



**SPIRE & PACS**  
**Sorption Coolers**  
**MAIV Flow Chart**

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 DATE : December 07<sup>th</sup>, 2001  
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**SERVICE DES BASSES TEMPERATURES (CEA/DSM/DRFMC/GBT)**

***SPIRE & PACS Sorption Coolers***  
***MAIV Flow Chart***

SBT internal ref : SBT/CT/2001-18

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**Document Status**

<b>Issue</b>	<b>Revision</b>	<b>Date</b>	<b>Nb of Pages</b>	<b>Modifications</b>
Draft		April 4 <sup>th</sup> , 2001		First draft – released for comments
0	0	April 25 <sup>th</sup> , 2001	15	First Issue
0	1	May 15 <sup>th</sup> , 2001	15	Added Task CO105 & HS105
1	0	July 26 <sup>th</sup> , 2001	15	Updated after DDR
1	1	September 13 <sup>th</sup> , 2001	15	Updated in accordance with MAIV
1	2	October 29 <sup>th</sup> , 2001	15	Added tasks MA020, MA030 & HS070 Removed task CO120 & HS120
1	3	December 07 <sup>th</sup> , 2001	15	Updated wrt AIV plan



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**SERVICE DES BASSES TEMPERATURES (CEA/DSM/DRFMC/SBT)**

## List of Acronyms

AD / RD	Applicable / Reference Document		
ADP (EIDP)	Acceptance (End Item) Data Package		
AIT / (M)AIV	(Manufacturing,) Assembly, Integration & Test / Verification		
CADM	Configuration and Data Management		
CDR (DDR)	Critical (Detailed) Design Review	Revue de conception détaillée	RCD
CEA	Commissariat à l' Energie Atomique		
CIDL / ABCL	(As Built) Configuration Items Data List		
CN	Change Notice	Demande de Modification	DM
CQM	Cryogenic Qualification Model		
CSL	Centre Spatial Liègeois (subco for vibration testing)		
DML / DPL	Declared Material / Process List		
DRB	Delivery Review Board	Revue de Qualification	RQ
EM / (P)FM / FS	Engineering / (Proto)Flight / Spare Model		
ETF	Environmental Test Facility		
EV	Evaporator		
FIRST	Far Infrared and Submillimetre Telescope		
FMECA	Failure Mode Effects and Criticity Analysis		AMDEC
(E/M)GSE	(Electrical / Mechanical) Ground Support Equipment		
H/W	Hardware		
HIFI	Heterodyne Instrument for FIrst		
HSE	Heat Switch (on evaporator)		
HSP	Heat Switch (on sorption pump)		
ICD	Interface Control Document	Dossier de Contrôle des Interfaces	DCI
IDLas	Identification Laser (subco for Laser Marking)		
KIP / MIP	Key / Mandatory Inspection Point		
MRB	Material Review Board		
N/A	Not Applicable		
NCR	Non Conformance Report	Fiche d'Anomalie	FA
OMG	Subcontractor for parts machining		
PACS	Photoconductor. Array Camera and Spectrometer		



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PDR	Preliminary Design Review	Revue de Définition Préliminaire	RDP
PTR	Post Test Review	Comité de Revue et d'essai	CRE
PFM	ProtoFlight Model		
QA / PA	Quality / Product Assurance	Assurance Qualité / Produit	AQ / AP
RFA	Request For Approval		
SAP	Service d'Astrophysique		
SBT	Service des Basses Températures		
SCO	Sorption Cooler (full unit)		
S/C	SpaceCraft		
SNLS	Subcontractor for TIG Welding & Brazing		
SP	Sorption pump		
SPIRE	Spectral & Photometric Imaging Receiver		
TMA	TECHMETA (subcontractor for EB Welding)		
TMOCP	THERMOCOMPACT (subco for Gold Plating)		
TRR	Test Readiness Review	Bilan Technique	BT



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## **1. SCOPE OF THE DOCUMENT**

This document presents the Manufacturing, Assembly, Integration & Test (MAIV) Flow Chart for the SCO CQM, PFM & FS units. STM should be derived from this Flow Chart (some tasks will not be performed as this latest model has no thermal functionality).

