WINTRISS ®

User Manual

ProCam® SFI

ProCam 1500 ServoFeed Interface
1095900
Rev. A5   September 2010

Tech Support Hotline   800-586-8324   8-5 EST

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Changes for Revision A5 of the
ProCam 1500 SFI User Manual

Revision A5 of the ProCam 1500 SFI User Manual covers all SFI configurations.

Here are the changes for Revision 1.4:

- "Location of components" figure changed to show only the important components.

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Whatever the product, we are committed to satisfying you with innovative engineering, quality construction, reliable performance, and ongoing, helpful support. Call us whenever you need assistance.

Table of Contents

How to use this manual

Chapter 1 introduces you to the ProCam 1500 ServoFeed Interface (SFI). It lists the specific feed companies and models with which SFI communicates. And it explains what you can do with your SFI.

Installation is discussed in Chapter 2. The ProCam 1500 Servo Feed Interface (SFI) installation is basically the same for all servo feeds. There is one set of instructions for installing all servo feeds. However, specific wiring connections and any other differences will be noted in the instructions wherever they apply. Follow the steps in Chapter 2 to install SFI.

This manual explains how to use SFI in all three ProCam 1500 operating modes -- Initialization, Program, and Run. Some of the menu choices may be slightly different depending upon the servo feed to which you are connected. Keep this in mind when using Chapter 3 —Using the SFI Menus.

Warranty

Wintriss Controls warrants that Wintriss electronic controls are free from defects in material and workmanship under normal use and service for a period of one year (two years for Shadow light curtains) from date of shipment. All software products (LETS and SBR), electro-mechanical assemblies, and sensors are warranted to be free from defects in material and workmanship under normal use and service for a period of 90 days from date of shipment. Wintriss's obligations under this warranty are limited to repairing or replacing, at its discretion and at its factory or facility, any products which shall, within the applicable period after shipment, be returned to Wintriss Controls freight prepaid, and which are, after examination, disclosed to the satisfaction of Wintriss to be defective. This warranty shall not apply to any equipment which has been subjected to improper installation, misuse, misapplication, negligence, accident, or unauthorized modification. The provisions of this warranty do not extend the original warranty of any product which has either been repaired or replaced by Wintriss Controls. No other warranty is expressed or implied. Wintriss accepts no liability for damages, including any anticipated or lost profits, incidental damages, consequential damages, costs, time charges, or other losses incurred in connection with the purchase, installation, repair or operation of our products, or any part thereof.

Please note:

It is solely the user's responsibility to properly install and maintain Wintriss controls and equipment. Wintriss Controls manufactures its products to meet stringent specifications and cannot assume responsibility for consequences arising from their misuse.

Chapter 1
ProCam 1500 Servo Feed Interface

Your ProCam 1500 Servo Feed Interface is hardware and software that allows you to operate your servo feed through ProCam 1500. Once installed, you can make all the necessary settings for your servo feed right at the ProCam 1500 keypad. ProCam 1500 will automatically operate the servo feed during press operation. And because ProCam 1500 is a micro-processor, you can save all your settings for up to 200 tools in ProCam's electronic memory. You just recall the settings when you use the tool again.

To use the Servo Feed Interface, you must have or install the appropriate firmware chip into ProCam 1500. Then you simply connect the unit to your servo feed using a cable that plugs into your servo feed's RS-232 port. See Chapter 2 for installation instructions.

To set your servo feed through ProCam 1500, you simply use the menus on the ProCam 1500 screen. You will see a new selection on the ProCam 1500 programming menu when you install the interface. The new item is—"SET FEED". When you select "SET FEED" using the ProCam 1500 keypad, you will see a menu for making SFI settings. You make the settings using the keypad in the same way that you make all other ProCam 1500 settings. See Chapter 3 for instructions on how to use the menus.

Servo feeds covered in this manual

This manual covers all press servo feeds ProCam 1500 can operate. They include:

- COE BG2

- COE CPEC

- CWP Servo-Dial II

- Dynamic ServoFeed

- Indramat CLM-equipped servo feed with either IDS or SOT2 control panels only

- Reliance CTL (Cut-To-Length)

- Waddington MiniFeed

What you can do using the ProCam 1500 Servo Feed Interface (SFI)

Using the ProCam 1500 menus, you can:

- Set feed length, percent acceleration, and possibly some other parameters for your servo feed (depending upon which feed you have)

- Save these settings under the tool number and recall them automatically when you load setups by tool number

- Modify, or change, setups

- Use Feed Advisor to check your settings. If you key in feed angle and press speed, Feed advisor warns you if your settings are not right for that job. *Important: Feed Advisor is not available for all servo feed models*

- Adjust feed length and percent acceleration while the press is running (if applicable)

- Lock SFI settings in Adjust Mode (if applicable) to prevent unauthorized tampering

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IMPORTANT!

ProCam 1500 SFI works differently with the various models of servo feeds available. *All SFI's are not alike!* Some do not have Initialization mode, while others may not allow you to adjust while the press is running. Programming choices may be different as well. In this manual, we will present all the possible options available in SFI, but the available options for your SFI may be different! Keep this in mind as you proceed!

How SFI works

You do not need to know any of the following information, but here is a little background about how your SFI works. Your ProCam 1500 Servo Feed Interface (SFI) is actually an RS-232 interface. The RS-232 interface does not just consist of cables and connectors. Like ANSI standards that govern how your press must operate, the RS-232 interface requires specific circuits and software instructions for the transmission of signals and data between your servo feed and ProCam 1500. Transmission of data is handled by software in ProCam 1500 and by the software built into your servo feed. Your servo feed came with all the RS-232 circuitry and software already in place.

Data Instruments worked in conjunction with your servo feed manufacturer to design the proper hardware and software for ProCam 1500 that will automatically interface with your servo feed. That is why all you have to do is install the firmware chip and connect a cable from ProCam 1500 to your servo feed's RS-232 port. Everything else is automatic. You can then make SFI settings on ProCam 1500 just as you would if you used the interface on the servo feed itself.

Chapter 2
Installation

Installing the components that allow your ProCam 1500 to operate your servo feed is quite simple. Connecting ProCam 1500 to your feed requires these tasks:

- Installation of SFI firmware into ProCam 1500

- Wiring connections from the ProCam 1500 TB103 terminal block to the RS-232 port of your servo feed controller

Each step is described below. Installation is basically the same no matter what type of feed you have. Any significant differences among feeds will be noted.

Installing the ProCam 1500 Servo Feed Interface

Before starting, make sure that you have all these components in your kit:

- SFI firmware chip (EPROM) (unless factory-installed at time of order)

- 20-foot 2-conductor shielded cable with a large DB25 connector attached on one end

- 10-pin phoenix connector

Follow these steps to install the components:

> ### WARNING!
> ### ELECTRICAL HAZARD!
> Dangerous voltages are present. Verify that the power to ProCam 1500 and to your feed have been turned OFF before servicing any components! Servicing must be performed by qualified personnel.

