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SLC Control Program

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HOLY COW!! A New COW

August 13, 1990

Author: *T. Himel, M. Glaviano* **Subsystem:** *Operators console* **User Impact:** *Medium*
Panel Changes: *None* **Documents:** *No* **Help File:** *None*

A new cow has been installed in the control room. It is called COW10. Its hardware is different from the old COWs, but the user interface is basically the same. The hardware consists of an Ann Arbor terminal and two VAXstation 2000's. We expect in the future to replace the VAXstations with Xwindows terminals which will have larger screens. The software uses the Xwindows standard, so a wide variety of manufacturers' hardware can be used to run it.

To use the new COW, simply log on to the Ann Arbor terminal (you can use the new COW10 account or any other account).

```
$ SCP 10
```

When the touch panel display comes up, use the track ball to select a button and then press the leftmost button on the track ball. After that it works just like any other COW with a few exceptions.

1. Blinking bars on the touch panel which are usually used to let you know that you are being prompted for input are displayed in red and do not blink.
2. The SDS displays now use reverse video instead of blinking to indicate new problems on both the old and new cows.
3. Knobs are not supported yet.
4. After you click the track-ball, the cursor is changed to a watch to indicate that the SCP is busy. When the SCP actually starts processing the button you have pressed, it is highlighted with a green square around it. When the SCP is all done, the highlight is removed and the cursor changes back to an arrow.
5. While the SCP is busy (and the cursor is displayed as a watch), you can click on another button. Only one such click is remembered and it is the last one you did. This is slightly different than on the old COWs which remember one button push and it is the first one you did.
6. The middle button on the track ball presently does nothing. Later it will be used for knobs.

7. The right button on the track ball gives a short cut for hitting the RETURN or INDEX buttons. When you click the right button the cursor will move to the RETURN button unless it is already on the RETURN button in which case you will be taken to the index panel. The net result of this is that if you click on the right button twice you are taken to the INDEX panel and if you click on the right and then the left button you return to the previous panel. All of this happens without moving the trackball! In a future release this type of control will be extended. These two buttons will be used for entering zeros and ones. By entering the ASCII code for "jump", the COW will jump over the moon. Actually, this procedure has not been fully specified yet. Would Morse code be better?

Wire Scan Software Modifications

August 15, 1990

Author: *Hendrickson, Sanchez* **Subsystem:** *Accelerator* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *No* **Help File:** *No*

Several modifications have been recently made to the wire scan software.

1. When a wire scan is performed, BPM data is taken for a list of BPM units for each scan point. This data is used to normalize wire scan data to the beam intensity. In previous version of the software, the first BPM measured was used for normalization, and if this BPM did not read out reasonably, data fitting was not performed and the scan failed. In the new software, data for two BPM units is checked, and the unit which has the "best" data is used for normalization. This should decrease the number of failed wire scans.
2. It is now possible to save the user-selected scan ranges into the database. When the one selects the [SAVE SCAN RANGES] button from the scan options panel, the user-selected scan ranges for the currently selected micro are saved into the WIRE or BSCN primary of the database. These database ranges are the default scan ranges for any new SCP which performs scans in the same micro. Any existing SCPs may be updated to use the database default scan ranges for the current micro by selecting the [REINIT SCAN RANGES] button on the scan options panel. When the user selects the [REINIT DB VALUES] button on the scan options panel, the scan ranges and all other database values are updated for both wire and beam scans in all micros.
3. A count of successful wire scans is maintained in the database. Each time a wire scan is successfully performed, the NSCN secondary in the WIRE primary for the associated micro and unit is incremented. This is expected to be used in evaluating wire scanner hardware problems.
4. The wire emittance calculation in correlation plots (PHYS primary) has been modified to work correctly when one of the four associated wires is offline. Previously, the emittance calculation worked from the wire scan panel with only three wires, but the correlation plots calculation did not complete.

5. Modifications to wire emittance scans have reduced conflicts between wire scanners in the same micro. Previously, problems occurred because the previous scanner was still returning to PARK when the next scan began. In the new software, multiple wire scans are performed by scanning downstream units first. In addition, when scanning a downstream wire (or the same wire twice in a row), the software waits until the previous wire has finished moving before beginning the scan. These modifications apply to scans from the wire panels and from correlation plots scans.
6. Operator control of the plane to calculate for emittance has been added. It is controlled by [TOGGLE EMIT PLANE] on the relevant panels which can be cycled through `X ONLY`, `Y ONLY`, or `BOTH`. It will then scan and calculate only for the chosen plane(s), performing the correct park look-aheads.
7. The maximum number of retries permitted for each scan has been put under operator control via the [NUMBER OF RETRYS] button on the SCAN OPTIONS PANEL. This number affects both the emittance and skew measurement software.

Energy Fast Feedback Enhancement

August 12, 1990

Author: *Nan Phinney* **Subsystem:** *Linac* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *No* **Help File:** *None*

The Fast Feedback which stabilizes the energy of the beams at the end of the Linac measures the energy of both the electron and positron beams. In normal operation, it then uses phase shifters in sector 27 and 28 to correct the energy of the electron beam. The software has been upgraded to allow the feedback to be switched to controlling the energy of the positron beam rather than the electron beam. The controlled beam may be switched by changing the CTRLBEAM parameter on the feedback scratch panel for the NARCENGY loop. This is not intended to be used during normal running but is available for special experiments.

Sector 29 Collimator Multiknobs Panel

August 6. 1990

Author: *Glenn HortonSmith* **Subsystem:** *LINAC* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *No* **Help File:** *No*

Multiknobs now exist for moving the sector 29 collimators. They can be found on a new panel available from the sector 29 collimator panel. There are knobs for changing the spacing or position of each pair of jaws.

There is also a new "ALLCOLL" multiknob which widens all jaws in sectors 28 through 30. It is available on a button from both the sector 29 and the sector 30 collimator multiknob panels.

PEP Reference Orbits Available from Difference Orbits Panel

August 6, 1990

Author: *Glenn HortonSmith* **Subsystem:** *NIT/SIT* **User Impact:** *Small*
Panel Changes: *Few* **Documents:** *No* **Help File:** *Yes*

The Operator Difference Orbit panel has been expanded to include PEP NIT and SIT difference orbits. This will eventually be made obsolete by an upcoming generalized gold orbit facility, but for now, gold reference orbits may be obtained from the DIFF ORBIT panel, which is reachable from the Operator Maintenance index.

Feedback TMIT Calculation Fixed

August 15, 1990

Author: *Ed Miller* **Subsystem:** *SLC* **User Impact:** *Small*
Panel Changes: *None* **Documents:** *No* **Help File:** *None*

An egregious error in the calculation of average TMITs from a set of BPMs has been reported, investigated, and corrected. The most obvious manifestation of this error was that Slow Feedback loops which were known to have no beam were recording substantial TMIT values. A less obvious manifestation was misreporting of the TMIT values for some loops which did have beam. The misreporting could result in values which were either too high or too low, and could vary from measurement to measurement in a capricious (but not really random) way. This software bug, which has been present back to the beginning of recorded history, is no longer with us.