	<b>Herschel</b> <b>SPIRE</b>	SRef.: SPIRE-QMW-PRJ-001103 CRef.: HSO-CDF-FC-014 Issue: 1.0 Date 4 September 2001 Page: 1 of 9
	<b>Spectrometer Calibrator - MAIV Flow Chart</b>	

# Spectrometer Calibrator

## MAIV Flow Chart

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### Distribution list


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## Update history

<b>Date</b>	<b>Version</b>	<b>Remarks</b>
31/08/01	1.0	First Issue for DDR

## List of Acronyms

Term	Meaning	Term	Meaning
AD	Applicable Document	IR	Infrared
ADC	Analogue to Digital Converter	IRD	Instrument Requirements Document
AIV	Assembly, Integration and Verification	IRTS	Infrared Telescope in Space
AME	Absolute Measurement Error	ISM	Interstellar Medium
AOCS	Attitude and Orbit Control System	JFET	Junction Field Effect Transistor
APART	Arizona's Program for the Analysis of Radiation Transfer	ISO	Infrared Space Observatory
APE	Absolute Pointing Error	LCL	Latching Current Limiter
ASAP	Advanced Systems Analysis Program	LIA	Lock-In Amplifier
ATC	Astronomy Technology Centre, Edinburgh	LVDT	Linear Variable Differential Transformer
AVM	Avionics Model	LWS	Long Wave Spectrometer (an instrument used on ISO)
BDA	Bolometer Detector Array	MAC	Multi Axis Controller
BFL	Back Focal Length	MAIV	Manufacturing, Assembly, Integration and Verification
BRO	Breault Research Organization	MCU	Mechanism Control Unit = HSMCU
BSM	Beam Steering Mirror	MGSE	Mechanical Ground Support Equipment
CBB	Cryogenic Black Body	M-P	Martin-Puplett
CDF	Cardiff, Department of Physics & Astronomy	NEP	Noise Equivalent Power
CDMS	Command and Data Management System	NTD	Neutron Transmutation Doped
CDMU	Command and Data Management Unit	OBS	On-Board Software
CDR	Critical Design Review	OGSE	Optical Ground Support Equipment
CEA	Commissariat a l'Energie Atomique	OMD	Observing Modes Document
CMOS	Complimentary Metal Oxide Silicon	OPD	Optical Path Difference
CoG	Centre of Gravity	PACS	Photodetector Array Camera and Spectrometer
CPU	Central Processing Unit	PCAL	Photometer Calibration source
CQM	Cryogenic Qualification Model	PFM	Proto-Flight Model
CVV	Cryostat Vacuum Vessel	PID	Proportional, Integral and Differential (used in the context of feedback control loop architecture)
DAC	Digital to Analogue Converter	PLW	Photometer, Long Wavelength
DAQ	Data Acquisition	PMW	Photometer, Medium Wavelength
DCU	Detector Control Unit = HSDCU	POF	Photometer Observatory Function
DDR	Detailed Design Review	PROM	Programmable Read Only Memory
DM	Development Model	PSW	Photometer, Short Wavelength
DPU	Digital Processing Unit = HSDPU	PUS	Packet Utilisation Standard
DSP	Digital Signal Processor	RAL	Rutherford Appleton Laboratory,
DQE	Detective Quantum Efficiency	RD	Reference Document
EDAC	Error Detection and Correction	RMS	Root Mean Squared
EGSE	Electrical Ground Support Equipment	SCAL	Spectrometer Calibration Source
EM	Engineering Model	SCUBA	Submillimetre Common User Bolometer Array
EMC	Electro-magnetic Compatibility	SED	Spectral Energy Distribution
EMI	Electro-magnetic Interference	SMEC	Spectrometer Mechanics
ESA	European Space Agency	SMPS	Switch Mode Power Supply
FCU	FCU Control Unit = HSFCU	SOB	SPIRE Optical Bench
FIR	Far Infrared	SOF	Spectrometer Observatory Function
FIRST	Far Infra-Red and Submillimetre Telescope	SPIRE	Spectral and Photometric Imaging Receiver
FOV	Field of View	SRAM	Static Random Access Memory
F-P	Fabry-Perot	SSSD	SubSystem Specification Document
FPGA	Field Programmable Gate Array	STP	Standard Temperature and Pressure
FPU	Focal Plane Unit	SVM	Service Module
FS	Flight Spare	TBC	To Be Confirmed
FTS	Fourier Transform Spectrometer	TBD	To Be Determined
FWHM	Full Width Half maximum	TC	Telecommand
GSFC	Goddard Space Flight Center	URD	User Requirements Document
HK	House Keeping	UV	Ultra Violet
HOB	Herschel Optical Bench	WE	Warm Electronics
HPDU	Herschel Power Distribution Unit	ZPD	Zero Path Difference
HSDCU	Herschel-SPIRE Detector Control Unit		
HSDPU	Herschel-SPIRE Digital Processing Unit		
HSFCU	Herschel-SPIRE FPU Control Unit		
HSO	Herschel Space Observatory		
I	Interface		
ID-A	Instrument Interface Document - Part A		
ID-B	Instrument Interface Document - Part B		
IMF	Initial Mass Function		

