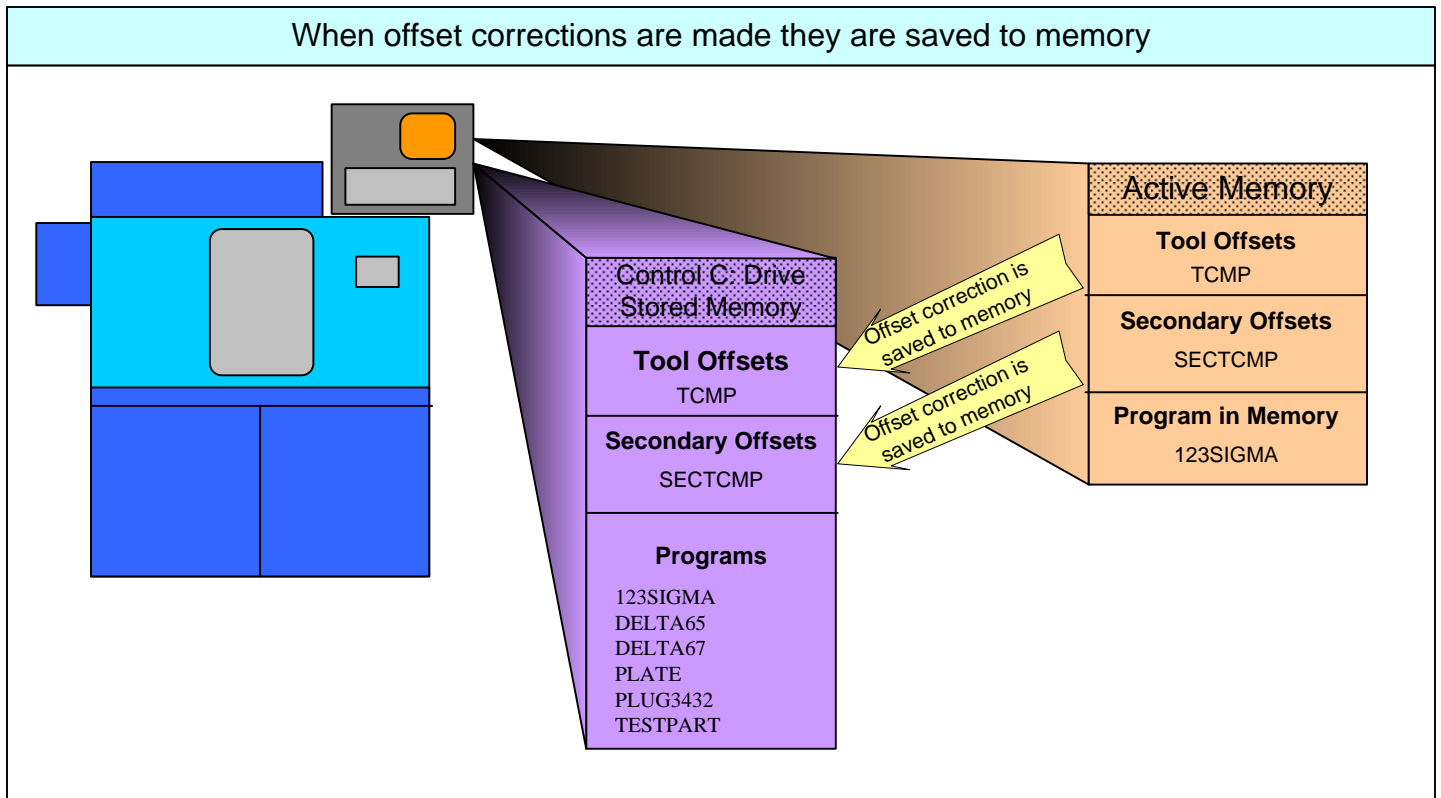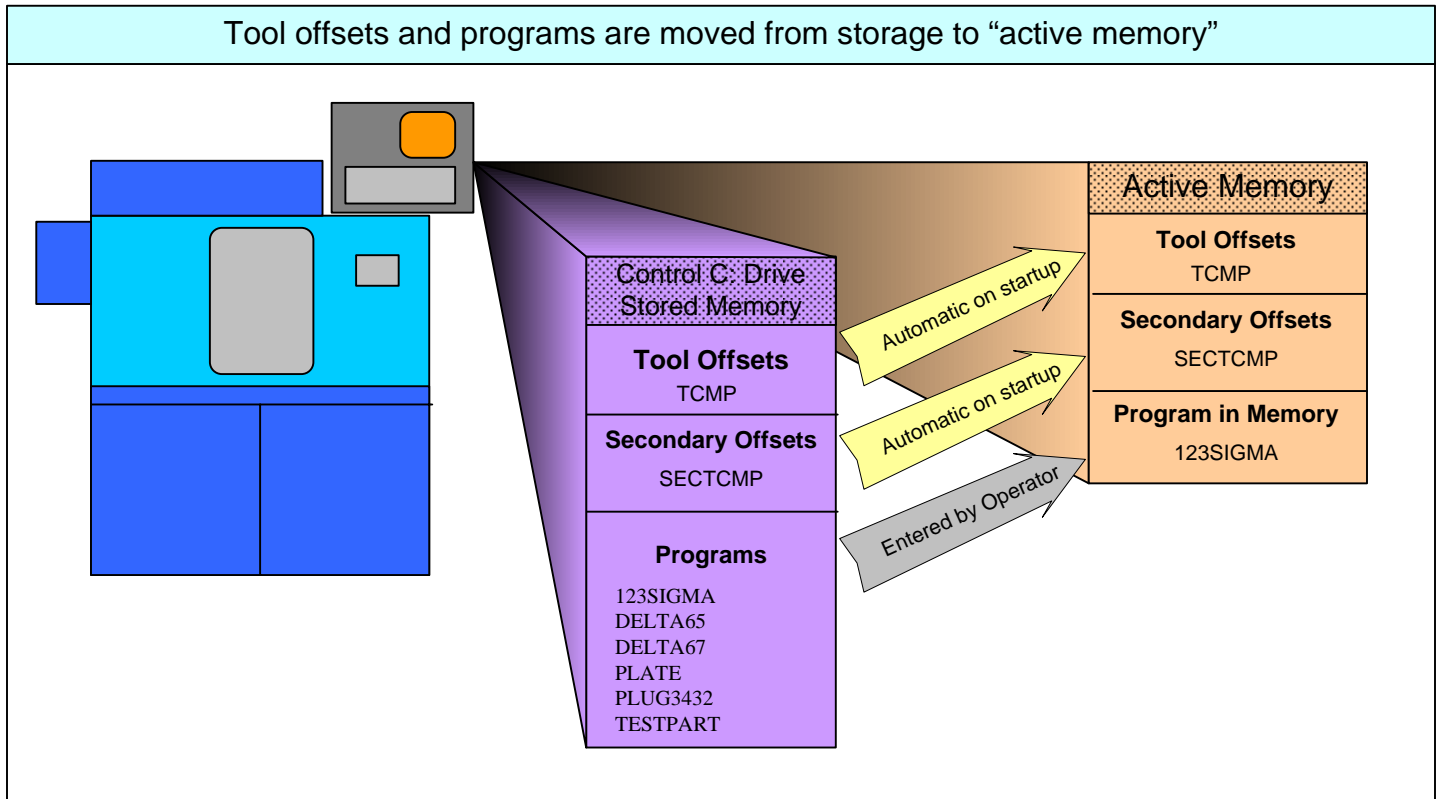# Program and offset storage in an OmniTurn control

