



INSTRUCTION MANUAL FOR STARTERS, DISCONNECTS, AND OPERATOR STATIONS



IMPORTANT: PLEASE REVIEW THIS ENTIRE PUBLICATION BEFORE OPERATING OR MAINTAINING STARTERS, DISCONNECTS, AND OPERATOR STATIONS.

5795 Logistics Parkway • Rockford, Illinois 61109 • Toll Free 1-800-922-7533 (USA only) • Phone (815) 874-7891
Fax (815) 874-6144 • Web Site: www.rockfordsystems.com • E-Mail: customerservice@rockfordsystems.com
Manual No. KSL229

TABLE OF CONTENTS

Starters and Disconnects

| | | | |
|---|-------|--------------------------------------|--------|
| SECTION 1—IN GENERAL | 2 - 5 | SECTION 4— REPLACEMENT PARTS..... | 7 |
| SECTION 2—INSTALLATION | 5 | SECTION 5— RETURN AUTHORIZATION..... | 7 - 10 |
| SECTION 3—FUSE AND OVERLOAD CHART | 6 | | |

SECTION 1—IN GENERAL

Starters and Disconnects

Safety Precautions

“ ⚠ DANGER ” Danger is used to indicate the presence of a hazard which WILL cause SEVERE personal injury if the warning is ignored.

“ ⚠ ” THIS SAFETY ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL ⚠, BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY, AND CAREFULLY READ THE MESSAGE THAT FOLLOWS.

Efficient and safe machine operation depends on the development, implementation and enforcement of a safety program. This program requires, among other things, the proper selection of point-of-operation guards and safety devices for each particular job or operation and a thorough safety training program for all machine personnel. This program should include instruction on the proper operation of the machine, instruction on the point-of-operation guards and safety devices on the machine, and a regularly scheduled inspection and maintenance program.

Rules and procedures covering each aspect of your safety program should be developed and published both in an operator's safety manual, as well as in prominent places throughout the plant and on each machine. Some rules or instructions which must be conveyed to your personnel and incorporated into your program include:

⚠ DANGER Never place your hands or any part of your body in this machine.

⚠ DANGER Never operate this machine without proper eye, face and body protection.



Never operate this machine unless you are fully trained, instructed, and have read the instruction manual.



Never operate this machine if it is not working properly – stop operating and advise your supervisor immediately.



Never use a foot switch to operate this machine unless a point-of-operation guard or device is provided and properly maintained.



Never operate this machine unless two-hand trip, two-hand control or presence sensing device is installed at the proper safety distance. Consult your supervisor should you have any questions regarding the proper safety distance.



Never tamper with, rewire or bypass any control or component on this machine.

A company's safety program must involve everyone in the company, from top management to operators, since only as a group can any operational problems be identified and resolved. It is everyone's responsibility to implement and communicate the information and material contained in catalogs and instruction manuals to all persons involved in machine operation. If a language barrier or insufficient education would prevent a person from reading and understanding various literature available, it should be translated, read or interpreted to the person, with assurance that it is understood.



FOR MAINTENANCE AND INSPECTION ALWAYS REFER TO THE OEMs (ORIGINAL EQUIPMENT MANUFACTURER'S) MAINTENANCE MANUAL OR OWNER'S MANUAL. If you do not have an owner's manual, please contact the original equipment manufacturer.

OSHA's Act and Federal Regulations

Since the enclosed equipment can never overcome a mechanical deficiency, defect or malfunction in the machine itself, OSHA (Occupational Safety and Health Administration) has established certain safety regulations that the employers (users) must comply with so that the machines used in their plants, factories or facilities are thoroughly inspected and are in first-class operating condition before any of the enclosed equipment is installed.

