System 5000
Press Control

FEED INTERFACE
OPERATING MANUAL

OmniLink 5000

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1. INTRODUCTION

The OmniLink 5000 Operator Interface Terminal (OIT) is equipped with a serial communications card and can be interfaced to certain electronic roll feeds. This interface allows feed length, feed speed, and feed acceleration (on certain feeds) to be programmed from the OmniLink OIT. These parameters are included in the job storage area of the system 5000 and automatically transferred to the roll feed when a job is recalled.

There are two different communication boards used on the OmniLink 5000. The older style board only supports certain feeds and provides for the downloading of tonnage waveforms. The newer communications board supports more feeds, user selectable units for the feeds (for instance, inch and millimeter), tonnage waveform downloads, network operation, and other planned future enhancements. OmniLink controls shipped after July 1998 have the newer communications board installed as standard. If the features of the newer communications board are desired for an OmniLink control with the older board installed, a retrofit kit is available to upgrade the control. Contact Link for details and pricing.

Support for new feeds is added on a regular basis by Link, so whether or not the new or old communication board is installed, a software upgrade may be required for recently added feeds. Contact Link with the serial number of the OmniLink control and the feed manufacturer and model number so that the necessary feed kit and software updates can be determined.

1.1 Requirements

In order to connect an electronic roll feed to the OmniLink 5000 the following items are necessary:

- A feed interface cable to connect the OmniLink OIT communication card to the electronic roll feed. The section in this manual on each supported feed will give the Link part number of the cable appropriate for the feed as well as a connection diagram.

- The roll feed must be supported by the OmniLink 5000. Supported feeds at the time this manual was published include:

  - Coe CPEC/BG1
  - Coe BG2 **
  - Coe ServoMaster **
  - Dallas (EXOR Control) **
  - Dynamic Feeds **
  - Reliance/Electro-Craft IQ2000/IQ5000
  - Emerson Roll Feed
  - Indramat CLM/SOT/DLC
  - Indramat CLM/SOT Ver 1.2 **
  - CWP ServoDial II **
  - CWP ServoDial 2000
  - CWP Servomatic **
  - CWP ServoMax II **
  - PA Edge/Bullet/Advantage **
  - RapidAir Feed
  - Rowe (IQ2000/5000 Based)
  - Unico Type 1
  - Unico Type 2
  - Vamco Feeds (except Pulsar)
  - Waddington Feed

  ** = Feed supported only on new communications card.

2. INSTALLATION

In most cases, installation consists of simply connecting the appropriate cable between the OmniLink 5000 OIT and the feed. Exceptions to this are noted in the sections for each feed.

There are two different communication boards used on the OmniLink 5000. The older style board only supports certain feeds and provides for the downloading of tonnage waveforms. The newer communications board supports more feeds, user selectable units for the feeds (for instance, inch and millimeter), tonnage waveform downloads, network operation, and other planned future enhancements. OmniLink controls shipped after July 1998 have the newer communications board installed as standard. If the features of the newer communications board are desired for an OmniLink control with the older board installed, a retrofit kit is available to upgrade the control. Contact Link for details and pricing.

The connection to the OmniLink OIT depends on whether the old or new communication board is installed. Sections 2.1 and 2.2 show which port to use on each kind of communication board.

2.1 Old Communication Board Connection

The older communication board has 4 connectors and looks like figure 2.1 as viewed from the back panel of the OmniLink OIT.

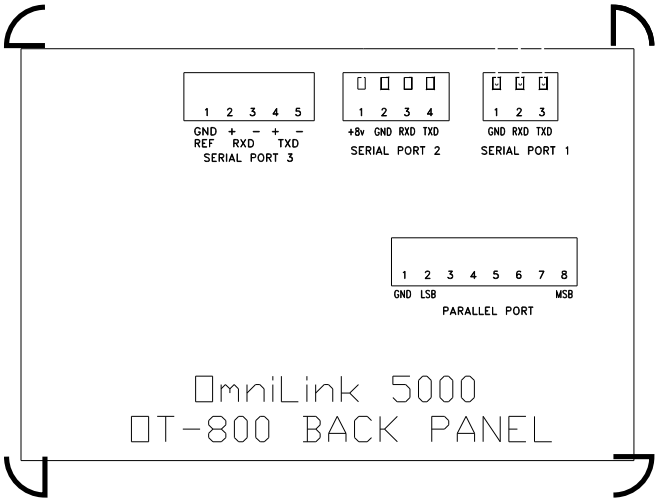

Figure 2.1: Back panel view of old communications board

For this board, serial port #1 (see figure 2.1) is intended for use with electronic roll feeds. This interface conforms to RS-232C specifications. Data is transmitted and received as ASCII characters with 1 start bit, 8 data bits, 2 stop bits, no parity, full duplex, and 9600 baud.

2.2 New Communication Board Connection

The new communication board has 5 connectors and looks like figure 2.2 as viewed from the back panel of the OmniLink OIT.

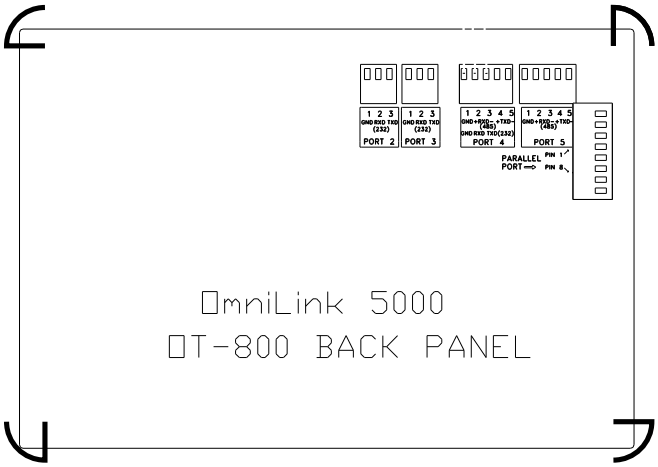

Figure 2.2: Back panel view of new communications board

For this board, serial port 4 is intended for feed

interface. This port is jumper selectable as a RS-232C port or a RS-485 port depending on the needs of the feed. The data bits, stop bits, and baud rate are all configurable (see section 3 for details).

2.3 Coe CPEC/BG1 Interface

The connection to a Coe CPEC or BG1 Electronic Feed is as follows:

Table 2.1
Coe CPEC/BG1 Connections
Link PN 100812

OmniLink Feed Port	Function / Color	Coe Comm Port
Pin 1 (GND)	Ground (WHITE)	GND
Pin 2 (RXD)	Receive data from feed (BLACK)	Transmit (TXD)
Pin 3 (TXD)	Transmit data to feed (RED)	Receive (RXD)

Notes:

- The communication should be set for 9600 baud, 7 data bits, odd parity, 2 stop bits.
- The feed length and speed thumb wheels must be set at zero or the settings from the serial port will be ignored.
- Due to the operation of the feed controller, the present feed length and speed are held in the OmniLink 5000 OIT. These settings are displayed in the feed screen without requesting any data from the feed controller. This is necessary because the feed controller must be halted (any feed in progress stops) in order to request present settings. When a new feed length or speed is entered, the feed controller is halted, the setting is transmitted to the controller, the new setting is requested for verification with the desired value, the feed controller program is re-initiated, and the present setting is updated in the OmniLink 5000 OIT. Failure of the feed to return the same setting as transmitted will cause the display to show zeros for that parameter if the old communications board is installed, or to give a communications error status in the feed screen for the new communications board. When this interface is first installed, the present settings will not be initialized and may indicate any setting.

2.4 Coe BG2 Interface

The connection to a Coe BG2 Electronic Feed is as follows:

Table 2.2
Coe BG2 Connections
Link PN 106739

OmniLink Feed Port	Function / Color	Coe COM2 port
Pin 1 (GND)	Ground (WHITE)	Pin 7
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 2
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 3

Notes:

- The COM2 port is located on the Coe operator interface terminal
- the COM2 port requires that pins 6, 8, and 20 (of COM2) be connected together.
- The feed communications settings (as set in the Coe operator terminal) should be 9600 Baud, 7 data bits, Odd parity, 1 stop bit.
- The feed will not communicate when in an error condition or when in a parameter entry screen (setting length, speed, acceleration, etc).

2.5 Coe ServoMaster Interface

The connection to a Coe ServoMaster Feed uses two cables - an adapter cable to go from a telephone type connector on the operator interface of the ServoMaster to a DB-9 connector, and a longer cable to go from the DB-9 connector to the Link operator terminal.

Table 2.3
Coe ServoMaster Connections
(Adapter Cable) Link PN 107921

DB-9 Female	Function	Coe Telephone Jack
Pin 1 (GND)	Ground	Pins 3 and 4
Pin 2 (RXD)	Transmit data to feed	Pin 5
Pin 3 (TXD)	Receive data from feed	Pin 2

Table 2.4
Coe ServoMaster Connections
(Main Cable) Link PN 105721

OmniLink Feed Port	Function / Color	DB-9 Male
Pin 1 (GND)	Ground (WHITE)	Pin 5
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2

Notes:

- The telephone jack is located on the back of the Coe operator interface terminal
- The feed communications settings (as set in the Coe operator terminal) should be 9600 Baud, 7 data bits, Odd parity, 1 stop bit.