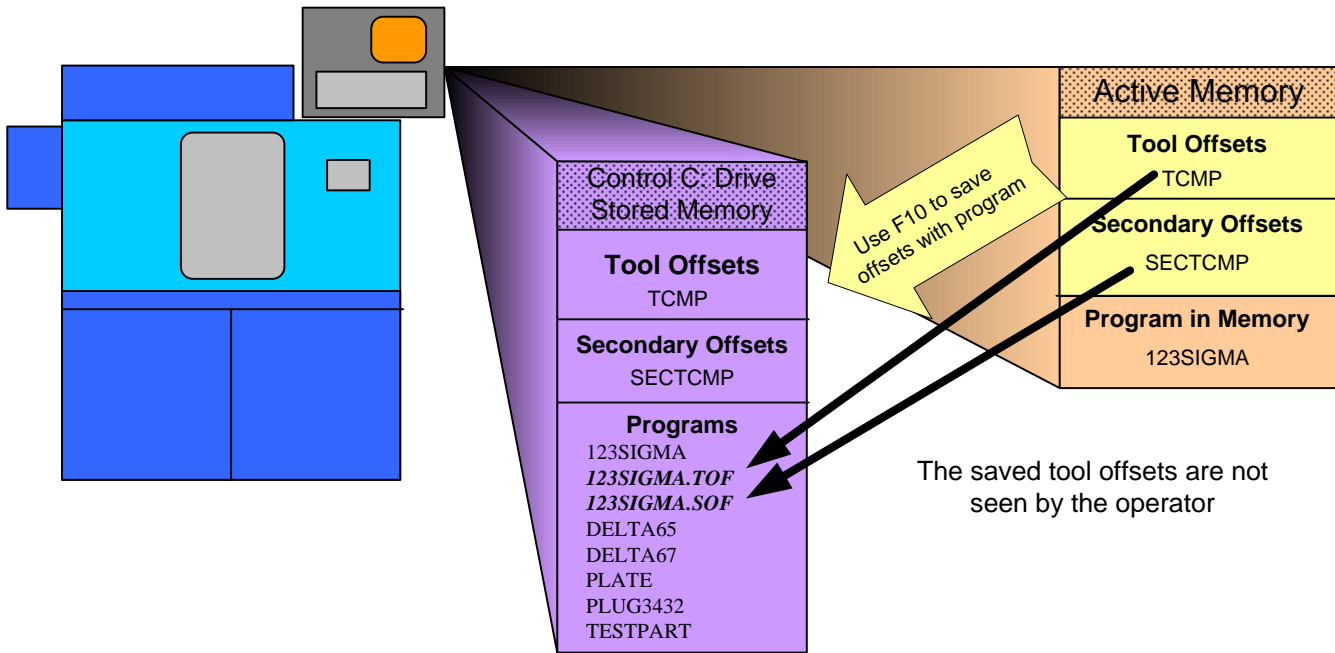Programs are stored on a hard drive in the OmniTurn control

When the control is turned on, the last tool offsets are loaded into memory

- If the last program run will be the current one no changes to the tool offsets are needed.
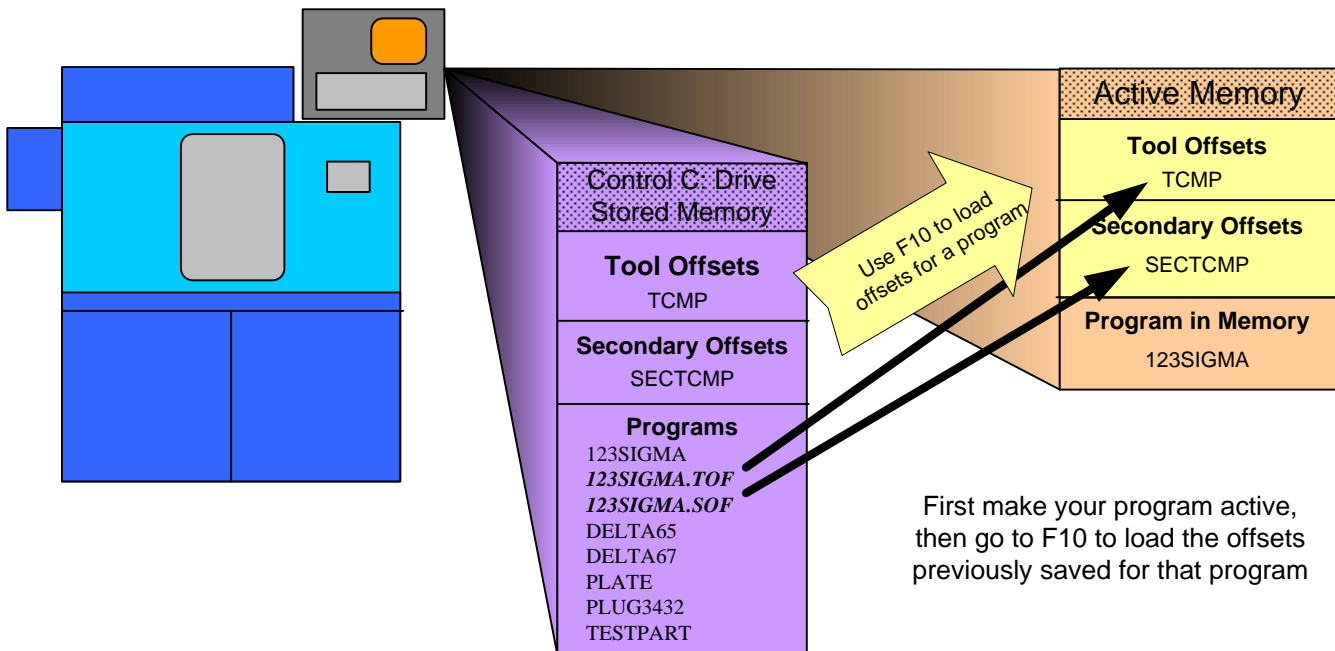
When a program is selected to run, it is moved into active memory

Tool offsets and programs are moved from storage to "active memory"

