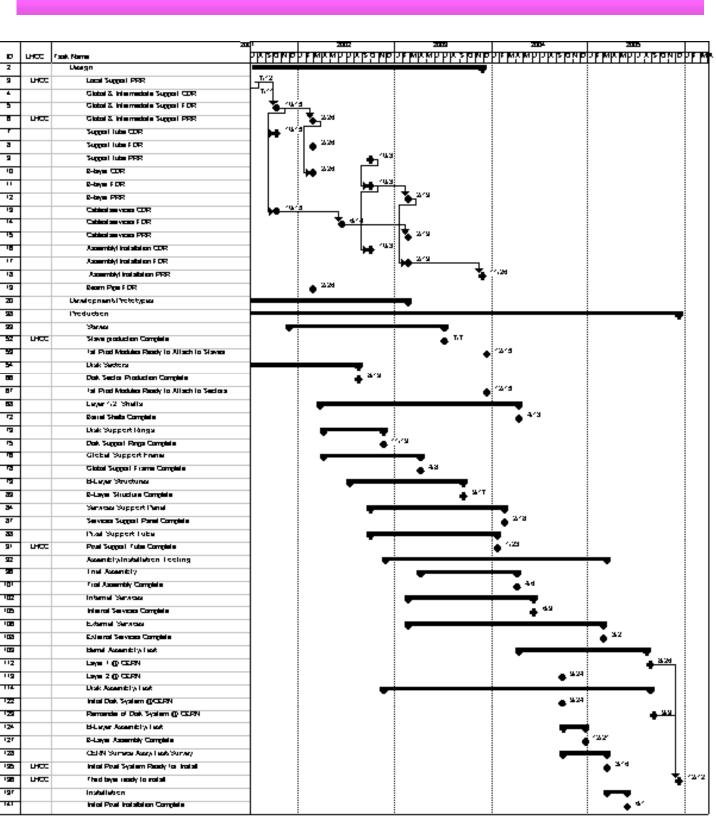
Pixel Mechanics - Schedule

Conceptual Design Review July 11, 2001

Introduction

- Will present mechanics schedule and important connections to other activities(pixel modules, SCT installation, final installation). More detailed scheduled included at end of presentation for reference.
- The mechanics schedule to be shown is constructed from sub-schedules that currently have three levels of detail:
 - production-ready(local supports)
 - near production(intermediate supports, global support)
 - conceptual(everything else)
- We understand that production-ready schedules are needed for all sub-tasks and that these will be produced as necessary to meet review and global schedules.
- We have attempted to group design(including PRR) reviews, but nevertheless there is a heavy schedule of reviews in the next two years.
- Even so Production Advancement Reviews(PAR) are not yet included but would most naturally be aligned in time with other reviews over the next two years.

