

USER
Manual

Electrocraft Wintriss® SFI

ServoFeed Interface for:

SmartPAC®

SmartPAC® 2

DiPro® 1500

ProCam® 1500

1109200

Rev. C December 2014

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



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Changes for Revision C of the Electrocraft Wintriss SFI User Manual (1109200)

Revision C of the Electrocraft Wintriss SFI User Manual covers all Electrocraft SFI software versions.

The changes for Revision C include:

- Added to the cover of the installation manual the URL and QR code user needs to download the user manual

PROVIDE IMPORTANT INFO

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Whenever you need to contact Wintriss Tech. Support for technical assistance, be ready to provide some important information to help solve the problem. Please supply: product name (e.g. SmartPAC standard); installed options (e.g., SFI, etc.); and firmware version number (e.g., Vs. 2.00). You can determine the last two items by going into "Installed Options" in Initialization mode. You can also determine firmware version number from the labeled chip on the firmware board (see Figure 2-1, page 9, for location).

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How To Use This Manual

This manual shows you how to install and operate the Electrocraft ServoFeed Interface (SFI) on SmartPAC and Wintriss 1500 series controls. It covers both Electrocraft IQ and Electrocraft BRU SFI firmware options.

Chapter 1 introduces you to the Electrocraft ServoFeed Interface (SFI). It provides an overview of Wintriss SFIs in general and the Electrocraft SFI in particular and describes briefly Electrocraft SFI operation and features.

Chapter 2 shows you how to install Electrocraft SFI on SmartPAC and Wintriss 1500 series controls. The chapter covers installation of SFI firmware and wiring of Electrocraft feed controllers to the appropriate Wintriss product. Wiring diagrams for each Electrocraft model (i.e., Electrocraft IQ, Electrocraft BRU with Exor terminal, and Electrocraft BRU) are provided at the back of the manual.

Chapters 3 through 5 show you how to use Electrocraft SFI in all three SmartPAC and 1500 series operating modes—Initialization (covered in Chapter 3), Program (Chapter 4), and Run (Chapter 5). If you need more detail about Electrocraft SFI operation than is provided in these chapters, refer to your Electrocraft servofeed manual.

Chapter 6 shows you how to troubleshoot communications interruptions between your Electrocraft servofeed and the applicable Wintriss control. For Electrocraft error conditions specific to the feed controller, consult your Electrocraft servofeed user manual.

NOTICE

ELECTROCRRAFT SFI AND SMARTPAC 2

You can use Electrocraft SFI with SmartPAC 2 as well as with the original SmartPAC. Instructions provided in this manual that are specific to SmartPAC pertain to both SmartPAC 1 and SmartPAC 2 (refer to “SmartPAC 2 and Original SmartPAC,” page 3, for more information). Wiring diagrams at the back of the manual show pin connections for both SmartPACs.

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/SFC 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.

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Chapter 1

Introduction

Wintriss ServoFeed Interfaces

ServoFeed Interface (SFI) is an option available with the following Wintriss products—SmartPAC 1, SmartPAC 2, ProCam 1500, and DiPro 1500 with Cam—allowing these controls to be interfaced with most servo-driven feeds.

Composed of both hardware and software, SFI can be integrated with an existing system or ordered with a new one. SFI enables the microprocessor-based Wintriss product to be “interfaced” with the servofeed controller, allowing feed settings for the tool to be stored in tool number memory at the Wintriss control. The Wintriss control will automatically transmit the settings to the servofeed every time a tool is changed. Typically, there is only one operator interface, or control panel, to use and only one tool number to load when setting a die. With some feeds, the Wintriss product becomes the feed’s panel. With other feeds, the feed panel remains functional but may be rarely, if ever, used.

Although SFI is similar from one feed to the next, there are differences that are feed-manufacturer- or feed-controller-specific. Some feeds will not accept certain information via a communications port; in others the controller only communicates during certain modes. This may be a controller issue, or a decision on the part of the feed manufacturer. SFI cannot change the way in which the feed controller operates but can only “talk/work” within the controller’s communications capabilities or as requested by the feed manufacturer. Nevertheless, SFI works like the Wintriss product within which it is installed, using similar menus and expected key strokes to program, adjust, and load feed settings.

To use the ServoFeed Interface, you must install the appropriate firmware chip in your Wintriss control. Then you simply connect the unit to your servofeed, using a cable that plugs into your servofeed’s RS-232 port. See Chapter 2 for installation instructions for the appropriate product.

Electrocraft ServoFeed Interface

The Electrocraft ServoFeed Interface allows several user-defined choices as well as feed adjustments while running. It also includes “Feed Advisor,” a program that helps you determine the optimum, or slowest, feed speed for your feed setup. You program the parameters (press speed, feed arc/degrees available to feed, and length), and Feed Advisor calculates the feed speed. If a feed speed cannot be calculated from the values you supply, Feed Advisor will offer a suggested solution.

With Electrocraft SFI, the feed is set and its parameters stored at the Wintriss control. There are three modes: Initialization, Program, and Run. Depending on the Wintriss control and specific SFI, screen headings within these modes may vary slightly. However, the features are similar.

In **Initialization mode**, you set the major parameters for the Electrocraft ServoFeed, configuring how the SFI works. In Initialization mode, you zero the resolver, determine the system’s security, and configure cam “auto advance” parameters. See Chapter 3 for more information about Initialization mode.

In **Program mode**, you program a tool number, make major changes to a setup, use the Feed Advisor (if applicable), and load the tool number that you want to run. See Chapter 4 for more information about Program mode.

In **Run mode**, you can load a tool number and fine-tune the loaded tool parameters—if allowed by your security settings (Initialization Mode). See Chapter 5 for more information about Run mode.

NOTICE

REFER TO THE APPROPRIATE WINTRISS USER MANUAL

If you need additional help with any of the Wintriss products documented here, consult the appropriate Wintriss user manual, which explains in detail how to use all of the operating modes mentioned above as well as use of the keypad:

SmartPAC: #1100500

SmartPAC with WPC: #1101000

SmartPAC 2: #1126700

SmartPAC 2 with WPC: #1126800

SmartPAC 2 with WPC 2000: #1128600

ProCam 1500: #1095000

DiPro 1500: #1092000

Electrocraft SFI Operation

Your Electrocraft Servofeed Interface (SFI) is actually an RS-232 interface, which consists not only of cable and connectors but also of specific circuit requirements and software instructions to transmit signals and data between your servofeed and the appropriate Wintriss control. Transmission of data is handled by software in the Wintriss product and by the software built into your servofeed. Your servofeed comes with all the RS-232 circuitry and software already in place.

Wintriss worked with your servofeed manufacturer to design the proper hardware and software to automatically interface with your Electrocraft servofeed. As a result, all you have to do is install the firmware chip and connect a cable from the Wintriss control to your servofeed's RS-232 port. Everything else is automatic. You can then make SFI settings at the keypad on the Wintriss product just as you would if you were using the interface on the servofeed itself.

Electrocraft SFI Features

Using the Wintriss control menus in Electrocraft SFI, you can perform the following actions:

- Set various feed parameters for your servofeed
- Save feed settings under a specified 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 informs you if your settings are right for that job.
- Adjust feed length, speed, and, in some cases, acceleration while the press is running
- Lock SFI settings in Run Mode to prevent unauthorized tampering

NOTICE

REFER TO YOUR ELECTROCRAFT SERVOFEED USER MANUAL

For more detailed information about your Electrocraft servofeed controller, refer to the Electrocraft servofeed user manual.

SmartPAC 2 and Original SmartPAC

Your Electrocraft Servofeed Interface (SFI) can be used with either the original SmartPAC or SmartPAC 2. This manual covers Electrocraft SFI installation and operation with SmartPAC 1, but you can also use the manual to install and operate Electrocraft SFI with SmartPAC 2.

To install Electrocraft SFI on SmartPAC 2, follow the instructions in Chapter 2, referring to the appropriate wiring diagrams at the end of the manual. (Wiring diagrams show connections for both SmartPAC 1 and SmartPAC 2.) For Electrocraft SFI operation with SmartPAC 2, follow the instructions in chapters 3-6.

Electrocraft SFI menu organization in SmartPAC 2 is similar to that in SmartPAC 1, and Electrocraft SFI screens are virtually the same in both SmartPACs. As a result, you can refer to the screens and follow the steps provided in chapters 3-6 of this manual to initialize, program, run, and troubleshoot Electrocraft SFI in both SmartPAC 1 and SmartPAC 2. The main difference between the two SmartPACs is in their panel displays, as shown in Figure 1-1.

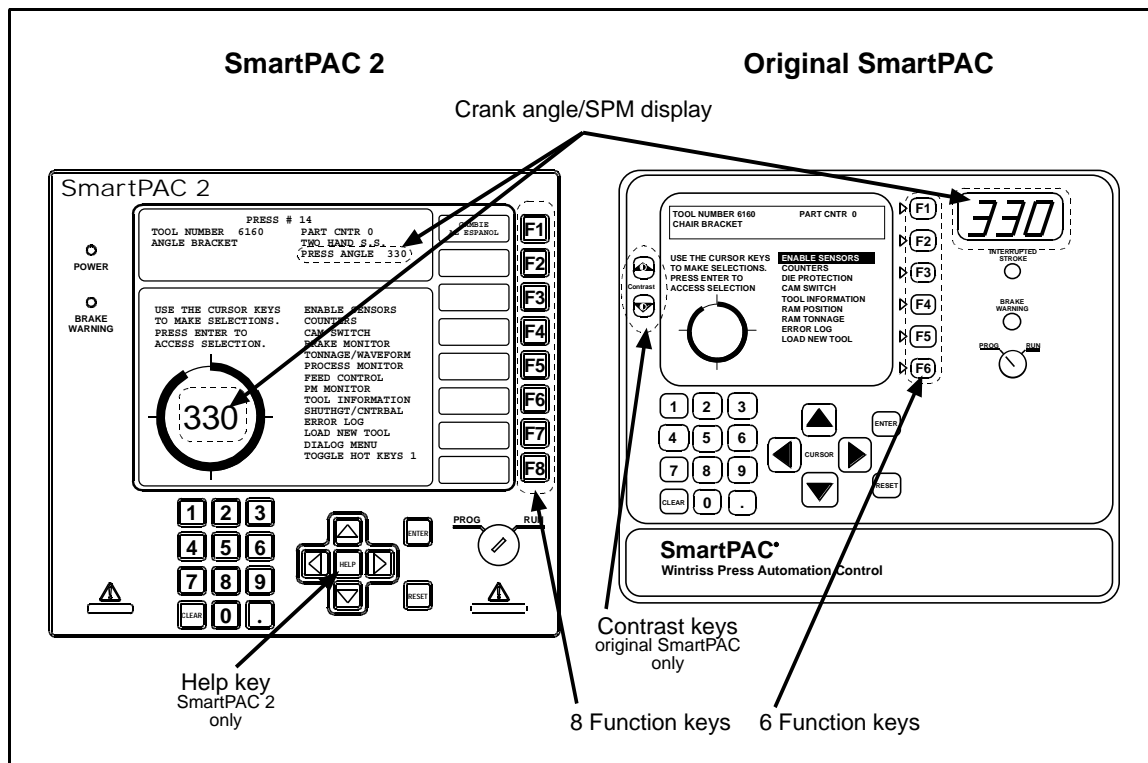


Figure 1-1. Panel Displays, SmartPAC 2 and Original SmartPAC

SmartPAC 1 and SmartPAC 2 panel displays use a different number of function, or “F,” keys. SmartPAC 2 has eight function keys, and the original SmartPAC only six. Be sure to read the instructions on the display and the descriptive labels next to the function keys before you press an “F” key.

NOTICE

On many SmartPAC 2 screens, you can press the **HELP** key (see Figure 1-1) to display instructions showing you how to use the screen.

If you need additional help using Electrocraft SFI with SmartPAC 2, refer to the appropriate SmartPAC 2 user manual:

- SmartPAC 2 (1126700)
- SmartPAC 2 with WPC (1126800)
- SmartPAC 2 with WPC 2000 (1128600)

Chapter 2

Electrocraft SFI Installation

This chapter shows you how to install the components that allow your SmartPAC or Wintriss 1500 series control to operate your Electrocraft servofeed. The chapter provides instructions for installing SFI firmware in the applicable Wintriss control and making wiring connections between the Electrocraft servofeed controller and the Wintriss control.

Wiring diagrams are provided at the back of the manual.

NOTICE

ELECTROCRAFT SFI AND SMARTPAC 2

You can use Electrocraft SFI with SmartPAC 2 as well as with the original SmartPAC. Instructions provided in this manual that are specific to SmartPAC pertain to both SmartPAC 1 and SmartPAC 2 (refer to “SmartPAC 2 and Original SmartPAC,” page 3, for more information). Wiring diagrams at the back of the manual show pin connections for both SmartPACs.

If you need further help in installing firmware or wiring your Wintriss control, consult the applicable Wintriss user manual.

Installing Electrocraft SFI in SmartPAC

This section shows you how to install Electrocraft SFI in a SmartPAC control. Before starting, make sure you have the following parts:

- SFI firmware (unless factory-installed at time of order)
- 20-foot 3-conductor shielded cable with DB-9 (part no. 4199106) or DB-15 (part no. 4199108) connector attached at one end
- 10-pin Phoenix connector

Installing Electrocraft SFI Firmware in SmartPAC

NOTICE

For instructions on how to install upgraded firmware for Electrocraft SFI in SmartPAC 2, refer to Appendix B, “Updating SmartPAC 2 Firmware,” in the SmartPAC 2 user manual or the instruction sheet “Updating SmartPAC 2 Firmware,” which accompanies all SmartPAC 2 firmware orders.

To install Electrocraft IQ or Electrocraft BRU SFI firmware in SmartPAC, perform these steps:

⚠ WARNING**ELECTRIC SHOCK HAZARD**

- Ensure that the power source is off before you replace electronic components in a control.
- Disconnect power from the machinery it is connected to before replacing electronic components. This includes disconnecting power to the machine control and motor.
- Ensure that servicing is performed by qualified personnel.

Failure to comply with these instructions could result in death or serious injury.

1. Turn off power to SmartPAC. The LCD on the front panel should be blank and the Angle/RPM display should be unlit.

CAUTION**DAMAGE TO BOARD FROM STATIC DISCHARGE**

Ground yourself before touching circuit boards or chips by touching a large metal object such as the press. Static electricity can destroy electronic components.

Failure to comply with these instructions could result in property damage.

2. Making sure that you are grounded, open the SmartPAC enclosure and find the SmartPAC firmware board, which is located in the lower left corner of the SmartPAC processor board (see Figure 2-1, next page).
3. Remove the four screws holding the firmware board to the standoffs on the SmartPAC processor board, and put them aside.
4. Unplug the old SmartPAC firmware board from the SmartPAC processor board and put it aside so it will not be confused with the new SmartPAC firmware board.

NOTICE

The white label on the firmware chip on the SmartPAC firmware board (see Figure 2-1) provides SmartPAC firmware identification information, including version number.

5. Remove the new SmartPAC firmware board from its package and plug it into the SmartPAC processor board so that the RAM and firmware chips are at the bottom, as shown in Figure 2-1.

NOTICE

Make sure to install the new SmartPAC firmware board with the correct orientation; otherwise, the board will not plug into its socket.

6. Screw the four corners of the board into the standoffs on the SmartPAC processor board.
7. Secure the cover on the SmartPAC or SmartPAC 2 enclosure, turn on power to the SmartPAC, and wait for either the Program or Run screen to display on the LCD. If one of these screens displays clearly, the control is operating properly and you can proceed with wiring your Electrocraft servofeed, which is described in the next section.