## Table of Contents

<a href="#">1.</a>	<a href="#">Scope</a>	5
<a href="#">2.</a>	<a href="#">Documents</a>	5
<a href="#">2.1.</a>	<a href="#">Applicable documents</a>	5
<a href="#">2.2.</a>	<a href="#">Reference documents</a>	5
<a href="#">3.</a>	<a href="#">MAIV Flow Chart</a>	5
<a href="#">3.1.</a>	<a href="#">Explanation of Symbols</a>	5
<a href="#">3.2.</a>	<a href="#">SCAL MAIV Flow Chart</a>	6

# 1. Scope

This document presents the Manufacturing, Assembly, Integration and Test (MAIV) flow chart for the spectrometer calibrator CQM, PFM and FS units. The manufacture of the STM model should also be derived from this flow chart, although some task will not be performed (reduced functionality). These tasks will be described in detail in the AIV plan.

## 2. Documents

### 2.1. *Applicable documents*

All applicable documents are listed in the AD chapter of the CIDL (HSO-CDF-LI-029).

### 2.2. *Reference documents*

N/A

## 3. MAIV Flow Chart

### 3.1. *Explanation of Symbols*

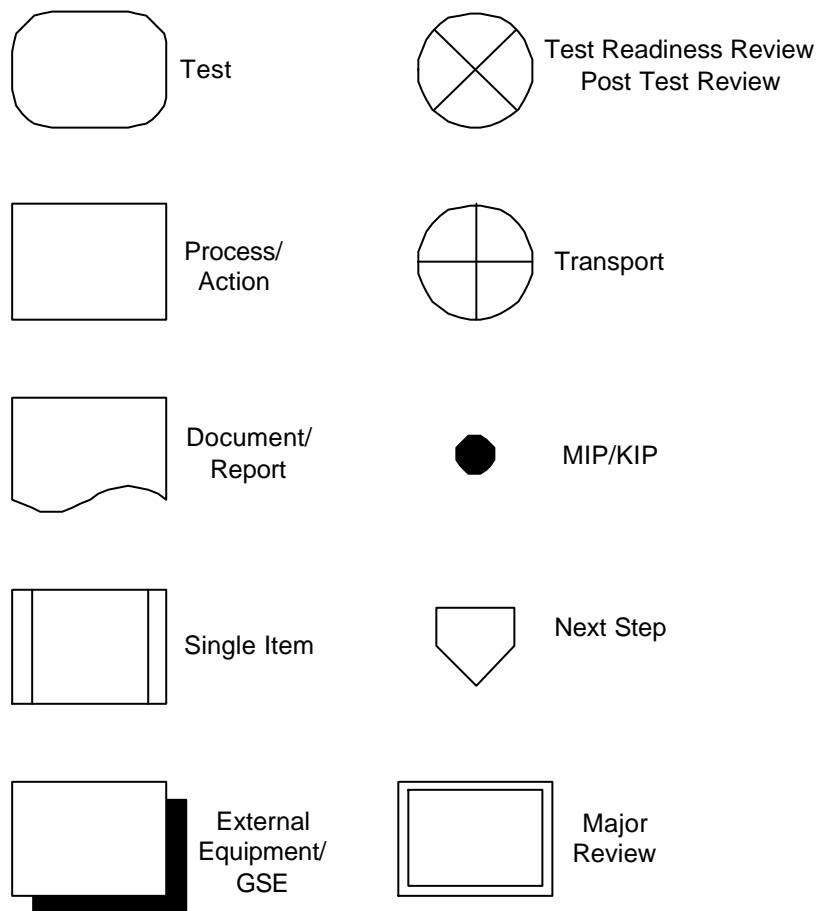


Figure 1 Symbols used in the flowchart

### 3.2. SCAL MAIV Flow Chart

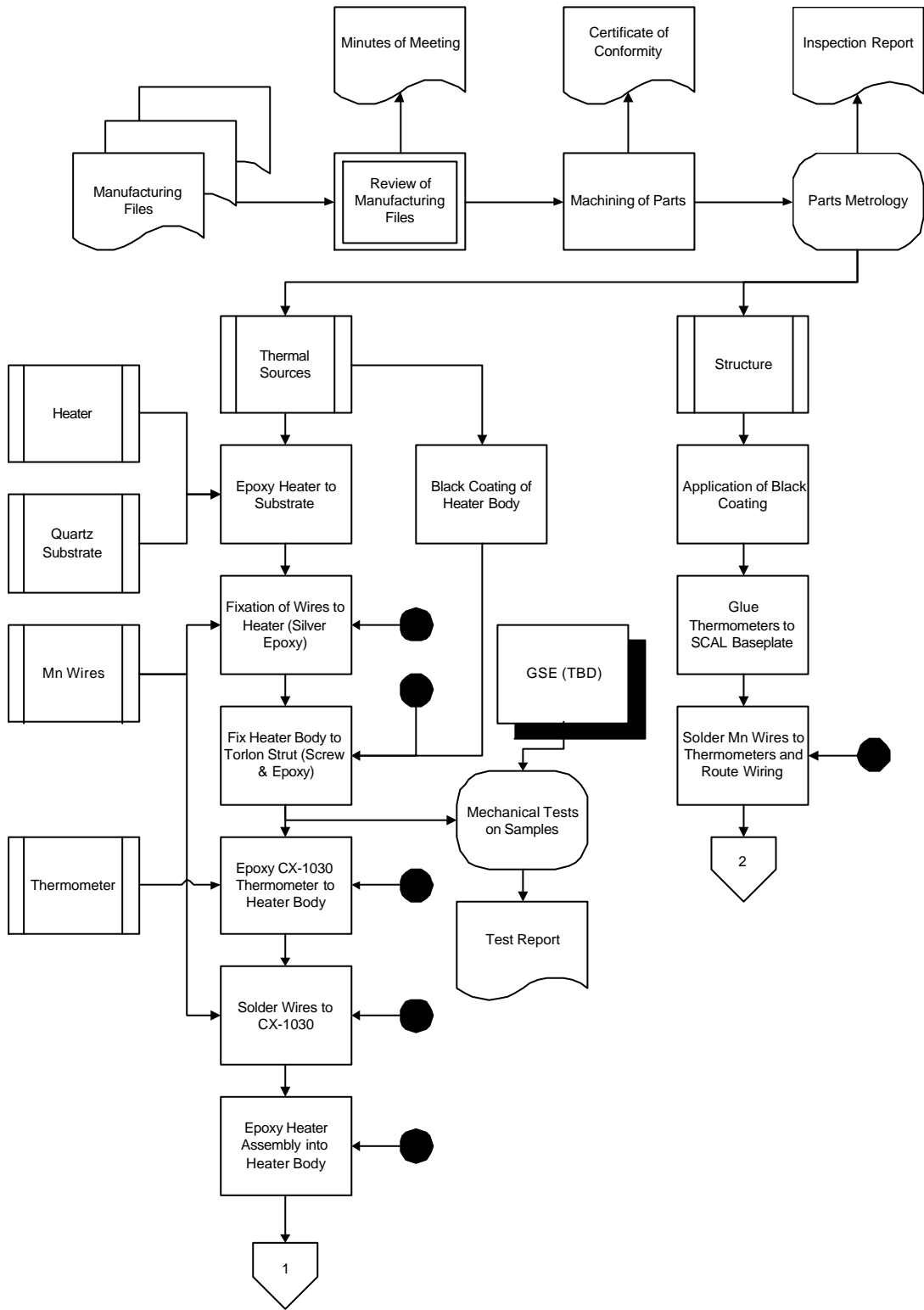


Figure 2 SCAL MAIV Flow Chart (1/4)

