

HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	September							October							November							December							January						
					27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04											
1	Beginn of shut-down 6:00	04.09.00	0d	04.09.00																																			
2	Remove shielding	04.09.00	4,5d	08.09.00																																			
3	Remove top shielding and place shielding blocks outside hall	04.09.00	1,5d	05.09.00																																			
4	Place 4 10 m beams besides trailer as working area for TC1+	05.09.00	1,5d	07.09.00																																			
5	Remove upper part of front shielding WR	05.09.00	0,5d	05.09.00																																			
6	Remove complete shielding wall in Muon area	06.09.00	0,5d	06.09.00																																			
7	Remove drives on +x side and toothed belts of all PC and TC chambers	05.09.00	1d	06.09.00																																			
8	Open Muon platform by 2,5 m and install tram bridge	08.09.00	0,5d	08.09.00																																			
9	Remove beampipes	04.09.00	6,3d	12.09.00																																			
10	Vent e and p beampipes	04.09.00	0,5d	04.09.00																																			
11	Retract PT1+, PT2+ and PT3+ by 10 cm	04.09.00	0,5d	04.09.00																																			
12	Open all MC chambers to allow access to SI 8	04.09.00	0,3d	04.09.00																																			
13	Cut AI beampipe and remove magnet section	05.09.00	0,3d	05.09.00																																			
14	Remove 3 working platforms + staircase on +x side	08.09.00	0,3d	08.09.00																																			
15	Move central platform+magnet+VDS vessel by 1 m into +x direction	11.09.00	0,2d	11.09.00																																			
16	Remove Rich segment of AI pipe	11.09.00	0,3d	11.09.00																																			
17	Remove electron pipe between Magnet and Muon	11.09.00	0,3d	11.09.00																																			
18	Move central platform+magnet+VDS vessel back into beam position	11.09.00	0,2d	11.09.00																																			
19	Reinstall 3 working platforms + staircase on +x side	12.09.00	0,3d	12.09.00																																			
20	Move electronics trailer close to shielding wall	07.09.00	0,3d	07.09.00																																			
21	Prepare HERA-B for tram position	04.09.00	9,1d	15.09.00																																			
22	Vertex Platform	04.09.00	6,8d	13.09.00																																			
23	Remove SI layer 8	04.09.00	0,5d	04.09.00																																			
24	Remove BPM	04.09.00	0,3d	04.09.00																																			
25	Remove pots 103, 106, 500, 506	05.09.00	1d	05.09.00																																			
26	Connect VDS vessel to magnet	05.09.00	0,3d	05.09.00																																			
27	Cleanup vertex platform, prepare for detector movement	05.09.00	6d	13.09.00																																			
28	Remove fence of laser interlock	06.09.00	1d	07.09.00																																			
29	TC chambers	05.09.00	6,3d	13.09.00																																			
30	Disconnect TC1 - cables and cable chains	05.09.00	1d	05.09.00																																			

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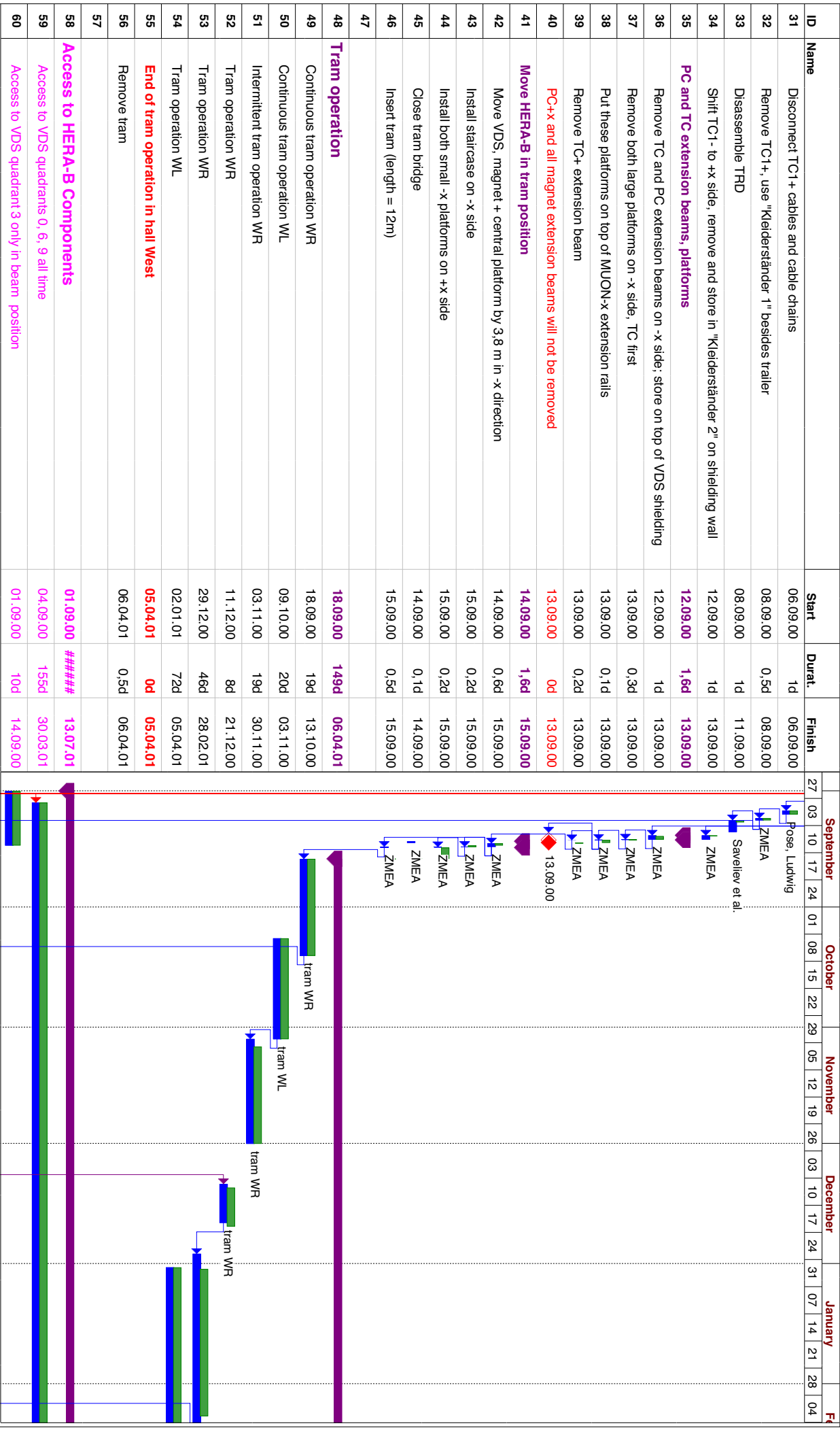
Task Critical Task

