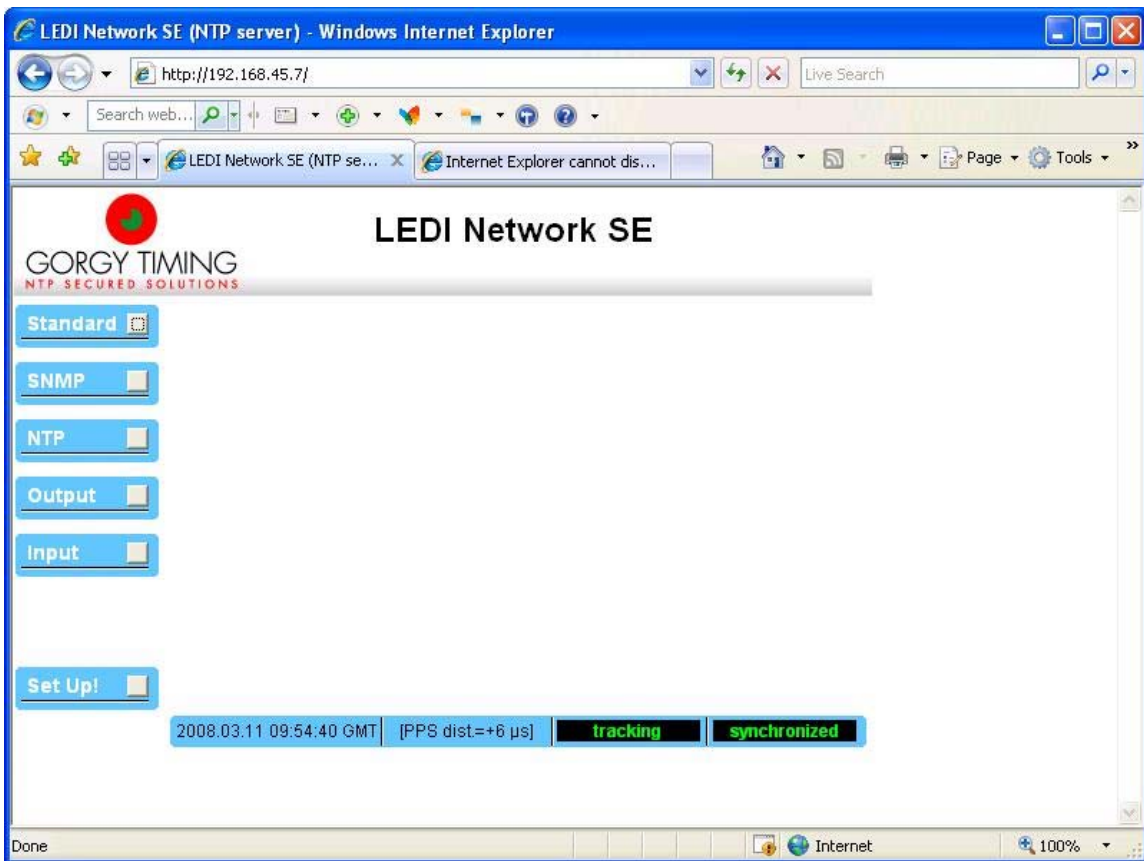


Figure 85: TSO WEB interface – initial page

- To display the general information, click on the button “Standard”.

# TSO1 : Time source LEDI Network M1

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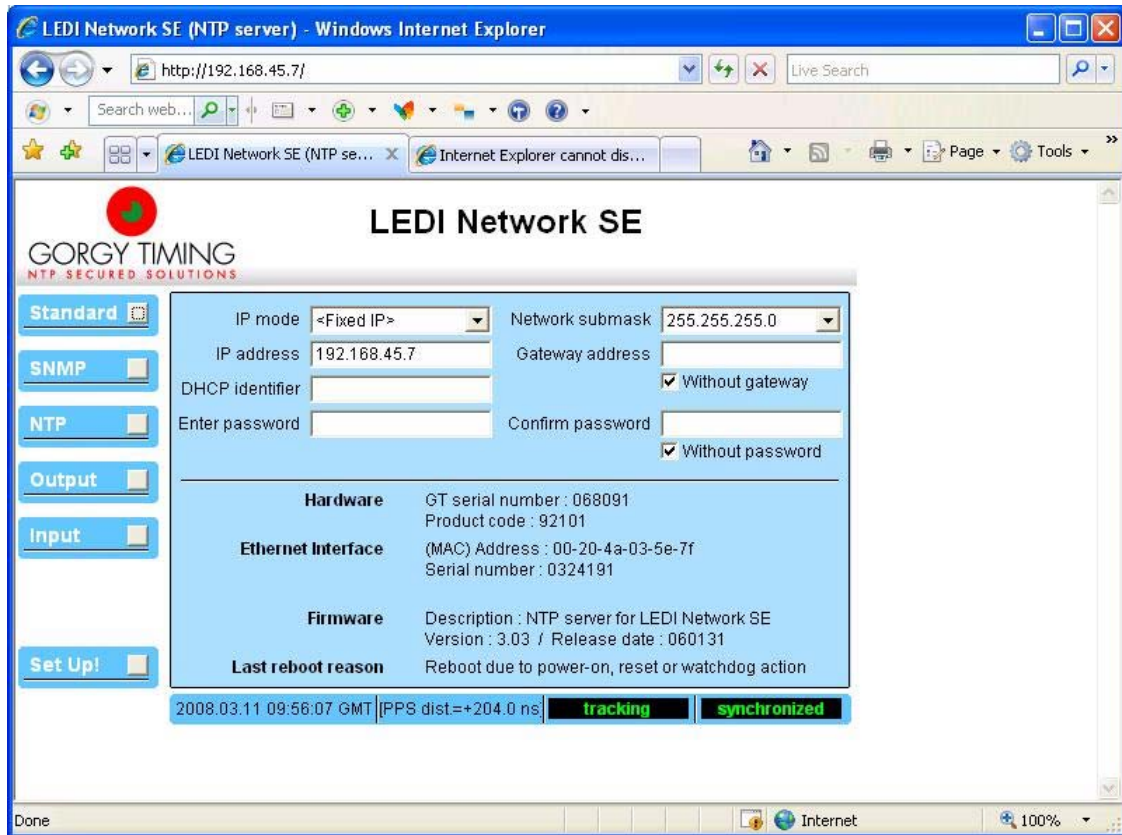


Figure 86: TSO WEB interface – general information page

### 9.19.5.3.2 Use WEB browser of laptop

This solution has 2 advantages:

- The laptop is connected close the TSO,
- Like you work in technical room, you do not disturb the operational room.

To start the WEB browser, execute the following actions:

- Connect the laptop to the TSO,
  - ☞ Refer to § 9.19.5.4.
- Start a WEB browser (Mozilla, Internet Explorer, ...),
- In the Mozilla address bar, enter "<http://>" following by the IP address of the TSO.
  - ☞ Refer to § 3.5.2 or § 3.6.2.
- After few seconds, the WEB page is loaded.
  - ☞ Refer to Figure 85.

#### 9.19.5.4 Connect the tools laptop to the TSO

You have two solutions to connect the tools laptop:

- Directly with a cross Ethernet cable,
- From the LAN switch with a straight Ethernet cable (only for operational TSO).

##### 9.19.5.4.1 Directly with a cross Ethernet cable

- Unplug the straight Ethernet cable to the TSO's RJ45 connector (if necessary).
- Connect the cross Ethernet cable to the TSO's RJ45 connector.
  - ☞ Refer to Figure 85.
- Connect the cross Ethernet cable to the laptop's RJ45 connector.

**Note: If you have unplugged the straight Ethernet cable, do not forget to plug it again when you will have finished your manipulations.**

##### 9.19.5.4.2 From the LAN switch with a straight Ethernet cable only for operational TSO)

If you would like to connect the tools laptop to the operational TSO, it is not necessary to touch it with the following action:

- Connect the straight Ethernet cable to the LAN switch,
- Connect the straight Ethernet cable to the laptop's RJ45 connector.
- Check that the IP address of laptop is in the same subnet of the TSO, else change the IP address (of the laptop).

#### 9.19.5.5 TSO good functioning test

The Time Source LEDI must be plugged in operational position and switched on.

The Radio generator must be plugged in operational position, switched on, in navigation mode.

The WPT must be plugged in operational position and switched on.

- Check that the LED1 and LED 4 on the rear panel of the Time Source LEDI are lit.
- Check, after initialization, that the current time/date is alternatively permanently displayed.
- Check that the TSO state on the WPT supervision window is OK.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

## 9.19.6 CONFIGURATION REFERENCES

### 9.19.6.1 TSO Time Source LEDI set up

#### 9.19.6.1.1 Hardware configuration

None.

#### 9.19.6.1.2 Software configuration

To configure the TSO software, execute the following actions:

- Set the correct IP address to the TSO (if it is not already done).
  - ☞ Refer to the § 9.19.6.2.
- Start the TSO WEB interface
  - ☞ Refer to the § 9.19.5.3.
- Open the NTP menu, and set "0" as "Security threshold" to disable it.
  - ☞ Refer to Figure 84.
- Press on the button "Set Up!" to configure the TSO.

### 9.19.6.2 IP address setting

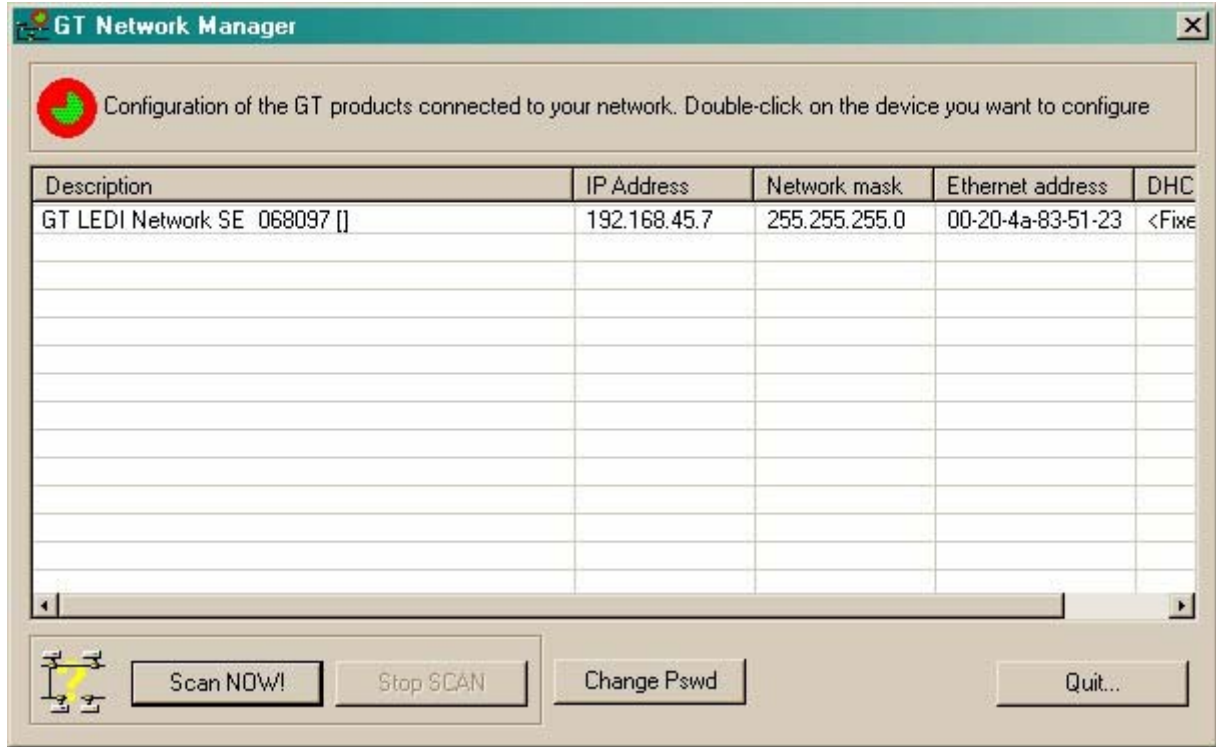
The IP address of the Time Source LEDI is given in § 3.5.2 or § 3.6.2.

To set the IP address, you must connect a crossed ethernet wire between the LEDI (connector RJ45 on the rear panel) and a PC (Ethernet port). To configure the IP address, you can use the GTNetMng.exe software performed on the SMM documentation CD.

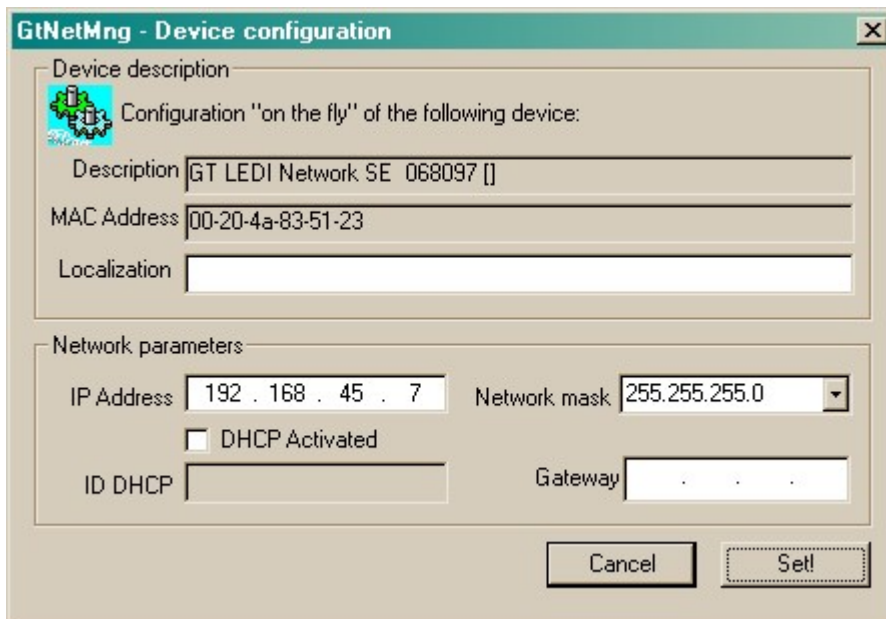
- Connect the crossed ethernet cable between the LEDI (connector RJ45 on the rear panel) and a PC (Ethernet port).
- Insert the SMM documentation CD in the PC.
- Switch on LEDI.
- During initialization, note the IP address displayed on the LEDI screen.
- Set the IP address of the PC in the same network, sub network.
- Execute the setup\_GTNetMng.exe software performed on the SMM documentation CD to install the GTNetMng on the PC (If not still present on the PC).

**TSO1 : Time source LEDI Network M1**  
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- Run the GTNetwork Manager software. The GT Network Manager tool displays automatically the Gorgy Timing products installed on your network. Each line contains information about one connected product:



- Double-click on the LEDI displayed to enter in configure mode:





- Enter the IP address (see tso1 address in network topography chapter), without DHCP (default), and the Subnet mask 255.255.255.0 (default). Press on "Set!" To configure the LEDI.
- The message for correct downloaded configuration is displayed. Press on "Yes":



- The main menu of GTNetwork Manager software is displayed.
- Select Quit and remove the CD.
- Wait that the LEDI finishes its restart.
- From the PC, open the command window (in the start menu, click on "Execute", and enter "command"), and then use the ping command to check the IP address of the LEDI.
- Disconnect the cable between the LEDI and the PC.
- Connect the TSO Ethernet cable to the general LAN switch.
- Check in the general LAN of Supervision window on WPT that the TSO state is OK.

### 9.19.6.3 Display the TSO setting

The TSO can be configured and supervised through a WEB interface.

☞ Refer to § 9.19.5.3.

This interface provides you to manage or display:

- Network parameters,
- SNMP parameters,
- The NTP server software itself;
- The display and the IRIG-B / AFNOR NFS87500 output.

For more information, refer to the User Manual given with the TSO.

### 9.19.7 STANDARD TOOLS

The tools laptop, with the TSO setting program, to set the time source IP address.

The tools laptop or an Unix station with WEB browser application (Internet Explorer, Mozilla, ...) to configure the time source.

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**9.19.8 SPECIFIC TOOLS**

- Crossed ethernet cable LEDI-PC.
- SMM documentation CD for setup\_GTNetMng.exe software

**9.19.9 MANUFACTURER DOCUMENTATION REFERENCE**

LEDI NETWORK operating instruction

FOR 19/A/530/E

**TSO1 : Time source LEDI Network M1**  
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## 9.20 RTB : RADIO GPS GENERATOR RTB

### 9.20.1 SHORT DESCRIPTION

The GORGY RTB GPS generator is a receiver for the satellite system GPS (Global Positioning System) delivering an IRIG B (AFNOR NFS 87-500) time code to synchronise a time source of a system.

### 9.20.2 RADIO GPS GENERATOR COMPOSITION

The GORGY RTB GPS generator is composed of two parts:

- The GPS receiver
- The GPS antenna

The GPS antenna is connected to the receiver with a coaxial cable which forms an integral part of the receiver.

Under its cover, the receiver case of the Radio GPS Generator includes the following indicators and connectors:

- (1) LD1 : One satellite received: Lit when one satellite is received by the generator .
- (2) LD2 : Navigation mode: Lit when three satellites are received by the generator.
- (3) LD3 : Top sec: Blink at period 1 second.
- (4) LD4 : Afnor : Blink at output AFNOR code after initialisation phase (1000 Hz)
- (5) LD5 : Sector : Lit while the power is on.
- (6) Power connector.
- (7) Output AFNOR code connector : to be connected to the time source LEDI
- (8) Antenna cable : to be connected to the GPS antenna.
- (9) Switches : configuration switches S1 to S7 (all in OFF position).

**RTB : Radio GPS generator RTB**  
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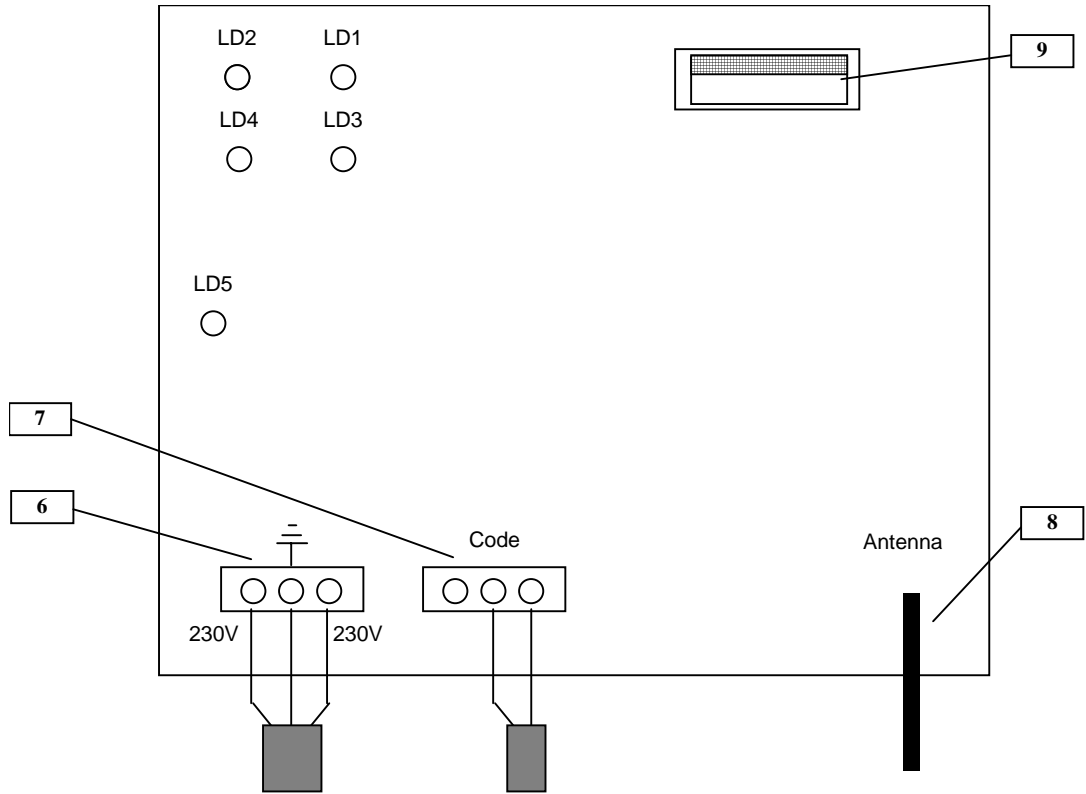


Figure 87 : Upside view of the radio generator (under cover)

**9.20.3 PREVENTIVE MAINTENANCE**

Not applicable.

**9.20.4 CORRECTIVE MAINTENANCE**

**9.20.4.1 Maintenance aids**

The Maintenance aids used for the troubleshooting of Radio Generator are the following :

A2	Indicators
A3	Visual check

**RTB : Radio GPS generator RTB**  
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- A2 (Indicators) aid is provided by the LEDs located inside the Radio Generator (Figure 87). The role of the different LEDs is detailed in Figure 87 description.

•

One satellite received	LD 1	Lit when one satellite is received by the generator
Navigation mode	LD 2	Lit when three satellites are received by the generator
Top sec	LD 3	In navigation mode, blink at period 1 second
Afnor	LD 4	Blink at output AFNOR (1000 Hz)
Sector	LD 5	Lit while the power is on

- A3 (visual check): check that all cables are well plugged on the faulty Radio Generator side, included receiver and antenna, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To exchange a Radio Generator, refer to the " Radio Generator exchange" Procedure in § 9.20.5.2.

## 9.20.4.2 Common troubleshooting

### 9.20.4.2.1 The TSO synchronisation indicator is not blinking

Execute the following operations and check on each step if the problem is solved :

- Check that the radio generator is switched on.
- Check that the radio generator is correctly connected to the TSO.
- Check that the radio generator antenna cable is correctly connected to the RTB box.
- Check that the radio generator antenna cable is correctly connected to the antenna.
- Check that the 5 radio generator indicators are lit.
- Check that the radio generator dip switches are all set to the "OFF" position.
- Exchange the radio generator.

## 9.20.5 ELEMENTARY PROCEDURES

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### 9.20.5.1 Switch on / switch off the unit

- To switch ON the Radio Generator, connect the power supply cable to main power supply.
  - When the Radio Generator starts, the receiver automatically runs the initialisation phase. During this time, only the "LD5" indicator lights.
  - When the initialisation phase is performed, i.e. three satellites picked up, the "LD1" to "LD4" indicators light.
- To switch OFF the Radio Generator, unplug the receiver power supply cable to main.
  - The "LD5" LED is no longer lit.

### 9.20.5.2 Radio Generator exchange

The purpose of the following lines is to describe the procedure: Exchange a Radio Generator.

This procedure is divided into 4 steps :

- Switch off the Radio Generator and disconnect the cables.
- Remove and replace the failed Radio Generator (including antenna).
- Connect the cables to the new Radio Generator and switch ON the equipment.
- Put the new Radio Generator in operational position.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a Radio Generator**

#### 9.20.5.2.1 Switch off the Radio Generator and Disconnect the cables

- Unplug the power supply cable in order to switch off the Radio generator.
  - ☞ Refer to the switch OFF procedure in § 9.20.5.1
- Unplug the antenna from the receiver.
- Extract the failed Radio generator from its module.
- Open the cover panel of the receiver and disconnect "Code" cable and "Power" cable (Do not disconnect the coaxial cable).

☞ Refer to Figure 87.

#### 9.20.5.2.2 Remove and replace the failed Radio Generator

- Replace the failed Radio Generator (receiver and antenna) by the new one.

#### 9.20.5.2.3 Connect the cables to the new Radio Generator and switch ON the equipment

- Open the cover panel of the receiver and reconnect "Code" cable and "Power" cable and put on the cover of the receiver.
- Reconnect coaxial cable to the antenna, "Code" cable to the Time Source, finishing by the power supply cable (this will start the unit).

☞ Refer to Figure 87.

#### 9.20.5.2.4 Put the new Radio Generator in operational position

- As the Radio Generator is switched on when the power supply cable is plugged in, check the good functioning of the Radio Generator.

☞ Refer to the Radio Generator good functioning test in § 9.20.5.3.

- Put back the cover panel of the receiver and setting it in its module.
- Put the new Radio Generator in operational position.

#### 9.20.5.2.5 Test the good functioning of the Radio Generator

☞ Refer to the Radio Generator good functioning test in § 9.20.5.3.

**This is the end of the procedure to exchange a Radio Generator**

#### 9.20.5.3 Radio Generator good functioning test

The Radio Generator (receiver and antenna) must be plugged in operational position and switched on. The receiver must be cover panel opened.

- Check that after the initialisation phase, i.e. three satellites picked up, the "LD1" to "LD4" are lit.



### 9.20.6 CONFIGURATION REFERENCES

The switches SW1 to SW7 of the Radio Generator receiver must be set to OFF (factory default).

### 9.20.7 STANDARD TOOLS

Cross blade screwdriver and electrician's screwdriver.

### 9.20.8 SPECIFIC TOOLS

None.

### 9.20.9 MANUFACTURER DOCUMENTATION REFERENCE

User Manual RT B GPS

FOR

09/A/450B



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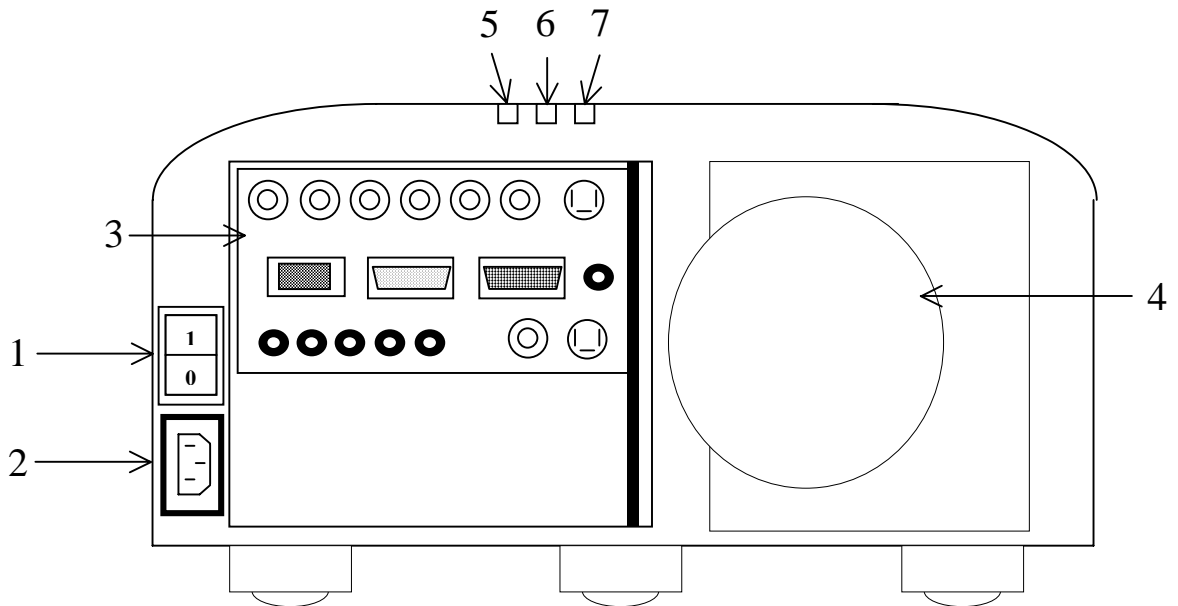


Figure 88: Projector BARCO IQ R500 – front view

NOTE: In case of projector transportation, the lens has to be removed and transported separately from the projector.

