RoadRunner3™

Operator's Guide

Data I/O

PN 096-0446-001A

CONTENTS

Overview
Installation
Job Setup
Operation
Maintenance
Troubleshooting
Index

Data I/O has endeavored to ensure that the information in this document is accurate and complete. Data I/O assumes no liability for errors, or for any incidental, consequential, indirect, or special damages, including, without limitation, loss of use, loss or alteration of data, delays, or lost profits or savings, arising from the use of this document or the product which it accompanies.

No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without written permission from Data I/O.

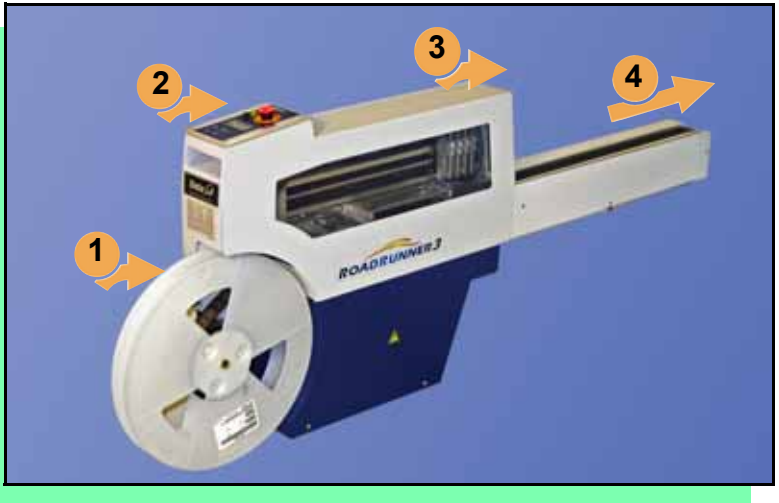
Data I/O is a registered trademark of Data I/O Corporation. “TaskLink” and “RoadRunner3” are trademarks of Data I/O Corporation.

Data I/O Corporation acknowledges the trademarks of other organizations for their respective products or services mentioned in this document.

© 2011 Data I/O Corporation
All rights reserved

RoadRunner3..... 2
Jobs and Statistics..... 3
External View..... 4
Internal Components..... 5
Control Panel Lights..... 6
Control Panel Buttons..... 7
Operator Menus..... 8
Changing the Pass Limit..... 9
Supervisor Menus..... 10
Warnings and Cautions..... 14
Technical Support..... 71

RoadRunner3

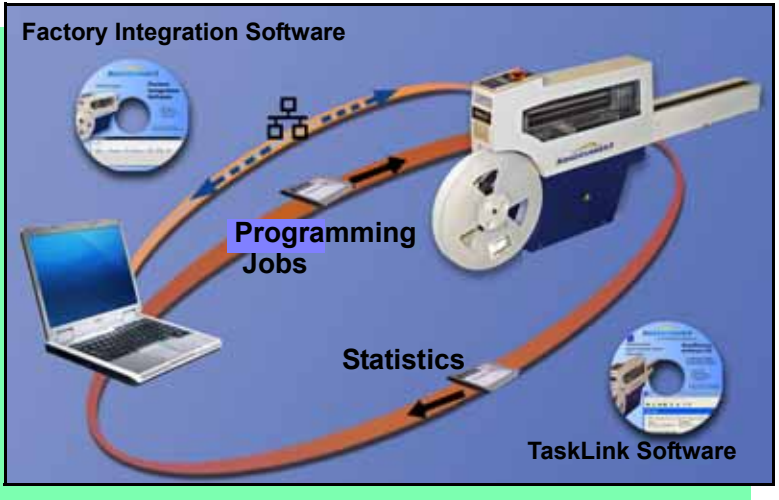


Data I/O is proud to offer an inline solution with remote monitoring for high-volume programming of electronic media.

ROADRUNNER3 —

1. **Takes programmable devices from a reel...**
2. **Places them in sockets and programs them with your data...**
3. **Places them on a conveyor belt...**
4. **Delivers them to the pick point of your Assembly Machine. ■**

Jobs and Statistics



Two software applications come with *RoadRunner3* —

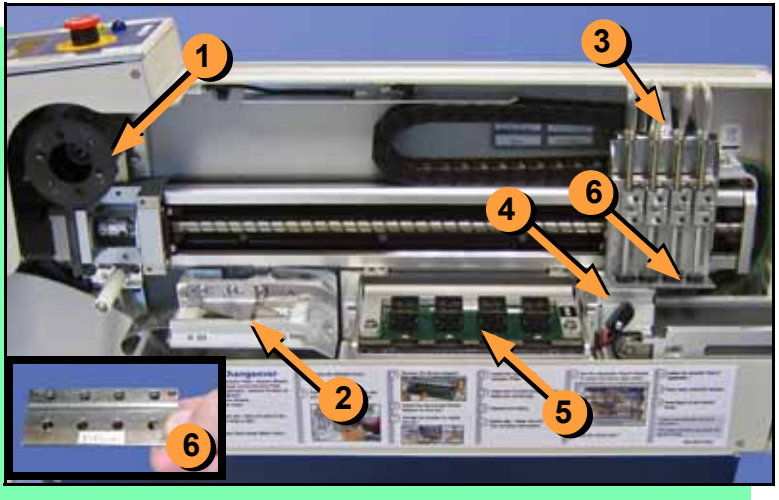
- **TaskLink™ for Windows® for creating and managing a job database and analyzing job statistics.**
- **Factory Integration Software (FIS) for remote job downloading, performance monitoring and automating programming processes.**

A network connection is used to transfer jobs and statistics between the software applications and *RoadRunner3*. (PC-cards can be used with TaskLink; Factory Integration Software requires a network connection.) ■

External View

1. Power and Air Connections
2. Power Switch
3. PCMCIA Card Slot and Eject button
4. Handhold for lifting
5. Control Panel
6. Conveyor Belt
7. Assembly Machine Mechanical Interface (depends on model)
8. Robotics Cover
9. Communication Cable (some models)
10. Electronics Enclosure
11. Ethernet Connection ■

Internal Components



1. Cover Tape Take-Up Reel
2. AdjustableTape-In Module
3. PNP Head and Probes
4. Reject Bin
5. Socket Adapter, Actuator Plate, and Programmer
6. Precisor ■

Control Panel Lights

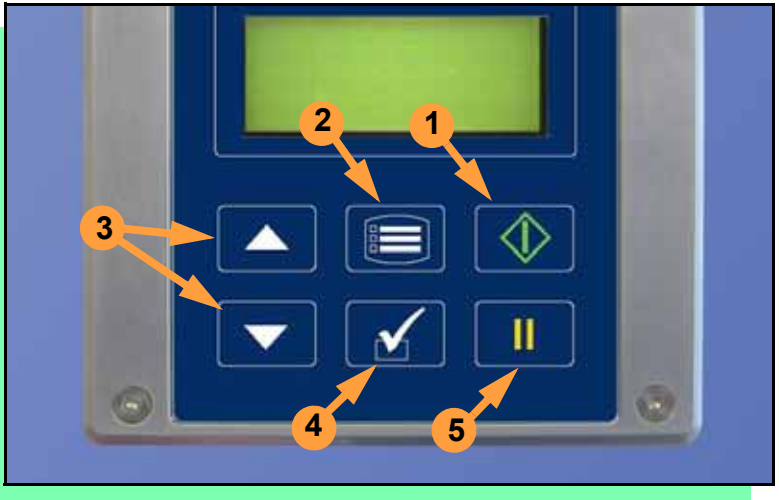
1. <u>Blue</u> - Stop Indicator.
   User intervention is required, or the unit is paused.
   — CAUTION — Do not remove the PC-card unless blue lamp is lit.

2. <u>Yellow</u> - Caution Indicator.
   Correct a problem or the ***RoadRunner3*** will stop. Also, reading or writing to PC-card.

3. <u>Green</u> - Run Indicator.
   Lit: A job is running.
   Blinking: Programmed devices are not yet at the SMT pick point.

4. <u>Emergency Stop</u> - Press to stop the robot motors in an emergency. To resume motion, rotate the button and press Start. ■

Control Panel Buttons



NOTE: Do not use keypad while a file is downloading. Wait until it completes (blue lamp will light).