Please note that these tasks will be described in detail in the AIV Plan.



# **SPIRE & PACS**

## **Sorption Coolers**

### ***MAIV Flow Chart***

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## **2. DOCUMENTS**

### **2.1 Applicable documents**

All Applicable Documents are listed in the AD chapter of the CIDL (HSO-SBT-LI-010).

### **2.2 Reference documents**

N/A.



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**SERVICE DES BASSES TEMPERATURES (CEA/DSM/DRFMC/SBT)**

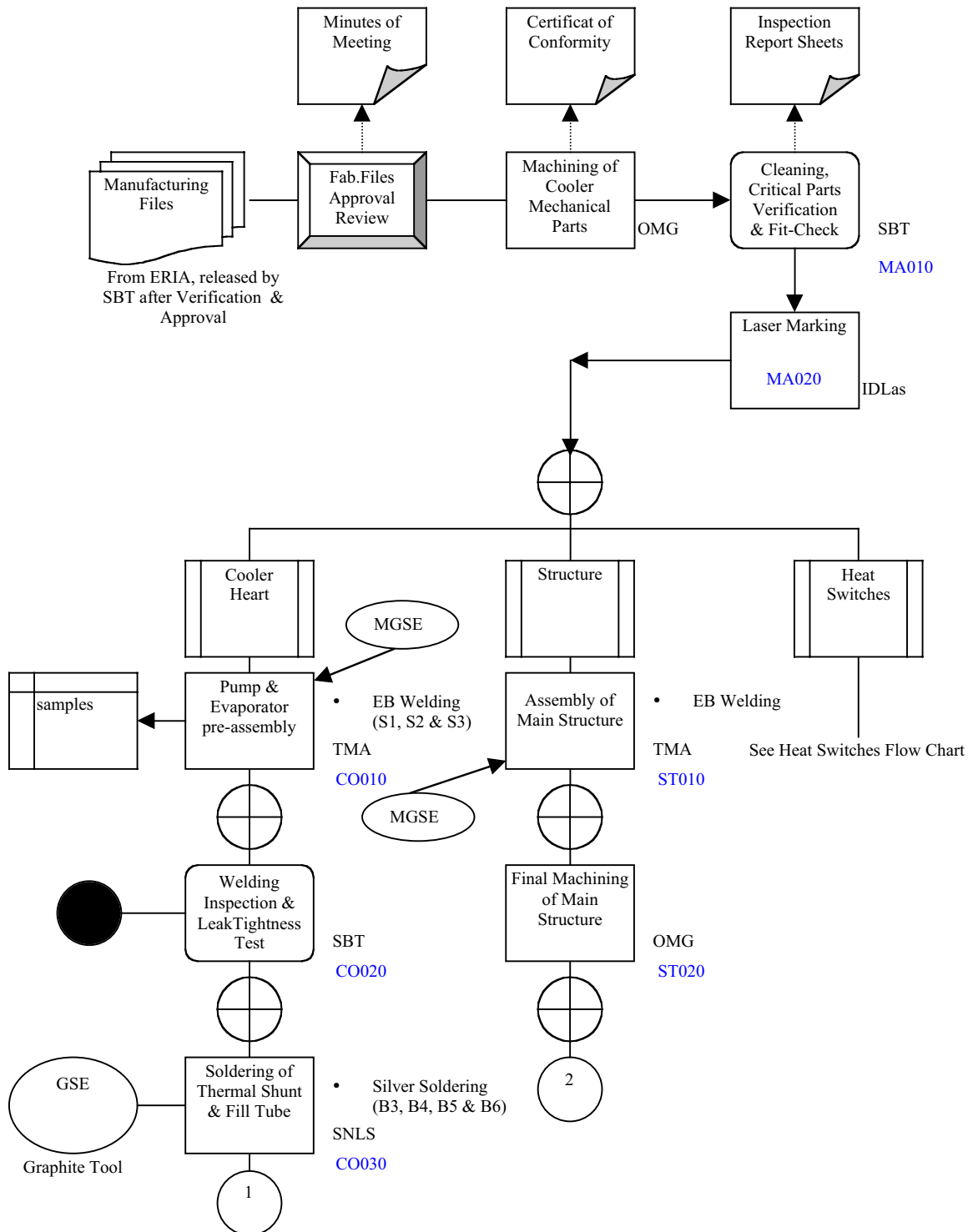
## 3. MAIV FLOW CHART

### 3.1 Symbols Explanation

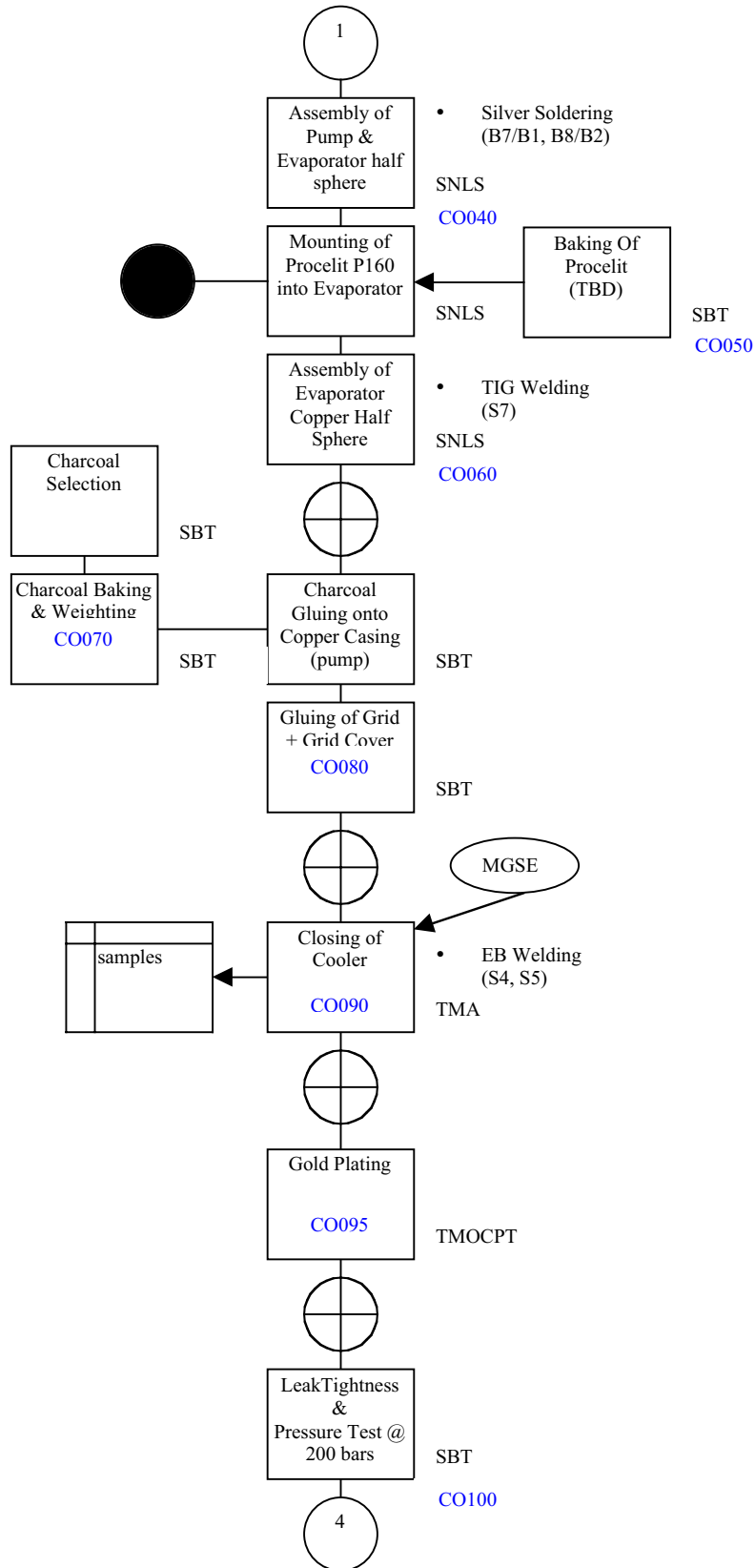
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	SBT	Action
		Transport
		Next Step
		Single Item
		Test Readiness Review Post Test Review
		MIP / KIP



