

CHAPTER 12

DCC

Operation

- 12-3 Introduction to DCC, Jogbox
- 12-4 Startup, Measuring Features
- 12-5 Clearance Points
- 12-6 Typical Fixture Application, Demo Mode

DCC Operation

Introduction to DCC

Congratulations on the purchase of your RefleX DCC System. We believe that this is the easiest to use DCC package ever.

First and foremost, any operator using the dcc system for the first time have a full understanding of the standard (non -DCC) system. Perform chapters 1-4 tutorial exercises with the machine's drives disengaged, or with the jog box. Only then will you have the knowledge necessary to proceed with this DCC system.

The Jogbox

Not all of the features of the jog box are used in this system. See the diagram below:

Joystick - When not in playback, the joystick controls machine movement. The machine will only move when the "Enable" button is pressed and the green machine start light is on.

Velocity Indicator- This array of lights displays the current fraction of full speed.

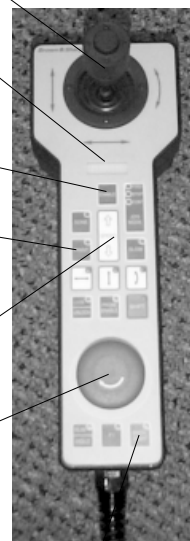
Enable - The button prevents accidental movement of the machine. In non-playback mode, the machine will only move if this button is pressed.

Print (Clearance Point) - This button is used to take a clearance point. This will be described later. In this system, it has nothing to do with printing.

Faster / Slower - These buttons increase or decrease the current velocity. The velocity will then be displayed on the indicator above.

E-Stop - This is the button to press to stop the machine. After this button is pressed, controller will apply the brakes to stop the machine as soon as possible. This is the button which should be used in an emergency instead of the stop softkey.

Machine Start - This essentially turns the machine on and off. The machine will not move until it is started. In order to start the machine, you will need to press and hold this button for about 1 second.



DCC Stop Softkey

DCC Operation

Starting the system:

Starting the system is extremely similar to starting a non-DCC system. The only exception is that you must ensure that the FBPC controller is turned on first, or at the same time the RefleX controller is turned on. The "Go" softkey at the home screen signifies that RefleX is communicating with the machine's controller properly. Follow the procedures described in tutorial 2 to continue with system startup.

Before continuing, you should read sections 10-19 & 10-20 to get familiar with the system's DCC options.

First Time Setup:

- 1.) Verify that the "uXcel pfx 454" machine type is selected in the system option's page 1. See section 10-4 for details.
- 2.) Enable the "Require points" option in the system option's page 3. See section 10-15 for details.
- 3.) Enable the "DCC Playback" option in the system option's page 6. See section 10-19 for details.
- 4.) Set the remaining DCC options in page 6 appropriately.

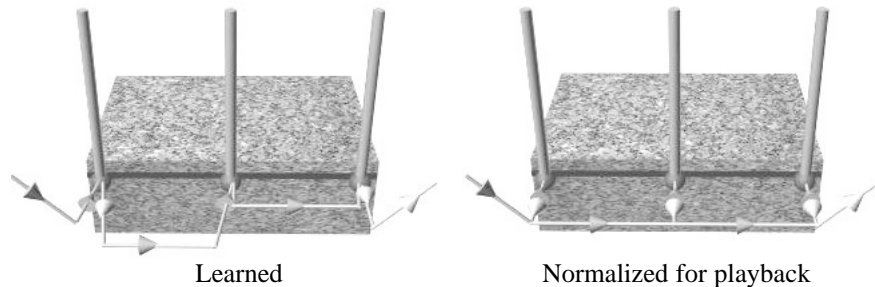
Measuring Features:

Measuring features with the DCC system is very similar to the non DCC system. The two primary rules still exist:

- 1.) Always approach perpendicularly.
- 2.) Always allow at least 1 probe radius of approach.

Only by following these two rules can the system reliably solve the feature type.

To measure a feature, you may use the system manually (I.E. unlock the airlocks) or use the system's jog box. If the your approach isn't perfect, when the program is played back, it will be normalized automatically. This is especially usefully for parts learned manually, or parts not orthogonal to the machine's axes when using the jog box.