1. Start: **start or resume chosen job.**
2. Menu: **exit to previous menu, or show next message (deleting current one), or deselect an item to end a process.**
3. Up and Down Arrows: **scroll through menu items, or toggle selections, or advance device tape.**
4. Select: **select menu items. *Select Job* means to scroll to *Job* and press *Select*.**
5. Pause: **interrupt job without cancelling it.** ■

Operator Menus

Main Menu
Job
Advance Pocket
Align Pocket
Purge
Park Head
Socket

- Light gray shaded fields cannot be changed.
- For *Advance Pocket*, *Align Pocket*, and *Purge*, see Chapter 3 in the Owner's Manual.

Job	
View	Job Name
	Device: E28F320
	Checksum: 3FC00000
	Mfg: INTEL
	Adapter: PA-G021
	Prec: 621-0086-005
	Act: 644-0016-001
	Encrypted: No
Results	Passed: 992
	Failed: 4
	System Yld: 98.7
	Prgrmr Yld: 99.6
	Handler Yld: 99.5
	Parts/Hour: 255
	MCBI: 201
	Skt 1 Yld: 99.9
	Skt 2 Yld: 100
	Skt 3 Yld: 100
	Skt 4 Yld: 100
	Skt Cycles: 249

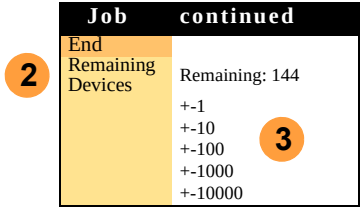
Continued

Operator menus are visible on the Control Panel, and can be navigated by using the Up Arrow **and** Down Arrow **buttons.**

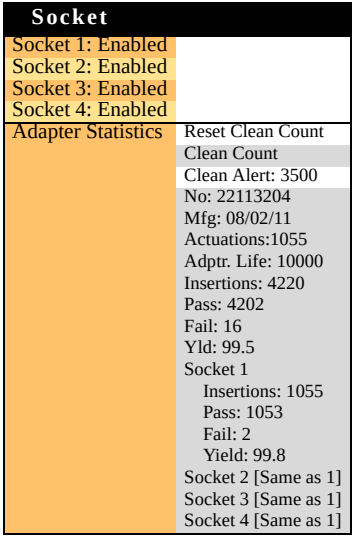
Pressing the Menu **button displays the next higher menu (one level up). If you are at the Main menu, pressing** Menu **will have no effect.** Job **is the first item in the Main menu.**

Operator menus, Version 05.45.00.C shown, and continued on the next page.

Operator Menus, continued



- Light gray shaded fields cannot be changed.



Changing the Pass Limit

To change the Pass Limit:

1. **Select** Job.
2. **Select** Remaining Devices.
3. **Scroll to and Select an increment for adjustment.**
4. **Press the** Up **or** Down Arrow **buttons to add or subtract as necessary.**

Press Menu**. Repeat steps 3 & 4 if needed for another increment.** ■

Supervisor Menus

Main Menu
Job
Advance Pocket
Align Pocket
Purge
Park Head
Socket*
Home
Operation†
System†
Robot Diagnostics^
Programmer Diags^
Event Log^

* See next page
† See 2 pages ahead
^ See 3 pages ahead

- HOME sends the PNP Head to the left-most socket.
- PARK HEAD sends the PNP Head to the conveyor belt.
- Light gray shaded fields cannot be changed.

Job	
View	Job Name Device: Checksum: 3FC00000 Mfg: INTEL Adapter: PA-G021 Prec: 621-0086-005 Act: 644-0016-001 Encrypted: No
Results	Passed: 992 Failed: 4 System Yld: 98.7 Prgrmr Yld: 99.6 Handler Yld: 99.5 Parts/Hour: 255 MCBI: 201[1] Skt 1 Yld: 99.9 Skt 2 Yld: 100 etc. Skt Cycles: 249

[1]Mean Cycles Between Interrupts.
Part numbers shown here are for illustration only.

Job cont.	
End	
Remaining Devices	Remaining: 151 +-1 +-10 +-100 +-1000 +-10000
Select	▶ Job 1 ● Job 2 End of List

View the Supervisor menus by inserting a PC-card with supervisor authority.
(Supervisor menus are on the next three pages.)

Supervisor (administrator) authorization is set in TaskLink. For more information, refer to TaskLink Help.

Version 05.45.00.C menus shown.

A (●) indicates the currently selected item.

A (▸) indicates the current cursor position.

Supervisor Menus, continued

Socket	
Socket 1: Enabled	
Socket 2: Enabled	
Socket 3: Enabled	
Socket 4: Enabled	
Adapter Statistics	Reset Clean Count
	Clean Count
	Clean Alert: 3500
	No: 22113204
	Mfg: 08/02/11
	Actuations:1055
	Adptr. Life: 10000
	Insertions: 4220
	Pass: 4202
	Fail: 16
	Yld: 99.5
	Socket 1
	Insertions: 1055
	Pass: 1053
	Fail: 2
	Yield: 99.8
	Socket 2 [Same as 1]
	Socket 3 [Same as 1]
	Socket 4 [Same as 1]

Operation	
Job	Pick Retries: 2
	Error Retries: 3
	Pocket Pitch: 4
	Pocket Advance: 3
	Save Air: On
	Belt
	Clear Belt: On
	Buffer: 1
	Prefill: Enabled
	Warning Msg:On
Head	Velocity: 600
	Accel: 1700
Probes	Puff: 50
	Pick: 200
	Place: 100
	Travel: 250
Teach	Tape: 69.0
	Skt 1: -26.85
	Reject:-175.5
	Belt: -210
	Restore Defaults

- Light gray shaded fields cannot be changed.

The Socket and Operation menus are expanded here. Refer to the previous page for the Main and Job menus.

NOTE: Many of the values shown, such as the Teach and Network menus, are for illustration only.

To change languages, press Menu **while pressing the** Select **button. Press the** Down Arrow **to the desired language and press** Menu **twice.**

Supervisor Menus, continued

System	
Time	Hour: 23 Minute: 38 Month: 12 Day: 21 Year: 2010
Odometer	Hours: 469.92 Devices: 24742 Timekeeping: OFF Erase: 0.0s Blankcheck: 0.0s Program: 0.0s Verify: 0.0s
Update Software	
Network	Network Parm:Card NetworkTxt: Delete/Save Status: Enabled PGM: FredsRR2 IP: 888.888.88.888 Prog Port: 7596 SUB: 255.255.248.0 GTW: 139.138.16.1 SNS: 0.0.0.0

System	
Network (cont.)	SNS Port: 7500 HST: rr215.nt.data-io DOM: nt.data-io.com DNS: 888.888.88.888 DTS: 888.888.88.88 EAddr: 0010EC112211 Clear NetParms
Adapter Alarm:	On
Configu-ration	Firmware Version Ver 05.34.02.C Installed Boards Bkpln Brd Id: 2 EP860 80Mhz WFB FCIII Id: 160 Adptr Brd Id: 3 Hardware Config HwCfgIds 1, 3, 4 Max Data Size:16GB JobChange:Locked View Prog Keys

System	
	Prog Key informa-tion Set Prog Key Remove Prog Key Model: [*name*] [-RR3] Feeder Comm: SBelt/FFI Reel Detect: Enable

Refer to the Supervisor Main menu for orientation (2 pages back).

Supervisor Menus, continued

Robot	Diags
Robot:	Enabled
Run Mode:	Job/Dry Run
Belt	Move:Fwd/Bkw
	Pick Sensor: 0
	Speed: 400 ± 10
	Measure Device
	Offset: 0.00
	Repeatability Test
	Start
Sensors	Tape Sprocket: 0
	Tape Broken: 0
	Reject Full: 0
	Reject Bin: 1
	Air: 1
	Interlock: 0
	E-Stop: 0
	+Overtravel: 0
	Home: 1
Socket	State: Up
	Actuate: 0
	Act.Dura-tion:150[3]

Robot	Diags
Probe 1– 4	Position: Up
	Vacuum: Enabled
	Puff: Enabled
	Vac Sense: 1
	Speed: 135 ± 5
Head Position	Head: 0
	Encoder:
	Motor Position:

- Light gray shaded fields cannot be changed.

[3] Socket Actuation duration is set by the Socket Adapter in some instances.

