INSTALLATION MANUAL FOR
MONITORED DUAL-SOLENOID
HYDRAULIC VALVE

IMPORTANT: PLEASE REVIEW THIS ENTIRE PUBLICATION BEFORE INSTALLING, OPERATING, OR MAINTAINING THE DUAL VALVE.
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Monitored Dual-Solenoid Hydraulic Valve

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SECTION 1—IN GENERAL
Monitored Dual-Solenoid Hydraulic Valve

Safety Precautions

⚠️ **DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

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.

⚠️ **CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

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.

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

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

⚠️ Never operate this machine if it is not working properly—stop operating it 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 if 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 OEM’S (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.
SECTION 1—IN GENERAL
Monitored Dual-Solenoid Hydraulic Valve

Safety References

OSH 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.


   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 29 CFR Sections that an employer (user) must comply with include:
   1910.211 Definitions.
   1910.212 General requirements for all machines.
   1910.217 Mechanical power presses.
   1910.219 Mechanical power-transmission apparatus.

3. OSHA 29 CFR 1910.147 The control of hazardous energy (lockout/tagout).

4. OSHA Publication
   This publication can be obtained by contacting:
   Superintendent of Documents
   U.S. Government Printing Office
   P.O. Box 371954
   Pittsburgh, PA 15250-7954
   Phone: (202) 512-1800
   Fax: (202) 512-2250
   www.gpo.gov

   OR

   AMT—The Association for Manufacturing Technology
   7901 Westpark Drive
   McLean, Virginia 22102
   Phone: (703) 893-2900
   Toll-Free: 1-800-524-0475
   Fax: (703) 893-1151
   E-Mail: AMT@amtonline.org
   www.amtonline.org

   (Continued on next page.)
SECTION 1—IN GENERAL
Monitored Dual-Solenoid Hydraulic Valve

NATIONAL SAFETY COUNCIL SAFETY MANUALS
Other good references for safety on machine tools are the National Safety Council’s Safety Manuals. These manuals are written by various committees including the Power Press, Forging and Fabricating Executive Committee. Copies of the following publications are available from their library:
- Safeguarding Concepts Illustrated - 7th Edition
- Forging Safety Manual

These manuals and can be obtained by contacting:
National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
1-800-621-7619 ext. 2199
Fax: (630) 285-0797
www.nsc.org

OTHER SAFETY SOURCES
National Institute of Occupational Safety and Health (NIOSH)
4676 Columbia Parkway
Cincinnati, OH 45226
Toll-Free: 1-800-35-NIOSH (1-800-356-4674)
Phone: (513) 533-8328
Fax: (513) 533-8573
www.cdc.gov/niosh

OTHER SAFETY SOURCES (continued)
Robotic Industries Association (RIA)
900 Victors Way, Suite 140
P.O. Box 3724
Ann Arbor, MI 48106
Phone: (734) 994-6088
Fax: (734) 994-3338
www.roboticsonline.com
NEMA (National Electrical Manufacturers Association)
1300 North 17th Street, Suite 1847
Rosslyn, VA 22209
Phone: (703) 841-3200
Fax: (703) 841-5900
www.nema.org
NFPA (National Fire Protection Association)
1 Batterymarch Park
Quincy, MA 02269-9101
Phone: (617) 770-3000
Fax: (617) 770-0700
www.nfpa.org

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.

Warranty, Disclaimer and Limitation of Liability

WARRANTY
Rockford Systems LLC warrants that this product will be free from defects in material and workmanship for a period of 12 months from the date of shipment thereof. ROCKFORD SYSTEMS LLC’S OBLIGATION UNDER THIS WARRANTY IS EXPRESSLY AND EXCLUSIVELY LIMITED to repairing or replacing such products which are returned to it within the warranty period with shipping charges prepaid and which will be disclosed as defective upon examination by Rockford Systems LLC. This warranty will not apply to any product which will have been subject to misuse, negligence, accident, restriction and use not in accordance with Rockford Systems LLC’s instructions or which will have been altered or repaired by persons other than the authorized agent or employees of Rockford Systems LLC.

DISCLAIMER
The foregoing Warranty is made in lieu of all other warranties, expressed or implied, and of all other liabilities and obligations on the part of Rockford Systems LLC, including any liability for negligence, strict liability, or otherwise, and any implied warranty of merchantability or fitness for a particular purpose is expressly disclaimed.