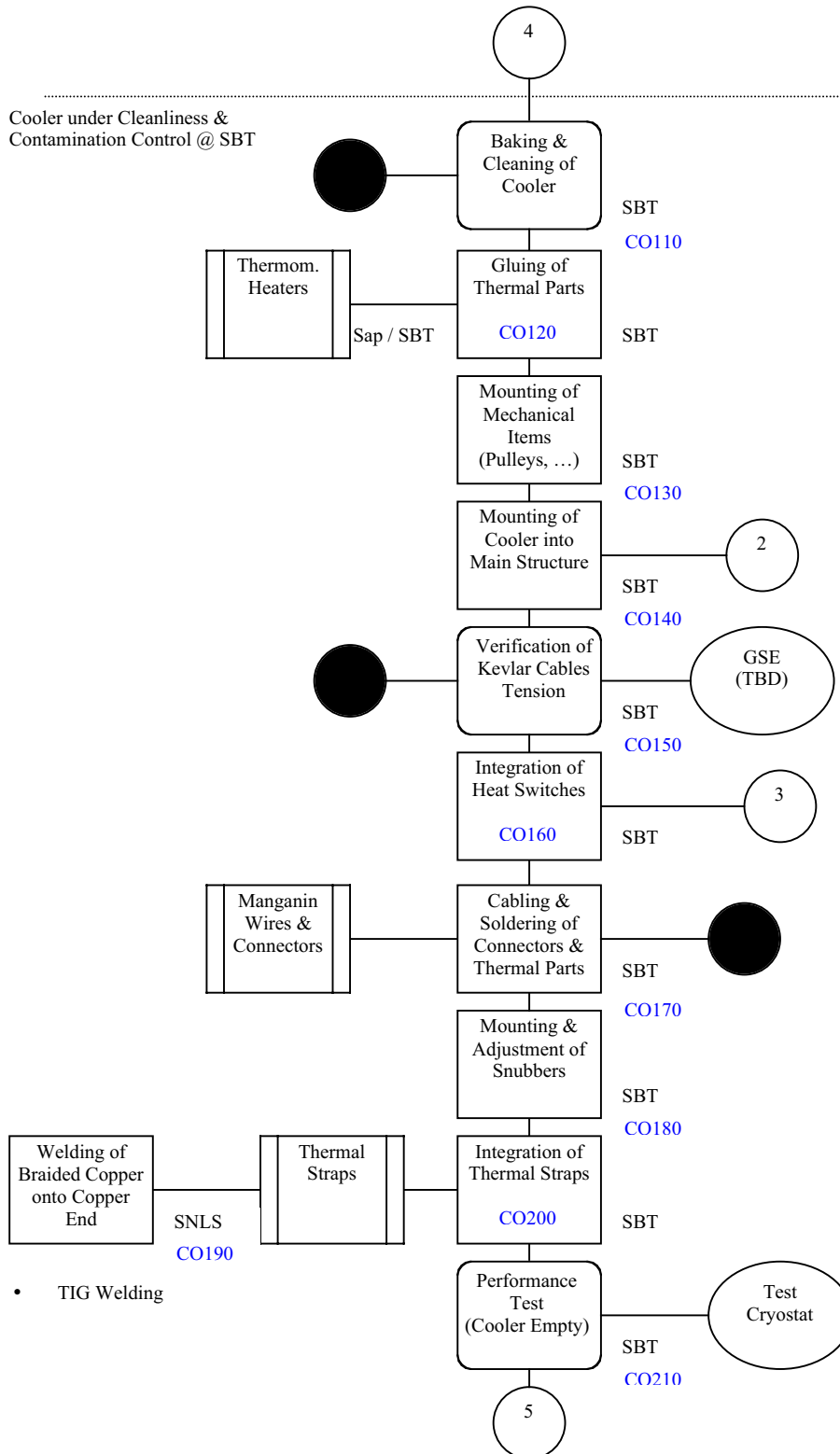
### 3.2 SCO MAIV Flow Chart



**Figure 3-1: Sorpton Cooler MAIV Flow Chart (1/5)**



**Figure 3-2: Sorption Cooler MAIV Flow