Installing SFI firmware

To upgrade your ProCam 1500 to communicate with your servo feed, follow these instructions:

1. With power to ProCam 1500 turned off, notice that the LCD display on the front panel is blank and the angle/RPM display unlit.
2. Carefully remove the front panel assembly from your enclosure by loosening the hardware and temporarily propping the unit on a flat surface.
3. Locate the firmware chip located at U104 on the ProCam 1500 processor board (refer to Figure 2-1). Notice that this firmware chip has a label on it.
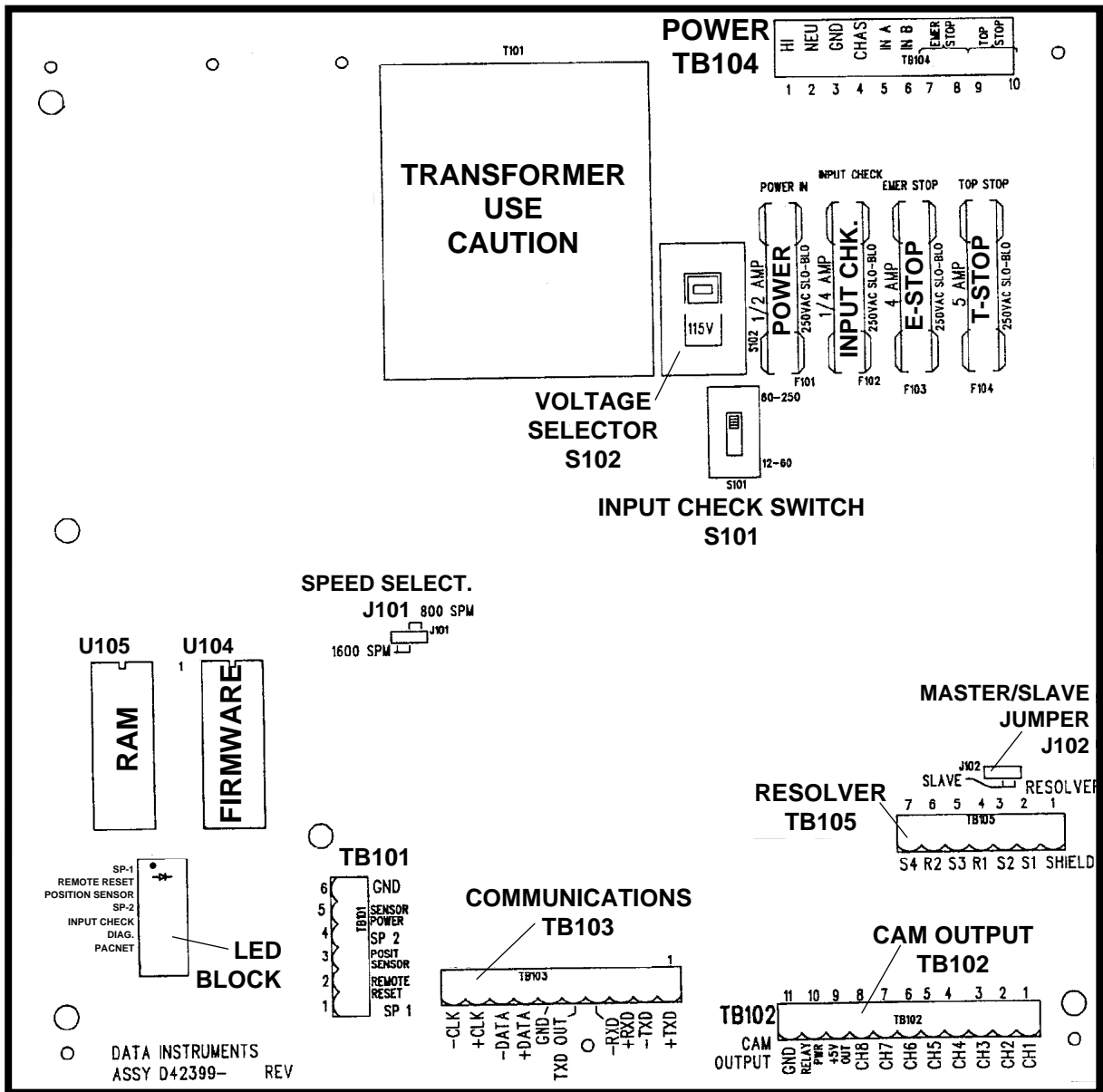

Figure 2-1. Location of components on ProCam 1500 processor board

<table>
<tr><td>INSTALLING THE CHIP
Be sure to note the exact orientation of the firmware chip. Notice in particular the semi-circular notch on the bottom of the chip. When you replace the chip, the notch on the new chip <i>MUST</i> also be face down. <i>If you plug the chip in backwards, it will be destroyed!</i></td></tr>
</table>

4. Insert a small screwdriver between the bottom of the chip and the socket and carefully pry the chip out of its socket. Be careful not to get the screwdriver under the socket itself. Put the chip aside.

5. Open the package containing your new SFI firmware chip. Before you remove the chip from the package, you should ground yourself by touching any large metal object (the press will do nicely). This will remove any static electricity that you may be carrying around. A static electricity "zap" will destroy the chip.

6. Once you are "grounded", remove the chip from its holder. *REMEMBER to orient the chip so that the notch faces downward.*

7. Plug the chip into its socket by first plugging in the left row of pins and then aligning the right row of pins over the socket and pushing straight in.

8. If the two rows of pins are spread too far apart to plug easily into the socket:

   A. Hold the chip on its side on a desk or a flat surface with the pins pointing towards you.

   B. Being careful NOT to overbend the pins, gently flex the top of the chip towards you. Turn the chip over so that the other row of pins is now on the desk pointing towards you. Flex it again, thus bending the other row of pins towards each other. Pins should be parallel.

   C. Try plugging the chip into the socket again, as in step 7. If necessary, repeat Steps 8A and 8B.

9. Make sure that the notch in the chip is at the bottom and that all of the pins are in the socket.

10. Turn the power ON to ProCam 1500 without re-connecting the panel to your enclosure. Verify the normal operation of the unit.

   If the unit powers up with a garbled display or "rolling" LEDs, turn the power OFF and repeat step 9. Sometimes one or more pins are bent and not plugged in properly. If the unit is still malfunctioning, call Data Instruments for assistance. *Turn ProCam 1500 and your feed OFF before proceeding to the next step.*

Wiring Connections:

1. *Verify that ProCam 1500 and your feed are still turned OFF!*   You are now ready to connect ProCam 1500 to your servo feed. Find the 10-pin phoenix connector and the black round cable with a large connector (DB25 connector) on one end. The other end of the cable has three unattached wires (red, black, and shield). Check to make sure that you have the right connector for your feed—either male or female as shown in Figure 2-3, and the tables at Table 2-1.