2.6 CWP ServoDial II Interface

The connection to a CWP ServoDial II feed is as follows:

Table 2.5 CWP ServoDial II Connections Link PN 107819		
OmniLink Feed Port	**Function / Color**	**CWP**
Pin 1 (GND)	Ground (WHITE)	Pin 7
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2
		Pins 4 and 5 Jumpered Together

Notes:

- The feed *Panel/Remote* switch must be in the *Remote* position for the feed to receive data.
- The feed *Prog/Run* switch must be in the *Run* position for the feed to receive data.

2.7 CWP ServoDial 2000 Interface

The connection to a CWP ServoDial 2000 feed is as follows:

Table 2.6 CWP ServoDial 2000 Connections Link PN 106759		
OmniLink Feed Port	**Function / Color**	**CWP**
Pin 1 (GND)	Ground (WHITE)	Pin 7
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2

Notes:

- The feed *Panel/Remote* switch must be in the *Remote* position for the feed to receive data.
- The feed *Prog/Run* switch must be in the *Run* position for the feed to receive data.

2.8 CWP Servomatic Interface

The connection to a CWP Servomatic Feed is a little more involved than simply plugging in a cable. The servo control used in this feed, a reliance PRO-200, is capable of "talking" to its own OIT or the OmniLink OIT but not both at the same time. A small circuit board (Link PN 107632) with some connectors and a switch is used to connect all three units (Link OIT, feed OIT, and servo control) so that a switch can select whether the feed OIT or the OmniLink OIT is able to communicate with the servo control. The circuit board is installed as shown in figure 2.3.

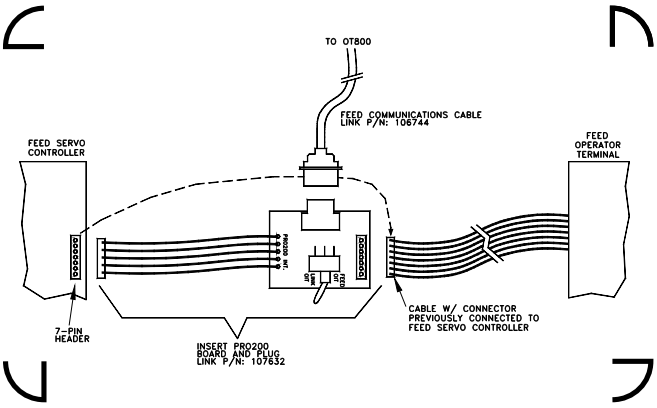

Figure 2.3: Interface board for PRO-200 based feeds (Link PN 107632).

The feed OIT originally plugs into port 5 of the PRO-200. Disconnect the feed OIT at port 5 of the PRO-200 and plug it into the matching connector on the small interface circuit board (there is only one connector that will work). Plug the connector from the small interface circuit board (connected by five wires) into port 5 of the PRO-200 (again, there is only one connector that will work). A cable is supplied by Link that goes from the DB-9 connector on the small interface circuit board to the OmniLink 5000 OIT. The connections on that cable are as follows:

Table 2.7
CWP Servomatic Connections
Link PN 106744

OmniLink Feed Port	Function / Color	Small Circuit Board DB-9 Connector
Pin 1 (GND)	Ground (WHITE)	Pin 5
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2

Notes:

None.

2.9 CWP ServoMax II Interface

The connection to a CWP ServoMax II Feed (IQ2000/IQ5000 based) is as follows:

Table 2.8
CWP ServoMax II Connections
Link PN 105721

OmniLink Feed Port	Function / Color	Electro-Craft Serial Port 2
Pin 1 (GND)	Ground (WHITE)	Pin 5
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2
No Connect	Shield (BARE)	Pin 6

Notes:

- The communication port must be set for independent operation (refer to the Electro-Craft manual).
- The application program operating in the Electro-Craft feed controller will accept a new feed length or speed in either the manual or automatic mode, but will not use the new setting until one progression has been made with the previous setting. The press control will force the drive into the manual mode after a new feed length or feed speed is transmitted in order to establish this as the present setting.

2.10 Reliance/Electro-Craft IQ2000/IQ5000 Based Interface

The connection to a Reliance or Electro-Craft IQ2000/IQ5000 based feed is as follows:

Table 2.9
Reliance/Electro-Craft
IQ2000/IQ5000 Connections
Link PN 105721

OmniLink Feed Port	Function / Color	Electro-Craft Serial Port 2
Pin 1 (GND)	Ground (WHITE)	Pin 5
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2
No Connect	Shield (BARE)	Pin 6

Notes:

- The communication port must be set for independent operation (refer to the Electro-Craft manual).

2.11 Dallas Feed Interface (EXOR Control)

The connection to a Dallas feed with EXOR control is as follows:

Table 2.10
Dallas (EXOR Control) Connections
Link PN 107865

OmniLink Feed Port	Function / Color	Dallas Comm Port DB-15 Male
Pin 1 (GND)	Ground (WHITE)	Pin 5
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2
No Connect	Shield (BARE)	Pin 1
		Pins 10 and 11 Jumpered Together

Notes:

- This feed uses the Reliance IQ2000/IQ5000 feed setting.
- Speed and acceleration should be set as "Unitless" in the Link feed setup screen.

2.12 Emerson Servo Interface

The connection to an Emerson Electronic Feed is as follows:

Table 2.11
Emerson Connections
Link PN 105721

OmniLink Feed Port	Function / Color	Emerson Serial Port A
Pin 1 (GND)	Ground (WHITE)	Pin 5
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2
No Connect	Shield (BARE)	Pin 1

Notes:

- The communication port of the Emerson Feed Controller must be set to 9600 baud, No axis identifier, Full duplex, and Auto line feed OFF (refer to the Emerson manual):

2.13 Indramat CLM Interface

Connections to the Indramat CLM are as follows:

Table 2.12
Indramat CLM Servo Connections
Link PN 106739

OmniLink Feed Port	Function / Color	Indramat CLM Connector X6
Pin 1 (GND)	Ground (WHITE)	Pin 7
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 2
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 3

Notes:

- For **old communication board only**, the following Parameter Values must be set up at the CLM:
  a) A100 = 3.
  b) B102 = 0.
  c) B118 = 1 00 0.
  d) B119 = 9600 8 1 02.

- For **new communication board only**, the following Parameter Values must be set up at the CLM:
  a) B102 = 0.
  b) B118 first number must not be 0.
  c) Feed port baud rate, data bits, and stop bits must be set at the OmniLink OIT the same as the CLM.

2.14 Indramat DLC Interface

Connections to the Indramat DLC are as follows:

Table 2.13
Indramat DLC Servo Connections
Link PN 106744

OmniLink Feed Port	Function / Color	Indramat DLC Connector X31
Pin 1 (GND)	Ground (WHITE)	Pin 5
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2
No Connect	Shield (BARE)	Pin 1

Notes:

- For **old communication board only**, the following Parameter Values must be set up at the DLC:
  a) A100 = 3.
  b) B102 = 0.
  c) B118 = 1 00 0.
  d) B119 = 9600 8 1 02.

- For **new communication board only**, the following Parameter Values must be set up at the DLC:
  a) B102 = 0.
  b) B118 first number must not be 0.
  c) Feed port baud rate, data bits, and stop bits must be set at the OmniLink OIT the same as the DLC.

2.15 Indramat SOT Interface

The Indramat SOT (serial operator terminal) is sometimes used with CLM or DLC servo controls. When it is used, the OmniLink OIT must connect to the SOT instead of the CLM or DLC. Connections to the Indramat SOT are as follows:

Table 2.14
Indramat SOT Connections
Link PN 106738

OmniLink Feed Port	Function / Color	Indramat SOT Connector X3
Pin 1 (GND)	Ground (WHITE)	Pin 7
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 2
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 3

Notes:

- For **old communication board only**, the following Parameter Values must be set up at the CLM or DLC:
  a) A100 = 3.
  b) B102 = 0.
  c) B118 = 2 01 0.
  d) B119 = 1920 8 1 02 **OR**
  B119 = 1920 8 1 03 ☜ (Typical)

- For **new communication board only**, the following Parameter Values must be set up at the CLM or DLC:
  a) B102 = 0.
  b) B118 first number must not be 0.
  c) B119 = 1920 8 1 02 **OR**
  B119 = 1920 8 1 03 ☜ (Typical)

- The SOT should be connected to the CLM or DLC as shown in the Indramat manuals. Once the SOT operation is verified, serial port 2 must be configured and "Relay Mode" must be enabled for the OmniLink 5000 to pass commands to the CLM or DLC through the SOT.
  a) Press <Shift> and <Help> simultaneously.
  b) Enter the password "SOT" when prompted.
  c) Select "SOT Parameters" from the menu.
  d) Select "Configure Port 2" from the menu.
  e) Set baud rate to 9600, parity to None, data bits to 8, and stop bits to 1.
  f) Go back to the first menu (the on with "SOT parameters").
  g) Select "Enable Relay Mode".

2.16 Indramat CLM Version 1.2 Interface

This is an older version of Indramat firmware. Connections to the Indramat CLM are as follows:

Table 2.15
Indramat CLM Servo Connections
Link PN 106739

OmniLink Feed Port	Function / Color	Indramat CLM Connector X6
Pin 1 (GND)	Ground (WHITE)	Pin 7
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 2
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 3

Notes:

- Not Supported on old communications board.
- For **new communication board**, the following Parameter Values must be set up at the CLM:
  a) B102 = 0.
  b) Feed port baud rate, data bits, and stop bits must be set at the OmniLink OIT the same as the CLM.

