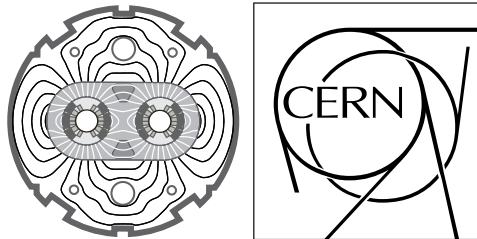


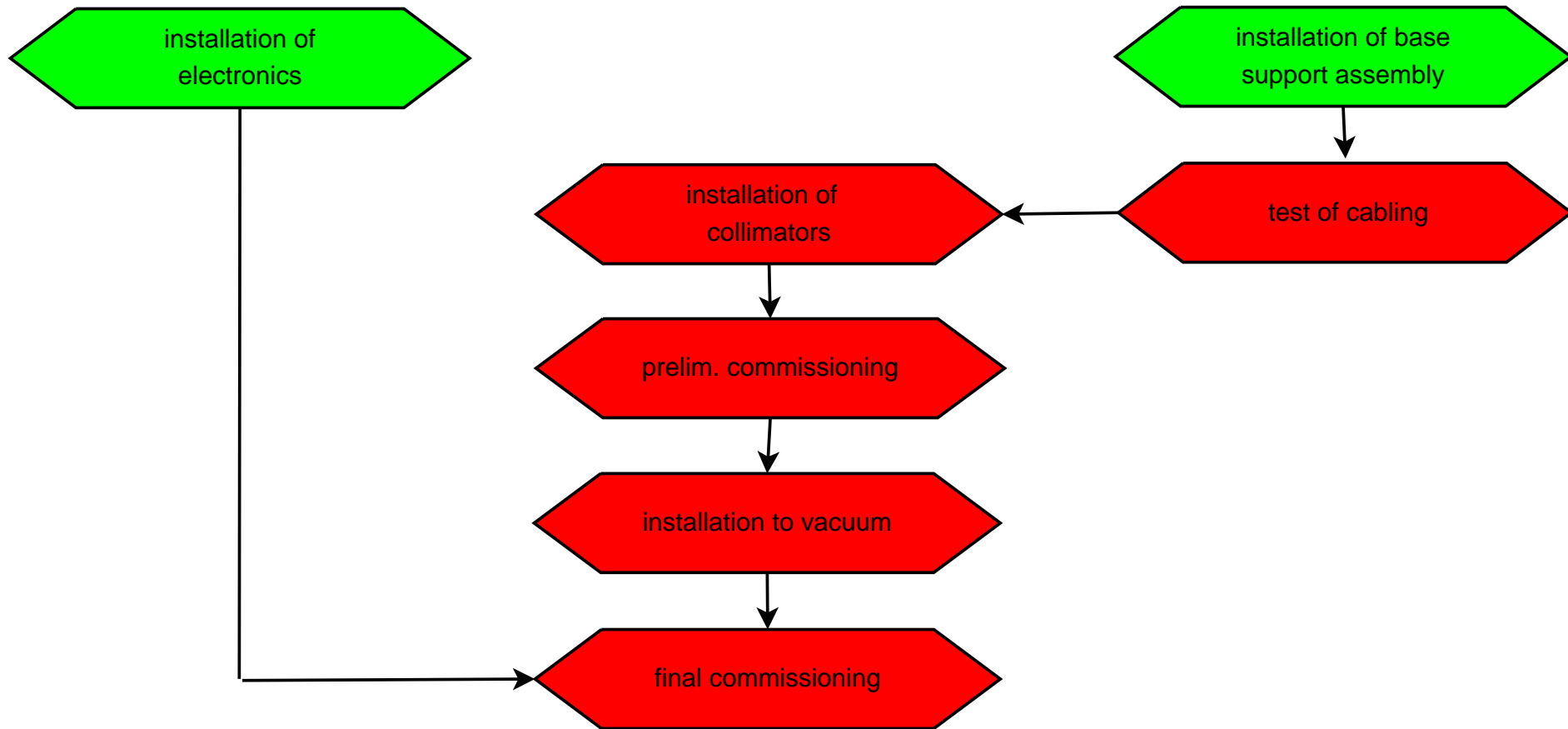
Collimation Hardware Commissioning *procedures*