1. An Act – Public Law 91 - 596, 91st Congress, S. 2193, December 29, 1970

Duties:

Sec. 5. (a) Each employer —

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

2. OSHA's 29 Code of Federal Regulations, Subpart O, that an employer (user) must comply with include:

Section 1910.211 Definitions

Section 1910.212 (a) General Requirements for all Machines

Section 1910.217 Mechanical Power Presses

Section 1910.219 (b)(1) Mechanical Power-Transmission Apparatus (Flywheel and Gear Covers)

3. OSHA's 29 Code of Federal Regulations, Subpart J, 1910.147 The Control of Hazardous Energy (Lockout / Tagout)

4. OSHA's 29 Code of Federal Regulations, Subpart S, Electrical, 1910.301 - 1910.399

5. OSHA's Publications

These publications can be acquired by contacting:

US Department of Labor
Occupational Safety and Health Administration
Washington, DC 20210
(202) 219-5257

NFPA 79 Electrical Standard for Industrial Machinery

The purpose of this electrical standard is to provide detailed information for the application of electrical/electronic equipment, apparatus, or systems supplied as part of industrial machines that will promote safety to life and property. Please refer to this standard to minimize the potential of electrical shock and electrical fire hazards.

NEC (National Electrical Code) Handbook

Refer to this handbook for additional safeguarding of persons and property to prevent hazards resulting from the use of electricity.

The NFPA 79 Electrical Standard and the NEC Handbook can be purchased by contacting:

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02269-9101
1-800-344-3555

NEMA (National Electrical Manufacturers Association)

Refer to this handbook for additional safeguarding information when using electricity.

NEMA
1300 North 17th Street, Suite 1847
Rosslyn, VA 22209
(703) 841-3200

ANSI Safety Standards for Machines

The most complete safety standards for machine tools are published in the ANSI (American National Standards Institute) B11 series. The following is a list of each ANSI B11 Standard available at the printing of this publication.

- B11.1 Mechanical Power Presses
- B11.2 Hydraulic Presses
- B11.3 Power Press Brakes
- B11.4 Shears
- B11.5 Ironworkers
- B11.6 Lathes
- B11.7 Cold Headers and Cold Formers
- B11.8 Drilling, Milling and Boring
- B11.9 Grinding Machines
- B11.10 Sawing Machines
- B11.11 Gear Cutting Machines
- B11.12 Roll Forming and Roll Bending
- B11.13 Automatic Screw/Bar and Chucking
- B11.14 Coil Slitting Machines
- B11.15 Pipe, Tube and Shape Bending
- B11.16 Metal Powder Compacting Presses

(Continued on next page.)

SECTION 1—IN GENERAL

Starters and Disconnects

ANSI Safety Standards for Machines (continued)

- B11.17 Horizontal Hydraulic Extrusion Presses
- B11.18 Coil Processing Systems
- B11.19 Performance Criteria for the Design, Construction, Care and Operation of Safeguards as Referenced in the Other B11 Machine Tool Safety Standards
- B11.20 Safety Requirements for Manufacturing Systems/Cells
- B11.21 Lasers
- B11.22 CNC Turning Machines
- B11.23 Machining Centers
- B11/TR1 Ergonomic Considerations for the Design, Installation and Use of Machine Tools
- B11/TR2 Mist Control
- B11/TR3 Hazard ID and Control
- B11/TR4 Control Reliability

These standards can be purchased by contacting:

American National Standards Institute, Inc.
11 West 42nd Street
New York, New York 10036
(212) 642-4900

OR

AMT - The Association of Manufacturing Technology
7901 Westpark Drive
McLean, Virginia 22102-4269
(703) 827-5211

National Safety Council Safety Manuals and Data Sheets

Other good references for safety on machine tools are the National Safety Council's Safety Manuals and Data Sheets. These manuals and data sheets are written by various committees including the Power Press, Forging and Fabricating Executive Committee. The following publications are available for all types of machines:

MANUALS

- Power Press Safety Manual - 4th Edition
- Safeguarding Concept Illustrations - 6th Edition
- Forging Safety Manual