Schedule Summary

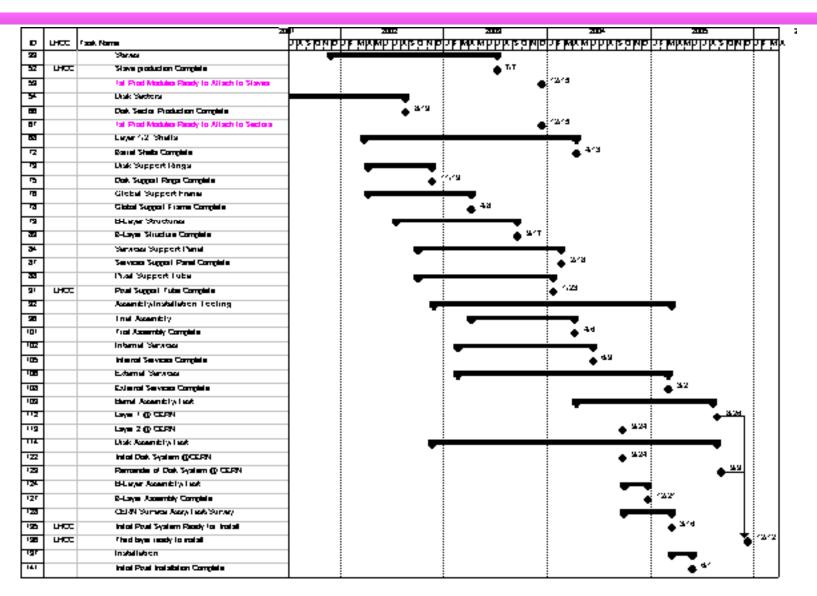


Design and Reviews

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2		Design			:	-
3	LHOC	Local Support PRSS	L T'''			<u> </u>
4		Global & Intermedate Support CDR	T 1·1		Review	every 4-6 months
5		Global & Intermedate Support FDR	1 T /11/	<u>*</u>		•
8	инос	Global & Intermedate Support PRR		2 239	over ne	ext 3 years!
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9		Support Luber PRR		_•	•	
0		B-bye CDR		₩ 224		
11		B-bye FDR			<u> </u>	
12		B-bye PRR		Γ	_ •	54 9
13		Cabinal services CCR	<u> </u>	<u> </u>		
1±		Cabinal services F DR		3 4/1		
15		Cablesian vices PRR				248
18		Assembly) Irol albit on COR			• 103	
ΙΓ		Assumbly) Instablish F DR			 	1/9
13		Assembly) Irolabilian PRR				\$ 224
12		Beam Pipe FOR		♣ 228		
		2/25/02	D 1	4 11	= 14	

Sectors	2/26/02	B-layer shell	6/1/03
Staves	6/14/02	Services	11/26/03
Inter. Supports	6/14/02	Assy/Inst. Tools	6/1/04
Global support	10/3/02	F	PARs

Production



Remarks on Production

- Disk support rings likely to be ready for production earlier than shown. If so, will desire to begin full production by end this year, after FDR in October 2001.
- Barrel shell production order is currently Layer 1, B-layer, Layer-2.
- Internal services are those services inside the pixel support tube/endplugs.
- External services are outside support tube/endplugs.
- Services schedule in part driven by prototype tests of full electronics chain from modules to power supplies that will occur over next year. Driven by electronics availability.
- Substantial trial assembly of structures in schedule to verify design and understand some of assembly/installation steps.

Important Connections

Internal to pixel system

First production modules ready for attachment to local supports
 December 2003. Slack: 5 months for staves, 16 months for sectors

External to pixel system

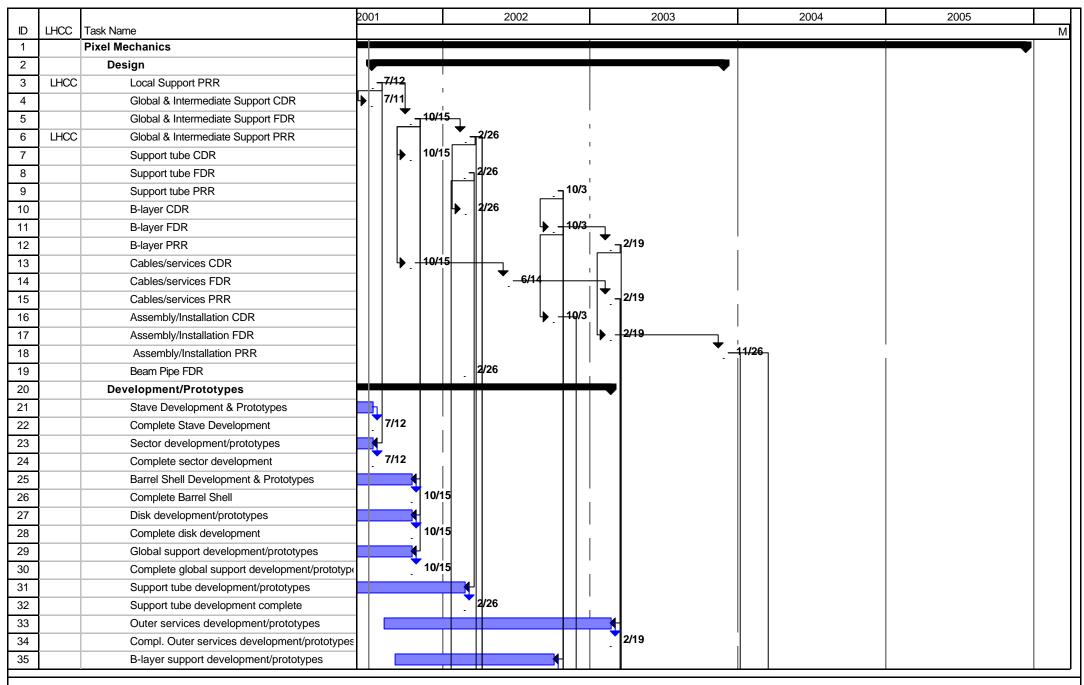
- Beam pipe review in February 2002 to confirm double wall design,
 bake-out of beam pipe with B-layer in place. We are proceeding at full speed assuming this WILL BE confirmed.
- B-layer in-pit installation or only on surface. Decision no later than February 2002.
- Barrel part of support tube needed for installation into SCT/TRT July 2004. Slack: 6 months