☞ Refer to the lens removal procedure in BARCO IQ R500 owner's manual § 3.4.4 .

### 9.21.2.2 Projector BARCO IQ R500 connection panel

The BARCO IQ R500 projector connection panel includes :

- (1) 5 cables data input (RGBHV), not connected.
- (2) Composite video, not connected.
- (3) Component video (PR/Y/PB), not connected.
- (4) DVI input, connected to the Twin Interface.
- (5) Computer input, not connected.
- (6) RS232 input, not connected.
- (7) RC (Wired Remote Control).
- (8) 4x Audio input, not connected.
- (9) 1x Audio output, not connected.
- (10) Composite video, not connected.

- (11) S-Video, not connected.

### 9.21.2.3 BARCO Twin Interface front panel

The BARCO Twin Interface front panel includes :

- (1) Power Led : Lit when the power is on.
- (2) ID selector Led : Lit when the ID bit selection is enabled. Not lit in Centre operational use.
- (3) ID selector. Disabled because a monitor is connected to output.
- (4) Input SYNC LEDs : Lit to indicate Horizontal, Vertical or composite synchronisation.
- (5) Computer input connector : connected to WPO1 Sun Blade 2000.

### 9.21.2.4 BARCO Twin Interface rear panel

The BARCO Twin Interface rear panel includes:

- (1) 5 BNC connectors : Connected to the projector BARCO IQ R500.
- (2) Two green LEDs indicating that signal presence at the sync outputs are available.
- (3) Monitor output : connected to the 21 inches screen.
- (4) Power connector: Receptacle for the power cord.

### 9.21.2.5 BARCO IQ R500 RCU and local keypad

The BARCO IQ R500 may be controlled by either the RCU (Remote Control Unit), or by the local keypad located on the topline of the projector.

For details on the RCU and local keypad function keys, refer to the BARCO IQ R500 owner's manual § 5.1.

#### NOTES:

- The RCU is powered by two batteries. For details on batteries installation and replacement, refer to the BARCO IQ R500 owner's manual § 3.5.
- The RCU may communicate with the projector by Infra Red signals when pointed toward the screen. The RCU may also be directly connected to the projector by the RC connector.

- For details on the RCU use, refer to the BARCO IQ R500 owner's manual § 5.5.2.

### 9.21.3 PREVENTIVE MAINTENANCE

#### 9.21.3.1 Clean Projector lens

Procedure:

Clean the projector lens with a soft tissue.

- ☞ Refer to the lens cleaning procedure in BARCO IQ R500 owner's manual § 3.4.5.

Periodicity:

Every month.

Report:

Complete a preventive maintenance report (See § 11.1).

#### 9.21.3.2 Clean projector dust filters

Procedure:

Clean the projector dust filters with a dry cloth.

- ☞ Refer to the dust filter cleaning procedure in BARCO IQ R500 owner's manual § A.

Periodicity:

Every month.

Report:

Complete a preventive maintenance report (See § 11.1).

### 9.21.4 CORRECTIVE MAINTENANCE

The Maintenance aids used for the troubleshooting of the Projector BARCO IQ R500 are the following :

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A2	Indicators
A3	Visual check

- A2 (Indicators) aid is provided by the LEDs located on the front panel of projector (Figure 88), and by some alarm messages which may be displayed on the screen by the projector:

- The role of the different LEDs of the projector is detailed in the figures descriptions (Figure 88).
- If the projector LED 3 does not lit when using the RCU (IR acknowledgement), check the RCU batteries (see § 9.21.2.5), check the projector and RCU address (see §9.21.6.1), or try to connect the RCU to the projector (see § 9.21.2.5).
- Lamp runtime warning:

The lamp runtime warning is an explicit message displayed when the lamp has reached a certain predetermined runtime, and indicates that the time for lamp exchange is almost reached. For security reasons, a lamp must not be used more than its maximum runtime. For details on the lamp runtime, refer to BARCO IQ R500 owner's manual § 5.4.

The lamp runtime warning can be set in a range from 30 to 200 hours. The runtime warning is displayed by default at 30 hours before end of lamp lifetime. For details on the lamp runtime warning setting, refer to BARCO IQ R500 owner's manual § 11.6.

For details on the lamp exchange, refer to BARCO Lamp IQ Kit installation manual.

- Dust filters warning:

If the airflow is falling under a predetermined threshold value, an explicit warning message will be displayed on the screen.

The dust filters must then be changed or cleaned.

☞ Refer to the dust filter cleaning procedure in BARCO IQ R500 owner's manual § A.

- A3 (Visual check):

- Check that all cables are well plugged on the projector side, as well as on the others LRU side.
- Check that the lens hood has been removed.
- Check that the lens has been correctly mounted.

☞ Refer to the lens installation procedure in BARCO IQ R500 owner's manual § 3.4.3.

To exchange a Projector, refer to the Projector exchange procedure in § 9.21.5.3.

To exchange a Twin Interface, refer to the Twin Interface exchange procedure in § 9.21.5.4.

## **9.21.5 ELEMENTARY PROCEDURES**

### **9.21.5.1 Projector BARCO IQ R500 Switch on / Switch off**

- To switch on the projector BARCO IQ R500, press the On/Off switch located on the front panel of the unit to position 1 (See Figure 88).  
When the projector is switched on, it starts automatically in stand by mode: Led 3 is red lit.
- To start the projection, press the Standby key on the RCU.  
It may take about 60 seconds before image projection, i.e. no projection until the completion of several operations (software initialisation,...). During starting sequence, Led 1 is flickering green.
- To stop the projection, press the Standby key on the RCU.  
It may take about 60 seconds before image disappears (software shutdown). During stopping sequence, Led 1 is flickering green.  
The projector is then in stand by mode: Led 3 is red lit.
- To switch off the projector BARCO IQ R500, switch to standby mode, then press the On/Off switch located on the front panel of the unit to Position 0 (See Figure 88).

### **9.21.5.2 BARCO Twin Interface Switch on / Switch off**

- To switch on the BARCO Twin Interface, plug the power supply cable connected on the rear panel of the unit.
- To switch off the BARCO Twin Interface, unplug the power supply cable connected on the rear panel of the unit.

### **9.21.5.3 Projector BARCO IQ R500 exchange**

The purpose of the following lines is to describe the procedure : Exchange a projector.

This procedure is divided into 6 steps :

- Switch off the projector and disconnect the cables.
- Remove the failed projector.

**PRJ : projector barco IQ R500**  
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- Install the lens in the new projector.
- Install the new projector.
- Reconnect the cables to the new projector and switch ON the equipment.
- Test the good functioning of the new Projector.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a projector BARCO IQ R500**

#### **9.21.5.3.1 Switch off the projector and disconnect the cables**

- Set the projector in standby mode, then switch off the projector.
  - ☞ Refer to § 9.21.5.1 for details on the switch off procedure.
- Disconnect all the cables connected to the projector (Refer to Figure 88).

#### **9.21.5.3.2 Remove the failed projector**

- Extract the failed projector from its module.

#### **9.21.5.3.3 Install the lens in new projector**

- As lens are delivered separately from the projector, the lens must be removed from the failed projector and installed in the new projector.
  - ☞ Refer to the lens removal and installation procedure in BARCO IQ R500 owner's manual § 3.4.3 & 3.4.4 .

#### **9.21.5.3.4 Install the new projector**

- Install the new projector in operational position.

#### **9.21.5.3.5 Reconnect the cables to the new unit and switch ON the equipment**

- Reconnect all the cables to the new projector (Refer to Figure 88).

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- Switch on the projector.
  - ☞ Refer to § 9.21.5.1 for details on the switch on procedure.

#### 9.21.5.3.6 Test the good functioning of the new Projector

- ☞ Refer to the BARCO IQ R500 Projector and Twin Interface good functioning test in § 9.21.5.6.

**This is the end of the procedure to exchange a projector BARCO IQ R500**

#### 9.21.5.4 BARCO TWIN INTERFACE exchange

The purpose of the following lines is to describe the procedure : Exchange a BARCO Twin Interface.

This procedure is divided into 4 steps :

- Switch off the BARCO Twin Interface and disconnect the cables.
- Remove and replace the failed BARCO Twin Interface.
- Reconnect the cables to the new BARCO Twin Interface and switch ON the equipment.
- Test the good functioning of the Twin Interface.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a BARCO Twin Interface**

#### 9.21.5.4.1 Switch off the BARCO Twin Interface and disconnect the cables

- Switch off the BARCO Twin Interface.
  - ☞ Refer to § 9.21.5.2 for details on the switch off procedure.
- Disconnect all the cables connected to the BARCO Twin Interface.

#### 9.21.5.4.2 Remove and replace the failed BARCO Twin Interface

- Extract the failed BARCO Twin Interface from its module and install the new BARCO Twin Interface in operational position.

#### 9.21.5.4.3 Reconnect the cables to the new unit and switch ON the equipment

- Reconnect all the cables to the new BARCO Twin Interface.
- Switch on the BARCO Twin Interface.
  - ☞ Refer to § 9.21.5.2 for details on the switch on procedure.

#### 9.21.5.4.4 Test the good functioning of the new Twin Interface

- ☞ Refer to the BARCO IQ R500 Projector and Twin Interface good functioning test in § 9.21.5.6.

**This is the end of the procedure to exchange a BARCO Twin Interface**

#### 9.21.5.5 BARCO lamp exchange

The purpose of the following lines is to describe the procedure : Exchange a BARCO Lamp.

This procedure is divided into 3 steps :

- Stop the projector.
- Note the lamp serial number
- Exchange the lamp.
- Start the projector.
- Reset the lamp runtime.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a BARCO Lamp**

#### 9.21.5.5.1 Switch off the projector

- Set the projector in standby mode, then switch off the projector.
  - ☞ Refer to § 9.21.5.1 for details on the switch off procedure.

#### 9.21.5.5.2 Note the lamp serial number

- Note the lamp serial number before installing the lamp in the projector, because it will be needed to reset the lamp runtime.

#### 9.21.5.5.3 Exchange the lamp

- ☞ Refer to the lamp exchange procedure in the BARCO Lamp IQ Kit installation manual.

#### 9.21.5.5.4 Switch on the projector

- ☞ Refer to § 9.21.5.1 for details on the switch on procedure.

#### 9.21.5.5.5 Reset the lamp runtime

- ☞ Refer to the lamp runtime reset procedure in the BARCO IQ R500 owner's manual § 11.5 .

**This is the end of the procedure to exchange a BARCO Lamp**

#### 9.21.5.6 BARCO IQ R500 Projector and Twin Interface good functioning test

The Projector must be plugged in operational position and switched on.

The corresponding Twin Interface must be plugged in operational position and switched on.

The WPO1 must be plugged in operational position and switched on.

- Check that the image of WPO1 is displayed on the large screen by the Projector.

## 9.21.6 CONFIGURATION REFERENCE

### 9.21.6.1 Projector and RCU addresses

The projector has two addresses:

- The projector address (for individual control by RCU).
- The common address (default address for universal use).

To communicate with the projector, the RCU address must be set to either the projector address, or the common address.

As there is more than one projector in the operational room, to be individually controlled all projectors must have a different address, and all RCU addresses must be the same than its corresponding projector address.

- ☞ For details on the projector address setting, refer to the BARCO IQ R500 owner's manual § 14.2 .
- ☞ For details on the RCU address setting, refer to the BARCO IQ R500 owner's manual § 5.6 .

NOTE: When the RCU batteries are replaced, the RCU address is automatically set to the default common address 0.

### 9.21.6.2 Source selection

The source selection for data input must be set to : *Data on BNC's*

- ☞ For details on the source selection procedure, refer to the BARCO IQ R500 owner's manual § 6.2.

### 9.21.6.3 Image files

The standard image files contains information about predefined sources. The AutoImage function generates automatically a custom image file with information about the source and the configuration set. This file is memorised by AutoImage for future use with the same source.

AutoImage generates a new custom file when:

- A new source is detected.
- The AutoImage button on the RCU is pressed.

- ☞ For details on the RCU and local keypad function keys, refer to the BARCO IQ R500 owner's manual § 5.1.

If the source is not automatically detected and no file is loaded, it is possible to load, save or copy image files manually.

- ☞ For details on image files, refer to the BARCO IQ R500 owner's manual § 12.

#### 9.21.6.4 Lens adjustment

The lens adjustment (zoom, focus and shift) may be set by the direct access keys on the RCU.

- ☞ For details on the RCU and local keypad function keys, refer to the BARCO IQ R500 owner's manual § 5.1.

The lens adjustment may also be set using the Installation menu.

- ☞ Refer to the BARCO IQ R500 owner's manual § 14.1 .

#### 9.21.6.5 Lamp mode

The projector may manage the lamps in two different modes:

- Single mode: The projector will always switch to the lamp with the shortest runtime when the difference between the runtimes of lamp1 and lamp 2 reaches 100 hours. Switching from one lamp to another happens only at switching on of the projector and not during operation. When the lamp fails or reaches its maximum runtime, the projector switches automatically to the other lamp without interrupting the projection. The failure is logged and the lamp will never be initialised in the future.
- Dual mode : Both lamps are working. When one lamp fails, the projector continues the projection using the remaining lamp.

The operational lamp mode is the dual mode: the quality of the image displayed is better because the light is more intense, but the projection lifetime is reduced to the maximum runtime of a single lamp.

If there is enough darkness in operational room, it is possible to reduce the projector light intensity by switching to the single lamp mode. This will increase the projection lifetime.

- ☞ For details on the lamp mode setting, refer to the BARCO IQ R500 owner's manual § 11.3.

#### 9.21.7 STANDARD TOOLS

Not applicable

### 9.21.8 SPECIFIC TOOLS

- 1 Remote control unit (RCU).

### 9.21.9 MANUFACTURER DOCUMENTATION REFERENCE

BARCO IQ Rreality 500 owner's manual	R5976693/00
BARCO Lamp Kit for IQ projectors, installation manual	R5976375/01

## 9.22 MOS : MOS OPTICAL DISK DRIVE

### 9.22.1 SHORT DESCRIPTION

The MOD 910 Optical Disk Drive is used for Centre automatic centralised recording data back-up.

The Magneto Optical Disk Drive includes the following features :

- Storage capacity: 9.1 gigabytes (4.55 gigabytes per side) max depending on the disk capacity.
- Signal interface connector: SCSI.

### 9.22.2 MOS OPTICAL DISK DRIVE COMPOSITION

#### 9.22.2.1 Front panel

The MOS Optical Disk Drive front panel includes (see Figure 89) :

- (1) Disk slot: The opening for inserting/retrieving optical disks.
- (2) Power indicator: Remain lit while the power is on.
- (3) Activity indicator: Lit while the drive is accessed and when the drive is loading or ejecting a disk.
- (4) Emergency eject: An access hole for the eject tool. In an emergency, such as a power outage, the disk can be manually ejected by inserting the eject tool into this opening.
- (5) Eject button: Pressed to eject the disk from the drive. The drive power must be ON.



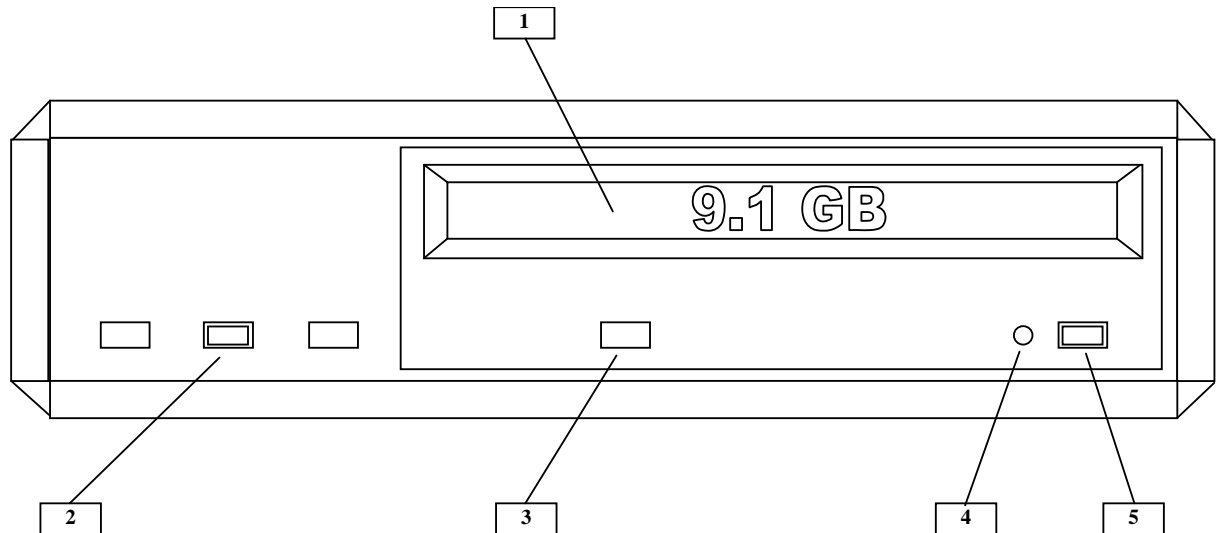


Figure 89 : MOS Optical Disk Drive front panel

### 9.22.2.2 Rear panel

The MOS Optical Disk Drive rear panel includes (see Figure 90) :

- (6) SCSI ID selector and operation mode: Used to set the SCSI ID and to choose the operating mode and set preference for write verify. Refer to paragraph 9.22.6.1 : Setting the MOS switches configuration
- (7) On/Off switch: Used to switch power on or off.
- (8) Power connector: Receptacle for the power cord.
- (9) Fan.
- (10) SCSI connector: 50-pin high-density SCSI connector (Micro D-type), used to connect the MOS to the computer.
- (11) SCSI connector: 50-pin high-density SCSI connector (Micro D-type), connected to the SCSI terminator.

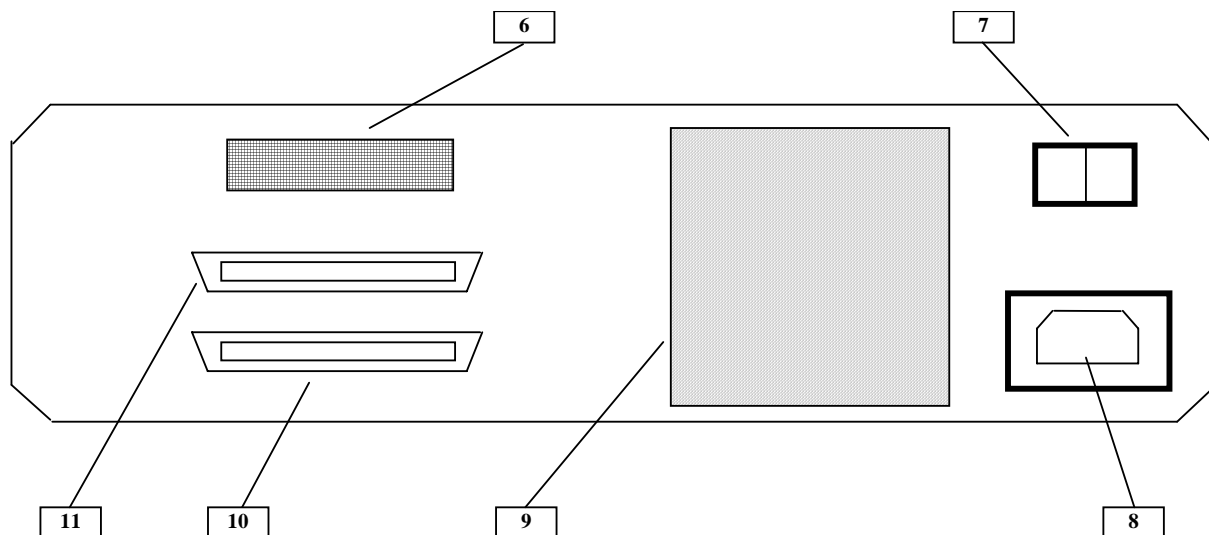


Figure 90 : MOS Optical Disk Drive rear panel

**9.22.3 PREVENTIVE MAINTENANCE**

Not applicable.

**9.22.4 CORRECTIVE MAINTENANCE**

**9.22.4.1 Maintenance aids**

The Maintenance aids used for the troubleshooting of the MOS Optical Disk Drive are the following :

A2	Indicators
A3	Visual check

- A4 (Indicators) aid is provided by the LEDs located on the front panel of the MOS drive. refer to Figure 89 for details on the LEDs.
- A5 (visual check): check that all cables are well plugged on the MOS drive side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

Refer also to the "Pre checks before service call" paragraph in the Plasmon MOD 910 User Manual.

To exchange a MOS Optical Disk Drive, refer to the "MOS drive exchange" Procedure in § 9.22.5.2.

### 9.22.4.2 Common troubleshooting

#### 9.22.4.2.1 Error when save on MOS

☞ Refer to § 7.6.4.

#### 9.22.4.2.2 Error when eject MOS

☞ Refer to § 7.6.5.

### 9.22.5 ELEMENTARY PROCEDURES

#### 9.22.5.1 Switch on / switch off the unit

- To switch ON the MOS Optical Disk Drive, press the On/Off switch located on the rear panel of the unit (Figure 90). The power indicator (Figure 89) comes on.
- To switch OFF the MOS Optical Disk Drive, press the On/Off switch located on the rear panel of the unit (Figure 90). The power indicator (Figure 89) comes off.

#### 9.22.5.2 MOS drive exchange

The purpose of the following lines is to describe the procedure : Exchange a MOS drive.  
This procedure is divided into 7 steps.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a MOS drive**

**9.22.5.2.1 Switch off the WPT Sun computer and the DAT drive**

Any device connected to the SCSI Bus must be disconnected before to unplug the SCSI cables.

- Switch OFF the WPT Sun computer.
  - ☞ Refer to the Sun computer switch OFF procedure in § 9.2.5.2.
- Switch OFF the DAT drive.
  - ☞ Refer to the DAT drive switch OFF procedure in § 9.23.5.1.

**9.22.5.2.2 Switch off the MOS drive and Disconnect the cables**

- Pull out the MOS drive from its module in order to access the rear panel.
- Switch OFF the MOS drive.
  - ☞ Refer to the MOS drive switch OFF procedure in § 9.22.5.1
- Disconnect all the cables connected to the MOS drive.
  - ☞ Refer to Figure 90.

**9.22.5.2.3 Remove the failed MOS drive**

- Remove the failed MOS drive by the new one.

**9.22.5.2.4 Set the switch configuration of the new MOS drive**

- ☞ Refer to the MOS switches configuration setting in § 9.22.6.1.

**9.22.5.2.5 Reconnect the cables to the new MOS drive and switch ON the equipment**

- Reconnect all the cables to the rear panel of the spare MOS drive.
  - ☞ Refer to Figure 90.
- Switch ON the MOS drive.
  - ☞ Refer to the MOS drive switch ON procedure in § 9.22.5.1
- Put the spare MOS drive in operational position.

**9.22.5.2.6 Switch on the DAT drive and the WPT Sun computer**

- Switch ON the DAT drive.
  - ☞ Refer to the DAT drive switch ON procedure in § 9.23.5.1.
- Switch ON the WPT computer.

- ☞ Refer to the Sun computer switch ON procedure in § 9.2.5.1

### 9.22.5.2.7 Test the good functioning of the MOS drive

- ☞ Refer to the MOS drive good functioning test in § 9.22.5.3.

**This is the end of the procedure to exchange a MOS drive**

### 9.22.5.3 MOS drive good functioning test

The MOS drive must be plugged in operational position and switched on.

The DAT drive and WPT must be plugged in operational position and switched on.

- To check the good functioning of the MOS drive, SAVE some central recording data on a MOS media, then list the saved data using the SAVE function in the SUPERVISION window.

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

## 9.22.6 CONFIGURATION REFERENCES

### 9.22.6.1 Setting the MOS switches configuration

- Check that the SCSI bus is not active: Activity indicator on front panel of the unit is not lit (Figure 89, Item 2).
- Switch OFF the MOS Optical Disk Drive.
  - ☞ Refer to the MOS drive switch OFF procedure in § 9.22.5.1
- Locate the DIP switches on the rear panel of the disk drive (Figure 90).
- Set the SCSI ID, write verify, SCSI command and Device type via the DIP switches number 1 to 6 on the rear panel of the unit (Figure 90) as indicated :

- |      |      |  |                        |
|------|------|--|------------------------|
| • 1: | Up   |  |                        |
| • 2: | Down |  | SCSI Drive Id = 5      |
| • 3: | Up   |  |                        |
| • 4: | Down |  | Write verify = Enabled |

- 5: Down SCSI Command
- 6: Up Operation mode = Direct access device

- Switch ON the MOS Optical Disk Drive.
  - ☞ Refer to the MOS drive switch ON procedure in § 9.22.5.1

NOTE : For details on the switches configuration, refer to the Plasmon MOD 910 User Manual.

### 9.22.6.2 MOS disk formatting

Before being used for the first time, a MOS disk has to be formatted.

This procedure is available for the following MOS media type only:

- Size : 5,25 inches
- Capacity : 4,1 GB
- Sectoring : 512 byte/sector

To execute this procedure, the MOS drive must be connected to the WPT and switched ON.

**This procedure will erase all data contained on the MOS device.**

- Insert the device in the MOS drive.
- If a formatting tool is launched automatically, DO NOT USE IT, just close the window.
- Execute the following commands to format the MOS disk:

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window.
[PROMPT_OPE] su - ↵	◆ Administrator user name.
Password : .....	◆ Administrator password.
[PROMPT_ADM] cd /jade/TOOLS/MOS ↵	◆ Change directory to the MOS configuration files directory.
[PROMPT_ADM] ./formatMOS.sh	◆ Execute the formatting command with the given option (SHORT is the default option).
Usage: formatMOS.sh [<format_type>]	
[<format_type>] = SHORT    LONG – Not mandatory, default is SHORT	

---

SHORT : execute file system partitioning of the MOS disk 5 minutes (nominal case)

LONG : execute complete format and file system partitioning 1 hour. This option is advised when an error occurred on the MOS media.

---

SHORT format of the MOS disk will be performed. ♦ Formatting will erase all the data on the disk.

This operation will take 5 minutes.

All data on the disk will be deleted.

Do you want to execute SHORT format of the MOS disk ? (y/n) y ↵

---

[PROMPT\_ADM] exit ♦ Quit the administrator account.

---

[PROMPT\_OPE] exit ♦ Close the Xterm window with the exit command.

---

- To check the good functioning of the MOS media, run the MOS drive good functioning test with the newly formatted media.

☞ Refer to the MOS drive good functioning test in § 9.22.5.3.

The MOS disk is ready for operational use.

### 9.22.6.3 Data archiving

- For automatic data archiving on MOS disk, refer to the "System data back-up" Procedure in § 10.4.

- For manual data archiving on MOS disk, use the MOS disk as a hard disk located on the /rmdisk/rmdisk0 directory: The MOS disk is automatically mounted when inserted in the MOS drive, and then directly accessible for manual operations on data.

☞ Refer to UNIX commands in § 12.

### 9.22.7 STANDARD TOOLS

None.

### 9.22.8 SPECIFIC TOOLS

None.

**9.22.9 MANUFACTURER DOCUMENTATION REFERENCE**

Plasmon MOD 910 User Manual

ML-00698 (0)





## 9.23 DAT: TAPE DRIVE

### 9.23.1 SHORT DESCRIPTION

The Sun DAT 72 tape drive is used to read or write data on DAT tape, for manual back-up.