Programmer	Diags
Programr: Enabled	
Exercise Display	
Test Cycles: 3	
Test All: PASS	
Bus Test: PASS	
Adtr ID Test: PASS	
LED Dvr Test: PASS	
G Node Test: PASS	
Vcc OC Test: PASS	
Vpp OC Test: PASS	
I2C Bus Test: PASS	
DAC Ref Test: PASS	
GSlew Test: PASS	
High RAM Test:	
Continuity Loop: 3	

Event Log	
View	
Clear	

Programmer Diagnostic tests require a Diagnostic Adapter Board for all items below this line.

NOTE: Programmer Diags are only available with a Diagnostic Adapter Board (DAB) which thoroughly diagnoses FC programmers and can be purchased from Data I/O.

For more information about menu commands, see Chapter 3 of the *RoadRunner3 Owner's Manual*. ■

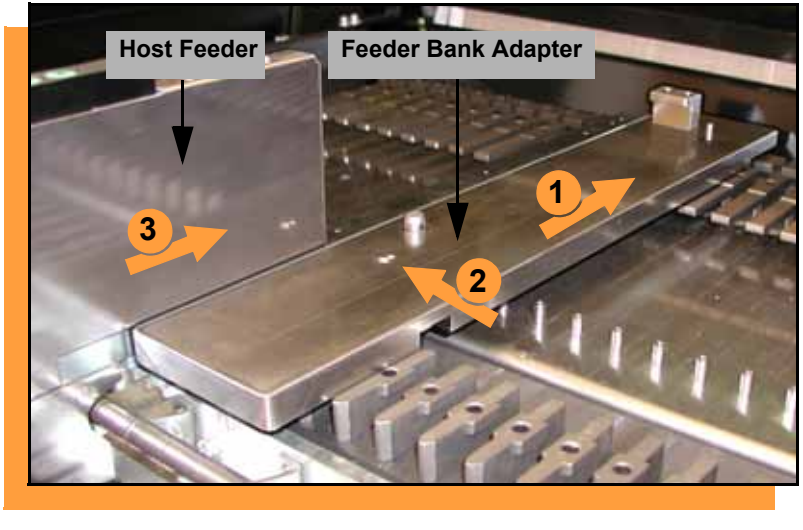
Warnings and Cautions

	Compressed Air	**Point air hoses away from body. Always wear approved eye protection.**
	Loud Noise	**Sound pressure levels may exceed 85 db. Hearing protection is recommended for prolonged exposure at this level.**
	High Voltage	**Turn power off before removing electronics cover.**
	Heavy Object	**This equipment weighs approximately 21 kg (45 lbs). Use care—do not drop. Mount only with approved hardware.**
	Moving Parts	**Pinch warning. Keep hands away from moving parts.**
	Electrostatic Discharge	**Electrostatic Discharge (ESD) may cause damage. Discharge static against a common ground.**

Installation

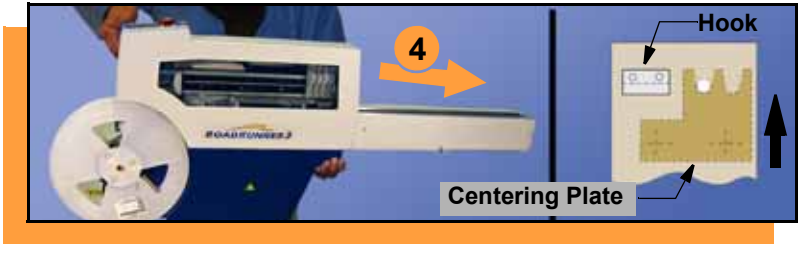
Installing on Panasonic 16
Installing on MYDATA 18
Installing on Fuji 20
Installing on SIPLACE-X 21
Installing on SIPLACE 22
Completing Set Up 24
Turning the Power On 26

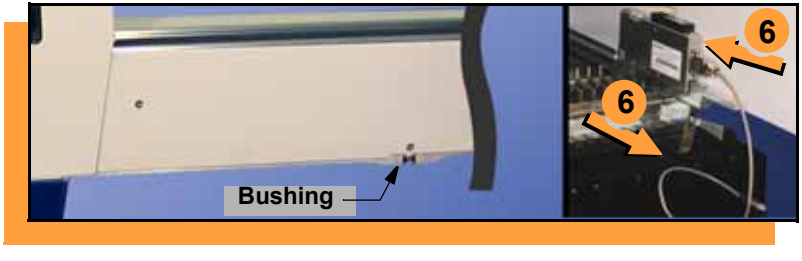
Installing on Panasonic



To install *ROADRUNNER3* on a Panasonic Assembly Machine (NPM, CM401, CM402, CM602, DT):

1. **Install the Feeder Bank Adapter by lining it up with a slot (other than the farthest right slot) and sliding fully forward.**
2. **Tighten the 3 mm set screw.**
3. **Slide the Host Feeder onto the slot immediately left of the Feeder Bank Adapter and push forward as far as it will go.**





4. **Slide the nose of RoadRunner3 under the hook so the centering teeth engage the pin next to the hook.**
5. **Lower RoadRunner3 so that Feeder Table pins engage bushings in the conveyor casting. Ensure that RoadRunner3 is secure.**
6. **Plug in the Communication Cable.** ■

Warning:

Heavy; 21.3 kg (47 lbs). Do Not Drop.
Mount Only With Approved Hardware.

Installing on MYDATA

To install *RoadRunner3* on a MYDATA Assembly Machine (MY9, 12, 15, 19):

1. **Slide the Feeder Bank Adapter onto the Feeder Table and push fully forward.**
2. **Slide the nose of RoadRunner3 under the hook so the centering teeth engage the pin next to the hook.**
3. **Lower RoadRunner3 so that Feeder Table pins engage bushings in the conveyor casting.**

Warning:

Heavy; 21.3 kg (47 lbs). Do Not Drop.
Mount Only With Approved Hardware.

4. **Loosen four screws on top of the Feeder Bank Adapter.**
5. **Adjust the SMT pick point as shown.**
6. **Retighten the four top screws.**
7. **Plug in the Communication Cable. ■**

Installing on Fuji

To install *RoadRunner3* on a Fuji Assembly Machine (NXT, AIM):

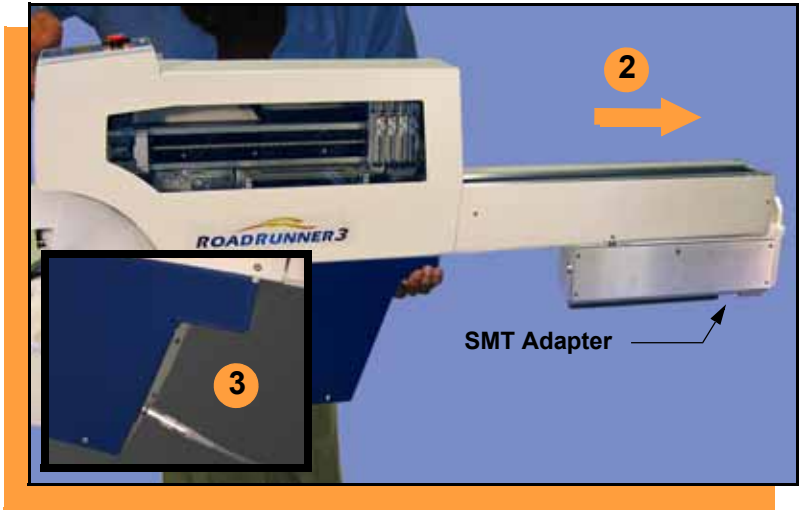
1. **Lower the nose of the RoadRunner3 conveyor into the beginning of a slot on the Feeder Table.**
2. **Slide fully forward until it locks into place.**

   NOTE: No separate Communication Cable is required. ■

Warning:

Heavy; 22.6 kg (50 lbs). Do Not Drop.
Mount Only With Approved Hardware.