Th. Weiler, O. Aberle, R. Assmann, R. Chamizo, J. Lettry, R. Losito, S. Redaelli, R. Saban

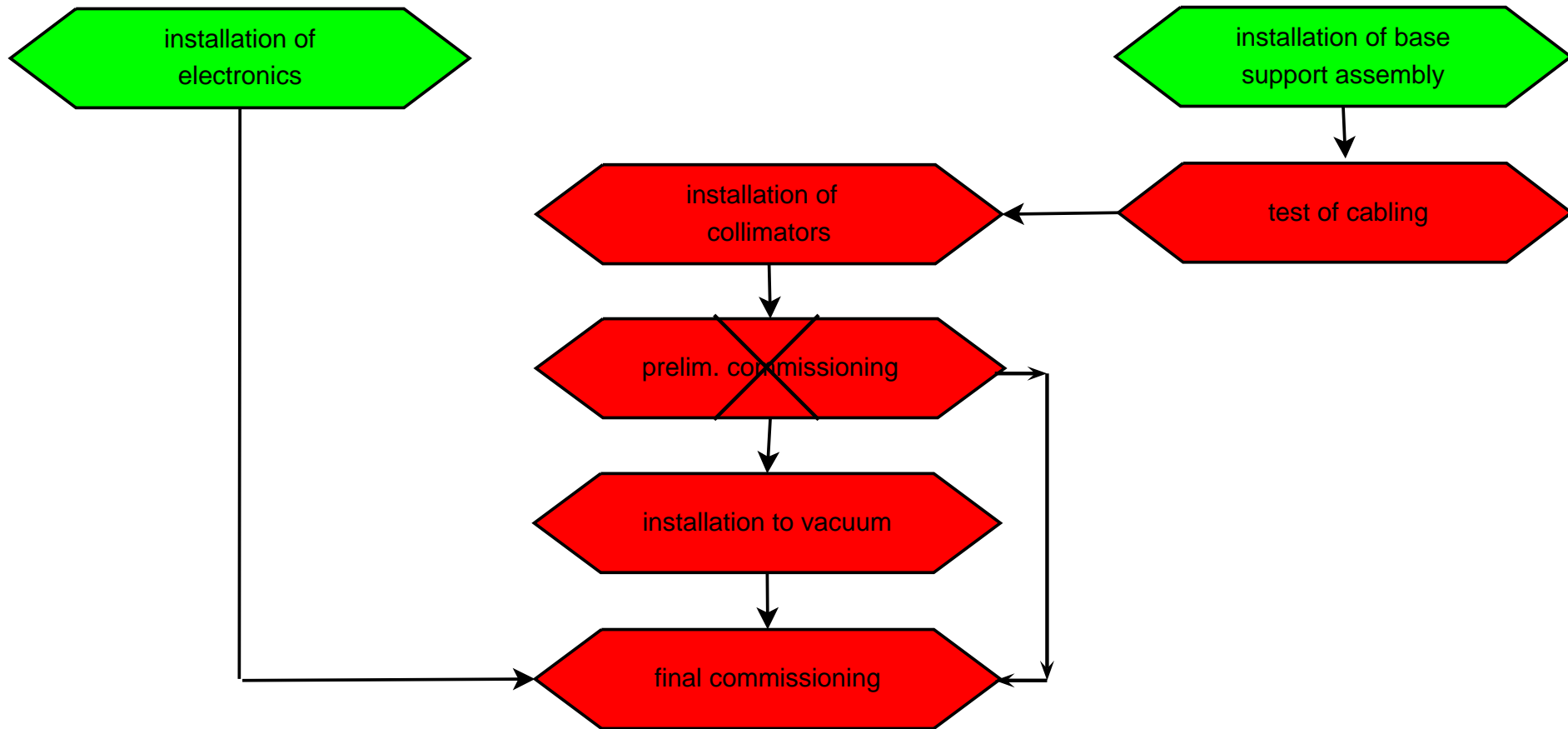
Accelerator and Beam Department, CERN



Workflow



Workflow



Hardware Commissioning Steps

- Full system tests (with or without vacuum)
 - remove blocking of jaws
 - verification of collimator corner orientation (in the tunnel)
 - check low level control, jaw movement and position sensors/switch response, including the verification of the position of the switch with respect of the end stop (only relative position needed here)
 - check temperature sensors
 - LVDT calibration and resolver check
 - check interlock chain
 - check communication (from top level [CCC-room application to collimator])
 - check water tightness/ adjust flow-rate