The DAT tape drive includes the following features :

- Data storage capacity with DDS-4 tapes : 20 gigabytes (uncompressed data), or 40 gigabytes (compressed data).
- Data transfer rate: 3 Mbytes/Sec without compression, 6 Mbytes/Sec with compression.
- Signal interface connector : SCSI-2.
- Media : DAT 72, DDS-4, DDS-3.

### 9.23.2 DAT TAPE DRIVE COMPOSITION

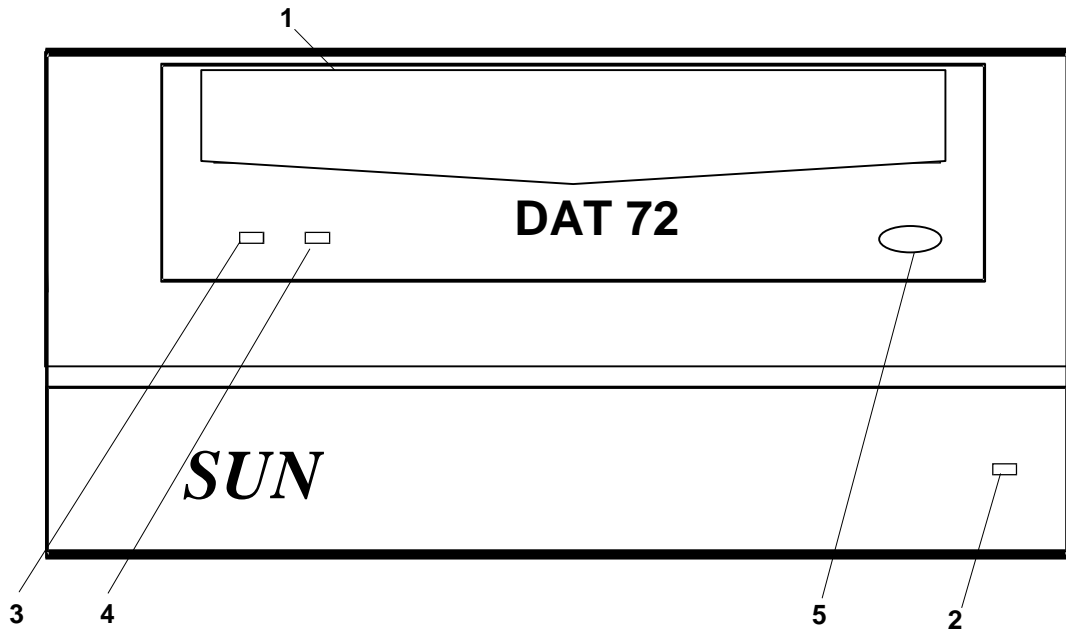
The front panel of the DAT tape drive is composed of (Figure 91) :

- (1) Tape slot: The opening for inserting/retrieving DAT cartridges,
- (2) Power indicator: indicates when power is ON,
- (3) Activity light: shows the presence of a cartridge (steady), and the activity of the drive (flashes during load, unload, read and write),
- (4) Attention light: indicates hard default (steady amber), or cartridge end of life (flashes amber),
- (5) Eject button: used to eject the tape,

The rear panel of the DAT tape drive is composed of (Figure 91) :

- (6) Lock: to lock the chassis on the DAT drive,
- (7) Power switch: Used to switch power on or off,
- (8) Power connector: Receptacle for the power cord,
- (9) SCSI ID switch: Used to set the SCSI ID. Refer to paragraph 9.23.6.1 "Setting the SCSI ID",
- (10) SCSI connector IN : 68-pin high-density SCSI connector (Micro D-type) used to connect the tape drive to the computer,
- (11) SCSI connector OUT: 68-pin high-density SCSI connector (Micro D-type), not connected,
- (12) Convection cooling fan.

Front panel



Rear Panel

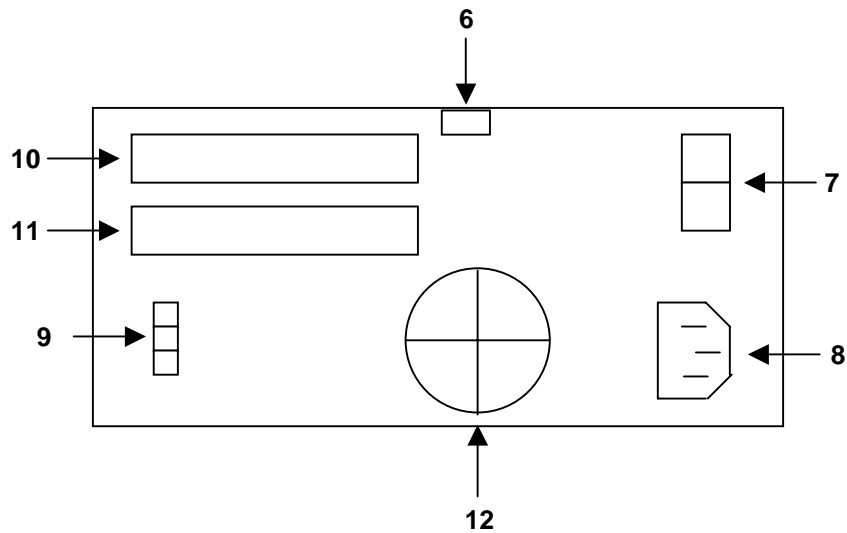


Figure 91: DAT Tape Drive composition

9.23.3 PREVENTIVE MAINTENANCE

### 9.23.3.1 Clean DAT drive heads

- Clean the heads of the DAT tape drive with a DDS-approved cleaning tape cartridge.

Periodicity: Follow the Head Cleaning Schedule.

Nb of DDS cartridges used each day	Cleaning interval
1 or less	8 weeks
2	4 weeks
3	3 weeks
4 or more	Weekly

### 9.23.4 CORRECTIVE MAINTENANCE

#### 9.23.4.1 Maintenance aids

The maintenance aids used for the troubleshooting of the DAT tape drive are the following :

A4	Indicators
A5	Visual check

- A4 (Indicators) aid is provided by the two LEDs located on the front panel of the DAT tape drive (Figure 91). The following table gives the meaning of the different dual LEDs:

Activity	ATTENTION	DESCRIPTION
Flash green	Off	Activity – load or unload
Fast flash green	Off	Activity – read or write
Green	Off	Cartridge loaded
Any	Flash amber	Media Caution signal (*1)
Any	Amber	Fault (*2)
Flash green	Off	Power-on (starts with no steady lights)

- (\*1): If the Media Caution signal appears (flashing amber), clean the tape drive following the Head cleaning procedure described in § 9.23.5.4.
- If the signal still displays after cleaning the heads, insert a different tape in the drive. If this clears the signal, the first tape is nearing the end of its life. Copy the data onto a new tape and discard the old one.

- The media caution signal is cleared when a new tape is loaded or when the drive is power-cycled.
- (\*2): If the Fault signal appears (amber), remove the tape cartridge by pressing the eject button on the front panel of the unit (Figure 91).
- If the signal still displays after inserting the same tape, insert a different tape in the drive. If this clears the signal, the first tape is damaged. Discard the damaged tape.
  - A5 (visual check): check that all cables are well plugged on the tape drive side, as well as on the others LRU side. Refer to the Figures in the corresponding equipment sheets.

To replace a DAT tape drive by the spare part, refer to the "DAT drive exchange" Procedure.

### 9.23.4.2 Common troubleshooting

#### 9.23.4.2.1 Error when save on tape

☞ Refer to § 7.6.2.

#### 9.23.4.2.2 Error when load from tape

☞ Refer to § 7.6.3.

### 9.23.5 ELEMENTARY PROCEDURES

#### 9.23.5.1 Switch on / switch off the unit

- To switch on the DAT tape drive, press the ON/OFF switch located on the rear panel. When the unit turns on, the power indicator on the front panel of the unit comes on.
- To switch off the DAT tape drive, press the ON/OFF switch located on the rear panel.

#### 9.23.5.2 DAT drive exchange

The purpose of the following lines is to describe the procedure : Exchange a DAT drive.

- This procedure is divided into 7 steps.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to exchange a DAT drive**

**9.23.5.2.1 Switch off the WPT Sun computer and the MOS drive**

- Any device connected to the SCSI Bus must be shut down before to unplug the SCSI cables.
- Switch OFF the WPT Sun computer.
  - ☞ Refer to the Sun computer switch OFF procedure in the Sun SB1500 Equipment sheet.
- Switch OFF the MOS drive.
  - ☞ Refer to the MOS drive switch OFF procedure in the MOS drive Equipment sheet.

**9.23.5.2.2 Switch off the DAT drive and Disconnect the cables**

- Pull out the DAT drive from its module in order to access the rear panel.
- Switch OFF the DAT drive.
  - ☞ Refer to the switch OFF procedure.
- Disconnect all the cables connected to the DAT drive.
  - ☞ Refer to Figures of the DAT drive to have details on the cabling of the DAT drive.

**9.23.5.2.3 Remove the failed DAT drive**

- Remove the failed DAT drive from its module before installing the spare unit.

**9.23.5.2.4 Set the SCSI ID of the spare DAT drive**

- ☞ Refer to the "Setting the SCSI ID" procedure to set the SCSI ID of the new DAT drive.

**9.23.5.2.5 Reconnect the cables to the spare and switch ON the equipment**

- Reconnect all the cables to the rear panel of the spare DAT drive.

- ☞ Refer to the Figures of the DAT drive equipment sheet to have details on the cabling of the DAT drive.
- Switch ON the DAT drive.
  - ☞ Refer to the DAT drive switch ON procedure.
- Put the spare DAT drive in operational position.

**9.23.5.2.6 Switch ON the MOS drive and the WPT Sun computer**

- Switch ON the MOS drive.
  - ☞ Refer to the MOS drive switch ON procedure in the MOS drive Equipment sheet.
- Switch ON the WPT Sun computer.
  - ☞ Refer to the Sun computer switch ON procedure in the Sun SB1500 Equipment sheet.

**9.23.5.2.7 Test the good functioning of the DAT drive**

- ☞ Refer to the DAT drive good functioning test in § 9.23.5.3.

**This is the end of the procedure to exchange a DAT drive**

**9.23.5.3 DAT drive good functioning test**

The DAT drive must be plugged in operational position and switched on.

The MOS drive and WPT must be plugged in operational position and switched on.

- To check the good functioning of the DAT drive, insert a DAT containing central recording data for example, and list the content of the DAT using the LOAD function in the SUPERVISION window.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]).

**9.23.5.4 DAT drive heads cleaning procedure**

- Make sure all tape drive Attention and Activity lights are off (No cartridge inside the tape drive).

- Insert the cleaning tape cartridge (CONSUMABLE) face up into the device.
- Push gently on the tape until the unit pulls the cartridge into the drive.
- The cleaning runs automatically. Wait a few minutes until the drive ejects the cleaning tape cartridge.
- Remove and store the cleaning tape cartridge.

Refer to the corresponding Maintenance Report in 11.1 .

### 9.23.6 CONFIGURATION REFERENCES

#### 9.23.6.1 Setting the SCSI ID

- Check that the SCSI bus is not active: Activity indicator on front panel of the unit is not lit (Figure 91, Item 3).
- Switch OFF the DAT Tape Drive.
- Locate the SCSI ID switch on the rear panel of the tape drive (Figure 92).
- Set the SCSI ID to the value "4" by pushing the + button (to increase) or the - button (to decrease) with a small screw driver or the point of a pen.
- Switch ON the DAT Tape Drive.

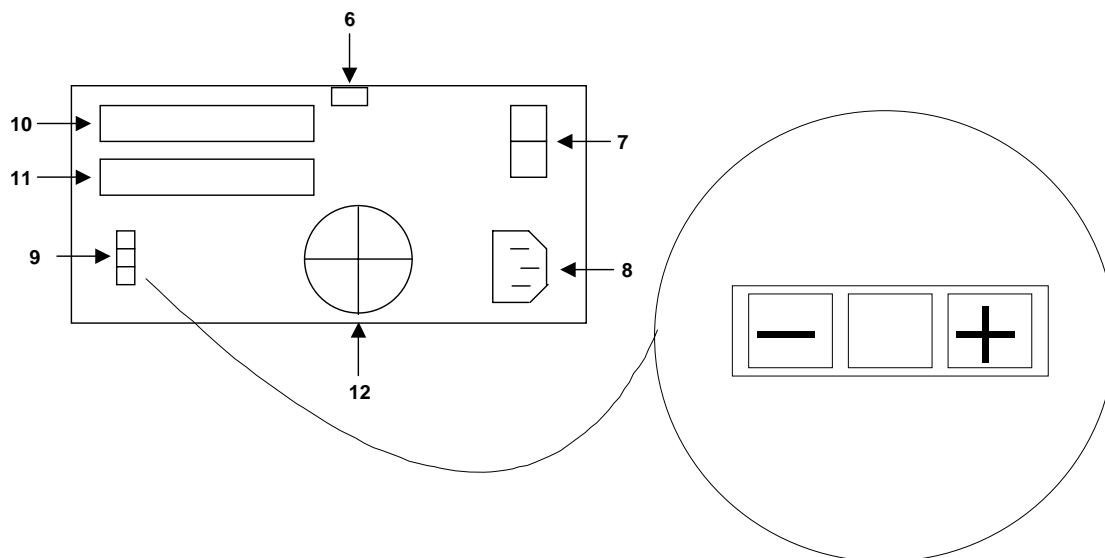


Figure 92 : DAT Tape drive SCSI configuration

#### 9.23.6.2 Data archiving



- For manual data archiving on DAT tape, refer to UNIX commands in 12.7 .
- For automatic data archiving on DAT tape, refer to the "Offline parameters update", "System data back-up", and "System data restore" Procedures in § 10.4.

**9.23.7 STANDARD TOOLS**

None.

**9.23.8 SPECIFIC TOOLS**

None.

**9.23.9 MANUFACTURER DOCUMENTATION REFERENCE**

DAT72 Getting Started Guide

791-4770-01



## 10. ADMINISTRATIVE PROCEDURES

## 10.1 STA : START THE CENTRE SYSTEM

The purpose of the following lines is to describe the procedure : Start the Centre System.

- All the LRU must be connected to the Main Power Supply.

The present procedure is divided into 2 steps :

- Switch ON all the Equipment of the Centre.
- Start all the applications from the SUPERVISION window on WPT.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to start up the Centre system**

### 10.1.1 SWITCH ON ALL THE EQUIPMENTS OF THE CENTRE

- Refer to the switch on procedure of each equipment in the Centre, and start all equipment in the following order:
  - Time source
  - Radio GPS generator
  - Network Switch
  - LCD screens
  - Speakers
  - Computers
  - IOP
  - Modems
  - Printer

When all equipment are correctly started; check the time synchronisation of Sun computers (refer to § 10.6).

When all equipment are correctly started, and Sun computers synchronised; a UNIX session is opened on WPT and WPO computers and the SUPERVISION window is running on WPT.

The system is ready for applications start.

## 10.1.2 START UP THE APPLICATIONS

All the applications are controlled from the SUPERVISION function on WPT.

The SUPERVISION function is automatically started at logon.

For details about the SUPERVISION function, refer to the documentation OH TEC (Doc. ref. [3]).

### 10.1.2.1 Check the state of all component from the SUPERVISION function

- After switching on the Centre, check that :
  - The state of all computers is "READY" (except for the WPT which is "RUNNING").
  - The general LAN state is "OK",
  - The state of all external LINK is "OK" or "READY".

If any component is "FAILED" or "OFF", a corrective action must be performed by the technician.

### 10.1.2.2 Start all the applications from the SUPERVISION window

- Start the application on each computer by means of the SUPERVISION function running on WPT :
  - Start ADP,
  - Start each WPO with the desired role,
  - Start REC\_C
  - Start SPM\_ONLINE.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]) for details on the use of SUPERVISION to start applications.
- Start the support applications if necessary for punctual use by means of the SUPERVISION function running on WPT :
  - REP\_C,
  - SPM\_OFFLINE.

☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]) for details on the use of SUPERVISION to start applications.

**This is the end of the procedure to start up the Centre system**

**STA : Start the centre system**  
**UNCLASSIFIED**

## 10.2 STO : STOP THE CENTRE SYSTEM

The purpose of the following lines is to describe the procedure : Stop the Centre System.

This procedure is divided into 2 steps :

- Shut down all the computers from the SUPERVISION Window on WPT.
- Switch OFF all the equipment of the Centre (if needed).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to stop the Centre system**

### 10.2.1 SHUTDOWN ALL THE COMPUTERS FROM THE SUPERVISION WINDOW

- Click on SHUTDOWN button, then Shutdown\_all menu in the SUPERVISION window on WPT

The "SHUTDOWN\_ALL" function stops all the applications, halt all the UNIX operating systems and switch off all the computers

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. ref. [3]) for details on the use of the "SHUTDOWN\_ALL" function.

### 10.2.2 SWITCH OFF ALL THE EQUIPMENT OF THE CENTRE

- Refer to the switch off procedure of each equipment in the Centre, and stop all equipment in the following order:

- LCD Screens
- Speakers
- Printer
- Radio GPS generator
- Time source
- IOP
- Modems
- Network Switch

**STO : Stop the centre system**  
**UNCLASSIFIED**

**This is the end of the procedure to stop the Centre system**



**STO : Stop the centre system**  
**UNCLASSIFIED**

### 10.3 UPD : OFFLINE PARAMETERS UPDATE

The purpose of the following lines is to describe the procedure: Update the offline parameters.

The offline parameters are managed by the SPM\_OFFLINE program running on WPT, but they are stored only on the disk of WPT. For details on offline parameters modification, refer to the OH TEC documentation (Doc. Ref. [3]).

After every modification of the offline parameters, it is necessary to execute the update procedure from WPT in order for the SYSTEM to take into account the new offline parameters. If the update procedure is not executed after a modification of the offline parameters, the SYSTEM will continue to run with the old offline parameters.

Any Sun computer (ADP or WPO) not connected to the network during the UPDATE procedure will not be updated. Then to avoid offline data incoherence, the UPDATE procedure may be run again when the missing Sun computer is reconnected to the network.

There are three kinds of UPDATE:

- UPDATE\_ALL / COLD
- UPDATE\_ALL /HOT
- UPDATE\_Maps

#### Update all cold

When the UPDATE\_ALL / COLD command is executed from the SUPERVISION window, all the offline data are updated, and all the online data (Resources) are deleted from the SYSTEM. During the execution of this procedure, all the applications, which will be updated, are stopped. When the UPDATE\_ALL is complete, it is then necessary to restart the ADP, all WPO, SPM\_ONLINE and if required, SPM\_OFFLINE from the SUPERVISION window.

#### Update all hot

When the UPDATE\_ALL / HOT command is executed from the SUPERVISION window, all the offline data are updated, without delete the online data (Resources) from the SYSTEM. When the SYSTEM will restart, some coherencies between the new offline data and the old online data are done, so some online data can be deleted. For example, if an airbase is deleted (offline data), all fighters (online data) attached to this airbase will be deleted. During the execution of this procedure, all the applications, which will be updated, are stopped. When the UPDATE\_ALL is complete, it is then necessary to restart the ADP, all WPO, SPM\_ONLINE and if required, SPM\_OFFLINE from the SUPERVISION window.

### Update maps

When the UPDATE\_Maps command is executed from the SUPERVISION window, only offline data concerning the maps are updated, and no online data are deleted. During the execution of this procedure, no application is stopped. When the UPDATE\_Maps is complete, all WPO and SPM\_ONLINE will take into account the new maps only after being stopped and restarted from the SUPERVISION window.

The offline parameters update procedure is then divided into 4 steps :

- Update the offline parameters from the SUPERVISION window.
- Restart ADP (for UPDATE\_ALL only).
- Restart all WPO.
- Restart the SPM applications (ONLINE, OFFLINE).

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to update the offline parameters**

### 10.3.1 UPDATE OFFLINE PARAMETERS FROM THE SUPERVISION WINDOW

- Update Centre parameters
  - ☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to execute the update procedure from the SUPERVISION window.

All the running applications are automatically stopped on computers ADP and WPO.

On WPT, SPM\_ONLINE and SPM\_OFFLINE are stopped.

**WARNING : SPM offline is stopped without saving, then all offline data not saved are lost.**

### 10.3.2 RESTART ADP

- Restart the ADP computer from the SUPERVISION window after UPDATE\_ALL.
  - ☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to start ADP from the SUPERVISION window.

If the first restart of the ADP after the UPDATE\_ALL is aborted before the ADP reaches the "RUNNING" state, a new UPDATE\_ALL shall be performed by the operator.

### 10.3.3 RESTART THE WPO

- Restart all WPO in the desired mode.
  - ☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to start all WPO from the SUPERVISION window.

### 10.3.4 RESTART THE TECHNICAL PROCESS

- Restart SPM\_ONLINE, and if needed SPM\_OFFLINE.
  - ☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to start SPM\_ONLINE, and SPM\_OFFLINE technical process

**This is the end of the procedure to update the offline parameters**

**UPD : Offline parameters update**  
**UNCLASSIFIED**

## **10.4 BCK : SYSTEM DATA BACK-UP**

The purpose of the following lines is to describe the procedure: Save the different kinds of SYSTEM data on DVD media or WPT hard disk.

This procedure is then divided into 3 steps:

- Prepare the DVD (if necessary)
- Save the central recording data
- Save the offline parameters
- Save the SIM scenarios

As they do not depend on each other, these two steps may be executed individually.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to back-up system data**

### **10.4.1 PREPARE THE DVD (IF NECESSARY)**

#### **10.4.1.1 Two types of DVD**

There are two kinds of DVD:

- RECCAUTO\_DVD : dedicated DVD for the automatic copy of central records.
- OFFLINE\_DVD : dedicated DVD for offline data.

NOTE : OFFLINE\_DVD cannot be used for the automatic central record process.

NOTE: It is not recommended, but it is possible to copy manually central records to OFFLINE\_DVD.

To convert a DVD from OFFLINE\_DVD to RECCAUTO\_DVD (or RECCAUTO\_DVD to OFFLINE\_DVD), it is necessary to format the DVD.

#### **10.4.1.2 Format a DVD**

**NOTE: this procedure will erase all data contained on the DVD.**

**BCK : System data back-up**  
**UNCLASSIFIED**

NOTE: before to format the DVD, you must check that the DVD is DVD-RW.

- Insert the DVD in the DVD Reader/Writer drive.
- If a formatting tool is launched automatically, DO NOT USE IT, just close the window.
- Execute the following commands to format the DVD-RW:

---

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window.
---	---------------------------

---

[PROMPT_OPE] <code>cd /jade/TOOLS/DVD ↵</code>	◆ Change directory to the DVD configuration files directory.
--	--

---

[PROMPT_OPE] <code>./formatDVD.sh ↵</code>	◆ Execute the formatting command without option to know the possible options
--	--

Usage: `./formatDVD.sh <DVD_device_PATH>`

<DVD\_device\_PATH> = The path of the DVD device

If it is an internal DVD device,  
the path can be `/vol/dev/aliases/cdrom0`

---

[PROMPT_OPE] <code>./formatDVD.sh /vol/dev/aliases/cdrom0 ↵</code>	◆ Execute the formatting command with the correct option.
--	---

\*\* This operation will take ~30 minutes.

\*\* All data on the disk will be deleted.

---

** Do you want to format the DVD disk ? (y/n)	◆ Formatting will erase all the data on the disk.
---	---

`y ↵`

\*\* Format of the DVD disk

◆ To format the DVD, enter "y".

\*\* has started on Fri May 30 12:29:06 GMT 2008

\*\* Results will be stored in  
`/users/jade/TOOLS_SOIN_V1.1.7-01_04_08-10h25m53s/DVD/Result_formatDVD-SHORT-30_05_08-12:28:48.log`

\*\* Formatting the DVD disk in the device  
`/vol/dev/aliases/cdrom0`

---

---

---

```
*****  
  
Initializing device...done.  
  
Blanking the media (Can take several minutes)...  
  
-----  
<wait the end of the format>                ◆  
  
-----  
** Format DVD disk                            ◆  
  
** has stopped on Fri May 30 12:46:08 GMT 2008  
  
  
** Results are stored in  
/users/jade/TOOLS_SOIN_V1.1.7-01_04_08-  
10h25m53s/DVD/Result_formatDVD-SHORT-  
30_05_08-12:28:48.log  
  
-----  
[PROMPT_OPE] exit                            ◆ Close the Xterm window with the exit  
command.  
  
-----
```

The DVD disk is ready for operational use.

### 10.4.1.3 Display the contents or the type of DVD

Normally, each DVD must have sticker which indicates its contains (date of central records, name and date of offline data).

To display the contents or the type of DVD, execute the following actions:

- Insert the DVD in the DVD Reader/Writer drive.
- Open a Xterm window, and execute the following commands:

---

---

```
[PROMPT_OPE] ls -l /cdrom ↵                ◆ Following the result of this command, we  
have:  
  
-----  
cdrom0 -> cdrom                            ◆ It is the result for OFFLINE_DVD.  
  
cdrom/  
  
-----  
cdrom0 -> reccauto                          ◆ It is the result for RECCAUTO_DVD.  
  
reccauto  
  
-----  
[PROMPT_OPE] ls -l /cdrom/cdrom0/ ↵        ◆ Display the content of the DVD.  
  
-----  
[PROMPT_OPE] exit ↵                        ◆ Close the Xterm window.  
  
-----
```

- Eject the DVD.



☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

#### **10.4.2 SAVE CENTRAL RECORDING DATA**

Central recording data are saved on the hard disk of the WPT while the central recording is running.

A transfer of central recording data on a DVD is automatically performed everyday by the SUPERVISION program (the data are then deleted from the WPT disk). The transfer time may be set by the SPM\_OFFLINE application.

☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to have more details on the SPM\_OFFLINE application.

When the DVD is full, a message is displayed to indicate the operator to insert a new DVD in the drive.

Central recording data may be transferred manually at any time on a DVD media (the data are then deleted from the WPT disk):

- Insert the DVD media in the drive of WPT.
- Save on the selected DVD device the central recording files from the selected source. Use the SUPERVISION program to:
  - Choose the source of the data to be saved (DVD or WPT disk),
  - List the files contained in the designed source and select from the list the files to be saved,

☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to have more details on the execution of the SAVE procedure from the SUPERVISION window.

⇒ The selected files are saved on selected DVD.

- Eject the DVD device, from the drive and store it.
- Label the DVD device in order to get it back easily for an eventual replay.

#### **10.4.3 SAVE OFFLINE PARAMETERS**

Offline parameters are saved on the hard disk of WPT by the SPM\_OFFLINE application. Anytime offline parameters are saved by SPM\_OFFLINE, the old offline parameters are deleted from the WPT disk.

The following procedure saves offline parameters from WPT disk to a DVD media, so that it will be possible to LOAD these offline parameters in the system if needed in the future:

- Insert the DVD to store the offline parameters in the WPT DVD-RW drive.
  - ☞ Refer to the UNIX commands in §10.4.1.3 to check the content of the DVD.

- Save all the offline parameters on DVD media by means of the SAVE procedure from the SUPERVISION program on WPT.

☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to have more details on the execution of the SAVE procedure from the SUPERVISION window.

⇒ The selected files are saved on DVD media.

- Eject the DVD from the drive and store it.
- Label the DVD media in order to get it back easily.