Critical Task Progress Baseline

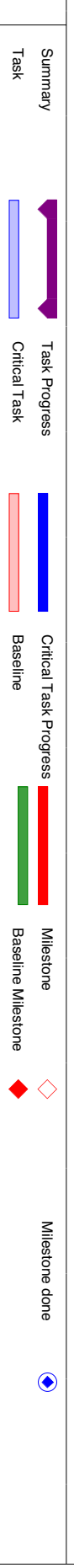
Milestone Baseline Milestone

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ID	Name	Start	Durat.	Finish	September							October			November			December			January										
					27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04			
61	Access to magnet chambers all time	04.09.00	155d	30.03.01																											
62	Access to PC+, PC- and TC- FED crates all time	04.09.00	155d	30.03.01																											
63	Access to TC+ FED crates on request (tram bridge has to be opened)	04.09.00	155d	30.03.01																											
64	Access to PC+ HV boards and ITR (tram not WR)	13.10.00	16d	06.11.00																											
65	Access to PC+ HV boards and ITR (tram not WR)	08.02.01	38d	28.03.01																											
66	Access to PC- and TC HV boards and ITR only in beam position	01.09.00	10d	14.09.00																											
67	Access to Rich and Ecal all time	04.09.00	155d	30.03.01																											
68	Access to Muon -x all time	04.09.00	155d	30.03.01																											
69	Access to Muon +x without extension beams all time	04.09.00	155d	30.03.01																											
70	Access to Muon +x with extension beams only during service week	30.11.00	5d	05.12.00																											
71	Detector back in beam position, free access	09.04.01	64d	13.07.01																											
72																															
73	Work on PC and TC chambers I	04.09.00	91d	05.01.01																											
74	Remove LHC-B test module (TC2+)	04.09.00	0,2d	04.09.00																											
75	Uncable and remove MS11- (crane 6:00 - 8:00)	04.09.00	0,1d	04.09.00																											
76	Uncable and remove MS12- (crane 6:00 - 8:00)	04.09.00	0,1d	04.09.00																											
77	Uncable and remove MS15- (crane 16:00 - 17:00)	04.09.00	0,2d	04.09.00																											
78	Uncable and remove MS10+ (crane 12:00 - 13:00)	04.09.00	0,2d	04.09.00																											
79																															
80	Open TC2+ (crane 2h), remove modules (-> hall 5)	04.09.00	1,6d	05.09.00																											
81	Disconnect TC1- cables and cable chains	05.09.00	1d	05.09.00																											
82	Disconnect TC1+ cables and cable chains	06.09.00	1d	06.09.00																											
83	Open PC1+ (crane 2h), remove modules (-> hall 5)	05.09.00	2d	07.09.00																											
84	Remove TC1+ , use "Kleiderständer 1" besides trailer	08.09.00	0,5d	08.09.00																											
85	Shift TC1- to +x side, remove and store in "Kleiderständer 2" on shielding wall	12.09.00	1d	13.09.00																											
86	Open TC1+, remove modules (-> hall 5)	11.09.00	3d	13.09.00																											
87	Open TC1-, remove modules (-> hall 5)	18.09.00	2d	19.09.00																											
88	Repair, reinforce and test TC1+ , TC1- and PC1+ modules (hall 5)	13.09.00	40d	08.11.00																											
89	Reinstall PC1+ layer 1 - 3 (including weekend)	22.09.00	1,3d	25.09.00																											
90	Open PC4+ (crane 2h), remove modules (-> hall 5)	25.09.00	2d	26.09.00																											