2.17 Indramat SOT with CLM Version 1.2 Interface.

This is an older version of Indramat firmware. Connections to the Indramat SOT are as follows:

Table 2.16
Indramat SOT Connections
Link PN 106738

OmniLink Feed Port	Function / Color	Indramat SOT Connector X3
Pin 1 (GND)	Ground (WHITE)	Pin 7
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 2
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 3

Notes:

- Not supported on old communications board.
- For **new communication board**, the following Parameter Values must be set up at the CLM:
  a) B102 = 0.
- The SOT should be connected to the CLM as shown in the Indramat manuals. Once the SOT operation is verified, serial port 2 must be configured and "Relay Mode" must be enabled for the OmniLink 5000 to pass commands to the CLM through the SOT.
  a) Press <Shift> and <Help> simultaneously.
  b) Enter the password "SOT" when prompted.
  c) Select "SOT Parameters" from the menu.
  d) Select "Configure Port 2" from the menu.
  e) Set baud rate to 9600, parity to None, data bits to 8, and stop bits to 1.
  f) Go back to the first menu (the on with "SOT parameters").

g) Select "Enable Relay Mode".

2.18 PA Bullet/Edge/Advantage Interface

The connection to a PA Bullet, Edge, or Advantage feed is a little more involved than simply plugging in a cable. The servo control used in this feed, a reliance PRO-200, is capable of "talking" to its own OIT or the OmniLink OIT but not both at the same time. A small circuit board (Link PN 107632) with some connectors and a switch is used to connect all three units (OmniLink OIT, feed OIT, and servo control) so that a switch can select whether the feed OIT or the OmniLink OIT is able to communicate with the servo control. The circuit board is installed as shown in figure 2.4.

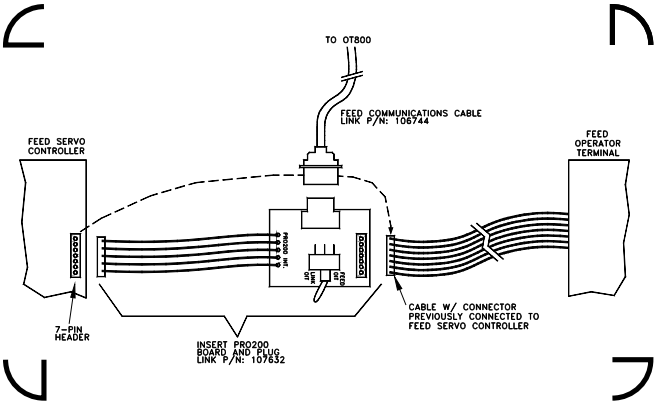

Figure 2.4: Interface board for PRO-200 based feeds (Link PN 107632).

The feed OIT originally plugs into port 5 of the PRO-200. Disconnect the feed OIT at port 5 of the PRO-200 and plug it into the matching connector on the small interface circuit board (there is only one connector that will work). Plug the connector from the small interface circuit board (connected by five wires) into port 5 of the PRO-200 (again, there is only one connector that will work). A cable is supplied by Link that goes from the DB-9 connector on the small interface circuit board to the OmniLink 5000 OIT. The connections on that cable are as follows:

Table 2.17
PA Bullet/Edge/Advantage Connections
Link PN 106744

OmniLink Feed Port	Function / Color	Small Circuit Board DB-9 Connector
Pin 1 (GND)	Ground (WHITE)	Pin 5
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2

Notes:

- Feed parameters can not be changed while the feed is in AUTO mode. The communication board can detect this and will inform the user. Any new feed parameters will be sent automatically to the feed when it is taken out of AUTO mode.

- Older PA software says "PRO-200 Cut to Length" on the initial startup screen. New software says "P/A industries". An upgrade will be required for the older PA software. Contact PA for information if required.

2.19 Rapid-Air Interface

The Rapid-Air interface is somewhat different from most of the feed interfaces. Many of the feed functions are controlled from a small keypad and screen that connects to the only available communications port on the feed control itself. A special adapter board must be used to communicate with the feed. In addition, the old communications board needs an RS-232 to RS-485 converter to enable the System 5000 to communicate with the feed. The new communications board feed port can be configured to be RS-232 or RS-485.

2.19.1 Rapid-Air Connections with Old Communications board

The connection to a Rapid-Air Feed from the old communications board is as follows:

Table 2.18
OmniLink OIT To RS-485 Converter Connections for Old Communication Board

OmniLink Feed Port	Function	RS-485 Converter
Pin 1 (GND)	Ground	Pin 7 (GND)
Pin 2 (RXD)	Receive data from feed	Pin 2 (TXD)
Pin 3 (TXD)	Transmit data to feed	Pin 3 (RXD)

Table 2.19
RS-485 Converter to Rapid-Air Connections for Old Communication

RS-485 Converter	Function	Rapid-Air Connector J58
Ground	Ground	Pin 5
TXD+	Transmit +	Pin 8
TXD-	Transmit-	Pin 9
RXD+	Receive+	Pin 6
RXD-	Receive-	Pin 7

Notes:

- Rapid-Air has used two different servo controls at different times, the Pacific Scientific SC750 series, and the SC950 series. The comm connector is the same on each of the controls.
- The connections from the operator terminal to J58 must also remain in place.
- On the SC750 series of servo controls, Input 14 (Pin 6 of J56) must be low to enable remote download of feed parameters. On the SC950 series of servo controls, there is a circuit board below the communications connector with terminals on it. If the wires to the board have resistors at the terminals, then terminal 14 should be disconnected to enable communications. Call Rapid-Air if there is any trouble in identifying these inputs.
- If the feed is powered down but the System 5000 is not, the feed will lose the current length, speed, and acceleration values but the 5000 will not know that. To reset the values in the feed, the feed screen must be entered and the length reprogrammed. This will reset all three values. If both units are powered down, everything will be reset automatically.

2.19.2 Rapid-Air Connections with New Communications board

The connection to a Rapid-Air Feed from the new communications board is as follows:

Table 2.20
OmniLink OIT to Rapid-Air Connections for New Communication Board Link PN 107833

OmniLink Port 4	Function / Color	Rapid-Air Connector J58
Ground	Ground (GREEN/W)	Pin 5
RXD+	Receive+ (ORANGE/W)	Pin 6
RXD-	Receive- (W/ORANGE)	Pin 7
TXD+	Transmit + (BLUE/W)	Pin 8
TXD-	Transmit- (W/BLUE)	Pin 9

Notes:

- Link makes a small adapter board (PN 107858) that plugs into the Rapid-Air communications port to provide 2 communications connectors. The Rapid-Air operator interface (if present) plugs into one connector (either one), and the Link feed interface cable plugs into the other.

- Rapid-Air has used two different servo controls at different times, the Pacific Scientific SC750 series, and the SC950 series. The communications connector is the same on each of the controls.

- The connections from the operator terminal to J58 must also remain in place.

- On the SC750 series of servo controls, Input 14 (Pin 6 of J56) must be low to enable remote download of feed parameters. On the SC950 series of servo controls, there is a circuit board below the communications connector with terminals on it. If the wires to the board have resistors at the terminals, then terminal 14 should be disconnected to enable communications. Call Rapid-Air if there is any trouble in identifying these inputs.

- Port 4 of the new communications board must be jumpered for RS-485 operation. See section 3.3 for configuration information.

- On some older versions of Rapid-Air software, if the feed is powered down but the System 5000 is not, the feed will lose the current length, speed, and acceleration values but the 5000 will not know that. To reset the values in the feed, the feed screen must be entered and the length reprogrammed. This will reset all three values. If both units are powered down, everything will be reset automatically. Contact Rapid-Air for information on software updates to correct this.

- Some version of Rapid-Air software do not support a read back of the values sent to it. Always try the “Rapid Air Type 2" feed type first to see if this is supported. If not, “Rapid Air Type 1" can be used. It is recommended to contact Rapid-Air for a software update if this is the case.

2.20 Unico Interface

The connection to a Unico Feed is as follows:

Table 2.21 Unico Connections Link PN 106746		
OmniLink Feed Port	**Function / Color**	**Unico Comm Board 25 Pin 232 Connector**
Pin 1 (GND)	Ground (WHITE)	Pin 7 (GND)
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 2 (TXD)
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 3 (RXD)

Notes:

- Pins 4 and 5 on the Unico 232 communications connector must be tied together (RTS to CTS).
- There are two different operating systems in use on Unico feeds. The System 5000 supports these as “Type 1" and “Type 2" Unico feeds. You may have to experiment to find out which type you have.

2.21 Waddington Interface (MC500 Controller)

The connection to a Waddington Feed is as follows:

Table 2.22 Waddington Connections Link PN 106748		
OmniLink Feed Port	**Function / Color**	**Waddington Connector J5**
Pin 1 (GND)	Ground (WHITE)	Pin 7
Pin 2 (RXD)	Receive data from feed (BLACK)	Pin 3
Pin 3 (TXD)	Transmit data to feed (RED)	Pin 2
No Connect	Shield	Pin 1

Notes:

- The communication port of the Waddington Feed Controller must be set to 9600 baud (see Waddington manual).