Control C: Drive Stored Memory

Tool Offsets

TCMP

Secondary Offsets

SECTCMP

Programs

123SIGMA
DELTA65
DELTA67
PLATE
PLUG3432
TESTPART

Automatic on startup

Automatic on startup

Entered by Operator

Active Memory

Tool Offsets

TCMP

Secondary Offsets

SECTCMP

Program in Memory

123SIGMA

When offset corrections are made they are saved to memory

Control C: Drive Stored Memory

Tool Offsets

TCMP

Secondary Offsets

SECTCMP

Programs

123SIGMA
DELTA65
DELTA67
PLATE
PLUG3432
TESTPART

Offset correction is saved to memory

Offset correction is saved to memory

Active Memory

Tool Offsets

TCMP

Secondary Offsets

SECTCMP

Program in Memory

123SIGMA

Saving offsets creates new files on the C: drive with the same name as the active program

Active Memory

Tool Offsets
TCMP

Secondary Offsets
SECTCMP

Program in Memory
123SIGMA

Control C: Drive
Stored Memory

Tool Offsets
TCMP

Secondary Offsets
SECTCMP

Programs
123SIGMA
123SIGMA.TOF
123SIGMA.SOF
DELTA65
DELTA67
PLATE
PLUG3432
TESTPART

Use F10 to save offsets with program

The saved tool offsets are not seen by the operator

Loading offsets copies the program specific offset tables to the active memory

Active Memory

Tool Offsets
TCMP

Secondary Offsets
SECTCMP

Program in Memory
123SIGMA

Control C: Drive
Stored Memory

Tool Offsets
TCMP

Secondary Offsets
SECTCMP

Programs
123SIGMA
123SIGMA.TOF
123SIGMA.SOF
DELTA65
DELTA67
PLATE
PLUG3432
TESTPART

Use F10 to load offsets for a program

First make your program active, then go to F10 to load the offsets previously saved for that program

When OmniTurns are networked, all programs and
saved tool offset files are stored on the network.
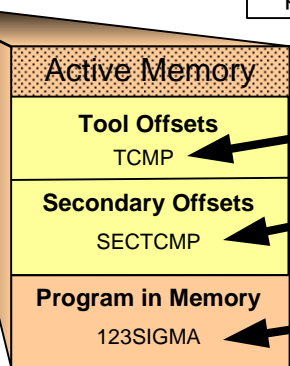Make a directory for each machine networked.

Network "F:" Drive

**Machine A
Directory**

Control C: Drive
Stored Memory

Tool Offsets
TCMP

Secondary Offsets
SECTCMP

Programs
123SIGMA
123SIGMA.TOF
123SIGMA.SOF
DELTA65
DELTA67
PLATE
PLUG3432
TESTPART
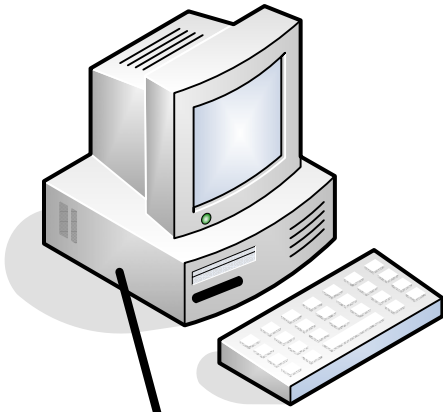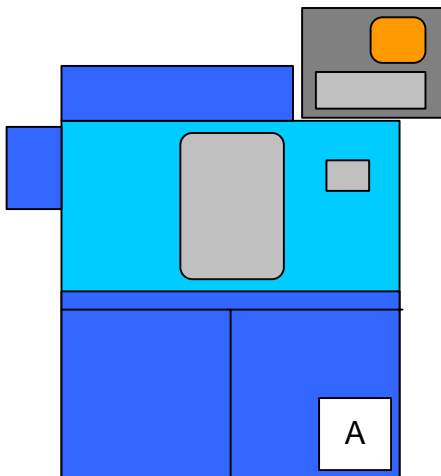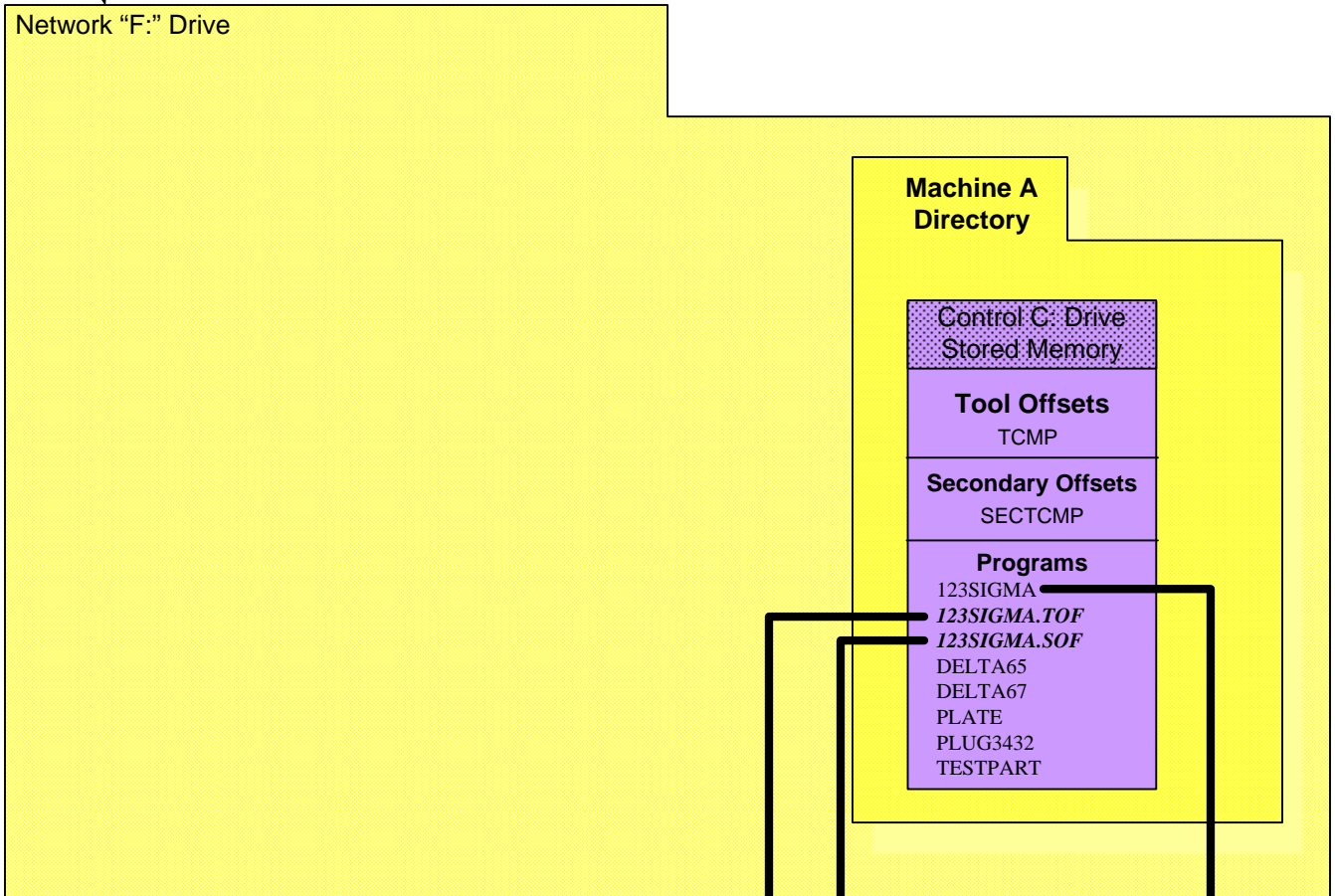
Load using F10
after making
program active