DATA SHEETS

- Bench and Pedestal Grinding Wheel Operations
12304-0705
- Boring Mills, Horizontal Metal 12304-0269
- Boring Mills, Vertical 12304-0347
- Coated Abrasives 12304-0452
- Cold Shearing Billets and Bars in the Forging Industry
12304-0739
- Degreasing (Liquid), Small Metal Parts 12304-0537
- Dies, Setup and Removal of Forging Hammer
12304-0716

- Drill Presses, Metalworking 12304-0335
- Drills, Portable Reamer 12304-0497
- Drop Hammers, Steam 12304-0720
- Electrical Controls for Mechanical Power Presses
12304-0624
- Forging Hammer Dies, Setup and Removal of
12304-0716
- Forging Presses, Mechanical 12304-0728
- Gear-Hobbing Machines 12304-0362
- Handling Materials in the Forging Industry 12304-0551
- Kick (Foot) Presses 12304-0363
- Lathes, Engine 12304-0264
- Milling Machines, Metalworking 12304-0364
- Planers, Metal 12304-0383
- Power Press (Mechanical) Point-of-Operation
Safeguarding, Concepts of 12304-0710
- Power Press Point-of-Operation
Safeguarding: Two-Hand Control and
Two-Hand Tripping Devices 12304-0714
- Power Press Point-of-Operation Safeguarding: Type A and B Movable
Barrier Devices 12304-0712
- Power Press Point-of-Operation Safeguarding:
Point-of-Operation Guards 12304-0715
- Power Press Point-of-Operation Safeguarding:
Presence Sensing Devices 12304-0711
- Power Press Point-of-Operation Safeguarding:
Pullbacks and Restraint Devices 12304-0713
- Power Presses (Mechanical), Inspection and
Maintenance of 12304-0603
- Power Presses (Mechanical), Removing Pieceparts
from Dies in 12304-0534
- Power Press, Setting Up and Removing Dies
12304-0211
- Press Brakes 12304-0419
- Robots 12304-0717
- Saws, Metal (Cold Working) 12304-0584
- Shapers, Metal 12304-0216
- Shears, Alligator 12304-0213
- Shears, Squaring, Metal 12304-0328
- Upsetters, 12304-0721

These manuals and data sheets can be purchased by contacting:

National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
(708) 295-1121

For additional safety information and assistance in devising, implementing or revising your safety program, please contact the machine manufacturer, your state and local safety councils, insurance carriers, national trade associations and your state's occupational safety and health administration.

SECTION 1—IN GENERAL

Starters and Disconnects

Warranty

9. Limited Warranties.

9.1. (i) Subject to Section 8.1(ii) below, Rockford Systems makes to Customer the following sole and exclusive warranties with respect to Goods:

(a) with respect to Goods that are manufactured based on Customer specifications, at the time of shipment by Rockford Systems, the Goods sold under the Agreement that are manufactured by Rockford Systems pursuant to such specifications conform to such specifications set forth in the applicable Order Documentation; and

(b) at the time of shipment by Rockford Systems, the Goods sold under the Agreement that are manufactured by Rockford Systems are free from defects in material and workmanship.

(c) Rockford Systems's warranty is for a period of 1 year, and begins from date of shipment from Rockford Systems to the original purchaser.

This warranty does not include accessories, parts or equipment sold hereunder that are manufactured by someone other than Rockford Systems.

(ii) Every claim by Customer against Rockford Systems for breach of warranty with respect to the Goods shall be deemed waived by Customer unless written notice thereof is received by Rockford Systems within fifteen (15) days after discovery.

9.2. If Rockford Systems breaches either of the warranties set forth in Section 8.1(i) above, and written notice thereof is received by Rockford Systems from Customer within the applicable time period specified in Section 8.1(ii) above, Customer's sole and exclusive remedy and Rockford Systems's only obligation shall be, as Rockford Systems in its sole and exclusive judgment shall determine, the replacement of the nonconforming Goods, or an adjustment to the purchase price for the nonconforming Goods or the repair of the nonconforming Goods. All transportation charges related to replacement or repair of Goods shipped to Rockford Systems's plant or facility (or other place at

Rockford Systems's direction) shall be prepaid by Customer. Rockford Systems shall be responsible for reasonable transportation charges back to Customer for Goods that have been replaced or repaired by Rockford Systems. Any replacement Goods or repaired Goods shall be subject to these Terms and Conditions.