Installing on SIPLACE-X



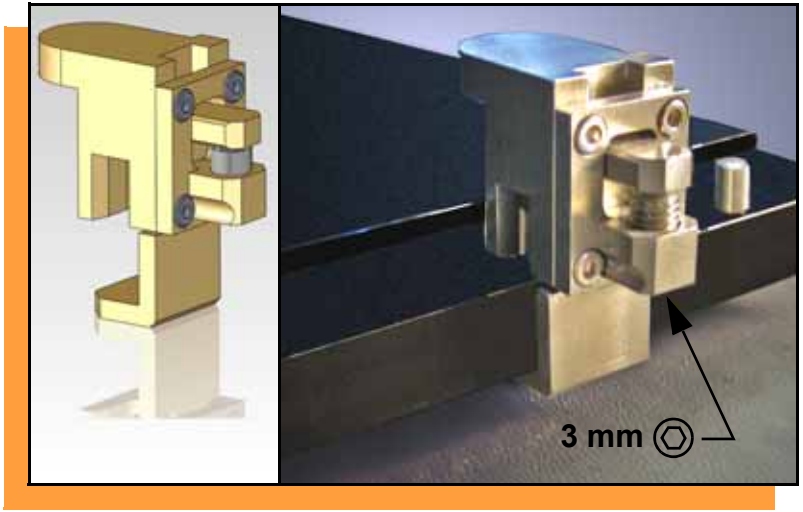
To install *RoadRunner3* on a SIPLACE-X Assembly Machine (X, X2, X3, X4, X4i, SX-1, SX-2):

1. **Align the SMT adapter grooves with ribs on the Feeder Bank.**
2. **Slide fully forward, ensuring the SMT adapter pin engages the SMT Machine.**
3. **Plug in the Communication Cable. ■**

Warning:

Heavy; 23.6 kg (52 lbs). Do Not Drop.
Mount Only With Approved Hardware.

Installing on SIPLACE



To install *RoadRunner3* on a SIPLACE Assembly Machine (80F4, 80F5, F, S, HF, HS):

1. **With the Feeder Table pulled out, slide the hook (shown) around the desired pin on the Feeder Table.**
2. **Secure the hook by tightening the 3 mm set screw.**

3. **Slide the nose of RoadRunner3 under the hook so the teeth engage the pin next to the hook.**
4. **Lower RoadRunner3 so that Feeder Table pins engage bushings in the conveyor casting.**
5. **Ensure RoadRunner3 is secure, and move the Feeder Table back into the Assembly Machine.**
6. **Plug in the Communication Cable.** ■

Warning:

Heavy; 21.3 kg (47 lbs). Do Not Drop.
Mount Only With Approved Hardware.

Completing Set Up

To complete the set up (all models):

1. **Install the Reject Bin.**
2. **Connect the air line by grasping behind the "quick connect" collar and pushing firmly onto the fitting.**
3. **Connect the 100BASE-T Ethernet cable for network operation or remote monitoring.**

4. **Connect to a grounded power source. RoadRunner3 accepts power between 100 and 240 VAC, 50/60 Hz.**

5. **Install the supplied precision filter/regulator (required).**

   NOTE: Failure to install filter/regulator will result in poor performance.

6. **Adjust the regulator to .52 MPa ± .01 (75 psi ± 2).**

7. **Supply clean, dry air: 5.2 Bar @ 113 L/min (75 psi @ 4.0 scfm)**

   NOTE: The "quick connect" collar stops airflow when disconnected. To disconnect the air line, grasp the collar and pull back. ■

Turning the Power On

To turn the power on:

1. **Push the power switch to On (I).**

   All the Control Panel indicator lamps light up. A Self-test runs. Then only the blue lamp will remain on and the version number will display.

   If all the indicator lamps start blinking, a serious error has occurred. Turn the unit off then on again. If the error remains, have the unit serviced.

2. **If no errors display, RoadRunner3 is operation-ready. ■**

Inserting a Job Card 28
Removing an Actuator Plate..... 30
Installing an Actuator Plate 31
Changing the Socket Adapter..... 32
Adjusting the Tape-In Module 34
Loading a Reel of Devices 36
Aligning the Tape Pockets 39
Adding Network Communication..... 41

Inserting a Job Card

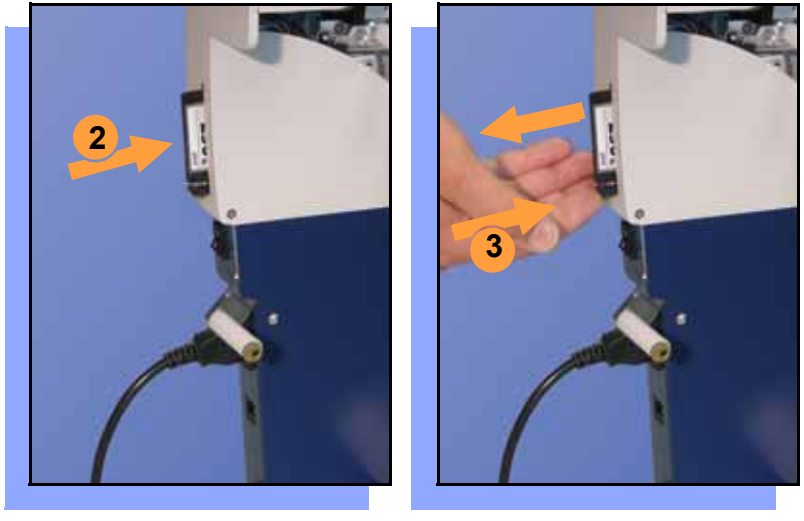
To run a job, insert a TaskLink job card into the PC-card slot. Use only 4 GB or smaller TYPE I or TYPE II PC-cards (PCMCIA).

To insert a job card:

1. **If the power is on, make sure the blue lamp is lit.**

Caution:

Electrostatic Discharge May Cause Damage. Discharge Static Against Common Ground Prior to Inserting Job Card.



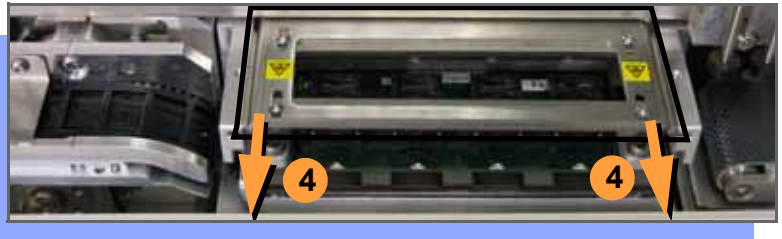
2. **Slide the job card into the PC-card slot. The front face of the card faces the reel.**

   NOTE: When fully inserted, the job card extends slightly from the PC-card slot.

   — CAUTION — Do not eject the card unless the blue lamp is lit or the power is off.

3. **The** Card Eject **button can be pushed to remove the card when the blue lamp is lit (or the power is off).** ■

Removing an Actuator Plate



To remove the Actuator Plate:

1. **Press** Pause**, then select** Job **>** End**, and wait for the blue lamp to light.**
2. **Select** Park Head**.**
3. **Lift off the Robotics Cover.**
4. **Pull the Actuator Plate to slide it out of the grooved brackets.** ■

Warning:

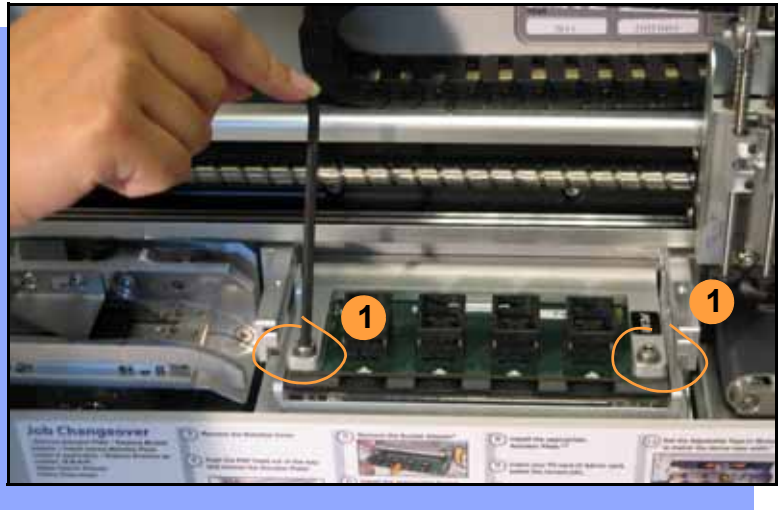
Pinch Warning. Keep Hands Away From Moving Parts.

Installing an Actuator Plate

After changing the Socket Adapter (see next page) the Actuator Plate must be re-installed and adjusted.

