

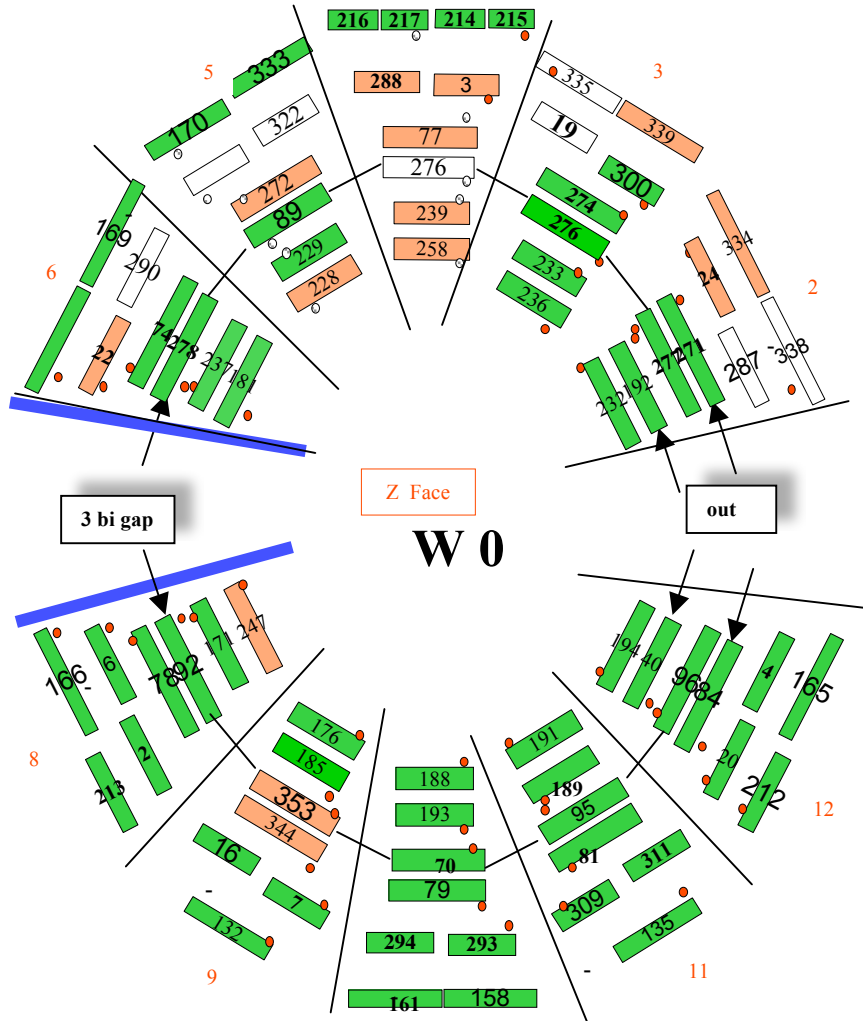


# Readiness for installation W0

CMS RPC  
group

BMU TB  
session;  
presented by  
A. Colaleo

All chambers at ISR are under test or ready for installation



RB3 & RB4 missing chambers are under testing in Bari.

Expected at ISR at the end of September 05

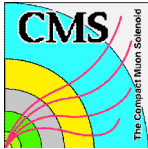
Ready for installation end of October 05

All chambers but sect.4/5 will be installed in Nov-Decemb 05

- Ready at ISR
- id Tested in Italy or under test
- To be built
- Under test at ISR

