

LHC Machine Committee - 4 March, 2009

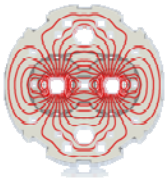
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# Sector 3-4 Repair Status

Francesco Bertinelli - TE/MS

On behalf of - and with several contributions from - surface and IC teams

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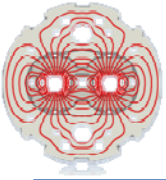


# Surface News Week 09/2009

	End activity week 5 - 2009		End activity week 6 - 2009		End activity week 7 - 2009	
	Magnets	Quantity	Magnets	Quantity	Magnets	Quantity
Cryostating	2428-3118-SSS221	3	2433-2443-SSS195	3	2035-2103-2441-SSS225	4
Cold testing	2427-2739	2	1085-SSS369	2	2421-2429-2440-SSS221	4
Stripping	2432-SSS243	2	2739	1	1085-SSS369	2
Fiducialization						
Beam screen integration	2434-2436	2	2399-SSS055	2	2432	1
Tunnel preparation	2422-2624	2	2342-2399-2434-2436-SSS055	5	2432	1
Installation (=pose)	2624	1	2434-2436	2	2342	1
	End activity week 8 - 2009		End activity week 9 - 2009		End activity week 10 - 2009	
	Magnets	Quantity	Magnets	Quantity	Magnets	Quantity
Cryostating	1071-1092-1099-2192-SSS227	5	2108-SSS208-(2431-2442= <i>spares</i> )	4		
Cold testing	2418-2435-2446-3118-SSS195- SSS203	6	2103-2444-2427-2690-SSS006- SSS225-SSS227	7		
Stripping	2421-2429-SSS221	3	2252-2418-2435-2440-SSS195-SSS	6		
Fiducialization			2252-2418-2440-SSS203	4		
Beam screen integration	2739-SSS243	2	2421-2429-SSS369	3		
Tunnel preparation	SSS243	1	2422-2739	2		
Installation (=pose)	2432-2399	2	2422-2739-SSS055-SSS243	4		