2. Locate terminal TB103 on the ProCam 1500 processor board (see Figure 2-1). There may be a plastic plug at pin 5. If so, remove it from TB103. Also find the RS-232 port on your feed. Refer to your feed manual if necessary.

3. If ProCam 1500 and your servo feed controller have been installed inside two separate enclosures, run the cable through flexible liquid-tight conduit from your feed to ProCam 1500. ProCam 1500 is rated NEMA 12 (protected against dust and oil). You must use conduit of the same rating and make proper connections to ensure NEMA 12 protection.

4. Go to the RS-232 port on your feed. If there is a cable already connected to this port, remove it. Some feeds will not have any cable attached to this port.

5. Plug the DB25 connector which is attached to the cable from ProCam 1500 into the feed's RS-232 port. It can only go in one way. Tighten the screws on the connector to hold it firmly in its socket. Also tighten all conduit connections.

6. Now go to ProCam 1500. The end with the unattached wires goes to it. Cut off any extra cable if necessary, and carefully remove the outer insulation and inner shielding on the cable in order to expose the wires. Strip insulation back 1/4" on each wire.

7. You will be connecting the two wires (with shield) to the 10-pin phœnix connector which you will attach to terminal TB103 on the ProCam 1500 processor board. The wiring connection will depend upon your feed model. Refer to Figure 2-3, and the tables at Table 2-1 for your feed's RS-232 configuration.

8. To connect a wire, loosen the screws that correspond to the terminal referenced in the following figure and tables, so that the corresponding slot to the right will open. See Figure 2-2. Insert the bare part of the wire 90% of the way into the the open slot. Retighten the screw, holding the wire firmly in place.

Closed tab

Closed tab holding wire

Tab opens when screw is loosened with screwdriver. Insert wire with tab open. Then retighten screw.
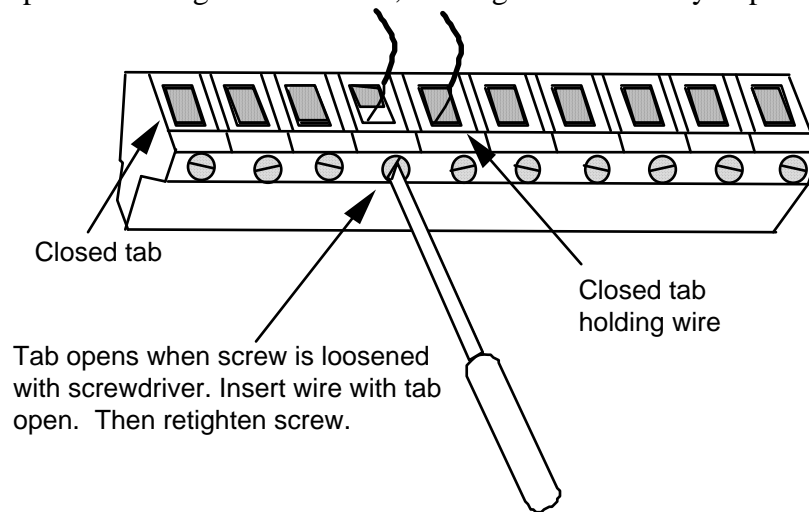
Figure 2-2. Attaching a wire to a phoenix connector

> **IMPORTANT -- ABOUT WIRING**
> When making wiring connections, be sure that the tab is tightened onto the bare part of the wire, not onto the insulation. If on the insulation, you will have a bad connection.

9. Repeat step 8 when connecting the other two wires. Make sure you add the jumper between terminals 3 and 6 on ProCam 1500 TB103 as shown in Figure 2-3, and the tables at Table 2-1.

10. Look at TB103. There may be a plastic plug over pin 5 on this terminal block. If so, remove the pin using needle-nose pliers. Plug the 10-pin connector into TB103.

11. You are finished installing ProCam 1500 SFI. Re-connect the ProCam 1500 panel to your enclosure and re-tighten the hardware. Turn power back ON to both ProCam 1500 and to your feed.

12. Check that ProCam 1500 is operating normally. If it is working properly, you are now ready to use SFI. Go to the next chapter to learn how to set up and operate your feed through ProCam 1500. If the unit powers up with a garbled display or "rolling" LEDs, turn the power OFF and recheck how you installed your firmware. Review "Installing SFI firmware" earlier in this chapter. If the unit is still malfunctioning and you cannot find the reason for the problem, call Data Instruments technical advisors for assistance.
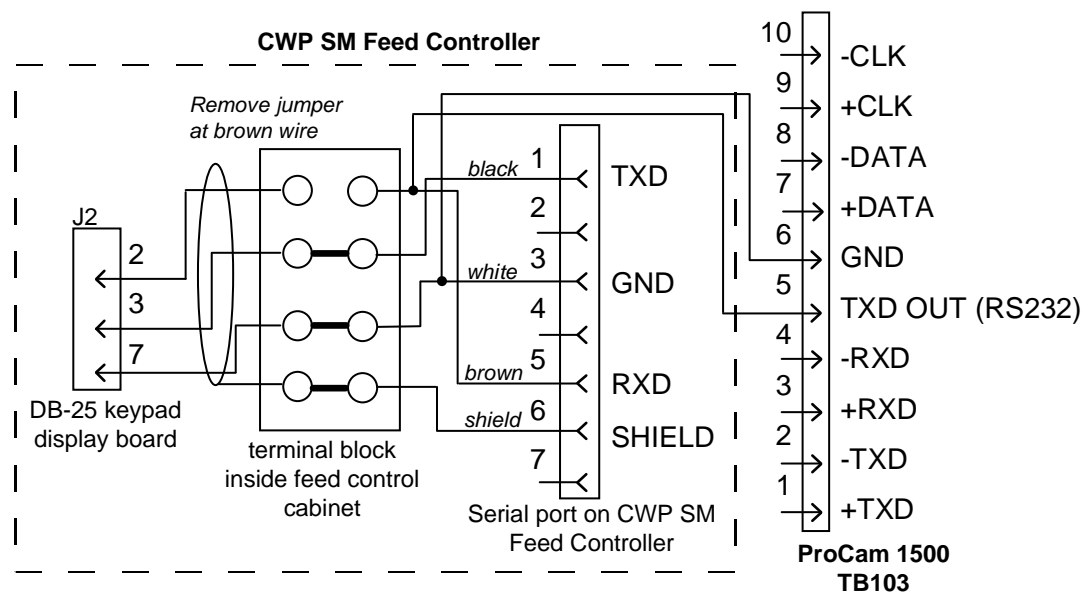
Figure 2-3. CWP SM wiring connections

Table 2-1A.   Wiring connections for Reliance Cut-To-Length (CTL) feed controller

