Technical Support Group

1. Introduction

The Technical Support Group was organized in October 1997 for the purpose of designing machines and electronic circuits, and aligning the equipment at the beginning. In addition, this group maintains the Stockroom, Stock corners, Cold machine shop, Liquid nitrogen corners and Chemistry preparation rooms, and also works to train the BL technical staffs, more than ten of whom now have been assigned new tasks at job sites.

The activities of this group are briefly described in this article and will be reported in detail in the next article.

2. Electrical and Electronics

The electrical and electronics support team works for all departments of the SPring-8, for support and to consult for (a) the development of electronics equipment, (b) the repair of electronics equipment. Also, some electric parts are stored in case of urgent requests by in-house staff or users.

While performing the above task, we have supported the development of certain novel equipment, collaborated with the control group, front-end (FE) group, insertion device (ID) group, beamline (BL) group, detector group and accelerator department. Some of the jobs we have collaborated on are shown below.

- *Beamline LATCH BOX [1]: for BL, control and accelerator
- *XBPM signal processing [2] equipment: for FE and control
- *Beam Position Calculator (BPC) for XBPM of FE and PSIC [3] of BL
- *Beam Position Alarm (BPA) [4] for ID and control
- *GAP alarm (GAPA) [5] for ID and control
- *Synchronous beam diagnostic system using PHS [6] for FE, ID and accelerator * now applying for patents.

Moreover, we have supported the development of equipment for each BL and other machines; for example, log amplifier, capacitance meter, high voltage battery box, heat load shutter timer system [7], I/V amp for thin foil I0 monitor [8], VME interface box and display unit for DC septum magnet.

The workshop, which has been formally opened since April 1999, is located in the storage ring building, where some measuring tools and electric parts are stored for the use of in-house staff.

Contact persons:
T. Kudo (PHS 3815)
K. Sato (PHS 3879)

Fig. 1. Electrical & Electronics Working Room

3. Chemistry Preparation Room

The Chemistry Preparation Room, which is located at the D-zone in the storage ring building, has been available to in-house staff and users for sample preparation with chemicals since November 1998. Users, wishing to avail theirselves of the room, should register with the Users Office ten days in advance by E-mail. The room is open from 9:00 to 17:00 and detailed information can be obtained from the SPring-8 Web site (http://haruya.spring8.or.jp/ CAD/chemlab/ chemlab.html). The following equipment is available to users.

[List of Equipment]

Draft chamber, Experimental table, Sinks, Balance table, Exhaust gas scrubber, Air compressor, Electronic precision balance, Electronic balance, Drying oven, Vacuum oven, Oil rotary vacuum pump, Refrigerator, Ice maker, Rotary evaporator, Circulating liquid cooling system, Hot stirrer, Mixer, Pure water apparatuses, Ultrapure water apparatuses, pH meter, Ultrasonic cleaner, Electric furnace, Aspirator, Circulating water bath, Vacuum sealer, Vacuum desiccator, Auto dry desiccator, Glove box

Fig. 2. Chemistry Preparation Room

Contact persons:
S. Yokota (PHS 3912)
Y. Nishimoto (PHS 3446)

4. Machine Shops

Two types of machine shops are available to users. The Hot machine shop, which was opened on April 1994, is located at the A-zone in the storage ring building and the radiation controlled area. The Cold machine shop shown in Fig.3, which was opened on April 1998, is located at the accelerator and beamline R&D Facility. Users with their ID cards can gain access to the Cold machine shop. Some kind of metal materials are stored in both machine shops and are freely available for users.

In order to make use of these machine shops, it is necessary to undergo safety training for machine operation. This training will be held once a month.

Fig. 3. Cold Machine Shop

Contact persons:
N. Azumi (PHS 3424)
K. Nakashima (PHS 3421)
S. Indo (PHS 3510)

5. CAD Room

After dedicating the SPring-8 to public use, each CAD system that had been maintained by the SPring-8 project team (JAERI and RIKEN) was transferred to the Technical Support Group. All the drawing sheets transferred were converted to IBM CADAM data format in the first year to make them compatible with the JASRI CAD system and establish compatibility as a whole.

The CAD Room is responsible for in-house staff and users for the maintenance of the CAD system, machine designing, storage/distribution of drawings and CAD training courses as follows:

a) Designing of machine parts and devices according to the requests from each group in the SPring-8.

b) Control, operation, maintenance and backup of the CAD system that includes the ME10 on the HP workstation, MCADAM and AutoCAD system on the IBM PC and MiniCAD system on the Macintosh PC, and daily backup of the computer system.

c) Converting the CAD data into both ways by using the DXF and IGES converter.

Fig. 4. CAD Design & Drawing

Contact persons:
S. Wu (PHS 3426)
T. Shimizu (PHS 3930)
N. Hu (PHS 3437)

6. Stockroom & Liquid Nitrogen Corner

6.1 Stockroom

Spare parts and tools are stored in the Stockroom and Stock corners, which were opened on October 1998 and which are available to users and in-house staff for the maintenance of the accelerator and beamlines in the SPring-8.

The Stockroom is located at room D-25 in the storage ring building, is open during working hours (9:00 to 17:30) and is maintained by the staff member in charge but closed all other times except working hours. So users should gain access to the room with their ID card and register with the Stock Database Management System (SDMS) except during working hours if they take some items out of the room. Anyone can do a simple job with a soldering iron and so forth to make electric power cables, communication cables (BNC cables, LAN cables, RS232 cables and so on).

The unmanned Stock corners are located at A-25, B-16 and C-09 rooms in the storage ring building and access can be gained by users with an ID card at any

Fig. 5. Stockroom

time.

The SDMS, which was developed by the Technical Support Group, includes [Entering Management], [Stocking Management], [Stocking out Management], [Lending Tools Management] and users can take some in-stock items out of the Stockroom and the Stock corners, registering with the SDMS.

6.2 Liquid Nitrogen Corner [9]

Five Liquid nitrogen corners, which were opened on April 1998, are located every 300 meters along the perimeter of the SR Experiment Hall and the 120-liter standard liquid nitrogen tanks are available to users. Users should finish the "Safety Instruction Course" [10], which is held by the authorized instructor of the JASRI Safety Office according to their application for use, at any time during working hours before using liquid nitrogen in the Liquid nitrogen corners.

Fig. 6. Liquid Nitrogen Corner

Contact persons:
T. Maeno (PHS 3420)
T. Shimizu (PHS 3930)
S. Wu (PHS 3426)

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