9.3. THE EXPRESS WARRANTIES SET FORTH HEREIN ARE THE ONLY WARRANTIES APPLICABLE TO THE SALE OF GOODS BY ROCKFORD SYSTEMS TO CUSTOMER PURSUANT TO THE AGREEMENT, AND THEY EXCLUDE ALL OTHER EXPRESS, ORAL OR WRITTEN WARRANTIES, AS WELL AS ANY WARRANTIES IMPLIED BY LAW WITH RESPECT TO THE GOODS, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PURPOSE, NOTWITHSTANDING ANY DISCLOSURE TO ROCKFORD SYSTEMS OF THE INTENDED USE OF THE GOODS.

9.4. Rockford Systems's warranties under Section 8.1(i) are void if repairs or modifications of the Goods are made by anyone other than Rockford Systems. Without limitation of the foregoing, Rockford Systems assumes no responsibility for and shall have no obligations to Customer because defects in any materials furnished by, or any faulty workmanship provided by, any party other than Rockford Systems.

9.5. Rockford Systems reserves the right to improve its products through changes in design or material without being obligated to incorporate such changes into products of prior manufacture. Customer cannot rely on any such changes as proof of insufficiency or inadequacy of prior designs of the Goods or material contained in the Goods.

9.6. If Customer grants to an end user of the Goods (or any other customer of Customer) any warranty that is greater in scope or time than the warranty and claims period stated herein, Rockford Systems shall not be liable beyond the scope of the limited warranty, the claim period, the damages and the remedies provided for under this Section.

9.7. Solely to the extent transferable, Rockford Systems assigns and transfers to Customer the original manufacturer's warranty on Goods sold hereunder that are not manufactured by Rockford Systems.

SECTION 2—INSTALLATION

Starters and Disconnects

Installation Manual

Included with every shipment of disconnects, starters, and operator stations is this installation manual with electrical schematics. This publication and electrical prints must be available and fully understood before installation begins. Please notify Rockford Systems, LLC immediately if there are any questions about this publication or the prints.

Installation

A packing list is always enclosed showing exactly what materials were shipped on this order. Please check the components actually received against this packing list immediately.

Open all boxes before proceeding and unpack the enclosed equipment. Make sure all fuses, overloads, and accessories are included.

Lay out the equipment on a workbench or on the floor. Make a rough sketch on page 6 of the mounting location of this equipment on the machine. If mounting both a starter and disconnect switch, when furnished separately, make sure they are mounted within sight of each other. Refer to the following publications for detailed information for the application of electrical equipment on machine tools:

- NEMA (National Electrical Manufacturers Association) Handbook
- OSHA's (Occupational Safety and Health Administration's)
- NEC (National Electrical Code) Handbook
- NFPA 79 Electrical Standard for Industrial Machinery Code of Federal Regulations Subpart

SECTION 3—FUSE AND OVERLOAD CHART

Starters and Disconnects

DISCONNECT SWITCH FUSE CHART

| Fuse Part No. | Fuse Size (FLA) | Fuse Part No. | Fuse Size (FLA) |
|---------------|-----------------|---------------|-----------------|
| RTD-156 | 1 | RTD-186 | 7-1/2 |
| RTD-157 | 1-1/2 | RTD-187 | 8 |
| RTD-179 | 2 | RTD-188 | 9 |
| RTD-151 | 2-1/2 | RTD-154 | 10 |
| RTD-180 | 3 | RTD-189 | 12 |
| RTD-181 | 3-1/2 | RTD-190 | 15 |
| RTD-182 | 4 | RTD-191 | 17-1/2 |
| RTD-183 | 4-1/2 | RTD-155 | 20 |
| RTD-152 | 5 | RTD-192 | 25 |
| RTD-184 | 6 | RTD-193 | 30 |
| RTD-185 | 7 | | |

*Note: When sizing fuses, use the FLA (full-load amps) of the motor(s). Always go to the next larger size fuse if the motor FLA is closer to the upper current range of the fuse.