ProCam 1500 TB103	Wire & direction of data flow	Reliance CTL Feed RS-232
#4 -RXD	← Red	#1 TXD
#5 TXD OUT	Green →	#5 RXD
#6 GROUND	White ↔	#3 Ground
(no connection)	Black	#7 +5Vdc
(no connection)	Shield	#6 Ground
#3 +RXD		requires special 7-pin connector (supplied by PA)

Table 2-1B. **Wiring connections for CLM, CWP SD2, COE, Dynamic, and Waddington feed controllers**

ProCam 1500 TB103	Direction of data flow	FEED CONTROLLER RS232 PORT		
		CLM/IDS; CLM/SOT2; CWP Servo Dial II; COE BG2; COE CPEC; Unico *	Dynamic ServoFeed	Waddington MiniFeed
#4 -RXD	←	#2 Black	#3 Red	#3 Red
#5 TXD OUT	→	#3 Red	#2 Black	#2 Black
#6 GROUND #3 +RXD	↔	#7 Ground shield	#7 Ground shield	#7 Ground shield
TYPE OF CONNECTOR		requires male DB25 connector	requires male DB25 connector	requires female DB25 connector

* NOTE: Unico plugs into COMM B

Table 2-1C. **Wiring connections for Vamco feed controller**

ProCam 1500 TB103	Wire & direction of data flow	Vamco
#4 -RXD	←	#3 Black
#5 TXD OUT	→	#2 Red
#3 +RXD	↔	#5 White Ground
#6 GROUND	← Shield	(no connection)
		requires female DB9 connector

Chapter 3
Using the SFI menus

In this chapter you will learn how to use the SFI menus. You will learn how to use:

- Initialization mode
  - Setting feed initialization parameters

- Program mode
  - Setting feed length
  - Setting percent acceleration
  - Setting maximum run speed
  - Using the Feed Advisor
  - Loading feed settings

- Run mode
  - Adjusting feed parameters while running press

IMPORTANT!

ProCam 1500 SFI works differently with the various models of servo feeds available. *All SFIs are not alike!* Some do not have Initialization mode; not all servo feed interfaces have "Feed Advisor, while others may not allow you to adjust parameters while the press is running. Programming choices may be different as well.

In this manual, we will present all the possible options available in SFI, but the available options for your SFI may be different!
Keep this in mind as you proceed!

About Tool numbers

The terms "Tool" or "tool number" will be used many times in this chapter. A tool number consists of all of the settings (including the servo feed settings) that you make for one job. You can save servo feed information for up to 200 tools and then recall the settings for each job whenever you need to.

The Initialization mode

IMPORTANT

This manual mentions certain parameters that you can modify at your feed. It does not, however, explain these parameters in any detail. Refer to your servo feed manual for more information.

To get into Initialization mode, turn the Program/Run key to "program" and then press both the left and right "ANGLE-OFF" keys at the same time for one second. (See "Using the keyboard" in Chapter 3 of the ProCam 1500 user manual)

NOTE
Before changing modes (for instance -- from Initialization to Program), make sure your screen shows the first display in the mode you are in. If that display is not shown, nothing will happen when you turn the Program /Run key. In that case, keep hitting the RESET key. When the first display in the mode is reached, you will instantly switch to the new mode.

Feed Parameters

Here is the first display in Initialization mode. From this display, select "Feed parameters". (Figure 3-1).

```
INITIALIZATION          RESOLVER ZERO
MENU                    POSITION SENSOR
                        COMMUNICATIONS
                        SELECT CAM NAMES
USE CURSOR KEYS TO      SECURITY ACCESS
SELECT, ENTER TO        BRAKE MONITOR
ACCESS, SWITCH TO       AUTO ADVANCE
RUN WHEN DONE           FEED PARAMETERS
```
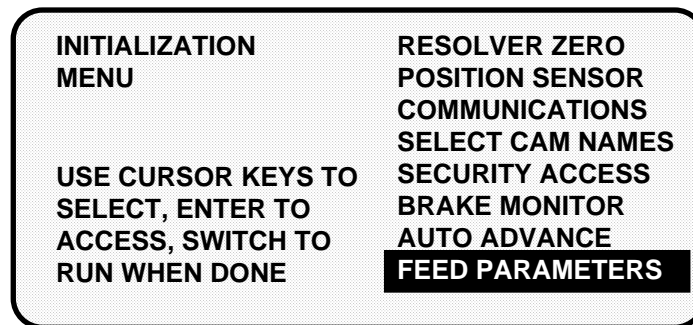
Figure 3-1 Selecting "Feed parameters" from the Initialization menu

---

SELECT = HIGHLIGHT + ENTER
When we say SELECT in this manual, it means use the cursor keys to highlight the item and press ENTER. See Chapter 3 in the ProCam 1500 user manual for more information.

Once you have selected "Feed parameters", here is the display you will see:

```
FEED INITIALIZE
MENU                    CHANGE GROUP 1
                        CHANGE GROUP 2
                        CHANGE GROUP 3
USE CURSOR KEYS TO      CHANGE GROUP 4
SELECT, ENTER TO        CHECK SETUP
ACCESS, PRESS
RESET WHEN DONE
```

Figure 3-2 Feed Initialize menu

> **Important!**
> If you are interfacing with a *Reliance CTL* feed control, there will be a menu choice on the "Feed Initialize" menu called "SCALE GROUP". Select "Scale Group" and then choose "Time Base" to set the correct unit of measure for this feed — "/MIN". (SFI is initialized to "/SEC"). Make this selection and then press Reset to return to the "Feed Initialize" menu to make other settings.

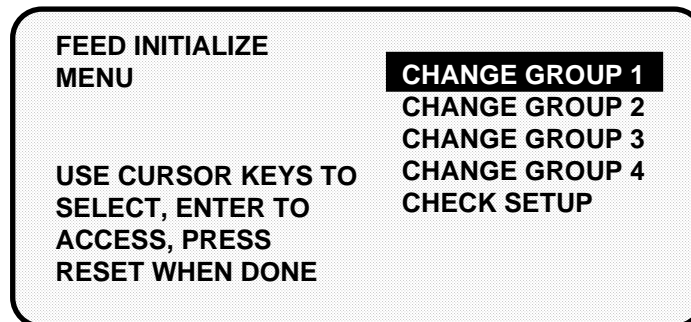## Change Groups

When you select "CHANGE GROUP 1", you will see this group of parameters:

Figure 3-3 Change Group 1 display

Notice that there will be actual values appearing on the screen. These values are coming directly from your servo feed. Select the item you want to change.

In our example, we have chosen "Jog speed high" (Figure 3-4).

Figure 3-4 Setting "Jog Speed High"

As the display indicates, use your left or right CURSOR keys to position the triangular-shaped pointer over the digit you wish to change. Then use the up or down CURSOR keys to increase or decrease that value. Go to Chapter 3 of the ProCam 1500 user manual if you are not sure how to use the CURSOR keys. When you are done, press the RESET key to return to the Feed Initialize menu.