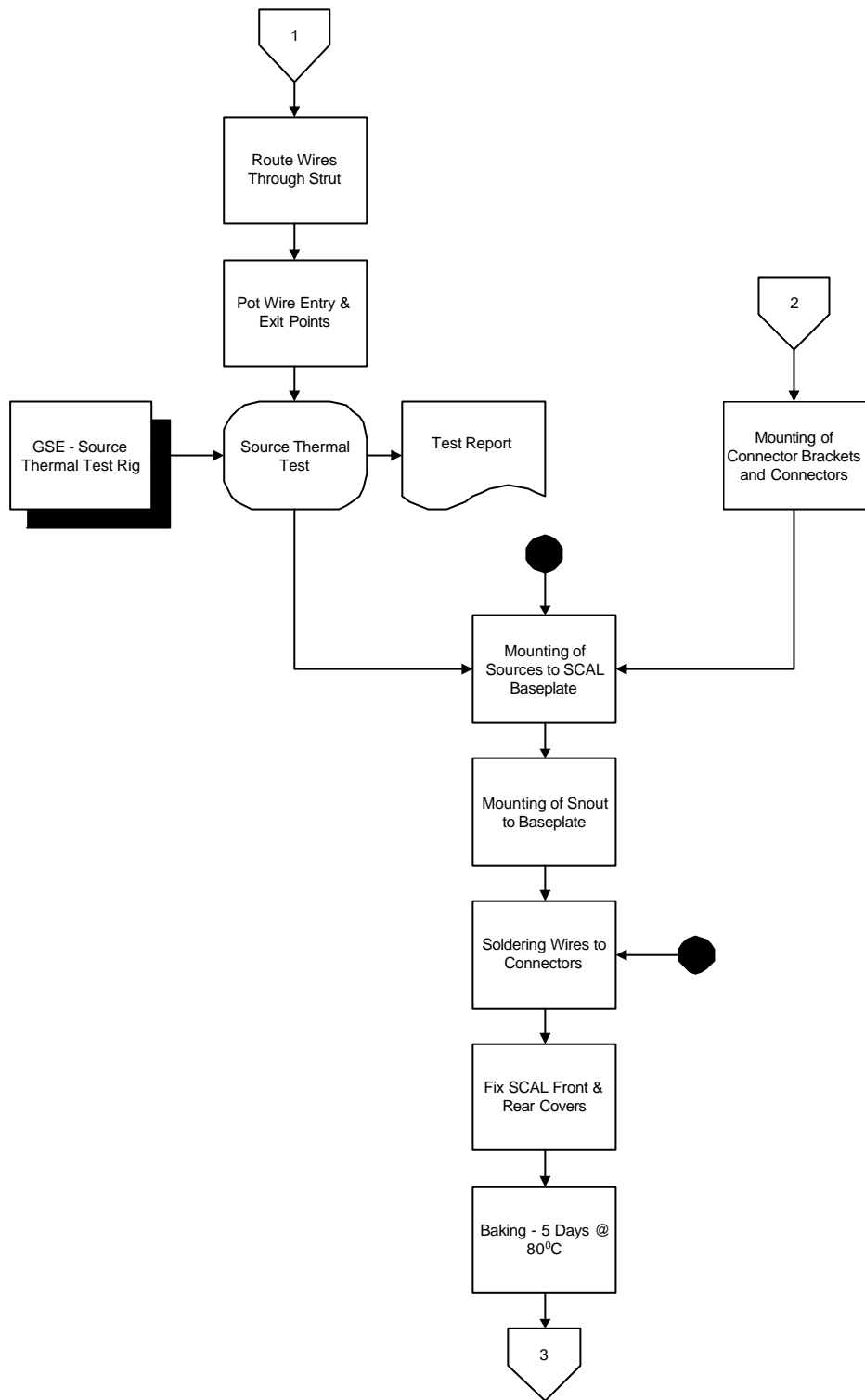