MOTOR OVERLOAD CHART

| Overload Part No. | Range | 230 VAC | 460 VAC |
|-------------------|------------|-----------|------------|
| CST-776 | 2 - 3A | ½ - ¾ HP | 1 - 1½ HP |
| CST-777 | 2.8 - 4.2A | ¾ - 1 HP | 1½ - 2 HP |
| CST-778 | 4 - 6A | 1 - 1½ HP | 2 - 3 HP |
| CST-779 | 5.5 - 8A | 1½ - 2 HP | 3 - 5 HP |
| CST-767 | 6 - 10A | 2 - 3 HP | 5 HP |
| CST-768 | 10 - 16A | 3 - 5 HP | 7½ - 10 HP |
| CST-769 | 16 - 24A | 5 - 7½ HP | 10 - 15 HP |



Control voltage for the motor starter is 120 VAC only. 120 VAC control power must be supplied for this unit.

SECTION 4—REPLACEMENT PARTS

Starters and Disconnects

FUSED DISCONNECT SWITCH



| CFL-014 600 volt, 30 amp | |
|------------------------------------|--------------------------------|
| Part No. | Description |
| CFF-050 | Fused disconnect switch |
| CFT-073 | Disconnect switch handle/shaft |

SINGLE-PHASE COMBINATIONS



| CSF-082 (120 volt, 3/4 horsepower max.) CSF-083 (240 volt, 2 horsepower max.) (Nonreversing starter with E-stop) | |
|--|-----------------------|
| Part No. | Description |
| CTC-110 | "Start" push button |
| CTC-527 | Emergency-stop button |

THREE-PHASE COMBINATIONS



| CSF-084 (600 volt, 24 amp) (Nonreversing starter w/E-stop & transformer) | |
|--|-----------------------|
| Part No. | Description |
| CTC-110 | "Start" push button |
| CTC-527 | Emergency-stop button |
| CSC-064 | Starter |
| RSC-261 | Transformer |

| CSS-055 (120 volt, 3/4 horsepower max) CSS-056 (240 volt, 2 horsepower max) Nonreversing disconnect/starter | |
|---|-----------------------|
| Part No. | Description |
| CFT-057 | Disconnect handle |
| CFT-075 | Disconnect shaft |
| CFF-028 | Disconnect base |
| CTC-110 | "Start" push button |
| CTC-527 | Emergency-stop button |

SECTION 4—REPLACEMENT PARTS

Starters and Disconnects

COMBINATION 30-AMP DISCONNECTS AND 24-AMP STARTERS

| CSS-057 and CSS-058* (Nonreversing) | |
|--|--------------------------------|
| Part No. | Description |
| CFF-050 | Fused disconnect switch |
| CFT-073 | Disconnect switch handle/shaft |
| CSC-064 | Starter |
| CTC-110 | "Start" push button |
| CTC-526 | "Stop" push button |
| RSC-261 | Transformer |

| CSS-065 (Nonreversing with E-stop) | |
|---|-----------------------|
| Part No. | Description |
| CTC-110 | "Start" push button |
| CTC-527 | Emergency-stop button |
| CSC-064 | Starter |
| RSC-261 | Transformer |

| CSS-061 and CSS-062* (Plain door, nonreversing) | |
|--|--------------------------------|
| Part No. | Description |
| CFF-050 | Fused disconnect switch |
| CFT-073 | Disconnect switch handle/shaft |
| CSC-064 | Starter |
| RSC-261 | Transformer |