## Sect 10/11:

6 over 9 stations already coupled and on transportation frame



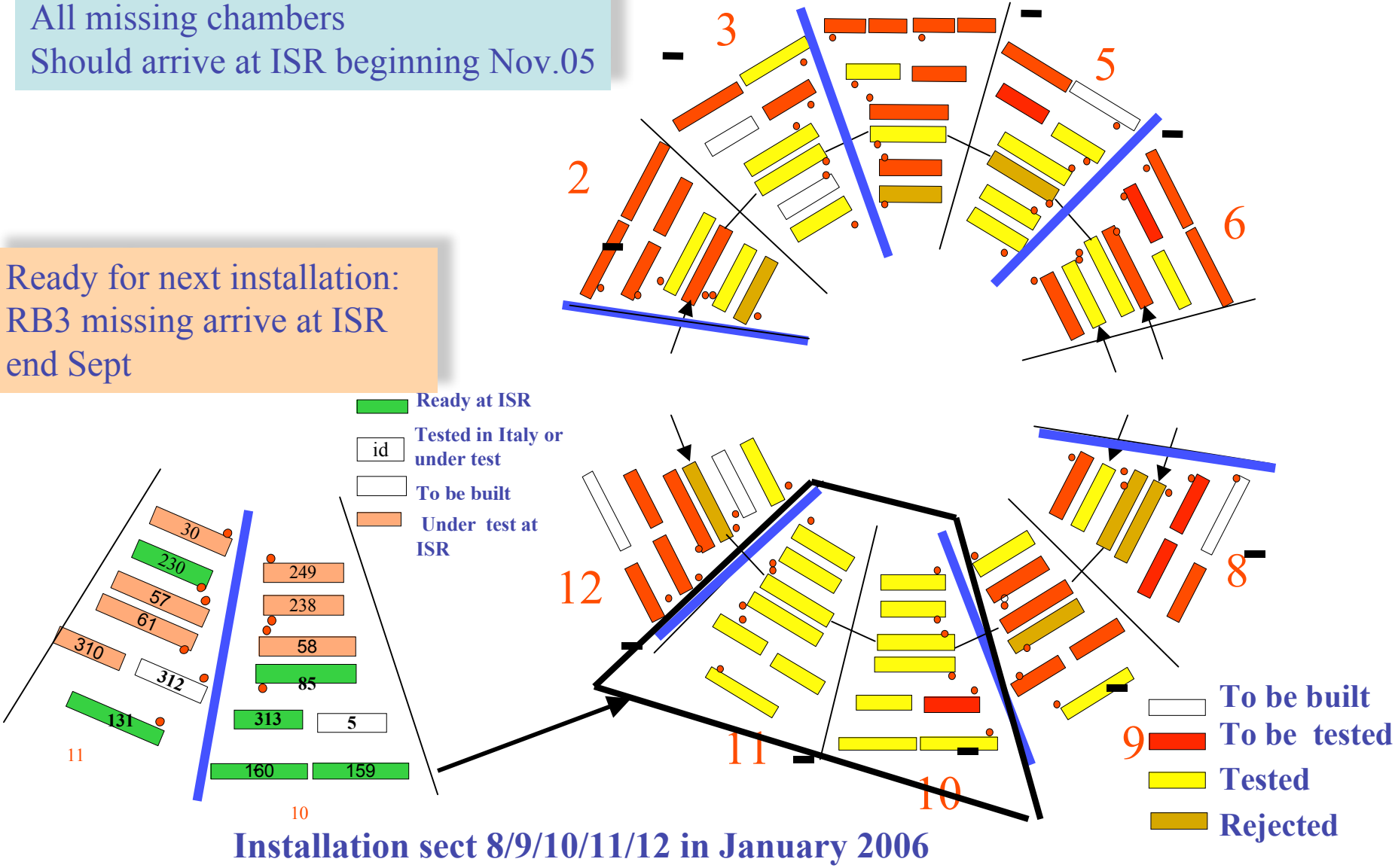
# Readiness for installation W-1

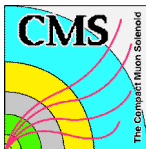
CMS RPC group

All missing chambers  
Should arrive at ISR beginning Nov.05

Ready for next installation:  
RB3 missing arrive at ISR  