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ID	Name	Start	Durat.	Finish	September				October				November			December			January			F									
					27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17		24	31	07	14	21	28	04		
91	Reinstall PC1+ layer 4 - 6	27.09.00	6d	04.10.00																											
92	Close PC1+, leak test	04.10.00	4d	10.10.00																											
93	HV operation of PC1+	10.10.00	22d	09.11.00																											
94	Reinstall TC1+ layer 1 - 3, close chamber, leak test	03.11.00	14d	22.11.00																											
95	Reinstall TC1- layer 1 - 3, close chamber, leak test	12.10.00	17d	03.11.00																											
96	HV operation of TC1+ and TC1-	17.11.00	36d	05.01.01																											
97	Open PC2+ and PC3+, remove modules (-> hall 5)	05.11.00	6d	13.11.00																											
98	Reinstall PC4+ layer 1 - 3	15.11.00	11d	29.11.00																											
99	Reinstall PC2+	11.12.00	10d	27.12.00																											
100																															
101	Work on Muon Chambers	29.09.00	110d	22.02.01																											
102	Install MU1+ and MU3+ extension beams	29.09.00	0.5d	29.09.00																											
103	Remove upper half of MU3+ chambers	29.09.00	2.5d	03.10.00																											
104	Work on MU1+ frame	29.09.00	4d	05.10.00																											
105	Remove MU1+ extension beam	05.10.00	0.3d	05.10.00																											
106	Reinstall and test repaired MU3+ chambers	13.11.00	70d	13.02.01																											
107	Repair MU4+ chambers	18.12.00	50d	22.02.01																											
108																															
109	Work in Electronics Trailer	02.10.00	145d	17.04.01																											
110	No cooling water available: power consumption much reduced	02.10.00	26d	06.11.00																											
111	Replace heat exchangers 1st floor, FLT	26.10.00	2d	27.10.00																											
112	Install UPS for safety SPS; install smoke detectors in 301	26.10.00	1d	26.10.00																											
113	Close all holes in trailer	22.01.01	10d	02.02.01																											
114	Test of safety installations (date has to be fixed)	17.04.01	1d	17.04.01																											
115																															
116	Service week for HERA-B	30.11.00	11,38d	11.12.00																											
117	Move detector, install platforms etc	30.11.00	1,25d	01.12.00																											
118	Place +x platforms in beam position	30.11.00	1h	30.11.00																											
119	Remove railing of tram platform	30.11.00	1h	30.11.00																											
120	Move detector in beam position (start at 10:00)	30.11.00	2h	30.11.00																											

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ID	Name	Start	Durat.	Finish	September					October				November			December			January			Fr																
					27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24		31	07	14	21	28	04										
121	Prepare and open tram bridge	30.11.00	1h	30.11.00																																			
122	Install small PC- table and large platform	30.11.00	2h	30.11.00																																			
123	Install PC- extension beams	30.11.00	2h	30.11.00																																			
124	Install TC- platform	30.11.00	1h	30.11.00																																			
125	Install and adjust both TC extension beams	01.12.00	2h	01.12.00																																			
126	Open additional trigger layers (-x)	01.12.00	5,85d	07.12.00																																			
127	Remove MS10- temporary	01.12.00	2h	01.12.00																																			
128	Open PC1-, remove modules (-> hall 5)	01.12.00	2d	03.12.00																																			
129	Open PC4-, remove modules (-> hall 5) (MS13-)	05.12.00	1,2d	07.12.00																																			
130	Open TC2-, remove modules (-> hall 5)	03.12.00	2d	05.12.00																																			
131	Open PC2-, remove modules (-> hall 5)	03.12.00	1,2d	04.12.00																																			
132	Open PC3-, remove modules (-> hall 5)	04.12.00	1,2d	05.12.00																																			
133	All PC and TC chambers opened, modules removed	05.12.00	0d	05.12.00																																			
134	Additional work in PC and TC area	01.12.00	7,25d	08.12.00																																			
135	Reinstall and connect MS11-	06.12.00	3h	06.12.00																																			
136	Reinstall and connect MS12-	06.12.00	3h	06.12.00																																			
137	Measure temperatures of PC1+ and PC4+ TDC crates	05.12.00	2d	06.12.00																																			
138	Modify both TC1 cable chains	05.12.00	2,5d	07.12.00																																			
139	Modify both TC2 cable chains (not yet finished, parts missing)	07.12.00	1d	08.12.00																																			
140	Work on ECAL LED boards	01.12.00	5d	06.12.00																																			
141	Work in Muon area	06.12.00	2d	08.12.00																																			
142	Setup scaffolding for MU4+	06.12.00	2d	08.12.00																																			
143	Move detector backwards, remove platforms etc.	07.12.00	4,28d	11.12.00																																			
144	Remove TC extension beams	07.12.00	3h	07.12.00																																			
145	Remove all PC- extension beams	07.12.00	2h	07.12.00																																			
146	Remove PC- and TC- platforms and -x staircase	08.12.00	4h	08.12.00																																			
147	Move detector in backward position (start at 10:00)	11.12.00	1h	11.12.00																																			
148	Close tram bridge, install tram rails and railing	11.12.00	2h	11.12.00																																			
149																																							
150	Work on PC and TC chambers II	11.12.00	85,63d	08.04.01																																			

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					27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04																		
151	HV operation of PC1+, TC1+ and TC1-	11.12.00	35d	01.02.01																																										
152	Reopen TC1+ and inspect modules	08.01.01	10d	19.01.01																																										
153	Reassembly of PC2+ and PC4+	15.01.01	34d	23.02.01																																										
154	HV test of PC2+ and PC4+	23.02.01	30d	06.04.01																																										
155	Reassembly of PC3+ (delayed due to problems with tram bridge)	23.02.01	16d	19.03.01																																										
156	HV test of PC3+	20.03.01	19ed	08.04.01																																										
157																																														
158	Move HERA-B in beam position	06.04.01	2d	10.04.01																																										
159	Clean up area, prepare for detector move	06.04.01	0,5d	06.04.01																																										
160	Move (VDS), magnet and central platform in beam position	09.04.01	2h	09.04.01																																										
161	Reinstall both -x- platforms and staircase	09.04.01	5h	09.04.01																																										
162	Reinstall and adjust all extension beams	09.04.01	5h	10.04.01																																										
163																																														
164	Work in Vertex area	17.04.01	61d	13.07.01																																										
165	Reinstall fences for laser interlock	30.05.01	1d	30.05.01																																										
166	Remove all target stations; reinstall all but lower stations	17.04.01	5ed	22.04.01																																										
167	Replace RF-shielding (canceled)	21.05.01	5d	28.05.01																																										
168	Install pots 100, 103 and 506	12.06.01	3d	14.06.01																																										
169	Complete target installation (lower station, forks) and survey targets	08.06.01	5ed	13.06.01																																										
170	Survey and align VDS vessel (see 239)	14.06.01	3d	18.06.01																																										
171	Install superlayer 8 and test	27.06.01	2,5d	29.06.01																																										
172	Reinstall MS01	02.07.01	1d	02.07.01																																										
173	Final tests of target mechanics (vessel pumped down)	13.07.01	1d	13.07.01																																										
174																																														
175	Work in Magnet	06.03.01	97d	25.07.01																																										
176	Uncable and remove inner high-pt chambers PT2, PT3	06.03.01	2d	07.03.01																																										
177	Uncable and remove MCG+, MCS+, MC4+, MC3+, MC5-	07.03.01	6d	15.03.01																																										
178	Clean up magnet	03.04.01	5d	09.04.01																																										
179	Protect connections of lower magnet coils	17.04.01	5d	23.04.01																																										
180	Connect and test outer hipt+	11.04.01	7d	23.04.01																																										