2.22 Dynamic Feeds Interface

The Dynamic Feeds interface is somewhat different from most of the feed interfaces. Many of the feed functions are controlled from a small keypad and screen that connects to the only available communications port on the feed control itself. A special adapter board must be used to communicate with the feed. **This feed is only supported on the new communications board.**

The connection to a Dynamic Feeds Servo Feed is as follows:

Table 2.23
OmniLink OIT to Dynamic Feeds Connections
Link PN 107833

OmniLink Port 4	Function / Color	Rapid-Air Connector J58
Ground	Ground (GREEN/W)	Pin 5
RXD+	Receive+ (ORANGE/W)	Pin 6
RXD-	Receive- (W/ORANGE)	Pin 7
TXD+	Transmit + (BLUE/W)	Pin 8
TXD-	Transmit- (W/BLUE)	Pin 9

Notes:

- Link makes a small adapter board (PN 107858) that plugs into the Pacific Scientific SC750 servo controller communications port (J58) to provide 2 communications connectors. The Dynamic Feeds operator interface (if present) plugs into one connector (either one), and the Link feed interface cable plugs into the other.
- Port 4 of the new communications board must be jumpered for RS-485 operation. See section 3.3 for configuration information.
- If the feed is powered down but the System 5000 is not, the feed will lose the current length and speed values but the 5000 will not know that. To reset the values in the feed, the feed screen on the OmniLink OIT must be entered and the length reprogrammed. This will reset both values. If both units are powered down, everything will be reset automatically.
- This feed will not communicate when it is "Armed" and waiting for a feed initiate signal. When recalling a job with the feed armed, the feed screen on the OmniLink OIT will report a communications failure to the feed. Hit the "Program/Interrupt" button to disarm the feed and the new feed parameters will be sent to the feed. The new feed length should be displayed on the feed OIT at that point.

3. CONFIGURATION

There are two different communication boards that have been used with the OmniLink 5000 - referred to as the "old communication board" and the "new communication board". See sections 2.1 and 2.2 to determine which of these is installed.

Configuration of the feed interface depends on which of these boards is present. The following sections give configuration instructions for both boards.

3.1 Configuring the Old Communication Board

The configuration menu labeled "Operator Terminal" displays a parameter that describes the operation of Serial Port #1 (the feed communication port) . This parameter may be changed in the PROG mode by using the up and down arrow keys to position the cursor onto the item and entering a specific type (refer to the system 5000 manual if more information on configuration menus is needed). The available types are listed below:

Table 3.1
Feed Types for Old Communication Board Configuration

Type	Feed Function
00	Port Disabled
01	Reserved
02	Emerson Roll Feed
03	Reliance/Electro-Craft IQ2000/IQ5000
04	Coe CPEC Feed
05	Waddington Feed
06	RapidAir Feed
07	Unico Type 1 Feed
08	Unico Type 2 Feed
09	Indramat CLM or DLC
10	CWP Servo-Dial 2000
11	Vamco
12	CWP ServoMax II
13	Indramat SOT

3.2 Configuring the New Communication Board

The new communication board adds several options and new capabilities to feed communication over the old communication board - such as user selectable units and enhanced diagnostics. To configure feed options:

- From the main screen (the screen the OmniLink powers up in), select the "PRESS CONTROL" softkey.
- With the Run/Prog keyswitch in the "Prog" position, push the "CONFIG" softkey. Note that this softkey will not be present unless the OmniLink is in program mode. After entering the access code, a screen similar to Figure 3.1 should appear.

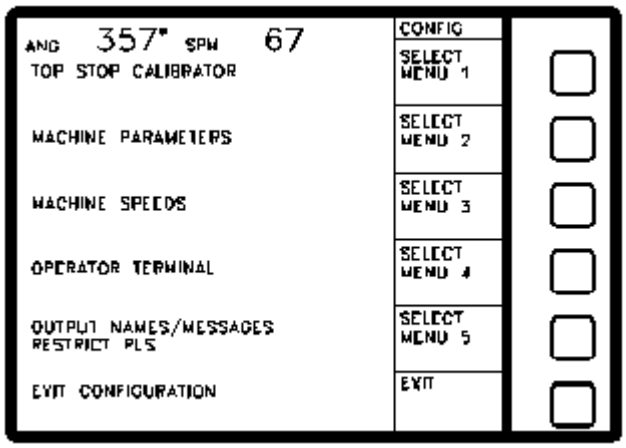

Figure 3.1: OmniLink 5000 Main Configuration Screen

♦ Push the softkey for "OPERATOR TERMINAL". A screen like Figure 3.2 should

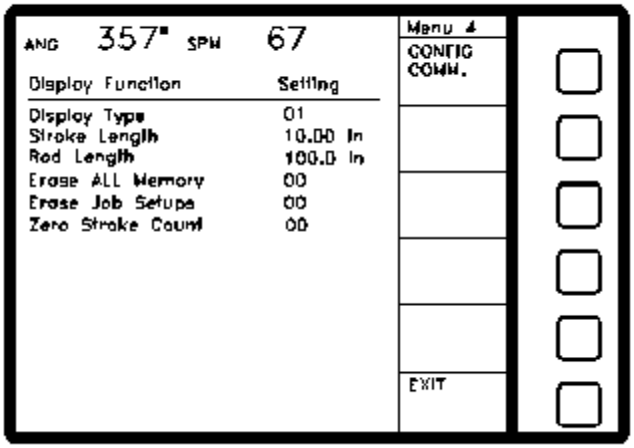

Figure 3.2: OmniLink 5000 Operator Terminal Config. Screen

♦ Push the "CONFIG COMM." softkey to display the communications setup screen which should look similar to Figure 3.3 (the port configurations may vary depending on how the particular machine is set up and what options have been installed).

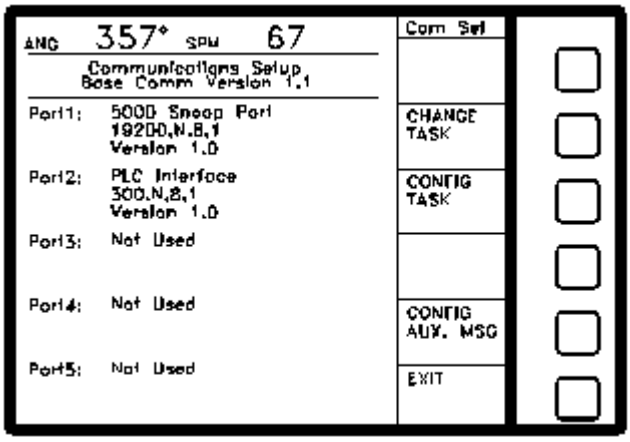

Figure 3.3: OmniLink 5000 Communications Config. Screen

♦ Use the up and down arrow keys to highlight "Port 4" and hit the "CHANGE TASK" softkey until the description for port 4 reads "Feed - Not Configured" or has the name of a supported feed.

♦ Hit the "CONFIG TASK" softkey and a screen similar to Figure 3.4 should appear.

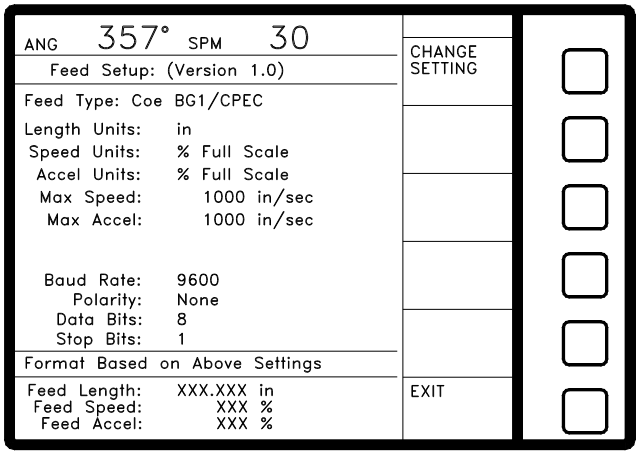

Figure 3.4: Example Feed Configuration Screen

There are several settings to configure in this screen:

Feed Type - Using the arrow keys, position the highlight cursor on this field and hit the "CHANGE SETTING" softkey until the required feed type appears.

Length Units - This is the unit in which to enter feed length values. Using the arrow keys, position the highlight cursor on this field and hit the "CHANGE SETTING" softkey until the desired length unit appears. This can be inch or millimeter. Note that this does not have to match the units the feed uses - the OmniLink will do the required unit conversion if necessary. This means, for instance, that the feed can take its units in inches, but feed length can be entered in millimeters on the OmniLink screen. The entered number will then be converted to inches and sent to the feed. Near the bottom of the screen (see example in figure 3.4), is a sample format for length. It shows the number of digits, decimal place, and unit based on the choice in this field.

Speed Units - This is the unit in which to enter feed speed values. Using the arrow keys, position the highlight cursor on this field and hit the "CHANGE SETTING" softkey until the desired speed unit appears. This can be in in/sec, in/min, mm/sec, % full scale, or unitless. The unitless setting will pass whatever number is entered straight to the feed with no conversions. Any other setting will cause the necessary conversion to be performed on the number before sending it to the feed. For instance, a feed may take speed in in/sec. If this setting is set for mm/sec, then a feed speed number entered on the OmniLink feed screen will be converted to in/sec before sending it to the feed. Near the bottom of the screen (see example in figure 3.4), is a sample format for speed. It shows the number of digits, decimal place, and unit based on the choice in this field.

Accel Units (only for certain feeds) - This is the unit in which to enter feed acceleration values. Using the arrow keys, position the highlight cursor on this field and hit the "CHANGE SETTING" softkey until the desired acceleration unit appears. This can be in/sec^2, mm/sec^2, % full scale, or unitless. The unitless setting will pass whatever number is entered straight to the feed with no conversions. Any other setting will cause the necessary conversion to be performed on the number before sending it to the feed. For instance, a feed may take speed in in/sec^2. If this setting is set for mm/sec^2, then a feed acceleration number entered on the OmniLink feed screen will be converted to in/sec^2 before sending it to the feed. Near the bottom of the screen (see example in figure 3.4), is a sample format for acceleration. It shows the number of digits, decimal place, and unit based on the choice in this field.