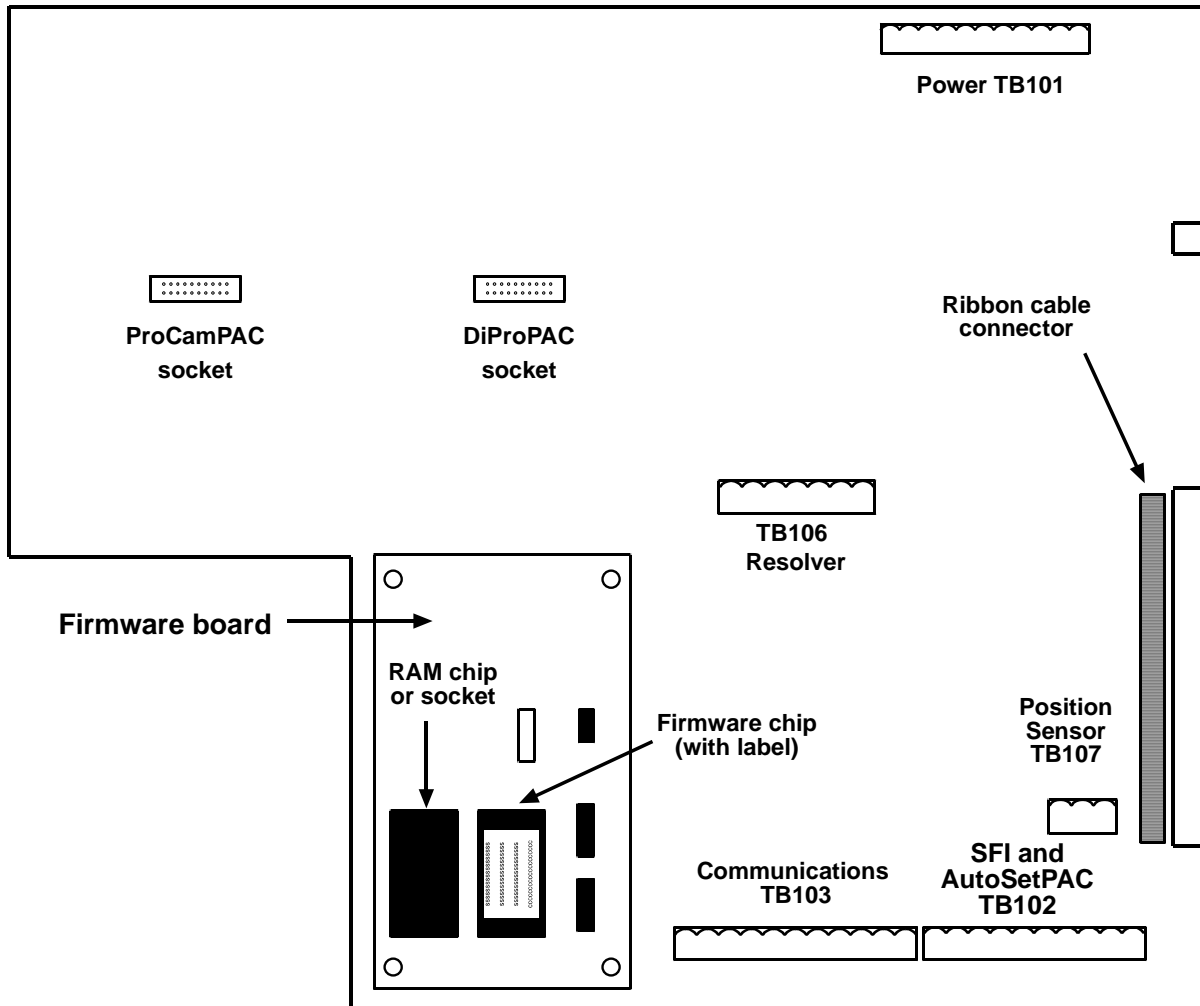


Figure 2-1. SmartPAC Processor Board: Location of Important Components

If the unit powers up with a garbled display, turn the power off and check to make sure that the board is properly seated.

NOTICE

Some firmware upgrades cause SmartPAC to generate a tool number checksum error the first time you try to reload tool setups. If you get a checksum error after installing a new firmware board, enter Program mode and change one of the counters for that tool. Then reload the tool. If the unit still malfunctions, contact Wintriss Tech. Support.

Wiring the Electrocraft Feed Controller to SmartPAC

This section provides instructions for wiring the following Electrocraft feed controllers to SmartPAC:

- Electrocraft IQ (requires Electrocraft IQ SFI firmware)
- Electrocraft BRU with Exor terminal (requires Electrocraft IQ SFI firmware)
- Electrocraft BRU (requires Electrocraft BRU SFI firmware)

Be sure you have verified that SmartPAC is working properly before you proceed.

NOTICE

WIRING FOR YOUR SPECIFIC ELECTROCRRAFT FEED MODEL

Figures at the back of the manual provide wiring schematics for the following Electrocraft servofeeds and SmartPAC 1/SmartPAC 2:

- Figure 1: Electrocraft IQ servofeed
- Figure 2: Electrocraft BRU servofeed with Exor terminal
- Figure 3: Electrocraft BRU servofeed

For additional information, consult your Electrocraft feed controller manual.

WARNING

ELECTRIC SHOCK HAZARD

- Ensure that the power source is off before you touch any wiring inside the enclosure.
- Disconnect power from the machinery it is connected to before making any wiring connections. This includes disconnecting power to the machine control and motor.
- Ensure that servicing is performed by qualified personnel.

Failure to comply with these instructions could result in death or serious injury.

1. Verify that SmartPAC and your feed are turned off.
2. Locate the black, round cable with a male DB-9 (Wintriss part no. 4199106) or DB-15 (Wintriss part no. 4199108) connector on one end. The other end of the cable has three unattached wires (white, red, black) and a shield.

The male DB-9 connector is used with Electrocraft IQ and BRU servofeeds (see Figures 1 and 3 at the back of the manual). The male DB-15 connector is used with the Electrocraft BRU servofeed with the Exor terminal (see Figure 2).

3. Open the SmartPAC or SmartPAC 2 enclosure and locate terminal TB102 on the SmartPAC processor board (see Figure 2-1) or TB103 on the SmartPAC 2 board (see Figure 8 at the end of the manual).

NOTICE

SmartPAC 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. Locate the appropriate RS-232 port on your Electrocraft feed controller. RS-232 ports for each Electrocraft model are shown below:

Electrocraft IQ: P6–serial port 2

Electrocraft BRU with Exor terminal: PC/Printer port

Electrocraft BRU: port J5

5. Run the cable with the DB-9 or DB-15 connector through dedicated, flexible, liquid-tight conduit from your feed to SmartPAC.
6. Plug the DB-9 or DB-15 connector into the appropriate RS-232 port of your Electrocraft servofeed. Connectors and RS-232 ports for each Electrocraft model are shown below:

Electrocraft IQ: DB-9, P6–serial port 2

Electrocraft BRU with Exor terminal: DB-15, PC/Printer port

Electrocraft BRU: DB-9, port J5

The connector can go in only one way. Tighten the screws on the connector to hold it firmly in its socket. Also tighten all conduit connections.

7. At SmartPAC, cut off any extra cable (a 1-foot service loop is recommended), and carefully remove the outer insulation and inner shielding on the cable to a distance that allows the shield drain wire to be connected to a ground stud near the cable entry point and the three conductors to be connected to TB102 on the SmartPAC 1 processor board or TB103 on the SmartPAC 2 board.
8. Cut off any extra drain wire, then connect the drain wire to a ground stud near the cable's point of entry by loosening the nut on the ground stud, wrapping the drain wire once clockwise around the stud, and tightening down the nut.
9. Strip insulation back 1/4" on the white, red, and black conductors, and connect the exposed wires at the SmartPAC end of the cable to the 10-pin Phoenix connector that plugs into terminal TB102 on the SmartPAC processor board or TB103 on the SmartPAC 2 board, as shown in the figures at the back of the manual. The appropriate figure for each Electrocraft servofeed is shown below:

Electrocraft IQ: Figure 1

Electrocraft BRU with Exor terminal: Figure 2

Electrocraft BRU: Figure 3

To connect a wire, loosen the screw in your Phoenix plug, insert the bare part of the wire 90% of the way into the open slot, and retighten the screw, holding the wire firmly in place (see Figure 2-2, next page).

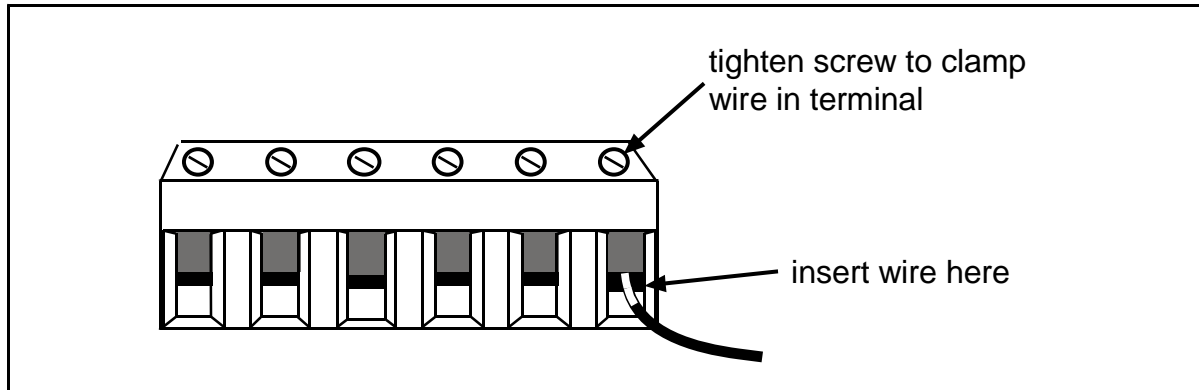


Figure 2-2. Attaching Wires to a Phoenix Connector (6-Pin Connector Shown)

NOTICE

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

10. Add a jumper between terminals 235 and 240 on the 10-pin Phoenix connector.
11. Plug the 10-pin connector into TB102 on the SmartPAC board or TB103 on the SmartPAC 2 board.
12. Secure the cover on the SmartPAC or SmartPAC 2 enclosure.
13. Turn power back on to both SmartPAC and your servofeed.
14. Check that SmartPAC is operating normally. If it is, you are now ready to use Electrocraft SFI. Go to the next chapters to learn how to set up and operate your feed through SmartPAC.

NOTICE

If SmartPAC powers up with a garbled display, turn the power off and recheck how you installed your firmware. Review "Installing Electrocraft SFI Firmware in SmartPAC," page 7. If the unit is still malfunctioning and you cannot find the reason for the problem, call Wintriss Tech. Support for assistance.

Installing Electrocraft SFI in a 1500 Series Control

This section shows you how to install Electrocraft SFI in a Wintriss 1500 series control (i.e., ProCam 1500 or DiPro 1500). Before starting, make sure you have the following parts:

- SFI firmware (unless factory-installed at time of order)
- 20-foot 3-conductor shielded cable with DB-9 (part no. 4199106) or DB-15 (part no. 4199108) connector attached at one end
- 10-pin Phoenix connector

Installing Electrocraft SFI Firmware in a 1500 Series Control

To install Electrocraft IQ or Electrocraft BRU SFI firmware in a Wintriss 1500 series control, perform these steps:

WARNING

ELECTRIC SHOCK HAZARD

- Ensure that the power source is off before you replace electronic components in a control.
- Disconnect power from the machinery it is connected to before replacing electronic components. This includes disconnecting power to the machine control and motor.
- Ensure that servicing is performed by qualified personnel.

Failure to comply with these instructions could result in death or serious injury.

1. Turn off power to the 1500 control. The LCD on the front panel should be blank and the Angle/RPM display should be unlit.

CAUTION

Ground yourself before touching circuit boards or chips by touching a large metal object such as the press. Static electricity can destroy electronic components.

Failure to comply with these instructions could result in damage to the electronics.

2. Making sure that you are grounded, open the 1500 enclosure and find the firmware chip on the processor board (see Figure 2-3, next page, for chip location on the ProCam 1500 processor board and Figure 2-4, page 15, for chip location on the DiPro 1500 processor board). Note the orientation of the notch on the chip.

NOTICE

The new firmware chip must be installed with the notch in the same orientation as the old firmware chip.

- On the ProCam 1500 processor board, the notch on the firmware chip must face up.
- On the DiPro 1500 processor board, the notch on the firmware chip must face down.

CAUTION

DAMAGE TO PC BOARD

Insert the screwdriver between the chip and the socket. Be careful not to insert the screwdriver under the socket. You may damage the board.

Failure to comply with these instructions could result in property damage.

3. Insert a small screwdriver between the bottom of the firmware chip and its socket and carefully pry the old chip from the board. Put the old chip aside so that it will not be confused with the new firmware chip.

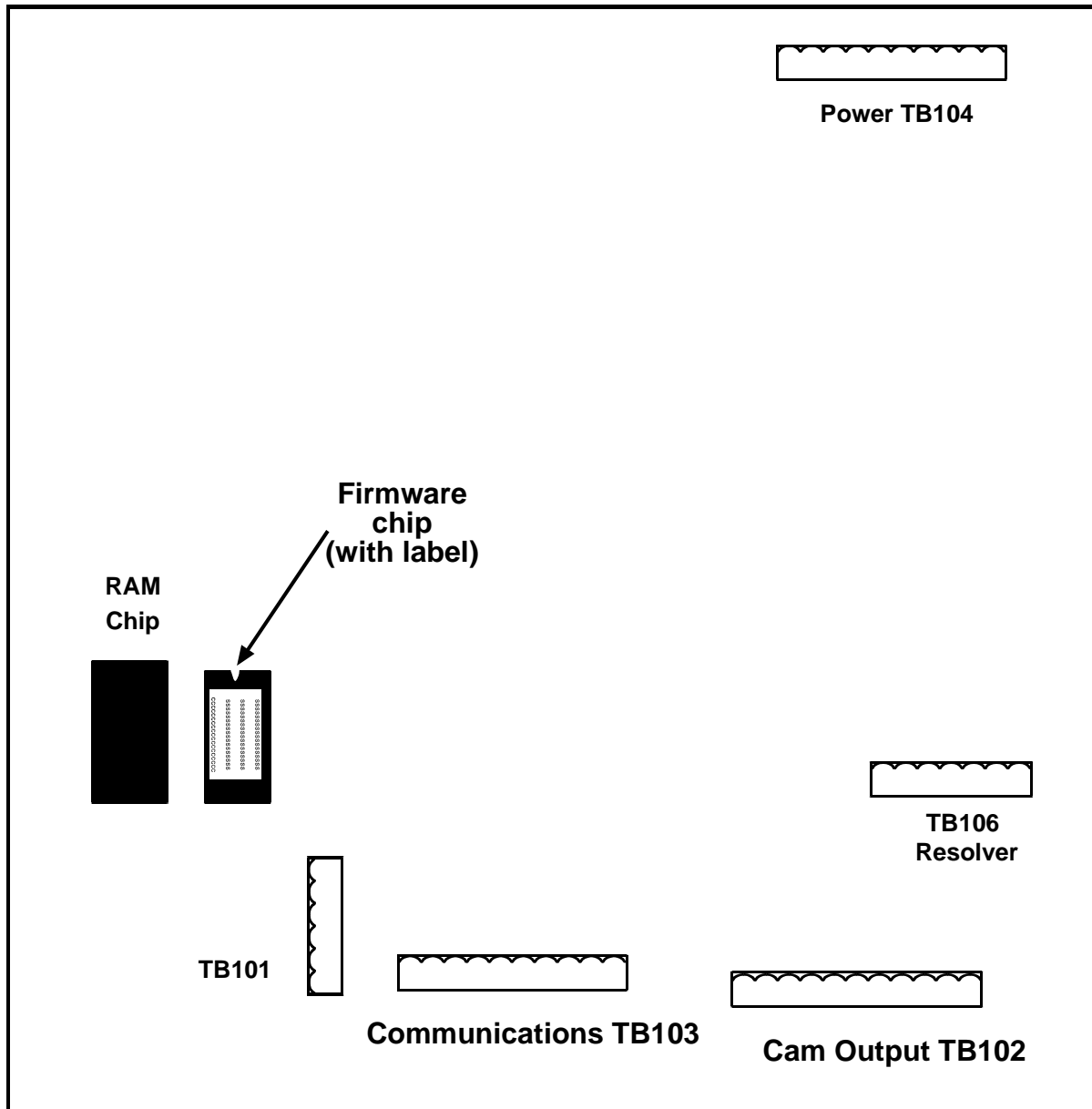


Figure 2-3. ProCam 1500 Processor Board: Location of Important Components (Back Side of Panel Mount)