end Sept

Production site





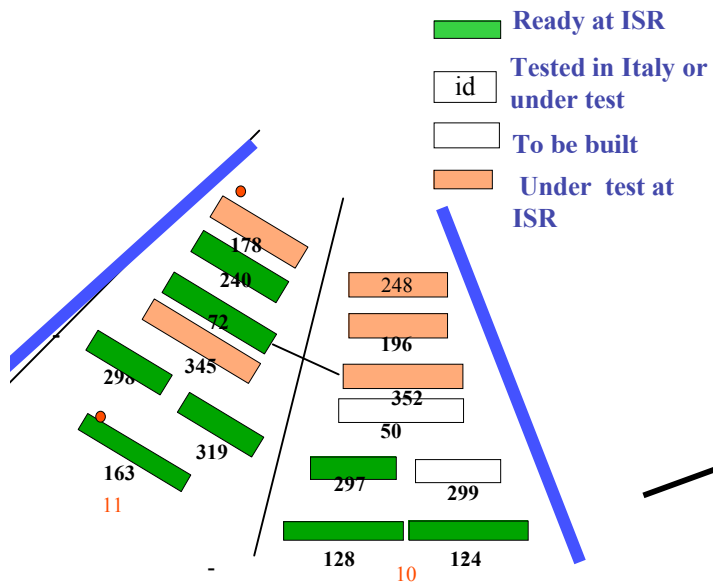
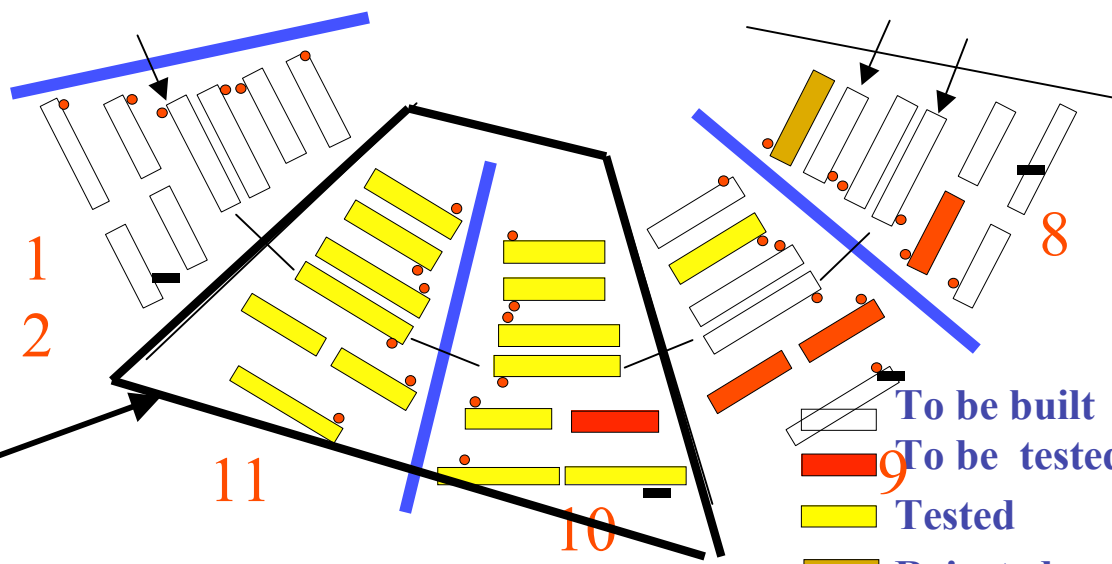
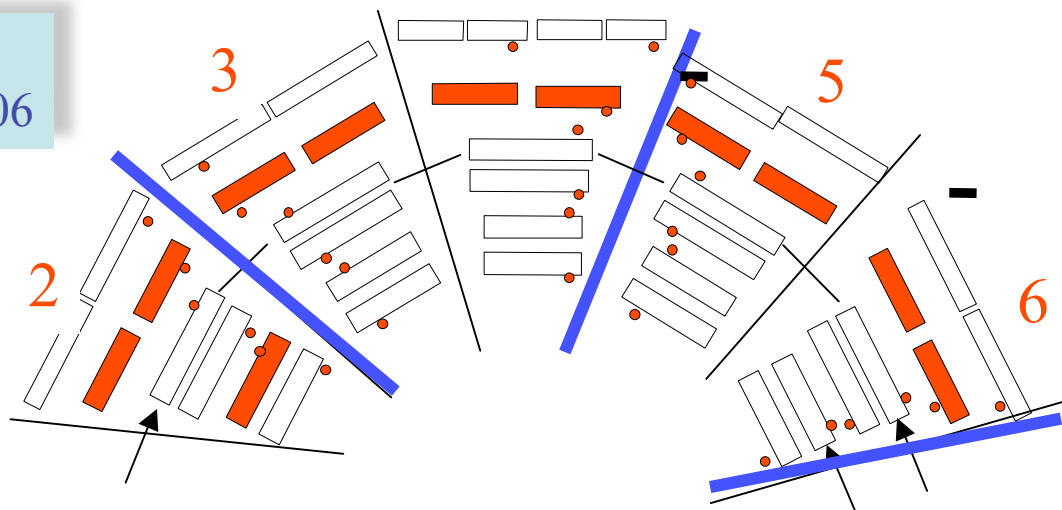
# Readiness for installation W-2

CMS RPC group

All missing chambers  
Should arrive at ISR in Feb-March 06

Ready for next installation:  
RB2 & RB3 missing arrive  
at ISR end Sept.