Max Speed - This should be set to the maximum feed speed for the feed. Note that the units displayed to the right of the value should be set as well. To change the max speed, use the arrow keys to move the highlight cursor to the numeric max speed field. Enter the desired max speed using the numeric keypad and hit the "ENTER" key. To change the max speed units, use the arrow keys to move the highlight cursor the max speed units field (to the right of the number). Hit the "CHANGE SETTING" softkey until the desired units appear (choices are in/sec, in/min, and mm/sec). These values are used in three ways.

First, they will not allow a feed speed setting greater than this number to be entered.

Second, feeds that support only a "percent of full scale" speed value can be made to accept speed in whatever unit is entered for the "Speed Units" setting. For instance, if 1000 in/sec has been entered as the max speed of a feed that requires speed in percentage of full scale, then an entry of 500 in/sec for the feed speed will cause "50%" to be sent to the feed.

Third, feeds that do not accept percent of full scale speed entry can be made to if "% Full Scale" is selected in the "Speed Units" setting. For example, if 1000 in/sec has been entered for the max speed of a feed that requires speed in in/sec, then an entry of 50% will cause 500 in/sec to be sent to the feed.

Max Accel (only for certain feeds) - This should be set to the maximum feed acceleration for

the feed. Note that the units displayed to the right of the value should be set as well. To change the max acceleration, use the arrow keys to move the highlight cursor to the numeric "Max Accel" field. Enter the desired max acceleration using the numeric keypad and hit the "ENTER" key. To change the max acceleration units, use the arrow keys to move the highlight cursor the "Max Accel" units field (to the right of the number). Hit the "CHANGE SETTING" softkey until the desired units appear (choices are in/sec^2 and mm/sec^2). These values are used in three ways.

First, they will not allow a feed acceleration setting greater than this number to be entered.

Second, feeds that support only a "percent of full scale" acceleration value can be made to accept acceleration in whatever unit is entered for the "Accel Units" setting. For instance, if 1000 in/sec^2 has been entered as the max acceleration of a feed that requires acceleration in percentage of full scale, then an entry of 500 in/sec^2 for the feed acceleration will cause "50%" to be sent to the feed.

Third, feeds that do not accept percent of full scale acceleration entry can be made to if "% Full Scale" is selected in the "Accel Units" setting. For example, if 1000 in/sec^2 has been entered for the max acceleration of a feed that requires acceleration in in/sec^2, then an entry of 50% will cause 500 in/sec^2 to be sent to the feed.

<u>*Baud Rate*</u> - The baud rate used to "talk" to the feed. This should match the baud rate setting on the feed (typically 9600).

<u>*Parity*</u> - The parity setting used to "talk" to the feed. This should match the parity setting on the feed (typically None).

<u>*Data Bits*</u> - The number of data bits used to "talk" to the feed. This should match the data bits setting on the feed (typically 8).

<u>*Stop Bits*</u> - The number of stop bits used to "talk" to the feed. This should match the stop bits setting on the feed (typically 1).

3.3 Setting the New Communication Board Feed Port for RS-232 or RS-485 Operation.

Occasionally a feed will have to be interfaced via RS-485 instead of the more common RS-232. With the old communication board, an external RS-232 to RS-485 converter was necessary. The new communication board has a set of three jumpers (see figure 3.4) that allow serial port 4 to be configured for either mode.

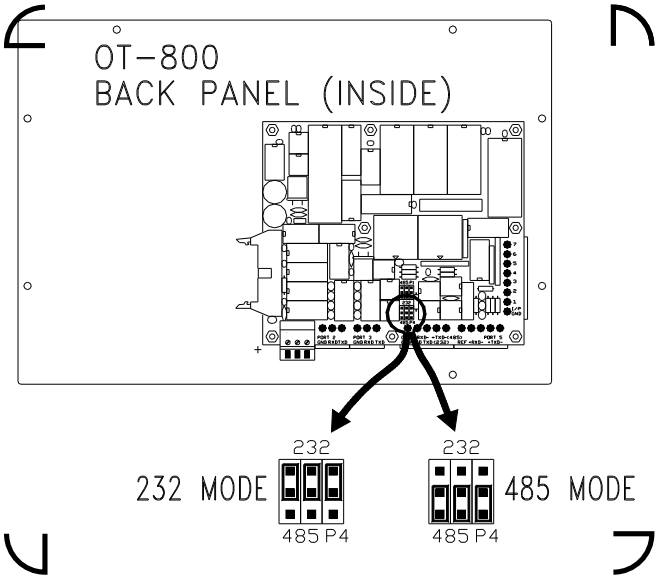

Figure 3.4: Jumper Settings for Port 4 of New Communication Board

Using figure 3.4 as guide, set the jumpers for RS-232 or RS-485 as appropriate. The installation section for each feed will indicate if this is necessary. If the installation section for a feed does not explicitly state that RS-485 operation is required, then this should be left as RS-232, which is how the card ships.

4. OPERATION

There are two different communication boards that have been used with the OmniLink 5000 - refereed to as "old communication board" and "new communication board". See sections 2.1 and 2.2 to determine which of these is installed.

Operation of the feed interface is virtually the same for both board, but small differences do exist. The following sections give operating instructions for both boards.

4.1 Entering Feed Parameters with the Old Communication Board

The Press Control menu of the OmniLink 5000 provides an AUTO SETS menu which contains automatic feed settings for a specific job. If configured to interface to a feed, the feed length, feed speed, and, in some cases, other parameters become available selections as shown in figure 4.1:

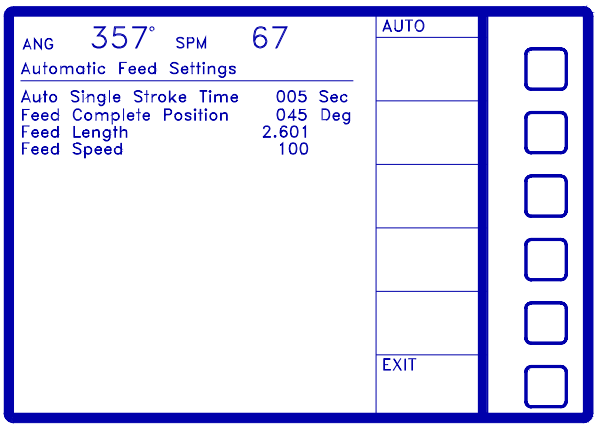

Figure 4.1: Example Auto-Sets Menu

Feed length and speed may be entered in the PROG mode by positioning the cursor onto the desired parameter, using the numeric keypad to enter the new number, and pressing the "ENT" key. The value is transmitted to feed controller via the serial communication link and the returned value presented on the display.

It should be noted that the feed controller does NOT communicate to the operator terminal when turned off (unless equipped with separate logic power connections). If for any reason the OmniLink OIT can not successfully send the feed parameters (feed is off, cable disconnected, etc.), "000.000" will be displayed as feed length and "0000" as feed speed. Once the problem is corrected, new values may be entered and will be transmitted to the feed. If the problem was not corrected, the display will continue to show zeros.

The operator terminal requests the present feed length and feed speed upon entering the Automatic Feed Settings menu. If the feed controller is turned off at this time but later turned on, no change in the display will take place unless the operator exits and re-enters the menu or switches to the PROG mode and moves the cursor.

4.2 Entering Feed Parameters with the New Communication Board

For the new communication board, the feed screen is accessed by pushing the "AUX FEED" softkey in the auto-sets screen of the OmniLink 5000. This softkey becomes available when a feed is configured as described in section 3.2, or some other optional auxiliary interface is enabled (such as the PLC interface). The feed screen should look something like figure 4.2.

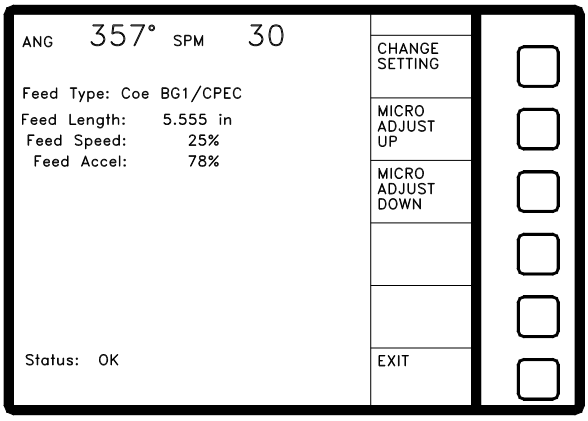

Figure 4.2: Example Feed Settings Screen

This screen shows the following information:

Feed Type - The currently selected feed type.

Feed Length - The current feed length setting. This value is displayed in whatever units were selected in feed configuration. To change the feed length, position the highlight cursor (while in program mode) on the feed length number, use the numeric keypad to enter the desired length, and hit the "ENT" key. The number will be sent to the feed and, for most feeds, verified. Any problems will be reported in the status field.

Feed Speed - The current feed speed setting. This value is displayed in whatever units were selected in feed configuration. To change the speed, position the highlight cursor (while in program mode) on the speed number, use the numeric keypad to enter the desired speed, and hit the "ENT" key. The number will be sent to the feed and, for most feeds, verified. Any problems will be reported in the status field.