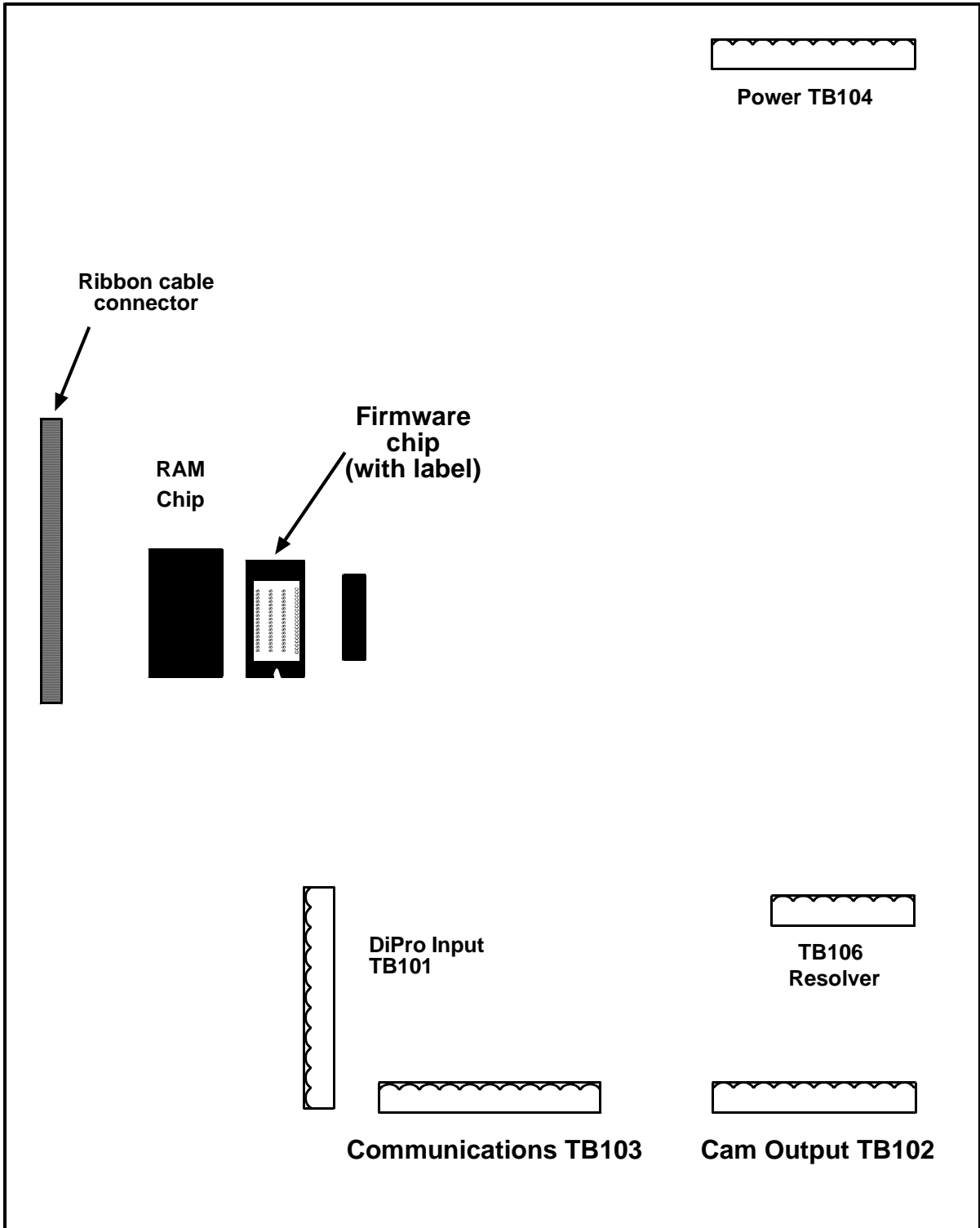


Figure 2-4. DiPro 1500 Processor Board: Location of Important Components

NOTICE

The white label on the firmware chip provides ProCam 1500 (see Figure 2-3) or DiPro 1500 (see Figure 2-4) firmware identification information, including version number.

4. Open the package containing the new firmware chip and remove the chip from its holder.

CAUTION**WRONG INSTALLATION DAMAGES CHIP**

Install the chip with the notch facing in the same direction as the notch on the chip you just removed; otherwise, when you power up the control, the chip will be destroyed.

- On the ProCam 1500 processor board, the notch on the firmware chip must face up.
- On the DiPro 1500 processor board, the notch on the firmware chip must face down.

Failure to comply with these instructions could result in property damage.

5. Plug the chip into the firmware socket, inserting the left row of pins first, then aligning the right row of pins over the socket and pushing them in. Make sure that the notch in the chip faces in the correct direction (i.e., up for ProCam 1500, down for DiPro 1500) and that all of the pins are in the socket.

NOTICE

If the two rows of pins are spread too far apart to plug easily into the socket, hold the chip on its side on a flat surface with the pins pointing toward you.

Being careful not to overbend the pins, gently draw the top of the chip toward you until the pins bend a little. Turn the chip over so that the other row of pins is now flat and pointing toward you. Draw the top of the chip toward you again until the pins bend.

When the rows of pins look parallel, plug the chip into its socket again. If the chip still doesn't fit, repeat this procedure.

6. Secure the cover or face plate on the 1500 unit, turn on power to the 1500, and wait for either the Program or Run screen to display on the LCD. If one of these screens displays clearly, the control is operating properly and you can proceed with wiring your Electrocraft servofeed, which is described in the next section.

If the unit powers up with a garbled display, one or more pins may be bent or not plugged in properly. To correct this problem, turn the power off and repeat the procedure described in the Notice for step 5. If the unit continues to malfunction, call Wintriss Tech. Support.

Wiring the Electrocraft Feed Controller to a 1500 Series Control

This section provides instructions for wiring the following Electrocraft feed controllers to a Wintriss 1500 series control:

- Electrocraft IQ (requires Electrocraft IQ SFI firmware)
- Electrocraft BRU with Exor terminal (requires Electrocraft IQ SFI firmware)
- Electrocraft BRU (requires Electrocraft BRU SFI firmware)

Be sure you have verified that your 1500 series control is working properly before you proceed.

NOTICE

WIRING FOR YOUR SPECIFIC ELECTROCRAFT FEED MODEL

Figures at the back of the manual provide wiring schematics for the following Electrocraft servofeeds and SmartPAC 1/SmartPAC 2:

- Figure 4: Electrocraft IQ servofeed
- Figure 5: Electrocraft BRU servofeed with Exor terminal
- Figure 6: Electrocraft BRU servofeed

For additional information, consult your Electrocraft feed controller manual.

1. Verify that the 1500 series control and your feed are turned off.
2. Locate the black, round cable with a male DB-9 (Wintriss part no. 4199106) or DB-15 (Wintriss part no. 4199108) connector on one end. The other end of the cable has three unattached wires (white, red, and black) and a shield.

The male DB-9 connector is used with Electrocraft IQ and BRU servofeeds (see Figures 4 and 6 at the back of the manual). The male DB-15 connector is used with the Electrocraft BRU servofeed with the Exor terminal (see Figure 5).

3. Open the 1500 enclosure and locate terminal TB103 on the ProCam 1500 or DiPro 1500 processor board (see Figure 2-3 or Figure 2-4).

NOTICE

ProCam 1500 and DiPro 1500 are 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. Locate the appropriate RS-232 port on your Electrocraft feed controller. RS-232 ports for each Electrocraft model are shown below:

Electrocraft IQ: P6—serial port 2

Electrocraft BRU with Exor terminal: PC/Printer port

Electrocraft BRU: port J5

5. Run the cable with the DB-9 or DB-15 connector through dedicated, flexible, liquid-tight conduit from your feed to the 1500 control.
6. Plug the DB-9 or DB-15 connector into the appropriate RS-232 port of your Electrocraft servofeed. Connectors and RS-232 ports for each Electrocraft model are shown below:

Electrocraft IQ: DB-9, P6–serial port 2

Electrocraft BRU with Exor terminal: DB-15, PC/Printer port

Electrocraft BRU: DB-9, port J5

The connector can go in only one way. Tighten the screws on the connector to hold it firmly in its socket. Also tighten all conduit connections.

7. At the 1500 control, cut off any extra cable (a 1-foot service loop is recommended), and carefully remove the outer insulation and inner shielding on the cable to a distance that allows the shield drain wire to be connected to a ground stud near the cable entry point and the three conductors to be connected to TB103 on the ProCam 1500 or DiPro 1500 processor board.
8. Cut off any extra drain wire, then connect the drain wire to a ground stud near the cable's point of entry by loosening the nut on the ground stud, wrapping the drain wire once clockwise around the stud, and tightening down the nut.
9. Strip insulation back 1/4" on the white, red, and black conductors, and connect the exposed wires at the 1500 control end of the cable to the 10-pin Phoenix connector that plugs into terminal TB103 on the ProCam 1500 or DiPro 1500 processor board. Refer to the appropriate figure at the back of the manual for specific wiring connections for your Electrocraft servofeed model, as shown below:

Electrocraft IQ: Figure 4

Electrocraft BRU with Exor terminal: Figure 5

Electrocraft BRU: Figure 6

NOTICE

To connect a wire (see Figure 2-2, page 12), loosen the screw on the plug, insert the bare part of the wire 90% of the way into the open slot, then retighten the screw, holding the wire firmly in place.

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

10. Add a jumper to the 10-pin Phoenix connector:
 - For ProCam 1500: jumper between terminal pins 3 and 6
 - For DiPro 1500: jumper between terminal pins 3 and 10
11. Plug the 10-pin connector back into TB103 on the ProCam 1500 or DiPro 1500 processor board.

12. Secure the cover or face plate on the 1500 unit.
13. Turn power back on to both the 1500 control and to your servofeed.
14. Check that the 1500 unit is operating normally. If it is, you are now ready to use Electrocraft SFI. Go to the next chapters to learn how to set up and operate your feed through the 1500 series control.

NOTICE

If your 1500 control powers up with a garbled display, turn the power off and recheck how you installed your firmware. Review "Installing Electrocraft SFI Firmware in a 1500 Series Control," page 13. If the unit is still malfunctioning and you cannot find the reason for the problem, call Wintriss Tech. Support for assistance.

Chapter 3

Electrocraft SFI Initialization Mode

This chapter shows you how to set several feed initialization parameters in Electrocraft SFI Initialization mode. Instructions are provided for both SmartPAC and Wintriss 1500 series controls.

NOTICE

ELECTROCRAFT SFI AND SMARTPAC 2

You can use Electrocraft SFI with SmartPAC 2 as well as with the original SmartPAC. Instructions provided in this manual that are specific to SmartPAC pertain to both SmartPAC 1 and SmartPAC 2 (refer to “SmartPAC 2 and Original SmartPAC,” page 3, for more information).

If you need additional help using Initialization mode in SmartPAC or 1500 series controls, refer to the applicable Wintriss user manual. For more information about your Electrocraft servofeed, refer to the appropriate Electrocraft servofeed manual.

Initializing Electrocraft SFI in SmartPAC

NOTICE

READ YOUR ELECTROCRAFT SERVOFEED MANUAL BEFORE MAKING ANY SETTINGS!

Make sure you have read the appropriate Electrocraft servofeed manual and understand how your servofeed works before making any changes to Initialization settings.

To get into Initialization mode in SmartPAC, turn the Program/Run key to “PROG” and then press both the “1” and “CLEAR” keys at the same time for one second. (See “Using the Keyboard” in Chapter 3 of the SmartPAC user manual.)

Initialization Menu

NOTICE

Before changing modes (from Initialization to Program, for instance), make sure your screen shows the first display in the sequence of displays for the mode you are in. If the first display does not appear on the screen, nothing will happen when you turn the Program/Run key. To return to the first display, press the RESET key repeatedly. Then turn the Program/Run key to switch to the new mode.

NOTICE**SELECT = HIGHLIGHT + ENTER**

When you are instructed in this manual to “select” a menu item, press the Up (▲) or Down (▼) cursor key on the Wintriss control keypad to highlight the item, then press the ENTER key.

The first display in Initialization mode (the order of items may vary depending on installed options) is shown in Figure 3-1. On this display, select “FEED CONTROL.”

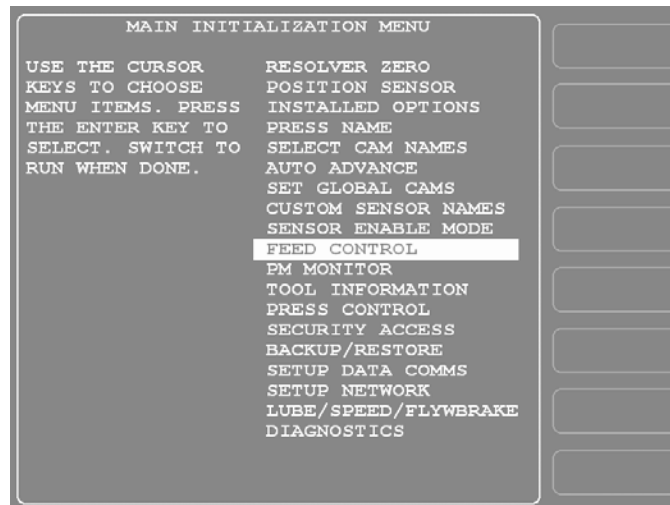


Figure 3-1. SmartPAC Main Initialization Menu with “FEED CONTROL” Selected

Initializing Feed Control Parameters

When you select “FEED CONTROL,” the Feed Control Initialization Parameters screen displays. The items shown on this screen differ depending on the firmware you are running and the Electrocraft model you are using. These differences are covered in the following sections.

Electrocraft IQ

If you have installed Electrocraft IQ firmware, the Feed Control Initialization Parameters screen looks like the example shown in Figure 3-2, next page. This screen allows you to set Units Type, Settling Time, Connection Type, Baud Rate, and Acceleration Units.

Units Type allows you to set SmartPAC’s units of measurement to either inches or metric units. The default is “INCHES.” To change the setting to “METRIC,” press ENTER with “INCHES” highlighted.

NOTICE

Information appearing in figures in this manual will be displayed in “inches” unless the value can only be expressed in metric units.

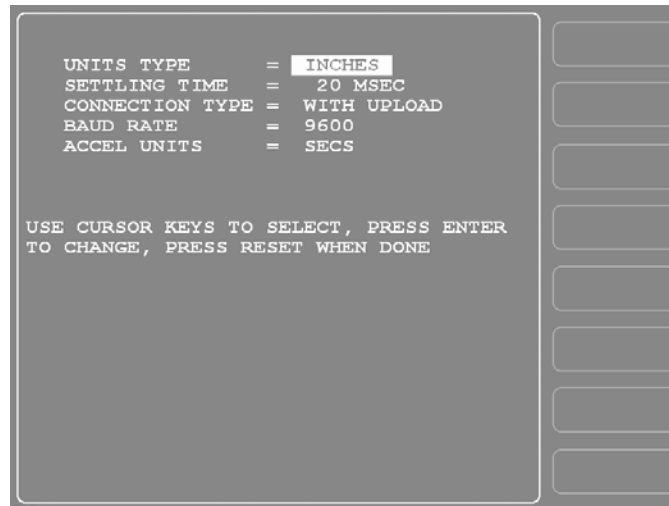


Figure 3-2. Feed Control Initialization Parameters Screen: Electrocraft IQ

Settling Time refers to the amount of time (in milliseconds) that it takes for the feed to settle down at its precise feed length position at the end of a feed cycle. Settling Time also refers to the time it takes the feed control to sense that the feed signal is present. Figure 3-2 shows a Settling Time value of 20 milliseconds as an example. For assistance in selecting the appropriate value, consult your Electrocraft user manual.