If you want to change any of the other groups (2 through 4), select that item on the Feed Initialize menu and then follow the previous steps. Figure 3-5 shows how each of these displays look.

```
ENG. UNITS          6.283812
POS. TORQUE         100.0000      %
NEG. TORQUE         100.0000      %
ACCEL LIMIT         100000.0      IN/MIN/SEC
DECEL LIMIT         100000.0      IN/MIN/SEC

USE CURSOR KEYS TO MAKE SELECTION
PRESS ENTER TO SELECT, RESET WHEN DONE
```

CHANGE GROUP 2

```
EQ.  AC / DEC       1
BASE SPEED          62838.12    INCHES/MIN
ADVANCE RATE        0.0  DEG / IN / MIN




USE CURSOR KEYS TO MAKE SELECTION
PRESS ENTER TO SELECT, RESET WHEN DONE
```

CHANGE GROUP 3

```
DECEL RATE          100.0000      %
REG. SPEED          31.41906      IN/MIN
INDEX COMPLETE      0.031419      INCHES
FOLLOWING ERROR     6.200000      INCHES
DISTANCE FROM END   0.009999      INCHES

USE CURSOR KEYS TO MAKE SELECTION
PRESS ENTER TO SELECT, RESET WHEN DONE
```

CHANGE GROUP 4

Figure 3-5. Illustrations of Change Groups 2 through 4

Remember that when you are done changing parameters on any of these displays, press the RESET key to return to the Feed Initialize menu.

The next section will explain how to use "Check setup", which is also listed on the Feed Initialize menu.

Check Setup

When you select "Check setup", you will see this display (Figure 3-6).

```
┌─────────────────────────────────────────┐
│                                          │
│   FEED LENGTH      2.252000   INCHES     │
│   ACCELERATION     40.00000   %          │
│   MAX RUN SPEED    4000.000   INCHES/MIN │
│                                          │
│   PRESS RESET WHEN DONE                  │
│                                          │
│                                          │
└─────────────────────────────────────────┘
```
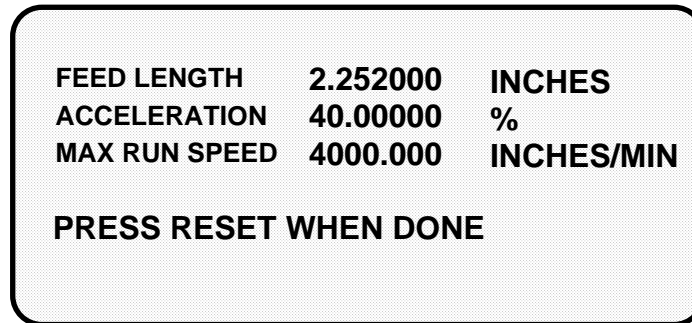
Figure 3-6. Check setup display

"Check setup" is a diagnostic tool available in SFI which lets you view the feed parameters in your servo feed. It gives you an opportunity to make sure that these parameters match your currently loaded setup.

Notice that you cannot change any of these items. This display is for viewing purposes only.

When you are done looking at the information on the screen, press the RESET key to return to the Feed Initialize menu, and then one more time to go back to the main Initialization menu.

Security access

You use this choice on the Initialization menu to lock out "Adjust feed" so that unauthorized personnel cannot perform adjust feed settings in Run mode.

Locking Adjust feed

To prevent unauthorized personnel from unlocking "adjust feed", you must remove the Program/Run key once ProCam is switched to Run mode. This will prevent unauthorized access into the Initialization or Program modes, so that feed settings cannot be unlocked or altered. The key has to be positioned at "PROGRAM" to get into these modes.

Select "Security access" from the Initialization menu. Select "Program and Run modes" shown to the right of the action "Adjust feed", as illustrated in Figure 3-7. The default settings (settings made at the factory) allow this action to be made in Program and Run modes.

```
        LOAD TOOL #:    PROGRAM AND RUN MODES
        ADJUST CAMS:    PROGRAM AND RUN MODES
    ADJUST COUNTERS:    PROGRAM AND RUN MODES
         RESET MODE:    PROGRAM AND RUN MODES
        ADJUST FEED:   [PROGRAM AND RUN MODES]


    USE CURSOR KEYS TO CHANGE SELECTION
    PRESS ENTER TO CHANGE, RESET WHEN DONE
```
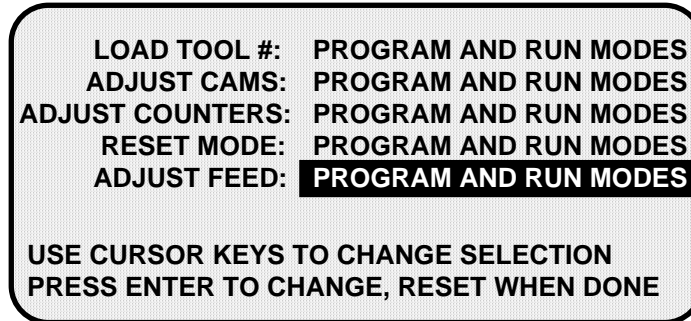
Figure 3-7. Security Access display

To lock out the action so it cannot be taken in Run mode, press the ENTER key. The setting is now locked out. You will see the words "Program mode only" next to the action.

You will now see this display.

```
        LOAD TOOL #:    PROGRAM AND RUN MODES
        ADJUST CAMS:    PROGRAM AND RUN MODES
    ADJUST COUNTERS:    PROGRAM AND RUN MODES
         RESET MODE:    PROGRAM AND RUN MODES
        ADJUST FEED:   [PROGRAM MODE ONLY]


    USE CURSOR KEYS TO CHANGE SELECTION
    PRESS ENTER TO CHANGE, RESET WHEN DONE
```
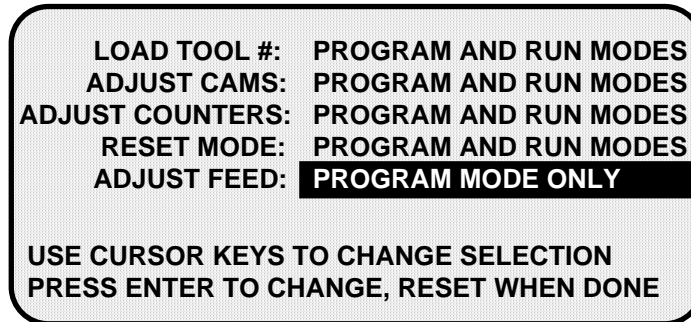
Figure 3-8. Locking out "Adjust feed"

The feed controller can now be adjusted in the Program mode only. If you do not want to make a change, press RESET to go back to the Initialization menu.