Feed Accel (certain feeds only) - The current feed acceleration setting. This value is displayed in whatever units were selected in feed configuration. To change the acceleration, position the highlight cursor (while in program mode) on the acceleration number, use the numeric keypad to enter the desired acceleration, and hit the "ENT" key. The number will be sent to the feed and, for most feeds, verified. Any problems will be reported in the status field.

Status - The status of feed communications. If communications with the feed is normal, this area will usually have a status of "OK". Some ++feeds also report other information such as manual or automatic mode here. If the OmniLink OIT can not communicate with the feed, a "Feed Comm Problem!" message will be displayed.

Micro Adjust Up softkey - For feeds that do not normally support a micro adjust feature, this will add .001 inches or .01 mm to the current feed length (depending on the length units selected in configuration) and send that value to the feed *but only in program mode*. For feeds that do support a micro adjust feature, this will send a micro adjust up command to the feed in program or run mode. The amount of adjustment in this case depends on the feed.

Micro Adjust Down softkey - For feeds that do not normally support a micro adjust feature, this will subtract .001 inches or .01 mm to the current feed length (depending on the length units selected in configuration) and send that value to the feed *but only in program mode*. For feeds that do support a micro adjust feature, this will send a micro adjust down command to the feed in program or run mode. The amount of adjustment in this case depends on the feed.

Certain feeds may also report other information in this screen.

4.3 Job Storage

In addition be being able to enter length and speed from the operator terminal, each job can be stored with a unique feed length, feed speed, and (for certain feeds) feed acceleration which will be sent to the feed when the job is recalled. When a job is stored, the present feed length is requested by the operator terminal and is transmitted by the feed controller only if it is turned ON. If no communication to the feed can take place the present feed length and speed can not be stored with the other job information. Since some jobs may be run without the use of the feed and the feed may be turned OFF when the job settings are stored, the STORE SETUP menu shown in figure 4.3 is displayed.

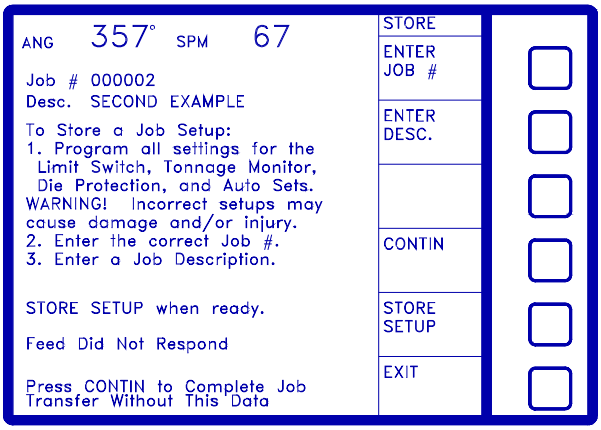

Figure 4.3: Storing Job with Feed Off

If the feed is off unintentionally, the operator may turn the feed ON and press the STORE SETUP softkey again to re-initiate the transfer of feed settings. If this job is to be performed without the feed, the CONTIN softkey instructs the operator terminal to ignore communication with the feed and store all other information for this job. If this is selected, zeros are stored for all feed parameters.

4.4 Job Recall

If configured, feed length, feed speed, and (for certain feeds) feed acceleration are recalled with each job and automatically transferred to the feed controller. The OmniLink 5000 will then request the feed settings from the controller and make certain that it compares correctly with the values transmitted. If the feed controller is turned OFF and does not respond to the serially transmitted data, the screen shown in figure 4.4 is presented.

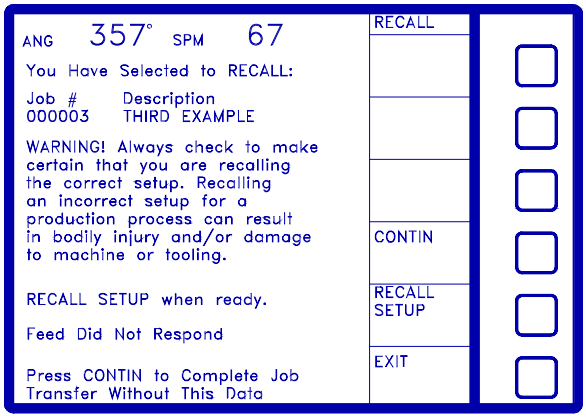

Figure 4.4: Recalling Job with Feed Off

If the feed has been turned OFF unintentionally, the operator may turn the feed ON and select the RECALL SETUP softkey again to re-initiate a job transfer. If this job does not require the feed, the CONTIN softkey will ignore the feed parameters and recall the other job information. If a job is stored with the feed OFF (i.e. the CONTIN softkey was used to store the job) and later recalled with the feed ON, all feed settings are recalled as zeros.

5. INTERFACING TO OTHER FEEDS OR DEVICES

In many cases a feed that is not currently supported may have a programmable basic module or other means of customization. You may also want to tie in a PLC or other controlling device that is handling an entire feed line. In these cases it makes sense to program the device to emulate (or "look like") another already supported feed. The simplest feed to emulate is the Electro-Craft IQ2000 series. The protocol is as follows:

Communications:

RS232, 9600 baud, no parity, 1 start bit, 1 stop bit, 8 data bits.

Conventions:

[CR] = Carriage return
[LF] = Line Feed
[S] = Space
X = Digit (0-9)

To Request Length from the feed:

5000 Sends:

```
G1[CR]
```

Feed Returns:

```
G1[CR][LF]G1[S]=[S]XXXX.XXXX[CR][LF][CR][LF]PDM>
```

To Send Length to feed:

5000 Sends:

```
G1=XXX.XXX[CR]
```

Feed Returns:

```
G1=XXX.XXX[CR][LF]G1[S]=[S]XXXX.XXXX[CR][LF][CR][LF]PDM>
```

To Request Speed from the feed:

5000 Sends:

```
G2[CR]
```

Feed Returns:

```
G2[CR][LF]G2[S]=[S]XXXX.XXXX[CR][LF][CR][LF]PDM>
```

To Send Speed to feed:

5000 Sends:

```
G2=XXXX[CR]
```

Feed Returns:

```
G2=XXXX[CR][LF]G2[S]=[S]XXXX.XXXX[CR][LF][CR][LF]PDM>
```

For feed length the 5000 will send numbers from 000.000 to 999.999. For feed speed it will send 0000 to 9999. The normal use of feed speed has been to treat it as percent of maximum speed. Note that you must treat any number over 100 as 100 if you use this as a percentage. The 5000 will send the length in all cases as XXX.XXX and the speed as XXXX. For instance, a length of 3.23 will be sent as 0003.2300 and .23 will be sent as 0000.2300. A speed of 5 will be sent as 0005 and 100 will be sent as 0100. This is not the case for the feed. The feed will suppress leading zeros. For instance, 3.23 will be sent as 3.2300 and .23 will be sent as 0.2300. Note that the end of each feed response is "PDM>". This is the prompt that would be displayed on the feed terminal.

Important!: The first part of the response from the feed looks just like what the 5000 sent. That is because it was echoed back to the 5000 on a character by character basis. For instance, in the case of a length setting command, the 5000 sent "G" and before it would send "1" the feed echoed "G" back to it. Then it sent "1" and before it would send "=" the feed sent "1" back to it and so on. The rest of the response from the feed to the 5000 occurs in one big block.

Examples of Length set:

Operator enters 3.255 for feed length.

5000 Sends:

```
G1=003.255[CR]
```

Feed Returns:

```
G1=003.255[CR][LF]G1[S]=[S]3.2550[CR][LF][CR][LF]PDM>
```

Operator enters .3 for feed length

5000 Sends:

```
G1=000.300[CR]
```

Feed Returns:

```
G1=000.300[CR][LF]G1[S]=[S]0.3000[CR][LF][CR][LF]PDM>
```

Examples of Speed set:

Operator enters 5 for feed speed

5000 Sends:

```
G2=0005[CR]
```

Feed Returns:

```
G2=0005[CR][LF]G2[S]=[S]5.0000[CR][LF][CR][LF]PDM>
```

Operator enters 100 for feed speed

5000 Sends:

```
G2=0100[CR]
```

Feed Returns:

```
G2=0100[CR][LF]G2[S]=[S]100.0000[CR][LF][CR][LF]PDM>
```

Appendix A - Upgrading Link Equipment

Link equipment may sometimes need software upgrades to take advantage of new features. The following sections explain how to do software and hardware upgrades.

A.1 General Chip Changing Rules

Changing the software on Link equipment is accomplished by swapping electronic chips called EPROMS (called "chips" in the rest if this section). These chips are plugged into sockets on various circuit boards on the equipment and can usually be identified by the label that gives the chip type and version number. No special equipment is necessary to change a chip but it is necessary to observe a few precautions and rules:

- Make sure that power to the system is ***OFF*** when changing chips. Failure to observe this precaution can result in damage to the equipment.
- ***Gently*** pry a chip from its socket using a small blade screw driver (or chip remover if available). Be sure to place the screw driver between the socket and the chip - ***Not*** between the socket and the circuit board!
- When inserting a chip into its socket, make sure the notch on the end of the chip is aligned with the notch in the socket. The unit will not work if the chip is inserted backwards and damage to the chip may result.
- When inserting a chip into its socket, make sure that no pins are bent under the chip and that all pins are in the socket.

A.2 System 1100 Tonnage Monitor Upgrade Procedure

System 1100 OIT software versions 2.0 and up will display the OIT software version and the motherboard software version for about 5 seconds when the unit powers up. Older software will only display the OIT version at power-up - the channel 1 & 2 dual channel card must be removed to check the motherboard software version.

