

**Date:** April 15, 2004

**Subj:** APS drawings [25030101-100027](#) PAR flag chamber S-9  
[25030101-00016](#) PAR spare chamber S-3 (spool pc)

**Spare status:** Spare chamber S-3: Cleaned but not leak checked;  
stored at bldg 382;  
request for vacuum certification pending



Fig. 1: Storage location of spare chambers in 382

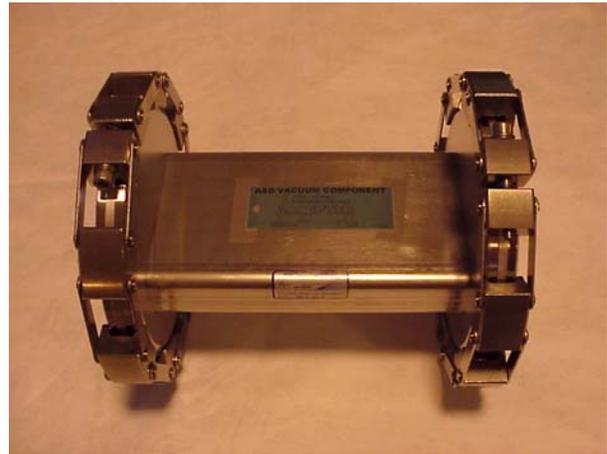


Fig. 2: Spare chamber S-3

#### **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-9 Flag Chamber (APS drawing [25030101-100027](#))**

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



Fig. 3: S-9 flag chamber installed in PAR

Use spare vacuum chamber S-3 (APS drawing [25030101-00016](#)) to replace an original S-9 chamber if necessary.