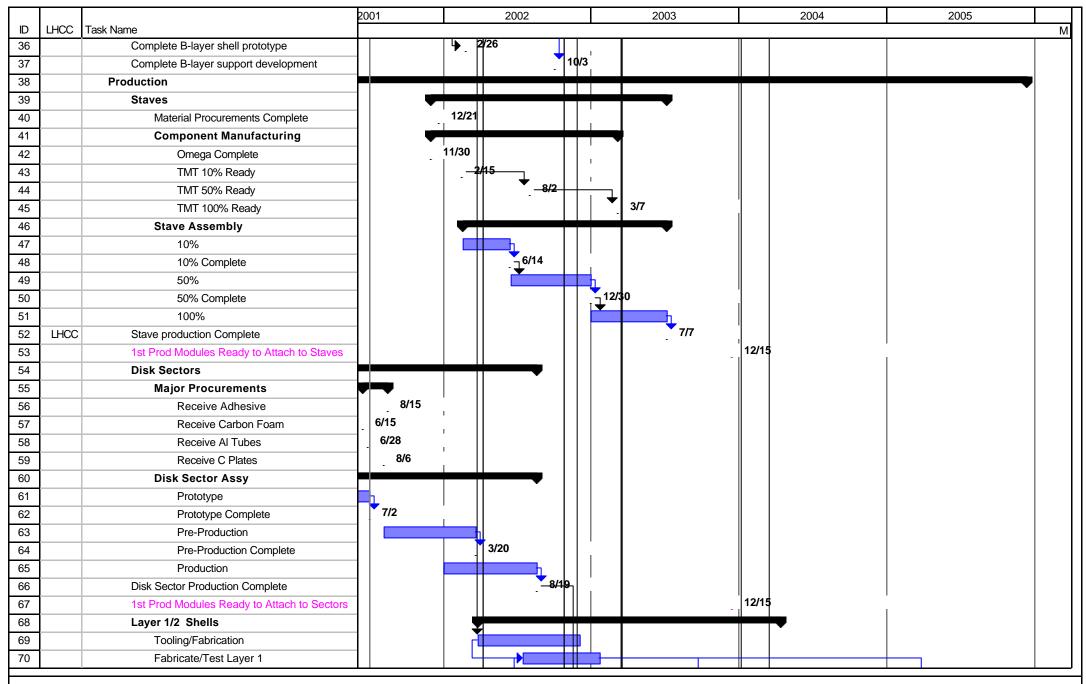
ATLAS Installation

- Required for commissioning run(2006) is June 2005. Slack: 3 months, but tight
- Required for physics run(installation in 2006) is April 2006. Slack: 4 months.