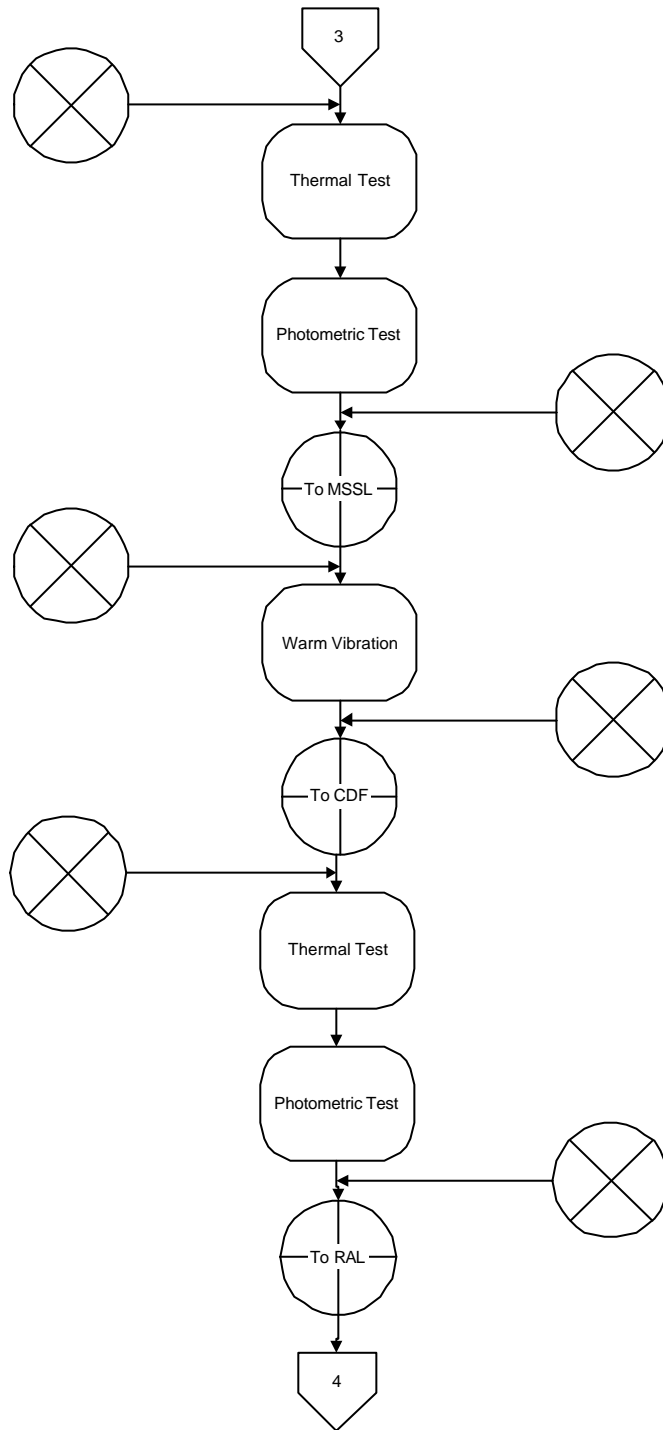