To change Settling Time, press ENTER with the Settling Time value highlighted. When the Numeric Entry window displays, follow the directions provided to enter a new Settling Time value. Use the number keys to input a new value or the Up (▲) or Down (▼) cursor key to increment or decrement the current value. When you are done, press ENTER. SmartPAC will accept the number and move on to the next display.

Connection Type specifies whether you want SmartPAC to automatically store in memory changes you make at the Electrocraft feed controller. There are two settings. “WITH UPLOAD” indicates that changes made at the feed controller are automatically stored with the tool number. “NO UPLOAD” indicates that the operator has to reload the tool setup in order for SmartPAC to accept changes at the feed control. To move back and forth between the two settings, press the ENTER key.

Baud Rate is the communication speed between the Electrocraft feed controller and the SmartPAC. To select a value, press ENTER to cycle through the available settings until the one you want is displayed.

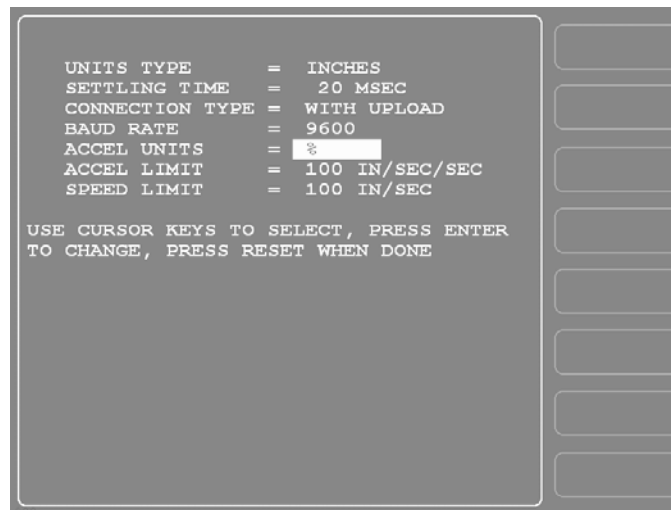
Acceleration Units specifies the units of measurement that will be used to display acceleration ramp time or acceleration percent in Program mode. There are three settings: MSECS, SECS, and %. The “%” setting is used only if you are setting Initialization parameters for an Electrocraft BRU controller with an Exor terminal (see next section). For Electrocraft IQ controllers, use the ENTER key to select either MSEC or SEC. Electrocraft will display acceleration ramp time in Program mode in the units you have specified.

When you are finished entering feed control initialization parameters, press the RESET key to return to the Main Initialization Menu.

For additional information about Units Mode, Settling Time, Connection Type, Baud Rate, and Accel Units, refer to the Electrocraft user manual.

Electrocraft BRU with Exor Terminal

If you are running Electrocraft IQ firmware and you are making Initialization settings for a BRU controller with an Exor terminal, you set Units Type, Settling Time, Connection Type, and Baud Rate just as you do for an IQ controller (see previous section). However, instead of selecting the MSEC or SEC setting for ACCEL UNITS, you select the “%” setting. When you do so, two additional fields display on the Feed Control Initialization Parameters screen, as shown in Figure 3-3.



**Figure 3-3. Feed Control Initialization Parameters Screen:
Electrocraft BRU with Exor Terminal**

Acceleration Limit specifies the feed’s maximum rate of acceleration. Speed Limit specifies its maximum speed. For both fields, press ENTER with the field highlighted to display the Numeric Entry window, key in a value (1,000 maximum for Accel Limit, 9,999 maximum for Speed Limit), following the instructions in the window, and press ENTER again. The value you entered is displayed on the screen.

The acceleration and speed limits entered on this screen are used to calculate speed and acceleration percentages displayed in Program and Run modes.

Further information about Units Mode, Settling Time, Connection Type, Baud Rate, Accel. Units, Accel Limit., and Speed Limit, can be found in the Electrocraft user manual.

When you are finished entering feed control initialization parameters, press the RESET key to return to the Main Initialization Menu.

Electrocraft BRU

If you are running Electrocraft BRU firmware, the screen you see when you select FEED CONTROL on the SmartPAC Main Initialization Menu looks like the example shown in Figure 3-4. On this screen, you set Units Type and Settling Time just as you do for Electrocraft IQ or BRU/Exor models (see previous sections). You also make settings for Acceleration, Jog Speed, Kp Gain, Scale Factor, and Motor Direction.



Figure 3-4. Feed Control Initialization Parameters Screen: Electrocraft BRU

Acceleration specifies the feed's rate of acceleration. To enter a value, highlight this field, press ENTER to display the Numeric Entry window, key in a value, following the directions in the window, and press ENTER again. The value you entered is displayed on the screen.

The remaining fields are entered in the same way. Consult your Electrocraft manual for definitions and settings as well as for additional information about Units Type, Settling Time, and Acceleration fields.

When you are finished entering feed control initialization parameters, press the RESET key to return to the Main Initialization Menu.

Locking Adjust Feed

You can prevent unauthorized personnel from unlocking "ADJUST FEED" and changing feed settings in Run mode. To do so, you must remove the Program/Run key when SmartPAC is switched to Run mode. Since the key must be positioned at "PROG" in order to access Initialization and Program modes, removing the key when SmartPAC is set to RUN prevents settings from being changed by unauthorized users.

You must also enter a setting on the Security Access Menu. To do so, select “SECURITY ACCESS” from the Main Initialization Menu. When the Security Access Menu (see Figure 3-5, below) displays, select the “PROGRAM AND RUN MODES” item to the right of the “ADJUST FEED” action. This is the default setting made at the factory and allows feed adjustments to be made in both Program and Run modes.

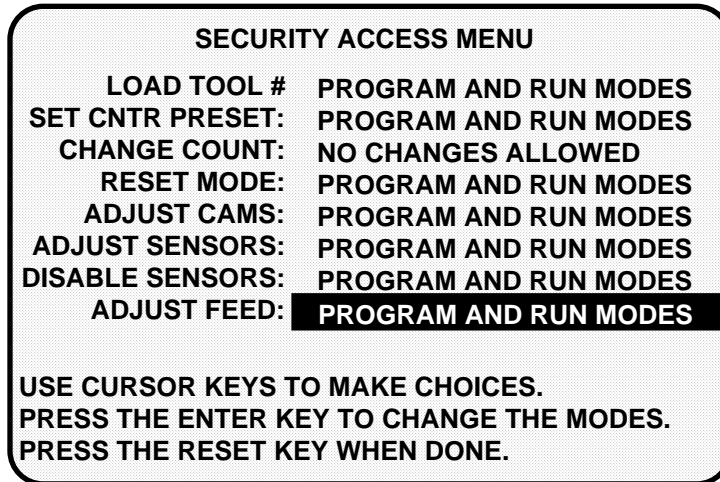


Figure 3-5. SmartPAC Security Access Menu with Feed Adjustment Set for both Program and Run Modes

To lock out the “ADJUST FEED” action so that it cannot be taken in Run mode, press the ENTER key with “PROGRAM AND RUN MODES” highlighted. The item to the right of “ADJUST FEED” changes to “PROGRAM MODE ONLY,” as shown in Figure 3-6, indicating that the feed controller can now be adjusted in Program mode only.

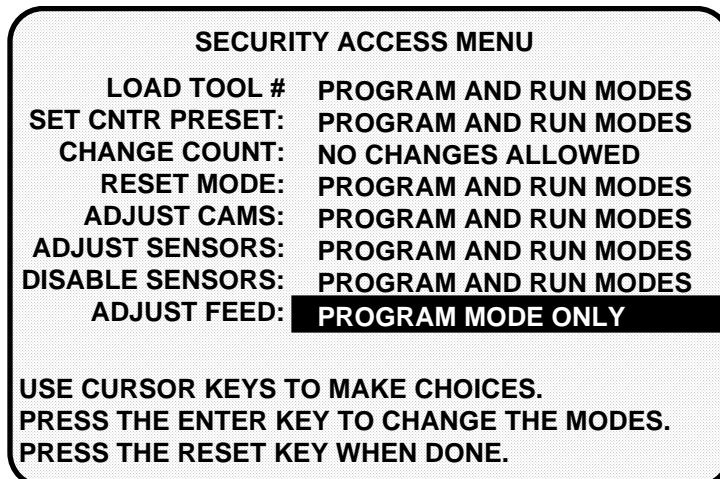


Figure 3-6. SmartPAC Security Access Menu with Feed Adjustment Set for Program Mode Only

If you do not want to make a change, press RESET to return to the Main Initialization Menu.

Viewing Communications

The “COMMUNICATIONS” item on the Diagnostic Menu (see Figure 3-7, below) allows you to verify communications between SmartPAC and your Electrocraft feed controller. You access the Diagnostic Menu from the Main Initialization Menu (see Figure 3-1) by selecting “DIAGNOSTICS.”

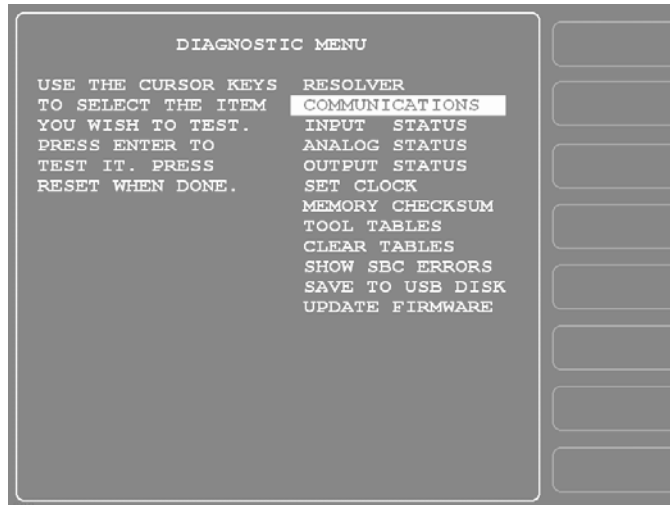


Figure 3-7. COMMUNICATIONS Item on Diagnostic Menu in Initialization Mode

When you select “COMMUNICATIONS” on the Diagnostic Menu, the Communication Data Viewer screen, shown in Figure 3-8, displays.

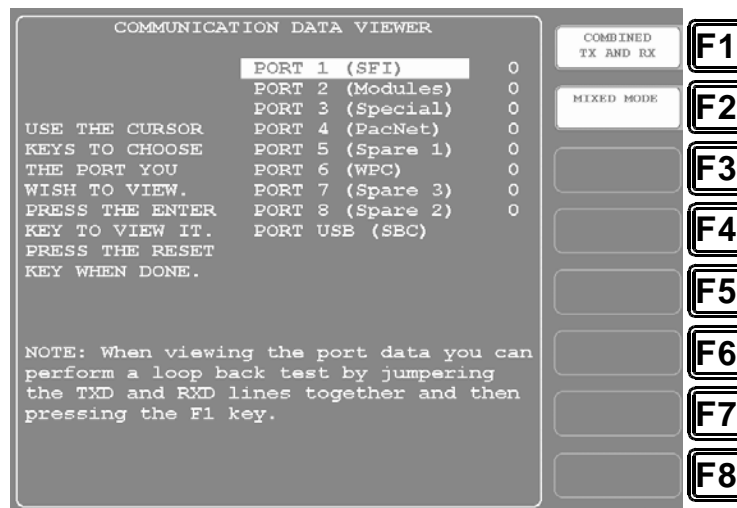


Figure 3-8. SmartPAC Communication Data Viewer Screen

Press the **F1** function key on the Communication Data Viewer screen to change the F1 label from “Combined Tx and Rx” to “Split Tx and Rx,” then select “PORT 1 (SFI).” A screen like the one shown in Figure 3-9 will appear.

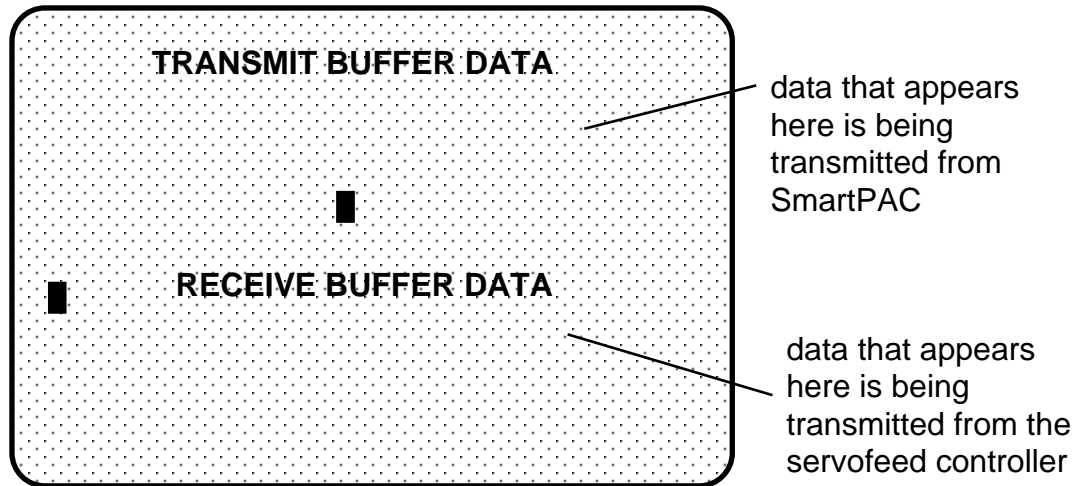


Figure 3-9. SmartPAC Communication Transmit/Receive Screen

If SmartPAC and the Electrocraft servofeed controller are communicating normally, you should expect to see some text (data) in both the “TRANSMIT BUFFER DATA” and “RECEIVE BUFFER DATA” portions of the screen. If you do not see any data (or only partial data), this means that SmartPAC and the servofeed controller are not communicating properly.

If there is a communications problem, you may decide to perform a loopback test. In a loopback test, you connect (or jumper) the TXD (Transmit) and RXD (Receive) lines (refer to Figure 7 at the end of this manual), and then press F1 to check communications. In effect, you are “receiving” the communications data that you are transmitting.

This test is useful when verifying the accuracy of the transmit and receive hardware and wiring. If you need help performing the loopback test, contact Wintriss Tech. Support.

Initializing Electrocraft SFI in a 1500 Series Control

NOTICE

READ YOUR ELECTROCRRAFT SERVOFEED MANUAL BEFORE MAKING ANY SETTINGS!

Make sure you have read the appropriate Electrocraft servofeed manual and understand how your servofeed works before making any changes to Initialization settings.

Initialization Menu

To get into Initialization mode in a 1500 series control, turn the Program/Run key to “PROG” 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 user manual for the applicable 1500 control.)

NOTICE

Before changing modes (from Initialization to Program, for instance), make sure your screen shows the first display in the sequence of displays for the mode you are in. If the first display does not appear on the screen, nothing will happen when you turn the Program /Run key. To return to the first display, press the RESET key repeatedly. Then turn the Program/Run key to switch to the new mode.

When the Initialization Menu displays (see Figure 3-10, below, which shows items appearing on the ProCam 1500 Initialization Menu), select “FEED PARAMETERS” (ProCam 1500) or “FEED PARAMETERS 1” (DiPro 1500).

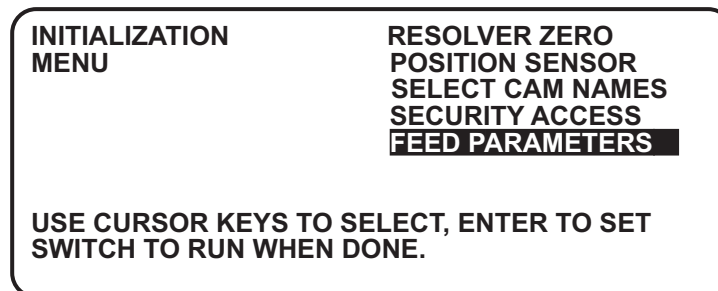


Figure 3-10. 1500 Series Initialization Menu with “FEED PARAMETERS” Selected

Initializing Feed Control Parameters

Electrocraft IQ or Electrocraft BRU with Exor Terminal

If you have installed Electrocraft IQ firmware and are connected to an Electrocraft IQ controller or an Electrocraft BRU controller with an Exor terminal, the screen that displays when you select “FEED PARAMETERS” looks like the one shown in Figure 3-11. You use this screen to initialize the feed control parameters Units Mode, Settling Time, and Connection Type.