Production site



- To be built
- To be tested
- Tested
- Rejected

Installation sect 10/11 in January 2006



# Summary of installation plans

CMS RPC  
group

## Installation Technical coordinator requests for next months

## RPC availability

November/ December Y0+ MB1,MB2,MB3 S10, S11, S02,S03,  
S06, MB4 S10  
Y0- MB1,MB2,MB3 S08,S09,S12

Ready in end-October 05

January Y-1 MB1,MB2,MB3 in S10, S11, MB4 S10  
MB2,MB3 in S08,S09,S12  
Y-2 MB1,MB2,MB3 in S10, S11, MB4 S10

Ready in December 05

Ready in end-October 05

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In SX5 still to be installed in 2006

Y0 S04, S05

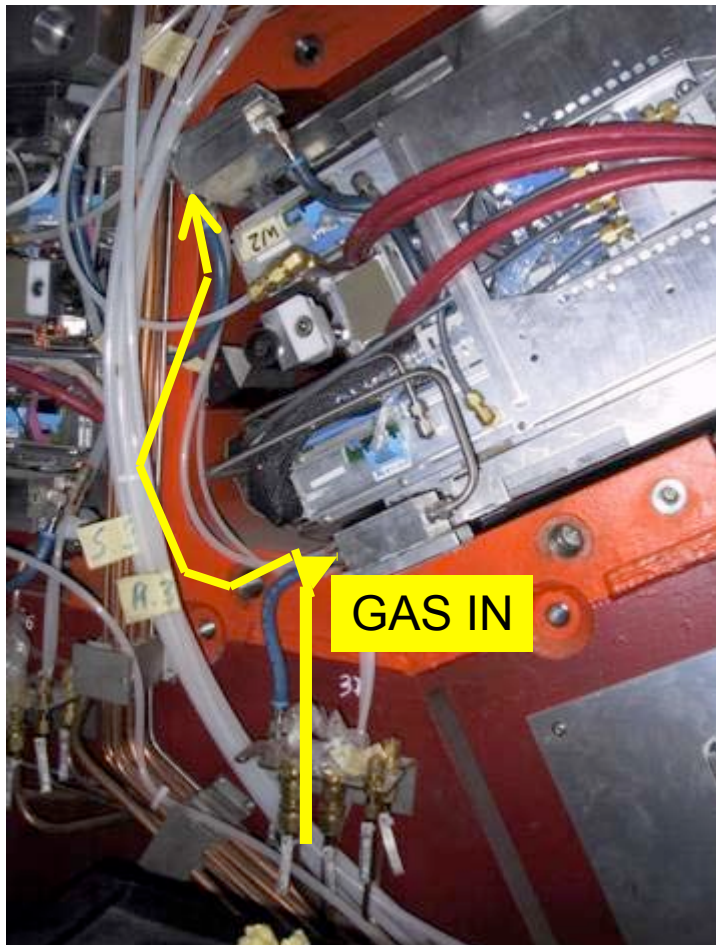
YB-1 Sectors S02,S03,S04,S05,S06

YB-2 Sectors S02,S03,S04,S05,S06,S08,S09,S012

## Additional work on the wheels

### Ground straps insertion:

Two chambers of each station are put to ground on the wheel.  
Done on wheel + 2.



### Gas system test:

- Commissioning the final gas distributor (done on W+2)
- Gas line equalization :  
Each CMS gas line supplies in parallel 2 chambers in same station.  
Very important to equalize the gas flow between the chambers.