#### **10.4.4 SAVE SIM SCENARIO**

SIM scenarios are saved on the hard disk of WPT by SPM\_OFFLINE. The newly saved SIM scenarios are added on the WPT disk, the old SIM scenarios are not deleted from the WPT disk.

☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to have more details on the execution of the Export command in SPM\_OFFLINE.

The following procedure saves the SIM scenario from WPT disk to a DVD media:

- Insert the DVD to store the SIM scenarios in the desired drive of WPT.
  - Use the MMI of the SUPERVISION program to:
    - List the SIM scenario files contained in the WPT disk and select from the list the files to be saved,
- ☞ Refer to the documentation OH TEC (Doc. Ref. [2]), to have more details on the execution of the SAVE procedure from the SUPERVISION window.

⇒ The selected files are saved on DVD media.

- Eject the DVD from the drive and store it.
- Label the DVD media in order to get it back easily.

**This is the end of the procedure to back-up SYSTEM data**

## 10.5 RST : SYSTEM DATA RESTORE

The purpose of the following lines is to describe the procedure : Restore the different kind of SYSTEM data from a back-up DAT tape.

This procedure is divided into 2 steps :

- Restore the central recording data
- Restore the offline parameters
- Restore SIM scenarios

As they do not depend on each other, these two steps may be executed individually.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to restore SYSTEM data**

### 10.5.1 RESTORE CENTRAL RECORDING DATA

In order to replay Central recording data stored on a DAT tape, these data have to be loaded from the DAT tape to WPT disk :

- Insert the back-up DAT containing the central recording data in the WPT DAT drive.
- Execute the LOAD procedure from the SUPERVISION program on WPT: Use the MMI of the SUPERVISION program to list the central recording files contained in the DAT and select from the list the files to load.
  - ☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to have more details on the execution of the LOAD procedure from the SUPERVISION window.
- ⇒ The selected files are loaded on WPT disk.
- Eject the DAT from the drive and store it.

Note: As Central recording data saved on MOS disk may be replayed directly from MOS drive, there is no need to copy these data on WPT disk.

☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to have more details on the REP\_C function.

### 10.5.2 RESTORE OFFLINE PARAMETERS

In order to set in the Centre the last offline back-up, the offline data backed up on a DAT have to be loaded from the DAT to WPT disk (this action will delete all current offline data from WPT) :

- Insert the back-up DAT containing the offline parameters in the WPT DAT drive.
- Execute the LOAD procedure from the SUPERVISION program on WPT.
  - ☞ Refer to the documentation OH TEC, (Doc. Ref. [3]), to have more details on the execution of the LOAD procedure from the SUPERVISION window.
- All the offline parameters are restored from the DAT to the WPT disk.
- Eject the DAT from the drive and store it.

Note: In order for the system to take into account the new loaded offline parameters, it is necessary to execute the UPDATE\_ALL command from the SUPERVISION window.

- ☞ Refer to the update offline parameters procedure in § 10.3.

### 10.5.3 RESTORE SIM SCENARIO

In order to run some SIM scenario backed up on a DAT tape, these SIM scenario have to be loaded from the DAT tape to WPT disk (current SIM scenario present on WPT disk will not be deleted) :

- Insert the back-up DAT containing the SIM scenario in the WPT DAT drive.
  - Execute the LOAD procedure from the SUPERVISION program on WPT : Use the MMI of the SUPERVISION program to list the SIM scenario files contained in the DAT and select from the list the files to load.
    - ☞ Refer to the documentation OH TEC, (Doc. Ref. [3]), to have more details on the execution of the LOAD procedure from the SUPERVISION window.
- ⇒ The selected files are loaded on WPT disk.
- Eject the DAT from the drive and store it.

**This is the end of the procedure to restore SYSTEM data**

**RST : System data restore**  
**UNCLASSIFIED**

## 10.6 STS : SYSTEM TIME AND DATE MANAGEMENT

The purpose of the following lines is to describe the procedure : Set the time and date of the SYSTEM from the SUPERVISION window.

All Sun computers of the system are synchronised with the NTP (Network Time Protocol). The NTP server of the SYSTEM is the Time Source LEDI Network, but only the WPT uses its services. The WPT is used as intermediate stratum to update (automatically and continuously) the others Sun computers.

It may be necessary to set the system time and date after starting the spare WPT for example: if this computer stayed a long time stopped, its internal clock may be out of synch from the real time.

NOTE : This sign ↻ means the operator has to refer and to perform another procedure (i.e. ↻ refer to procedure 3) and come back in the current one until it is completed.

### 10.6.1 CHECK COMPUTERS CLOCKS SYNCHRONISATION

- To check the computers clocks synchronisation, execute the following actions on WPT:

Click on the Terminal icon in the task bar.	◆ Open a terminal window.
[PROMPT_OPE] <code>cd /jadeTOOLS/CHECK_TIME ↵</code>	◆ Change directory.
[PROMPT_OPE] <code>./CheckTime.sh</code>	◆ Run the CheckTime.sh program without parameter, to check that all computers are synchronised with its dedicated server. The results shall be: <ul style="list-style-type: none"><li>- For the WPT, the symbol '*' is displayed before the Time Source</li><li>- For the others computers, the symbol '*' is displayed before the WPT</li></ul>
[PROMPT_OPE] <code>./CheckTime.sh wpo1</code>	◆ Run the CheckTime.sh program with wpo1 as parameter to check that the wpo1 computer is correctly synchronised with WPT computer (the symbol '*' shall be displayed before the WPT).

[PROMPT_OPE] <i>./CheckTime.sh wpt1</i>	◆ Run the CheckTime.sh program with wpt1 as parameter to check that the wpt1 computer is correctly synchronised with the Time Source (the symbol ‘*’ shall be displayed before the Time Source).
[PROMPT_OPE] <i>man ntpq</i>	◆ Display all information given by the command CheckTime.sh

NOTE : In the results of the command CheckTime.sh, the symbol ‘\*’ displays the equipment selected for synchronization.

## 10.6.2 COMPUTER TIME SETTING

The purpose of this paragraph is to describe the two methods to make the date and time synchronisation of the Sun computers.

### 10.6.2.1 Automatic Computer Time Setting

In normal use, the time and date synchronisation is performed and maintained by the Time Source LEDI Network, but if one computer has a big difference of time with its server, the time synchronisation cannot be performed automatically. In this case, it is necessary to reboot the computer to perform a new time synchronisation.

**This is the beginning of the procedure automatic computer time setting**

To perform automatic time synchronisation, execute the following actions:

- Check the computer clock synchronisation.
  - ☞ Refer to §10.6.1.
- Check the good functioning of the Time Source.
  - ☞ Refer to § 9.18.5.3.
- If the WPT is not synchronised on Time Source, reboot the WPT computer, then reboot the others computers.
  - ☞ Refer to § 9.2.5.2 and § 9.2.5.1.
- If the WPT is synchronised on Time Source, reboot all computers which are not synchronised on WPT.
  - ☞ Refer to § 9.2.5.2 and § 9.2.5.1.

**This is the end of the procedure automatic computer time setting**

### 10.6.2.2 Manual Computer Time Setting

In normal use, the time and date synchronisation is performed and maintained by the Time Source LEDI Network. If this equipment does not send the time to the network (equipment failure, equipment not initialised, ...), the time server is the WPT computer. It is then possible to synchronise manually all computers with the WPT clock.

**This is the beginning of the procedure manual computer time setting**

To perform manual time synchronisation, execute the following actions:

- Check the computer clock synchronisation.
  - ☞ Refer to §10.6.1.
- As all applications will stop and all computers will reboot, if necessary perform a "save" from SPM\_OFFLINE.
  - ☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to save data from SPM\_OFFLINE.
- In the SUPERVISION program on WPT, set SYSTEM time and date.
  - ☞ Refer to the documentation OH TEC (Doc. Ref. [3]), to set the system date and time from the SUPERVISION window.

**This is the end of the procedure manual computer time setting**



**STS : System time and date Management**  
**UNCLASSIFIED**

## **10.7 CSU : COMPUTER SOFTWARE UPDATE**

The purpose of this procedure is to describe how install or update the software on computers.

### **10.7.1 SKYKEEPER SOFTWARE OVERVIEW**

#### **10.7.1.1 The description of the skykeeper software**

The purpose of this paragraph is to describe the computer software:

- The "customized Solaris",
- The "skykeeper system" (SYS)
- The "skykeeper tools" (TOOLS),
- The "skykeeper reference software" (REF).
- The "offline data" (OFFLINE)

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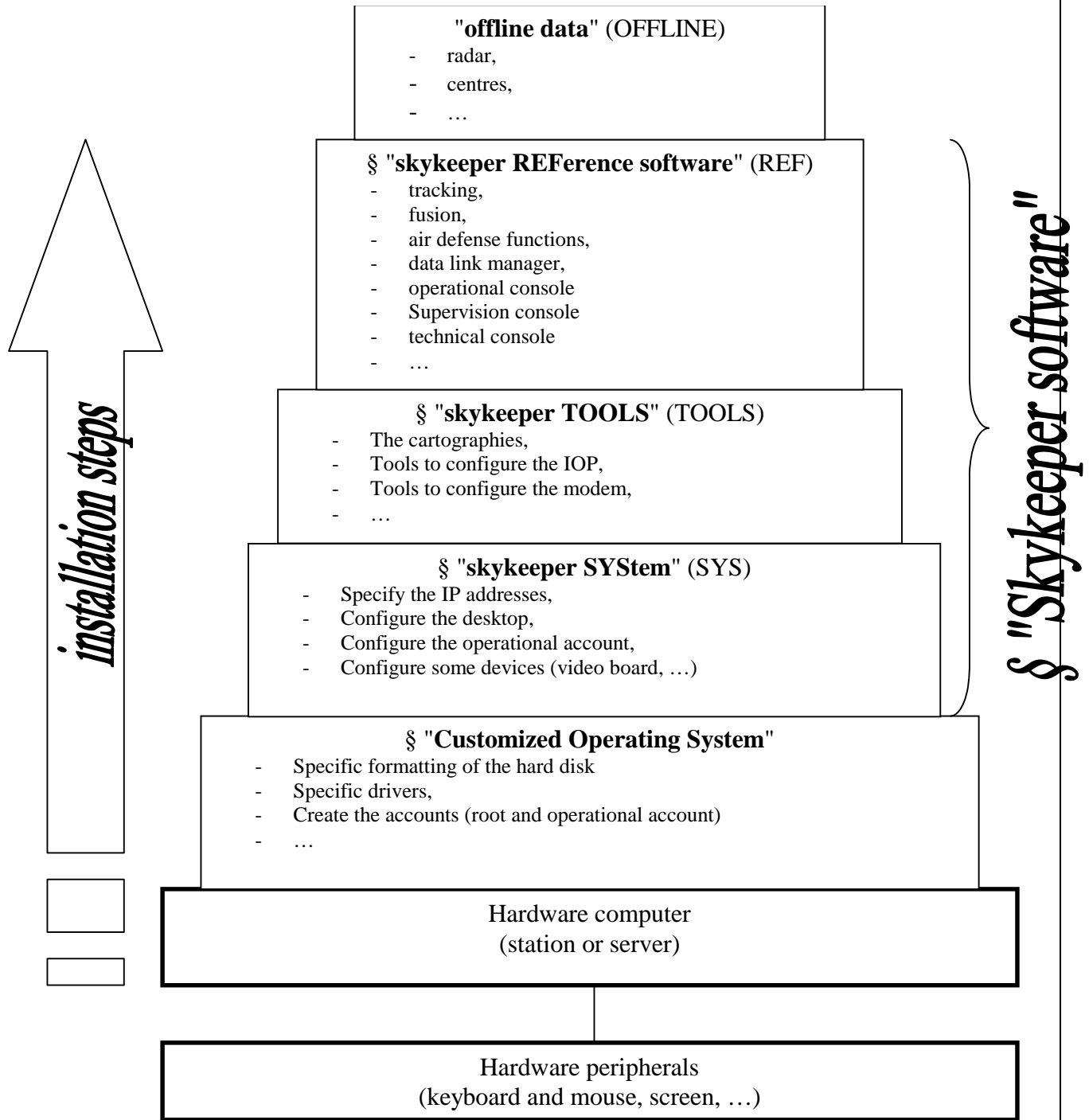


Figure 93 : hierarchy in the skyskeeper software

With the above figure, we can see that:

- The Customized Operating System shall be installed in first,
- The skykeeper System shall be installed in second,

- The skykeeper Tools shall be installed in third,
- The skykeeper Reference software in fourth,
- And in last, the offline data shall be loaded and distributed on all computers.

### **10.7.1.2 How choice the "skykeeper software" installation?**

The purpose of this paragraph is to help the technical operator to install or update the software on computers.

In first, the technical operator shall select one (or more) "situation(s)" in the following list:

- "1" The first installation of the centre,
- "2" New "Customized Operating System" shall be installed,
- "3" New "skykeeper system" shall be installed,
- "4" New "skykeeper tools" shall be installed,
- "5" New "skykeeper software reference" shall be installed, and the current customer can always be used with the new "skykeeper software reference",
- "6" New "skykeeper software reference" shall be installed, but the current customer offline cannot be used with the new "skykeeper software reference",
- "7" Computer comes from reparation, and it is installed in networking position,
  - The first step consist to compare the versions of Solaris 10 and "skykeeper software" installed on this computer with the others computers, and following the results, the technical operator may select some new "sub-situation(s)":
    - "7a" The "Customized Operating System" shall be upgraded,
    - "7b" The "skykeeper system" shall be updated,
    - "7c" The "skykeeper tools" shall be updated,
    - "7d" The "skykeeper software reference" shall be updated.
- "8" Computer comes from reparation, and it is installed in spare position.
  - The first step consist to compare the versions of Solaris 10 and "skykeeper software" installed on this computer with the others computers, and following the results, the technical operator may select some new "sub-situation(s)":
    - "8a" The "Customized Operating System" shall be upgraded,
    - "8b" The "skykeeper system" shall be updated,
    - "8c" The "skykeeper tools" shall be updated,
    - "8d" The "skykeeper software reference" shall be updated.

**CSU : Computer Software Update**  
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After, with his "situation number(s)", the technical operators can see his next operations in the following table:

**CSU : Computer Software Update**  
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	Networking computers		Alone computer		Referenced paragraph
	WPT	ADP/WPO	WPT	ADP/WPO	
<input type="checkbox"/> Find the Solaris and "skykeeper software" versions			<b>7, 8</b>	<b>7, 8</b>	§ 10.7.6.4
<input type="checkbox"/> Save the offline	<b>2</b>				
<input type="checkbox"/> Install the "Customized Operating System"	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	§ 10.7.2
Upgrade the "Customized Operating System"	<b>2</b>	<b>2</b>	<b>2, 7a, 8a</b>	<b>2, 7a, 8a</b>	§ 10.7.2
Install the "skykeeper system" on networking computers	<b>1, 2</b>	<b>1, 2</b>			§ 10.7.4.4
Update the "skykeeper system" on networking computers	<b>3</b>	<b>3</b>			§ 10.7.4.4
Install the "skykeeper system" on alone computer			<b>1, 2</b>	<b>1, 2</b>	§ 10.7.3.4
Update the "skykeeper system" on alone computer			<b>3, 7b, 8b</b>	<b>3, 7b, 8b</b>	§ 10.7.3.4
Install the "skykeeper tools" on networking computers	<b>1, 2</b>	<b>1, 2</b>			§ 10.7.4.5
Update the "skykeeper tools" on networking computers	<b>4</b>	<b>4</b>			§ 10.7.4.5
Install the "skykeeper tools" on alone computer			<b>1, 2</b>	<b>1, 2</b>	§ 10.7.3.5
Update the "skykeeper tools" on alone computer			<b>4, 7c, 8c</b>	<b>4, 7c, 8c</b>	§ 10.7.3.5
Install the "skykeeper reference software" on networking	<b>1, 2</b>	<b>1, 2</b>			§ 10.7.4.6

**Installation steps**

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**CSU : Computer Software Update**  
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computers					
Update the "skykeeper reference software" on networking computers	<b>5, 6</b>	<b>5, 6</b>			§ 10.7.4.6
Install the "skykeeper reference software" on alone computer			1, 2	1, 2	§ 10.7.3.6
Update the "skykeeper reference software" on alone computer			<b>5, 6, 7d, 8d</b>	<b>5, 6, 7d, 8d</b>	§ 10.7.3.6
Load the Thales offline, and update it with the customer data	1, 6		7		
Load the customer offline	2				
Execute an UPDATE_ALL	1, 2, 5, 6, 7	7			

Table 29 – How choice the "skykeeper software" installation?

NOTE: the first step of each situation is displayed in bold in the above table.

## 10.7.2 INSTALL OR UPGRADE THE "CUSTOMIZED OPERATING SYSTEM"

The purpose of this procedure is to describe how install, or upgrade, the operating system.

This procedure is divided into 2 steps:

- Check, and update if necessary, the USB disk,
- Install the operating system on the computer from DVD and USB disk,
- Eject and store the DVD and the USB disk,
- Install the skykeeper system (only for WPT).

WARNING: during this procedure, the hard disk will be formatted (all data on the hard disk will be erased). If you install the "Customized Operating System" on the WPT do save the offline data and recordings.

☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

<b>This is the beginning of the procedure Install or upgrade the operating system</b>
---

### 10.7.2.1 Check and update the USB disk

- If it is an operating system upgrade, a new flar image has been given on a DVD. Copy the flar image to the USB disk.

☞ Refer to § 10.7.6.2.

- If it is not an operating system upgrade, check that the flar image present on the USB disk is the same than the last version given on a DVD.

☞ Refer to § 10.7.6.3 to find the version of flar images.

☞ Refer to § 10.7.6.2 to copy the flar image.

### 10.7.2.2 Install the operating system from DVD and USB disk

☞ Refer to the equipment sheet to install the operating system on the computer.

### 10.7.2.3 Eject and store the DVD and the USB disk

- Unplug the USB disk,
- Open an Unix terminal,
  - ☞ Refer to the procedure § 10.7.3.4.1.
- Execute the following commands to eject the DVD from the drive:



Open a Terminal window.	◆ Boot on a terminal.
[PROMPT_OPE] <i>eject cdrom ↵</i>	◆ Eject the CD-ROM.
- Store the DVD and the USB disk.	

#### 10.7.2.4 Install the "skykeeper system" (only for WPT)

☞ Refer to the §10.7.3.4.

**This is the end of the procedure Software installation of networked computer system**

### 10.7.3 INSTALL OR UPDATE THE "SKYKEEPER SOFTWARE" ON ALONE COMPUTER

The purpose of this procedure is to describe how install the skykeeper software (SYS, TOOLS, and REF) on a computer (station or server).

To install new version(s) of skykeeper software on all the operational system, it is recommended to use the procedure §0. But, to install new version(s) of skykeeper software on only one computer (a spare computer, a computer which comes from repairing, ...), this solution is the best.

This procedure is divided into 9 steps:

- Save the offline (if necessary)
- Unplug the computer from the switch LAN,
- Start the computer,
- Use the *distiref* tool to install or update the skykeeper system (SYS),
- Use the *distiref* tool to install or update the skykeeper tools (TOOLS),
- Use the *distiref* tool to install or update the skykeeper reference software (REF),
- Eject and store the CDROM *distiref*
- Plug the computer to the switch LAN (if necessary),
- Load and update the offline database (if necessary).

NOTE: This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure Install or Update the skykeeper software on one computer**

#### 10.7.3.1 Save the offline (if necessary)

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

### 10.7.3.2 Unplug the computer from the switch LAN

- Switch off the computer.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).
  - ☞ Or refer to the switch off procedure in the computer sheet.
- Unplug the computer from the general LAN.
  - ☞ Refer to the computer sheet.

### 10.7.3.3 Start the computer

- Switch off the computer.
  - ☞ Refer to the procedure "Connect a PC to the computer", in the computer sheet.

### 10.7.3.4 Use the distriref tool to install or update the "skykeeper system" (SYS)

#### 10.7.3.4.1 Open the Unix terminal

There are 3 cases:

- The computer is a server (without keyboard, mouse, and video board),
- The computer is a station (with keyboard, mouse, and video board) just after the installation of "Customized Operating System",
- The computer is a station where the "skykeeper system" has been already installed.

#### 10.7.3.4.1.1 The computer is a server

- Connect a hyper terminal to the computer.
  - ☞ Refer to the procedure "Connect a PC to the computer", in the computer sheet.

#### 10.7.3.4.1.2 The computer is a station just after the installation of "Customized Operating System"

- Plug the keyboard, the mouse to the computer (if necessary),
- Plug the spare monitor to the computer (if necessary). If the screen has been plugged on the bad video board, switch off the screen and plug it on the other video board.

☞ Refer to the monitor sheet.

- Open the Unix terminal by clicking on the right button of the mouse, and then selecting "Hosts / Terminal Console".

#### 10.7.3.4.1.3 The computer is a station where the "skykeeper system" has been already installed

- Plug the keyboard, the mouse to the computer (if necessary),
- Plug the spare monitor to the computer (if necessary). If the screen has been plugged on the bad video board, switch off the screen and plug it on the other video board.
  - ☞ Refer to the monitor sheet.
- Use the WPT/WPO Session Manager Toolbar window to open the Unix terminal.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

#### 10.7.3.4.2 Prepare the DISTRIREF directory

- In the Unix terminal, enter the following commands:

[PROMPT_OPE] <i>ls DISTRIREF</i>	◆ If the directory DISTRIREF does not exist, create it.
[PROMPT_OPE] <i>mkdir DISTRIREF</i> ↵	
[PROMPT_OPE] <i>cd DISTRIREF</i> ↵	◆ Move in the DISTRIREF directory.
Insert the CD named "SKYKEEPER Software <version> by Distriref" in the CD/DVD drive.	◆
[PROMPT_OPE] <i>cp /cdrom/cdrom0/distri* ./</i>	◆ Copy the script distriref.sh and the distriref configuration files in the DISTRIREF directory.
[PROMPT_OPE] <i>chmod a+x distriref.sh</i>	◆ Give the execute permission to the script of distriref.
[PROMPT_OPE] <i>ls *.cfg</i>	◆ Select the configuration file.
[PROMPT_OPE] <i>ln -s &lt;configuration file&gt; distri.cfg</i>	

#### 10.7.3.4.3 Execute the script distriref.sh

In the following example, we install the "skykeeper system" on the WPT computer in the SOC center.

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---

[PROMPT_OPE] <i>su - ↵</i>	◆ Log on as Administrator user.
password .....	

---

[PROMPT_ADM] <i>cd /jade/DISTRIFREF ↵</i>	◆ Move in the DISTRIFREF directory.
---	-------------------------------------

---

[PROMPT_ADM] <i>./distrifref.sh ↵</i>	◆ Execute the distrifref.sh script.
---------------------------------------	-------------------------------------

Distribute new multi REFERENCE V1.1

\*\*\*\*\*

!!! Execute a SAVE OFF-LINE data from Supervision !!!

!!!            before run distrifref.sh            !!!

---

Type of software (SYS, TOOL, REF) ? <i>SYS ↵</i>	◆ Select the type of software installation.
--	---

---

Indicate the type of installation to execute :	◆ Select the installation kind (local or distributed)
- Local on wpt1	
- Distributed on all computers :	
wpt1	
adp1	
wpo1	
wpo2	
wpo3	
wpo4	
Type of installation (local / distri) : <i>local ↵</i>	

---

Beginning of distrifref on local computer.	◆ Select the media where the new files (SYS in this example) are present.
Choose the source of the software type SYS :	
Software type SYS :	◆ The new SYS is present on the upgrade CD-ROM.
- in a directory on wpt1 disk (DIR)	
- or on a CD (CD)	
Your choice ? <i>CD ↵</i>	

---

Insert the CD in the CD/DVD drive of wpt1	◆ If it is not already done, insert the CD-ROM in the drive.
CD inserted (y/n) <i>y ↵</i>	

---

Listing of .gz files on CD :	◆ The script lists all compressed file present on the media (in this example,
------------------------------	---

---

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---

REF\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

there is 3 files: the first for the skykeeper reference software, the second for the skykeeper tools, and the last for the skykeeper system).

◆ Enter the name of the skykeeper system file, and press on the return key.

Name of the .gz file of the software REF  
<name.tar.gz> : *SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz* ↵

---

Distriref for :

◆ Check and validate the entries.

- Type of software = SYS

- Home directory = jade

- Group = madcap

- Carto = Indonesia

- Center type = SOIN

- vlan = SOC

- configuration = SITE

- Hostname prefix =

- Hostname local = wpt1

- Hostname computers :

wpt1

- Media = CD

- File type = GZ

- File reference =  
/cdrom/cdrom0/SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

- File name = SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

Parameters OK (y/n) y ↵

---

---

---

Beginning of distrifref

◆ Beginning of installation.

wpt1 Alive --> ok

Extract from CD in progress ...

The archive file is SYS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

Stop lmc process

wpt1

...

---

\*\* When SYS has been installed on all computers : ◆ End of installation.

- Shutdown all upgraded computers from  
SUPERVISION

- Switch on the computers and login jade

- Start all applications from SUPERVISION.

---

---

#### 10.7.3.4.4 Reboot the computer

---

---

[PROMPT\_ADM] *init* 6 ↵

◆ Reboot the computer

---

---

### 10.7.3.5 Use the distrifref tool to install or update the "skykeeper tools" (TOOLS)

#### 10.7.3.5.1 Open the Unix terminal

☞ Refer to the procedure § 10.7.3.4.1.

#### 10.7.3.5.2 Prepare the DISTRIREF directory

☞ Refer to the procedure § 10.7.3.4.2.

### 10.7.3.5.3 Execute the script `distriref.sh`

In the following example, we install the "skykeeper tools" on the WPT computer in the SOC center.

---

<code>[PROMPT_OPE] su - ↵</code>	◆ Log on as Administrator user.
<code>password .....</code>	
<code>[PROMPT_ADM] cd /jade/DISTRIFREF ↵</code>	◆ Move in the DISTRIFREF directory.
<code>[PROMPT_ADM] ./distriref.sh ↵</code>	◆ Execute the <code>distriref.sh</code> script.
<p>Distribute new multi REFERENCE V1.1</p> <p>*****</p> <p>!!! Execute a SAVE OFF-LINE data from Supervision !!!</p> <p>!!! before run <code>distriref.sh</code> !!!</p>	
<code>Type of software (SYS, TOOL, REF) ? TOOL ↵</code>	◆ Select the type of software installation.
<code>Indicate the type of installation to execute :</code>	◆ Select the installation kind (local or distributed)
<code>- Local on wpt1</code>	
<code>- Distributed on all computers :</code>	
<code>wpt1</code>	
<code>adp1</code>	
<code>wpo1</code>	
<code>wpo2</code>	
<code>wpo3</code>	
<code>wpo4</code>	
<code>Type of installation (local / distri) : local ↵</code>	
<code>Beginning of distriref on local computer.</code>	◆ Select the media where the new files (SYS in this example) are present.
<code>Choose the source of the software type TOOL :</code>	◆ The new TOOL is present on the upgrade CD-ROM.
<code>Software type TOOL :</code>	
<code>- in a directory on wpt1 disk (DIR)</code>	
<code>- or on a CD (CD)</code>	
<code>Your choice ? CD ↵</code>	
<code>Insert the CD in the CD/DVD drive of wpt1</code>	◆ If it is not already done, insert the CD-ROM in the drive.