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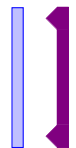
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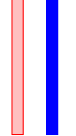
ID	Name	Start	Durat.	Finish	September					October					November					December					January					F					
					27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04							
181	Remove MC6-, MC4-, MC3-	24.04.01	1d	25.04.01																															
182	Reinstall MC3+ and MC4+	09.05.01	1d	10.05.01																															
183	Move both outer high PT3 to PT2 rail	17.05.01	0,5d	17.05.01																															
184	Remove MC8+	17.05.01	0,5d	18.05.01																															
185	Connect and test outer hipt1-	08.05.01	6d	15.05.01																															
186	Rearrange all cables in magnet (start on +x side)	14.05.01	13d	31.05.01																															
187	Reinstall MC3-	05.06.01	0,5d	06.06.01																															
188	Reinstall MC4-	13.06.01	3h	13.06.01																															
189	Reinstall all high-pt rails on -x side; open all chambers for beampipe	14.06.01	1d	15.06.01																															
190	Reinstall MS03	03.07.01	1d	03.07.01																															
191	Reinstallation of inner high-pt chambers	11.07.01	3d	13.07.01																															
192	Test readout and noise of inner high-pt chambers	16.07.01	8d	25.07.01																															
193	Reinstallation of outer high-pt chambers	02.07.01	18d	25.07.01																															
194	Test read-out of MC1-4+, MC8+ (ASD8 checks)	03.07.01	9d	13.07.01																															
195	Test read-out of MC1-4- (ASD8 checks)	13.07.01	7d	24.07.01																															
196	Reinstallation of MC8+	05.07.01	0,5d	05.07.01																															
197	Remove of MC8-	13.07.01	0,5d	13.07.01																															
198																																			
199	Work on PC and TC chambers III	10.04.01	69,5d	23.07.01																															
200	Reinstall TC1- and TC1+ chambers	10.04.01	1d	11.04.01																															
201	Connect all cables and pipes of TC1 chambers	11.04.01	5d	20.04.01																															
202	Modify all PC- cable chains	05.05.01	16d	29.05.01																															
203	Reinstall PC1- modules, close, leak test	17.04.01	11d	02.05.01																															
204	Reinstall PC4- modules, close, leak test	02.05.01	12d	17.05.01																															
205	Reinstall TC2- modules, close, leak test	21.05.01	13d	08.06.01																															
206	Reinstall TC2+ modules, close, leak test	11.06.01	12,5d	27.06.01																															
207	Reinstall PC2- modules, close, leak test	27.06.01	9d	10.07.01																															
208	Reinstall PC3- modules, close, leak test	09.07.01	11d	23.07.01																															
209	Reinstall MS13+	12.07.01	0,5d	12.07.01																															
210	Reinstall TRD support plates	13.07.01	2&d	15.07.01																															

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					27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24	31	07	14	21	28	04				
211	Reinstall MS10+	17.07.01	0,5d	17.07.01																												
212	Reinstall and connect TRD blocks	20.07.01	2sd	22.07.01																												
213																																
214	Work on Muon Chambers II	14.02.01	112d	24.07.01																												
215	Reinstall and test repaired MU3+ chambers	14.02.01	21d	12.03.01																												
216	Repair MU4+ chambers	22.02.01	2sd	30.03.01																												
217	Dismount MU4- chambers	05.03.01	2sd	06.04.01																												
218	Install new platforms for MU4 chambers	04.04.01	18d	02.05.01																												
219	Repair work on MU1+, extension beam required	10.05.01	19d	07.06.01																												
220	Repair work on MU2+, extension beam required	07.06.01	10d	21.06.01																												
221	Reinstall MU4- chambers including 6 modified chambers	26.04.01	31d	12.06.01																												
222	Remove tram bridge, close Muon absorber for TC2+ assembly	05.06.01	4h	06.06.01																												
223	Remove extension beam, reinstall tram bridge	02.07.01	1d	02.07.01																												
224	Reinstall pixel chamber MU2	13.07.01	3d	17.07.01																												
225	Close chambers, clean up area etc.	17.07.01	5d	24.07.01																												
226																																
227	Collaboration week in Copenhagen	18.06.01	5d	22.06.01																												
228																																
229	Reinstall beampipes, survey of platforms	30.05.01	29,57d	12.07.01																												
230	Remove +x platforms and staircase	30.05.01	3h	30.05.01																												
231	Move detector by 1,3 m in +x direction	31.05.01	2h	31.05.01																												
232	Install Ecal section of new AL beampipe	31.05.01	2h	31.05.01																												
233	Reinstall electron beampipe	31.05.01	2h	31.05.01																												
234	Move detector back in beam position	31.05.01	2h	31.05.01																												
235	Reinstall +x platforms + staircase	31.05.01	4h	01.06.01																												
236	Install stopper blocks for magnet and central platform	01.06.01	4h	01.06.01																												
237	Assemble shielding wall	06.06.01	2d	07.06.01																												
238	Survey and align VDS, magnet and central platform	11.06.01	7d	19.06.01																												
239	Install magnet and PC section of new AL beampipe and weld	20.06.01	1d	20.06.01																												
240	Connect and survey electron pipe	21.06.01	1d	21.06.01																												