Program mode

Go into Program mode, by turning the Program/Run key to "Run" and then back to "Program". Next, select a tool number to modify, and then select "Modify the tool number information". If you are not sure how to do this, refer to Chapter 5 in the ProCam 1500 user manual.

SELECT = HIGHLIGHT + ENTER
When we say SELECT in this manual, it means use the cursor keys to highlight the item and press ENTER. See Chapter 3 in the ProCam 1500 user manual for more information.

Once you have selected a tool to modify, you will see a display which lists the various settings you can make for the tool. Select "Set feed", as shown in Figure 3-9.

```
┌─────────────────────────────────────────────┐
│  TOOL #1              SET COUNTERS            │
│                       SET CAMS               │
│                       ▮SET FEED▮             │
│                       SET BATCH MODE         │
│                       SET COUNTER ANGLE      │
│                                              │
│                                              │
│  USE CURSOR KEYS TO CHANGE SELECTION         │
│  PRESS ENTER TO SELECT, RESET WHEN DONE      │
└─────────────────────────────────────────────┘
```
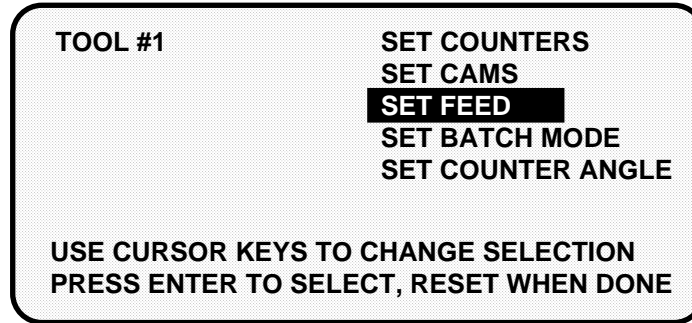
Figure 3-9. Selecting "SET FEED" in Program mode

Here is the "SET FEED" display (Figure 3-10). You have up to four choices. The selections on your screen may vary depending upon your servo feed model.
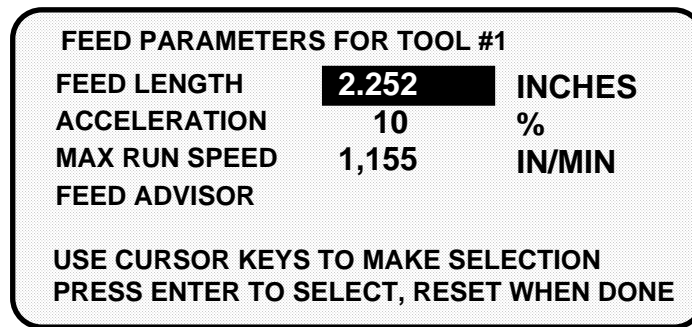
```
┌─────────────────────────────────────────────┐
│   FEED PARAMETERS FOR TOOL #1                │
│   FEED LENGTH      ▮2.252▮    INCHES         │
│   ACCELERATION      10        %              │
│   MAX RUN SPEED    1,155      IN/MIN         │
│   FEED ADVISOR                               │
│                                              │
│   USE CURSOR KEYS TO MAKE SELECTION          │
│   PRESS ENTER TO SELECT, RESET WHEN DONE     │
└─────────────────────────────────────────────┘
```

Figure 3-10. Feed settings

Read your servo feed manual before making settings

Consult your servo feed manual for any requirements you must meet for feed length and other settings. Remember, ProCam 1500 does not change the way your servo feed operates or any parameters or limitations built into your servo feed. Be sure you have read your servo feed manual and understand how your servo feed works before making any settings.

Feed settings

When you select "Feed length", a new display appears that allows you to set this value. See Figure 3-11.

```
┌─────────────────────────────────────────────┐
│              FEED LENGTH                     │
│                  ▼                           │
│               0002.252                       │
│                                              │
│  USE LEFT / RIGHT CURSORS TO SELECT DIGITS   │
│  USE UP / DOWN CURSORS TO CHANGE VALUES      │
│  PRESS ENTER WHEN DONE, RESET TO CANCEL      │
└─────────────────────────────────────────────┘
```
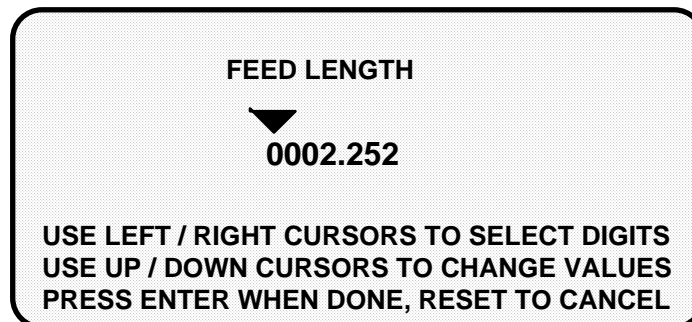
Figure 3-11. Setting Feed length

As the display indicates, use the left and right, as well as the up and down CURSOR keys. Press the left and right CURSOR keys to position the triangular-shaped pointer over the desired digit, and then press the up and down CURSOR keys to increase or decrease the value, one step at a time. If you need assistance, Chapter 3 in the ProCam 1500 user manual explains how to use these keys. When you are satisfied with the value, press the ENTER key. However, if you wish to leave this screen without making a change, press RESET.

When you select either of the other two feed parameters - - "Acceleration" or "Maximum run speed", the display is similar to "Set Feed length", and the instructions at the bottom of the screen are identical. Figure 3-12 shows the other two screens. *If you have and plan to use Feed Advisor, you do not need to set acceleration rate and maximum run speed. Remember! Read your servo feed manual before making feed settings!*

ACCELERATION

▼

0,000,010

USE LEFT / RIGHT CURSORS TO SELECT DIGITS
USE UP / DOWN CURSORS TO CHANGE VALUES
PRESS ENTER WHEN DONE, RESET TO CANCEL

MAX RUN SPEED

▼

0,001,155

USE LEFT / RIGHT CURSORS TO SELECT DIGITS
USE UP / DOWN CURSORS TO CHANGE VALUES
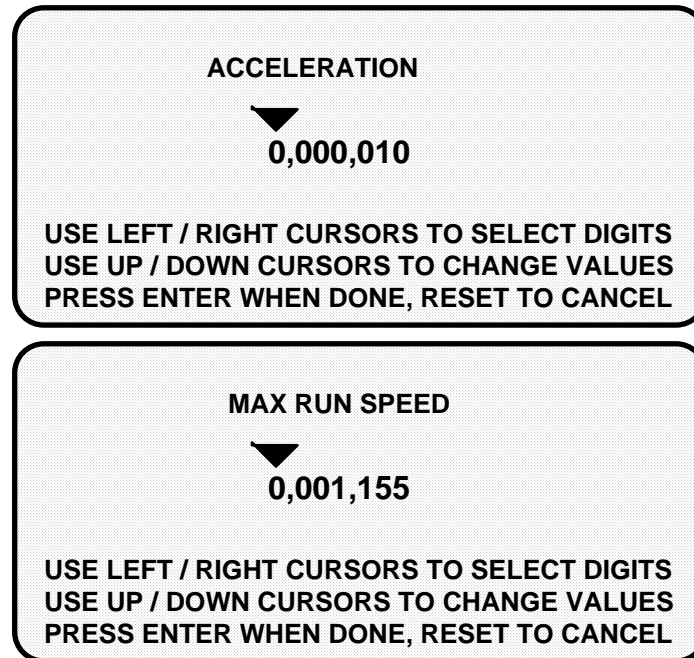**PRESS ENTER WHEN DONE, RESET TO CANCEL**