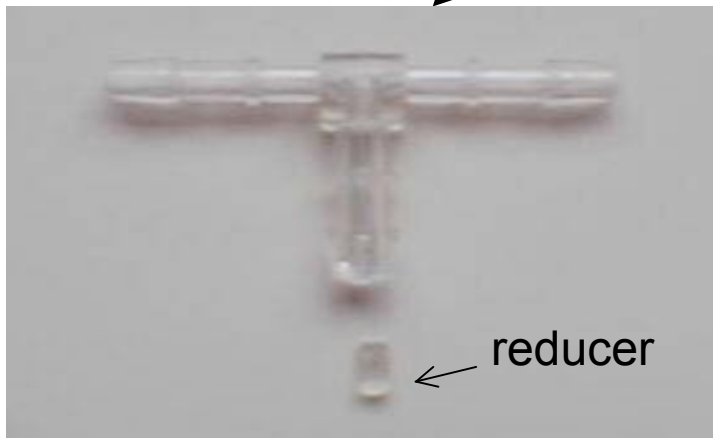
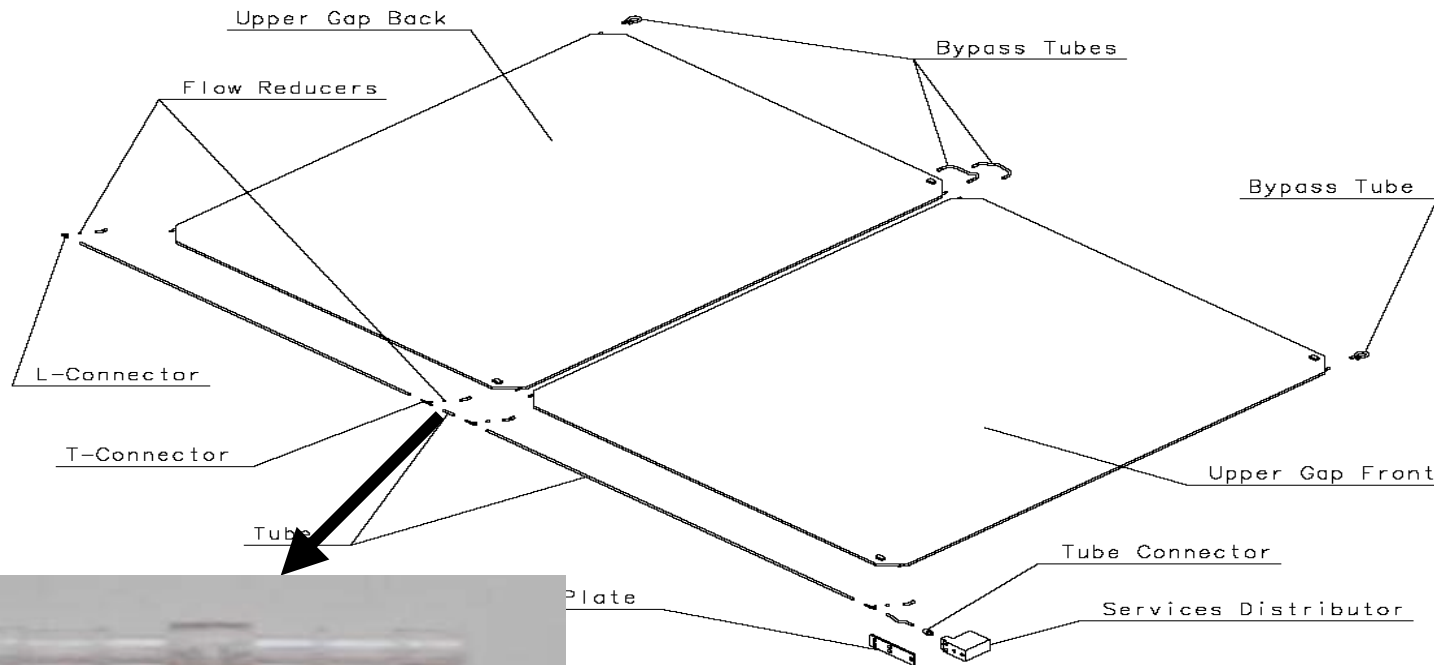
Gas system available starting on end of june 2005.



# Gas flow equalization

CMS RPC  
group

The final CMS gas distributor requires a well controlled input overpressure for each channel  
Inside each chamber to equalize the gas flow between two gaps we use T junctions with flow limiters.  
The overall chamber input impedance depends on the accuracy in flow reducer construction



Since March the flux reducers are realized by stainless steel micro-cylinder.