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Milestone done

Task

Critical Task

Baseline

Baseline Milestone



HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	September				October				November				December				January				Fr		
					27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24	31	07		14	21
241	Pump down vessel and beam pipe for leak test; vent vessel afterwards	20.06.01	5,5d	28.06.01																							
242	Reinstall BPM and connect to HERA	21.06.01	1d	21.06.01																							
243	Pump down vessel and beam pipe, final leak test	03.07.01	6d	11.07.01																							
244	Assemble top shielding	10.07.01	2,2d	12.07.01																							
245																											
246	End of shut-down	02.05.01	59d	26.07.01																							
247	Tunnel W/R closed, access only via ZZ	02.05.01	84ed	25.07.01																							
248	Tunnel WL closed, access only via ZZ	14.05.01	72ed	25.07.01																							
249	Install power filters in UV1.12 - 7.12	02.07.01	6d	09.07.01																							
250	Reinstall HERA-B interlock and lighting	06.07.01	5d	12.07.01																							
251	Test of safety equipment	09.07.01	0,5d	09.07.01																							
252	Reinstall pipes for exhaust system	11.07.01	2d	12.07.01																							
253	Move trailer by 1 m	16.07.01	0,2d	16.07.01																							
254	Test of HERA-B interlock 8:00-12:00 (no access to HERA-B area)	17.07.01	0,5d	17.07.01																							
255	Test of HERA interlock (begin around 14:00) (no access to HERA-B area)	18.07.01	2d	20.07.01																							
256	End of shut-down (16:00 close area)	25.07.01	0d	25.07.01																							
257	Restart of HERA operation	26.07.01	0d	26.07.01																							

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HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	February							March							April							May							June							July						
					11	18	25	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01	08	15	22																		
31	Disconnect TC1 + cables and cable chains	06.09.00	1d	06.09.00																																										
32	Remove TC1+, use "Kleiderständer 1" besides trailer	08.09.00	0,5d	08.09.00																																										
33	Disassemble TRD	08.09.00	1d	11.09.00																																										
34	Shift TC1- to +x side, remove and store in "Kleiderständer 2" on shielding wall	12.09.00	1d	13.09.00																																										
35	PC and TC extension beams, platforms	12.09.00	1,6d	13.09.00																																										
36	Remove TC and PC extension beams on -x side; store on top of VDS shielding	12.09.00	1d	13.09.00																																										
37	Remove both large platforms on -x side, TC first	13.09.00	0,3d	13.09.00																																										
38	Put these platforms on top of MUON-x extension rails	13.09.00	0,1d	13.09.00																																										
39	Remove TC+ extension beam	13.09.00	0,2d	13.09.00																																										
40	PC+x and all magnet extension beams will not be removed	13.09.00	0d	13.09.00																																										
41	Move HERA-B in tram position	14.09.00	1,6d	15.09.00																																										
42	Move VDS, magnet + central platform by 3,8 m in -x direction	14.09.00	0,6d	15.09.00																																										
43	Install staircase on -x side	15.09.00	0,2d	15.09.00																																										
44	Install both small -x platforms on +x side	15.09.00	0,2d	15.09.00																																										
45	Close tram bridge	14.09.00	0,1d	14.09.00																																										
46	Insert tram (length = 12m)	15.09.00	0,5d	15.09.00																																										
47																																														
48	Tram operation	18.09.00	149d	06.04.01																																										
49	Continuous tram operation WR	18.09.00	19d	13.10.00																																										
50	Continuous tram operation WL	09.10.00	20d	03.11.00																																										
51	Intermittent tram operation WR	03.11.00	19d	30.11.00																																										
52	Tram operation WR	11.12.00	8d	21.12.00																																										
53	Tram operation WR	29.12.00	46d	28.02.01																																										
54	Tram operation WL	02.01.01	72d	05.04.01																																										
55	End of tram operation in hall West	05.04.01	0d	05.04.01																																										
56	Remove tram	06.04.01	0,5d	06.04.01																																										
57																																														
58	Access to HERA-B Components	01.09.00	#####	13.07.01																																										
59	Access to VDS quadrants 0, 6, 9 all time	04.09.00	155d	30.03.01																																										
60	Access to VDS quadrant 3 only in beam position	01.09.00	10d	14.09.00																																										