Figure 3-12. Setting other feed parameters

MORE ABOUT YOUR SERVO FEED SETTINGS

The *acceleration rate* governs how fast the servo feed will accelerate to its set run speed. Your servo feed has a built-in maximum acceleration. The acceleration rate is a percentage of this maximum. For instance, a setting of 80% means the servo feed will accelerate to run speed at 80% of its maximum capability. Your press servo feed may have a minimum acceleration rate. Refer to your servo feed manual for more information about the acceleration rate. Follow all guidelines given there when making acceleration rate settings.

Maximum Run speed is usually stated as inches/min. Follow all guidelines in the servo feed manual to make proper settings for run speed.

Keep in mind that you can optionally use the *Feed Advisor* to automatically calculate the acceleration rate for you (if it is available with your servo feed).

Feed Advisor

You select "Feed Advisor" when you want ProCam 1500 SFI to figure out the acceleration rate and maximum run speed for you.

```
┌─────────────────────────────────────────────┐
│                    NOTE                       │
│  Feed Advisor is not available with all servo feed models. │
└─────────────────────────────────────────────┘
```

Feed Advisor is a convenience which saves you the time of calculating the acceleration rate yourself. You need to enter feed length, feed arc (number of crankshaft degrees available to fully feed the material), and press speed when using Feed Advisor. The acceleration rate and run speed is calculated assuming the lowest acceleration rate to fully feed the material by the end of the feed arc. When determining this rate, take into consideration the feed initiate angle, which may be programmed as one of the cam timings in ProCam 1500 (not SFI).

Here is an example of a situation to avoid. If a 225 degree feed arc is assumed in the Feed Advisor but only 220 degrees is truly available to be fed up, punch engagement may occur before the feed is complete and a die crash may occur. Make sure that you know the actual number of degrees needed to feed up the material and that the feed initiate angle is correctly set.

Here is how Feed Advisor works with the information that you provided to it. Let's say your feed length is 2.252 inches. Also, let's say the number of degrees you have to feed in is 225° with the feed initiate ON angle set at 260°, and the press speed is 150 SPM. You want Feed Advisor to figure out the acceleration rate based upon these values.

How to use Feed Advisor

Select "Feed Advisor" on the "Set feed" display. Select each item on the screen, one a time -- feed length, feed arc, and press speed -- and enter new values. For instance, when you select "Feed length" and enter 2.252, here is how the screen will look (Figure 3-13). Remember to use your left/right and up/down CURSOR keys to set the value and the ENTER key to enter it.

```
     ┌─────────────────────────────────────────┐
     │              FEED LENGTH                  │
     │                   ▼                       │
     │               0002.252                    │
     │                                           │
     │   USE LEFT / RIGHT CURSORS TO SELECT DIGITS │
     │   USE UP / DOWN CURSORS TO CHANGE VALUES  │
     │   PRESS ENTER WHEN DONE, RESET TO CANCEL  │
     └─────────────────────────────────────────┘
```
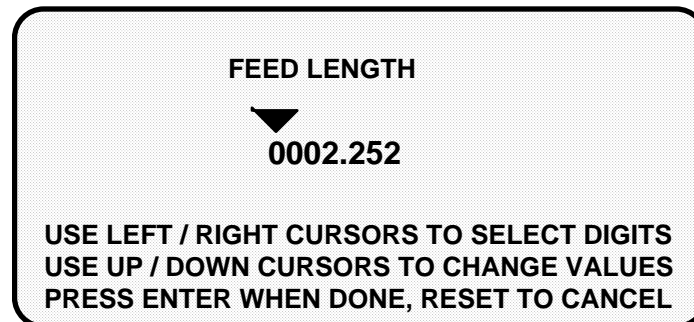
Figure 3-13. Setting Feed length in Feed Advisor

Now do the same for "Feed arc" and "Press speed". Select "Feed arc", and enter 225. Then select "Press speed" and enter 150. *Keep in mind for variable speed presses, enter the press speed that you will use for the job, and enter it in strokes per minute.*

Once you have entered these values, here is how the "Feed Advisor" will display them:

```
              SERVO-FEED ADVISOR
  FEED LENGTH        2.252     INCHES
  FEED ARC           225       DEGREES
  PRESS SPEED        150       SPM
  CALCULATE
```
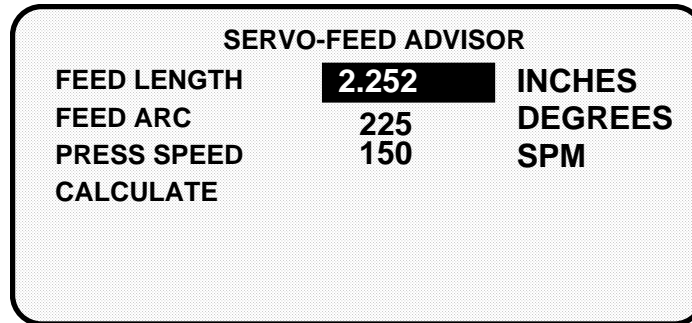
Figure 3-14.   Feed Advisor display

Now select "Calculate". Once you press ENTER, Feed Advisor calculates your acceleration rate. This message quickly flashes on the screen.

PLEASE WAIT … CALCULATING PARAMETERS

Then Feed Advisor tells you if the feed length and feed arc you entered are valid for that press speed. For instance, if Feed Advisor determines that the feed has plenty of time to complete based on the values entered, you will see this message at the bottom of the "Feed Advisor" screen:

THE MATERIAL WILL BE FED UP WELL BEFORE THE FEED ARC IS COMPLETED.

This means that the feed will end well before the end of the feed arc you have entered.

If you see this message:

THE MATERIAL WILL BE FED UP JUST AS THE FEED ARC IS COMPLETED.

… this means that the feed will end just as the feed arc is completed. This is the optimum condition. If you entered values that will not allow the feed to complete before the end of the feed arc, you see this message:

THE MATERIAL CANNOT BE FED UP IN TIME. MORE TIME MUST BE ALLOWED.