Figure 3 SCAL MAIV Flow Chart (2/4)



**Figure 4** SCAL MAIV Flow Chart (3/4)



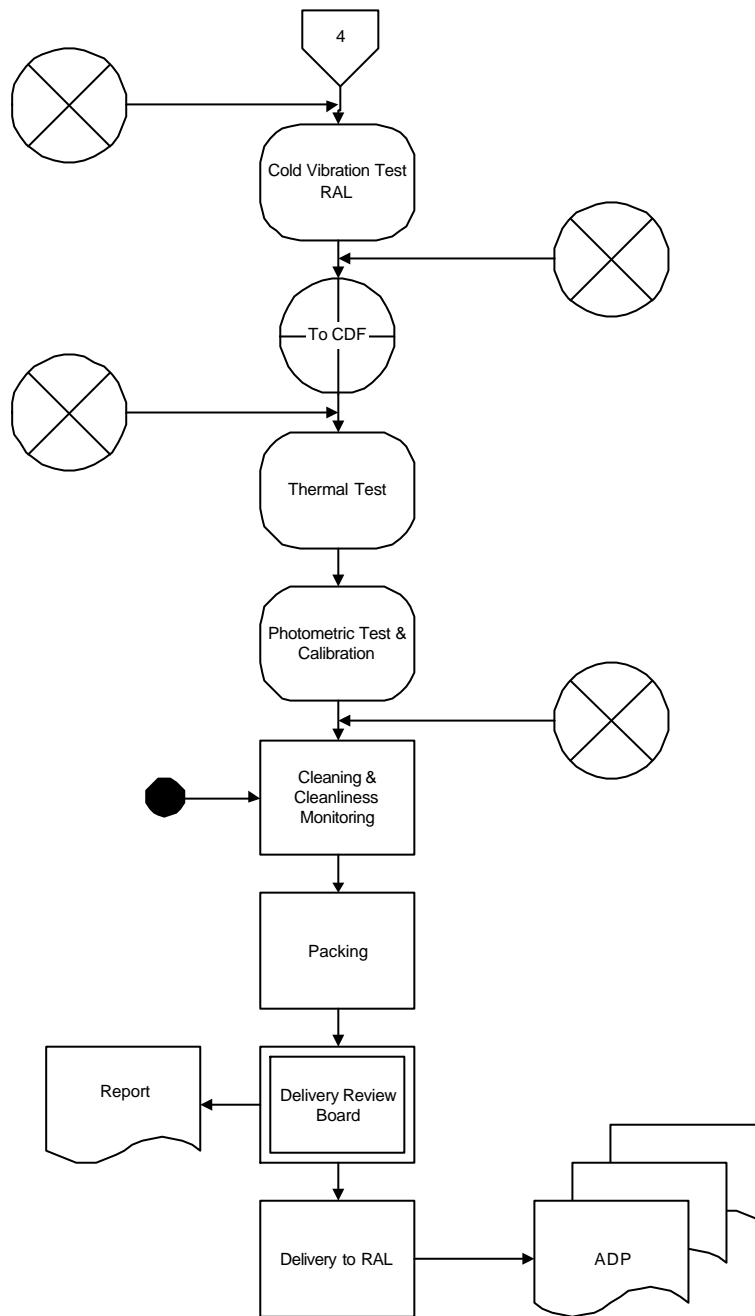


Figure 5 SCAL MAIV Flow Chart (4/4)