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HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	February			March			April			May			June			July					
					11	18	25	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01
61	Access to magnet chambers all time	04.09.00	155d	30.03.01																					
62	Access to PC+, PC- and TC- FED crates all time	04.09.00	155d	30.03.01																					
63	Access to TC+ FED crates on request (tram bridge has to be opened)	04.09.00	155d	30.03.01																					
64	Access to PC+ HV boards and ITR (tram not WR)	13.10.00	16d	06.11.00																					
65	Access to PC+ HV boards and ITR (tram not WR)	08.02.01	38d	28.03.01																					
66	Access to PC- and TC HV boards and ITR only in beam position	01.09.00	10d	14.09.00																					
67	Access to Rich and Ecal all time	04.09.00	155d	30.03.01																					
68	Access to Muon -x all time	04.09.00	155d	30.03.01																					
69	Access to Muon +x without extension beams all time	04.09.00	155d	30.03.01																					
70	Access to Muon +x with extension beams only during service week	30.11.00	5d	05.12.00																					
71	Detector back in beam position, free access	09.04.01	64d	13.07.01																					
72																									
73	Work on PC and TC chambers I	04.09.00	91d	05.01.01																					
74	Remove LHC-B test module (TC2+)	04.09.00	0,2d	04.09.00																					
75	Uncable and remove MS11- (crane 6:00 - 8:00)	04.09.00	0,1d	04.09.00																					
76	Uncable and remove MS12- (crane 6:00 - 8:00)	04.09.00	0,1d	04.09.00																					
77	Uncable and remove MS15- (crane 16:00 - 17:00)	04.09.00	0,2d	04.09.00																					
78	Uncable and remove MS10+ (crane 12:00 - 13:00)	04.09.00	0,2d	04.09.00																					
79																									
80	Open TC2+ (crane 2h), remove modules (-> hall 5)	04.09.00	1,6d	05.09.00																					
81	Disconnect TC1- cables and cable chains	05.09.00	1d	05.09.00																					
82	Disconnect TC1+ cables and cable chains	06.09.00	1d	06.09.00																					
83	Open PC1+ (crane 2h), remove modules (-> hall 5)	05.09.00	2d	07.09.00																					
84	Remove TC1+, use "Kleiderständer 1" besides trailer	08.09.00	0,5d	08.09.00																					
85	Shift TC1- to +x side, remove and store in "Kleiderständer 2" on shielding wall	12.09.00	1d	13.09.00																					
86	Open TC1+, remove modules (-> hall 5)	11.09.00	3d	13.09.00																					
87	Open TC1-, remove modules (-> hall 5)	18.09.00	2d	19.09.00																					
88	Repair, reinforce and test TC1+, TC1- and PC1+ modules (hall 5)	13.09.00	40d	08.11.00																					
89	Reinstall PC1+ layer 1 - 3 (including weekend)	22.09.00	1,3d	25.09.00																					
90	Open PC4+ (crane 2h), remove modules (-> hall 5)	25.09.00	2d	26.09.00																					

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HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	Month														
					February	March	April	May	June	July									
91	Reinstall PC1+ layer 4 - 6	27.09.00	6d	04.10.00															
92	Close PC1+, leak test	04.10.00	4d	10.10.00															
93	HV operation of PC1+	10.10.00	22d	09.11.00															
94	Reinstall TC1+ layer 1 - 3, close chamber, leak test	03.11.00	14d	22.11.00															
95	Reinstall TC1- layer 1 - 3, close chamber, leak test	12.10.00	17d	03.11.00															
96	HV operation of TC1+ and TC1-	17.11.00	36d	05.01.01															
97	Open PC2+ and PC3+, remove modules (-> hall 5)	05.11.00	6d	13.11.00															
98	Reinstall PC4+ layer 1 - 3	15.11.00	11d	29.11.00															
99	Reinstall PC2+	11.12.00	10d	27.12.00															
100																			
101	Work on Muon Chambers	29.09.00	110d	22.02.01															
102	Install MU1+ and MU3+ extension beams	29.09.00	0,5d	29.09.00															
103	Remove upper half of MU3+ chambers	29.09.00	2,5d	03.10.00															
104	Work on MU1+ frame	29.09.00	4d	05.10.00															
105	Remove MU1+ extension beam	05.10.00	0,3d	05.10.00															
106	Reinstall and test repaired MU3+ chambers	13.11.00	70d	13.02.01															
107	Repair MU4+ chambers	18.12.00	50d	22.02.01															
108																			
109	Work in Electronics Trailer	02.10.00	145d	17.04.01															
110	No cooling water available: power consumption much reduced	02.10.00	26d	06.11.00															
111	Replace heat exchangers 1st floor, FLT	26.10.00	2d	27.10.00															
112	Install UPS for safety SPS; install smoke detectors in 301	26.10.00	1d	26.10.00															
113	Close all holes in trailer	22.01.01	10d	02.02.01															
114	Test of safety installations (date has to be fixed)	17.04.01	1d	17.04.01															
115																			
116	Service week for HERA-B	30.11.00	11,38d	11.12.00															
117	Move detector, install platforms etc	30.11.00	1,25d	01.12.00															
118	Place +x platforms in beam position	30.11.00	1h	30.11.00															
119	Remove railing of tram platform	30.11.00	1h	30.11.00															
120	Move detector in beam position (start at 10:00)	30.11.00	2h	30.11.00															