---

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---

CD inserted (y/n) y ↵

---

Listing of .gz files on CD :

REF\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

◆ The script lists all compressed file present on the media (in this example, there is 3 files: the first for the skykeeper reference software, the second for the skykeeper tools, and the last for the skykeeper system).

◆ Enter the name of the skykeeper system file, and press on the return key.

---

Name of the .gz file of the software REF  
<name.tar.gz> : *TOOLS\_SOIN\_V1.1.2\_-  
19\_10\_07-11h02m40s.tar.gz* ↵

---

Distirref for :

◆ Check and validate the entries.

- Type of software = TOOL

- Home directory = jade

- Group = madcap

- Carto = Indonesia

- Center type = SOIN

- vlan = SOC

- configuration = SITE

- Hostname prefix =

- Hostname local = wpt1

- Hostname computers :

wpt1

- Media = CD

- File type = GZ

- File reference =  
/cdrom/cdrom0/TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

- File name = TOOLS\_SOIN\_V1.1.2\_-  
19\_10\_07-11h02m40s.tar.gz

---



---

---

Parameters OK (y/n) y ↵

---

Beginning of distriref

◆ Beginning of installation.

wpt1 Alive --> ok

Extract from CD in progress ...

The archive file is TOOLS\_SOIN\_V1.1.2\_-  
19\_10\_07-11h02m40s.tar.gz

Stop lmc process

wpt1

...

---

\*\* When SYS has been installed on all computers : ◆ End of installation.

- Shutdown all upgraded computers from  
SUPERVISION

- Switch on the computers and login jade

- Start all applications from SUPERVISION.

---

---

### 10.7.3.6 Use the distriref tool to install or update the "skykeeper reference software" (REF)

#### 10.7.3.6.1 Open the Unix terminal

☞ Refer to the procedure § 10.7.3.4.1.

#### 10.7.3.6.2 Prepare the DISTRIREF directory

☞ Refer to the procedure § 10.7.3.4.2.

#### 10.7.3.6.3 Execute the script distriref.sh

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In the following example, we install the "skykeeper reference software" on the WPT computer in the SOC center.

---

[PROMPT_OPE] <i>su - ↵</i>	◆ Log on as Administrator user.
password .....	
[PROMPT_ADM] <i>cd /jade/DISTRIFREF ↵</i>	◆ Move in the DISTRIFREF directory.
[PROMPT_ADM] <i>./distrifref.sh ↵</i>	◆ Execute the distrifref.sh script.
Distribute new multi REFERENCE V1.1	
*****	
!!! Execute a SAVE OFF-LINE data from Supervision !!!	
!!!            before run distrifref.sh            !!!	
Type of software (SYS, TOOL, REF) ? <i>REF ↵</i>	◆ Select the type of software installation.
Indicate the type of installation to execute :	◆ Select the installation kind (local or distributed)
- Local on wpt1	
- Distributed on all computers :	
wpt1	
adp1	
wpo1	
wpo2	
wpo3	
wpo4	
Type of installation (local / distri) : <i>local ↵</i>	
Beginning of distrifref on local computer.	◆ Select the media where the new files (REF in this example) are present.
Choose the source of the software type REF :	◆ The new REF is present on the upgrade CD-ROM.
Software type REF :	
- in a directory on wpt1 disk (DIR)	
- or on a CD (CD)	
Your choice ? <i>CD ↵</i>	
Insert the CD in the CD/DVD drive of wpt1	◆ If it is not already done, insert the CD-ROM in the drive.
CD inserted (y/n) <i>y ↵</i>	

---

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---

Listing of .gz files on CD :

REF\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

- ◆ The script lists all compressed file present on the media (in this example, there is 3 files: the first for the skykeeper reference software, the second for the skykeeper tools, and the last for the skykeeper system).
- ◆ Enter the name of the skykeeper reference software file, and press on the return key.

Name of the .gz file of the software REF  
<name.tar.gz> : *REF\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz* ↵

---

Distriref for :

- ◆ Check and validate the entries.

- Type of software = REF

- Home directory = jade

- Group = madcap

- Carto = Indonesia

- Center type = SOIN

- vlan = SOC

- configuration = SITE

- Hostname prefix =

- Hostname local = wpt1

- Hostname computers :

wpt1

- Media = CD

- File type = GZ

- File reference =  
/cdrom/cdrom0/REF\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

- File name = REF\_SOIN\_V1.1.2\_-  
19\_10\_07-11h02m40s.tar.gz

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---

Parameters OK (y/n) y ↵

---

Beginning of distriref ◆ Beginning of installation.

wpt1 Alive --> ok

Extract from CD in progress ...

The archive file is REF\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

Stop lmc process

wpt1

...

---

\*\* When REF has been installed on all computers : ◆ End of installation.

- Execute the following command

on all upgraded computers

in an xterm window as user jade :

*ReStartSystem.sh*

When all computers are in READY state :

- If WPT has been upgraded, load offline data from DAT.

- UPDATE\_ALL from SUPERVISION.

- Start all applications from SUPERVISION.

---

#### **10.7.3.6.4 Restart the "skykeeper reference software"**

Following the computer kind, execute one of these solutions:

- For the WPT and WPO computers, logoff and then logon the operational account.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).
- For the ADP computer, reboot the computer (command "init 6")

#### **10.7.3.7 Eject and store the CDRom distriref**

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- Open an Unix terminal,
  - ☞ Refer to the procedure § 10.7.3.4.1.
- Execute the following commands to eject the CDROM from the drive:

Open a Terminal window.	◆ Boot on a terminal.
[PROMPT_OPE] <i>eject cdrom ↵</i>	◆ Eject the CD-ROM.

- Store the CDROM distriref.

### 10.7.3.8 Plug the computer to the switch LAN (if necessary)

- Switch off the computer.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).
  - ☞ Or refer to the switch off procedure in the computer sheet.
- Plug the computer from the general LAN.
  - ☞ Refer to the computer sheet.
- Switch on the computer.
  - ☞ Refer to the switch on procedure in the computer sheet.

### 10.7.3.9 Load and update the offline database (if necessary)

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

**This is the end of the procedure Install or Update the skykeeper software on one computer**

## 10.7.4 INSTALL OR UPDATE THE SKYKEEPER SOFTWARE ON NETWORKING COMPUTERS

The purpose of this procedure is to describe how install the skykeeper software (SYS, TOOLS, and REF) on all operational computers (station or server).

To install new version(s) of skykeeper software on only one computer (like a spare computer), it is recommended to use the procedure §10.7.3. But, to install new version of skykeeper software on all the networking computers, this procedure is the best.

This procedure is divided into 8 steps:

- Save the offline
- Switch on all operational computers
- Check that all operational computers are ready
- Use the distriref tool to install or update the skykeeper system (SYS),

- Use the distiref tool to install or update the skykeeper tools (TOOLS),
- Use the distiref tool to install or update the skykeeper reference software (REF),
- Eject and store the CDROM distiref
- Load and update the offline database.

NOTE: This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure Install or Update the skykeeper software on all operational computers**

#### 10.7.4.1 Save the offline

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

#### 10.7.4.2 Switch on all operational computers

- Switch off the computer.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).
  - ☞ Or refer to the switch off procedure in the computer sheet.

#### 10.7.4.3 Check that all operational computers are ready

There are 2 cases:

- The "skykeeper software" is running on the system, so it is possible to use the supervision window,
- The "skykeeper software" does not install yet, or does not run, so we must check the system by Unix commands.

NOTE: if all the operational computers are not ready, the computers must be installed one by one.

- ☞ Refer to the procedure § 10.7.3.

##### 10.7.4.3.1 Check the system with the supervision window

- Check that all computers are started, and are available on the general network.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

#### 10.7.4.3.2 Check the system with Unix commands

- Open the Unix terminal
  - ☞ Refer to the procedure § 10.7.3.4.1.
- Enter the following commands:

---

[PROMPT_OPE] <i>ping adp1 2</i> ↵ adp1 is alive	◆ Check that the operational ADP is connected to the general network.
[PROMPT_OPE] <i>ls /net/adp1/users/</i> ↵ TT_DB jade jade_int lost+found	◆ Check that the disk of the operational ADP is accessible.
[PROMPT_OPE] <i>ping wpo1 2</i> ↵ wpo1 is alive	◆ Check that all operational WPO are connected to the general network.
[PROMPT_OPE] <i>ping wpo2 2</i> ↵ wpo2 is alive	
...	
[PROMPT_OPE] <i>ls /net/wpo1/users/</i> ↵ TT_DB jade jade_int lost+found	◆ Check that the disk of the operational WPO are accessible.
...	

---

#### 10.7.4.4 Use the distriref tool to install or update the "skykeeper system" (SYS)

##### 10.7.4.4.1 Open the Unix terminal

- ☞ Refer to the procedure § 10.7.3.4.1.

##### 10.7.4.4.2 Prepare the DISTRIREF directory

- ☞ Refer to the procedure § 10.7.3.6.2.

##### 10.7.4.4.3 Execute the script distriref.sh

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In the following example, we install the "skykeeper system" on all operational computers in the SOC center.

---

[PROMPT_OPE] <i>su - ↵</i>	◆ Log on as Administrator user.	
password .....		
[PROMPT_ADM] <i>cd /jade/DISTRIFREF ↵</i>	◆ Move in the DISTRIFREF directory.	
[PROMPT_ADM] <i>./distrifref.sh ↵</i>	◆ Execute the distrifref.sh script.	
Distribute new multi REFERENCE V1.1		
*****		
!!! Execute a SAVE OFF-LINE data from Supervision !!!		
!!!	before run distrifref.sh	!!!
Type of software (SYS, TOOL, REF) ? <i>SYS ↵</i>	◆ Select the type of software installation.	
Indicate the type of installation to execute :	◆ Select the installation kind (local or distributed)	
- Local on wpt1		
- Distributed on all computers :		
wpt1		
adp1		
wpo1		
wpo2		
wpo3		
wpo4		
Type of installation (local / distri) : <i>distri ↵</i>		
Beginning of distrifref on local computer.	◆ Select the media where the new files (SYS in this example) are present.	
Choose the source of the software type SYS :	◆ The new SYS is present on the upgrade CD-ROM.	
Software type SYS :		
- in a directory on wpt1 disk (DIR)		
- or on a CD (CD)		
Your choice ? <i>CD ↵</i>		
Insert the CD in the CD/DVD drive of wpt1	◆ If it is not already done, insert the CD-ROM in the drive.	
CD inserted (y/n) <i>y ↵</i>		

---



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Listing of .gz files on CD :

REF\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

- ◆ The script lists all compressed file present on the media (in this example, there is 3 files: the first for the skykeeper reference software, the second for the skykeeper tools, and the last for the skykeeper system).
- ◆ Enter the name of the skykeeper system file, and press on the return key.

Name of the .gz file of the software REF  
<name.tar.gz> : *SYS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz* ↵

---

Distriref for :

- ◆ Check and validate the entries.

- Type of software = SYS
- Home directory = jade
- Group = madcap
- Carto = Indonesia
- Center type = SOIN
- vlan = SOC
- configuration = SITE
- Hostname prefix =
- Hostname local = wpt1
- Hostname computers :  
wpt1  
adp1  
wpo1  
wpo2  
wpo3  
wpo4
- Media = CD
- File type = GZ

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---

- File reference =  
/cdrom/cdrom0/SYS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

- File name = SYS\_SOIN\_V1.1.2\_-  
19\_10\_07-11h02m40s.tar.gz

Parameters OK (y/n) y ↵

---

Beginning of distriref

◆ Beginning of installation.

wpt1 Alive --> ok

Extract from CD in progress ...

The archive file is SYS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

Stop lmc process

wpt1  
adp1  
wpo1  
wpo2  
wpo3  
wpo4

...

---

\*\* When SYS has been installed on all computers : ◆ End of installation.

- Shutdown all upgraded computers from  
SUPERVISION

- Switch on the computers and login jade

- Start all applications from SUPERVISION.

---

#### 10.7.4.4.4 Reboot all computers

---

[PROMPT\_ADM] rlogin adp1 ↵

◆ Reboot the ADP computer

password : xxxx ↵

---

---

```
[PROMPT_ADM] init 6 ↵
```

---

```
[PROMPT_ADM] rlogin wpo1 ↵
```

◆ Reboot the WPO computers

```
password : xxxx ↵
```

```
[PROMPT_ADM] init 6 ↵
```

...

---

```
[PROMPT_ADM] init 6 ↵
```

◆ Reboot the WPT computer

---

#### 10.7.4.5 Use the `distriref` tool to install or update the "skykeeper tools" (TOOLS)

##### 10.7.4.5.1 Open the Unix terminal

☞ Refer to the procedure § 10.7.3.4.1.

##### 10.7.4.5.2 Prepare the `DISTRIFREF` directory

☞ Refer to the procedure § 10.7.3.6.2.

##### 10.7.4.5.3 Execute the script `distriref.sh`

In the following example, we install the "skykeeper tools" on all operational computers in the SOC center.

---

```
[PROMPT_OPE] su - ↵
```

◆ Log on as Administrator user.

```
password .....
```

---

```
[PROMPT_ADM] cd /jade/DISTRIFREF ↵
```

◆ Move in the `DISTRIFREF` directory.

---

```
[PROMPT_ADM] ./distriref.sh ↵
```

◆ Execute the `distriref.sh` script.

Distribute new multi REFERENCE V1.1

\*\*\*\*\*

---

!!! Execute a SAVE OFF-LINE data from

---

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---

---

Supervision !!!

!!!            before run distriref.sh            !!!

---

Type of software (SYS, TOOL, REF) ? *TOOL ↵*      ♦ Select the type of software installation.

---

Indicate the type of installation to execute :      ♦ Select the installation kind (local or distributed)

- Local on wpt1

- Distributed on all computers :

wpt1  
adp1  
wpo1  
wpo2  
wpo3  
wpo4

---

Type of installation (local / distri) : *distri ↵*

---

Beginning of distriref on local computer.      ♦ Select the media where the new files (SYS in this example) are present.

Choose the source of the software type TOOL :

Software type TOOL :

- in a directory on wpt1 disk (DIR)

- or on a CD (CD)

Your choice ? *CD ↵*

---

Insert the CD in the CD/DVD drive of wpt1      ♦ If it is not already done, insert the CD-ROM in the drive.

CD inserted (y/n) *y ↵*

---

Listing of .gz files on CD :

REF\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz      ♦ Enter the name of the skykeeper system file, and press on the return key.

Name of the .gz file of the software REF  
<name.tar.gz> : *TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz ↵*

---

Distriref for :      ♦ Check and validate the entries.

---

---

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---

- Type of software = TOOL  
- Home directory = jade  
- Group = madcap  
- Carto = Indonesia  
- Center type = SOIN  
- vlan = SOC  
- configuration = SITE  
- Hostname prefix =  
- Hostname local = wpt1  
- Hostname computers :  
wpt1  
adp1  
wpo1  
wpo2  
wpo3  
wpo4  
- Media = CD  
- File type = GZ  
- File reference =  
/cdrom/cdrom0/TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz  
- File name = TOOLS\_SOIN\_V1.1.2\_-  
19\_10\_07-11h02m40s.tar.gz

Parameters OK (y/n) y ↵

---

Beginning of distriref

◆ Beginning of installation.

wpt1 Alive --> ok

---

---

Extract from CD in progress ...

The archive file is TOOLS\_SOIN\_V1.1.2\_-  
19\_10\_07-11h02m40s.tar.gz

Stop lmc process

wpt1  
adp1  
wpo1  
wpo2  
wpo3  
wpo4

...

---

\*\* When SYS has been installed on all computers : ♦ End of installation.

- Shutdown all upgraded computers from SUPERVISION
  - Switch on the computers and login jade
  - Start all applications from SUPERVISION.
- 

#### 10.7.4.6 Use the distireref tool to install or update the "skykeeper software reference" (REF)

##### 10.7.4.6.1 Open the Unix terminal

☞ Refer to the procedure § 10.7.3.4.1.

##### 10.7.4.6.2 Prepare the DISTRIREF directory

☞ Refer to the procedure § 10.7.3.6.2.

##### 10.7.4.6.3 Execute the script distireref.sh

In the following example, we install the "skykeeper software reference" on all operational computers in the SOC center.

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---

<pre>[PROMPT_OPE] su - ↵</pre>	◆ Log on as Administrator user.
<pre>password .....</pre>	
<hr/>	
<pre>[PROMPT_ADM] cd /jade/DISTRIFREF ↵</pre>	◆ Move in the DISTRIFREF directory.
<hr/>	
<pre>[PROMPT_ADM] ./distrifref.sh ↵</pre>	◆ Execute the distrifref.sh script.
 Distribute new multi REFERENCE V1.1 *****  !!! Execute a SAVE OFF-LINE data from Supervision !!!  !!! before run distrifref.sh !!!	
<hr/>	
<pre>Type of software (SYS, TOOL, REF) ? REF ↵</pre>	◆ Select the type of software installation.
<hr/>	
<pre>Indicate the type of installation to execute :</pre>	◆ Select the installation kind (local or distributed)
<pre>- Local on wpt1</pre>	
<pre>- Distributed on all computers :</pre>	
<pre>wpt1 adp1 wpo1 wpo2 wpo3 wpo4</pre>	
<pre>Type of installation (local / distri) : distri ↵</pre>	
<hr/>	
<pre>Beginning of distrifref on local computer.</pre>	◆ Select the media where the new files (REF in this example) are present.
<pre>Choose the source of the software type REF :</pre>	
<pre>Software type REF :</pre>	◆ The new REF is present on the upgrade CD-ROM.
<pre>- in a directory on wpt1 disk (DIR)</pre>	
<pre>- or on a CD (CD)</pre>	
<pre>Your choice ? CD ↵</pre>	
<hr/>	
<pre>Insert the CD in the CD/DVD drive of wpt1</pre>	◆ If it is not already done, insert the CD-ROM in the drive.
<pre>CD inserted (y/n) y ↵</pre>	
<hr/>	
<pre>Listing of .gz files on CD :</pre>	◆ The script lists all compressed file present on the media (in this example,

---

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---

REF\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

TOOLS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

SYS\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz

there is 3 files: the first for the skykeeper reference software, the second for the skykeeper tools, and the last for the skykeeper system).

- ◆ Enter the name of the skykeeper reference software file, and press on the return key.

Name of the .gz file of the software REF  
<name.tar.gz> : *REF\_SOIN\_V1.1.2\_-19\_10\_07-11h02m40s.tar.gz* ↵

---

Distriref for :

- ◆ Check and validate the entries.

- Type of software = REF
- Home directory = jade
- Group = madcap
- Carto = Indonesia
- Center type = SOIN
- vlan = SOC
- configuration = SITE
- Hostname prefix =
- Hostname local = wpt1
- Hostname computers :
  - wpt1
  - adp1
  - wpo1
  - wpo2
  - wpo3
  - wpo4
- Media = CD
- File type = GZ
- File reference =

/cdrom/cdrom0/REF\_SOIN\_V1.1.2\_-19\_10\_07-

---



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---

11h02m40s.tar.gz

- File name = REF\_SOIN\_V1.1.2\_-  
19\_10\_07-11h02m40s.tar.gz

Parameters OK (y/n) y ↵

---

Beginning of distriref

◆ Beginning of installation.

wpt1 Alive --> ok

Extract from CD in progress ...

The archive file is REF\_SOIN\_V1.1.2\_-19\_10\_07-  
11h02m40s.tar.gz

Stop lmc process

wpt1  
adp1  
wpo1  
wpo2  
wpo3  
wpo4

...

---

\*\* When REF has been installed on all computers : ◆ End of installation.

- Execute the following command

on all upgraded computers

in an xterm window as user jade :

*ReStartSystem.sh*

When all computers are in READY state :

- If WPT has been upgraded, load offline data  
from DAT.

- UPDATE\_ALL from SUPERVISION.

- Start all applications from SUPERVISION.

---

---

#### 10.7.4.7 Eject and store the CDROM distriref

- Open an Unix terminal,
  - ☞ Refer to the procedure § 10.7.3.4.1.
- Execute the following commands to eject the CDROM from the drive:

Open a Terminal window.	◆ Boot on a terminal.
[PROMPT_OPE] <i>eject cdrom ↵</i>	◆ Eject the CD-ROM.

- Store the CDROM distriref.

#### 10.7.4.8 Load and update the offline database

- ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

**This is the end of the procedure Install or Update the skykeeper software on all operational computers**

### 10.7.5 COPY THE SKYKEEPER SOFTWARE REFERENCE TO AN OTHER ADP

The purpose of this procedure is to describe how copy the "skykeeper software reference" (REF) of the current ADP to an other ADP. Use it to have the same REF on the second ADP.

#### 10.7.5.1 Overview

The procedure has to be executed on the WPT. First, the current ADP has to be running and to be connected to the network. Then, it has to be shutdown and the ADP that has to be updated has to be running and to be connected to the network.

#### 10.7.5.2 Procedure

Open a Terminal window.	◆ Boot on a terminal.
[PROMPT_OPE] <i>cd /jade/TOOLS/COPY_REF ↵</i>	◆ Move in the COPY_REF directory.
[PROMPT_OPE] <i>./copyREF_ADP_to_otherADP.sh ↵</i>	◆ Execute the copyREF script.
*** Creating the directory /jade/ADMIN/tmp ***	◆ Create the temporary directory to save the current REF of the ADP if it

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---

	doesn't exist.
Save the current REF of adp1...	◆ Copy the REF of the ADP to the WPT temporary directory.
*** Shutdown of the computer adp1 ***	◆ The ADP has to be shutdown.
? 'OK' to wait the shutdown of adp1 or 'CANCEL' to ignore the test.	◆ Authorize the shutdown of the ADP or ignore it and shutdown the ADP by yourself.
? Your choice:	
<i>If you select "OK" :</i>	
Waiting for the shutdown of adp1...	
adp1 is shutdown	
<i>If you select 'CANCEL':</i>	
Abort the test - adp1 has to be shutdown !	
? adp1 is correctly shutdown ? 'Return' to continue.	◆ Wait the shutdown of the ADP before to continue.
***Running of the computer adp1 ***	◆ The ADP has to be starting.
? 'OK' to wait the starting of adp1 or 'CANCEL' to ignore the test.	◆ Authorize the test on the starting of the ADP or ignore it.
? Your choice:	
<i>If you select "OK" :</i>	
Waiting for the starting of adp1...	
adp1 is starting	
<i>If you select 'CANCEL':</i>	
Abort the test – adp1 has to be starting!	
? adp1 is correctly running ? 'Return' to continue.	◆ Wait the starting of the ADP before to continue.
Copy the new REF of adp1	◆ Copy the REF from the WPT to the ADP to update
? adp1 has to be reboot ! 'Return' to continue.	◆ End of installation: the ADP has to be restarted to be operational.
The update is finish correctly! adp1 will restart.	

---

---

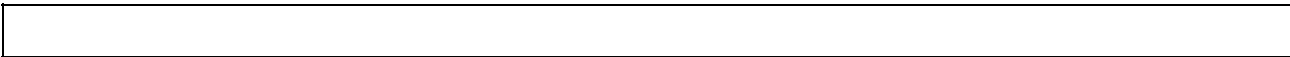
## 10.7.6 COMMON PROCEDURES

### 10.7.6.1 Format the USB disk

The purpose of this procedure is to describe how format the USB disk which contain the customized Solaris 10 image.

- On the Administrator terminal, execute the following commands:

Plug the USB disk on the computer	◆
[PROMPT_ADM] <i>devfsadm -Cv</i> ↵	◆ Reset the devices of the computer
[PROMPT_ADM] <i>ls -l /dev/dsk/c*s0   grep usb   awk '{print \$9}'</i> ↵  <i>/dev/dsk/c2t0d0s0</i>	◆ Note the device of the USB disk
[PROMPT_ADM] <i>df -k</i> ↵  Filesystem           ... Mounted on  <i>/dev/dsk/c2t0d0s0 ... /rmdisk/unnamed_rmdisk</i>	◆ Note the mount point of the USB disk
[PROMPT_ADM] <i>svcadm disable svc:/system/filesystem/volfs:default</i> ↵	◆ Stop the automatic mounting process.
[PROMPT_ADM] <i>umount /rmdisk/unnamed_rmdisk</i> ↵	◆ Umount the USB disk.
[PROMPT_ADM] <i>sdtmedia_format -d /dev/rdisk/c2t0d0s0</i> ↵	◆ Format the USB disk into the UFS file system format.
OR	◆ The first command uses graphical tool "sdtmedia"
[PROMPT_ADM] <i>mkfs -F ufs /dev/rdisk/c2t0d0s0 15615180</i> ↵	◆ The second command is an "operator command". Following the used USB disk, the last value of the command can change.
Wait the end of format.	◆
Unplug the USB disk.	◆
[PROMPT_ADM] <i>svcadm enable svc:/system/filesystem/volfs:default</i> ↵	◆ Restart the automatic mounting process.



### 10.7.6.2 Update the FLAR archive of USB DISK (from DVD)

If the SKYKEEPER customized Solaris 10 shall be updated, it will necessary to replace the flar file on USB disk by the flar file present on DVD.

This procedure is divided into 2 steps:

- Look for the mounted points (USB disk and DVD-ROM).
- Copy the new flar file from DVD to the USB disk.

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure USB disk update**

#### 10.7.6.2.1 Look for the mounted points (USB disk and DVD-ROM).

- Log-in as Administrator user, and execute the following commands:

Plug the USB disk on the computer.	◆
Insert the DVD-ROM in the DVD drive.	◆
[PROMPT_ADM] <i>devfsadm -Cv</i> ↵	◆ Reset the devices of the computer
[PROMPT_ADM] <i>svcadm disable svc:/system/filesystem/volfs:default</i> ↵	◆ Stop the automatic mounting process.
[PROMPT_ADM] <i>ls -l /dev/dsk/c*s0   grep usb   awk '{print \$9}'</i> ↵	◆ Note the device of the USB disk
<b>/dev/dsk/c2t0d0s0</b>	
[PROMPT_ADM] <i>svcadm disable svc:/system/filesystem/volfs:default</i> ↵	◆ Stop the automatic mounting process.

---

[PROMPT\_ADM] *cfgadm -a | grep "CD" ↵* ♦ Note the device of the DVD.

c0::dsk/c0t0d0 CD-ROM connected  
configured unknown

---

### 10.7.6.2.2 Copy the new flar file from DVD to the USB disk

- On the Administrator terminal, execute the following commands:

---

[PROMPT\_ADM] *mount -F ufs /dev/dsk/c2t0d0s0 /mnt ↵* ♦ Mount the USB disk.

---

[PROMPT\_ADM] *mount -F hsfs /dev/dsk/c0t0d0s0 /cdrom/cdrom0 ↵* ♦ Mount the DVD.

---

[PROMPT\_ADM] *rm /mnt/\* ↵* ♦ Remove old files from the USB disk.

---

[PROMPT\_ADM] *cp /cdrom/cdrom0/archive.flar /mnt/ ↵* ♦ Copy the flar file on the USB disk.

---

[PROMPT\_ADM] *eject /dev/dsk/c0t0d0s0 ↵* ♦ Eject theDVD

Take the DVD, and store it.

---

[PROMPT\_ADM] *umount /mnt ↵* ♦ Umount the USB disk.

---

Unplug the USB disk, and store it with the SKYKEEPER DVD Solaris Boot. ♦

---

[PROMPT\_ADM] *svcadm enable svc:/system/filesystem/volfs:default ↵* ♦ Restart the automatic mounting process.