| CSS-059 and CSS-060* (Reversing) | |
|---|--------------------------------|
| Part No. | Description |
| CFF-050 | Fused disconnect switch |
| CFT-073 | Disconnect switch handle/shaft |
| CSC-067 | Starter |
| CTC-110 | "Start" push button |
| CTC-526 | "Stop" push button |
| CTF-091 | Fwd/Rev selector switch |
| RSC-261 | Transformer |

| CSS-063 and CSS-064* (Plain door, reversing) | |
|---|--------------------------------|
| Part No. | Description |
| CFF-050 | Fused disconnect switch |
| CFT-073 | Disconnect switch handle/shaft |
| CSC-067 | Starter |
| RSC-261 | Transformer |

**Includes RSC-261 Transformer*



(Continued on next page.)

SECTION 4—REPLACEMENT PARTS

Starters and Disconnects

REMOTE STATIONS



| LLD800 4-1/2" x 3-1/2" x 3" | |
|---------------------------------------|-----------------------|
| Part No. | Description |
| CTC527 | Emergency-stop button |



| LLD801 6-3/4" x 3-1/2" x 3" | |
|---------------------------------------|-----------------------|
| Part No. | Description |
| CTC110 | "Start" push button |
| CTC527 | Emergency-stop button |



| LLD802 8-3/4" x 3-1/2" x 3" | |
|---------------------------------------|-----------------------|
| Part No. | Description |
| CTC110 | "Start" push button |
| CTC526 | "Stop" push button |
| CTC527 | Emergency-stop button |



| LLD803 3-1/2" x 8-3/4" x 3" | |
|---------------------------------------|-----------------------|
| Part No. | Description |
| CTC527 | Emergency-stop button |
| CTC528 | Reverse push button |
| CTC529 | Forward push button |



| LLD804 6-3/4" x 3-1/2" x 3" | |
|---------------------------------------|---------------------|
| Part No. | Description |
| CTC110 | "Start" push button |
| CTC526 | "Stop" push button |



| LLD805 8-3/4" x 3-1/2" x 3" | |
|---------------------------------------|------------------------------|
| Part No. | Description |
| CTC110 | "Start" push button |
| CTC526 | "Stop" push button |
| CTF091 | Two-position selector switch |

(Continued on next page.)

Rockford Systems, LLC
Call: 1-800-922-7533

SECTION 4—REPLACEMENT PARTS

Starters and Disconnects

REMOTE STATIONS (continued)



| LLD806 8-3/4" x 6-1/4" x 3" | |
|---------------------------------------|------------------------------|
| Part No. | Description |
| CTC110 | "Start" push button |
| CTC111 | Black push button |
| CTC526 | "Stop" push button |
| CTF091 | Two-position selector switch |



| LLD807 8-3/4" x 6-1/4" x 3-3/4" | |
|---|------------------------------|
| Part No. | Description |
| CTC110 | "Start" push button |
| CTC111 | Black push button |
| CTC526 | "Stop" push button |
| CTF091 | Two-position selector switch |



| LLD808 8-3/4" x 3-1/2" x 3" | |
|---------------------------------------|------------------------------|
| Part No. | Description |
| CTC111 | Black push button |
| CTF091 | Two-position selector switch |

BAR/RUN STATIONS



| LLD093 (Relay logic) | |
|-----------------------------|--------------------------------|
| Part No. | Description |
| CTC003 | Black push button |
| CTF350 | Three-position selector switch |

| LLD191 (Full revolution) | |
|---------------------------------|--------------------------------|
| Part No. | Description |
| CTC003 | Black push button |
| CTF350 | Three-position selector switch |

| LLD708 (SSC1000) | |
|-------------------------|--------------------------------|
| Part No. | Description |
| CTC111 | Black push button |
| CTF092 | Three-position selector switch |

| LLD193 (SSC2000T) | |
|--------------------------|--------------------------------|
| Part No. | Description |
| CTC003 | Black push button |
| CTF349 | Three-position selector switch |

SECTION 5—RETURN AUTHORIZATION AND ORDER FORM

Starters and Disconnects

RETURN MATERIALS AUTHORIZATION REQUEST FORM

To return material for any reason contact the sales department in our organization at 1-800-922-7533 for an R.M.A. number. All returned materials shipments must be prepaid. Complete this form and send with material to 5795 Logistics Parkway, Rockford, Illinois 61109. Make sure the R.M.A. Number is plainly identified on the outside of the shipping container.