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HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	February							March							April							May							June							July						
					11	18	25	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01	08	15	22																		
121	Prepare and open tram bridge	30.11.00	1h	30.11.00																																										
122	Install small PC- table and large platform	30.11.00	2h	30.11.00																																										
123	Install PC- extension beams	30.11.00	2h	30.11.00																																										
124	Install TC- platform	30.11.00	1h	30.11.00																																										
125	Install and adjust both TC extension beams	01.12.00	2h	01.12.00																																										
126	Open additional trigger layers (-x)	01.12.00	5,85d	07.12.00																																										
127	Remove MS10- temporary	01.12.00	2h	01.12.00																																										
128	Open PC1-, remove modules (-> hall 5)	01.12.00	2d	03.12.00																																										
129	Open PC4-, remove modules (-> hall 5) (MS13-)	05.12.00	1,2d	07.12.00																																										
130	Open TC2-, remove modules (-> hall 5)	03.12.00	2d	05.12.00																																										
131	Open PC2-, remove modules (-> hall 5)	03.12.00	1,2d	04.12.00																																										
132	Open PC3-, remove modules (-> hall 5)	04.12.00	1,2d	05.12.00																																										
133	All PC and TC chambers opened, modules removed	05.12.00	0d	05.12.00																																										
134	Additional work in PC and TC area	01.12.00	7,25d	08.12.00																																										
135	Reinstall and connect MS11-	06.12.00	3h	06.12.00																																										
136	Reinstall and connect MS12-	06.12.00	3h	06.12.00																																										
137	Measure temperatures of PC1+ and PC4+ TDC crates	05.12.00	2d	06.12.00																																										
138	Modify both TC1 cable chains	05.12.00	2,5d	07.12.00																																										
139	Modify both TC2 cable chains (not yet finished, parts missing)	07.12.00	1d	08.12.00																																										
140	Work on ECAL LED boards	01.12.00	5d	06.12.00																																										
141	Work in Muon area	06.12.00	2d	08.12.00																																										
142	Setup scaffolding for MU4+	06.12.00	2d	08.12.00																																										
143	Move detector backwards, remove platforms etc.	07.12.00	4,28d	11.12.00																																										
144	Remove TC extension beams	07.12.00	3h	07.12.00																																										
145	Remove all PC- extension beams	07.12.00	2h	07.12.00																																										
146	Remove PC- and TC- platforms and x-staircase	08.12.00	4h	08.12.00																																										
147	Move detector in backward position (start at 10:00)	11.12.00	1h	11.12.00																																										
148	Close tram bridge, install tram rails and railing	11.12.00	2h	11.12.00																																										
149																																														
150	Work on PC and TC chambers II	11.12.00	85,63d	08.04.01																																										

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HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	Timeline						
					February	March	April	May	June	July	
151	HV operation of PC1+, TC1+ and TC1-	11.12.00	35d	01.02.01	et al.						
152	Reopen TC1+ and inspect modules	08.01.01	10d	19.01.01	Michel et al.						
153	Reassembly of PC2+ and PC4+	15.01.01	34d	23.02.01	Michel et al.						
154	HV test of PC2+ and PC4+	23.02.01	30d	06.04.01	Pose et al.						
155	Reassembly of PC3+ (delayed due to problems with tram bridge)	23.02.01	16d	19.03.01	Michel et al.						
156	HV test of PC3+	20.03.01	19ed	08.04.01	Pose et al.						
157											
158	Move HERA-B in beam position	06.04.01	2d	10.04.01	Czernpik et al.						
159	Clean up area, prepare for detector move	06.04.01	0,5d	06.04.01	ZMMEA, ZBAU11						
160	Move (VDS), magnet and central platform in beam position	09.04.01	2h	09.04.01	ZMMEA						
161	Reinstall both -x- platforms and staircase	09.04.01	5h	09.04.01	ZMMEA, ZBAU11						
162	Reinstall and adjust all extension beams	09.04.01	5h	10.04.01	Sgonina et al.						
163											
164	Work in Vertex area	17.04.01	61d	13.07.01	Ehret et al.						
165	Reinstall fences for laser interlock	30.05.01	1d	30.05.01	MP1-HD						
166	Remove all target stations; reinstall all but lower stations	17.04.01	5ed	22.04.01	Ehret et al.						
167	Replace RF-shielding (canceled)	21.05.01	5d	28.05.01	MP1-HD						
168	Install pots 100, 103 and 506	12.06.01	3d	14.06.01	Ehret et al.						
169	Complete target installation (lower station, forks) and survey targets	08.06.01	5ed	13.06.01	ZMMEA2						
170	Survey and align VDS vessel (see 239)	14.06.01	3d	18.06.01	MP1-HD						
171	Install superlayer 8 and test	27.06.01	2,5d	29.06.01	Ehret et al.						
172	Reinstall MS01	02.07.01	1d	02.07.01	MP1-HD						
173	Final tests of target mechanics (vessel pumped down)	13.07.01	1d	13.07.01	Holt et al.						
174					Ehret et al.						
175	Work in Magnet	06.03.01	97d	25.07.01	Mizuk et al.						
176	Uncable and remove inner high-pt chambers PT2, PT3	06.03.01	2d	07.03.01	Michel						
177	Uncable and remove MCG+, MCS+, MC4+, MC3+, MC5-	07.03.01	6d	15.03.01	Ludwig et al.						
178	Clean up magnet	03.04.01	5d	09.04.01	Busse et al.						
179	Protect connections of lower magnet coils	17.04.01	5d	23.04.01	Schwartz et al.						
180	Connect and test outer hipt+	11.04.01	7d	23.04.01							