---

**This is the end of the procedure USB disk update**

### 10.7.6.3 Find the version of flar image

The purpose of this procedure is to describe how known the version of flar image.

#### 10.7.6.3.1 Find the version of flar image present on USB disk

To know the version of flar image present on USB disk, execute the following commands on the Administrator terminal:

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Plug the USB disk on the computer	◆
[PROMPT_ADM] <i>devfsadm -Cv</i> ↵	◆ Reset the devices of the computer
[PROMPT_ADM] <i>ls -l /dev/dsk/c*s0   grep usb   awk '{print \$9}'</i> ↵  <i>/dev/dsk/c2t0d0s0</i>	◆ Note the device of the USB disk
[PROMPT_ADM] <i>svcadm disable svc:/system/filesystem/volfs:default</i> ↵	◆ Stop the automatic mounting process.
[PROMPT_ADM] <i>mount -F ufs /dev/dsk/c2t0d0s0 /mnt</i> ↵	◆ Mount the USB disk.
[PROMPT_ADM] <i>flar -i /mnt/archive.flar</i> ↵  archive_id=5ac53abce85c8edb64a6ff41c1d7a159  files_archived_method=cpio  <b>creation_date=20070911140150</b>  creation_master=wpo1  <b>content_name=SOLARIS 10 HW 08/07 (04/2008)</b>  creation_node=wpo1  creation_hardware_class=sun4u  creation_platform=SUNW,A70  creation_processor=sparc  creation_release=5.10  creation_os_name=SunOS  <b>creation_os_version=Generic_120011-14</b>  files_compressed_method=compress  content_author=Thales Raytheon Systems  content_architectures=sun4u  type=FULL	◆ Note the creation date, the hardware release of Solaris (content name), and the OS version.
[PROMPT_ADM] <i>umount /mnt</i> ↵	◆ Umount the USB disk.
[PROMPT_ADM] <i>svcadm enable</i>	◆ Restart the automatic mounting process.

---

---

---

*svc:/system/filesystem/volfs:default* ↵

---

---

### 10.7.6.3.2 Find the version of flar image present on DVD

Normally, the version of the flar image is displayed on the DVD, and on the DVD jacket. If the version is not displayed, execute the following commands on the Administrator terminal:

---

---

Insert the DVD inside the DVD drive	◆
-------------------------------------	---

---

[PROMPT_ADM] <i>ls -l /cdrom/cdrom0/</i> ↵  archive.flar	◆ Check that flar image is present on the DVD
--	---

---

[PROMPT_ADM] <i>flar -l /cdrom/cdrom0/archive.flar</i> ↵  archive_id=5ac53abce85c8edb64a6ff41c1d7a159  files_archived_method=cpio  <b>creation_date=20070911140150</b>  creation_master=wpo1  <b>content_name=Solaris 10 06/11</b>  creation_node=wpo1  creation_hardware_class=sun4u  creation_platform=SUNW,A70  creation_processor=sparc  creation_release=5.10  creation_os_name=SunOS  <b>creation_os_version=Generic_125100-06</b>  files_compressed_method=compress  content_author=Thales Raytheon Systems  content_architectures=sun4u  type=FULL	◆ Note the creation date, the hardware release of Solaris (content name), and the OS version.
--	---

---

---



#### 10.7.6.4 Find the Solaris 10 and "skykeeper software" versions

The purpose of this paragraph is to describe how known the version of Solaris 10 and "skykeeper software" installed on computer.

##### 10.7.6.4.1 Version of Solaris 10

- Open the Unix terminal
  - ☞ Refer to the procedure § 10.7.3.4.1.
- Enter the following commands:

---

```
[PROMPT_OPE] uname -v ↵
```

 ♦ Note the operating system version.

```
Generic_120011-14
```

---

```
[PROMPT_ADM] cat /etc/release ↵
```

 ♦ Note the operating system release.

```
Solaris 10 8/07 s10s_u4wos_12b  
SPARC
```

```
Copyright 2007 Sun Microsystems, Inc. All  
Rights Reserved.
```

```
Use is subject to license terms.
```

```
Assembled 16 August 2007
```

---

##### 10.7.6.4.2 Version of "skykeeper system"

- Open the Unix terminal
  - ☞ Refer to the procedure § 10.7.3.4.1.
- Enter the following commands:

---

```
[PROMPT_OPE] ls -l /jade/ENV_EXE ↵
```

 ♦ Note the "skykeeper system" version.

```
/jade/ENV_EXE -> SYS_SOIN_V1.1.2_-  
19_10_07-11h02m40s
```

---

##### 10.7.6.4.3 Version of "skykeeper tools"

- Open the Unix terminal
  - ☞ Refer to the procedure § 10.7.3.4.1.
- Enter the following commands:

---

---

```
[PROMPT_OPE] ls -l /jade/TOOLS ↵
```

◆ Note the "skykeeper tools" version.

```
/jade/TOOLS -> SYS_SOIN_V1.1.2_-19_10_07-  
11h02m40s
```

---

---

#### 10.7.6.4.4 Version of "skykeeper reference software"

- Open the Unix terminal
  - ☞ Refer to the procedure § 10.7.3.4.1.
- Enter the following commands:

---

---

```
[PROMPT_OPE] ls -l /jade/REF ↵
```

◆ Note the "skykeeper reference software" version.

```
/jade/REF -> REF_SOIN_V1.1.2_-19_10_07-  
11h02m40s
```

---

---

#### 10.7.6.5 Install the Thales offline database present on the CD "Distriref"



The offline DVD may be scratched (so it is better to have two offline DVD) or loose, and if in the same time the hard disk of the WPT computer is failed, ... A new operational offline database should be generated from the Thales offline database present on the CD "Distriref".

On each CD "Distriref", Thales gives one offline database for each site. Thales does not certify these offline databases:

- Thales does not know the client data (TYCOA, Strategic points, ...),
- The international rules may change since the last Thales delivery (ICAO rules, ...),
- Thales does not know all the international agreements (for examples the FIR position, the AOR positions, ...),
- Perhaps some objects are wrong or missed (airbase positions, airbase names,),
- ...

This procedure is divided into 5 steps:

- Copy the Thales offline databases to the hard disk of WPT,
- Start the system with the Thales offline,
- Generate the operational offline database,
- Start the system with the operational database,
- Save the operational database on DVD-RW.

NOTE: This sign  means the operator has to refer and to perform another procedure (i.e.  refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure Install the Thales offline database present on the CD "Distriref"**

#### 10.7.6.5.1 Copy the Thales offline databases to the hard disk of WPT

- Insert the cd "Distriref" in the CD/DVD drive of the WPT.
- Open Unix terminal (on the WPT), and execute the following commands:

---

[PROMPT_OPE] <code>cd /users_data ↵</code>	◆ Go to the <i>users_data</i> directory.
<hr/>	
[PROMPT_OPE] <code>ls /cdrom/cdrom0/ ↵</code>	◆ List the content of the CDROM.
<hr/>	
OFFLINE_SOIN_V1.1.9-29_05_08-13h22m21s.tar.gz	
REF_SOIN_V1.1.9-29_05_08-12h56m22s.tar.gz	
SYS_SOIN_V1.1.9-29_05_08-12h57m04s.tar.gz	
TOOLS_SOIN_V1.1.9-29_05_08-12h57m36s.tar.gz	
distri_CRC.cfg	
distri_CRCBIK.cfg	
distri_SOC.cfg	
distriref.sh	
<hr/>	
[PROMPT_OPE] <code>cp /cdrom/cdrom0/OFFLINE_SOIN_V1.1.9-29_05_08-13h22m21s.tar.gz ./ ↵</code>	◆ Copy the compressed file to the hard disk (from the CDROM).
<hr/>	
[PROMPT_OPE] <code>gunzip OFFLINE_SOIN_V1.1.9-29_05_08-13h22m21s.tar.gz ↵</code>	◆ Unzip the compressed file.
<hr/>	
[PROMPT_OPE] <code>tar xf OFFLINE_SOIN_V1.1.9-29_05_08-13h22m21s.tar ↵</code>	◆ Extract the Thales offline data from the tar file.
<hr/>	
[PROMPT_OPE] <code>rm OFFLINE_SOIN_V1.1.9-29_05_08-13h22m21s.tar ↵</code>	◆ Remove the tar file from the hard disk
<hr/>	
[PROMPT_OPE] <code>ls OFFLINE_DATA/ ↵</code>	◆ List the Thales offline databases which

---

---

DATA.Indonesia-CRCBIK/	have been extracted.
DATA.Indonesia-CRCCBL/	
DATA.Indonesia-CRCTKT/	
DATA.Indonesia-CRCTPI/	
DATA.Indonesia-SOCBIK/	
DATA.Indonesia-SOCHLM/	
DATA.Indonesia-SOCMDN/	
DATA.Indonesia-SOCMKR/	

---

[PROMPT_OPE] In -s DATA.Indonesia-SOCHLM	◆ Select the Thales offline for the site
OFFLINE_DATA/DATA ↵	(HLM in this example).

---

- Eject the CDROM distireref (from the supervision window), and store it.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

#### 10.7.6.5.2 Start the system with the Thales offline

- Execute an UPDATE\_ALL COLD from the supervision window.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).
- Start the system.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

#### 10.7.6.5.3 Generate the operational offline database

- Start SPM\_OFF from the supervision window.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).
- In SPM OFFLINE, modify the Thales offline database with the (true) operational data.
- Save the correction before to quit SPM\_OFFLINE
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

#### 10.7.6.5.4 Start the system with the operational database

- Execute an UPDATE\_ALL COLD from the supervision window.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

- Start the system.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).

#### 10.7.6.5.5 Save the operational database on DVD-RW

- Save the operational database on DVD-RW.
  - ☞ Refer to the "Operator handbook Technical functions" document (Doc. Ref. [3]).
- Store the offline DVD.

**This is the end of the procedure Install the Thales offline database present on the CD  
"Distiref"**

## 10.8 CHD : CLEAN COMPUTER HARD DISK

The purpose of the following lines is to describe the procedure: Clean computer hard disk.

The purpose of this procedure is to free space on hard disk of the ADP and workstations hard disk by deletion of the files from :

- Failure reports,
- Track reports,
- Print Screen,
- Central records,
- Simulation scenarios.

This procedure is then divided into 5 steps:

- Launch the clean disk tool
- Choose the computer for which you want to clean the hard disk
- Choose the kind of data you want to erase
- Choose the data you want to erase
- Quit the clean disk tool

NOTE : This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

**This is the beginning of the procedure to back-up system data**

## 10.8.1 LAUNCH THE CLEAN DISK TOOL

You can launch and use this tool from any one of the workstations of the system.

For the explanation, we use the clean disk tool from the wpt1.

Execute the following commands to launch the clean disk tool:

Click on the Terminal icon in the task bar of WPT	◆ Open a terminal window.
[PROMPT_OPE] <i>cleanDisk.sh</i> ↵	◆ Launch the clean disk tool. ◆ The menu of clean disk tool is displayed
Your choice (1-2): 1 ↵	◆ Enter to the clean menu

The clean disk tool is launched.

## 10.8.2 CHOOSE THE COMPUTER

Now, you have to choose the computer for which you want to clean the hard disk. You can also ask some help or go back to the previous menu.

### 10.8.2.1 Need help

If you don't know what are the names of computers, you can display the list of computers names entering the following choice:

Your choice: <i>help</i> ↵	◆ The list of the computer is displayed
----------------------------	---

Now, you have the list of the computers for which you can clean the disk

☞ Refer to §10.8.2.3 to know how to continue

### 10.8.2.2 Go back to the previous menu

If you want to quit the clean disk tool, you can go back to the previous menu entering the following choice:

---

---

Your choice: *cancel* ↵

◆ The previous menu is displayed

---

---

☞ Refer to §10.8.3 to know how to quit the clean disk tool from this menu

### 10.8.2.3 Choose the name of the computer

You have to choose the compute for which you want to clean the disk

---

---

Your choice: [*The name of one of the computer*] ↵

◆ You are going to clean the disk of the selected computer

---

---

NOTE: The computer from which you execute the clean disk tool and the selected computer have to be connected to the network. And the selected computer has to be running.

From this choice, each operation of erase will be done on the computer you have chosen.

### 10.8.3 CHOOSE THE KIND OF DATA

You can remove from the hard disk several kinds of data:

- Failure reports
- Track reports
- Print Screen
- Central records in DISK
- Central records in CURRENT

You can also choose to go back to the previous menu.

#### 10.8.3.1 Go back to the previous menu

If you want to change the selected computer or if you want to quit the clean disk tool, you can go back to the previous menu entering the following choice:

---

---

Your choice: *6* ↵

◆ Go back to the previous menu

---

---

☞ Refer to §10.8.2.3, if you want to change the selected computer.

- ☞ Refer to §10.8.2.2, if you want to quit the clean disk tool.

### 10.8.3.2 Choose the kind of data

The clean disk tool displays a numbered list of the available kinds of data. To choose one them, follow the instructions below:

---

---

Your choice: *[number of the wished kind of data]* ↵    ♦ The list of elements which are of the selected kind and which are available on the computer

---

---

Note : The track reports are stored only on WPOs and the central records are stored only on WPTs.

### 10.8.4 SELECT DATA TO ERASE

The clean disk tool displays the list of elements of the selected kind, available on the selected computer. You can select one or more of those elements to erase. You can also select all those elements to erase or you can go back to the previous menu.

#### 10.8.4.1 Go back to the previous menu

If you want to change the selected computer or the selected data kind, or if you want to quit the clean disk tool, you can go back to the previous menu entering the following choice:

---

---

Your choice: *cancel* ↵    ♦ Go back to the previous menu

---

---

- ☞ Refer to §10.8.3.1, if you want to change the selected computer or quit the clean disk tool.
- ☞ Refer to §10.8.3.2 if you want to change the selected kind of data.

#### 10.8.4.2 Select one or more elements

From the elements list displayed, to select one or more elements to erase, following the instructions below:



**CHD : clean computer hard disk**  
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---

---

Your choice: <i>name_of_element_1</i> ↵	◆ One element which name is <i>name_of_element_1</i> is selected
Removing <i>name_of_element_1... done</i>	◆ This is the result of the previous command
Your choice: <i>name_of_element_2</i> <i>name_of_element_3</i> ↵	◆ Two elements are selected, ◆ Note that their names are separated by a space character
Removing <i>name_of_element_2... done</i> Removing <i>name_of_element_3... done</i>	◆ This is the result of the previous command
Your choice: <i>name_of_element_4</i> <i>name_of_element_5 name_of_element_6</i> ↵	◆ Three elements are selected
Removing <i>name_of_element_4... done</i> Removing <i>name_of_element_5... done</i> Removing <i>name_of_element_6... done</i>	◆ This is the result of the previous command

---

---

Note: **All selected items are definitively erased.**

### 10.8.4.3 Selected all elements

From the elements list displayed, to select one or more elements to erase, following the instructions below:

---

---

Your choice: <i>all</i> ↵	◆ All the elements are selected
Removing <i>name_of_element_1... done</i> ...	◆ This is the result of the previous command
Removing <i>name_of_element_n... done</i>	

---

---

Note: **All items of the selected data kind are definitively erased.**

### 10.8.5 QUIT FAILURE REPORTS

**CHD : clean computer hard disk**  
**UNCLASSIFIED**

To quit the clean disk tool,

- From the menu of the selection of elements to erase, refer to §10.8.4.1,
- From the menu of the selection of the kind of data, refer to §10.8.3.1,
- From the menu of the selection of the computer, refer to §10.8.2.2,
- From the starting menu, following the instructions below:

---

---

Your choice (1-2): 2 ↵

◆ Quit the clean disk menu

---

---

**This is the end of the procedure to back-up SYSTEM data**

## 10.9 SPR : SYSTEM PRINTER MANAGEMENT

The purpose of the following lines is to describe the procedure to check the availability to print by WPO and WPT.

NOTE : This sign ↻ means the operator has to refer and to perform another procedure (i.e. ↻ refer to procedure 3) and come back in the current one until it is completed.

### 10.9.1 CHECK PRINTER ACCESS

The printer is running and ready to print (power on, IP address setted, connected to LAN switch)

- To check the availability of the print function, execute the following actions on WPT and each WPO:

Click on the Terminal icon in the task bar.	◆ Open a terminal window.
[PROMPT_OPE] <i>ping pri1</i> ↵	◆ Verify that the printer pri1 is alive on the LAN .
[PROMPT_OPE] <i>lpstat -t</i> ↵	◆ Verify that the printer pri1 is correctly configured.
[PROMPT_OPE] <i>lpstat -s</i> ↵	◆ Verify that the printer pri1 is the default printer
[PROMPT_OPE] <i>echo "Printer Test" &gt; /tmp/test</i> ↵	◆ Create a test file
[PROMPT_OPE] <i>lp /tmp/test</i> ↵	◆ Print the test file

### 10.9.2 COMPUTER SETTING FOR PRINTER ACCESS

The purpose of this paragraph is to describe the method to establish the printer access from WPT and each WPO.

SPR : System printer Management  
UNCLASSIFIED

**This is the beginning of the procedure Configure computer printer access**

To perform the procedure, execute the following actions:

- Check the printer access.
  - ☞ Refer to §10.6.1.
- If the WPT, WPO computer doesn't access to the running printer, then execute the following actions on the concerned WPT or WPO:

Click on the Terminal icon in the task bar.	◆ Open a terminal window.
	◆ Login root in the terminal window
[PROMPT_OPE] <code>lpadmin -x pri1 ↵</code>	◆ Reset of the configuration.
[PROMPT_OPE] <code>lpadmin -p pri1 -s pri1\!printer - I any pstat -t ↵</code>	◆ Set LP service for pri1.
[PROMPT_OPE] <code>lpadmin -d pri1 ↵</code>	◆ Define pri1 as default printer

- Check the printer access.
  - ☞ Refer to §10.6.1.
- Close the window

**This is the end of the procedure Configure computer printer access**

**SPR : System printer Management**  
**UNCLASSIFIED**

## 10.10 PC: PC CONFIGURATION AND USE

The purpose of this procedure is to describe the PC (laptop) configuration and use.

### 10.10.1 PC CHARACTERISTICS

A lot of maintenance procedures need to use the tool PC, which must respect some of the following requirements:

- Windows XP as operating system,
- Compatible IP address with the subnet used by the Skykeeper system,
- Serial port RS-232 for an hyper terminal,
- Some specific software/drivers.

#### 10.10.1.1 Windows XP as Operating System

To use Windows XP as Operating System, offers two advantages:

- Most computer suppliers (computers, printers, time sources, ...) give drivers or software for the Windows Operating System (refer to § 10.10.1.4).
- Windows has a hyper terminal (refer to § 10.10.1.3).

NOTE: The Lenovo laptop, given by Thales, had a Windows XP installed by Lenovo. To re-install Windows, refer to the Lenovo documentation.

##### 10.10.1.1.1 Disable the Firewall

To disable the Windows firewall on the PC, execute the following actions in administrator account:

- Click on the "**Start**" menu, and select "**Start / Settings / Control Panel**". The "**Control Panel**" window is displayed.
- In the "**Control Panel**" window, double-click on the "**Fire-wall Windows**".
- In the "**Fire-wall Windows**" dialog box, disable the firewall.

If the Symantec firewall has been installed on the PC, disable it with following actions in administrator account:

- Click on the "**Start**" menu, and select "**Start / All Programs / Symantec Client Security / Symantec Client Firewall**". The "**Symantec Client Firewall**" window is displayed.
- In the "**Symantec Client Firewall**" window, click on the "**Turn OFF**" button.

- In the "**Protection Alert**" dialog box, for the parameter "**How long do you wish to have Symantec Client Firewall turned off**", select "**Until system restarts**", and then click on the "**OK**" button.

#### 10.10.1.2 Compatible IP address with the subnet used by the Skykeeper system

To connect the PC on the general network, the PC must have an IP address compatible with the subnet used by the Skykeeper system.

To change the IP address on the PC, execute the following actions in administrator account:

- Click on the "**Start**" menu, and select "**Start / Settings / Control Panel**". The "**Control Panel**" window is displayed.
  - In the "**Control Panel**" window, double-click on the "**Network and Dial-up connections**".
  - In the "**Network and Dial-up Connections**" dialog box, select "**Internet Protocol (TCP/IP)**", and click on "**Properties**". The "**Local Area Network Connection Properties**" dialog box opens.
  - If necessary, force the IP address by selecting the "Use the following IP address", and enter the following values:
    - IP address: Refer to the tables "General LAN addresses".
    - Subnet mask: 255.255.255.0
    - Default gateway: <empty>
- ☞ Refer to the tables "General LAN addresses".

NOTE: You can display the Windows help by clicking on the desktop and then pressing on the "F1" key.

#### 10.10.1.3 A Serial port RS-232 for a hyper terminal

Some equipment, like the modem, needs a hyper terminal to be configured. If the PC has serial port(s), you can use the Windows hyper terminal with it (them). If the PC does not have a serial port, you must use an USB to Serial RS-232 adapter.

NOTE: The USB to Serial RS-232 adapter, given by Thales, need to install a driver on the Lenovo laptop (Refer to adapter documentation).

NOTE: When USB to Serial RS-232 adapter is used, sometime the connection between the PC and the equipment cut itself. To re-open it, the connection shall be closed and then be opened again.

#### 10.10.1.4 Some specific software

This SMM has been delivered with the SMM documentation CD (refer to the § 2.4.2), which contains all drivers, tools and configuration files that shall be installed on the PC.

#### **10.10.1.4.1 Thales tools**

To install the Thales tools, execute the following actions:

- Insert the SMM documentation CD in the PC.
- With the Windows Explorer, create the directories "MyDocuments\Thales", "MyDocuments\Thales\Modem", and " MyDocuments\Thales\HyperTerminal".
- With the Windows Explorer, copy the modem configuration files (from the CD) in the directory "MyDocuments\Thales\Modem".
- With the Windows Explorer, copy the hyper terminal configuration files (from the CD) in the directory "MyDocuments\Thales\HyperTerminal".

#### **10.10.1.4.2 Software to configure the time source**

To install the software given with the time source, refer to the time source sheet.

### **10.10.2 PC USES**

#### **10.10.2.1 Sun Server Configuration**

The Windows hyper terminal can be used to resolve troubleshooting on Sun computers. The Sun equipment sheet indicates how to connect, configure and use the hyper terminal.

☞ Refer to Sun server equipment sheet.

#### **10.10.2.2 Modem configuration**

The Windows hyper terminal is used to configure the modem. The modem sheet indicates how to connect, configure and use the hyper terminal.

☞ Refer to modem equipment sheet.

#### **10.10.2.3 Time Source Configuration**

The Ethernet port can be used to configure or resolve troubleshooting on Time Source. The time source sheet indicates how to connect, configure and use the PC.



☞ Refer to time source equipment sheet.

#### 10.10.2.4 FTP transfer

The purpose of the following lines is to describe the procedure: How transfer file between a PC and the Centre.

The present procedure is divided into 2 steps:

- Configure and connect the PC to the Centre.
- Transfer a file by FTP.

NOTE: This sign ☞ means the operator has to refer and to perform another procedure (i.e. ☞ refer to procedure 3) and come back in the current one until it is completed.

##### 10.10.2.4.1 Connect the PC to the Centre

- Connect the PC to the Centre with an Ethernet straight-pinned cable.

On the PC, open a DOS window (click **Start**, click **Run**, type **cmd**, and then click **OK**), and enter the following commands:

---

```
[DOS_PROMPT] ipconfig ↵
```

◆ Display the IP address of the PC.

...

```
IP Address .....192.168.45.20
```

```
Subnet.....255.255.255.0
```

---

NOTE: The IP address of the PC must be compatible with center subnet (refer to § 10.10.1.2).

##### 10.10.2.4.2 Transfer files between the Centre and the PC

On the PC, open a DOS window (click **Start**, click **Run**, type **cmd**, and then click **OK**), and execute the following commands:

---

```
[DOS_PROMPT] cd <XXX> ↵
```

◆ If necessary, change the directory where the file(s) will be transferred.

<XXX> is the directory (on the PC) where the operator wants to transfer his files.

---

```
[DOS_PROMPT] ftp ↵
```

◆ Start ftp

---

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[FTP_PROMPT] <i>open 192.168.45.2</i> ↵	◆ Connect to WPT (Refer to the tables "General LAN addresses").
User: <i>jade</i> ↵	◆ Connect with the operator account.
Password: <i>jade</i> ↵	
[FTP_PROMPT] <i>binary</i> ↵	◆ Set the ftp protocol to binary.
[FTP_PROMPT] <i>dir</i> ↵	◆ List the file on the WPT computer.
[FTP_PROMPT] <i>dir *.gz</i> ↵	◆ List the files with the extension "gz".
[FTP_PROMPT] <i>cd &lt;XXX&gt;</i> ↵	◆ If necessary, change the directory on WPT.
[FTP_PROMPT] <i>get file1.txt</i> ↵	◆ Transfer the file named "file1.txt" from the WPT to the PC.
[FTP_PROMPT] <i>mget *.txt</i> ↵	◆ Transfer all files with the extension "txt" from the WPT to the PC.
[FTP_PROMPT] <i>put file1.txt</i> ↵	◆ Transfer the file named "file1.txt" from the PC to the WPT.
[FTP_PROMPT] <i>mput *.txt</i> ↵	◆ Transfer all files with the extension "txt" from the PC to the WPT.
[FTP_PROMPT] <i>quit</i> ↵	◆ Quit the ftp protocol.
[DOS_PROMPT] <i>exit</i> ↵	◆ Close the DOS window.

### 10.10.2.5 BAE radar control

The PC computer is used to run the SIMU\_MROC program to control BAE radars.

☞ Refer to the SIMU\_MROC User Manual [5].

## 10.11 VCI : VCMDR SOFTWARE INSTALLATION

The purpose of this procedure is to describe:

- The installation or the update of the VCMDR software on the Windows computer,
- The customization of the VCMDR software,
- The configuration of the Window computer.

### 10.11.1 INSTALLATION OF THE "VCMDR SOFTWARE" UNDER WINDOWS

This procedure is divided into these steps:

- Open a session and insert the "VCMDR" DVD,
- Install the "VCMDR software",
- Eject the "VCMDR" DVD, and store it.

#### 10.11.1.1 Open a session and insert the "VCMD" DVD

- Under the Windows computer, log on as a user which has administrator privileges,
- Insert the "VCMDR" DVD in the DVD drive.