Make program
active 1st.

Active Memory

Tool Offsets
TCMP

Secondary Offsets
SECTCMP

Program in Memory
123SIGMA

A

Program and tool offset storage on networked controls P 3

Networked OmniTurns store their programs and offsets on the network drive. A separate directory for each machine should be created. In general **Do not** have all machines saving to the same directory.

Machines are not identical when it comes to tool offsets! Each machine has its own Home location. Tool offsets can not normally be shared! – For more advanced applications of networking please refer to pages 5 through 9

Network "F:" Drive

Machine C Directory	Machine D Directory
Machine B Directory	Machine E Directory
Machine A Directory	Machine F Directory

A

B

C

F

E

D
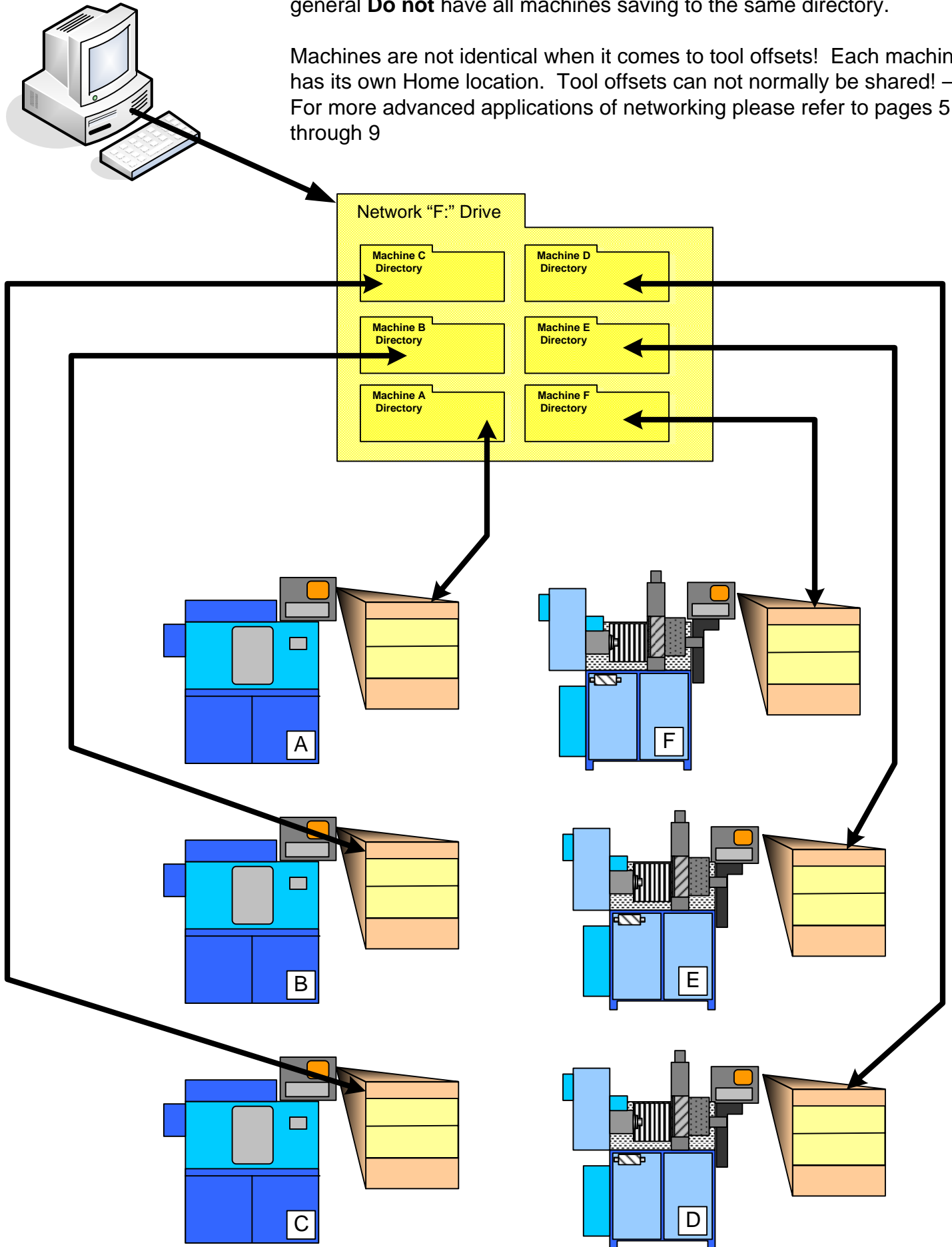
Create a directory for each machine and a "Master" directory. The Master stores all the programs used in the network. When a program is needed for a particular machine it is copied from the master to the machine's directory. This way if changes are made to the program for a particular setup they will not effect the master program. If the changes are important and need to be saved for all future uses of the program it can be copied back to the Master directory.