LIMITATION OF LIABILITY
Under no circumstances, including any claim of negligence, strict liability, or otherwise, shall Rockford Systems LLC be liable for any incidental or consequential damages, or any loss or damage resulting from a defect in the product of Rockford Systems LLC.
SECTION 2—VALVE OPERATION
Monitored Dual-Solenoid Hydraulic Valve

General Features of the Series IM Valve

- Superior flow capabilities
- 100% dynamic monitoring
- Automatic lockout upon detection of a fault
- Monitoring during actuation as well as deactuation
- An independent, sole purpose, reset solenoid
- No accidental reset by removal of hydraulic pressure or electrical power
- Two (2) sizes, IM-12 and IM-20

Performance Graphs

Series IM-12 Valve (Part Nos. RCD-540, RCD-541, and RCD-542)

Series IM-20 Valve (Part Nos. RCD-543, RCD-544, and RCD-545)

* P = Pressure — A = Actuator — T = Tank

(Continued on next page.)
SECTION 2—VALVE OPERATION
Monitored Dual-Solenoid Hydraulic Valve

Main Components & Valve Wiring

A—Integral pilot and reset solenoid A (dual-function solenoid with two coils A1 & A2). The pilot solenoid coil A1 is used in conjunction with pilot solenoid B to energize main valve spools. Coil A2 is used solely for reset.

B—Pilot Solenoid B

C—Time differential chamber

D—Main spool valve (hydraulically piloted)

E—Main spool valve 2 (hydraulically piloted)

F—Pressure switch for lockout feedback signal

NORMAL OPERATION

The general function of the Series IM hydraulic dual valve is that of a 3-way, 2-position (3/2), internally monitored dual-solenoid valve. After installation, the valve is operated by energizing both pilot solenoids simultaneously. This causes both main valve spools to open so that hydraulic fluid flows from valve inlet (port P) to outlet (port A). Deenergizing both solenoids closes both main valve spools. Hydraulic fluid no longer flows from inlet to outlet, but downstream fluid flows from the outlet to the tank port (port T).

DETECTING A MALFUNCTION

The internal-monitoring design of the valve requires that both main spools shift in unison to allow the flow of hydraulic fluid from inlet to outlet. When the main spools are not shifted in unison, downstream hydraulic fluid is diverted to the system reservoir (tank) via port T. Any time that the main valve elements do not shift in unison, the valve will lock out and further operation of the valve is inhibited until the valve (monitor) is reset.

RESETTING THE MONITOR

Energizing the reset solenoid actuates the hydraulic reset function.

Note: The valve is designed so that the reset function will not operate when a run signal is present. The run signal from your control system must be deenergized in order for the reset function to operate.

PRESSURE SWITCH

The pressure switch (F) may be installed to provide a signal to the main press controls when the valve has locked out.
SECTION 3—INSTALLATION
Monitored Dual-Solenoid Hydraulic Valve

Valve Installation

- Installation should be performed by persons trained and experienced in hydraulic installations. All wiring should be performed by a qualified electrician.

- Before servicing a valve or other hydraulic component, be sure all energy sources are turned off, all stored energy is relieved, and all energy sources are locked out (reference OSHA 29 CFR 1910.147).

- Because any installation can be tampered with or may need servicing after installation, persons responsible for the safety of others or the care of equipment must check every installation on a regular basis and perform all necessary maintenance.

- The valve should be used within its specifications limits. Failure to follow these directions can adversely affect the performance of the product or result in the potential for human injury.

Note: Ensure that all equipment safety requirements are followed during installation and that the hydraulic power source is properly locked out. Follow all valve specifications such as fluid type, fluid temperature, and filtration. After installation, the fluid conditions should be checked on a regular basis and filters changed as recommended by the manufacturer. Good piping practices should be observed to ensure that the system is free from contamination.

PIPE SIZING

Pipe, tubing, or hoses should be sized for an appropriate pressure safety factor and should provide for line velocities that adhere to good hydraulic engineering practices. Inlet lines should be sized for flow velocities of 15 to 20 feet per second and the tank line should be sized for a flow rate of 10 to 15 feet per second.

PIPE INSTALLATION

To install pipe in valve ports, engage pipe one turn, apply pipe thread sealant (tape is not recommended), and tighten pipe. This procedure will prevent sealant from entering and contaminating the valve. Use tube and fittings which are compatible with the porting of the sub-base.