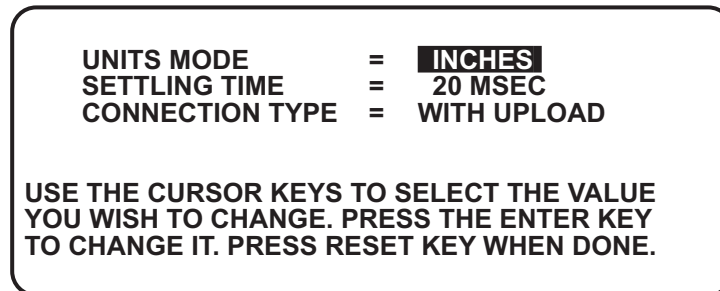


Figure 3-11. 1500 Series Feed Control Initialization Parameters Screen with “UNITS MODE” Selected (Electrocraft IQ or Electrocraft BRU/Exor)

Units Mode allows you to set the 1500 control’s units of measurement to either inches or metric units. The default is “INCHES.” To change the setting to “METRIC,” press ENTER with “INCHES” highlighted.

NOTICE

Information appearing in figures in this manual will be displayed in “inches” unless the value can only be expressed in metric units.

Settling Time refers to the amount of time (in milliseconds) that it takes for the feed to settle down at its precise feed length position at the end of a feed cycle. Settling Time also refers to the time it takes the feed control to sense that the feed signal is present. Figure 3-11 shows a Settling Time value of 20 milliseconds as an example. For assistance in selecting the appropriate value, consult your Electrocraft user manual.

To change Settling Time, press ENTER with the Settling Time value highlighted, then use the Up (▲) or Down (▼) cursor key to increment or decrement the current value. When you are done, press ENTER. The 1500 control will accept the number and move on to the next display. The 1500 unit accepts numbers up to seven digits in length.

Connection Type specifies whether you want the 1500 unit to automatically store in memory changes you make at the Electrocraft feed controller. There are two settings. “WITH UPLOAD” indicates that changes made at the feed controller are automatically stored with the tool number. “NO UPLOAD” indicates that the operator has to reload the tool setup in order for the 1500 unit to accept changes at the feed control. To move back and forth between the two settings, press the *ENTER* key.

For additional help in setting feed control parameters, refer to the appropriate Electrocraft user manual.

When you are finished entering feed control initialization parameters, press the RESET key to return to the Initialization Menu.

Electrocraft BRU

If you are running firmware for an Electrocraft BRU controller, the screen that displays when you select “FEED PARAMETERS” looks like the one shown in Figure 3-12. In addition to allowing you to set Units Type and Settling Time, as you do for an Electrocraft IQ controller or an Electrocraft BRU controller with an Exor terminal (see previous section), this screen allows you to make settings for Acceleration, Jog Speed, Kp Gain, Scale Factor, and Motor Direction.

UNITS MODE	=	INCHES	SELECT THE VALUE. PRESS THE ENTER KEY TO CHANGE IT. PRESS RESET WHEN DONE.
SETTLING TIME	=	20 MSEC	
ACCEL	=	3	
JOG SPEED	=	564.51	
Kp GAIN	=	0.8	
SCALE FACTOR	=	1,200	
DIRECTION	=	0	

Figure 3-12. 1500 Series Feed Control Initialization Parameters Screen with “UNITS MODE” Selected (Electrocraft BRU)

Acceleration specifies the feed’s rate of acceleration. To change Acceleration, press ENTER with the Acceleration value highlighted, then use the Up (▲) or Down (▼) cursor key to increment or decrement the current value. When you are done, press ENTER. The 1500 control will accept the number and move on to the next display. The 1500 unit accepts numbers up to seven digits in length.

The remaining fields are entered in the same way. Consult your Electrocraft manual for definitions and settings as well as for additional information about Units Type, Settling Time, and Acceleration.

When you are finished entering feed control initialization parameters, press the RESET key to return to the Initialization Menu.

Locking Adjust Feed

You can prevent unauthorized personnel from unlocking “ADJUST FEED” and changing feed settings in Run mode. To do so, you must remove the Program/Run key when ProCam 1500 or DiPro 1500 is switched to Run mode. Since the key must be positioned at “PROG” in order to access Initialization and Program modes, removing the key when ProCam or DiPro is set to RUN prevents settings from being changed by unauthorized users.

Locking Adjust Feed in ProCam 1500

In ProCam 1500, you must also enter a setting on the Security Access Menu. To do so, select “SECURITY ACCESS” from the Initialization menu to display the Security Access Menu, which is shown in Figure 3-13, below. Select the “PROGRAM AND RUN MODES” item to the right of the “ADJUST FEED” action. This is the default setting made at the factory and allows feed adjustments to be made in both Program and Run modes.

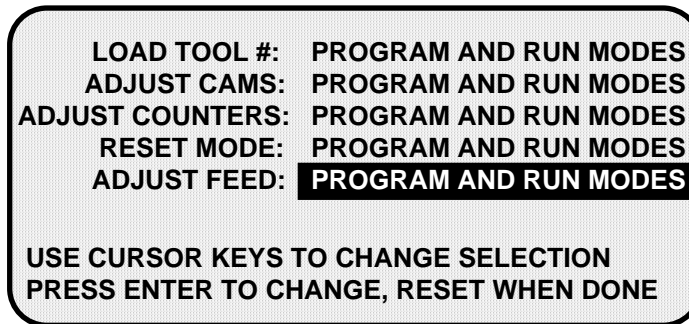


Figure 3-13. 1500 Series Security Access Menu with Feed Adjustment Set for both Program and Run Modes

To lock out the “ADJUST FEED” action so that it cannot be taken in Run mode, press the ENTER key with “PROGRAM AND RUN MODES” highlighted. The item to the right of “ADJUST FEED” changes to “PROGRAM MODE ONLY,” as shown in Figure 3-14, indicating that the feed controller can now be adjusted in Program mode only.

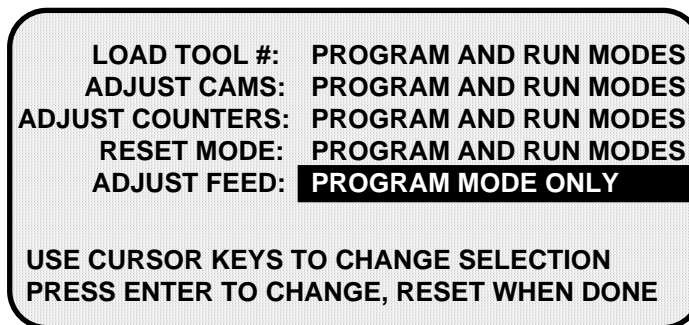


Figure 3-14. 1500 Series Security Access Menu with Feed Adjustment Set for Program Mode Only

If you do not want to make a change, press RESET to return to the Initialization menu.

Locking Adjust Feed in DiPro 1500

NOTICE

DIPRO 1500 AUTO ADVANCE AND SECURITY

In DiPro 1500, "Auto Advance" and "Adjust Feed" security are not main Initialization choices. (SFI was not originally offered with DiPro 1500.) Instead, feed-specific selections are grouped under Feed Initialization. To change default "Auto Advance" and "Adjust Feed" settings, you must select the "Feed Parameters 2" item on the DiPro 1500 Initialization Menu (see Figure 3-15, below). Only DiPro 1500's Channel 1 can be an auto advance channel with SFI.

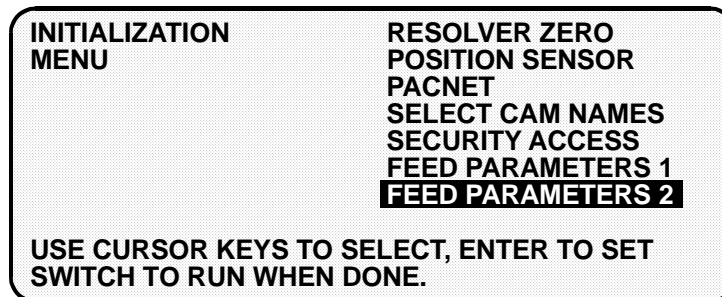


Figure 3-15. DiPro 1500 Initialization Menu with "FEED PARAMETERS 2" Selected

You must also enter a setting on the DiPro 1500 Feed Control Initialization Parameters 2 screen. To do so, select FEED PARAMETERS 2 on the DiPro 1500 Initialization Menu (see Figure 3-15, above). The Feed Control Initialization Parameters 2 screen (see Figure 3-16, below) displays. Select the "PROGRAM AND RUN MODES" item to the right of the "ADJUST FEED" action. This is the default setting made at the factory and allows feed adjustments to be made in both Program and Run modes.

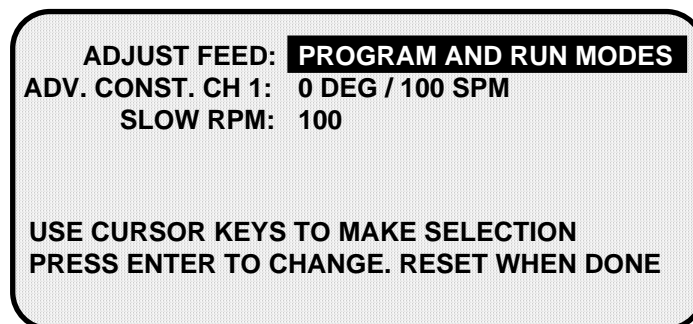


Figure 3-16. DiPro 1500 Feed Control Initialization Parameters 2 Screen with Feed Adjustment Set for both Program and Run Modes

To lock out the “ADJUST FEED” action so that it cannot be taken in Run mode, press the ENTER key with “PROGRAM AND RUN MODES” highlighted. The item to the right of “ADJUST FEED” changes to “PROGRAM MODE ONLY,” indicating that the feed controller can now be adjusted in Program mode only.

If you do not want to make a change, press RESET to return to the DiPro 1500 Initialization Menu.

Auto Advance and Slow RPM in DiPro 1500

Calculating the Advance Constant for Channel 1 Automatic Speed Compensation

You use the “ADV. CONST. CH 1” selection on the Feed Parameters 2 Initialization screen to set an auto advance constant for the cam channel 1 auto advance function. Cam functions that may use auto advance are feed advance and pilot release. Auto advance works best on presses that have a speed range of several hundred to over a thousand strokes per minute.

The auto advance constant is equal to the number of degrees of advance per 100 RPM increase in press speed.

$$A.C. = \# \bullet / 100 \text{ RPM}$$

To calculate the auto advance constant for pilot release, follow these steps:

1. Determine the fastest press speed (RPMa) and the optimum angle at which the pilot release cam should turn on at this speed (Aa).
2. Determine the slowest press speed (RPMb) and the optimum angle at which the pilot release cam should turn on at this speed (Ab).
3. Subtract the two angle values. We will call this result “Ac.”

$$Aa - Ab = Ac$$

4. Subtract the two press speeds. We will call this result “RPMc.”

$$RPMa - RPMb = RPMc$$

5. Divide Ac (the difference between the angles) by RPMc (the difference between the press speeds), and multiply that value by 100. The result is the number of degrees per 100 RPM.

$$\frac{Ac}{RPMc} \times 100 = \# \bullet / 100 \text{ RPM}$$

Example: Calculating the Auto Advance Setting

Your fastest speed is 100 RPM and the pilot release angle at that speed is 75°.

Your slowest speed is 50 RPM and the pilot release angle at that speed is 100°.

Subtract 50 RPM from 100 RPM.

$$100 - 50 = 50$$

Subtract 75° from 100°.

$$100 - 75 = 25$$

Divide the difference in angles by the difference in RPM, and multiply the quotient by 100. The result is your advance constant—in this example, 50°.

$$\frac{25}{50} \times 100 = 50.00 \implies \underline{50^\circ / 100 \text{ RPM}}$$

NOTICE

MORE ON ADVANCE CONSTANT SETTINGS

You can make only one auto advance constant setting. This setting will automatically be applied to channel 1, but it will not be displayed as an “auto” setting in Program or Run modes.

If you do not wish to use the Auto Advance feature, leave the “ADV. CONST. CH 1” setting at its default value of zero (0).

Auto Advance does not function if channel 1 has been programmed as a “timed output.” See Chapter 5 in the DiPro 1500 user manual for more information about making cam channel settings.

Setting the Auto Advance Constant

To set the Auto Advance Constant, move the highlight bar to the “ADV. CONST. CH 1” item on the Feed Parameters 2 Initialization screen (see Figure 3-16), and press ENTER. The prompt displayed at the bottom of the screen will change, as shown in Figure 3-17.

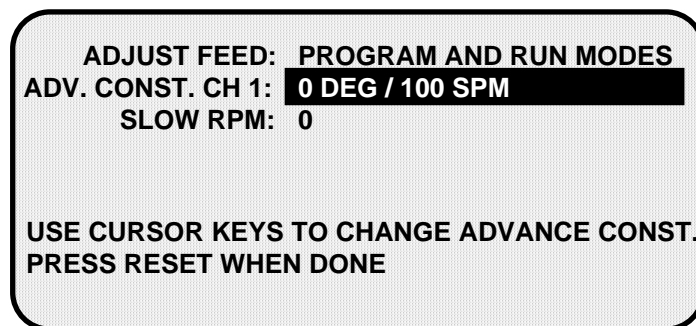


Figure 3-17. DiPro 1500 Feed Control Initialization Parameters 2 Screen with “ADV. CONST. CH 1” Selected

As directed in the prompt, use the Up (▲) or Down (▼) cursor key on your DiPro 1500 keypad to increment or decrement the “ADV. CONST. CH. 1” value. The range for this value is 0-500.

Setting Slow RPM

In calculating an auto advance constant, you must determine the slowest speed at which your press will operate. This value is entered in the “SLOW RPM” field on the Feed Parameters 2 Initialization screen. DiPro uses the “SLOW RPM” value as a starting point in the auto advance process. If an incorrect number is entered in the “SLOW RPM” field, DiPro will not begin to auto advance at the right time. In the example above, you would set slow RPM to 50.

To set Slow RPM, move the highlight bar to the “SLOW RPM” item on the Feed Parameters 2 Initialization screen, and press ENTER. Use the Up (▲) or Down (▼) cursor key on the DiPro 1500 keypad to increment or decrement the “SLOW RPM” value. The value increases or decreases 5 units for each depression of the Up (▲) or Down (▼) cursor key. The range for Slow RPM is 0-2000 RPM.

Chapter 4

Electrocraft SFI Program Mode

This chapter shows you how to use Electrocraft SFI in Program mode. You will learn how to perform the following actions:

- Set feed parameters
- Use the Feed Advisor
- Load feed settings

NOTICE

ELECTROCRAFT SFI AND SMARTPAC 2

You can use Electrocraft SFI with SmartPAC 2 as well as with the original SmartPAC. Instructions provided in this manual that are specific to SmartPAC pertain to both SmartPAC 1 and SmartPAC 2 (refer to “SmartPAC 2 and Original SmartPAC,” page 3, for more information).

If you need additional help with your Wintriss product, refer to the applicable Wintriss user manual. Refer to the appropriate Electrocraft servofeed manual for more information about your Electrocraft servofeed.

Using Electrocraft SFI Program Mode in SmartPAC

NOTICE

READ YOUR ELECTROCRAFT SERVOFEED MANUAL BEFORE MAKING ANY SETTINGS!

Make sure you have read the appropriate Electrocraft servofeed manual and understand how your servofeed works before making any settings.

About Tool Number

A tool number consists of all the programmed settings (including servofeed settings) that you make for one job. You can save servofeed information for up to 200 tools and then recall these settings for each job whenever you need to.

Program Menu

You enter Program mode by turning the Program/Run key to “RUN” and then back to “PROG.” Next, select a tool number to modify, and then select “MODIFY THE TOOL NUMBER INFORMATION.” If you are not sure how to program a tool, refer to Chapter 5 in the SmartPAC user manual.

