NMR APPLICATIONS NOTE NUMBER 7

$T_1$ Program/II Applications

1. Whenever the T1 program is started typing RUN T1PRGM, it loads T1EXEC, T1CONS and FPP72. The current positions of the other 4 modules are then written into T1EXEC for its use. In order for the program to save the current values of constants for use during later runs, the command MO re-writes the files T1EXEC and T1CONS onto disk before jumping to the monitor.

The following crash condition can be produced by inexperienced users. If the T1 program has been running and the user finishes and types MO, the correct values of T1EXEC and T1CONS are written onto disk. The current T1EXEC remains in memory while the monitor is running since the DEMON monitor swaps out only the area from 3000-7577. However, if an inexperienced user then starts the program at address Ø using the Start button, the T1EXEC module will begin functioning and will appear at first to be running normally.

Should this user begin to examine constants, however, he will find that all of them contain nonsense since the T1CONS module is not in memory. Seeing the, he should STOP the computer and restart at 7600 to call DEMON. If he instead types MO, the T1EXEC module, which will assume that it has been loaded properly, will write the T1EXEC and T1CONS modules onto disk from the memory locations that they should occupy and will thus destroy the correct T1CONS and write rubbish in its place. This cannot easily be corrected without reloading the T1 tape, as not all of these values are Teletype accessible.

The above software "failure" is in reality a user error which only reemphasizes the general rule given in the DEMON manual that no program should ever be started from the start button or switch register when DEMON is present: They should all be RUN from the monitor.

2. In order to make changes in the T1 PROGRAM/II, it is convenient to use Nicobug/II relocated to data memory at 114700. There is a typographical error in the Demon/II manual for this process. The correct method is given below.

    a) Place the Nicobug/II tape in the tape reader
       BIN
       restart at 7600 when tape stops
       STORE NICBUG  4000-5777;4700
       LOAD NICBUG  114000
       STORE HINBUG 114000-115777;114700

3. Several people have expressed an interest in modification of Demon/II that will print out the number of tracks remaining without listing the directory. The method shown here also combines adjacent (EMPTY)'s. It changes the EXPUNGE command to perform this function.

       LOAD SYSGEN
       RUN HINBUG
       5523/2162000    5000
       G
       Depress Continue and press Execute

The disk will be re-initialized such that the EXPunge command will no longer expunge files but will pack adjacent empties and print out the total number of tracks left.

4. The LED count up to 1000000 x n for each spectrum can be a time waster. It chan be removed by changing locations 2072 and 2123 of the TICALC module to 5000 as shown:

```
LOAD TICLEC
RUN HINBUG
2123/2000127    5000
2072/2000127    5000
7600G
STORE TICLEC    2000-5637:P
DELETE: Y
RUN T1PRGM
```

5. An error has been found in the TR command in NIC-27-40513 and 40509 which can be repaired by changing location 3162 of T1PROC to 3001236 as follows

```
LOAD T1PROC
RUN HINBUG
3162/3001344    3001236
7600G
STORE T1PROC    2000-5637:P
DELETE: Y
```

6. The MV and AT commands work correctly only if the DF region is displayed during their operation. This has been corrected in NIC-27-40605.

7. The F1 and F2 subcommands of CU print out the wrong intensities in NIC-27-40509. This can be corrected by changing location 3265 of T1PLOT to 3711221.

```
LOAD T1PLOT
RUN HINBUG
3265/3711221
7600G
STORE T1PLOT    2000-5637:P
DELETE: Y
```

8. The following versions of T1 PROGRAM/II are officially released:

| Serial No. | Date | Internal Version No. | Changes |
|---|---|---|---|
| NIC-27-40327 | 3/27/74 | 175 | |
| NIC-27-40509 | 5/ 9/74 | 179 | WP fixed |
| NIC-27-40605 | 6/ 5/74 | 182 | CU-F1, F2<br>AT, MV<br>TR<br>CX |
| NIC-27-40823 | 7/23/74 | 185 | PP, XP, CO |