Each machine can save its own offsets. The offsets are stored to their own directories and will not effect the other machines. For more advanced applications of networking please refer to pages 6 through 10
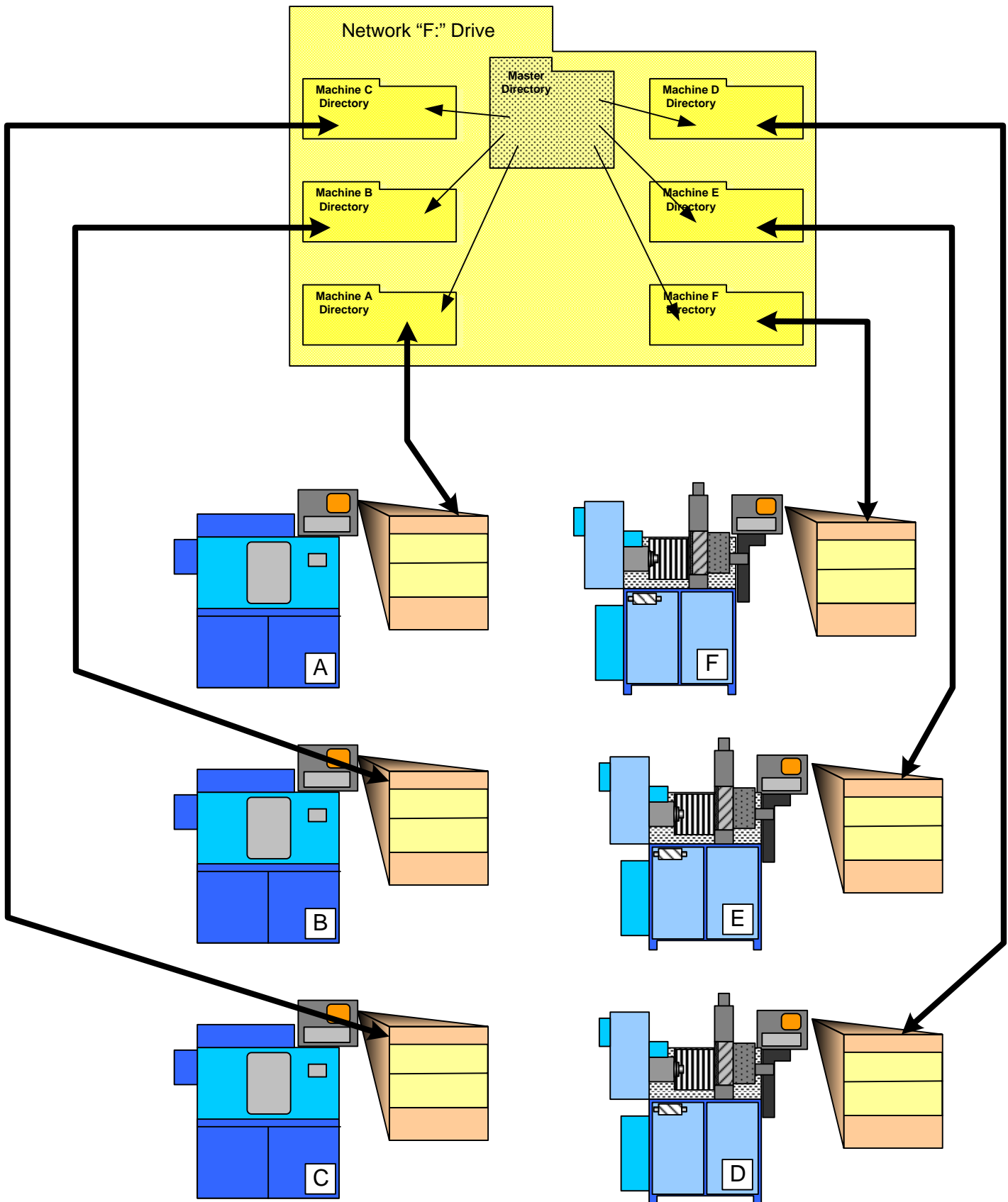
Sharing tooling setups and offsets between machines

In order to make tooling interchangeable between machines there has to be a method for equalizing the differences between machine home locations. Each machine's set of tool offsets will be different.

One way to make the tooling interchangeable is to standardize offsets for one machine (we will call it the A machine) and then have all other machines make corrections compared to this one.

Network "F:" Drive

Other Machines Directory

Machine A Directory

A

B

C

F

E

D
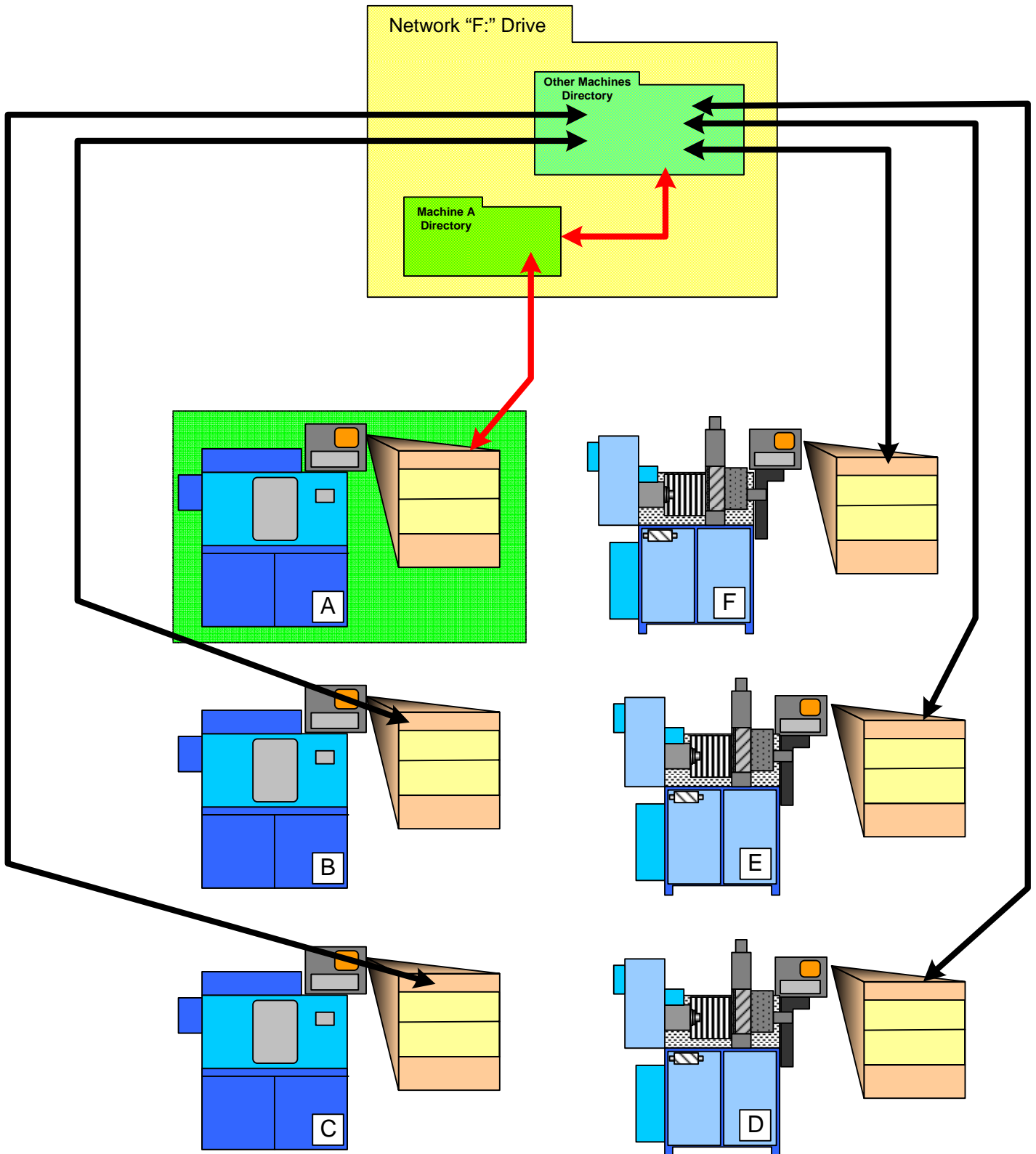
To compare machine offsets and calculate the needed work shift for tool sharing :
1. Use a collet with an internal work stop and make a few blank pins that are the same diameter and length or make a few parts with a shoulder. The end result is that you need a way to qualify the blank in the collet so the Z length is the same in all machines.