#### 10.11.1.2 Install the "VCMDR software"

- In the DVD folder, launch the installation tool by right click on the file "VCMDR\_<version>-<date>.exe" and by select "Run as administrator" in the popup menu:

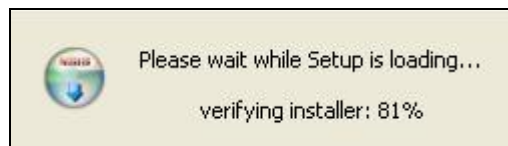


Figure 94 : VCMDR software installation window - Loading Setup

- Wait, this may take several seconds, and then the "Setup" window is displayed:

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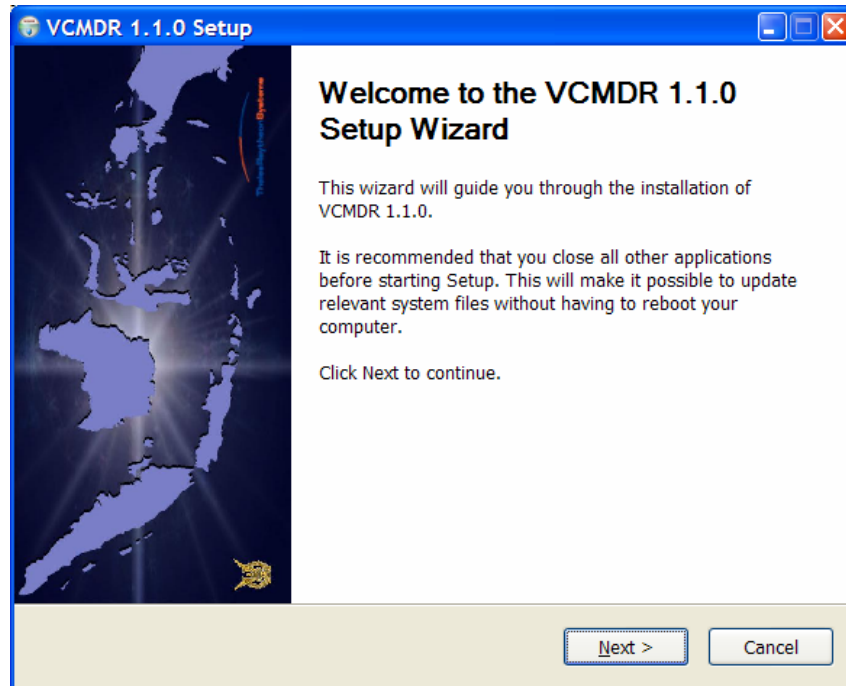


Figure 95 : VCMDR software installation window - Setup

- Click on "**Next**":
- If no release already installed, the "Installation Options" window is displayed to select the packages as shown as Figure 100.
- If older releases have been previously installed, the following window is displayed and allows to select the releases the operator wish to uninstall:

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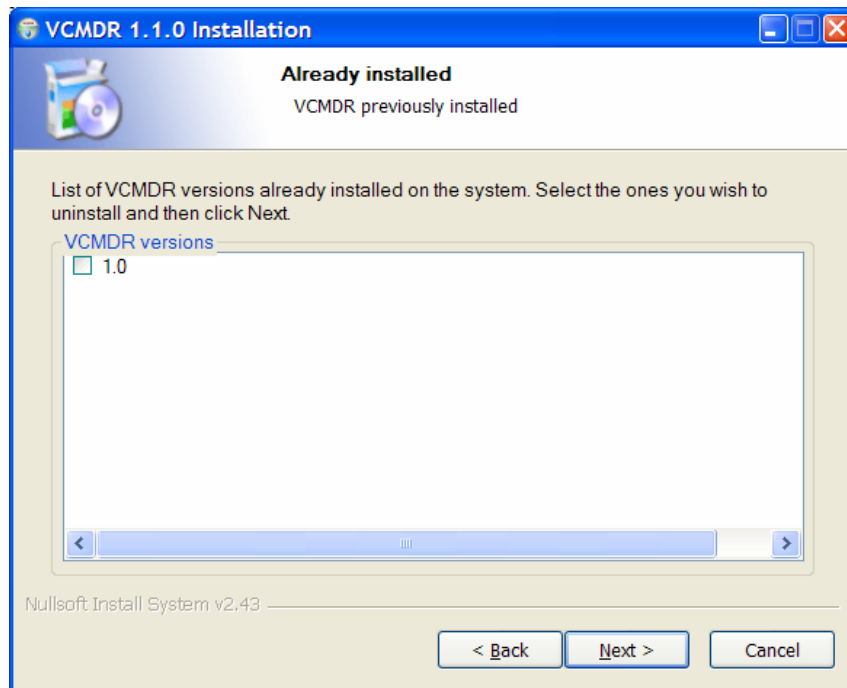
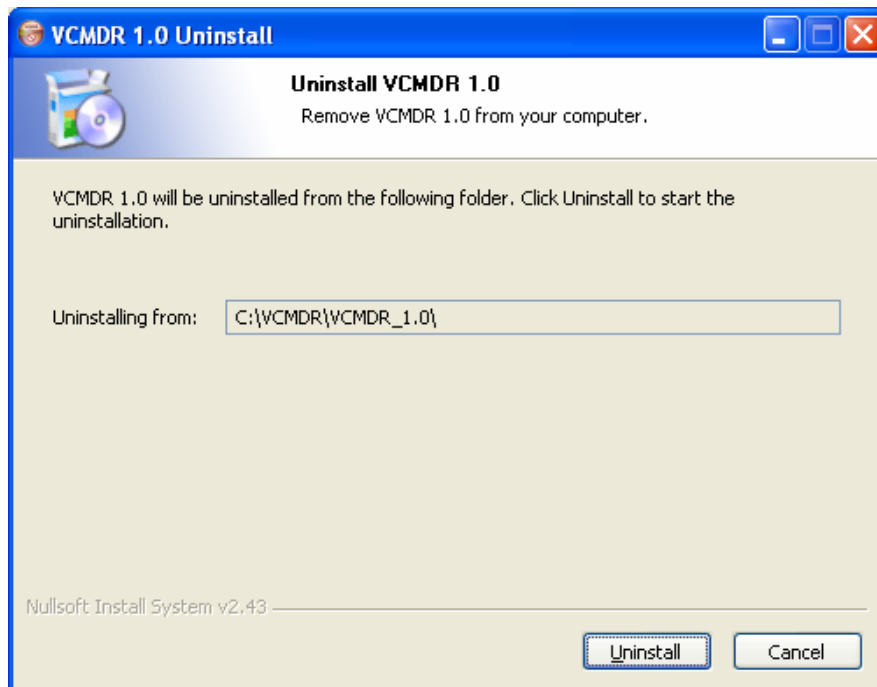


Figure 96 : VCMDR software installation window - Already installed

- If no release is selected and click "**Next**", the "Installation Options" window is displayed to select the package as shown as Figure 100.
- If an older release is selected and click "**Next**", the "Uninstall VCMDR" window is displayed:



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Figure 97 : VCMDR software uninstallation window - Uninstall window

- Click "**Uninstall**", to continue the uninstallation,
- A message window is displayed to confirm the uninstallation:



Figure 98 : VCMDR software uninstallation window - Uninstall confirmation

- Click "**Yes**", to confirm the uninstallation of the VCMDR software,
- When the uninstallation is complete, the following window is displayed:

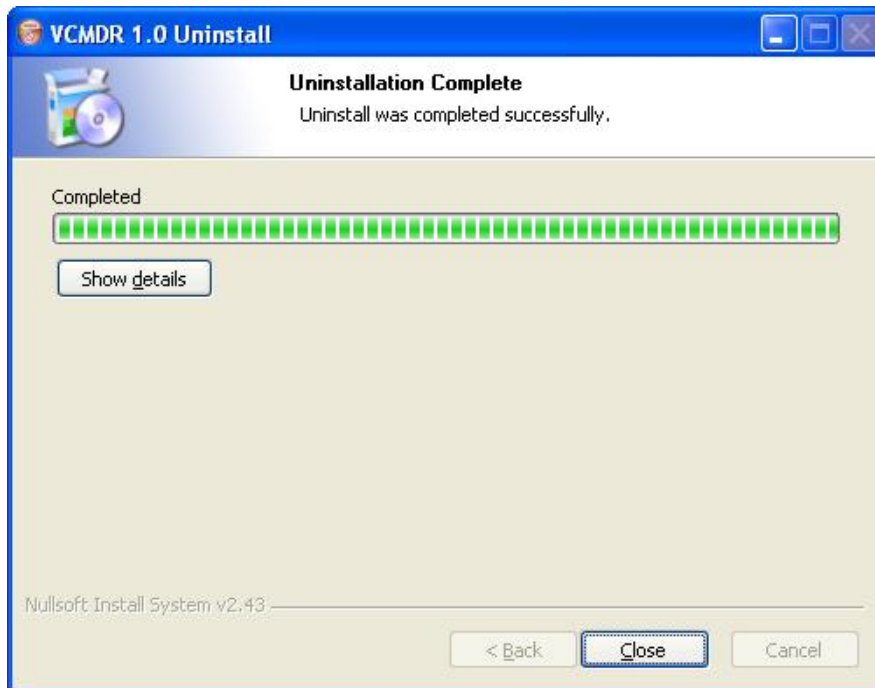


Figure 99 : VCMDR software uninstallation window – Uninstallation Complete

- Click "**Close**" to close the window and continue the installation with the "Installation Options" window.
- A window is displayed to select the components to install:

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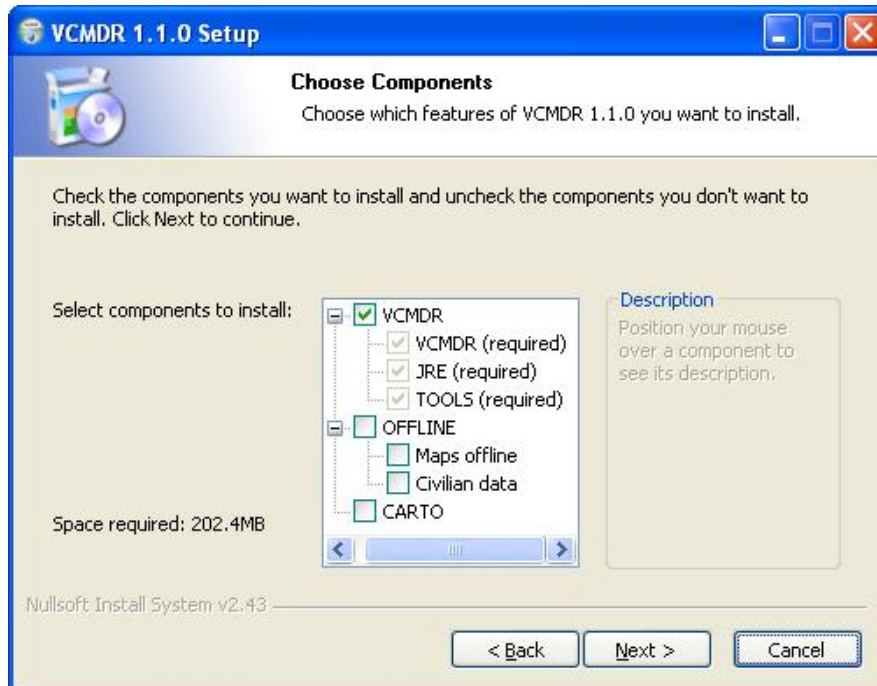


Figure 100 : VCMDR software installation window - Select packages

- The "VCMDR" software (and its sub-components) is automatically selected, and cannot be deselected,
- The "OFFLINE" (and its sub-components) and "CARTO" components are:
  - Automatically selected, and cannot be deselected if there are not yet present on the computer
  - Automatically deselected, and can be reinstalled if there are yet present on the computer
- Select the component(s) to install, and then click on "**Next**",

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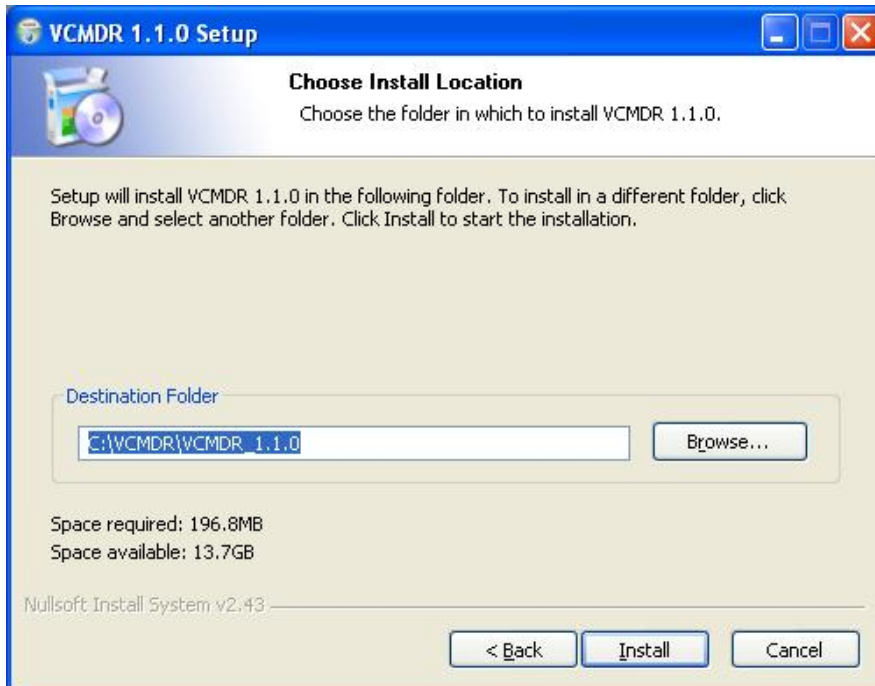


Figure 101 : VCMDR software installation window - Destination folder

- The default destination folder (C:\VCMDR\VCMDR\_<software version>) is displayed, but it can be changed:
- Click "**Install**",
- Wait the end of installation:

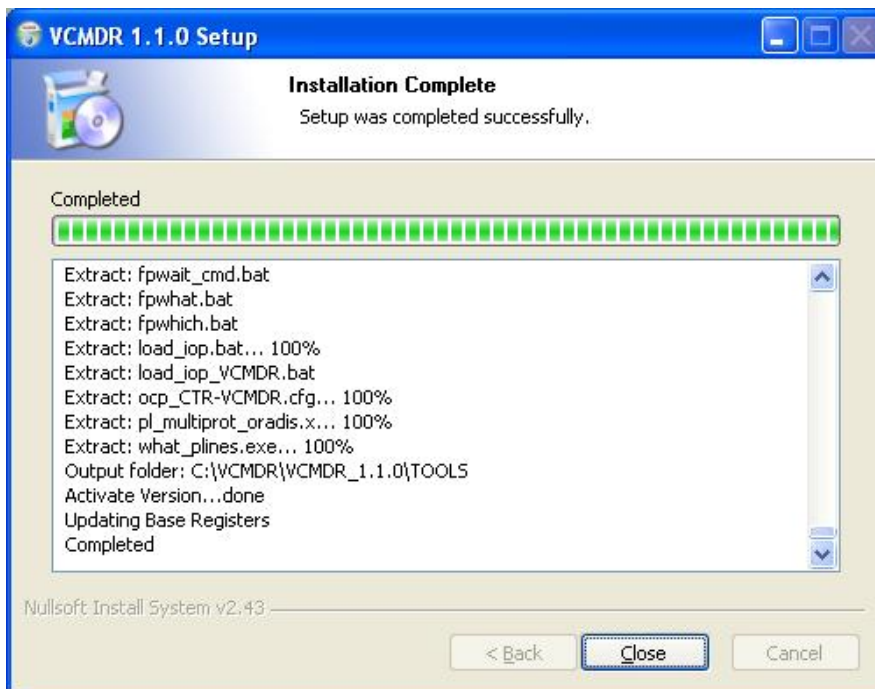




Figure 102 : VCMDR software installation window – Finished installation

- When the installation is completed, click "**Close**" to finish the installation and to close the installation tool.

### 10.11.1.3 Eject the "VCMDR" DVD and Store it

- Check that all applications which used the DVD are stopped (the installation tool, the Windows file manager...), else stop them.
- Eject the DVD (from the Windows file manager, or from CD/DVD drive).
- Store the "VCMDR" DVD.

## 10.11.2 CUSTOMIZATION OF THE "VCMDR SOFTWARE"

The following procedures described here allow customize the VCMDR data:

- Update the offline data,
- Modify the Cartography.

### 10.11.2.1 Update the offline data

Some offline data, which are not received by the ADOC-VCMDR link, can be imported manually:

- The civilian data, like airports, airways and beacons.
- The offline maps.

To export the offline data, execute the following steps:

- Save the offline data from the ADOC WPT to a DVD.
  - ☞ Refer to § 10.4.3.

To import the offline data, execute the following steps:

- Insert the DVD, which contained new offline data, in the DVD drive.
- In the DVD folder, go to the directory "OFFLINE".
- Copy the archive file "Offline\_<date>.tar" from the DVD to the directory "[VCMDR\_DIRECTORY]".
- Under the VCMDR computer, open a *Windows File Manager* and go to the VCMDR directory "[VCMDR\_DIRECTORY]"

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- Backup the current offline by renaming directory the "OFFLINE\_DATA" to "OFFLINE\_DATA\_<current\_date>\_bak".
- Extract files from the archive file "Offline\_<date>.tar" to the directory "[VCMDR\_DIRECTORY]".
- Rename the extracted directory "Offline\_<date>" to "OFFLINE\_DATA".
- Eject the DVD, and store it.
- Re-launch the VCMDR software to take into account the new offline data.

### 10.11.2.2 Modify the Cartography

A default cartography is installed with the VCMDR software.

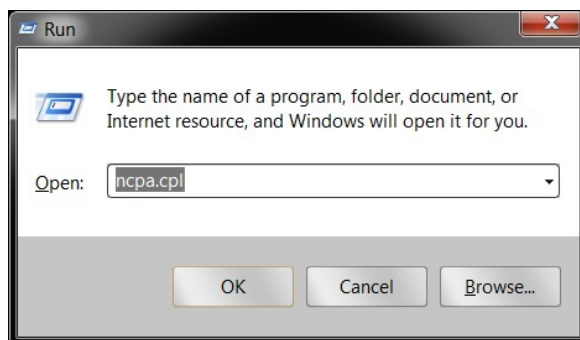
To replace this cartography with a customize cartography, execute the following steps:

- Get the new shape cartography files on a USB key or on a CD/DVD.
- Open a *Windows File Manager* and go to the shape cartography directory: "[VCMDR\_DIRECTORY]\CARTO\Shp".
- Remove, if necessary the old files.
- Copy the new shape cartography files from the USB key or the CD/DVD to this directory,
- Re-launch the VCMDR software to take into account the new cartography.

### 10.11.3 CONFIGURATION OF THE COMPTUER

#### 10.11.3.1 Configure the TCP/IP settings

- Open the "Network Connections" window:
- By Windows key shortcut "Windows key + R" to display the run command, then enter "ncpa.cpl" and click on "OK" :



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Figure 103: The "Run" window

- By clicking the "Start" button, clicking "Control Panel", clicking "Network and Internet", clicking "Network and Sharing Center", and then clicking "Change adapter settings":

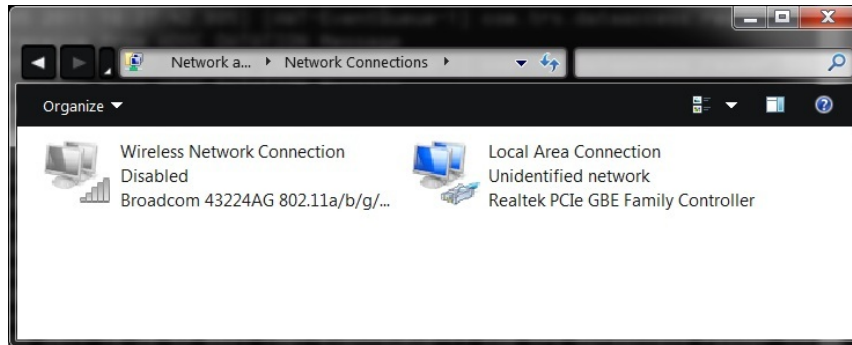


Figure 104: The "Network Connections" window

- Right-click the connection that is the used connection, and then select "Properties". The "Local Area Connection Properties" window is displayed:

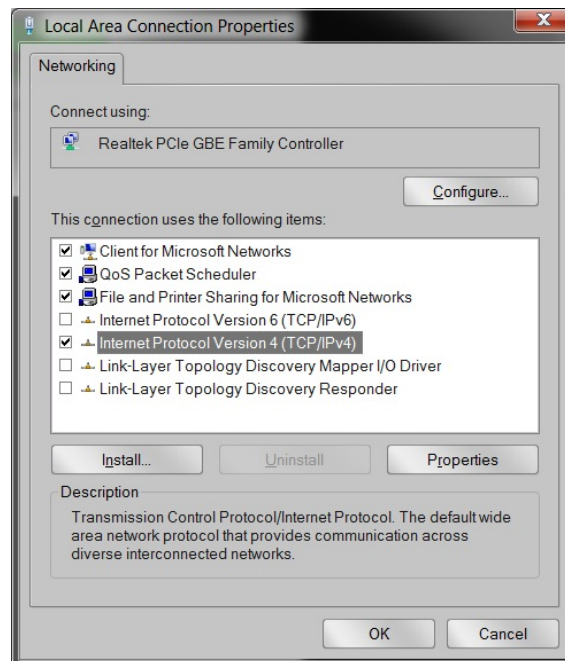


Figure 105: The "Local Area Connection Properties" window

- Select "Internet Protocol Version 4 (TCP/IPv4)", and then click on "Properties". The "Internet Protocol Version 4 (TCP/IPv4) Properties" window is displayed:

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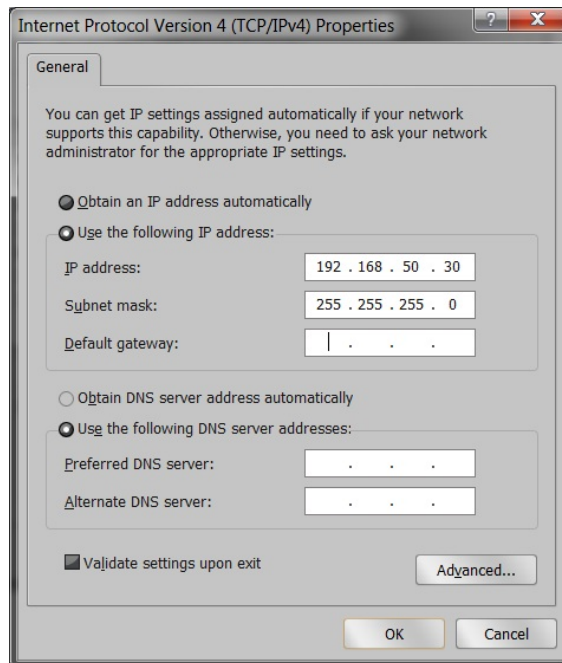


Figure 106: The "Internet Protocol Version 4 (TCP/IPv4) Properties" window

- In the "Internet Protocol (TCP/ IPv4) Properties" window, select **"Use the following IP address"** and then enter:
  - The "IP address" as "192.168.50.30",
  - The "Subnet mask" as "255.255.255.0",
  - The "Default gateway" as " . . . . "
  - The "Preferred DNS server" as " . . . . "
- In the "Internet Protocol (TCP/ IPv4) Properties" window, click on **"OK"** to take into account the modification and close the window.
- In the "Local Area Connection Properties" window, click on **"Close"** to take into account the modification and close the window.

### 10.11.4 CONFIGURATION OF THE IOP PLINES8

This part describes how to configure the IOP Plines8 used with the VCMDR.

☞ For more information about the IOP Plines8, like the description or the maintenance, refer to § 9.5.

#### 10.11.4.1 IP address settings

The IP address of the VCMDR Plines8 must be “192.168.50.5”.

☞ To set the IP address of the Plines8, refer to § 9.5.6.2.

#### 10.11.4.2 Software configuration

There are 2 ways to configure the Plines8:

- By the Unix procedure at level of ADOC centre. It is necessary to connect the IOP to the ADOC network.

☞ Refer to § 9.5.6.1.2.

- By the Windows procedure, distributed with the VCMDR software.

The Windows procedure to set the configuration of the IOP is the following:

- If necessary, set the PLines8 IP address to its operational value (refer to § 10.11.4.1).

- Check that the PLines8 is switched on and connected to the Windows computer.

- Open a *Windows File Manager* and go to the Lines8 configuration files directory:

“[VCMDR\_DIRECTORY]\VCMDR\_*currentVersion*\TOOLS\INES\_WINDOWS”

- Double click on the file “load\_iop\_VCMDR.bat” to execute the IOP software loading program:

- Every information messages of the load steps are displayed on a DOS window while the IOP configuration is performed.

- A message is displayed to indicate that the load is finished.

- The IOP is now loaded with its new software and operational IP address. It is in operational state.

- Check that the IOP is functioning correctly.

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## 11. REPORTS

### 11.1 PREVENTIVE MAINTENANCE REPORTS

- The following maintenance sheet may be used to report preventive maintenance of any equipment of the system.
- Make some copies of the blank maintenance sheet and note the equipment name and serial number of the concerned equipment on each new maintenance sheet.

**Equipment name:**

**Serial number:**

Date:	Performed by:	Next Maintenance previous on:
Observations:		

Date:	Performed by:	Next Maintenance previous on:
Observations:		

Date:	Performed by:	Next Maintenance previous on:
Observations:		



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## 11.2 TECHNICAL ITEM REPORTS

- The following maintenance sheet may be used to report corrective maintenance of any equipment of the system.
- Make some copies of the blank DRS and complete each new sheet, so that the report will be clearly identified.





## PROBLEM/FAULT REPORT SHEET (PFRS)

<input type="checkbox"/> <b>PROBLEM</b>  <input type="checkbox"/> <b>HW FAULT/FAILURE</b>	<b>PROBLEM/FAULT DATE :</b>  <b>SITE NAME:</b>	<b>SHEET NUMBER :</b>  <input type="checkbox"/> Hard <input type="checkbox"/> Soft <input type="checkbox"/> Doc
<b>SEGMENT :</b> <input type="checkbox"/> Radar <input type="checkbox"/> CRC <input type="checkbox"/> VHF radios <input type="checkbox"/> UHF radios <input type="checkbox"/> HF radios <input type="checkbox"/> VSS <input type="checkbox"/> Generator sets <input type="checkbox"/> UPS <input type="checkbox"/> VCR		
<b>MAIN FAULTY ITEM :</b>  <b>P/N :</b> <b>S/N :</b>	<b>FAULTY ITEM :</b>  <b>P/N :</b> <b>S/N :</b>	
<b>PROBLEM/FAULT DESCRIPTION :</b> (Attach technical document, if necessary)		
<u>Symptom of failure</u>  <input type="checkbox"/> Mode of operation <input type="checkbox"/> Environmental conditions <input type="checkbox"/> Complete stop <input type="checkbox"/> Malfunction <input type="checkbox"/> Degraded performances <input type="checkbox"/> Without effect <input type="checkbox"/> Detection by BITE <input type="checkbox"/> Others	<u>Mode of operation</u>  <input type="checkbox"/> Switching on <input type="checkbox"/> In operation <input type="checkbox"/> During maintenance <input type="checkbox"/> During test <input type="checkbox"/> Others	
<b>CORRECTIVE ACTION DATE :</b>		
<b>CORRECTIVE ACTION :</b>  <input type="checkbox"/> Failed item replaced by the spare parts : <b>P/N:</b> <b>S/N:</b>  <input type="checkbox"/> Others (to be described hereafter)		

		<b>SHEET INITIALISATION</b>
<b>CITAC / EBDESK TECHNICAL REPRESENTATIVE.</b>	<b>NAME :</b> <b>DATE :</b> <b>SIGNATURE:</b>	
<b>CUSTOMER REPRESENTATIVE</b>	<b>NAME :</b> <b>DATE :</b> <b>SIGNATURE:</b>	
<b>TO BE SENT TO:</b>		
<b>PROGRAM MANAGER :</b>	Mr BESSERVE: jean-michel.besserve@thalesraytheon-fr.com	
<b>INTEGRATED LOGISTIC SUPPORT MANAGER:</b>	Mr MALVINO: laurent.malvino@thalesraytheon-fr.com	
<b>CONFIGURATION MANAGER :</b>	Mr DEBONNAIRE : christian.debonnaire@thalesgroup.com	

### 11.3 CENTRE LOGBOOK

- The following form may be used to report daily events in the Centre.
- Make some copies of the blank logbook and complete each new sheet with its number, so that it will be clearly identified.