1. **Slide the Actuator Plate in slowly until it snaps into place. The flange bending upward (if there is one) must be nearest the operator.**
2. **With a 2 mm Allen Wrench, loosen both screws for one sliding bar and slide it inboard (toward center) as far as it goes.**
3. **Slide the same bar outboard just far enough to allow a device to pass through.**
4. **Tighten the two screws for that bar.**
   Repeat for the other bar. ■

Changing the Socket Adapter

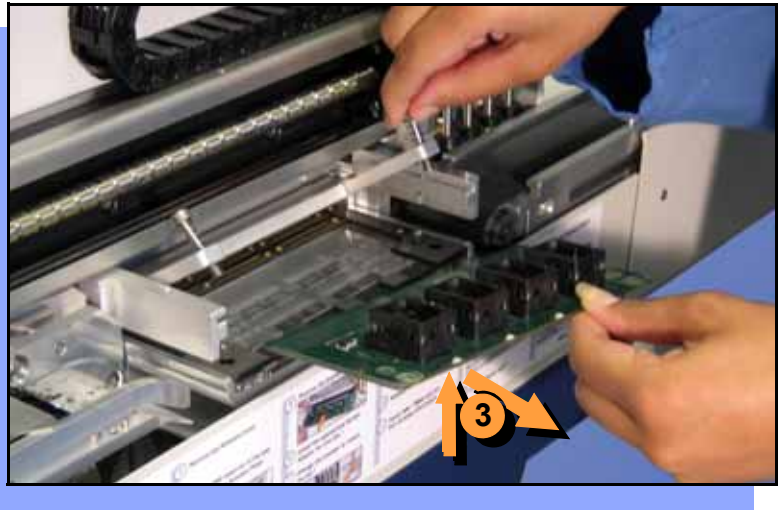


To change the Socket Adapter (with the Actuator Plate removed and the head in Park position):

1. **Unscrew the two captive screws.**
2. **Open the adapter bracket.**

Caution:

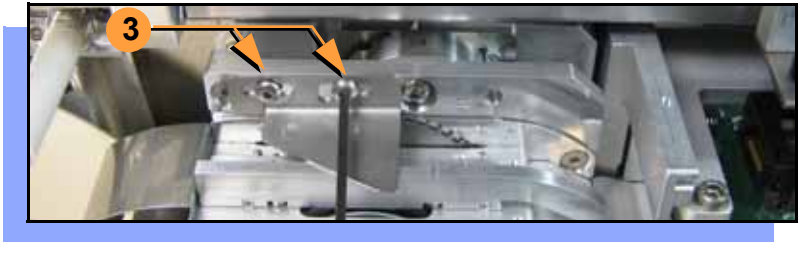
Electrostatic Discharge May Cause Damage.
Discharge Static Against Common Ground.



3. **Without touching the gold contact surfaces on the bottom of the adapter, lift the adapter free.**
4. **Insert the correct adapter, making sure that it seats on the dowel pins.**

   NOTE: Each type of device may have its own Socket Adapter.
5. **Tighten the two captive screws.**
6. **Insert the Actuator Plate. Adjust for sockets if necessary. ■**

Adjusting the Tape-In Module



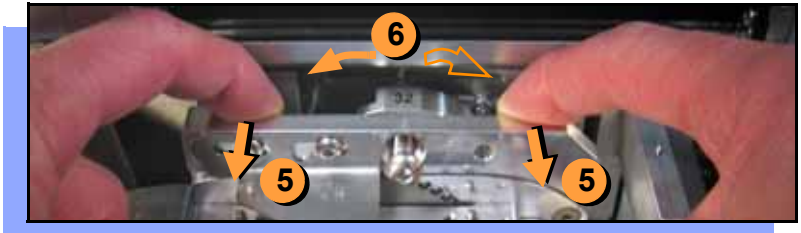
***RoadRunner3*'s Tape-In Module can be adjusted for 16, 24, 32 and 44 mm device tape widths. A notch points to an etched number indicating the current setting.**

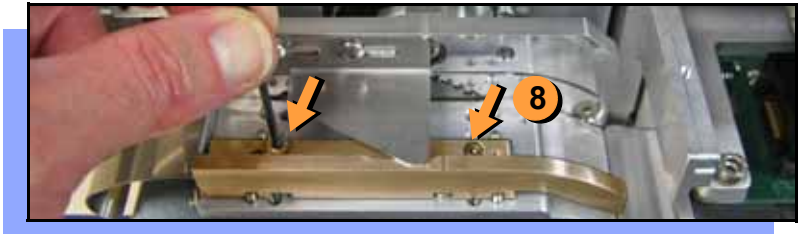
To adjust the Tape-In Module:

1. **Select** Park Head **(Main menu).**
2. **Push the E-Stop and lift off the Robotics Cover.**
3. **Loosen the two Peel Bar screws.**

   NOTE: If changing from 44 mm tape to 16 mm, or vice versa, you must change to the other Peel Bar. Remove the current Peel Bar.

4. **Unscrew the Position Locking Screw most the way out using a 4 mm Allen wrench.**





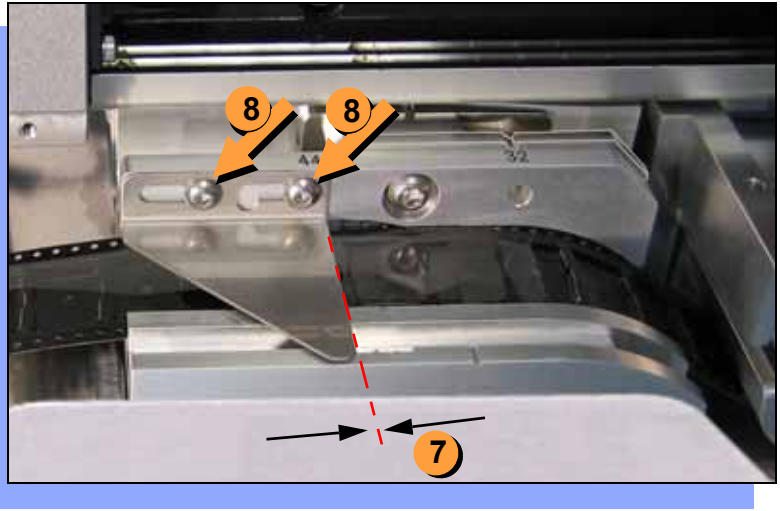
5. **Pull the assembly out for access.**
6. **With your finger, rotate the Selector Disc so the notch points to the desired tape width.**
7. **Push the assembly in and tighten the Postition Locking Screw.**
8. **Unscrew the two Front Track screws and move the track to the new tape width. Screw in the two Front Track screws.**

   NOTE: Install the other Peel Bar (if you removed it above).
9. **See the next heading. The Peel Bar screws need to be tightened at that time.** ■

Loading a Reel of Devices

To load and thread device tape:

1. **Ensure you have the correct Tape-In Module adjustment for your tape width (tape fits in track).**
2. **Place a reel onto the RoadRunner3 spindle. Lock in the reel by rotating the brass button on the spindle end.**
3. **Release the E-Stop.**
4. **Insert the device tape into the Tape-In Module and onto the sprocket.**
5. **Select** Advance Pocket **from the Main menu.**



— CAUTION — Do not advance devices past the pick point. They may fall and jam the tape path.

6. **Press the Up Arrow button to advance the tape. Stop when the tape has advanced past the Peel Bar.**
7. **Adjust the Peel Bar by sliding it so the straight edge lines up between two pockets.**
8. **Retighten the two Peel Bar screws using a 2 mm Allen wrench.**

9. **Separate the cover tape from the device tape as you advance it.**

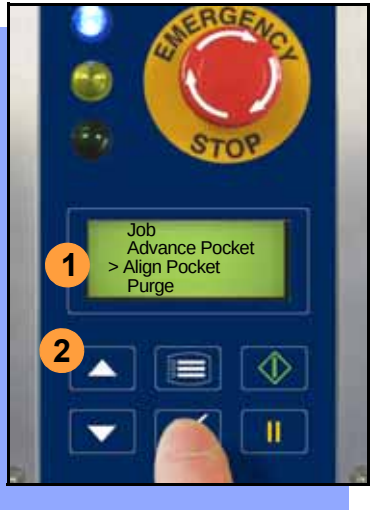
10. **Thread the cover tape through the tape path (see label on machine) and attach it to the Cover Tape Take-Up Reel.**

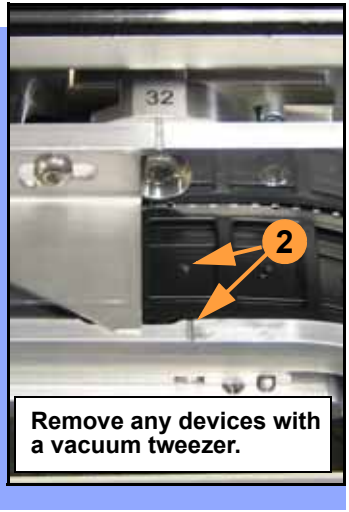
    NOTE: A piece of adhesive tape will help stick the cover tape to the Take-Up Reel.