2. Use an 800 bar that has a pin to qualify the holder's location in X. Write a simple program that will face and turn the part. Use only one tool. This part is only for comparing machines, no need to be complex
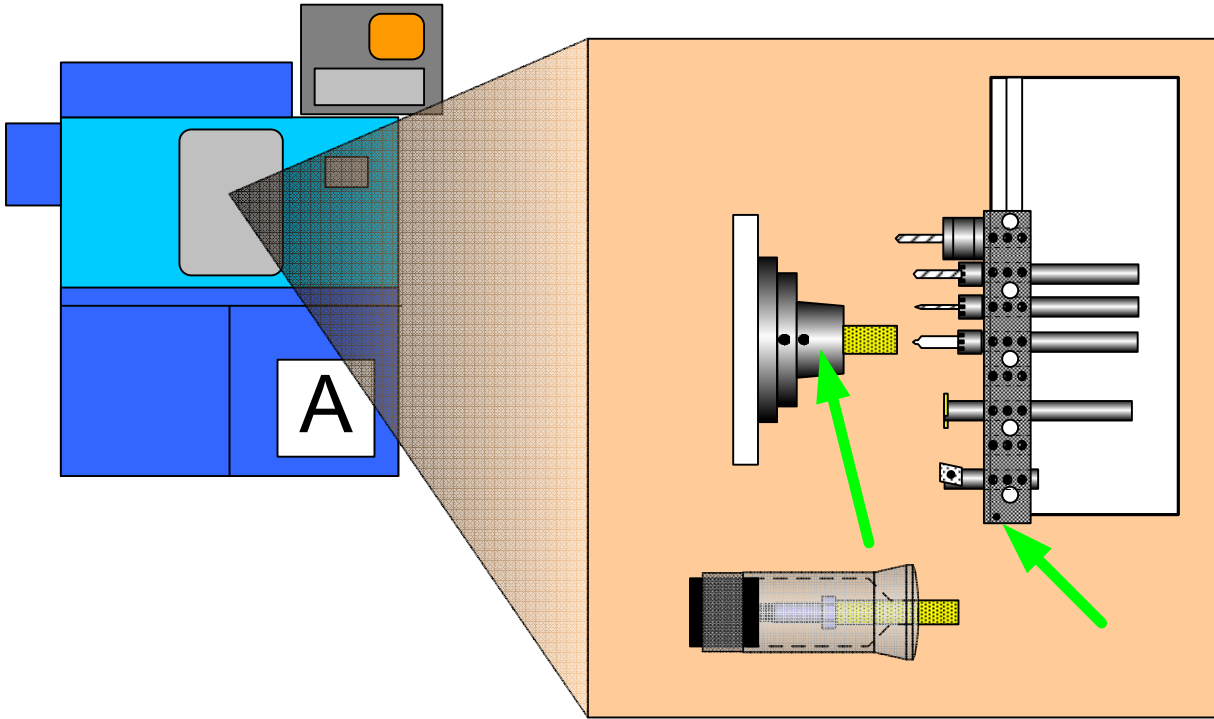
3. After the part has been made on machine A, move the tooling bar, collet with work stop, and new blank part to machine B. Now run the same program on machine B.
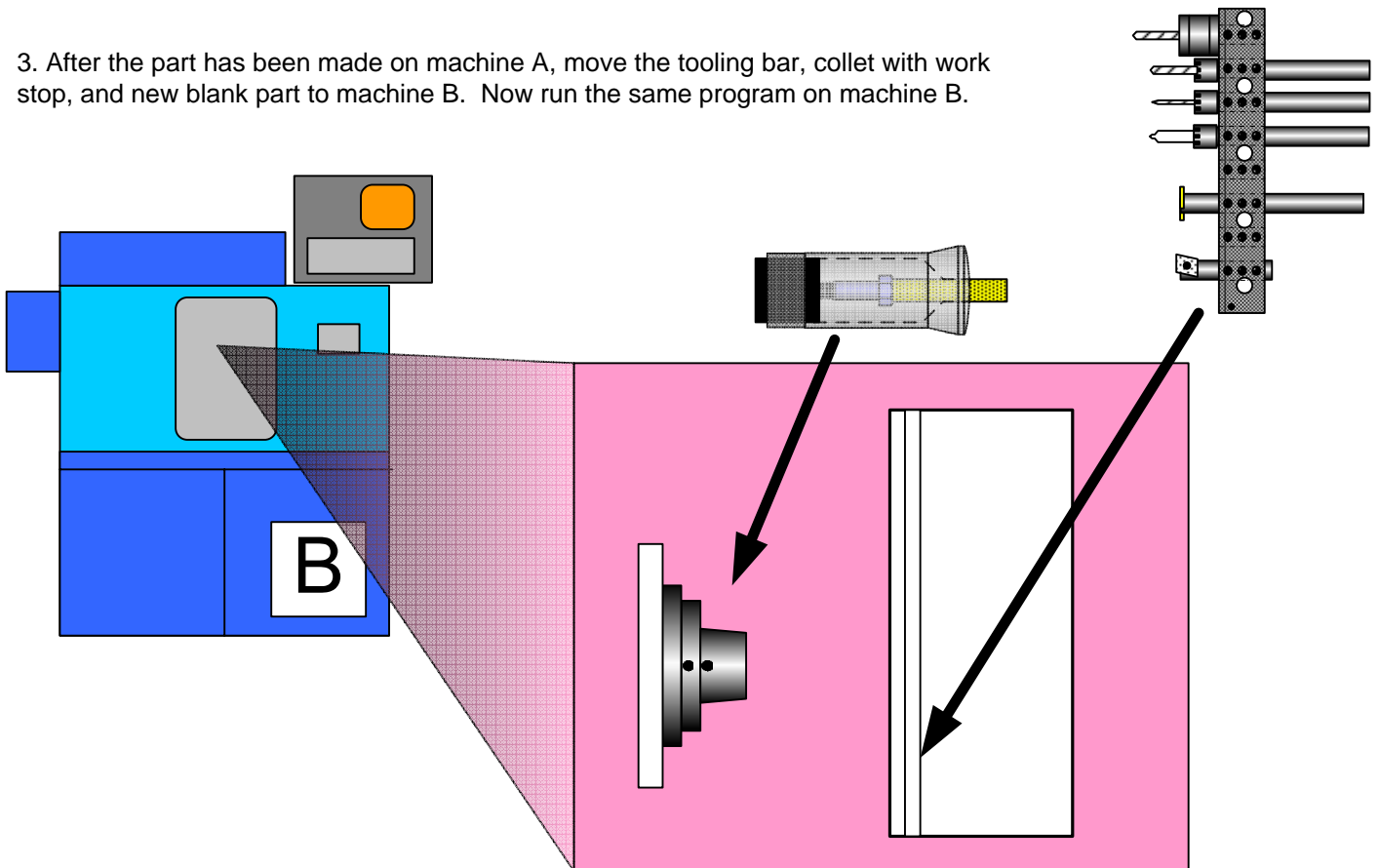
4. After the part has been measured call up the tool offset page my pressing F2 from the automatic mode. In this example we used tool #1 to cut the part.   So write down the offset from home values for tool #1