Chart (2/5)**



**Figure 3-3: Sorption Cooler MAIV Flow Chart (3/5)**



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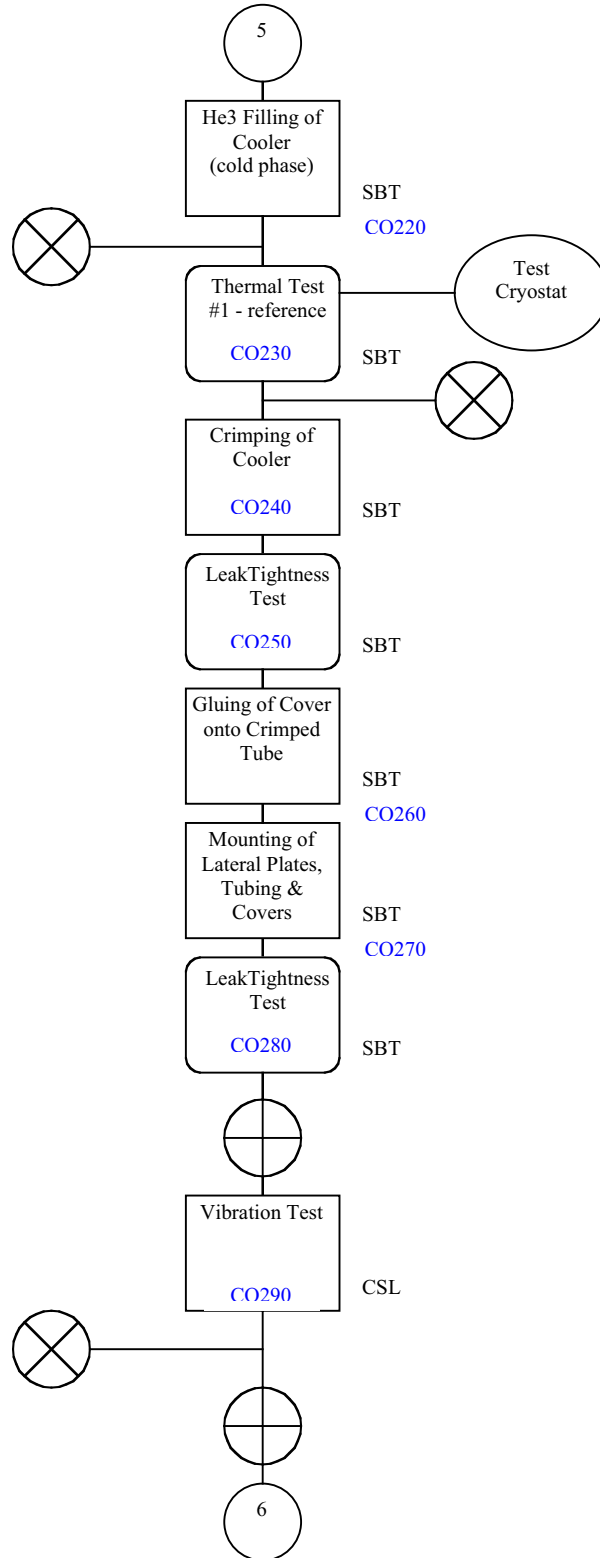