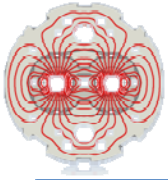
Courtesy A. Russo



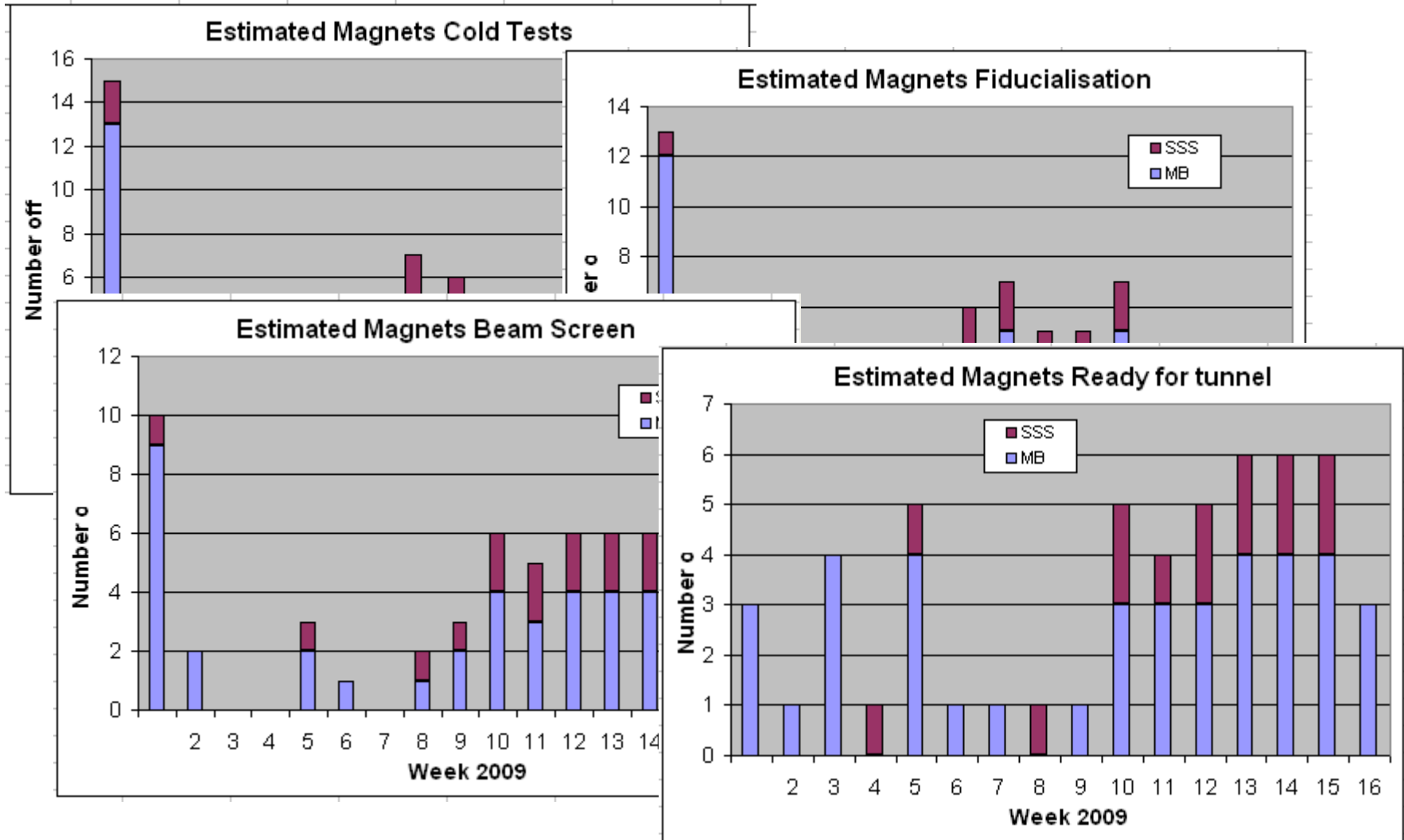
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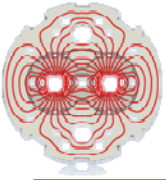
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- Cold testing:
  - MB2427 (18nΩ old measurement) and MB2690 (18 nΩ old measurement) re-tested: results OK
  - MB3383 being (again) prepared for retesting
  - but some technical difficulties (electrical NCR): MB2103 and MB2868
  - first successful measurements of 4th splice
- Stripping:
  - 6 OK
  - improving quality and tooling
- Beam screen mounting (SMI2) now under pressure:
  - also aiming for 6 this week
  - welding support from MSC to VSC (in SMI2 and in tunnel)
  - new bench installed
  - clean magnets in series?
  - extra hours this week?
- Fiducialisation / Survey now also under same pressure

