Minutes of the 4th Meeting on PSB Operation

held on 5th August 1972


* * * *

1. Operation Status

1.1. Injection Line

Problems with the regulation of the vertical septum supply can still cause tripping of ILSV. For the moment this may mean resetting in the BCER.

The polarities of the steering magnets have now been "normalised" so that a tive increment on a horizontal or vertical dipole gives a deflection to the left and a deflection downwards respectively, as seen on the screen of ITV1 and ITV2.

1.2. Main Power Supply

The water flow to the main ring bending magnets should be put on not earlier than 3/4 hr. before the magnet is needed to be pulsed.

1.3. Transfer Line

P. Burla reported that the connections to TDV7, TDV8 and TDH3 have been corrected (subsequent to the run of Friday, 1st September).

1.4. Multipoles

All multipoles with the exception of the 0th harmonic sextupoles and octupoles will be operational for the 11th September. The latter will be available on the 15th October with, however, only up to 100 A until the end of the year.
2. Experience with PSB during August

2.1. Injection Line

Throughout all the runs we have had great difficulty with analogue observation of the beam transformers in the 2nd part of the injection line for 1.6 usec pulses (with the possible exception of TR2). Since there are only 5 channels for observation and 6 transformers available (TR2, TR3, TR4 - 4 levels), one has had to be sacrificed. TR3 seems to have a high frequency oscillation, so the sacrifice has not been hard to bear except that we then have less information on the losses in the line. The signals can be observed in the BCER using an oscilloscope with a differential play-in, but this fact is not sufficient for smooth operation.

The quadrupole supplies for Q7, 8, 9, 10, 11 and 12 also gave rise to difficulties during all runs. Acquisition is not perfect, and difficulties arose with control, particularly for Q7. This latter seems definitely to be a software mistake, calling the parameter when the midiconsole is on AUTO alters the value by 1A!

Some problems have been caused by the application of the setting programme in these parameters which are controlled by stepping motor, and also by an extension of the "save and back" principle to cover the stepping motors.

ILDIS cannot be controlled or its value acquired from the midiconsole.

2.2. Ring

The ring correction dipoles continue to perturb injection. This may be diminishing as the control and acquisition of these elements are gradually being finished off.

The last noteworthy occurrence was on Thursday 31st August; at 18.30 the beam circulated in all 4 levels after preliminary adjustment. Fine adjustment then was made for rings 4 and 3, but it was then noticed that ring 2 no longer circulated. Fortunately an attempt was made using the setting programme to put the ring dipole to zero - and once done, the beam again circulated in ring 2. Hence between 18.30 and 19.00 some person unknown had put a dipole on. Such conduct is inexcusable and could jeopardize an important run. If it is needed to have more time for the dipoles, please ask for time to be set aside outside RIC runs.
2.3. **Vacuum**

In general, the vacuum gives very little trouble - apart from on Tuesday 29th August, when some pumps had been left on bake-out instead of switching off this condition the previous night. We lost the whole run because of this reason. However, by the next day, the vacuum was normal. So, in future, the vacuum must be checked out the day before a run - even if it is a Sunday.

2.4. **TV**

A power supply failed on the evening of Wednesday 30th August. Although the power supply for the injection line TV's was substituted it was still very difficult to proceed and the evening's beam tests on the transfer line were abandoned.

2.5. **Water-drains**

Due to two blocked drains, a flood occurred in the ring during the night of Wednesday/Thursday 30th/31st August. Largely due to the intensive efforts of many PSB people and the pompiers/cleaners etc., the RIC run No. 38 took place on time.

The cooling water temperature for the RF tuning supplies has sometimes risen too high. This meant a close watch to prevent damage. An interlock has now been put into service and should prevent damage.

2.6. **Transfer line stability**

Shifts in position of 2 cms have been reported for the beam at T-TV5. Careful investigation is needed to find the cause and seek a remedy. The temperature of the BHP is generally too high and may contribute to this phenomena. ΔT's of 20°C have been observed.

It is suggested that at least while Phillipe is away, someone else from MPS/CO group is available for control/acquisition problems on the transfer line.

2.7. **Runs for the PS**

Two successful injection have been carried out of 5 branches from level 3 into the PS ring. The last trial was highly satisfactory and 3 x 10⁹ protons circulated in the PS for about 7 msecs.
3. **Programme for September/October**

There are only three runs - two of five days and one of six days - the last day of the last run being an "option" for a PS/MD run.

Equipment specialists are strongly recommended to make requests for partial test sessions as was the case for August/September. Unscheduled tests are strongly deprecated. A programme for the first run is already established. People are requested to contact the EIC's on the day for further information.

A special alteration in the routine is a daily check of the ring before 09.00 by (for the first week) Messrs. Derosiaux and von Arx.

4. **Any other business**

4.1. By the end of this month, surveillance and some control equipment will be installed in MR4 - R. Gailloud.

4.2. The next meeting will be on Tuesday 3rd October at 09.00, in the MCR large conference room. All interested are invited to attend - even if by error their names are unwittingly omitted from the invitation list.

F.H. James

---

**Distribution**

List MPS/SI-4
**PSB PROGRAMME**

**PROVISIONAL!**
Subject to confirmation on Friday preceding each week specified.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
<th>SUNDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>4.9</td>
<td>5.9</td>
<td>6.9</td>
<td>7.9</td>
<td>8.9</td>
<td>9.9</td>
<td>10.9</td>
</tr>
<tr>
<td></td>
<td>18.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PS START**

<table>
<thead>
<tr>
<th>WEEK</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
<th>SUNDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>11.9</td>
<td>12.9</td>
<td>13.9</td>
<td>14.9</td>
<td>15.9</td>
<td>16.9</td>
<td>17.9</td>
</tr>
<tr>
<td></td>
<td>11.00</td>
<td>24.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>07:30</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEEK</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
<th>SUNDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>18.9</td>
<td>19.9</td>
<td>20.9</td>
<td>21.9</td>
<td>22.9</td>
<td>23.9</td>
<td>24.9</td>
</tr>
<tr>
<td></td>
<td>11.00</td>
<td>24.00</td>
<td></td>
<td></td>
<td></td>
<td>07:30</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEEK</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
<th>SUNDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>25.9</td>
<td>26.9</td>
<td>27.9</td>
<td>28.9</td>
<td>29.9</td>
<td>30.9</td>
<td>01.10</td>
</tr>
<tr>
<td></td>
<td>11.00</td>
<td>24.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEEK</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
<th>SUNDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>2.10</td>
<td>3.10</td>
<td>4.10</td>
<td>5.10</td>
<td>6.10</td>
<td>7.10</td>
<td>8.10</td>
</tr>
<tr>
<td></td>
<td>07:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

- Free access to ring
- Activity cool down
- Tests without beam
- Beam injection line
- Beam in ring

**Controlled access only**

When only injection studies are being made and when power consumption limitations are enforced, the PSB main magnet may be run on a reduced cycle. But with the normal repetition rate.

Distrib.: MFS/SI-4

**Issued by:** F. JAMES

**Date:** 1.9.1972.