VALVE TO BASE INSTALLATION

- After piping to the sub-base is completed, apply a light coating of oil to the valve mounting surface. Also, apply a light coating of grease to the interface O-rings to help hold them in their recesses during installation. Evenly torque the valve mounting bolts to 17.7 ft-lb (24 Nm) for Series IM-12 valves and 61 ft-lb (83 Nm) for Series IM-20 valves.

TANK LINE PORT

- Do not restrict the flow from the tank port as this can adversely affect the operation of the clutch. The tank line should be kept as open as possible with a limited amount of fittings to reduce back pressure. Fluid-conditioning devices (filters or heat exchangers) must never be placed in the tank line.

CHECK VALVE

- For applications where the hydraulic power source is located lower than the piping system, it is recommended to install a back-pressure check valve in the tank line as close as possible to the tank to prevent draining of the tank line when the valve is not in operation. This check valve should have a cracking pressure of 3 psi and should be properly sized so as not to restrict flow to the tank during valve operation.

ELECTRICAL SUPPLY

- Wire the valve in accordance with your press schematics. The reset signal should be provided by a key-operated electric switch.

- The voltage of the valve solenoids are shown on the pilot housing. The electrical supply must correspond to these ratings. Otherwise, the solenoids are subject to early failure. See page 11 for information on power consumption.

OPERATING PRESSURES AND TEMPERATURES

- See page 11 for allowable ranges for pressure and temperatures. Exceeding the values listed can shorten the valve life and possibly cause personal injury and equipment damage.

BLEEDING LINES

- After installation is complete, the system must be bled of all air following established hydraulic procedures and the recommendations of the clutch and power unit manufacturers. Before beginning, apply pressure to the system and then apply and remove the reset signal to the valve to ensure it is ready for normal operation. When required by the

(Continued on next page.)
BLEEDING LINES (continued)

bleeding procedures, apply the run signal to shift the valve and to supply oil to the clutch forcing the air out. It is likely that the valve will lock out during this operation because of entrapped air. If a lockout occurs, remove the run signal. Continue to exercise the valve in this manner until all of the air is removed.

TEST PROCEDURE

After installation and prior to normal use, the Series IM valve must be tested for proper functioning. Take normal press operation safety precautions during these tests to avoid personal injury or damage to equipment. Perform this test after following the recommended procedures of the press manufacturer.

1. Disconnect one of the pilot valve electrical connectors and apply a run signal to the valve. There should be no pressure applied to the clutch and, if the pressure switch is installed, a fault signal should be present at the main press controls.

2. Remove the run signal and reattach the electrical connector. Reapply the run signal and again there should be no pressure applied to the clutch and, if the pressure switch is installed, a fault signal should still be present at the main press controls.

3. Remove the run signal and electrically reset the valve by energizing the reset solenoid.

4. Reapply the run signal. Pressure should be present at the clutch and there should not be a fault signal present.

5. Disconnect the other pilot valve electrical connector and repeat steps 1 through 4, then proceed to step 6.

6. With the clutch engaged, disconnect one of the pilot valve electrical connectors simulating a fault condition occurring upon sending a stop signal to the valve. There should be no pressure at the clutch and, if the pressure switch was incorporated in the valve, a fault signal should be present at the main press controls.

7. Reattach the electrical connector. There should still be no pressure at the clutch.

8. Remove the run signal and electrically reset the valve by energizing the reset solenoid. There should be no pressure at the clutch and no fault signal present.

9. Reapply the run signal. Pressure should now be present at the clutch and no fault signal present.

10. Disconnect the other pilot valve electrical connector and repeat steps 6 through 9.

If the valve fails to perform as described above, ensure that all installation procedures were properly followed. Otherwise, after satisfying these tests, energizing both run solenoids simultaneously should result in normal valve operation.

PRESSURE SWITCH INSTALLATION

Refer to Figure 1 on page 7 for switch location. Remove the port plug installed at the factory and with the switch oriented so that the terminal plug is facing up, attach the switch with the provided bolts. Evenly torque the bolts to 71 in-lb (8 Nm). The pressure switch should be wired using the normally open contacts (terminal 1 and 2). A fault condition will be indicated to the control system by the absence of a signal. The pressure switch setpoint is adjustable. Adjust the setpoint by turning the bolt located in the end of the housing. Turn the bolt counterclockwise to lower the setpoint and turn it clockwise to increase the setpoint. The switch should be set to change state at a pressure between 45 and 70 psig (3 to 5 bar). Adjusting the setpoint of the pressure switch can be done at the time of system start up by controlling the inlet pressure while adjusting the switch.