NOTICE**SELECT = HIGHLIGHT + ENTER**

When you are instructed in this manual to “select” a menu item, press the Up (▲) or Down (▼) cursor key to highlight the item, then press the ENTER key. See Chapter 3 in the SmartPAC user manual for more information.

Once you have selected a tool, the Main Programming Menu, shown in Figure 4-1, below, will appear. The Main Programming Menu displays the various settings you can make for the selected tool (the order of items may vary depending on installed options).

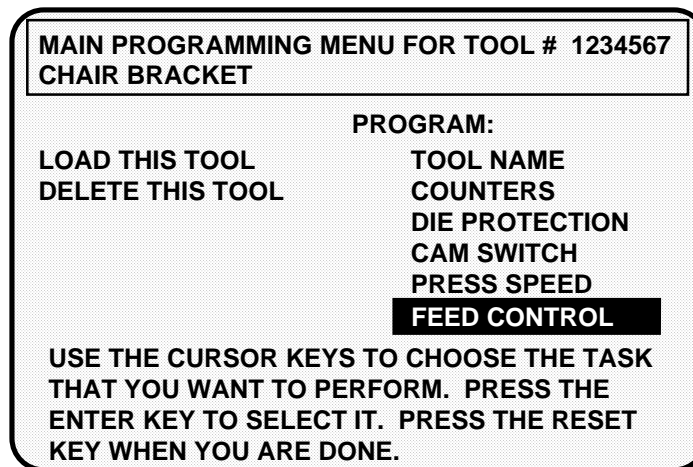


Figure 4-1. SmartPAC Main Programming Menu with “FEED CONTROL” Selected

Select the “Feed Control” item, as shown in Figure 4-1. The Feed Parameters screen, shown in Figure 4-2, displays.

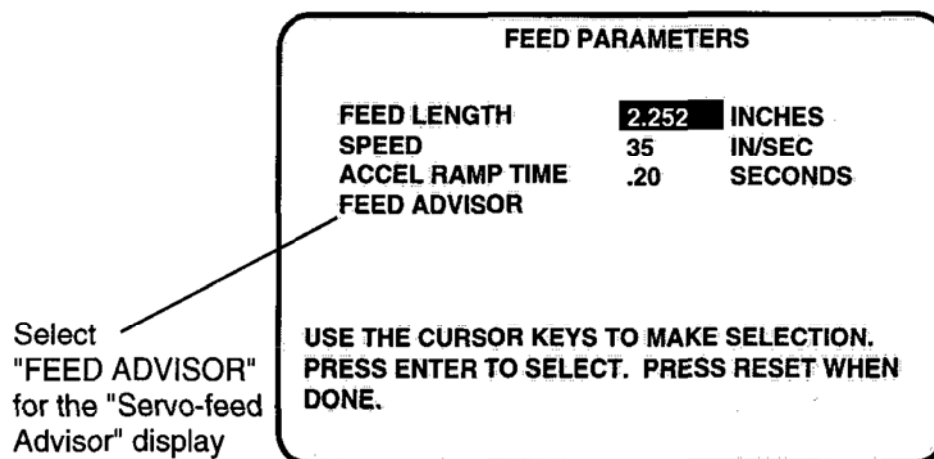


Figure 4-2. SmartPAC Feed Parameters Screen with “FEED LENGTH” Selected

The information displayed on the Feed Parameters screen, except for the Feed Length field (which is common to all Electrocraft SFI configurations), depends on the firmware you are running and the settings you have made in Initialization.

The screen shown in Figure 4-2 displays the fields you will see if you are running Electrocraft IQ firmware and have entered Initialization settings for an Electrocraft IQ controller.

If you are running Electrocraft IQ firmware and have entered Initialization settings for an Electrocraft BRU controller with an Exor terminal, the Feed Parameters screen will display Speed and Acceleration (not Acceleration Ramp Time) in addition to the Feed Length field, both values being shown as a percentage of the speed and acceleration limits you established in Initialization (see page 24).

If you are running Electrocraft BRU firmware and have set Initialization parameters for an Electrocraft BRU controller, the Feed Parameters screen displays only a Speed field, shown as a percentage of maximum speed, in addition to the Feed Length field.

Feed Settings

When you select each item shown, the Numeric Entry window displays, allowing you to set or change the value. Use the number keys to input a desired setting, or the Up (▲) or Down (▼) cursor key to increment or decrement a displayed value.

When you are done, press ENTER. SmartPAC will accept the number and move on to the next display. SmartPAC accepts numbers up to seven digits in length.

NOTICE

If you need help using the number or cursor keys, refer to Chapter 3 in your SmartPAC user manual.

Rather than inputting feed settings yourself, you can have Feed Advisor calculate settings for you. See the instructions in the next section to access the Feed Advisor.

If you wish to leave the Feed Parameters screen without making any changes, press RESET.

Feed Advisor

Feed Advisor is a convenience which saves you the time of calculating feed parameters yourself. When using Feed Advisor, you need to enter feed length, feed arc (number of crankshaft degrees available to fully feed the material), and press speed. When determining these parameters, take into consideration the feed initiate angle, which may be programmed as one of the cam timings in SmartPAC (not SFI).

Make sure that you know the actual number of degrees needed to feed up the material, and be careful to set the feed initiate angle correctly. Otherwise, you may endanger the die. For example, 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.

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. To use Feed Advisor to calculate run speed based on these values, you would proceed as follows.

Select "FEED ADVISOR" on the Feed Parameters screen (see Figure 4-2). The Servo Feed Advisor screen, shown in Figure 4-3, displays.

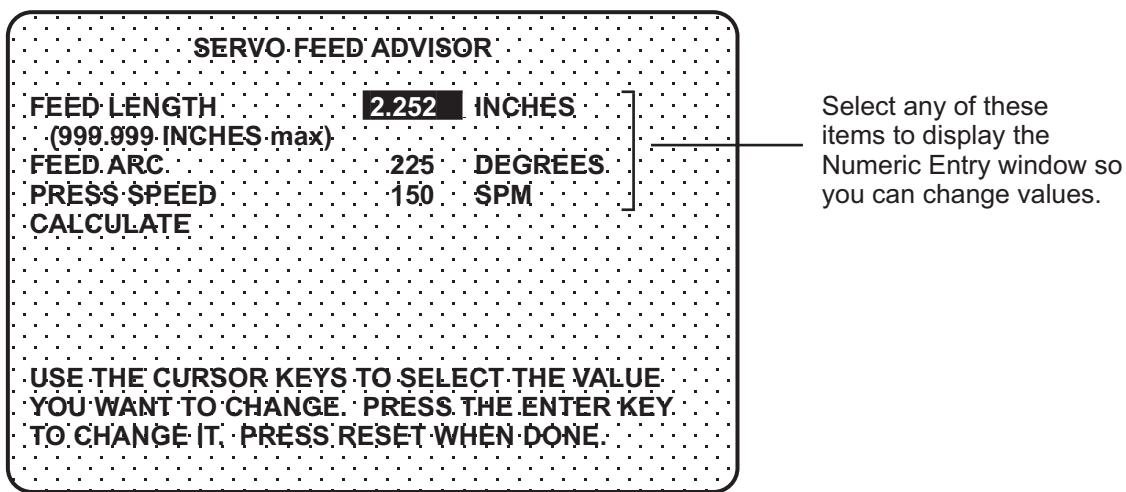
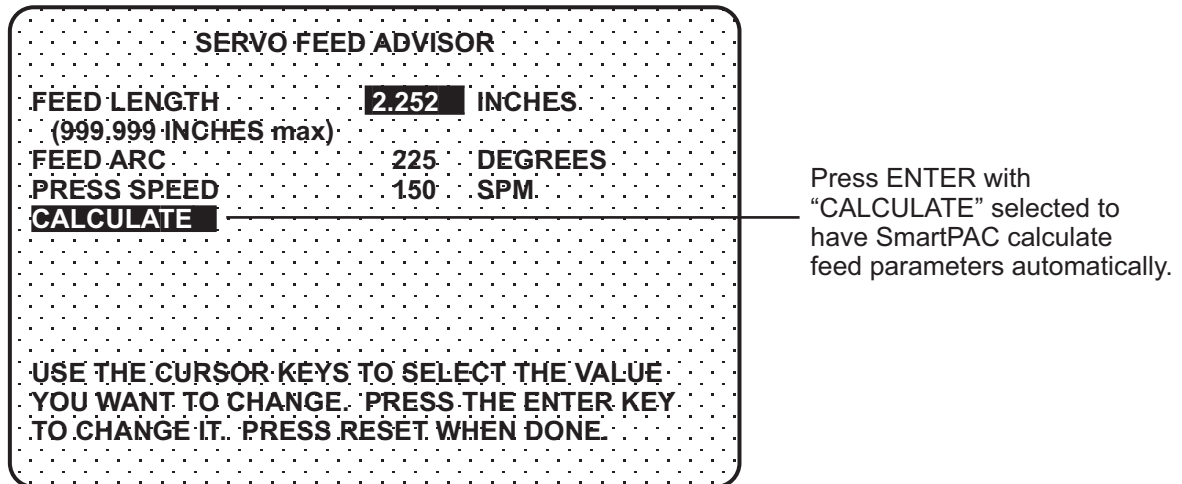


Figure 4-3. SmartPAC Servo Feed Advisor Screen with "FEED LENGTH" Selected

Select "FEED LENGTH" on the Servo Feed Advisor screen, and, using the number and/or cursor keys in the Numeric Entry window, enter the feed length (e.g., 2.252) and press ENTER. Repeat these steps for "FEED ARC" and "PRESS SPEED."

When you have finished entering these values, select "CALCULATE," as shown in Figure 4-4 (next page), and press ENTER. The message "PLEASE WAIT ... CALCULATING VALUES" displays briefly at the bottom of the Servo Feed Advisor screen, indicating that the Feed Advisor is calculating your run speed.



**Figure 4-4. SmartPAC Servo Feed Advisor Screen with "CALCULATE"
 Selected**

Before displaying its calculations, Feed Advisor displays messages indicating whether the feed length and feed arc you entered are valid for the specified 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 Servo 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 even when it is operating at the lowest speed specified in Initialization.

The following message

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

indicates that the feed will end just as the feed arc is completed. This is the optimum condition because the feed never has to reach the maximum speed specified in Initialization.

If you entered values that will not allow the feed to complete before the end of the feed arc, you will see this message:

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

In this case, you will have to revise the values you entered on the Servo Feed Advisor screen. You may need to lengthen the feed arc, assuming that a longer feed arc will not affect other actions such as part transfer or part cut off. If you choose to lengthen the arc, make sure that you reprogram the cam angle to initiate the feed earlier. If you cannot lengthen the feed arc, your other option is to decrease press speed. When you have revised your figures, calculate the speed and acceleration ramp time again.

When the message displayed by Feed Advisor indicates that the values you entered are acceptable, press the RESET key. You are returned to the Feed Parameters screen (see Figure 4-2), on which Feed Advisor has refreshed the value in the “SPEED” field and, if you are running Electrocraft IQ firmware, the “ACCEL RAMP TIME” or “ACCEL” field based on the values you entered on the Servo Feed Advisor screen.

NOTICE

USING FEED ADVISOR

You can use Feed Advisor any time that you want SmartPAC to calculate the speed, acceleration ramp time, or acceleration for you. If you want to manually enter your own speed, acceleration ramp time, or acceleration values, select those items on the Feed Parameters screen (see Figure 4-2).

Remember to program the “Feed Initiate angle” as the “on” angle of the “Feed Advance” cam in SmartPAC ProCamPAC!

Loading by Tool Number

You can automatically load feed settings by tool number. To load a tool number, press RESET twice, the first time to exit from the Feed Parameters screen, the second to display the Load Tool Number screen. Press ENTER to load (or RESET to back out). You will get a message like this, confirming that you have successfully loaded the tool:

PLEASE WAIT ... LOADING TOOL 1

Loading by tool numbers is covered in Chapter 5 (Program mode) and Chapter 6 (Run mode) of the SmartPAC user manual.

Using Electrocraft SFI Program Mode in a 1500 Series Control

NOTICE

READ YOUR ELECTROCRRAFT SERVOFEED MANUAL BEFORE MAKING ANY SETTINGS!

Make sure you have read the appropriate Electrocraft servofeed manual and understand how your servofeed works before making any settings.

About Tool Number

A tool number consists of all the programmed settings (including the servofeed settings) that you make for one job. You can save servofeed information for up to 200 tools and then recall these settings for each job whenever you need to.

Program Menu

You enter Program mode by turning the Program/Run key to “RUN” and then back to “PROG.” 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 applicable 1500 series user manual.

NOTICE

SELECT = HIGHLIGHT + ENTER

When you are instructed in this manual to “select” a menu item, press the Up (▲) or Down (▼) cursor key to highlight the item, then press the ENTER key. See Chapter 3 in the SmartPAC user manual for more information.

Once you have selected a tool, the 1500 series Program Menu, shown in Figure 4-5, will appear. The Program Menu displays the various settings you can make for the selected tool (the order of items may vary depending on installed options).

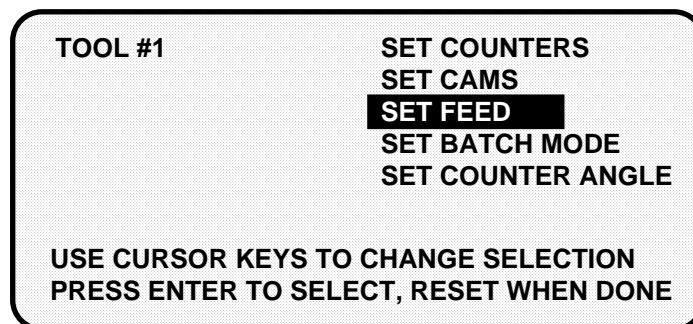


Figure 4-5. 1500 Series Program Menu with “SET FEED” Selected

Select the “SET FEED” item, as shown in Figure 4-5. If you are running Electrocraft IQ firmware, the screen shown in Figure 4-6 displays.

FEED PARAMETERS		
FEED LENGTH	2.252	INCHES
SPEED	35	IN/SEC
ACCEL RAMP TIME	.20	SECONDS
FEED ADVISOR		
USE CURSOR KEYS TO MAKE SELECTION PRESS ENTER TO SELECT, RESET WHEN DONE		

Figure 4-6. 1500 Series Feed Parameters Screen (Electrocraft IQ)

If you are running Electrocraft BRU firmware, the screen shown in Figure 4-7 displays.

FEED PARAMETERS		
FEED LENGTH	2.252	INCHES
SPEED	0 %	
FEED ADVISOR		
USE CURSOR KEYS TO MAKE SELECTION PRESS ENTER TO SELECT, RESET WHEN DONE		

Figure 4-7. 1500 Series Feed Parameters Screen (Electrocraft BRU)

The Feed Parameters screen for Electrocraft BRU lacks an Accel Ramp Time field, as is displayed on the screen for Electrocraft IQ and BRU/Exor models, and displays the Speed value as a percentage of maximum speed.

Feed Settings

When you select “FEED LENGTH” on the Feed Parameters screen, the Feed Length screen, shown in Figure 4-8 (next page), displays, allowing you to set the Feed Length value.

Following the directions in the prompt at the bottom of the screen, use the Left (◀) and Right (▶) cursor keys to select the digit you want to change (the wedge-shaped pointer moves to the selected digit) and the Up (▲) or Down (▼) cursor key to increment or decrement that digit. When you are satisfied with the value, press the ENTER key.

NOTICE

If you need help using the cursor keys, refer to Chapter 3 in the applicable 1500 series user manual.

