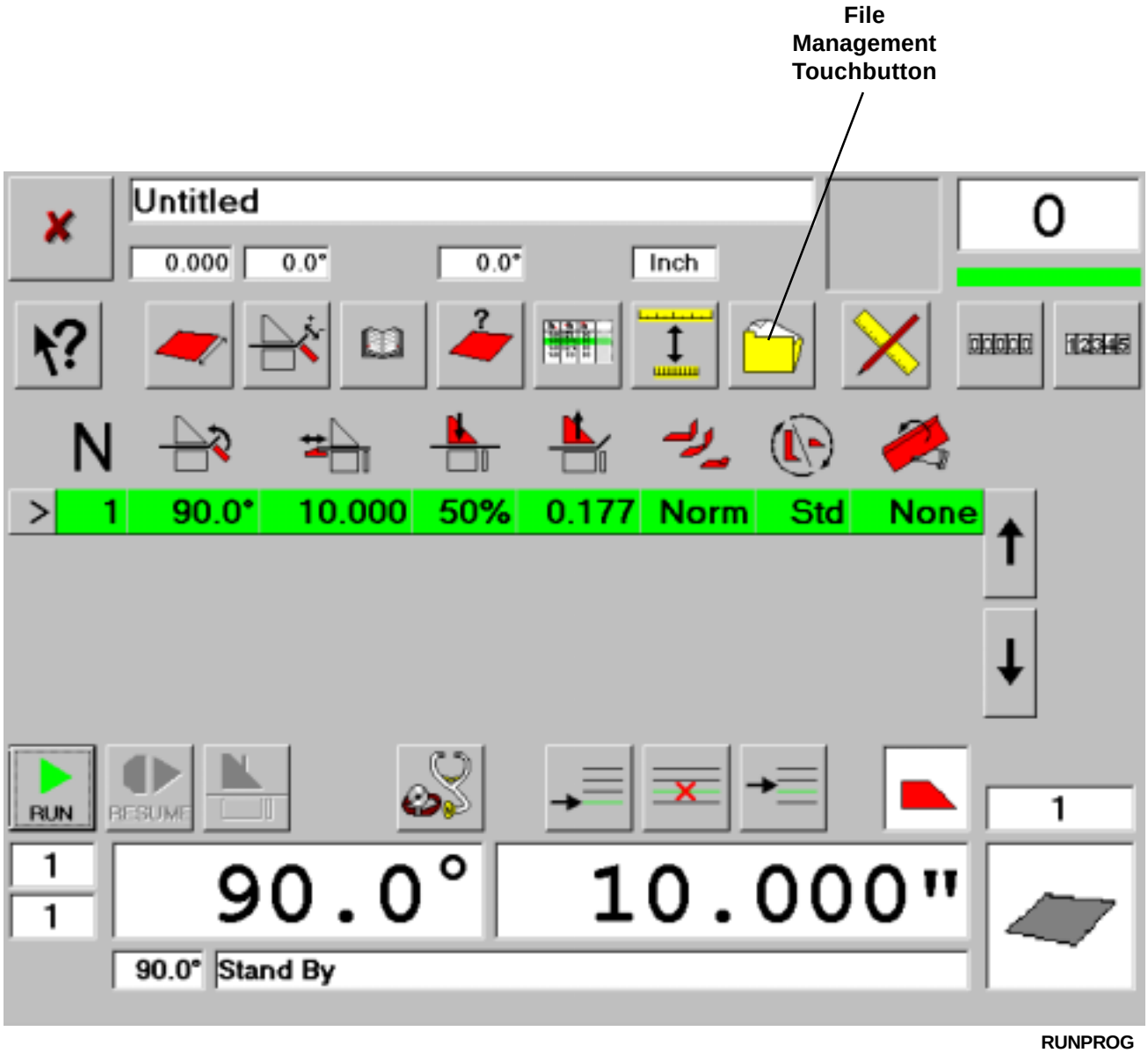


Figure 8-1. The Run/Programming Screen and Machine Operation Touchbuttons

SECTION 8
OPERATION

The machine can be operated under several different circumstances. An existing program can be called up and used as is; or the machine can also be operated under “job-shop” conditions, where existing programs are modified to produce similar parts. The machine cannot be operated without a program.

PRODUCTION OPERATION

Production operation, where an existing program can be called up and used without modification, is the normal means of operating in a production environment where the same part is run repeatedly. This section provides information on such operation.