11. **Press** Menu **to end the advancing procedure.**

12. **Align the tape pockets as described in the following procedure.** ■

Aligning the Tape Pockets





To align the tape pockets:

***— CAUTION —** Do not advance tape pockets with devices in them past the pick point. Remove devices as necessary (using vacuum tweezer) to prevent them from falling into the tape path.*

1. **Select** Align Pocket **from the Main menu.**
2. **Press the** Up Arrow **to advance the tape until the next tape pocket center hole is approximately centered at the pick point alignment mark.**

NOTE: If you pass the mark by more than one Up Arrow ***increment (2 mm), remove the device and use the next pocket. Always approach the mark with the tape traveling forward.***

3. **Press** Menu **to end the alignment process.**

   NOTE: Also perform this aligning procedure each time power is applied, including after releasing the Emergency Stop**.** ■

Adding Network Communication

To connect *RoadRunner3* to a network (optional):

1. **Create a *Network card* at a PC with TaskLink. See TaskLink's onscreen Help:** (Help > Help Topics > Using Networked RoadRunners > How to Configure RoadRunner).
2. **Insert the Network card into RoadRunner3.**
3. **On the Control Panel, scroll to and select** System > Network**.**
4. **Press** Select **again to edit.**

5. **Using the arrow buttons, toggle** Network **to** Card**.**
6. **Press the Menu button to save your changes.**
7. **Cycle the power Off and then On.**

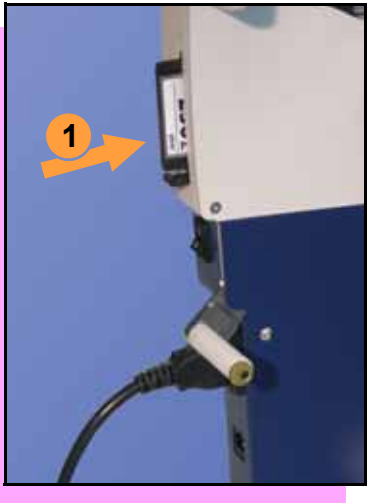
   NOTE: The network configuration file is deleted from the PC-card at the end of the process. This prevents accidentally configuring two RoadRunner3s with the same network settings.

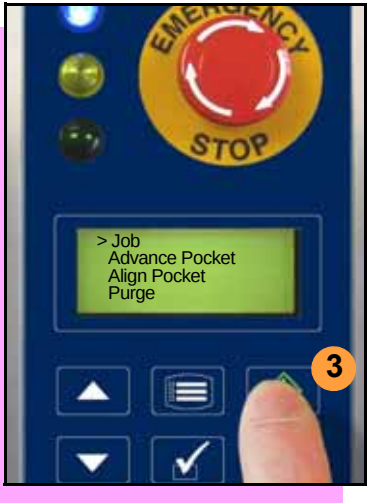
8. **Plug in an Ethernet Cable (100BASE-T). ■**

Operation

Running a Job 44
Pausing or Stopping a Job 45
Ending a Job 46
Emptying the Reject Bin 48
Emptying Cover Tape 49
Shutting Down 50
Restarting a Job 52

Running a Job





To run a job:

1. **Insert a job card into the PC-card slot.**
2. **Clear the conveyor belt of any unneeded devices.**

   NOTE: If the job card has Supervisor authority, ensure the correct job is selected. See Supervisor Menu.

3. **Press** Start. **The green lamp will start blinking.**

When the programmed devices reach the assembly machine pick point, the belt will pause and the green lamp will stay lit without blinking. ■

Pausing or Stopping a Job

To pause at the end of the current operation:

- **Press** Pause **on the Control Panel.**

To instantly stop in an emergency situation:

- **Press the** Emergency Stop (E-Stop) **button.**

  The E-Stop does not stop the Assembly Machine. ■

Warning

Electrical shock hazard. The E-Stop does not stop electricity to RoadRunner3.

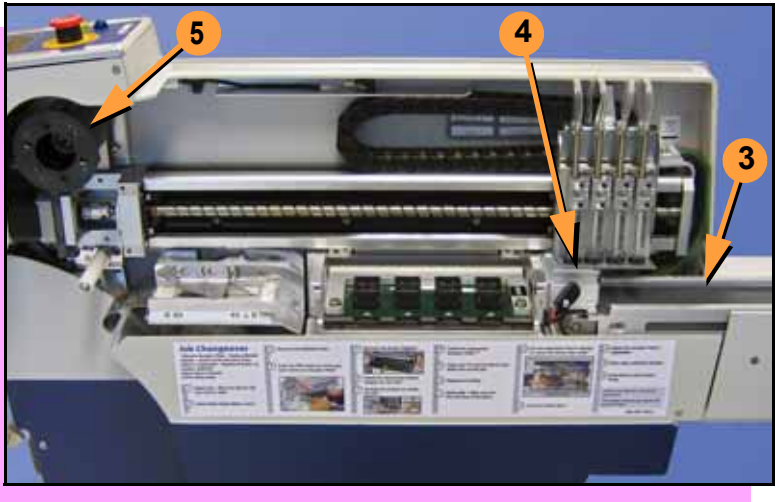
Ending a Job

Whenever you want to change job cards, you must first end the current job.

To end the current job:

1. **Press the** Pause **button.**
2. **Scroll to and select** End **from the Job menu. "Job" is in the Main menu.**

   The system will finish processing devices and place the devices on the belt, but no additional devices will get picked from the tape.



3. **Clear away excess devices from the conveyor belt.**
4. **Empty the Reject Bin. (See next heading.)**
5. **Empty the Cover Tape Take-Up Reel. (See “Emptying Cover Tape” ahead several pages.) ■**

Emptying the Reject Bin

To empty the Reject Bin:

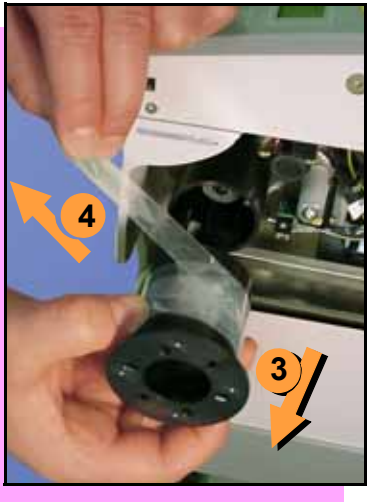
1. **Press the Pause button.**
2. **Lift off the Robotics Cover.**
3. **Lift the Reject Bin straight up by the finger tab and then out.**

   When reinserting the Reject Bin, be sure the bin is *completely* lowered so that it is positioned out of the path of the probes. ■

Warning:

Pinch Warning. Keep Hands Away From Moving Parts.

Emptying Cover Tape



To empty the Cover Tape Take-Up Reel (during a job) when it looks full:

1. **Press** Pause.
2. **Leaving enough slack to re-attach, cut the cover tape.**
3. **Pull the Take-Up Reel straight out and off the hub.**
4. **Unwind the used cover tape and discard it.**
5. **Replace the Take-Up Reel—slide it on and rotate it to line up with the pins, and push.** ■

Warning:

Pinch Warning. Keep Hands Away From Moving Parts.