If the OIT software version is older than version 2.0, the OIT and motherboard software MUST both be changed at the same time.

A.2.1 System 1100 OIT Software Upgrade Procedure

- Review section A.1 for chip changing rules!
- Turn off the power to the System 1100.
- Open the front door of the System 1100 enclosure.
- Using Figure A.1, locate the software chip on the circuit board mounted to the System 1100 enclosure door and remove it.
- Install the new software chip labeled 1100-OIT in the socket. All software versions prior to V2.0 had different chips for 2 channel and 4 channel tonnage monitors, but V2.0 or higher works with both 2 and 4 channel OITs.

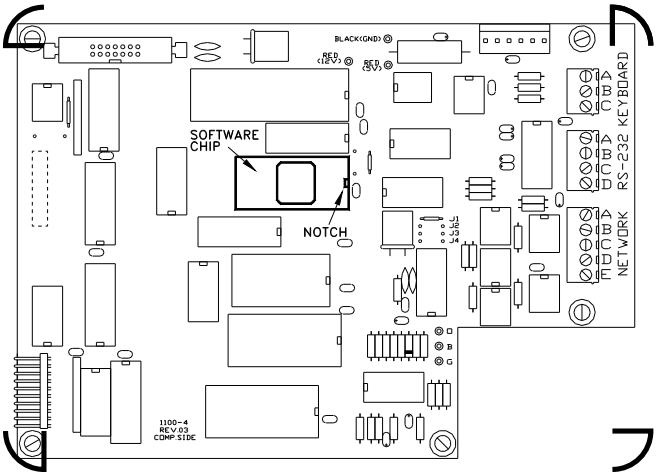

Figure A.1: System 1100 OIT Circuit Board

A.2.2 System 1100 Motherboard Software Upgrade Procedure

- Review section A.1 for chip changing rules!
- Turn off the power to the System 1100.
- Open the front door of the System 1100 enclosure.
- Remove the five pan-head screws holding down the channel 1 and 2 dual channel card (the card in the bottom of the unit that has the channel 1 and channel 2 strain gauges plugged into it). Remove the channel card by pulling on the handle on the card.
- Using Figure A.2, locate the software chip on the 1100-1 circuit board and remove it.
- Install the new software chip labeled "1100-2-MB" in the socket for a two channel unit, or the chip labeled "1100-4-MB" for a four channel unit. A 4 channel chip in a 2 channel motherboard or a 2 channel chip in a 4 channel motherboard will prevent the unit from working correctly!
- Install the Channel 1 and 2 dual channel card - Be sure not to leave any lockwashers or screws loose in the unit!
- Restore power to the System 1100.
- Make sure that the System 1100 resets. You should see a screen that look similar to:

  LINK SYSTEMS 1100
  V2.7 OIT V2.5MB

  on the LCD for about 5 seconds after power-up. The main menu should then appear.

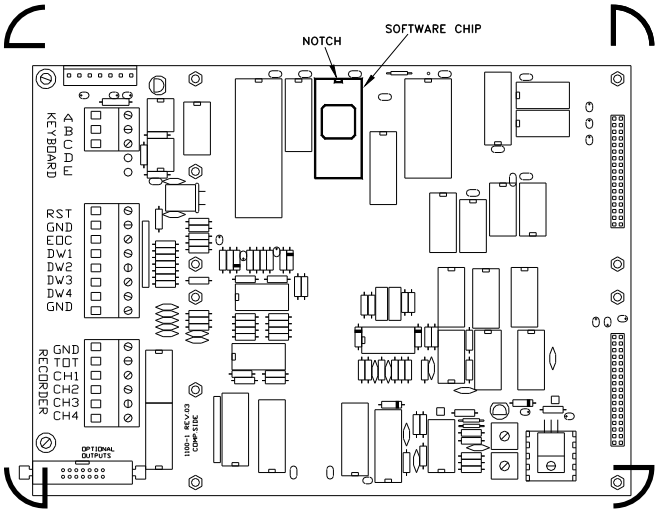

Figure A.2: System 1100 Motherboard Circuit Board

A.3 OmniLink 5000 Upgrade Procedure

Most OmniLink 5000 press controls shipped prior to July 1998 will need to have a hardware upgrade to work with LinkNet or to support certain feeds. This upgrade consists of replacing the old back plate and communications card on the operator interface terminal with a new back plate and communications card.

To determine which kind of communications board is installed, look at the back of the OmniLink operator interface terminal (the box with the display screen on it - also called the OIT). There should be 5 connectors on the back of the OIT if a new communications board is installed (see Figure A.3). If only 4 connectors are present, then an older communications board is installed (see Figure A.4).

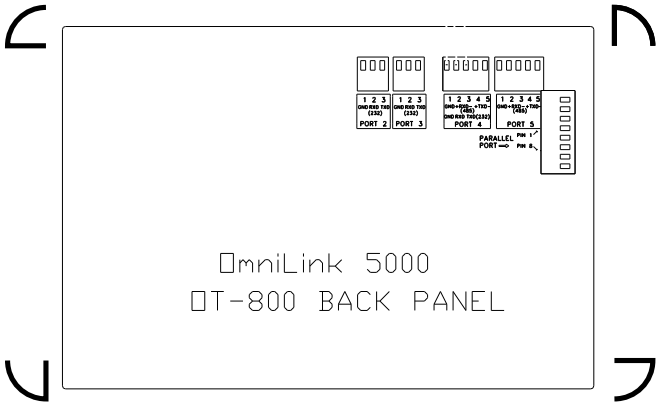

Figure A.3: Back Panel View of OIT with New Communications Board Installed

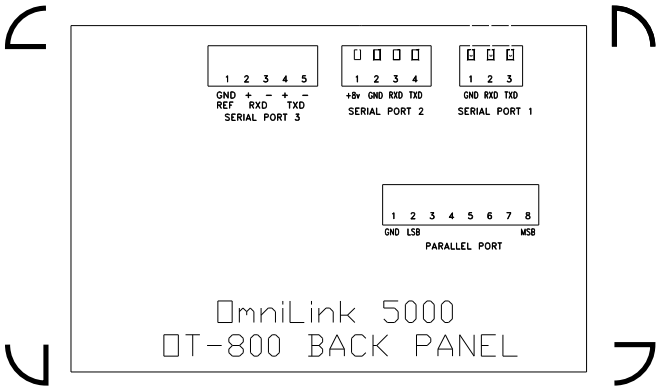

Figure A.4: Back Panel View of OIT with Old Communications Board Installed

A.3.1 OmniLink OIT Communications Board Upgrade Procedure

This procedure is for replacing an old communications board and back plate with a new communications board and back plate. Refer to Figure A.5 for the following steps:

- Remove power from the OmniLink card rack **and** the OIT.
- Remove the screws from the back panel of the OIT, and remove the back plate. Note that there is a ribbon cable connecting the circuit board on the back plate to the OIT circuit board in the can. Disconnect the ribbon cable from the circuit board on the back panel.
- Using the cable assembly supplied with the upgrade kit, connect wire A of the cable to terminal A on the OIT, and wire B of the cable to terminal B on the OIT. Do not disconnect the wires going to the card rack (there will be two wires each in the A and B positions of the terminal strip on the OIT circuit board).
- Connect the ribbon cable between the display board and the new communication board.
- If not already plugged in, connect the cable supplied with the upgrade kit to port 1 of the new communications board. This is the only port on the inside of the back panel.
- Install the back panel on the Operator Terminal.

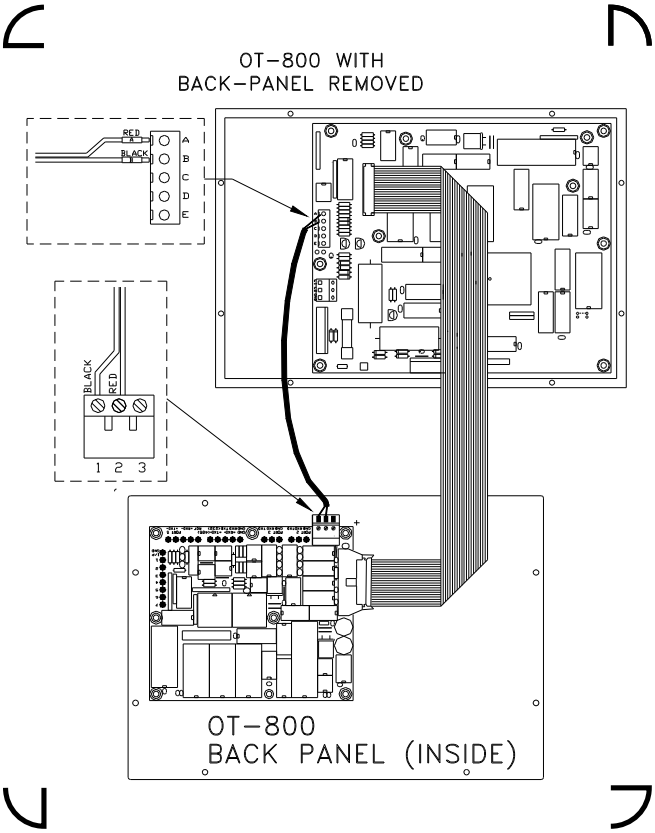

Figure A.5: Operator Interface Terminal to New Communications Board Connections

A.3.2 OmniLink OIT Software Upgrade Procedure

- Review the chip changing rules in section A.1.
- Remove power from the OmniLink card rack **and** the OIT.
- Remove the screws from the back panel of the OIT, and remove the back panel.
- Using Figure A.6, locate and remove chips 5000-C, 5000-D, and 5000-E.
- Insert the new 5000-C, 5000-D, and 5000-E chips.
- Install the back panel on the Operator Terminal.