X: 8.84230   Z: -6.32535

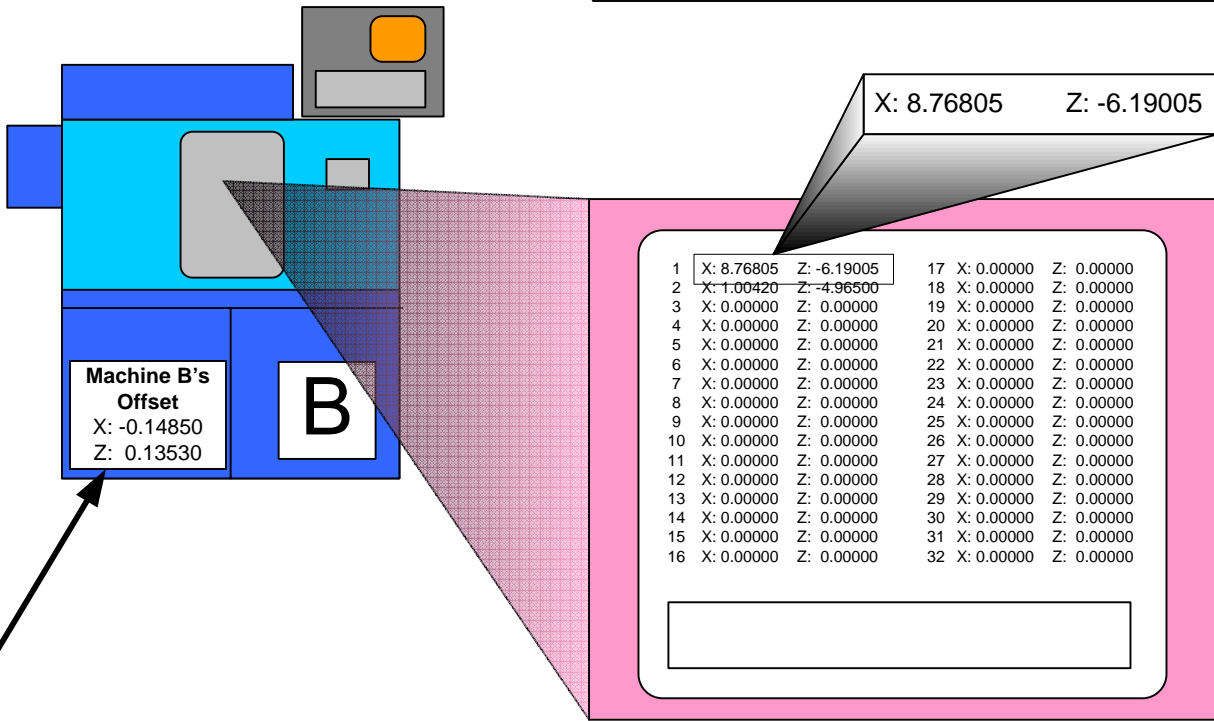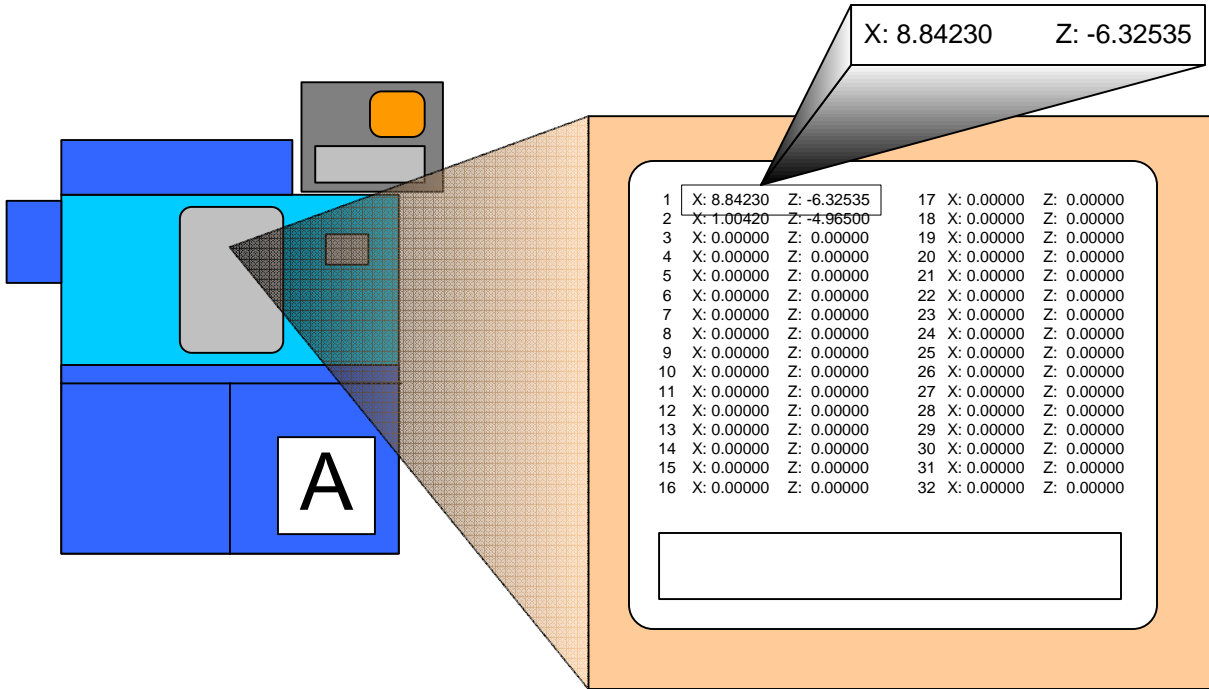| 1	X: 8.84230	Z: -6.32535	17	X: 0.00000	Z: 0.00000
2	X: 1.00420	Z: -4.96500	18	X: 0.00000	Z: 0.00000
3	X: 0.00000	Z: 0.00000	19	X: 0.00000	Z: 0.00000
4	X: 0.00000	Z: 0.00000	20	X: 0.00000	Z: 0.00000
5	X: 0.00000	Z: 0.00000	21	X: 0.00000	Z: 0.00000
6	X: 0.00000	Z: 0.00000	22	X: 0.00000	Z: 0.00000
7	X: 0.00000	Z: 0.00000	23	X: 0.00000	Z: 0.00000
8	X: 0.00000	Z: 0.00000	24	X: 0.00000	Z: 0.00000
9	X: 0.00000	Z: 0.00000	25	X: 0.00000	Z: 0.00000
10	X: 0.00000	Z: 0.00000	26	X: 0.00000	Z: 0.00000
11	X: 0.00000	Z: 0.00000	27	X: 0.00000	Z: 0.00000
12	X: 0.00000	Z: 0.00000	28	X: 0.00000	Z: 0.00000
13	X: 0.00000	Z: 0.00000	29	X: 0.00000	Z: 0.00000
14	X: 0.00000	Z: 0.00000	30	X: 0.00000	Z: 0.00000
15	X: 0.00000	Z: 0.00000	31	X: 0.00000	Z: 0.00000
16	X: 0.00000	Z: 0.00000	32	X: 0.00000	Z: 0.00000