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HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	February							March							April							May							June							July							
					11	18	25	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01	08	15	22	11	18	25	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17
181	Remove MC6-, MC4-, MC3-	24.04.01	1d	25.04.01																																											
182	Reinstall MC3+ and MC4+	09.05.01	1d	10.05.01																																											
183	Move both outer high PT3 to PT2 rail	17.05.01	0,5d	17.05.01																																											
184	Remove MC8+	17.05.01	0,5d	18.05.01																																											
185	Connect and test outer hipt1-	08.05.01	6d	15.05.01																																											
186	Rearrange all cables in magnet (start on +x side)	14.05.01	13d	31.05.01																																											
187	Reinstall MC3-	05.06.01	0,5d	06.06.01																																											
188	Reinstall MC4-	13.06.01	3h	13.06.01																																											
189	Reinstall all high-pt rails on -x side; open all chambers for beampipe	14.06.01	1d	15.06.01																																											
190	Reinstall MS03	03.07.01	1d	03.07.01																																											
191	Reinstallation of inner high-pt chambers	11.07.01	3d	13.07.01																																											
192	Test readout and noise of inner high-pt chambers	16.07.01	8d	25.07.01																																											
193	Reinstallation of outer high-pt chambers	02.07.01	18d	25.07.01																																											
194	Test read-out of MC1-4+, MC8+ (ASD8 checks)	03.07.01	9d	13.07.01																																											
195	Test read-out of MC1-4- (ASD8 checks)	13.07.01	7d	24.07.01																																											
196	Reinstallation of MC8+	05.07.01	0,5d	05.07.01																																											
197	Remove of MC8-	13.07.01	0,5d	13.07.01																																											
198																																															
199	Work on PC and TC chambers III	10.04.01	69,5d	23.07.01																																											
200	Reinstall TC1- and TC1+ chambers	10.04.01	1d	11.04.01																																											
201	Connect all cables and pipes of TC1 chambers	11.04.01	5d	20.04.01																																											
202	Modify all PC- cable chains	05.05.01	16d	29.05.01																																											
203	Reinstall PC1- modules, close, leak test	17.04.01	11d	02.05.01																																											
204	Reinstall PC4- modules, close, leak test	02.05.01	12d	17.05.01																																											
205	Reinstall TC2- modules, close, leak test	21.05.01	13d	08.06.01																																											
206	Reinstall TC2+ modules, close, leak test	11.06.01	12,5d	27.06.01																																											
207	Reinstall PC2- modules, close, leak test	27.06.01	9d	10.07.01																																											
208	Reinstall PC3- modules, close, leak test	09.07.01	11d	23.07.01																																											
209	Reinstall MS13+	12.07.01	0,5d	12.07.01																																											
210	Reinstall TRD support plates	13.07.01	2ed	15.07.01																																											

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HERA-B: Lumi Shut-Down Schedule

ID	Name	Start	Durat.	Finish	Schedule										
					February	March	April	May	June	July					
211	Reinstall MS10+	17.07.01	0,5d	17.07.01											
212	Reinstall and connect TRD blocks	20.07.01	2ed	22.07.01											
213															
214	Work on Muon Chambers II	14.02.01	112d	24.07.01											
215	Reinstall and test repaired MU3+ chambers	14.02.01	21d	12.03.01											
216	Repair MU4+ chambers	22.02.01	26d	30.03.01											
217	Dismount MU4- chambers	05.03.01	25d	06.04.01											
218	Install new platforms for MU4 chambers	04.04.01	18d	02.05.01											
219	Repair work on MU1+, extension beam required	10.05.01	19d	07.06.01											
220	Repair work on MU2+, extension beam required	07.06.01	10d	21.06.01											
221	Reinstall MU4- chambers including 6 modified chambers	26.04.01	31d	12.06.01											
222	Remove tram bridge, close Muon absorber for TC2+ assembly	05.06.01	4h	06.06.01											
223	Remove extension beam, reinstall tram bridge	02.07.01	1d	02.07.01											
224	Reinstall pixel chamber MU2	13.07.01	3d	17.07.01											
225	Close chambers, clean up area etc.	17.07.01	5d	24.07.01											
226															
227	Collaboration week in Copenhagen	18.06.01	5d	22.06.01											
228															
229	Reinstall beampipes, survey of platforms	30.05.01	29,57d	12.07.01											
230	Remove +x platforms and staircase	30.05.01	3h	30.05.01											
231	Move detector by 1,3 m in +x direction	31.05.01	2h	31.05.01											
232	Install Ecal section of new Al beampipe	31.05.01	2h	31.05.01											
233	Reinstall electron beampipe	31.05.01	2h	31.05.01											
234	Move detector back in beam position	31.05.01	2h	31.05.01											
235	Reinstall +x platforms + staircase	31.05.01	4h	01.06.01											
236	Install stopper blocks for magnet and central platform	01.06.01	4h	01.06.01											
237	Assemble shielding wall	06.06.01	2d	07.06.01											
238	Survey and align VDS, magnet and central platform	11.06.01	7d	19.06.01											
239	Install magnet and PC section of new AL beampipe and weld	20.06.01	1d	20.06.01											
240	Connect and survey electron pipe	21.06.01	1d	21.06.01											

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Summary

Task

Task Progress

Critical Task

Critical Task Progress

Baseline

Milestone

Baseline Milestone

Milestone done

HERA-B: Lumi Shut-Down Schedule

- 1** **Beginn of shut-down 6:00**
Corresponding detector pictures can be found at:
<http://www-hera-b.desy.de/subgroup/installation/3d-cad-1.html>
- 8** **Open Muon platform by 2,5 m and install tram bridge**
Install tram bridge already now to avoid auxiliary platform for beam-pipe removal.
- 15** **Move central platform+magnet+VDS vessel by 1 m into +x direction**
In order to remove the p and e beam pipes, the detector (central platform + magnet) has to be moved by 1m into +x direction. The VDS vessel has to be attached to the magnet and moved as well, otherwise the VDS platform has to be dismounted.
- 34** **Shift TC1 - to +x side, remove and store in "Kleiderständer 2" on shielding wall**
Size of Kleiderständer: 2 m x 4,5 m
- 36** **Remove TC and PC extension beams on -x side; store on top of VDS shielding**
Length of PC- and TC- beams: 5 m
Length of PC+ and TC+ beams: 4,5 m
Distance between PC4 and TC extension beam: 3,6 m
Distance between TC and MC8 extension beams: 5,6 m
Length of magnet extension beams: 2,8 m
- 191** **Reinstallation of inner high-pt chambers**
All beam-pipe has to go in first
- 205** **Reinstall TC2- modules, close, leak test**
All Muon -x chambers have to be closed
- 206** **Reinstall TC2+ modules, close, leak test**
Muon +x platform has to be closed
- 239** **Install magnet and PC section of new AL beampipe and weld**
All MC and PC chambers must be open