Shutting Down

To turn off *RoadRunner3*:

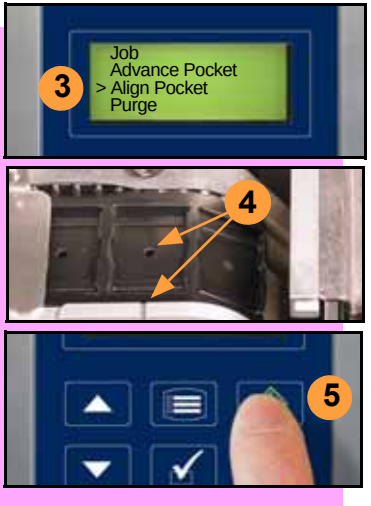
1. **If a job is running:**
   A. Press Pause.
   B. Select End **from the Job menu and wait for all devices to be removed from the sockets.**
2. **Turn the power Off (0).**
3. **Remove devices from the conveyor belt.**

continued

4. **Empty the Reject Bin.**
5. **Empty the Take-Up Reel. (For more, see the previous heading.)**
6. **If removing the reel of devices, cut the empty tape where it exits at the far end of the conveyor, and then wind the reel backwards.**
7. **Turn off the air flow, or remove the air hose.**

   NOTE: When disconnecting the air hose, pull the connector collar back as you pull the connector off. ■

Restarting a Job



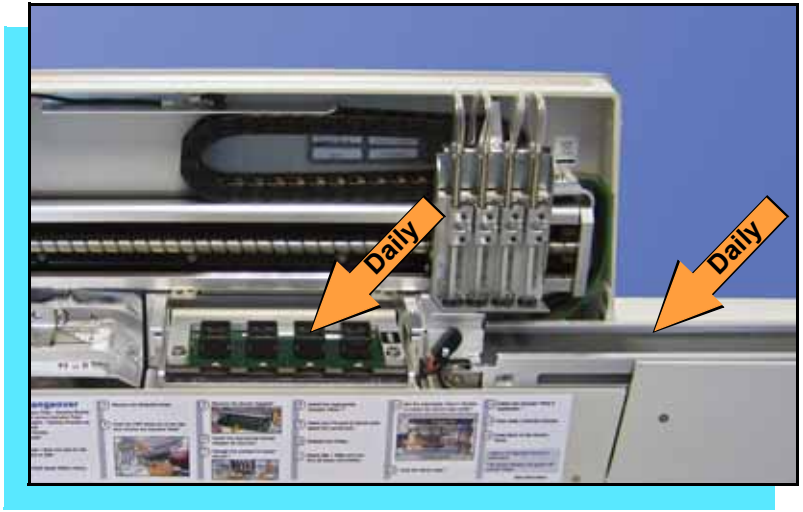
To restart a job after a Pause, press Start.

To restart after an Emergency Stop, (when Pause **is not pressed first):**

1. **Rotate the** Emergency Stop **button clockwise to release it.**
2. **Press** Menu **until the Main menu is displayed**
3. **Select** Align Pocket.
4. **Press the** Up Arrow **to advance the device tape until the next pocket center hole lines up with the alignment mark (± 3 mm).**
5. **Press** Start**. The job will resume.** ■

Daily Maintenance..... 54
Weekly Maintenance..... 57
Quarterly Maintenance..... 59

Daily Maintenance



Every day, clean these components:

- **sockets**
- **conveyor belt**

To clean sockets:

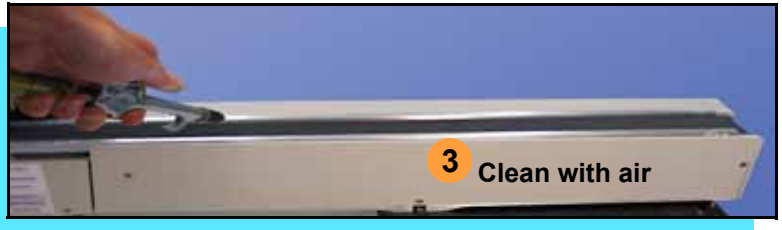
Inject compressed air into sockets. Sockets should be opened and closed by hand while air is injected.

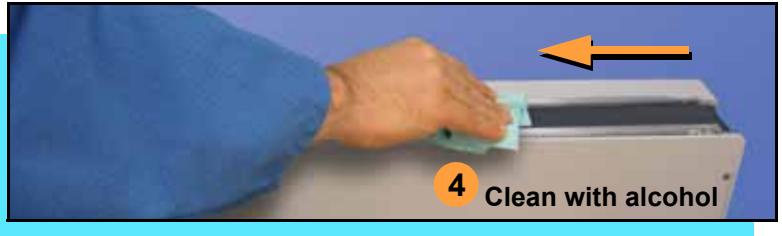
NOTE: Compressed air must be clean and dry.

Warning:

Point Air Hoses Away From Body.
Wear Approved Eye Protection.

Daily Maintenance, continued





To clean the conveyor belt:

1. **Press** Pause**. Wait for all devices to be picked from belt.**
2. **Press the** E-Stop button**.**
3. **Blow compressed air on belt, rotating belt by hand until entire belt is cleaned with air.**

   NOTE: Compressed air must be clean and dry.
4. **Clean exposed surface of belt with isopropyl alcohol on a lint-free cloth.**

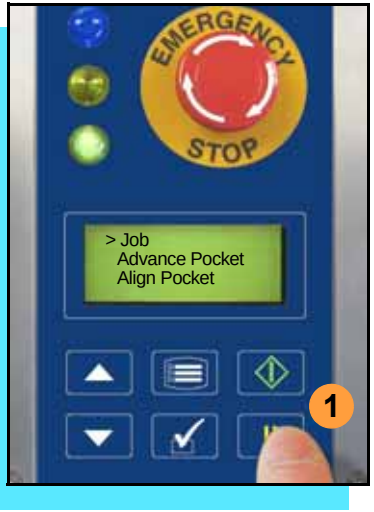
Warning:

Point Air Hoses Away From Body.
Wear Approved Eye Protection.

Daily Maintenance, continued

5. **Dry exposed surface of belt.**
6. **Rotate belt by hand and repeat until entire belt is cleaned and dried.** ■

Weekly Maintenance



Every week:

- **run the Self-test procedure**
- **clean the Tape-in Module**
- **clean the Probe Tips**

To run the Self-test procedure:

1. **Press** Pause **and then select** End **from the Job menu.**
2. **Toggle the power switch Off and then back On.**

   The Self-test will run, checking the condition of components.

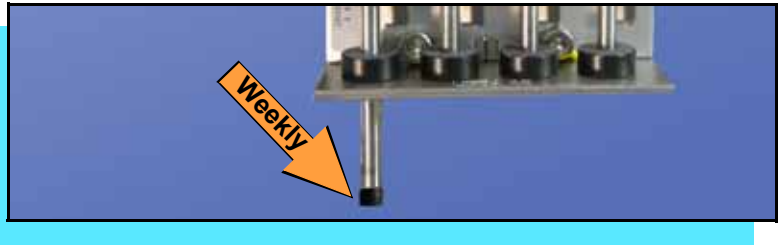
   NOTE: Check the display for system errors.

Weekly Maintenance, continued

To clean the Tape-in Module:

Inject with compressed air.

NOTE: Compressed air must be clean and dry.



To clean the Probe Tips:

Using a clean, lint-free cloth or swab moistened with water, wipe the Probe Tips. ■

Warning:

Point Air Hoses Away From Body.
Wear Approved Eye Protection.

Quarterly Maintenance

Every three months:

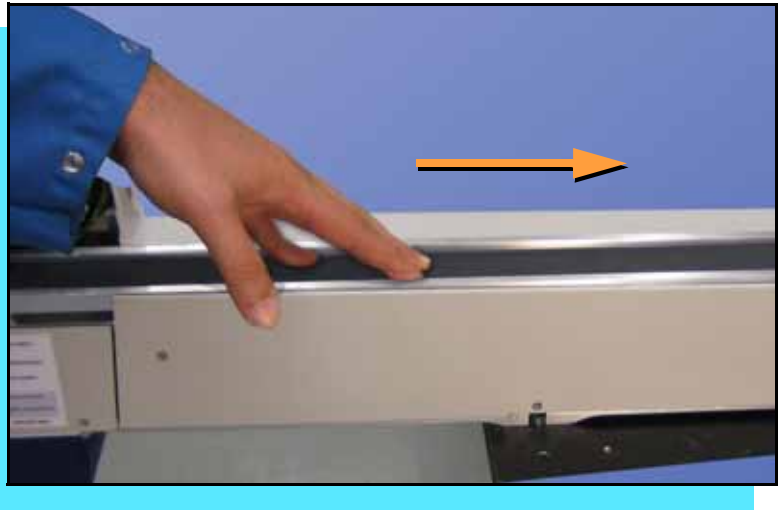
- **clean the chassis and covers**
- **inspect the conveyor belt**

To clean the chassis and covers:

Wipe with isopropyl alcohol on a lint-free cloth.