Figure 3-4: Sorption Cooler MAIV Flow Chart (4/5)



# SPIRE & PACS Sorptions Coolers MAIV Flow Chart

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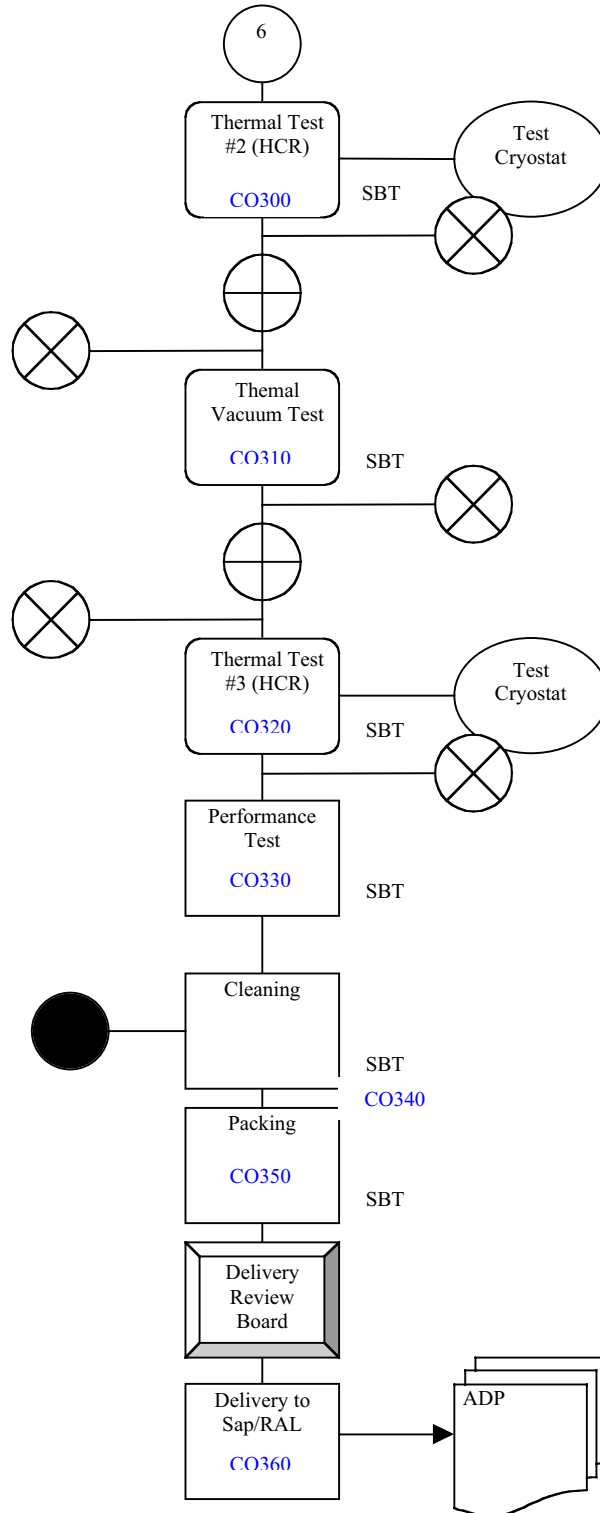
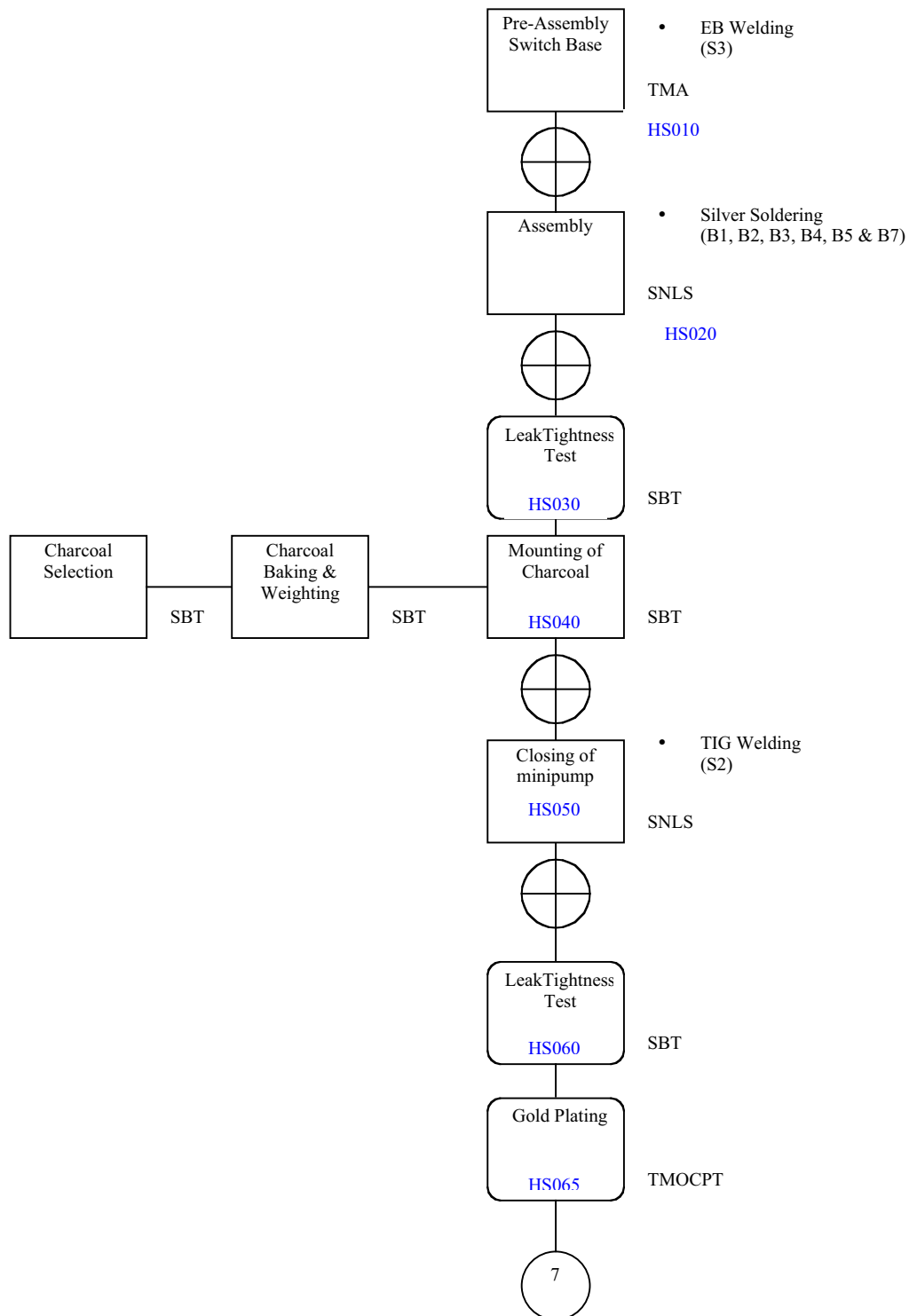


Figure 3-5: Sorption Cooler MAIV Flow Chart (5/5)