A

X: 8.76805   Z: -6.19005

Machine B's Offset
X: -0.14850
Z: 0.13530

B

1	X: 8.76805	Z: -6.19005	17	X: 0.00000	Z: 0.00000
2	X: 1.00420	Z: -4.96500	18	X: 0.00000	Z: 0.00000
3	X: 0.00000	Z: 0.00000	19	X: 0.00000	Z: 0.00000
4	X: 0.00000	Z: 0.00000	20	X: 0.00000	Z: 0.00000
5	X: 0.00000	Z: 0.00000	21	X: 0.00000	Z: 0.00000
6	X: 0.00000	Z: 0.00000	22	X: 0.00000	Z: 0.00000
7	X: 0.00000	Z: 0.00000	23	X: 0.00000	Z: 0.00000
8	X: 0.00000	Z: 0.00000	24	X: 0.00000	Z: 0.00000
9	X: 0.00000	Z: 0.00000	25	X: 0.00000	Z: 0.00000
10	X: 0.00000	Z: 0.00000	26	X: 0.00000	Z: 0.00000
11	X: 0.00000	Z: 0.00000	27	X: 0.00000	Z: 0.00000
12	X: 0.00000	Z: 0.00000	28	X: 0.00000	Z: 0.00000
13	X: 0.00000	Z: 0.00000	29	X: 0.00000	Z: 0.00000
14	X: 0.00000	Z: 0.00000	30	X: 0.00000	Z: 0.00000
15	X: 0.00000	Z: 0.00000	31	X: 0.00000	Z: 0.00000
16	X: 0.00000	Z: 0.00000	32	X: 0.00000	Z: 0.00000

5. Subtract tool #1 Machine A values from Machine B's. If you are working in G72 – Diameter mode, now double the X values since the values in the offset table are in radius.

The resulting amounts are the G10 work shift values needed to run programs on Machine B with offsets generated on Machine A

When the valued are found write them on the machine so they can be used by the operator to shift the programs

Machine B	X: 8.76805	Z: -6.19005
minus	*minus*	*minus*
Machine A	X: 8.84230	Z: -6.32535
Work shift	X: -0.07425	Z: 0.13530
If working in diameter mode:	*Time 2*	
G10 value for Machine B	X: -0.14850	Z: 0.13530

6. Now if you can run a job on Machine B or Machine C that has been setup on Machine A.
Just add a G10 command at the beginning of the program and enter the Machine's shift value.

Machine B's Offset
X: -0.14850
Z: 0.13530

B

X: -0.14850   Z: 0.13530

Machine B's Offset
X: -0.14850
Z: 0.13530

B

```
G90G72G9      500
G10 X: -0.14850  Z: 0.13530
M03S2000
T1 (LEFT HAND TURN TOOL)
X.5Z.5
Z0
G95F.003X-.02
G00X.45
G95F.004Z-.375
G00X.5
M05
Z2
M30
```

X: -0.29715   Z: 0.68705

Machine C's Offset
X: -0.29715
Z: 0.68705

C

```
G90G72G9      500
G10 X: -0.29715  Z: 0.68705
M03S2000
T1 (LEFT HAND TURN TOOL)
X.5Z.5
Z0
G95F.003X-.02
G00X.45
G95F.004Z-.375
G00X.5
M05
Z2
M30
```

7. Saving offsets from machines other than A.
- Touch off the tools as you normally would
- Add a G10 line and enter the machine's offset values
- Use tool offset correction to bring the part back on size. To do this subtract the values just added to the G10 statement.
- Now when you save the program and tool offsets they will be usable on any machine in the system. The only item to be changed will be the G10 statement to match the machine to be use.

Machine B's Offset
X: -0.14850
Z: 0.13530

X: -0.14850   Z: 0.13530

Machine B's Offset
X: -0.14850
Z: 0.13530

G90G72G9...00
G10 X: -0.14850 Z: 0.13530
M03S2000
T1 (LEFT HAND TURN TOOL)
X.5Z.5
Z0
G95F.003X-.02
G00X.45
G95F.004Z-.375
G00X.5
M05
Z2
M30

Machine B's Offset
X: -0.14850
Z: 0.13530

1	X: 8.76805	Z: -6.19005	17	X: 0.00000	Z: 0.00000
2	X: 1.00420	Z: -4.96500	18	X: 0.00000	Z: 0.00000
3	X: 0.00000	Z: 0.00000	19	X: 0.00000	Z: 0.00000
4	X: 0.00000	Z: 0.00000	20	X: 0.00000	Z: 0.00000
5	X: 0.00000	Z: 0.00000	21	X: 0.00000	Z: 0.00000
6	X: 0.00000	Z: 0.00000	22	X: 0.00000	Z: 0.00000
7	X: 0.00000	Z: 0.00000	23	X: 0.00000	Z: 0.00000
8	X: 0.00000	Z: 0.00000	24	X: 0.00000	Z: 0.00000
9	X: 0.00000	Z: 0.			Z: 0.00000
10	X: 0.00000	Z:			Z: 0.00000
11	X: 0.00000	Z:			Z: 0.00000
12	X: 0.00000	Z:			Z: 0.00000
13	X: 0.00000	Z:			Z: 0.00000
14	X: 0.00000				Z: 0.00000
15	X: 0.00000				Z: 0.00000
16	X: 0.0000			...000	Z: 0.00000

Shift tool #1
X = .1485
Z = -.1353