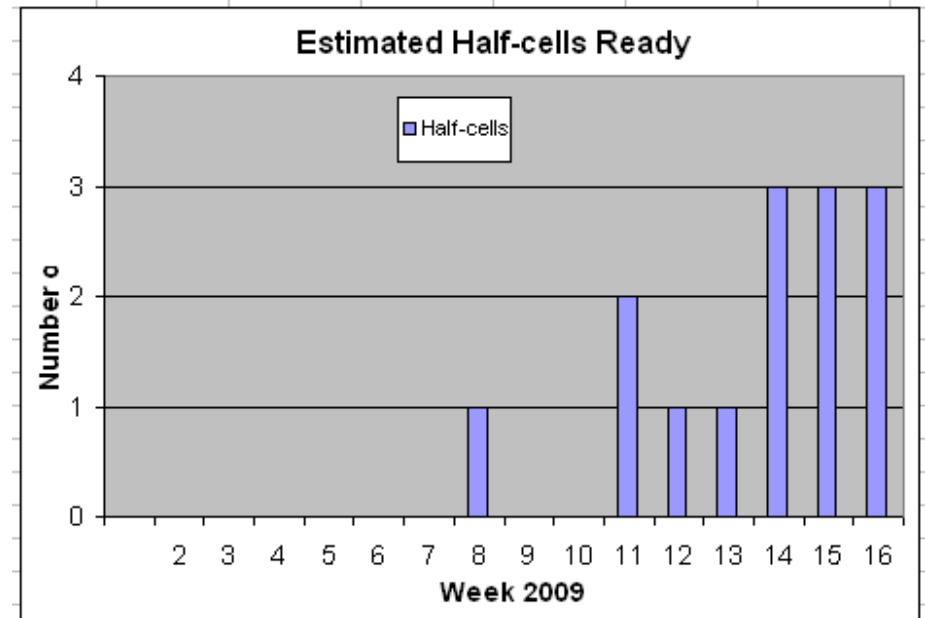
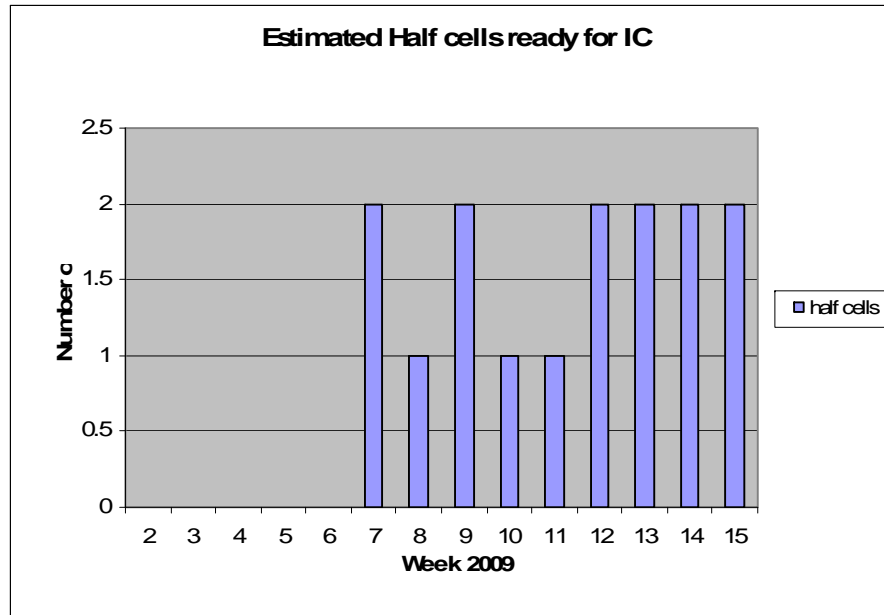


# Surface News Week 09/2009

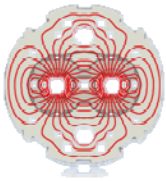




# Surface News Week 09/2009



- Decision: SSS364 replaces SSS192 for Q31
- Decision: MB3383 changes slots with MB2103 (but this has electrical NCR, being stripped, warm re-testing)
- other slot changes to be discussed (e.g. MB2446 with MB2868, no other cases identified)



# Installation Week 09/2009

Secteur 3-4  
 Situation semaine 9/09 (du 23.02.09 au 27.02.09)  
 Réinstallation des aimants semaines 11 (09.03.09 au 13.03.09) et 12 (16.03.09 au 20.03.09)