Hardware Commissioning Steps

- Full system tests (vacuum required)
 - check LVDT calibration and resolver (if not done before under vacuum)
 - auto-retraction test
 - measurement of mechanical play

⇒ estimated commissioning time per collimator: $\approx 13h / \approx 11.5h$ (all test under vacuum)

The results of all steps are entered to MTF, in general an OK, date and operator. For some steps data has to be files in (auto-retraction, calibration).

The hardware commissioning paper can accessed on my dfs public:

```
\\cern.ch\dfs\users\weiler\Public\Commissioning\  
LHC-CollimatorCommissioning-v1.0_CommissioningChapter.pdf
```

MTF-Profile (2008/01)

Dokument Bearbeiten Ansicht Gehe zu Lesezeichen Extras Einstellungen Fenster Hilfe

Adresse: https://edms.cern.ch/asbuilt/plsql/mtf_admin.prf_list_top?cookie=6992933

Home | Help | EDMS site | News | Login

MTF
Equipment Management Folder

User: WEILER

Search: Equipment | Location | Slot | System

Main Profile data **Workflow**

Actions: Add step

Workflow diagram

No Workflow Diagram defined

Workflow Steps

Step	Other name	Description name
MTF013485	()	10-BS Cooling Water Infrastructure
MTF013486	()	12-BS Final Cabling and Plug-in Check
MTF013487	()	14-TE Removing Blocking of Jaws
MTF013488	()	16-TE Water Tightness - Flow Rate Adjustment
MTF013489	()	18-TE Jaw Movement and Pos. Sensor Response
MTF013490	()	20-TE Temperature Sensor Response Check
MTF013491	()	22-FS Auto-retraction Test
MTF013492	()	24-FS LVDT and Resolver Calibration
MTF013493	()	26-FS Interlock Chain Check
MTF013494	()	28-FS Communication Check
MTF013495	()	30-FSV Auto-Retraction Tests
MTF013496	()	32-FSV Measurement of Mechanical Play
MTF013497	()	34-FSV LVDT and Resolver Calibration Check
MTF014798	()	IN010. Initial alignment



Finding Collimator Related Data I

Dokument Bearbeiten Ansicht Gehe zu Lesezeichen Extras Einstellungen Fenster Hilfe

Adresse: https://edms.cern.ch/asbuilt/plsql/mtf_slot.slot_list_top

Home | Help | EDMS site | News | Login

MTF
Equipment Management Folder

User: WEILER

Actions : Load criterium Search : Equipment | Location | Slot | System

Slot Search

Identifier

Description

Location

Dcum/Slot Start >=

Dcum/Slot End <=

System

Sector	Dcum.	Start	Dcum.	End
1-2	0		3332.3604	
2-3	3332.3604		6664.7208	
3-4	6664.7208		9997.0812	
4-5	9997.0812		13329.4416	
5-6	13329.4416		16661.802	
6-7	16661.802		19994.1624	
7-8	19994.1624		23315.3028	
8-1	23315.3028		26658.8832	

BWS
COLLIMATOR
COLLIMATOR-SUPPORTS
CRATES
CRYO-LINKS

Search Reset Cancel

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Finding Collimator Related Data II

Collimator ID	Start Year	End Year	Type
TCP.A6L7.B1	19794	19796	COLLIMATOR
TCP.A6R7.B2	20192	20194	COLLIMATOR
TCP.B6L7.B1	19792	19794	COLLIMATOR
TCP.B6R7.B2	20194	20196	COLLIMATOR
TCP.C6L7.B1	19790	19792	COLLIMATOR
TCP.C6R7.B2	20196	20198	COLLIMATOR
TCP.D6L7.B1	19788	19790	COLLIMATOR
TCP.D6R7.B2	20198	20200	COLLIMATOR
TCSG.4L3.B2	6621	6623	HCTCSL_202-CR002123 COLLIMATOR
TCSG.4L6.B2	16507	16508	HCTCSS_486-CR000002 COLLIMATOR
TCSG.4R3.B1	6707	6708	HCTCSL_202-CR002124 COLLIMATOR
TCSG.4R6.B1	16815	16817	HCTCSS_486-CR000001 COLLIMATOR



