Save SYMASS Symbols

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Create Symbol Table Files Accessible From The BASIC Editor

SYMASS 3.1 Assembler Notes

SYMASS 3.1 has a few features not mentioned in last issue's article.

1. Binary numbers can be used with the % prefix.

2. The offending line is listed when an error condition occurs.

3. All instructions like 'lda 0,y', which have no zero page mode, are assumed to be absolute.

SYMASS 3.1 has two bugs, one which prevents using the opcode TXS. At the beginning of the source code NOPS should equal 56, not 55, to let the last op in the table be recognized. Also, the high byte of an addition isn't stored to memory, only the low one, so values greater than 255 won't work. The fix is easy enough:

Load in SYMASS 3.1, and type:

```
poke 3304, 56
poke 2965, 234
poke 5057, 50
```

Save the updated version as SYMASS 3.12.

All programmers should be aware that 'def' is not only a BASIC token, but also a valid hexadecimal number. SYMASS will give an illegal quantity error, but unfortunately, PAL will quietly assemble the wrong value. Instead of $def use $dee+1, or use $dee0+10 instead of $def0 when using either assembler.

SSS or Save SYMASS Symbols

Save SYMASS Symbols is a useful utility for machine language programming. It works with SYMASS, the symbolic assembler published last issue in The Transactor, to produce a disk file of a program's symbol table. You can load the file as a normal program, and list it on your screen or printer to help with debugging.

First, obtain a copy of SYMASS, type in the SSS source code, and assemble it. At this point, if you type:

```
sys820 " st.sss
```

. . .a PRG file called "st.sss" will be created on disk containing a list of every symbol and its value. This file starts with:

```
1 memsiz = $37
2 symptr = $52
3 symend = $57
```

When developing a large ML program, a symbol table will help you find unique names for routines and variables. SYMASS does NOT check for redefinition, allowing you to have multiple entries in the table under the same name. Use SSS to make sure you don't have that problem.

Since the symbol table is in program format, it can be modified using delete and renumber commands, such as the ones in TransBASIC's Prg Management module. Merge together a number of Kernal routines you use regularly, and you can merge their definitions into your new programs with TransBASIC's USE command.

Editor's Note

The SYMASS Assembler is available on Transactor Disk 12. For the most part, it is PAL compatible, except for some of PAL's more exotic features. Otherwise, SYMASS can be used to assemble virtually any machine language program published in The Transactor. The original source code is also on Disk 12 so you can see just how an assembler works. For a complete description of SYMASS, see Volume 7, Issue 01, page 69. SYMASS 3.1 is also included on The TransBASIC Disk.