<= Point 3

Function	A	B	C	Q WITH JUMPER	A	B	C	Q
Doim (start)	LBBLA 3115 7479.2 C19R3	LBALA 1001 7494.8	LBBLD 3099 7510.5	Q09228 7526.1 Q19	LBALA 3102 7532.6 A20 C20R3	LBBLA 1130 7548.3 B20	LBALB 2054 7563.9 C20	Q08195 7579.6 Q20
Doim (start)	LBBLA 2036 7586.1 C21R3	LBALA 1092 7601.70 B21	LBBLD 1099 7617.4 C21	Q10226 7633.0 Q21	LBALA 1085 7639.5 A22 C22R3	LBBLA 3118 7655.2 B22	LBALB 1071 7670.8 C22	Q08203 7686.6 Q22
Doim (start)	LBALA 2430 7693.0 C23R3	LBALA 2790 7708.6 B23	LBBLD 2099 7724.3 C23	Q09243 7739.9 Q23	LBALA 2438 7746.4 A24 C24R3	LBBLA 2434 7762.1 B24	LBALB 2438 7777.7 C24	Q08277 7793.4 Q24
Function	A	B	C	Q WITH JUMPER	A	B	C	Q
Doim (start)	LBBLA 3383 7799.9 C25R3	LBALA 2739 7815.5 B25	LBBLD 2422 7831.2 C25	Q10218 7847.8 Q25	LBALA 2448 7853.3 A28 C28R3	LBBLA 2493 7869.0 B28	LBALB 2698 7884.6 C28	Q08208 7900.3 Q28
Doim (start)	LBBLA 2427 7906.8 C27R3	LBALA 2690 7922.4 B27	LBBLD 1219 7938.1 C27	Q09056 7953.7 Q27	LBALA 2988 7960.2 A28 C28R3	LBBLA 2421 7975.9 B28	LBALB 2661 7991.6 C28	Q08399 8007.2 Q28
Doim (start)	LBBLA 2419 8013.7 C29R3	LBALA 2342 8029.3 B29	LBBLD 2418 8045.0 C29	Q09221 8060.6 Q29	LBALA 2435 8067.1 A30 C30R3	LBBLA 2428 8082.8 B30	LBBLA 2444 8098.4 C30	Q08008 8114.1 Q30
Doim (start)	LBBLA 2440 8120.6 C31R3	LBALA 3413 8136.2 B31	LBBLD 2429 8151.9 C31	Q09192 8167.5 Q31	LBALA 2824 8174.0 A32 C32R3	LBBLA 2262 8189.7 B32	LBBLA 2443 8205.3 C32	Q08279 8221 Q32
Doim (start)	LBBLA 2103 8227.5 C33R3	LBALA 2182 8243.1 B33	LBBLD 2108 8258.8 C33	Q09227 8274.4 Q33	LBALA 2177 8280.9 A33 C33R3	LBBLA 1100 8296.6	LBALB 1246 8312.2	Q08022 8327.9

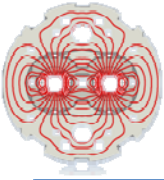
Point 4 =>

Bloc libres   
 Prévision réinstallation   
 éléments réinstallés   
 dd/mm/yy   
 Date de transport et mise en place

Cantons électriques   
Jumper à reprendre   
transport depuis point 4 à fixer courant S10 en fonction de l'avancement de la réparation des câbles refroidis en RA43

Prepared by H. Gaillard Page 1/1

Courtesy H. Gaillard



# 3-4 Tunnel Status

Magnets for 3-4: status 3 March (Week 10-2009)

	Disconnected	Reinstalled	
MB	39	15	38%
SSS	14	3	21%

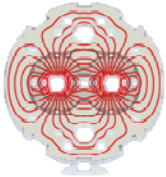
IC work to be done in 3-4 (not exhaustive): status 3 March (Week 10-2009)

	W bellows		PIMs cut		PIMs welded		BB disconnected		BB soldered		M cut	M welded	N-lines removed	jumpers Z and lines
	fully opened	partial opening	V1	V2	V1	V2	M1, M2, M3	M1, M2, M3	M1, M2, M3	M1, M2, M3				
Within Zone-D (Q19R3 to Q33R3 include)	57		55	57	7	7	57	3	57	0			13	7
Outside D-zone (replace all QQBI PIMs, cleaning soot and MLI)														
Towards Point 3	35		15	30	0	0	1	0	1	0			0	0
Towards Point 4	31		28	28	0	0	0	0	2	0			0	0
Outside D-zone (for DN200 work only)														
Towards Point 3		7												
Towards Point 4		51												
Total done/ongoing		181	98	115	7	7	58	3	60				13	7
		85%	46%	54%			27%		28%				28%	25%
Total present	212		212	212			212		212				46	28

