Location in Technical Support Project Area
of Analyzed Mole Data for SSC Model Dipoles

TS-SSC 91-114
Steve Delchamps
10-June-91

For some time, I have been accumulating warm mole data for SSC model dipoles in a set of subdirectories on in the project area TS_SSC_PRJ. To access these areas, you must first

```
$ ACCESS TS_SSC_PRJ
```

This command defines a set of three logicals which are useful in using the project area. In particular, the directory

TS_SSC_PRJ$HROOT:[HARMONICS], there is a subdirectory MOLE.DIR, in which all of the warm mole data is maintained.

In TS_SSC_PRJ$HROOT:[HARMONICS.MOLE] there are subdirectories named after each magnet. In each such subdirectory, the analyzed harmonics for the magnet as a collared coil, a yoked magnet before cold-testing, and as a yoked magnet after cold-testing are kept in the TOPDRAWER files

COLLAR.TOP	collared coil harmonics
YOKPRE.TOP	yoked, prior to cold-testing
YOKPOS.TOP	yoked, after cold-testing

For magnets such as DSA322 which were moled as collared coils several times, there are subdirectories with dates in the main magnet subdirectory corresponding to different collaring conditions.

The .TOP files each contain several plots. The warm harmonics averaged over the length of the magnet (actually, only positions between -.25 and +.25 meters are included) can be found in the last two plots in each file. The earlier plots are the normal and skew harmonics as a function of longitudinal position.

There are in general also plots of the x and y centering corrections, and of the dipole field angle.

Appendix I. A Bit About How the .TOP Files Were Generated

The files COLLAR.TOP, YOKPRE.TOP, and YOKPOS.TOP were generated with the programs MULTI_PROCESS.EXE and MULTI_PLOT_SHORT.EXE (code found in TS_SSC_PRJ$HROOT:[HARMONICS.MOLE.PROGRAMS].)

In TS_SSC_PRJ$HROOT:[HARMONICS.MOLE] there are three .COM files PROCESS_DSO.COM, PROCESS_DSA.COM, and PROCESS_DCO.COM, which can be used to generate TOPDRAWER output from the data files COLLAR.DAT, YOKPRE.DAT, and YOKPOS.DAT. These .DAT files are slightly modified copies of the files brought over to the VAX from the Hewlett-Packard computer by the READMOLE program**.

The .DAT file contain paired +10 Amps and -10 Amps harmonics records from the mole. The program MULTI_PROCESS first makes a centering correction for each record based on the 18-pole feed-down (for DSA series) or the 22-pole feed-down (DSO and DCO series.) Next, the harmonics are determined for +10 A and -10 A separately. Finally, the +10 and -10 A data are averaged to eliminate the effect of stray fields (earth's magnetic field or remnant fields.)

The version of MULTI_PROCESS used to create the .TOP files so far is an older version, and Joe DiMarco is helping me upgrade the software to the current version.

If you study the .COM files you will see that several parameter files are required by the programs MULTI_PROCESS and MULTI_PLOT. These parameter files contain information such as how the centering correction is to be done if at all, the magnet center position, and the list of plots which are to be produced. The parameter files are in the subdirectory PARAMETER.DIR of TS_SSC_PRJ$HROOT:[HARMONICS.MOLE].

* The original vax versions of the files brought over by READMOLE are kept in the directory MDTF01::SSC$ROOT:[SSC], and have names like DSA324_001.READMOLE, where 001 means the second file made (000 is the first.)

Distribution:

G. DiMarco
R. Hanft
W. Koska
M. Lamm
J. Strait
M. Wake