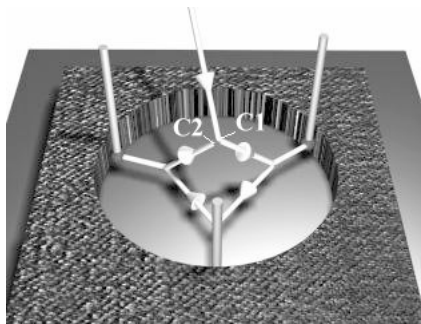
DCC Operation

Clearance Points:

Clearance points, or move points, are used to move the machine without actually taking a measurement point. For example, the user would like to move over to the top of a bore, drop down inside, measure a circle, and then retreat out of the bore. The sequence would look like this.

- 1.) Move to the top of the bore.
- 2.) Press the jog box's "Print" button. A beep will be heard as the controller acknowledges the clearance point (C1 below).
- 3.) Move down into circle. Begin taking points. Note: A clearance point here is not necessary because the system will automatically move to the start of the prehit zone to begin taking the first point.
- 4.) Retreat out of the bore. Take another clearance point (C2 below).
- 5.) Press Reflex's "Done" softkey to solve the feature.

Tip: Notice how we took a clearance point before and after the feature. If we would like to rearrange (edit) the order of our program later, doing this will make it much easier.



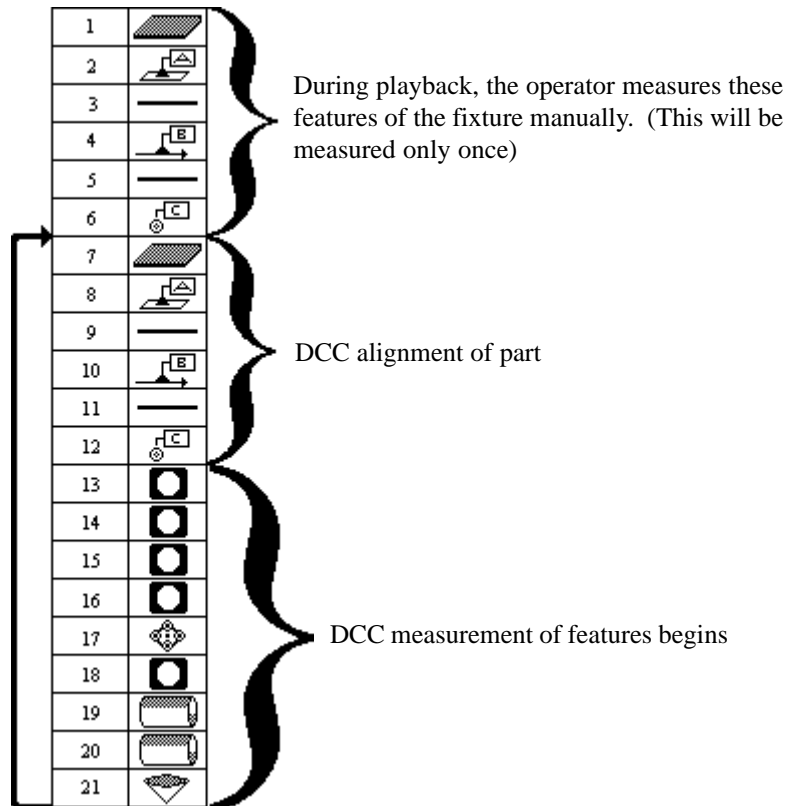
Serial Output:

Because the system uses the serial port to communicate with the machine's controller, serial output on the DCC systems is disabled.

DCC Operation

A typical application:

The following example shows a program for measuring multiple parts in a fixture. For this example, the system options "Alignments" has been set to "Manual".



Loop to below alignment

At the "end of program" screen, the user removes the part, places a new part in the fixture, and presses the "Loop to below alignment" softkey to begin measurement of the next part.

Demonstration Mode:

The system can be placed in a demonstration mode for display purposes. Because most customers will never use this, it remains hidden from view to avoid confusion. To start the demonstration mode, at the "End of Program" screen, press the blank softkey 3 up from the bottom of the display. A "Demonstration Mode" screen will be displayed. Press the "Go" softkey. If the "Alignments" option is set to "DCC", the system will loop back to the block 1 of the program. If the option is set to "Manual", it will loop back to below the alignment. The machine will continue to cycle until the "Stop" softkey or E-Stop is pressed.