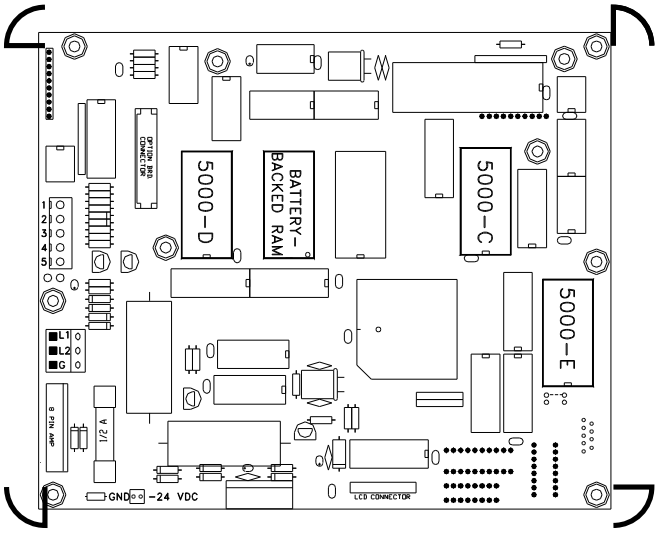

Figure A.6: Operator Interface Terminal Circuit Board

A.3.3 OmniLink OIT Communications Card Software Upgrade Procedure

Note that older communications cards DO NOT have any software. This section applies ONLY to new communications cards. See Figures A.3 and A.4 to determine which card is present.

- Review the chip changing rules of section A.1.
- Remove power from the OmniLink card rack **and** the OIT.
- Remove the screws from the back panel of the OIT, and remove the back panel.
- Using Figure A.7, locate and remove chip 800-3. This chip will be labeled “800-3 Base”.
- Insert the new “800-3 Base” chip.
- Install the back panel on the Operator Terminal.

Note that communications cards can have up to two additional software chips as options. Replace these chips **only** with chips that have the same labeling (except for the version)!

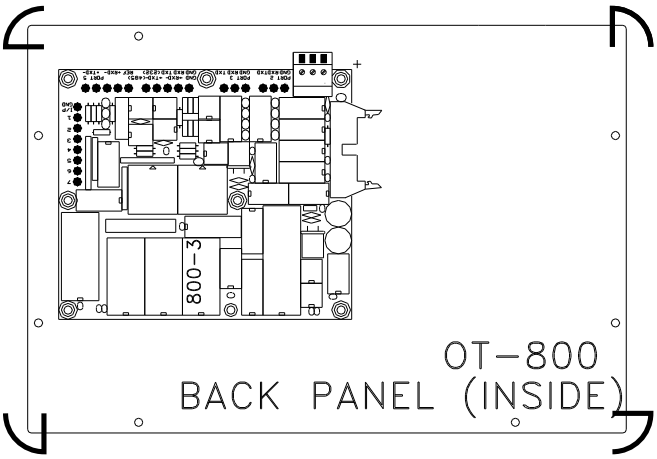

Figure A.7: Communications Circuit Board

A.3.4 OmniLink Logic Module Upgrade Procedure

The base card rack has only one card, the Logic Module, that contains software. To upgrade the logic module:

- Review the chip changing rules of section A.1.
- Remove power from the OmniLink card rack **and** the OIT.
- Remove the logic board from the card rack.
- Using Figure A.8, locate and remove chips 5000-A and 5000-B.

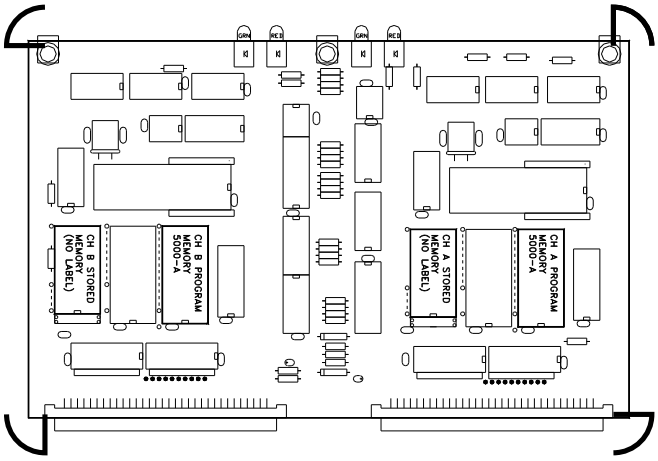

Figure A.8: OmniLink 5000 Logic Module Circuit Board

- Insert the new 5000-A and 5000-B chips. Make absolutely sure that the "A" chip is in the "A" socket and the "B" chip is in the "B" socket.
- Insert the logic board in the card rack.

A.3.5 OmniLink Die Protection Module Software Upgrade Procedure

This upgrade procedure applies only if the OmniLink control has an extended card rack and has the die protection module installed.

- Review the chip changing rules of section A.1.
- Remove power from the OmniLink card rack **and** the OIT.
- Remove the Die Protection board from the card rack.
- Using Figure A.9, locate chip 5000-7 and remove it.

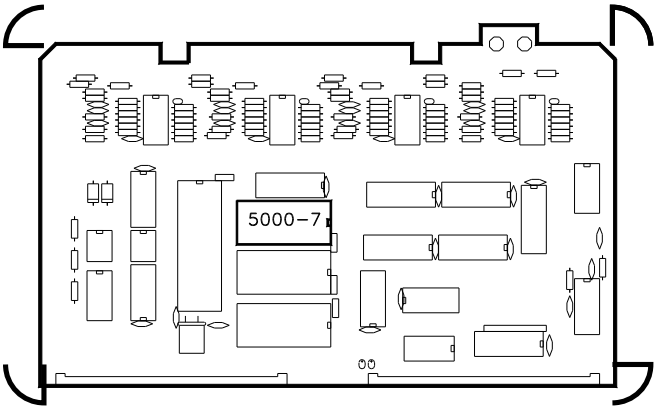

Figure A.9: OmniLink 5000 Die Protection Module Circuit Board

- Insert the new 5000-7 chip.
- Insert the Die Protection board in the card rack.

A.3.6 OmniLink Tonnage Monitor Module Software Upgrade Procedure

This upgrade procedure applies only if the OmniLink control has an extended card rack and has the tonnage monitor module installed.

- Review the chip changing rules of section A.1.
- Remove power from the OmniLink card rack **and** the OIT.
- Remove the Tonnage Monitor Module from the card rack.
- Using Figure A.10, locate and remove the 5000-8 chip.

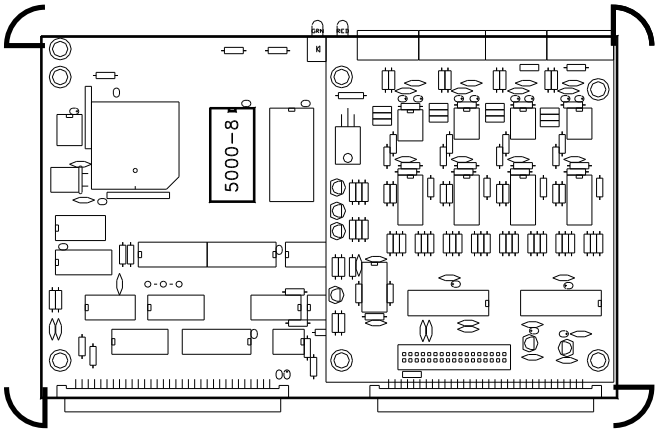

Figure A.10: OmniLink Tonnage Monitor Module Circuit Board

- Insert the new 5000-8 chip.
- Insert the Tonnage Monitor Module in the card rack.

A.3.7 OmniLink Auto-Setup Module Software Upgrade Procedure

This upgrade procedure applies only if the OmniLink control has an extended card rack and has the auto-setup module installed.

- Review the chip changing rules of section A.1.
- Remove power from the OmniLink card rack **and** the OIT.
- Remove the Auto-Setup board from the card rack.
- Remove the module (if present) installed in the SS1 position.
- Using Figure A.11, locate and remove the 5000-10 chip.

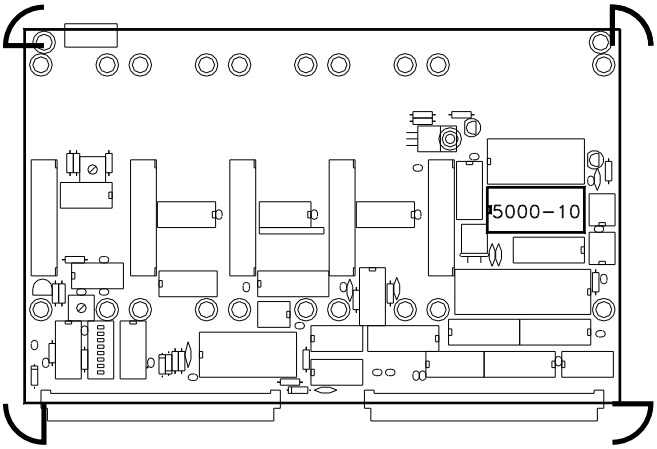

Figure A.11: OmniLink Auto-Setup Module Circuit Board

- Insert the new 5000-10 chip.
- If a module was removed from SS1, replace it.
- Insert the Auto-Setup Module in the card rack.