When operated in this manner, the desired program is called up, it is started, and the machine is controlled by foot pedal operation. The only setting made before operation is to the parts counter. Production operation instructions begin with Figure 8-2.

OPERATION FROM A MODIFIED PROGRAM

When the machine is to be operated from a modified program, the program is first called up and modified, before the machine is put into operation. Modification procedures are identical to programming procedures, and are covered in Section 10, Manual Programming, and Section 11, Graphic Programming. Some programs have been developed using graphic programming procedures, and modification procedures for these programs are found in Section 11. Graphic Programming. Once modifications have been made, the machine is operated as described in this section.

GETTING STARTED

In any case, the program must first be called up. Touch the File Management Touchbutton to bring up the File Management Pop-up Screen shown in Figure 7-2.

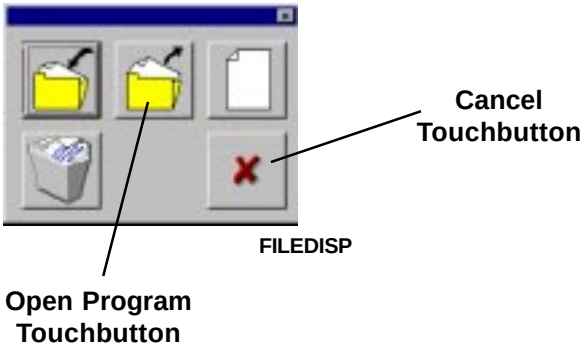


Figure 8-2. Opening a Program From the File Management Pop-Up Display

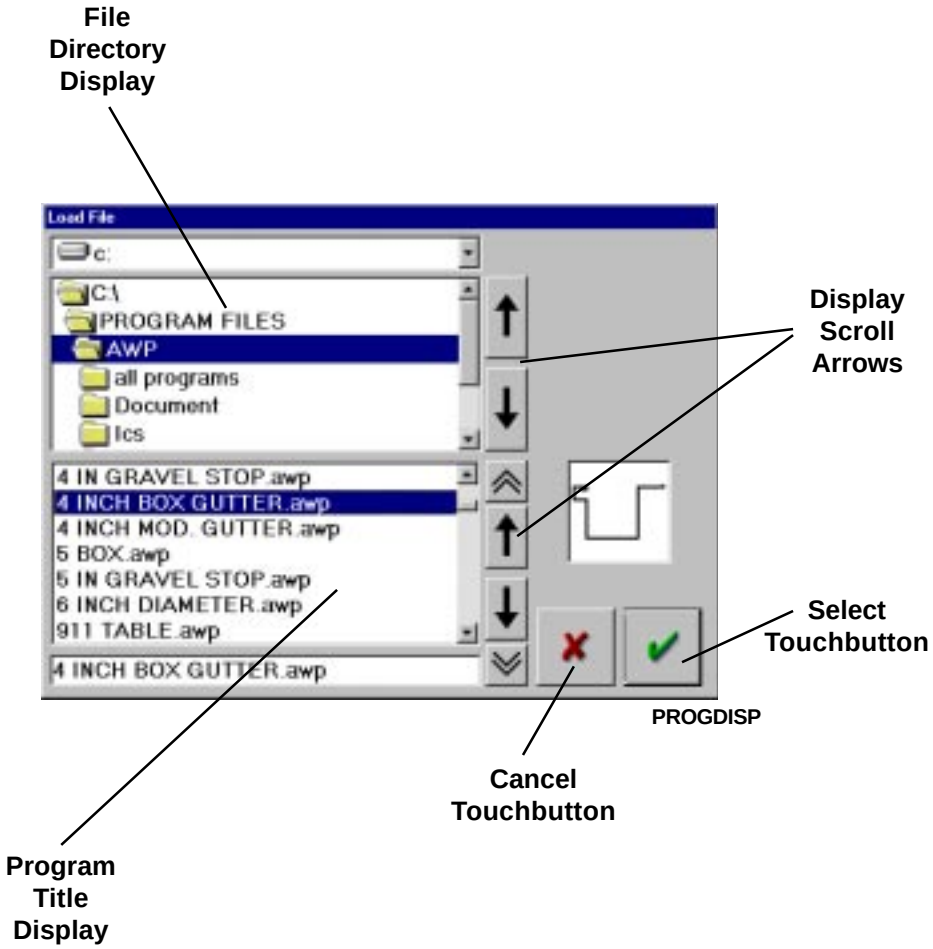


Figure 8-3. Selecting a Program From the Program Selection Display

OPENING A PROGRAM

Touch the Open Program Touchbutton to bring up the Program Selection Pop-Up Display shown in Figure 8-3. There are other touchbuttons on the File Management Pop-Up Display, but they are not used at this time. For a complete description of their use, See Section 12, File Management.