**Centre Logbook**

<b>Date</b>	<b>Equipment Name</b>	<b>Serial Number</b>	<b>Operator</b>	<b>Description</b>	<b>Associated TIR / Maintenance Sheet Number</b>	<b>Status of the Centre</b>

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## 12. UNIX COMMANDS

### 12.1 GENERAL BASICS CONCEPTS IN UNIX

The exploitation system is the basic program of a computer. It has two main roles:

- Manage the hardware (peripheries, memories...),
- Offer to the programmer a normalised view of the computer, independent of the electronic of the constructor.

The UNIX system can work on every hardware set, from the super-calculator to the micro PC, because it is written at more than 90% in C language, which is a portable language. Most of the information of the system is stocked as text files easily modifiable.

#### 12.1.1 WHAT IS A UNIX COMMAND

A UNIX command is a sequence of words separated by the space character.

The first word of a command line is the name of the command.

The different options are letters preceded by the sign "-".

The following words represent the arguments of the command.

Ex: # ls -lrt /jade

#### 12.1.2 THE ON-LINE HELP

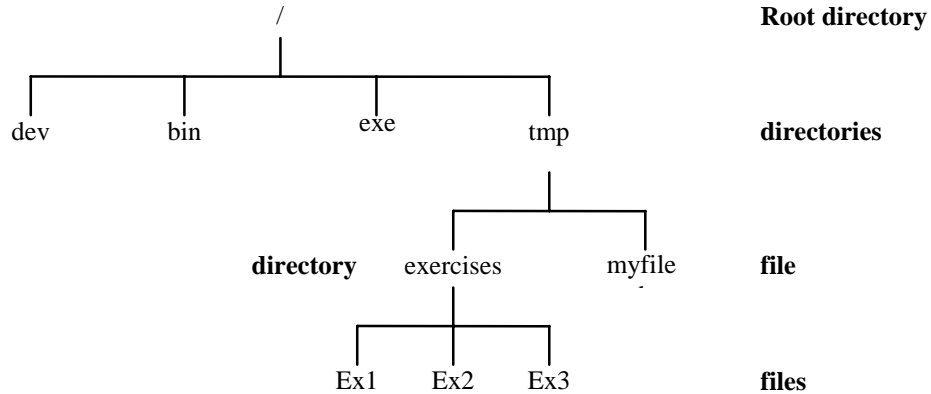
To display the reference pages of the UNIX on-line help, use the command *man*.

Ex: # *man cd* (displays the manual pages of the command *cd*)

Note: It is advised to look in the reference pages to know all the details and options of a command, which are not described in this documentation.

### 12.1.3 THE CONCEPT OF TREE IN THE UNIX SYSTEM

UNIX is made only with files. Some special files called "directory" can contain some other files.



The root directory is named "/"

The current directory is named "."

The father directory is named ".."

The absolute path of a file is the access way from the root directory.

The relative path of a file is the access way from the current directory.

Ex: According to the above tree, if the current directory is "exe", there is two ways to list the content of the directory "exercise":

```

# ls /tmp/exercise => absolute path
# ls ../tmp/exercise => relative path
  
```

### 12.1.4 CONCEPT OF GROUP AND USER

UNIX is a multi-user system. The system is managed by the super-user (user root).

The super-user creates, suppresses and gives access authorisations to all the other users.

A user is defined in the system by:

- a name
- a password (optional if the super-user decide it)
- an identification number (id)
- a work group
- a number of group (gid)
- a home directory

To be connected to the system, the user must use the command **login** with his user-name and password.

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There is no link between the physical console (called **host**) and the user. Any user can connect from any host, and can even connect several time with the same name on several hosts.

To disconnect, use the command **logout** or **exit**, or the keyboard sequence **Ctrl d**.

### 12.1.5 A FEW OTHER COMMANDS

**logname** Gives the login name.

Ex: the user jade\_exe asks his login name.

```
# logname
```

```
jade_exe
```

```
#
```

**hostname** Gives the name of the local host.

Ex: #hostname

```
jadewpo1
```

```
#
```

**passwd** Changes the user password.

Ex: the user jade\_exe changes his password

```
# passwd                setting password for user jade_exe
```

```
old password xxxxxxxx
```

```
new password xxxxxxxx
```

```
Re-enter password xxxxxxxx
```

```
#
```

Note: You must never forget your password, because it is impossible to re-find it.

If a user forget his password, the super-user must attribute him a new one. If the super-user forget his password, the system must be re-installed.

**rlogin** Connection to a remote host.

Ex: jadewpo1:jade\_exe> rlogin jadewpo3

```
jadewpo3:jade_exe>
```

**rsh** Execution of a command on a remote console.

Ex: jadewpo1:jade\_exe> rsh jadewpo3 "cat /tmp/file1"

```
This is the content of file1
```

```
jadewpo1:jade_exe>
```

## 12.2 ACCESS PERMISSIONS TO A FILE OR A DIRECTORY

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Access to UNIX files or directories is very restricted. To read, write or execute a file, or to change directory, you must have the good permission.

When a user creates a file, he is automatically the owner of the file. He can then authorise the members of his group and the other users to access to his files or directories.

The super user has all access to every file or directory of the system.

The command "`ls -l`" displays the long format list of files and directories. It displays in particular the protection flags.

```
Ex: # ls -l /tmp
-rw----- 1 root      other    771   Nov  28   18:13  myfile
-r-x----- 1 jade_exe  jade     184   Sep  12   14:35  test1
drwxr-xr-x 2 root      students 512   Sep  22   09:25  STUDENTS
```

The first character represents the type of file:

- ordinary file
- d directory
- l link

Then comes by group of three characters the protection flags respectively for the owner, the group, and the others:

- Permission denied
- r Read access authorised
- w Write access authorised
- x Execute access authorised

The second column gives the number of link for a file. If it is a directory, the number of link correspond to the number of sub-directories. If the directory does not have any sub-directory, the number of link is 2 (for . and .., the current and the father directories).

The third and the fourth column gives respectively the name of owner and group.

The fifth column gives the size of the file in octets

The sixth column gives the date and hour of last modification.

The seventh and last column gives the name of the file.

**12.2.1 A FEW COMMANDS:**

**chmod** Changes the access permission of a file or a directory.

There is three different kind of permissions: read, write and execute, for three kind of users: the owner, the group, and the others.

For a directory, the read permission is the possibility to list the content of the directory. The write permission authorise the creation or the suppression of files in the directory. The execute permission authorise the placement in the directory.

These permissions are not transmitted to the eventual sub-directories.

Only the owner or the super-user can change the permission of a file.

Syntax: `chmod [ugoa] [+|=] [permission] file`

Parameters:

u	owner
g	group
o	others
a	all (by defaults)
+	add the permission
-	remove the permission
=	strict assignation. All previous permission is cancelled and the new one is set.
r	read permission
w	write permission
x	execute permission

Ex: `# chmod g+r myprog` the group can read the file myprog.  
`# chmod a=r myprog` read access only for everybody.  
`# chmod ug+x myprog` execute access for user and group.

**umask** Changes the default access permissions for creation of files.

The number is given in octal, as a complement to 7 of the wanted permissions.

Ex: <code># umask 077</code>	Hide all authorisations for group and others.	
octal number	binary number	letters
077	00011111	rwX-----

<code># umask 037</code>	The owner has all the authorisations.
	The group has the read authorisation.
	The others have no authorisation.

octal number	binary number	letters
037	00001111	rwXr-----

**chown** Change the owner or the group of a file.

**chgrp** These commands can only be executed by the owner or the super-user.

The gift is irreversible, and only the new user can give back the ownership.

Ex: # *chown jade\_exe myfile* (jade\_exe is the new owner of the file myfile)

## 12.3 COMMANDS FOR DIRECTORY MANIPULATION

**pwd** Displays the path of the current directory.

Ex: # pwd  
/tmp/exercises  
#

**cd** Changes the current directory.

Ex: # cd /tmp

Note: This command can be used with both absolute or relative path.

**mkdir** Creation of a directory.

Ex: # mkdir my\_directory

**rmdir** Suppression of a directory.

Ex: # rmdir my\_directory

Note: The directory must be empty

## 12.4 COMMANDS FOR FILES MANIPULATION

**ls** Displays the list of all the files and directories contained in the current directory.

(See § 12.2 "access permissions to a file or a directory" the detail of the command *ls -l*)

Ex: If the current directory is /tmp:

```
# ls
exercises bslock
# ls exercises
Ex1 Ex2 Ex3
#
```

**cp** Copy a file.

Ex: # *cp file1 file2* (copy file1 in file2)  
# *cp /tmp/exercises/Ex1 /jade\_exe* (copy file1 in the directory JADE)

**rcp** Copy a file on a remote console.

Ex: jadewpo1:jade\_exe> *rcp /tmp/exercises/myfile jadewpo2:/tmp/exercises*

**mv** Move or change the name of a file or a directory.

Ex: # *mv file1 new\_file1* (renames file1 in new\_file1)  
# *mv /tmp/exercises/Ex1 /jade\_exe/Ex1* (moves file1 from directory  
/tmp/exercises/ to directory /jade\_exe)

Note: Move file1 in file2 is like copy file1 in file2 and remove file1.

**rm** Suppression of files or directories.

Ex: # *rm file1*  
# *rm -r my\_directory* (recursive suppression of my\_directory and all its content!!)

**ln** Creation of link.

A link is a directory entry that refers to an existing file. Usually, source name is an existing file, and target does not exist. This target name becomes a new name, or pseudonym for source name.

Ex: # *ln -fs file link\_name* (link\_name is a link to file)

**cat** Displays the content of one or several files.

Ex: # *cat file1*  
*This is text of file1*  
# *cat file1 file2*  
*This is text of file1*

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*This is text of file2*

#

**grep** Search a text in one or several files.

Syntax: `grep [-vclhnsy] expression file`

Parameters:

- v displays all the lines where the expression does not appear.
- c displays the number of lines where the expression appears.
- l displays only the name of the files where the expression appears.
- h does not display the name of the file.
- n displays the number of each line where the expression appears.
- s suppress the errors messages for non existing files.
- y search without distinction between capital and non capital letters.
- [] enumeration
- ^ negation if the expression is between brackets. Otherwise, search the expression at the beginning of the line.
- .
- \ search a special character, which will not be evaluated.
- \$ search the expression at the end of the line.

Ex: `# grep 'ta[123]' *` (search ta1, ta2, ta3 in all the files of the current directory)  
`# grep 'ta[0-4]' *` (search ta0, ta1, ta2, ta3, ta4 in all the files of the current directory)  
`# grep '[' myfile` (search all the expressions with a bracket in the file *myfile*)  
`# grep '[^xv]' myfile` (search all the expressions without *tx* or *tv* in the file *myfile*)

## 12.5 COMMANDS FOR DATA MANIPULATIONS

**echo** Writes its argument to standard output.

Ex: `# echo "\n\nCommand ok.\n\nThe new name of file1 is file2.\n"`

*Command ok.*

*The new name of file1 is file2.*

**>, >>** Redirection of outgoing data.

The result of a UNIX command is by default printed on the screen. This outgoing can be reoriented toward a file to keep the result as a text for example.

The sign > produces a reorientation toward a file and create it again if it already exists.

The sign >> sends the result of the command at the end of the file.



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If the result must not be printed or stored in a file, it must be sent to the directory */dev/null*, which is a black hole from where nothing goes out.

These redirection commands are very useful in UNIX and must be well studied to control this mechanism.

Ex: `# ls > myfile` (the catalogue is not printed on the screen, but in the file myfile)  
`# ls >> myfile` (the catalogue is added at the end of the file myfile)

< Redirection of incoming data.

A UNIX command usually receives its instructions from the keyboard. This income can come from a text file which will replace the keyboard for the command.

Ex: `# write jade_exe < myfile.txt`

(send of a message to the user jade\_exe. The text does not come from the keyboard, but from the file myfile)

With this kind of redirection, we can execute some commands which normally waits for acknowledgement from the user. They will receive confirmation by the incoming file.

**more** Displays incoming data page by page.

Ex: `# more file1`

| Creation of a pipe

A pipe is used to put the data produced by a command as the incoming data of another command.

Ex: `# ls /dev | more` (the content of the directory /dev will be displayed page by page).

## 12.6 COMMANDS TO MANAGE WITH UNIX PROCESSES

**ps** Displays the current processes

Ex: `# ps -fu jade_exe` (displays the processes of the user jade\_exe)

UID	PID	PPID	C	STIME	TTY	TIME	CMD
jade_exe	551	526	0.0	Nov 10	?? 18:13		/usr/dt/bin/dtsession
jade_exe	31453	31477	0.0	Feb 14	ttyp7	0:00	rlogin jadewpo3

Col. 1:	UID	Owner.
Col. 2:	PID	Number of process.
Col. 3:	PPID	Number of the father process.
Col. 4:	C	Use of the processor for changing task.
Col. 5:	STIME	Starting time of the process.

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Col. 6:	TTY	Terminal.
Col. 7:	TIME	Cumulate time of execution.
Col. 8:	COMMAND	Command which has started the process.

**&** Start a background process

A process can be started in background in order to give back immediately the hand to the user.

To start a process in background, just add **&** at the end of the command line. The system will display the number of the created process and immediately give the hand back.

You can add an outgoing redirection toward the fictive file `/dev/null` to avoid parasites messages on the screen.

```
Ex: # tar tvf /dev/rmt0h > /dev/null &
785
# ps
PID  TTY      TIME    CMD
293  1a      0:02    sh
785  1a      0:00    tar
786  1a      0:00    ps
#
```

**kill** Kill a process.

Syntax: `kill -signo process_id`

Parameters:

`signo` Number of the signal sent. 15 by default. To be sure to kill the process, you can send the signal 9.

`Process_id` Reference number of the process. (obtained by `ps`).

Ex: `# kill -9 587` (the process number 587 will be killed)

**at** Execute a process at a given time.

Syntax: `at time [date] [increment]`

Parameters:

`time` Time under the form HHSS or HH:MMam or HH:MMpm.

`date` Date under the form MMM DD.

`increment` +n followed by the units: minutes, hours, days, weeks, months, years.

Ex: Execution of the script `myfile` at 15H41, then execution of `otherfile` in one hour:

```
# at 1541 < myfile
# at now + 1 hours < otherfile
```

## 12.7 ARCHIVE COMMANDS

### 12.7.1 USE OF THE DAT

**tar** Save or restore files on magnetic tape.

Syntax: *tar [parameters] file*

Parameters:

- c Save from the beginning of the tape (delete the previous data).
- r Add data at the end of the tape.
- u Update of modified or non present file without deletion.
- t Display the content of the tape.
- x Extract from the tape.
- v Display the current treatments.
- f Precise the saving unit.
- w Ask confirmation for each treatment.

Ex: Delete the old information of the tape and save all the files of the current directory in the tape location: /dev/rmt/0h

```
# tar cvf /dev/rmt/0h *
a amount 1 tape blocks
a clidate 1 tape blocks
a clients 1 tape blocks
a myfile 1 tape blocks
a text3 1 tape blocks
#
```

Ex: Display the content of the tape

```
# tar tvf /dev/rmt/0h
rw- --- ---      209/10076  Mars 03   16:38   1999   amount
rw- --- ---      209/100103 Mars 03   16:48   1999   clidate
rw- --- ---      209/10013  Mars 03   16:25   1999   clients
rw- --- ---      209/10029  Mars 03   16:39   1999   myfile
rw- --- ---      209/10038  Mars 03   16:22   1999   text3
rw- --- ---      209/10019  Mars 03   16:29   1999   text4
#
```

Ex: Restore the content of the tape in the current directory

```
# tar xvf
x amount, 76 bytes, 1K
x clidate, 103 bytes, 1K
x clients, 13 bytes, 1K
```

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```
x myfile, 29 bytes, 1K
x text3, 38 bytes, 1K
x text4, 19 bytes, 1K
#
```

```
Ex: Add the file prog1 at the end of the tape
# tar rvf prog1
Volume ends at 1439K, blocking factor = 9K
seek = 6K      a prog1 1K
#
```

Note: With the tar command, you can save files and directories.

All the sub-directories and their content will also be saved. Then, you will have on the tape the entire tree of the archive.

## 12.8 SYSTEM COMMANDS

The following commands are used for general managing of UNIX system

**date** Sets or display the date.

Syntax: `date mmddHHMM[[cc]yy[.ss]]`

Parameters:

mm Month number (01 = January).

dd Number of the day in the month.

HH Hour in the day (using a 24 hour clock)

MM Number of minutes

cc First two digit of the year

yy Last two digit of the year (if this field is omitted, the current year is used)

ss Number of seconds

Ex: Display the date

```
# date
```

```
Mon Oct 30 05:43:22
```

Ex: Sets the date & time to 14:25:45 (45 seconds after 2:25 p.m.) February 17 of current year

```
# date 02171425.45
```

```
#
```

Note: Only the supervisor is allowed to set the date.

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**df** Displays statistics on free disc space.

Syntax: `df [parameters] [file | filesystem]`

Parameters:

**k** Causes the numbers to be reported in kilobytes.

By default all numbers are in 512-byte blocks.

Ex: Display the result of the command "df", then "df -k"

\$ `df`

```

/                (/dev/dsk/c1t1d0s0    ): 2358696 blocks  622369 files
/proc            (/proc                ):      0 blocks   7770 files
/dev/fd          (fd                    ):      0 blocks     0 files
/etc/mnttab      (mnttab                 ):      0 blocks     0 files
/var/run         (swap                    ): 1113552 blocks  52527 files
/tmp             (swap                    ): 1113552 blocks  52527 files
/users           (/dev/dsk/c1t1d0s3    ):19150090 blocks 1286527 files
/JADEUSTIN2     (odeon:/JADEUSTIN2   ): 2620104 blocks  1935917 files
$

```

# `df -k`

Filesystem	kbytes	used	avail	capacity	Mounted on
/dev/dsk/c1t1d0s0	6196234	5016886	1117386	82%	/
/proc	0	0	0	0%	/proc
fd	0	0	0	0%	/dev/fd
mnttab	0	0	0	0%	/etc/mnttab
swap	556720	0	556720	0%	/var/run
swap	558552	1832	556720	1%	/tmp
/dev/dsk/c1t1d0s3	10697176	1122155	9468050	11%	/users
odeon:/JADE	17410894	16100073	1136713	94%	/JADE

\$

Detail of the fields:

Filesystem: Complete fileset name (syntax: domain\_name#fileset\_name)

kbytes: Total amount of space in the file domain which the fileset resides.

used: Amount of space used by the fileset

avail: Amount of unused space in the domain available to the fileset

capacity: How full the fileset is.

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Represented as percentage: Used / (Used + Available)

Mounted on: Mount point of the fileset

Note: The block amount will never be the sum of the used and available figures, since it includes metadata (special data reserved by the system) that is not included in either the two other figures.

**lpq** Displays the content of a print queue.

Syntax: *lpq [user]*

Parameters:

**user** The name of the user about whose jobs lpq reports information. If empty, displays jobs of all users

Ex: Display the jobs of user "jade"

*\$ lpq jade*

<i>Rank</i>	<i>Owner</i>	<i>Job</i>	<i>Files</i>	<i>Total Size</i>
<i>1st</i>	<i>jade</i>	<i>000</i>	<i>MM001-2011_Apr_12-07h_39m_21s_data.ps</i>	<i>-1 bytes</i>
<i>2nd</i>	<i>jade</i>	<i>001</i>	<i>MM001-2011_Apr_12-07h_39m_21s_image.ps</i>	<i>-1 bytes</i>
<i>3rd</i>	<i>jade</i>	<i>002</i>	<i>MM001-2011_Apr_12-07h_39m_21s_data.ps</i>	<i>-1 bytes</i>

**lprm** Remove print requests from the print queue.

Syntax: *lprm [job] [user]*

Parameters:

**user** The name of the user about whose jobs lprm removes.

**job** The printer job to remove.

Ex: Remove the job "001"

*\$ lprm 001*

*printer-1: canceled*

Ex: Remove all jobs of the user "jade"

*\$ lprm jade*

*printer-0: cancelled*

*printer-2: cancelled*

## 12.9 THE VI TEXT EDITOR

VI is the full page standard UNIX editor. Its interface is not very attractive, but it is a very powerful tool.

There is three mode of functioning:

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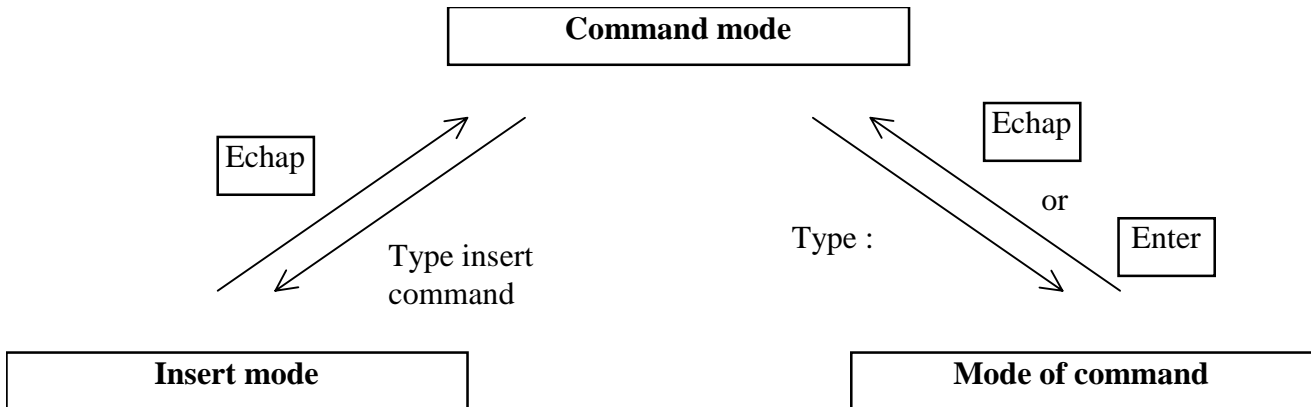
- insert mode,
- command mode,
- mode of command.

To activate the insert mode, use one of the insert commands defined here after. VI will stay in command mode until you type "echap".

If you are not sure of the active mode, press "echap" to go in command mode.

The mode of command is obtained by typing ":" in command mode.

**Functioning drawing: To go from one to another mode.**



### 12.9.1 START AND EXIT VI

***vi [file]*** Start vi and edit the file.  
***ZZ*** Quit VI.

### 12.9.2 INSERT COMMANDS

***i*** Go to insert mode before the cursor.  
***A*** Go to insert mode at the end of the current line.  
***a*** Go to insert mode after the cursor.  
***O*** Go to insert mode of an entire line before the current line.  
***o*** Go to insert mode of an entire line after the current line.

### 12.9.3 MOVE COMMANDS

To move in the text, you can use the direction keys of the keyboard.

***Ctrl u*** Scrolling up  
***Ctrl d*** Scrolling down  
***Ctrl f*** Next page  
***Ctrl b*** Previous page

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<b>w</b>	Next word
<b>b</b>	Previous word
<b>E</b>	End of word
<b>{</b>	Beginning of paragraph
<b>}</b>	End of paragraph
<b>(</b>	Beginning of sentence
<b>)</b>	End of sentence
<b>M</b>	Middle of screen
<b>H</b>	Top of screen
<b>L</b>	Bottom of screen
<b>0 (zero)</b>	Beginning of line
<b>\$</b>	End of line
<b>&lt;n&gt;G</b>	Go to line <n>
<b>:&lt;n&gt;</b>	Go to line <n>

**12.9.4 SUPPRESSION COMMANDS**

<b>x</b>	Suppress one character under the cursor
<b>X</b>	Suppress one character left to the cursor
<b>&lt;n&gt;x</b>	Suppress <n> characters
<b>dd</b>	Suppress the current line
<b>&lt;n&gt;dd</b>	Suppress <n> lines
<b>dw</b>	Suppress the current word
<b>&lt;n&gt;dw</b>	Suppress n words
<b>D</b>	Suppress the end of line
<b>r&lt;c&gt;</b>	Replace the current character by the character <c>

**12.9.5 INSERTION OF BUFFERS**

The suppress commands do not erase the text. It is put in a buffer and can be re-inserted while another suppression command has not been ordered.

<b>p</b>	Insert the text contained in the buffer before the cursor
<b>P</b>	Insert the text contained in the buffer after the cursor
<b>yw</b>	Copy the current word in the buffer
<b>ynw</b>	Copy n words in the buffer
<b>Y</b>	Copy the current line in the buffer
<b>nY</b>	Copy n lines in the buffer

**12.9.6 CANCEL AND REPEAT ACTION**



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- u** undo (cancel the last action)
- .** repeat the last action

**12.9.7 SEARCH AND REPLACE**

- /<ch1>** Search channel <ch1>
- N and n** Continue to search in one or the other direction.
- :s/<ch1>/<ch2>** Replace the first occurrence of <ch1> by <ch2> on the current line
- :s/<ch1>/<ch2>/g** Replace all occurrences of <ch1> by <ch2> on the current line
- &** Repeat the last request :s
- cw<word>** Replace the current word by <word>

**12.9.8 IN AND OUT COMMANDS**

- :q** Quit vi if there was no modifications
- :q!** Quit vi (without saving) even if there was modifications
- :w <name>** Write on the disk
- :x <name>** Save and end the session
- :r <name>** Read the file <name>
- :w >> <name>** Add the current text at the end of the file <name>
- :[n]r <name>** Insert the file <name> after the line <n> of the current file, or at the current line if <n> is omitted



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### 13. GLOSSARY

ABREVIATIONS	SIGNIFICATIONS
ADOC	Air Defence Operational Centre
ADP	Air Defence Processor
AFNOR	Association Française de Normalisation (French Normalisation association)
BNC	Bayonet Nut Connector
CD	Carrier Detected
CRC	Control and Reporting Centre
CTS	Clear To Send
DSR	Data Set Ready
DVD	Digital Versatile Disk
EW	Early Warning
GB	Giga Bytes
GFE	Government Furnished Equipment
HDD	Hard Disk Drive
HDLC	High Level Data Link Control
IOP	Input / Output Processor
IP	Internet Protocol
IRIG	Inter-Range Instrumentation Group
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LINES	Link Interface Node for External System
LRU	Line Replaceable Unit
MB	Mega Bytes
OBP	OpenBoot PROM
OH	Operator Handbook
OSD	On Screen Display
PCI	Peripheral Component Interconnection
PSP	Primary Spare Part

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ABREVIATIONS	SIGNIFICATIONS
PSR	Primary Search Radar
RAM	Random Access Memory
RAP	Regional Air Picture
RI	Ring Indicator
RSP	Replaceable Spare Part
RST	ReSeT
RTB	Radio GPS Time Generator
RTS	Request To Send
RXD	Receive Data
SPM	System Parameters Management
SSR	Secondary Search Radar
TEC	TEChnical functions
TIR	Technical Item Report
TRS	ThalesRaytheonSystems
TRS2215	Model name for Thales Radar
TRS2230	Model name for Thales Radar
TRS2245	Model name for MASTER Radar
TSO	Time Source
WPO	Working Position : Operational
WPT	Working Position : Technical

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