Input overpressure  $1.5 \text{ mbar} < \Delta P < 2.5 \text{ mbar}@10\text{l/h}$



## Gas connectors replacement

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New flow reducers have been put on all chambers in W0 W-1 W-2 and RB4 W+1

At ISR since 1 June 2005 89 chambers have been opened in order to replace old T's connectors

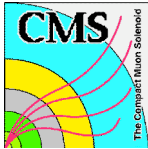
### Chambers undertake further test procedure after the connector replacement:

- Gas Leak test
- Chamber conditioning under HV
- Current stability test: ~5 days @ 9.2 kV



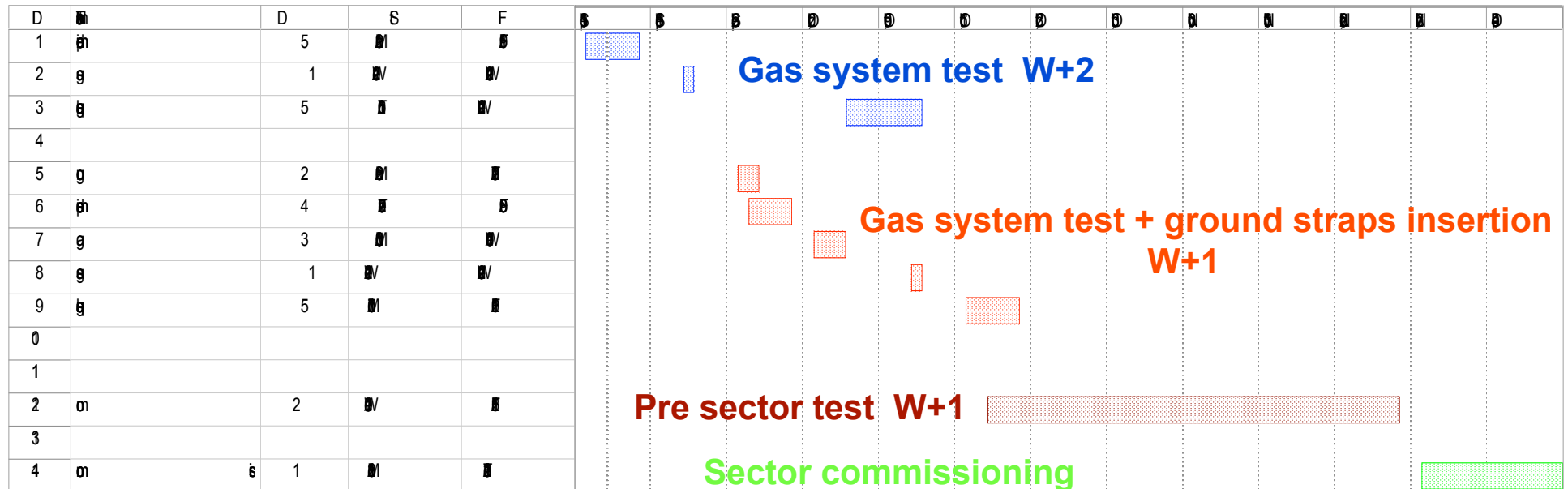
1 week/chamber

Up to now 69 chambers have been tested after T replacement  
2 chambers have been rejected: 1 current problem, 1 gas leak.



# Tests on W+2 & W+1

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group



Pre sector test – test with no final cables and electronics system  
 Sector commissioning – start to test with final component : trigger electronics , HV/LV, DCS , cables and software

Pre-sector test on W+2 too late – final cabling already started.





## Pre-Sector test on W+1 ~30 days

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**Purpose:** check RPC integrity and chamber behavior

Keep the chambers of each single sector at nominal HV for at least 5 days.

Keep one sector (es. Sect 10) at nominal HV for at least 2 weeks

Fast noise rate, strips profile test in a single chamber layer

- 1 SY1527 system crate
- 16 HV channels (3 A1526N modules)
- 8 LV channels (5 A1513B modules)
- Short signal cables and frequency meter for fast check of noise rate profile (1 chamber)
  
- High flux gas system
- LabView based Detector Controls

Setup ready end-september



# Conclusions

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The chamber commissioning at ISR is ongoing.

The change of plastic to stainless steel flow reducers in the gas distribution T-connectors has been done on all chambers in W0/W-1/W-2 and RB4 W+1

- The re-testing of those chambers has introduced some delay in test of chambers and still 20 chambers need to be tested.
- Two chambers have been rejected

156 chambers installed

70 Ready for installation at ISR

Missing chambers to complete W0 and sect 10/11 W-1 W-2 expected at ISR by 28 September.

We will start the commissioning at SX5 on W+1 in middle of October:

1 physicist and 1 technician are scheduled for the commissioning