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Contact Name _____ Representative _____

Items Authorized To Return on R.M.A. No. _____ **Original Invoice No.** _____ **Date** _____

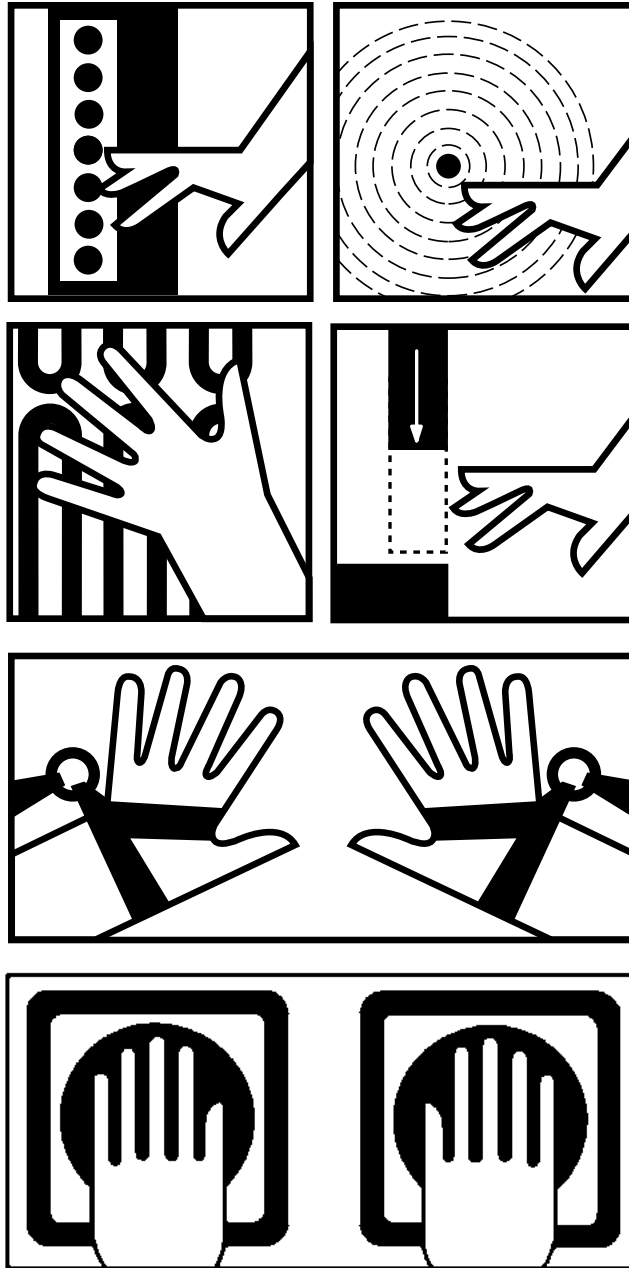
| Part No. | Serial No. | Description |
|----------|------------|-------------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |

Service Requested

A. Full Credit _____ B. 25% Restocking _____ C. Repair & Return _____ D. Replacement _____

Reason for return (describe in detail):

Return Materials Authorized By _____ Date _____



R **ROCKFORD** **SYSTEMS, LLC**

5795 Logistics Parkway
Rockford, Illinois 61109
Toll-Free 1-800-922-7533
Phone (815) 874-7891
Fax (815) 874-6144

Web Site: www.rockfordsystems.com
E-mail: customerservice@rockfordsystems.com