If you change your mind and do not want to call up a program, touch the Cancel Touchbutton and you will return to the Run/Programming Screen shown in Figure 8-1.

FILE DIRECTORY DISPLAY

The File Directory Display shows the file structure on the computer hard drive. This is a WINDOWS-type file structure, and functions in the same way. Space is minimal, so file names longer than 27 characters will not fit completely within the display. Use the Display Scroll Arrows to move up and down within the file structure to locate the desired directory.

When the desired directory is located, touch the screen to highlight it in blue.

PROGRAM TITLE DISPLAY

The Program Title Display shows the programs located in the highlighted directory. Use the Display Scroll Arrows to move up and down through the program names to locate the desired program.

When the desired program is located, touch the screen to highlight it in blue.

SELECT TOUCHBUTTON

The Select Touchbutton calls up the program identified by the blue highlights. Touch it to load the program. The Run/Programming screen will reappear on the monitor.

CANCEL TOUCHBUTTON

If an incorrect program has been selected, touch the Cancel Touchbutton to start over.

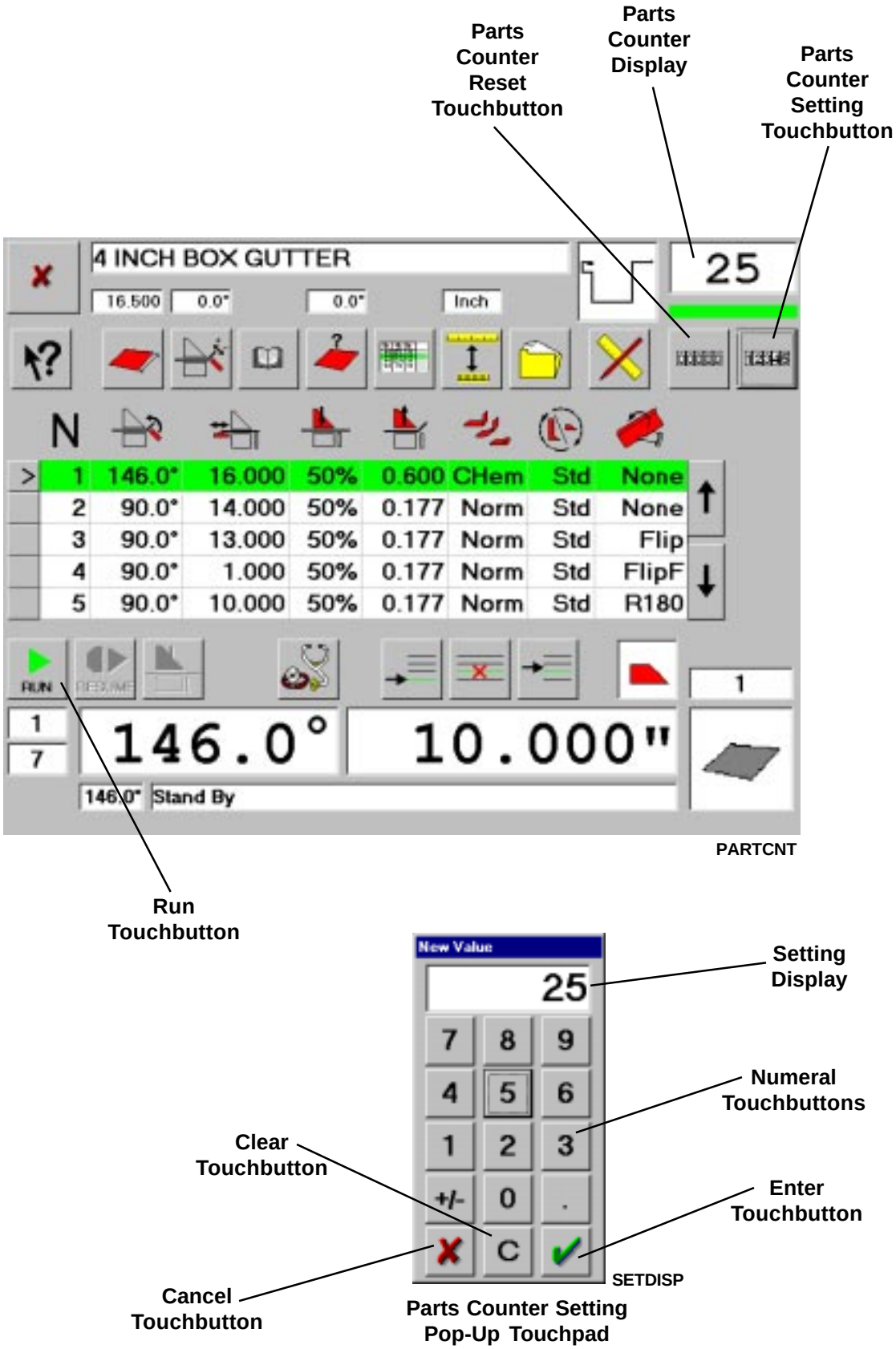


Figure 8-4. Setting the Parts Counter

SETTING THE PARTS COUNTER

Before beginning operation, the Parts Counter Display should be set.

There are two means of using the parts counter. The Parts Counter Display can be set to “0”, in which case, the machine will count up from “0” . Or the Parts Counter Display can be set to the total number of parts to be produced, in which case, the machine will count from that number to “0”. The default is “0” when new programs are loaded.

RESETTING TO ZERO

If the parts Counter Display is not at “0”, touch the Parts Counter Reset Touchbutton to set it to “0”.

SETTING THE TOTAL NUMBER

If the Counter is to be set to the total number of parts to be produced, touch the Parts Counter Setting Touchbutton. The Parts Counter Setting Pop-Up Touchpad will appear at the extreme right hand side of the screen. Enter the desired count using the Numeral Touchbuttons. Note that a Plus/Minus Touchbutton and a Decimal Touchbutton are included.

The count will appear in the Setting Display. If you make a mistake, touch the “C” Touchbutton to revove the last digit entered, or touch the Cancel Touchbutton to remove the entire entry.

When the Entry in the Setting Display is correct, touch the Enter Touchbutton. The number will appear in the Parts Counter Display, and the Parts Counter Setting Touchpad will disappear from the screen.

BEGINNING OPERATION

After the Parts Counter Display has been set to the desired value, the machine is ready to produce parts using the selected program. Press the Run Touchbutton to begin production.