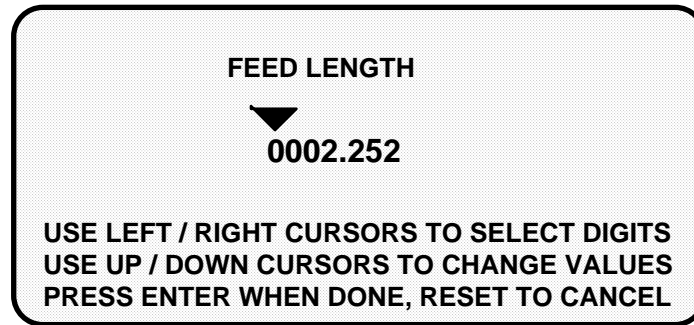


Figure 4-8. 1500 Series Numeric Entry Window

You can set the others items on the Feed Parameters screen in the same way you set “FEED LENGTH,” or you can have Feed Advisor calculate these values for you. See the instructions in the next section to access the Feed Advisor.

If you wish to leave this screen without making a change, press RESET.

Feed Advisor

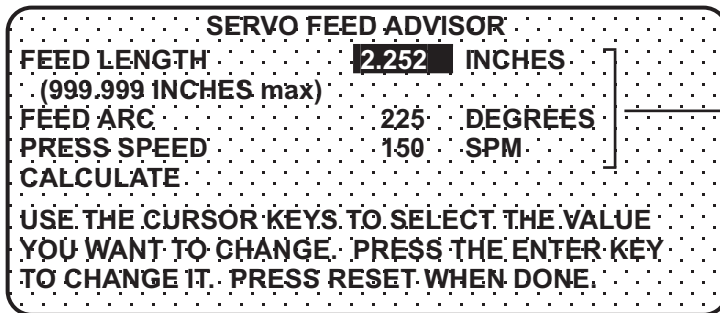
Feed Advisor is a convenience which saves you the time of calculating feed parameters yourself. When using Feed Advisor, you need to enter feed length, feed arc (number of crankshaft degrees available to fully feed the material), and press speed. When determining these parameters, take into consideration the feed initiate angle, which may be programmed as one of the cam timings in the 1500 unit (not SFI).

Make sure that you know the actual number of degrees needed to feed up the material, and be careful to set the feed initiate angle correctly. Otherwise, you may endanger the die. For example, 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.

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. To use Feed Advisor to calculate run speed based on these values, you would proceed as follows.

Select “FEED ADVISOR” on the Feed Parameters screen (see Figure 4-6). The Servo Feed Advisor screen, shown in Figure 4-9, next page, displays.

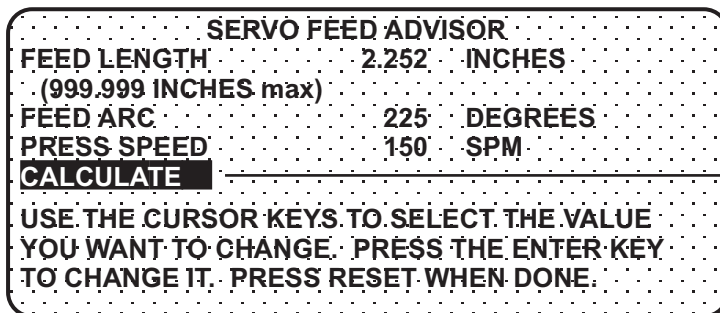
Select “FEED LENGTH” on the Servo Feed Advisor screen, and, following the directions in the prompt that displays at the bottom of the screen, use the number and/or cursor keys to enter the feed length (e.g., 2.252). Press ENTER. Repeat these steps for “FEED ARC” and “PRESS SPEED.”



Select any of these items, then use the cursor keys to change its value.

Figure 4-9. 1500 Series Servo Feed Advisor Screen with “FEED LENGTH” Selected

When you have finished entering these values, select “CALCULATE,” as shown in Figure 4-10.



Press ENTER with “CALCULATE” selected to have the 1500 control calculate feed parameters automatically.

Figure 4-10. 1500 Series Servo Feed Advisor Screen with “CALCULATE” Selected

The following message displays briefly at the bottom of the screen

PLEASE WAIT ... CALCULATING PARAMETERS

indicating that the Feed Advisor is calculating your speed and acceleration ramp time.

Before displaying its calculations, Feed Advisor displays messages indicating whether the feed length and feed arc you entered are valid for the specified 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 Servo 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.

The following message

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

indicates 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 will see this message:

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

In this case, you will have to revise the values you entered on the Servo Feed Advisor screen. You may need to lengthen the feed arc, assuming that a longer feed arc will not affect other actions such as part transfer or part cut off. If you choose to lengthen the arc, make sure that you reprogram the cam angle to initiate the feed earlier. If you cannot lengthen the feed arc, your other option is to decrease press speed. When you have revised your figures, calculate the speed and acceleration ramp time again.

When the message displayed by Feed Advisor indicates that the values you entered are acceptable, press the RESET key. You are returned to the Feed Parameters screen (see Figure 4-6), on which Feed Advisor has refreshed the value in the "SPEED" field and, if you are running Electrocraft IQ firmware, the "ACCEL RAMP TIME" or "ACCEL" field based on the values you entered on the Servo Feed Advisor screen.

NOTICE

USING FEED ADVISOR

You can use Feed Advisor any time that you want the 1500 unit to calculate the speed, acceleration ramp time, or acceleration for you. If you want to manually enter your own speed, acceleration ramp time, or acceleration values, select those items on the Feed Parameters screen (see Figure 4-6).

Remember to program the "Feed Initiate angle" as the "on" angle of the "Feed Advance" cam in the 1500 unit!

Loading by Tool Number

You can automatically load feed settings by tool number. To load a tool number, press RESET twice, the first time to exit from the Feed Parameters screen, the second to display the Program Menu. Press ENTER to load (or RESET to back out). You will get a message like this one, confirming that you have successfully loaded the tool:

PLEASE WAIT ... LOADING TOOL 1

Loading by tool numbers is covered in Chapter 5 (Program mode) and Chapter 6 (Run mode) of the applicable 1500 series user manual.

Chapter 5

Electrocraft SFI Run Mode

This chapter shows you how to use Electrocraft SFI in Run mode. You will learn how to adjust feed parameters while operating the press.

NOTICE

ELECTROCRAFT SFI AND SMARTPAC 2

You can use Electrocraft SFI with SmartPAC 2 as well as with the original SmartPAC. Instructions provided in this manual that are specific to SmartPAC pertain to both SmartPAC 1 and SmartPAC 2 (refer to “SmartPAC 2 and Original SmartPAC,” page 3, for more information).

If you need additional help with your Wintriss product, refer to the applicable Wintriss user manual. Refer to the appropriate Electrocraft servofeed manual for more information about your Electrocraft servofeed.

NOTICE

READ YOUR ELECTROCRAFT SERVOFEED MANUAL BEFORE MAKING ANY SETTINGS!

Make sure you have read the appropriate Electrocraft servofeed manual and understand how your servofeed works before making any settings.

Using Electrocraft SFI Run Mode in SmartPAC

About Tool Numbers

A tool number consists of all of the settings (including the servofeed settings) that you make for one job. You can save servofeed information for up to 200 tools and then recall the settings for each job whenever you need to.

NOTICE

SELECT = HIGHLIGHT + ENTER

When you are instructed in this manual to “select” a menu item, press the Up (▲) or Down (▼) cursor key to highlight the item, then press the ENTER key. See Chapter 3 in the SmartPAC user manual for more information.

Run Menu

While you are running the press, SmartPAC will operate the Electrocraft servofeed based upon the settings you have made in Program mode. 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.” The Run Menu, shown in Figure 5-1, will display (the order of items may vary depending on installed options).

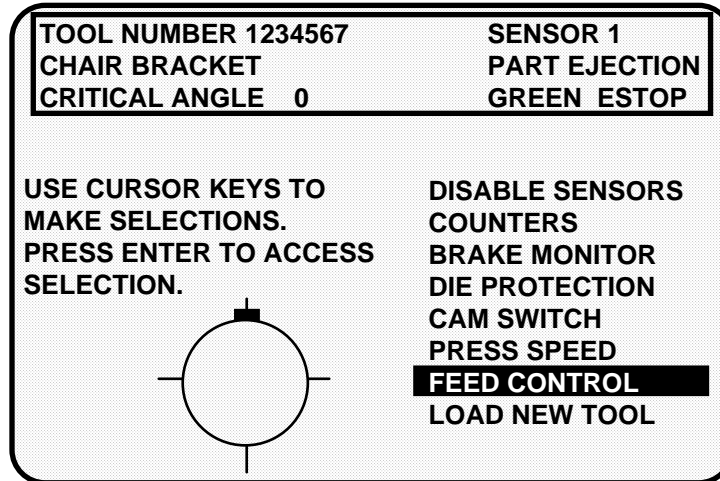


Figure 5-1. SmartPAC Run Menu with “FEED CONTROL” Selected

To adjust feed settings, select “FEED CONTROL.” If you are running Electrocraft IQ firmware and you have made Initialization settings for an Electrocraft IQ controller, the Feed Control screen, shown in Figure 5-2, displays.

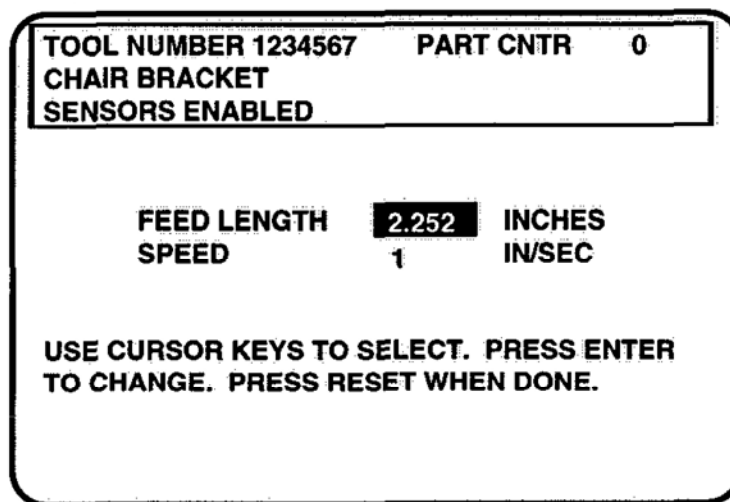


Figure 5-2. SmartPAC Feed Control Screen with “FEED LENGTH” Selected

If you are running Electrocraft IQ firmware and you have made Initialization settings for an Electrocraft BRU controller with an Exor terminal, the Feed Control screen will also include an Acceleration field and display both Speed and Acceleration as a percentage of the maximum speed and acceleration you established in Initialization.

If you are running Electrocraft BRU firmware, the Speed field is displayed as a percentage of maximum speed.

This screen allows you to make minor adjustments to feed length, speed, or acceleration. To do so, you select an item, then use the Up (▲) or Down (▼) cursor key to increment or decrement the value for that item. Note that the Feed Length value changes by .001 inch (1/1000) each time you press the Up (▲) or Down (▼) key.

Changes you make to settings on this screen are sent directly to the servofeed and saved immediately to the currently loaded tool. Be sure to make a note of feed setup changes on your feed setup sheet for future reference.

When you are done, press the RESET key to exit from this display.

Using Electrocraft SFI Run Mode in a 1500 Series Control

About Tool Numbers

A tool number consists of all of the settings (including the servofeed settings) that you make for one job. You can save servofeed information for up to 200 tools and then recall the settings for each job whenever you need to.

Run Menu

While you are running the press, the 1500 control will operate the servofeed based on the settings you made in Program mode. 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.” If you are running Electrocraft IQ firmware, the Run Menu shown in Figure 5-3 (next page) will display. If you are running Electrocraft BRU firmware, a similar menu will display with the ADJUST FEED item replaced by ADJUST FEED/STATUS.

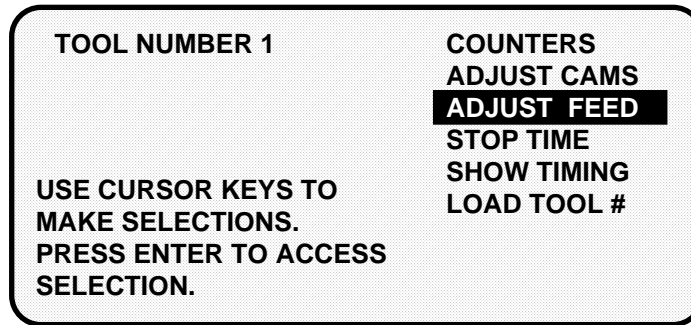


Figure 5-3. 1500 Series Run Menu with “ADJUST FEED” Selected

To adjust feed settings, select “ADJUST FEED” or “ADJUST FEED/STATUS.” If you are running Electrocraft IQ firmware, the Adjust Feed screen shown in Figure 5-4 displays. If you are running Electrocraft BRU firmware, the Speed value is displayed as a percentage of maximum speed rather than in inches per second.

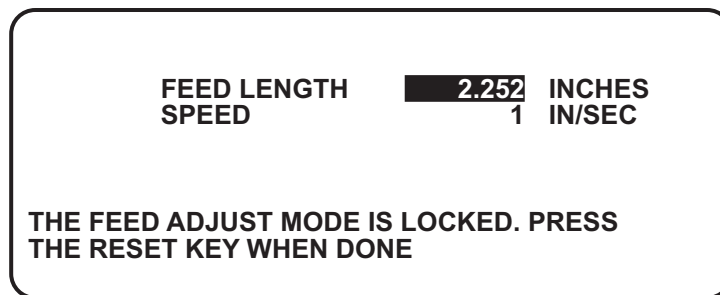


Figure 5-4. 1500 Series Adjust Feed Screen with “FEED LENGTH” Selected

This screen allows you to make minor adjustments to feed length and run speed. To do so, you select an item, then use the Up (▲) or Down (▼) cursor key to increment or decrement the value for that item. Note that the Feed Length value changes by .001 inch (1/1000) each time you press the Up (▲) or Down (▼) key.

Changes you make to settings on this screen are sent directly to the servofeed and saved immediately to the currently loaded tool. Be sure to make a note of feed setup changes on your feed setup sheet for future reference.

When you are done, press the RESET key to exit from the Adjust Feed screen.

Chapter 6

Electrocraft SFI Troubleshooting

This chapter documents troubleshooting messages that are generated because of problems with the interface between the Electrocraft servofeed and the Wintriss control and shows you how to respond to them. It does not cover other Wintriss- or Electrocraft-generated fault messages. Consult the appropriate Wintriss control or Electrocraft servofeed user manual for these faults.

This chapter covers the communications fault message on SmartPAC and 1500 series controls.

NOTICE

ELECTROCRAFT SFI AND SMARTPAC 2

You can use Electrocraft SFI with SmartPAC 2 as well as with the original SmartPAC. Instructions provided in this manual that are specific to SmartPAC pertain to both SmartPAC 1 and SmartPAC 2 (refer to “SmartPAC 2 and Original SmartPAC,” page 3, for more information).

Troubleshooting in SmartPAC

Whenever SmartPAC and the Electrocraft feed control unit are not communicating with one another, the message shown in Figure 6-1 will appear on the LCD.



Figure 6-1. SmartPAC Communications Fault Message

When you get this message, check that all wiring connections are intact. Refer to Chapter 2 to verify correct installation if necessary. Also refer to the section “Viewing Communications,” page 27 to review the procedure for displaying Receive and Transmit data sent between SmartPAC and the Electrocraft feed controller. Contact Wintriss Tech. Support for help in interpreting the screen and conducting loopback tests.

Once communications are restored, you will no longer see this fault message.

Troubleshooting in a 1500 Series Control

Whenever either ProCam 1500 or DiPro 1500 and the Electrocraft feed control unit are not communicating with one another, the message shown in Figure 6-2 will appear on the LCD.

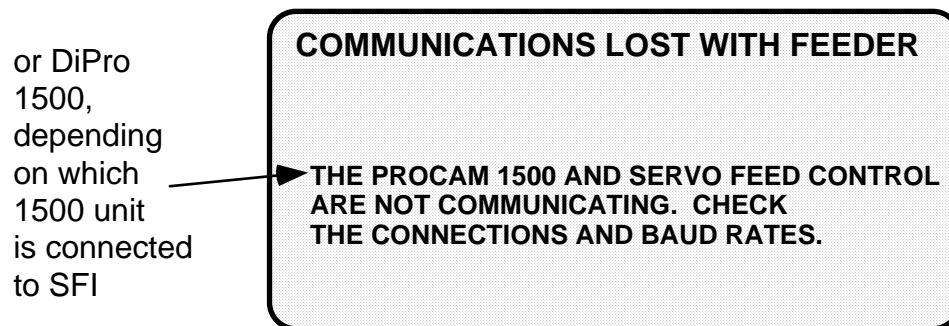


Figure 6-2. 1500 Series Communications Fault Message

When you get this message, check that all wiring connections are intact. Refer to Chapter 2 if necessary. Once communications are restored, you will no longer see this fault message.