In this case, recheck your values. It might just be a matter of lengthening the feed arc if that will not affect other actions, such as part transfer or part cut off. If you cannot do that, your other option is decreasing press speed. In any case, revise your figures if ProCam 1500 gives you a warning. Then "calculate" Feed Advisor again.

When you get a good calculation, press the RESET key. You will see the acceleration rate and maximum run speed for your feed setup are automatically revised by Feed Advisor. In our example (Figure 3-15), the acceleration rate is 40%. This means that the feed is comfortably within an acceptable acceleration range and maximum run speed.
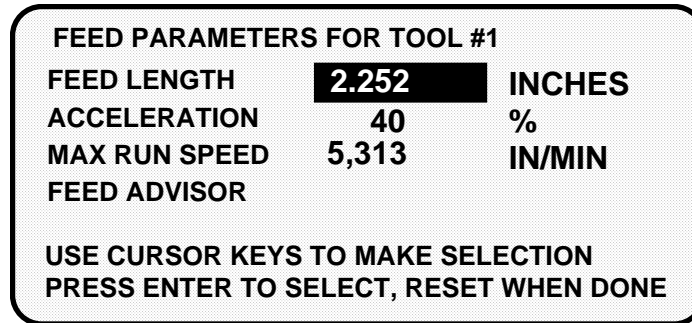
```
┌─────────────────────────────────────────┐
│  FEED PARAMETERS FOR TOOL #1             │
│  FEED LENGTH      ▐2.252▌      INCHES     │
│  ACCELERATION       40        %           │
│  MAX RUN SPEED    5,313       IN/MIN       │
│  FEED ADVISOR                             │
│                                           │
│  USE CURSOR KEYS TO MAKE SELECTION        │
│  PRESS ENTER TO SELECT, RESET WHEN DONE   │
└─────────────────────────────────────────┘
```

Figure 3-15. New feed parameters created by Feed Advisor

ABOUT USING FEED ADVISOR

You can use Feed Advisor (if available with your servo feed) any time that you want ProCam to calculate the acceleration rate and maximum run speed for you. If you want to manually enter your own feed parameters, select "Acceleration" and "Max run speed" on the "Feed Parameters" screen.

Remember to program the "Feed Initiate angle" as the "on" angle of the "Feed Advance" cam in ProCam!

Load by tool number

You can automatically load feed sttings by tool number. To load a tool number, press RESET twice, the first time to exit from the "Feed parameters" display and then again to get to the "Load tool number" screen. Press ENTER to load (or RESET to back out). You will get a message like this one which confirms that you have successfully loaded the tool (your tool number may be different):

Please Wait … LOADING TOOL 1

How to load by tool numbers is covered in Chapters 5 (Program mode) and 6 (Run mode) of the ProCam 1500 user manual.

Run mode

REMEMBER!

ProCam 1500 SFI works differently with the various models of servo feeds available. You may not be able to adjust feed settings.

While you are running the press, ProCam 1500 will operate the servo feed based upon the settings you made in Program mode, and in some cases, you can make minor adjustments to the currently loaded tool number.

To use Run mode, turn the Program/Run key to "Run". Here is the screen that you will see (Figure 3-16).
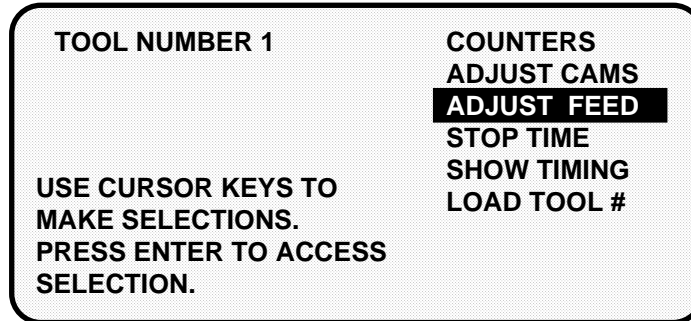
```
 TOOL NUMBER 1              COUNTERS
                            ADJUST CAMS
                            ADJUST  FEED
                            STOP TIME
                            SHOW TIMING
 USE CURSOR KEYS TO         LOAD TOOL #
 MAKE SELECTIONS.
 PRESS ENTER TO ACCESS
 SELECTION.
```

Figure 3-16. Run menu

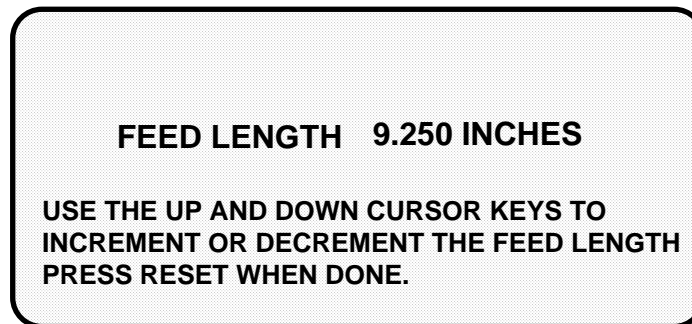To adjust feed settings, select "Adjust feed".   As the display indicates, you can adjust "Feed length" (Figure 3-17).

```
       FEED LENGTH   9.250 INCHES

  USE THE UP AND DOWN CURSOR KEYS TO
  INCREMENT OR DECREMENT THE FEED LENGTH
  PRESS RESET WHEN DONE.
```

Figure 3-17. Adjusting feed length

Using the up and down CURSOR keys, you can make minor adjustments (if available). Notice as you press either key, the value changes by .001 inch (1/1000) or less. This information is directly sent to the servo feed and is immediately saved to the currently loaded tool. Be sure to make a note of this change to your feed setup sheet for future reference. Press the RESET key to exit from this display.

Troubleshooting

Whenever ProCam 1500 and the feed control unit are not successfully communicating, the following message will appear on the LCD display. Check that all connections are intact. Once communications is restored, you will no longer see this fault message.
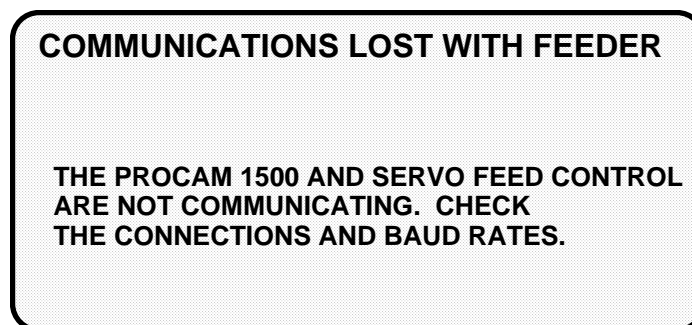
```
COMMUNICATIONS LOST WITH FEEDER


  THE PROCAM 1500 AND SERVO FEED CONTROL
  ARE NOT COMMUNICATING.  CHECK
  THE CONNECTIONS AND BAUD RATES.
```

Figure 3-19. Communications fault message

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