## ■ Survey alignment:

- pre-alignment at  $\pm 0.5$  mm to allow IC work
- smoothing requires ~100 m, wire (occupation of tunnel passage)
- need to regroup interventions (1 - 2 per week)

## ■ Transport: restart next Saturday, starting W11 only at night



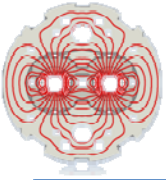
# VSC cleaning of V lines and PIMs

SEC	DCUM RING START	mag.down	Inter. number	mag.up	IC Open	Weld Y1 V2
B	9274	2110	QBBLA17L4			
	9290	3158	QBBL17L4			
	9296	0193	QBBL16L4			
	9312	2107	QBBL16L4			
	9328	2097	QBBLA16L4			
	9343	1237	QBBL16L4			
	9350	0235	QBBL15L4			
	9366	2072	QBBLB15L4			
	9381	2053	QBBLA15L4			
	9397	3396	QBBL15L4			
	9403	0194	QBBL14L4			
	9419	2199	QBBLB14L4			
	9435	1079	QBBLA14L4			
	9450	3119	QBBL14L4			
	9457	0224	QBBL13L4			
	9472	3101	QBBLB13L4			
	9488	2113	QBBLA13L4			
	9504	2120	QBBL13L4			
	9510	0211	QBBL12L4			
	9526	1121	QBBL12L4			
	9542	1071	QBBL11L4			
	9557	1231	QBBL11L4			
	9565					
	9578	0001	QBBL10L4			
	9593	3111	QBBL10L4			
	9609	2081	QBBLA10L4			
	9617	0631	QBBL10L4			
	9632	2121	QBBL10L4			
A	9648	1141	QBBL9L4			
	9657	0631	QBBL9L4			
	9673	3101	QBBLA9L4			
	9689	2111	QBBL9L4			
	9696	0621	QBBL9L4			
	9712	2191	QBBL8L4			
	9728	2051	QBBLA8L4			
	9734	0631	QBBL8L4			
	9868	0634	QBBL5L4			
	8778	2078	QBBLB26L4	3402		
	8793	3402	QBBLA26L4	2119		
	8809	2119	QBBL26L4	0223		
	8815	0223	QBBL25L4	1245	4-I	
	8831	1245	QBBLB25L4	2090		
	8847	2090	QBBLA25L4	3104		
	8862	3104	QBBL25L4	0206		
	8869	0206	QBBL24L4	1131	6-I	
	8885	1131	QBBLB24L4	2125	20-	
	8900	2125	QBBLA24L4	3075	19-I	
	8916	3075	QBBL24L4	0231		
	8922	0231	QBBL23L4	2170	8-I	
	8938	2170	QBBLB23L4	1643		
	8954	1643	QBBLA23L4	1250		
	8969	1250	QBBL23L4	0209		
	8976	0209	QBBL22L4	2105	8-I	
	8281	0227	QBBL33R3	2177	30-Oct-08	
	8297	2177	QBBLA34R3	1100		20/11/2006
	8312	1100	QBBLB34R3	1246		20/11/2006
	8328	1246	QBBL34R3	0202	20-Nov-08	29/03/2007
	8334	0202	QBBL34L4	2121	28-Nov-08	
	8350	2121	QBBLB34L4	1159		16/11/2006
	8366	1159	QBBLA34L4	2112		13/02/2007
	8381	2112	QBBL34L4	0220		15/11/2006
	8388	0220	QBBL33L4	2101	4-Dec-08	
	8403	2101	QBBLB33L4	1183		15/11/2006
	8419	1183	QBBLA33L4	1178		15/11/2006
	8435	1178	QBBL33L4	0207		14/11/2006
	8441	0207	QBBL32L4	2084	4-Dec-08	
	8457	2084	QBBLB32L4	3080		28/03/2007
	8473	3080	QBBLA32L4	1146		14/11/2006
		1146	QBBL32L4	0191		28/03/2007
		0191	QBBL31L4	1081	12-Nov-08	
		1081	QBBLB31L4	2106		13/11/2006
		2106	QBBLA31L4	1249		13/11/2006
		1249	QBBL31L4	0210		13/11/2006
		0210	QBBL30L4	1111	6-Nov-08	
		1111	QBBLB30L4	1065		08/11/2006
		1065	QBBLA30L4	2067		08/11/2006
		2067	QBBL30L4	0222		08/11/2006
		0222	QBBL29L4	1087	4-Dec-08	
		1087	QBBLB29L4	1239		07/11/2006
		1239	QBBLA29L4	3142		07/11/2006
		3142	QBBL29L4	0205		07/11/2006
		0205	QBBL28L4	2104	4-Dec-08	
		2104	QBBLB28L4	3111		05/11/2006
		3111	QBBLA28L4	2086		06/11/2006
		2086	QBBL28L4	0232		22/02/2007
		0232	QBBL27L4	3400	8-Dec-08	
		3400	QBBLB27L4	2070		03/11/2006
		2070	QBBLA27L4	2208		03/11/2006
		2208	QBBL27L4	0201		03/11/2006
		0201	QBBL26L4	2078	12-Nov-08	
		2078	QBBL26L4	2078		