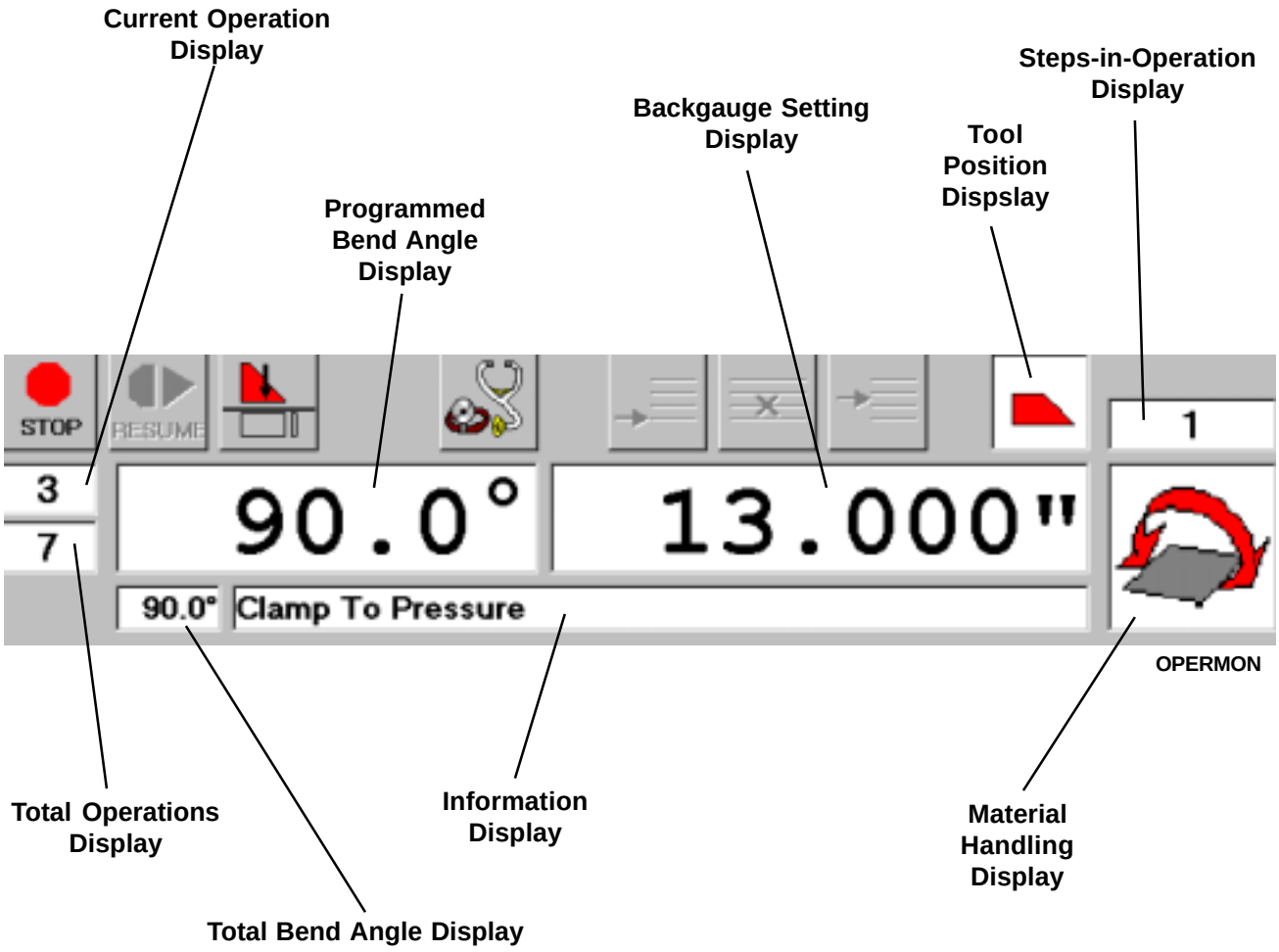


Figure 8-5. Monitoring Run/Programming Screen Displays

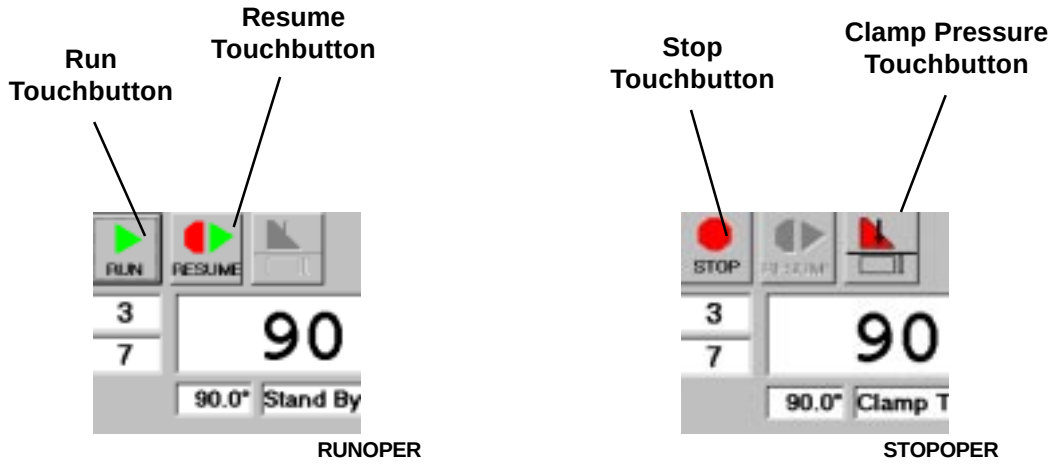


Figure 8-6. Starting and Stopping the Program

CONTROLLING THE BENDING OPERATION

The machine does not function automaticly. After every bending operation, the machine operator must control certain movements of the machine and initiate each bending operation of the program by using the machine foot pedals.

The Run/Programming Screen (see Figure 8-1) if visible on the monitor during the entire program run. As each operational step in the program is performed, its line in the Programming Section of the Run/ Programming Screen (see Figure 8-1) is highlighted.

MONITORING THE DISPLAYS

At the same time, the displays in the Operation Section of the Run/ Programming Screen provide information pertaining to the operation being performed.

Most of the displays in this portion of the screen provide data for information purposes only, but three displays must be monitored by the machine operator to enable him to interact properly with the machine.

The information display provides three kinds of information. While the machine is moving, it explains what the machine is doing. When the machine stops, it prompts the operator for the next part of the procedure he must perform. When there is a machine malfunction, the Information Display describes the malfunction.

STARTING AND STOPPING THE MACHINE

The program is started by touching the Run Touchbutton. When this happens, the symbol displayed on the Run Touchbutton changes from a triangle to an octagon (stop-sign shape), and the Run Touchbutton becomes the Stop Touchbutton.