Comments

- The design review load is considerable but hard to see how to compress. Needs close coordination with TC to be most efficient.
- Decisions on B-layer bake-out and installation no later than early 2002 are critical.
- The mechanics is not on the pixel critical path until mid-2004, until attachment of modules is in full production and final assembly/installation. We have taken advantage of this by scheduling as much trial assembly and advanced preparation as possible.
- We recognize schedule for final assembly/testing at CERN + installation is tight. Will require careful planning, multiple shift operation, careful design of tooling and test equipment,...





			2001	2002	2003	2004	2005	
ID	LHCC	Task Name						М
71		Fabricate/Test Layer 2						
72		Barrel Shells Complete				4/13	1	
73		Disk Support Rings		¥ 1				
74		Support Rings Fab/Test						
75		Disk Support Rings Complete			11/19			
76		Global Support Frame		¥ 1				
77		Support Frame Fab/Test						
78		Global Support Frame Complete			4/8			
79		B-Layer Structures			 			
80		Tooling/Fabrication		+	🛼 			
81		B-Layer Shell Fab/Test						
82		B-Layer Support Tube Fab/Test						
83		B-Layer Structure Complete			9/17			
84		Services Support Panel		▼				
85		Support Panel Fab						
86		Support Panel Load/Test		 	 			
87		Services Support Panel Complete				2/18	1	
88		Pixel Support Tube		*		-		
89		Pixel Support Tube Fab						
90		Support Tube Trial Assy						
91	LHCC	Pixel Support Tube Complete				1/23	1	
92		Assembly/Installation Tooling						
93		Trial Assembly Tooling						
94		Surface Assembly Tooling						
95		Installation Tooling						
96		Trial Assembly						
97		Support Frame/Disks						
98	LHCC	Support Frame Ready			9/23			
99		Barrel Shells/B-Layer						
100		Tube/Frame/Panels						
101		Trial Assembly Complete				4/6		
102		Internal Services			+	-		
103		Procurement & Fab Services						
104		Load Services Support Panels						
105		Internal Services Complete				. 6/9		

ID	LHCC	Took Nome	2001	2002	2003	2004	2005	
ID 106	LHCC	Task Name External Services						M
107		Procurement & Fab			+			
108		External Services Complete					3/2	ı
109		Barrel Assembly/Test					·	
110		Layer 1 Assembly				1		
111		Layer 2 Assembly						
112		Layer 1 @ CERN					→ _8/26 _¬	ı
113		Layer 2 @ CERN				9/24	•	
114		Disk Assembly/Test		<u>+</u>		•		
115		Trial Assembly						
116		Disk A1			Τ			
117		Disk C1						
118	,	Disk A3						
119		Disk C3						
120		Disk A2						
121		Disk C2						
122		Initial Disk System @CERN				9/24	<u> </u>	
123		Remainder of Disk System @ CERN					9/9	
124		B-Layer Assembly/Test				—		
125		B-layer modules ready				9/29	'	
126		B-Layer Assembly						
127		B-Layer Assembly Complete					T12/21	
128		CERN Surface Assy/Test/Survey				<u> </u>	 	
129		Initial Barrel Assembly/Test						
130		Initial Disk Assembly/Test						
131		Barrel/Disk Assembly & Survey					<u>L</u>	
132		B-Layer Insertion/Survey/Test					Ĭh l	
133		Service Panel Integration/Test						
134		System Test						
135	LHCC	Initial Pixel System Ready for Install					3/16	- 1
136	LHCC	Third layer ready to install					 	12/12
137		Installation					─	
138		Lower Into Pit					•	
139		Slide into Support Tube					6	
140		Services Connection & Test						

	T	2004	0000	0000	0004	0005	
ID LHCC	Task Name	2001	2002	2003	2004	2005	М
141	Initial Pixel Installation Complete					6/1	141
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