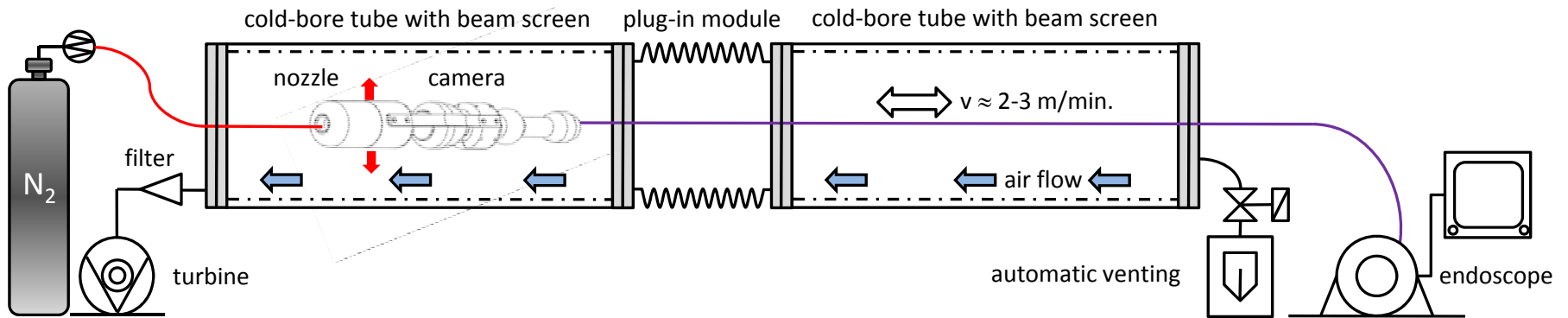
VSC current forecast:  
 free 3-4 PIM pairs/week  
 i.e. 8 weeks from D zone to Point 4  
 i.e. end April

Problem?





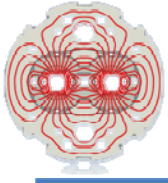
# VSC cleaning of V lines and PIMs



In the absence of any quantitative recommendation from Experts, the VSC proposal is the following:

- 1 fiber max cell
- 2 dusts (MLI or other,  $< 1\text{mm}^2$ ) / magnet

Presented by M. Jimenez



## 6-7

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- W openings started today
- MB2303 (B32R6, 50 nΩ internal splice) will be disconnected, planned by end W11
- replacement MB2441 now at cold testing: will become priority after cold testing, expected ready end W12
- Transport/logistics need to group the two transports
- MB2303 will not be opened immediately but cycled in SM18 after 3-4 magnets