Once running, machine operation can be halted at any point in the program by touching the Stop Touchbutton. When the Stop Touchbutton is touched, the machine completes the operation being performed, unclamps and raises the clamp beam, and ceases functioning. When this happens, the symbol displayed on the Stop Touchbutton changes from the octagon shape to the triangle shape, and the StopTouchbutton becomes the Run Touchbutton once again.

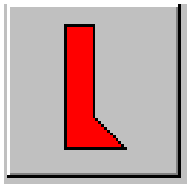
RESTARTING THE MACHINE

At this point, restarting the machine must be done properly. If the Run Touchbutton is touched, the machine starts again, but from the beginning of the program.

The Resume Touchbutton is touched, if the material is partially formed. The machine starts again from the point at which the program was halted, and the material blank in the machine will continue to be formed.

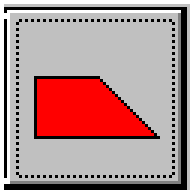
CLAMPING OVERRIDE TOUCHBUTTON

The Clamping Override Touchbutton is also a display: when it is red, the clamping beam has not applied clamping pressure; when it is green, the clamping beam is clamped and bending can proceed. At the beginning of a bend operation, the Clamping Override Touchbutton can be used to enable the machine to bend before clamping is completed. Pressing it overrides the clamping interlocks normally used by the machine. It will not work if the beam is open more than 0.4 mm (0.157 inch), and the maximum bend angle is only 90º.



BOXTOOL

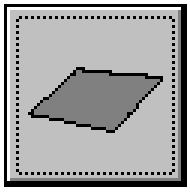
Box Tooling Indicator



STDTOOL

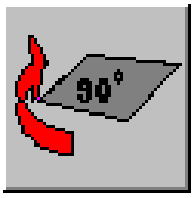
Standard Tooling Indicator

Figure 8-7. Tool Position Displays



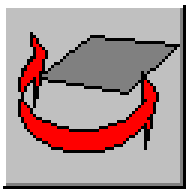
None

No Handling Needed



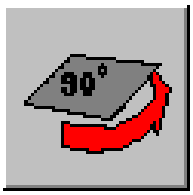
R90L

Rotate Part 90º left



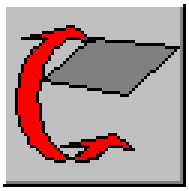
R180

Rotate Part 180º



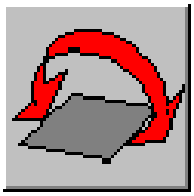
R90R

Rotate part 90º Right



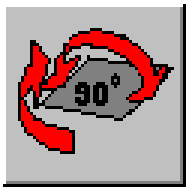
FlipF

Flip Part Over Front-To-Back



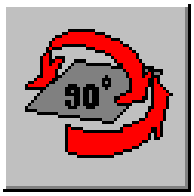
Flip

Flip Part Over left-To-Right



FR90L

Flip Part Left-To-Right, Rotate 90º Left



FR90R

Flip Part Left-To-Right, Rotate 90º Right

ARTNOS	
NONE	ROT90L
ROT180	ROT90R
FLIPF	FLIP
FR90L	FR90R

Figure 8-8. Material Handling

TOOLING POSITIONS

Machines equipped with Kombi beams are often programmed to switch between standard and box tooling within a program. Rotation of the Kombi beam is not automatic. The operator must therefore monitor the Tooling Display, and use the foot pedal to change the Kombi beam position when required. The tooling indicator symbols are shown in Figure 8-7. Between steps, the indicator shows the tooling needed for the next operation.

Two types of foot pedal control are available on the machine. Changing from one to the other is explained in Section 13, Machine Parameters. In one type, the Kombi beam will rotate when the foot pedal is momentarily depressed. In the other, the foot pedal must be depressed during the entire rotation cycle.

WARNING

TAKE EXTRA CARE WHEN FOOT PEDAL OPERATION REQUIRES ONLY MOMENTARY DEPRESSION.
Uncontrolled rotation of the Kombi beam can cause serious injury.

When prompted, depress the foot pedal in the appropriate manner to rotate the Kombi beam.

MATERIAL HANDLING

It is usually necessary to reposition the part blank between steps during the forming process. The Material Handling Display indicates the material handling movement needed to ready the part for the next step in the part program. The symbols used to show the various material handling movements are illustrated in Figure 7-8. Notations below each symbol describe the action needed. “Abbreviations” for these actions are shown at the right of each symbol. These abbreviations appear in the Material Handling Column of the Programming Section of the Run/ Programming Screen.