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Wintriss Manuals

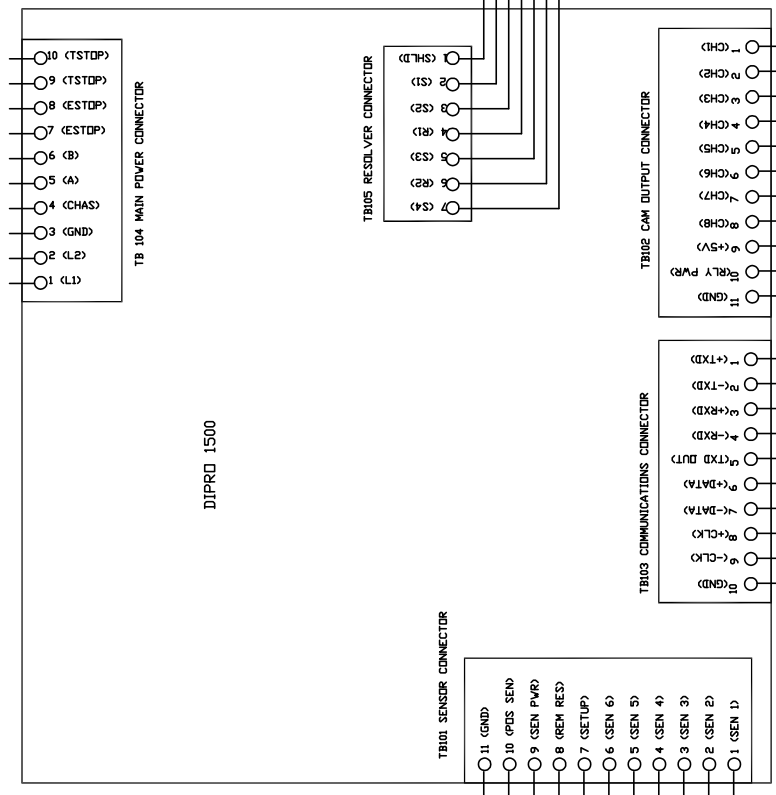
Wintriss Product	Installation Manual	User Manual/CD
	Doc. No.	Doc. No.
AutoSet (1500, 1500 Plus, 1504, 1504 Plus)	DA71747	DA71447
AutoSetPAC (Tonnage Monitor)	DA71413	DA71443
Die Protection Handbook	N.A. *	1130300 *
DiPro 1500	DA71428	DA71447
DSI 2 Sensor Interface	N.A. *	DA66970 *
LETS Machine Interface (LMI)	N.A. **	DA71974 **
MultiPAC Types 1 and 2	DA71409	DA71443
MultiPAC Types 4 and 5	DA71410	DA71443
ProCam 1500	DA71430	DA71447
ProPAC (Process Monitor – In-die Measurement)	DA71411	DA71443
RamPAC (Shut Height, Counterbalance & Cushion Control)	DA71412	DA71443
Servofeed Interface – Coe/Wintriss	DA71415	DA71443
Servofeed Interface – CWP/Wintriss	DA71416	DA71443
Servofeed Interface – DiPro	DA71429	DA71447
Servofeed Interface – Electrocraft/Wintriss	DA71417	DA71443
Servofeed Interface – Indramat/Wintriss	DA71418	DA71443
Servofeed Interface – ProCam	DA71431	DA71447
Servofeed Interface – SmartPAC	DA71420	DA71443
Servofeed Interface – Waddington/Wintriss	DA71419	DA71443
SFC Machine Interface (SMI)	N.A. **	1040800 **
Shadow V Safety Light Curtain	DA71433	DA71449
Shadow VI Safety Light Curtain	DA71422	DA71445
Shadow VII Safety Light Curtain	N. A. *	1129400 *
Shadow 8 Safety Light Curtain	N. A. *	1139300 *
SmartPAC (w/ DiProPAC & ProCamPAC)	DA71439	DA71454
SmartPAC Hydraulic	DA71435	DA71451
SmartPAC Run Mode (Spanish)	N. A. *	DA71443
SmartPAC w/ WPC II Integration	DA71440	DA71455
SmartPAC 2 (w/ DiProPAC & ProCamPAC)	DA71406	DA71441
SmartPAC 2 Hydraulic	DA71436	DA71451
SmartPAC 2 Servo	DA71437	DA71452
SmartPAC 2 w/ WPC 2000 Integration	DA71407	DA71442
SmartPAC 2 w/WPC 2000 Run Mode (Spanish)	N. A. *	DA71443
WaveFormPAC (Advanced Load Analyzer)	DA71414	DA71443
Wintriss Brake Monitor	DA71432	DA71448
Wintriss Clock Display	N. A. *	DA67206 *
WPC II Wintriss Press Control	DA71438	DA71453
WPC 1000 Wintriss Press Control	DA71423	DA71446
WPC 2000 Wintriss Press Control	DA71421	DA71444
WPC 2000 Option 2	DA71408	DA71442

* Installation Manual not available; User Manual available in hard copy only. Die Protection Handbook available in hard copy (1102400) and on CD (1130300).

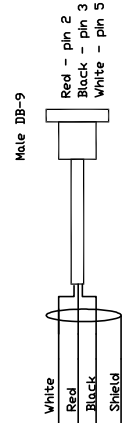
* Installation Manual not available. User Manual available on CD only.

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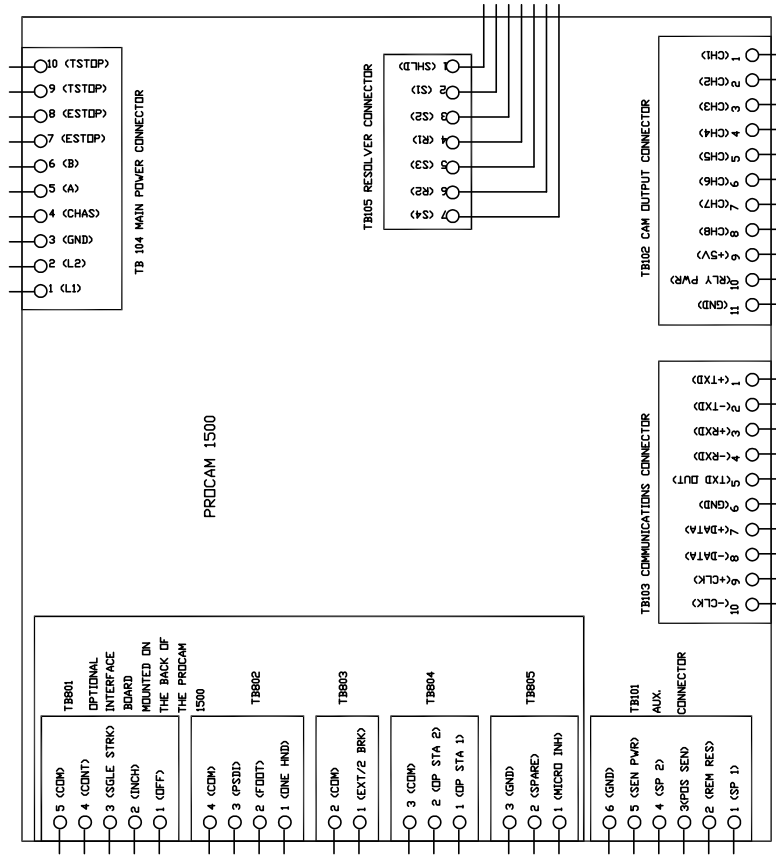
REV	DESCRIPTION	DATE	APP'D



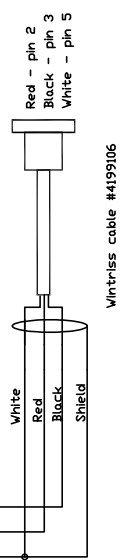
THIS CONNECTOR PLUGS INTO J5 ON FRONT OF BRU CONTROL



Wintriss cable #4199106



THIS CONNECTOR PLUGS INTO J5 ON FRONT OF BRU CONTROL



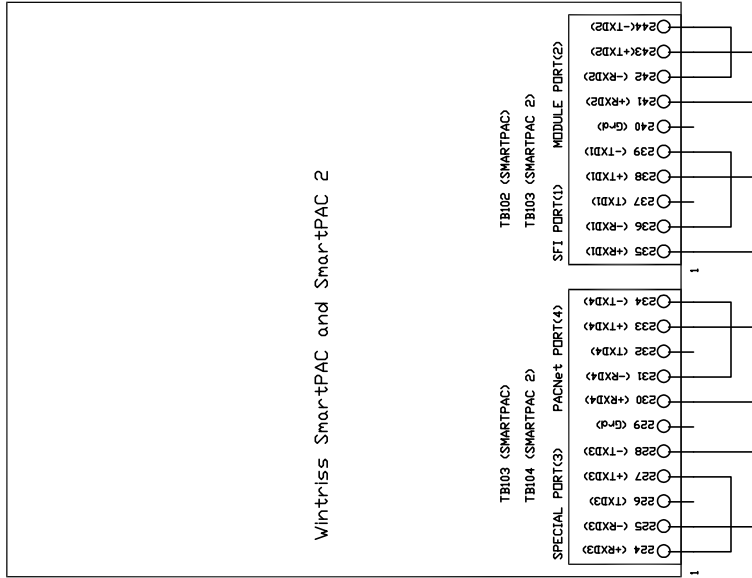
Wintriss cable #4199106

DRAWN	DATE	TITLE	CODE IDENT NO.	SIZE	DRAWING NUMBER	REV
ADD	10/19/10	WINTRISS CONTROLS GROUP		C	FIGURE 6	
CHK.						
APPROVALS						
ENG.		1500 FAMILY ELECTRO-CRAFT BRU				
MFG.		SERVO FEED SFI WIRING DIAGRAM				
FILMNG						
REL						
		SCALE			SHEET	OF

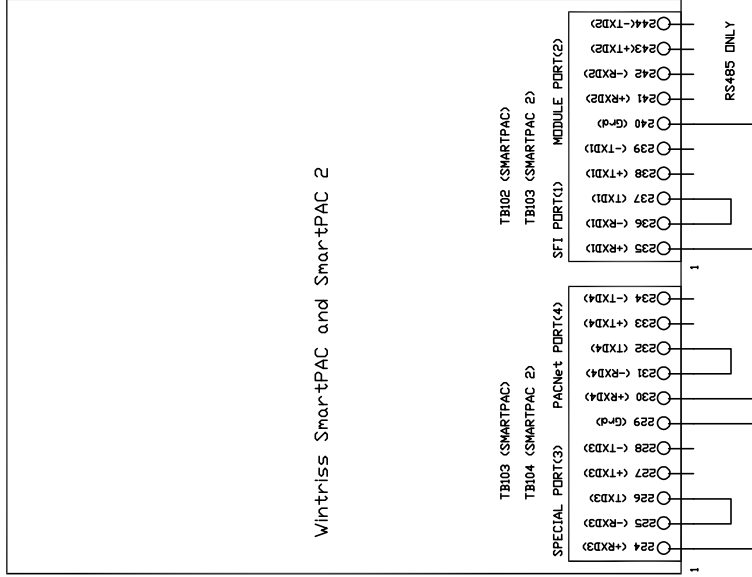
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REV	DESCRIPTION	DATE	APP'D

RS 485 CONNECTIONS



RS 232 CONNECTIONS



DRAWN	DATE	WINTRISS CONTROLS GROUP	
ADD	6/22/10		
CHK.			
APPROVALS		TITLE	
ENG.		SMARTPAC LOOPBACK WIRING CONNECTIONS	
MFG.		CODE IDENT. NO.	SIZE
FILENAME		C	C
REL.		DRAWING NUMBER	REV
		FIGURE 7	
		SCALE	SHEET
			OF

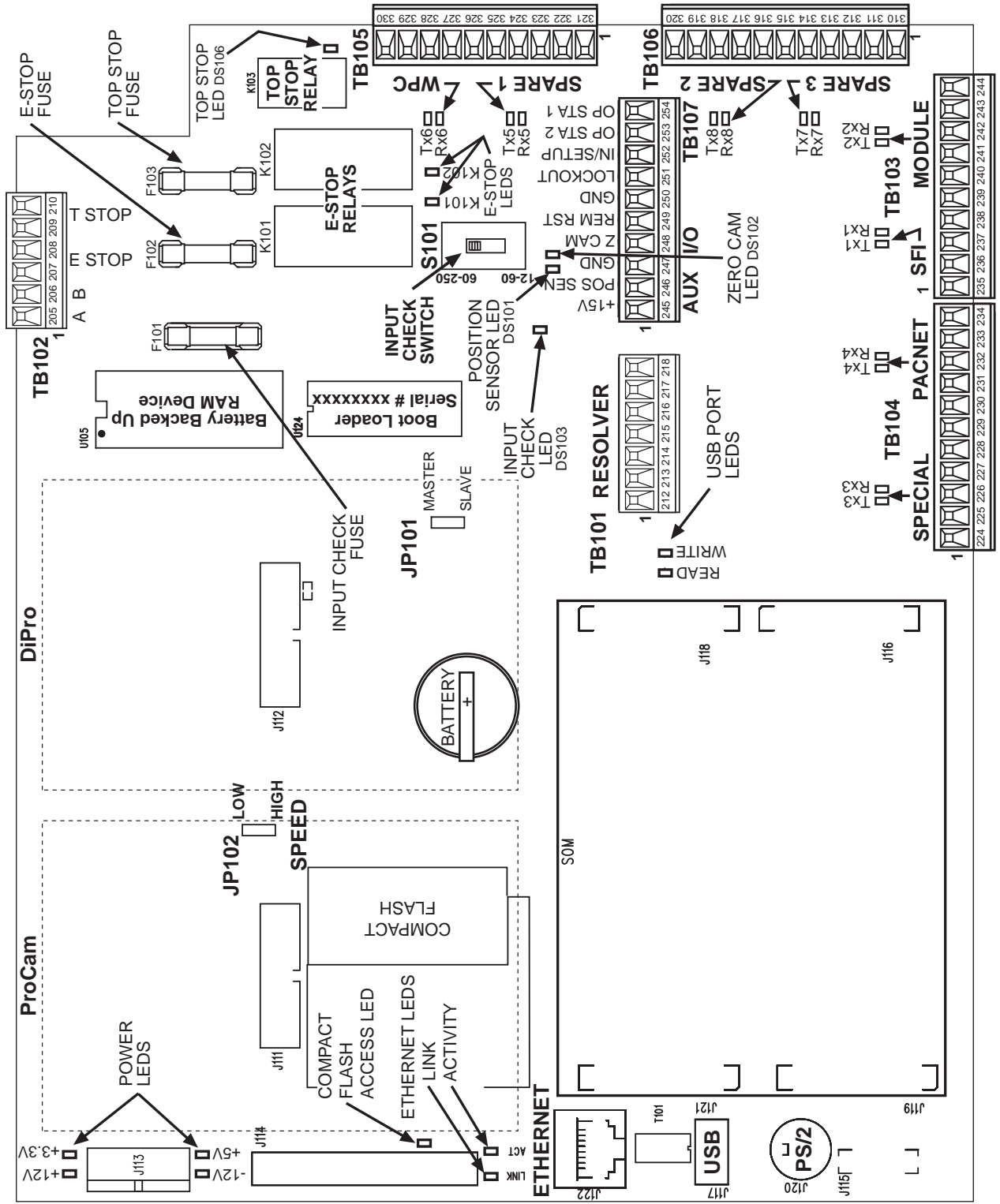


Figure 8. SmartPAC 2 Board