

Section 9: Machine Control Functions

XYBASIC is designed to be especially useful for control applications. The functions described in this section let you examine and control external devices connected to your computer in a particularly simple and straightforward fashion, and to examine and modify specific locations in your computer's memory. When combined with the bit manipulation features discussed in Section 8, these functions let you write easily understood XYBASIC control programs instead of assembly language programs. And by interacting with XYBASIC you can get your control programs running correctly much more quickly.

OUT

An important feature of XYBASIC is the ability to communicate with external devices, i.e. to perform port input and output. The OUT command and the IN function work like the assembly language commands OUT and IN. For instance, to OUTput the value 1 to port 55 you just say

```
OUT 55, 1
```

Either argument can be any formula, but each must evaluate to an 8 bit quantity or else a BY (BYte) error will occur.

Example:

Buck Mulligan works at XYZ Manufacturing Co., which just bought an 8080 to control their widget production. Output port 17 is supposed to control the widget former, which uses a nonstandard connector. Buck uses XYBASIC to help him learn which connector pin corresponds to which bit on the port.

NEW

```
10 INPUT "BIT NUMBER" I
20 OUT 17, SET (0, I)
30 OUT 17, 0
40 GOTO 20
```

After typing RUN, Buck responds to the INPUT prompt at line 10 with a bit number between 0 and 7. XYBASIC then turns the desired bit of output port 17 on and off while Buck checks the connector pins with a probe. After he finds and labels the pin, he types <control-C> and RUN to test another bit.

IN

The IN function allows you to perform port input, the equivalent of an assembly language IN instruction. If you say

```
LET X = IN (10)
```

XYBASIC will find the value on input port 10 when the command is executed and assign it to the variable X. The input port number can be any formula (allowing the program itself to determine which port to read), but it must evaluate to an 8 bit quantity or a BY (BYte) error will occur.

Example:

Harry Matthews is in charge of widget quality control for XYZ