Finding Collimator Related Data III

The screenshot shows a web browser window displaying the MTF Equipment Management Folder interface. The browser's address bar shows the URL: `https://edms.cern.ch/asbuilt/plsql/mtf_slot.slot_main_top?cookie=6992933&p_rec_id=TCTH.4R1.B2`. The page header includes navigation links for Home, Help, EDMS site, News, and Login, along with the user name WEILER. A search bar is located at the top right.

The main content area is divided into two sections:

- Assembly Tree:** A hierarchical tree view on the left side of the page. The path is: LHC HwC > Point 1 > Sector 12 > TAS.R1 > Q1Q2Q3.R1 > D1.R1 > Beam Instrumentation > Collimators > TCTH.4R1.B2 - Collimator. The selected item is highlighted in green.
- Slot Folder: Main Info:** A detailed view of the selected collimator. It displays the following information:
 - Slot Identifier:** TCTH.4R1.B2
 - Other Identifier:** None
 - Description:** Collimator

Below the main info, there are several tabs: Main, Slot data, Installation & Commissioning, Operation, Documents, and History. The 'Main' tab is active, showing the following data:

Actions: Detach Equipment

Slot main data

Type	TC
Status	Manufacturing
Other Identifier	
Parent slot	
Location	
Slot details	Link to LHC Layout

Installation data

Item	Dcum Start	Dcum End
Equipment	HCTCSH_202-CR002005	146.78 148.26

Navigation



Inserting Data / View Progress

Dokument Bearbeiten Ansicht Gehe zu Lesezeichen Extras Einstellungen Fenster Hilfe

Adresse: https://edms.cern.ch/asbuilt/plsql/mtf_slot.slot_main_top?cookie=6992933&p_rec_type=P&p_rec_id=TCP.B6L7.B1

SuSE Electronics CMS Physics Bookmarks FreeMail von web.de T-Online WebMail LEO google Cern agenda system Zi >>

MTF Equipment Management Folder Home | Help | EDMS site | News | Login User: WEILER

Assembly Tree

- LHC HwC
 - Point 1
 - Sector 12
 - TAS.R1
 - Q1Q2Q3.R1
 - D1.R1
 - Beam Instrumentation
 - Collimators
 - TCLP.4R1.B1 - Collimator
 - Lower Support TCS High
 - HTC.B4R1.B1 - Collimator Sup
 - TCTH.4R1.B2 - Collimator
 - Lower Support TCS High
 - HTC.B4R1.B2 - Collimator Sup
 - TCTVA.4R1.B2 - Collimator
 - Normal-conducting Circuits
 - D2Q4.R1
 - TCL.R1
 - Q5.R1

Other Identifier: None
Description: Collimator

Main Slot data **Installation & Commissioning** Operation Documents History

Actions: **Create Job**

Job Id	R/E	Status	Res.	Description	Started	Ended	NC
13815290		Pending		10-BS Cooling Water Infrastructure			
13815291		Pending		12-BS Final Cabling and Plug-in Check			
13815292		Pending		14-TE Removing Blocking of Jaws			
13815293		Pending		16-TE Water Tightness - Flow Rate Adjustment			
13815294		Pending		18-TE Jaw Movement and Pos. Sensor Response			
13815295		Pending		20-TE Temperature Sensor Response Check			
13815296		Pending		22-FS Auto-retraction Test			
13815297		Pending		24-FS LVDT and Resolver Calibration			
13815298		Pending		26-FS Interlock Chain Check			
13815299		Pending		28-FS Communication Check			
13815300		Pending		30-FSV Auto-Retraction Tests			
13815301		Pending		32-FSV Measurement of Mechanical Play			
13815302		Pending		34-FSV LVDT and Resolver Calibration Check			
14441552		Pending		IN010. Initial alignment			

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