

Date: April 15, 2004

Subj: APS drawings [25030101-00013](#) PAR flag chamber S-5
[25030101-00030](#) PAR spare chamber SP-5 (spool pc)

Spare status: Spare chamber SP-5: chamber complete, stored at bldg 382;
Not vacuum certified
Request for vacuum certification pending



Fig. 1: Storage location of SP-5 chamber in 382



Fig. 2: Spare chamber SP-5

Further details:

- **General information about flag (fluorescent screen) chamber and spares**

There are six flag (fluorescent screen) chambers installed in PAR. There are installed as parts of the following chambers:

- S-5 (located in two places, one on each equator)
- S-6 (located in one place on extraction side of septum)
- S-6A (located in one place on injection side of septum)
- S-9 (located in two places)

The flags are of critical value during beam startup operations. Dr. M. Borland has stated that at least one of the two S-5 flags must be present at all times. Since there are two S-5 chambers, the spare chamber for S-5 (SP-5) is a section of beamtube only (spool piece).

The flags that are part of the S-6 and S-6A chambers are critical and a spare for each of these two chambers is essential.

The S-9 flags are not critical and are spared by S-3 beamtube chamber which is essentially a spool piece.

- **S-5 Flag Chamber (APS drawing [25030101-00013](#))**

This chamber is installed in PAR in two places. One of these chamber is shown if Fig. 3.



Fig. 3: S-5 flag chamber installed in PAR (left of flange)
(ion pump tube is on side of magnet not shown)

Use spare vacuum chamber SP-5 (APS drawing [25030101-00030](#)) to replace an original S-5 chamber if necessary.