**3.3 Heat Switch MAIV Flow Chart**



**Figure 3-6:Heat Switch MAIV Flow Chart (1/2)**



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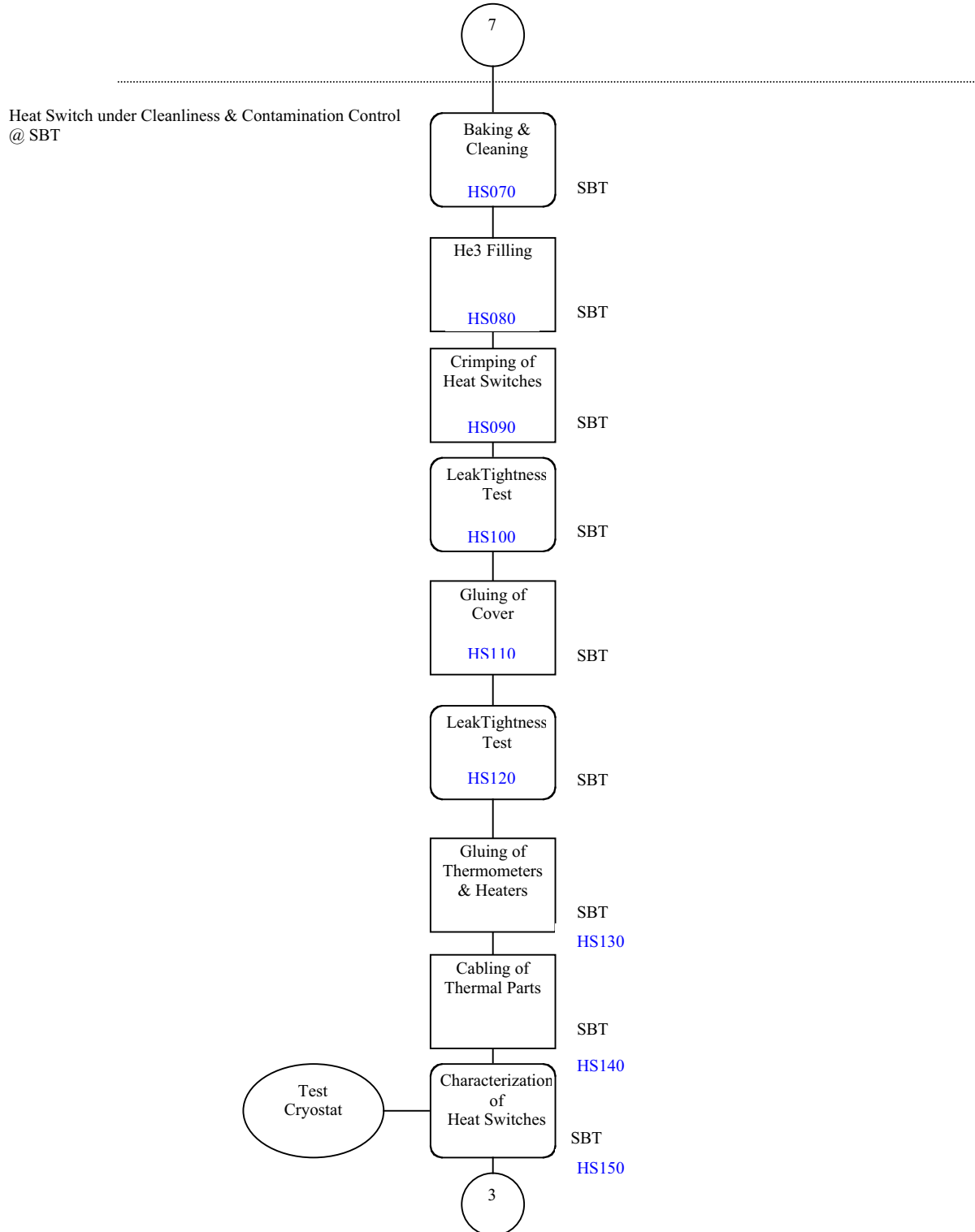


Figure 3-7:Heat Switch MAIV Flow Chart (2/2)