— CAUTION — Do not use solvents such as acetone, lacquer thinner, or any type of abrasive compound on the safety shield surfaces. Use of these products will damage the safety shield surface and reduce visibility of the operating area.

Quarterly Maintenance, continued



To inspect the conveyor belt:

Rotate the belt by hand while inspecting for frayed edges, separating seam, or gouges.

If any of these conditions are present, replace the Conveyor Module. ■

Viewing Errors..... 62

Enabling a Socket..... 64

Clearing Jammed Tape..... 65

Technical Support..... 71

Viewing Errors

To view and correct errors that appear in the keypad display:

1. **Check the condition—tape path, Reject Bin, etc.—indicated by the message.**

   If you cannot correct the error condition, contact a service technician.

2. **Press** Menu **to remove the message.**

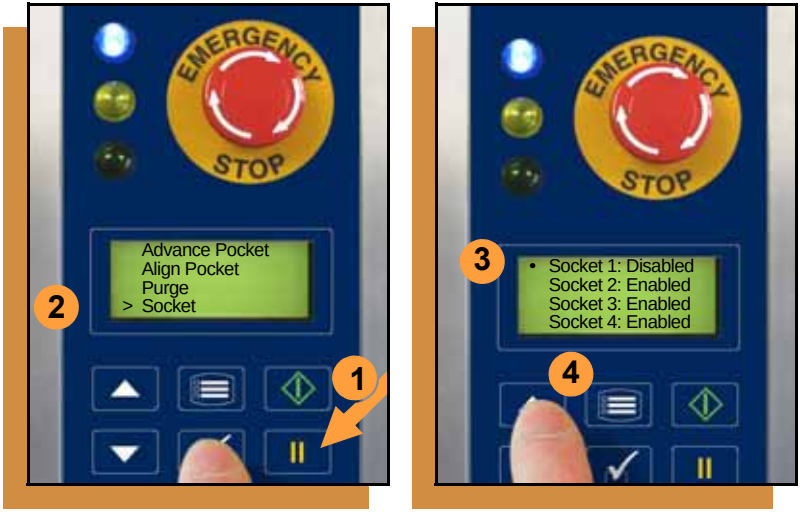
   If there are other error messages, the next one will appear.

Some error messages are listed below. For more information see "Troubleshooting" in the *RoadRunner3 Owner's Manual*.

Lamp Color	Error Message
No change in lamps	Card not present
Yellow	Reject Bin needs to be emptied
Blue	Cover tape broken
Blue	Emergency Stop is activated[1]
Blue	Motor controller not responding

[1]Twist the Emergency Stop button to release it. ■

Enabling a Socket



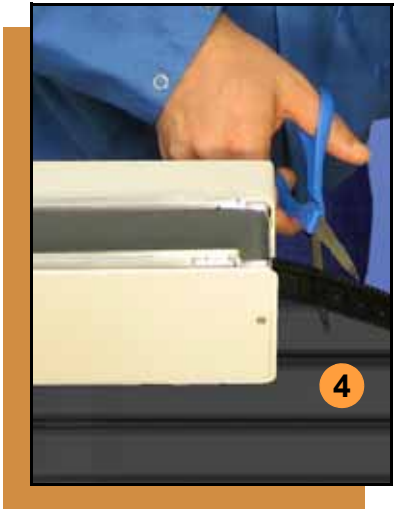
If a socket repeatedly becomes disabled, *RoadRunner3* should be serviced.

To re-enable a disabled socket:

1. **Press** Pause **if a job is running.**
2. **Select** Socket **from the Main menu.**
3. **Scroll to and select the disabled socket from the Socket menu. (A dot appears.)**
4. **Press the** Up Arrow **button to re-enable the socket.**
5. **Press** Menu **to end the process.**

NOTE: To disable a probe, disable the probe's corresponding socket. ■

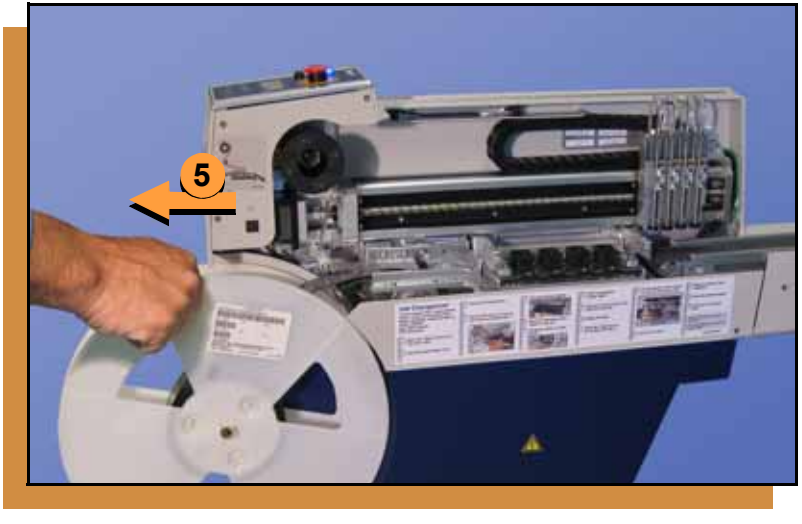
Clearing Jammed Tape



If the tape jams, an error message displays and the blue lamp illuminates.

To clear the tape path:

1. **Press the** Emergency Stop **button (to continue the job later) or select** Job**, then** End**.**
2. **Turn the power Off.**
3. **Unroll one turn of cover tape and cut it near the Take-Up Reel.**
4. **Cut the pocket tape where it exits the conveyor end.**



5. **Rotate the tape reel backwards until the tape end is free from the tape path.**
6. **Trim away any flaws before reloading.** ■

Index

A

Actuator Plate
- adjusting **31**
- installing **31**
- removing **30**

Adjustable Tape-In Module 34
Advance Pocket command 36
Air hose 25
Air requirement 25
Align device tape 39
Align Pocket command 39

B

Buttons 7

C

Card eject 29
Change Job card 46
Chassis and covers, cleaning 59
Clean Alert 11
Communication cable 4
Compressed air 25
Control Panel 7
Conveyor belt cleaning 55–56
Cover Tape 36, 49

D

Daily maintenance 54–56
Device Tape sizes 34
Disable a probe 64
Disable a socket 64

E

Eject card 29
Electrical requirement 25
Emergency Stop 6
- releasing **52**

Emptying Cover Tape 49
Ending a job 46
Error messages 62
ESD warning 14
E-stop 45

F

Factory Integration Software 3

Features
external **4**
internal **5**
FIS, see Factory Integration Software

I

Install Actuator Plate, see Actuator Plate

J

Jammed tape 65
Job card 28

K

Keypad 7

L

Language, changing 11
Lights 6
Load device reel 36

M

Maintenance
daily **54–56**
quarterly **59–60**
weekly **57–58**

Menu
Operator **8–9**
Supervisor **10–13**

N

Network card 41
Network connection 42
Network setting 41

O

Operator Menus 8–9

P

Pause a job 45
PC Card 3, 29

PCMCIA 3
Peel Bar, adjusting 37
PNP Head 5
Power switch 26, 50
Precisor 10
Probe tips, cleaning 58
Probe, disabling 64

Q

Quarterly maintenance 59–60

R

Re-enable a socket 64
Reject Bin 48
Restart a job 52

S

Self-test
power on **26**
weekly maintenance **57**
Shutting down 50
Socket Adapter
changing **32**
daily cleaning **54**
Socket, disabling 64
Start button 44
Stop a job 45
Supervisor authority 44
Supervisor Menus 10–13

T

Tape jam, clearing 65
Tape Selector Plate 34
Tape sizes 34
Tape-In Module
adjusting **34**
cleaning **58**
TaskLink 3, 41
Threading Cover Tape 36
Turning off 50

V

Version number 26
Volts 25

W

Warning symbols 14
Weekly maintenance 57–58

Technical Support

Contact your local Data I/O representative.

To find your local representative, go to
http://www.dataio.com/contact/repsearch.asp

Worldwide

Data I/O Corporation
Redmond, WA USA 98052

Our Web form is the best way to contact us:
www.dataio.com / ContactUs / TechnicalSupport

You can also find answers to many common questions on our Web site at www.dataio.com.

Comments about this guide: userdocs@dataio.com.

Programmable media experts

www.dataio.com