Figure 2
Pressure Switch Wiring
SECTION 3—INSTALLATION
Monitored Dual-Solenoid Hydraulic Valve

Other Installation Considerations

FLUID AND FILTRATIONS

Contamination is present in virtually every hydraulic system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the hydraulic supply, thus preventing contaminants from interfering with the proper performance of the equipment. We recommend a filter with a 25-micron rating for normal applications.

Only use petroleum based fluids with a viscosity range of 100 to 300 mm²/sec. The system should be designed to maintain the pressure between 220 and 2350 psig (15 and 160 bar) with a cooling system to maintain the fluid temperature between 50° and 158°F (10° and 70°C).

AVOID INLET AND RETURN RESTRICTION

Do not restrict the hydraulic flow in the supply line. To do so could reduce the pressure of the supply oil below the minimum requirements for the valve and thereby cause erratic action.

Do not restrict return-line flow as this can adversely affect the stopping performance of the press. Return-line piping should be sized to maintain proper fluid velocity with a minimum number of fittings and as short a tubing length as possible—refer to NFPA guidelines. For faster pressurizing and exhausting of the mechanism being operated by the valve, locate the valve as close as possible to the mechanism.

POWER PRESSES AND HAZARDOUS MACHINERY

Hydraulic power presses as well as other hazardous machinery must use a redundant valve with a monitoring device. A redundant valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All dual-valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the redundant valve mechanism.

Valve Dimensions inches (mm)

SERIES IM-12 (PART NOS. RCD-540, RCD-541, AND RCD-542)

SERIES IM-20 (PART NOS. RCD-543, RCD-544, AND RCD-545)
### SECTION 4—VALVE SPECIFICATIONS

#### Monitored Dual-Solenoid Hydraulic Valve

<table>
<thead>
<tr>
<th>Valve Type/Size</th>
<th>SERIES IM-12</th>
<th>SERIES IM-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No./Port Size</td>
<td>RCD-540 1⁄2 Port</td>
<td>RCD-541 1⁄2 Port</td>
</tr>
<tr>
<td>Type Monitoring</td>
<td>100% dynamic internal</td>
<td></td>
</tr>
<tr>
<td>Reset Type</td>
<td>Discrete dedicated function solenoid</td>
<td></td>
</tr>
<tr>
<td>Possible False Reset by Removing Pressure</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Possible False Reset by Removing Electric</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Monitoring Directions</td>
<td>Energize and Deenergize</td>
<td></td>
</tr>
<tr>
<td>Type Mounting</td>
<td>Subplate</td>
<td></td>
</tr>
<tr>
<td>Mounting Position</td>
<td>Unlimited—No Restrictions</td>
<td></td>
</tr>
<tr>
<td>Valve Function</td>
<td>3/2 Normally Closed</td>
<td></td>
</tr>
<tr>
<td>Directions of Flow</td>
<td>P to A and A to T</td>
<td></td>
</tr>
<tr>
<td>Weight (Valve Only)</td>
<td>37 lb (17 kg)</td>
<td>108 lb (49 kg)</td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>-4° to 122°F (-20° to 50°C)</td>
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</tr>
<tr>
<td>Max. Oper. Pressure (Standard)</td>
<td>2,350 psi (160 Bar)</td>
<td></td>
</tr>
<tr>
<td>Min. Oper. Pressure (Standard)</td>
<td>220 psi (15 Bar)</td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature Range</td>
<td>50° to 158°F (10° to 70°C)</td>
<td></td>
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<tr>
<td>Fluid Type</td>
<td>Petroleum Based</td>
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<tr>
<td>Fluid Viscosity Range (Kinematic)</td>
<td>100-300 mm²/sec</td>
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<tr>
<td>Flow Capabilities</td>
<td>Refer to Flow Charts on page 6</td>
<td></td>
</tr>
<tr>
<td>Inlet Flow at 30 Bar Pressure Drop</td>
<td>31 GPM (118 Liters/Min.)</td>
<td>81 GPM (310 Liters/Min.)</td>
</tr>
<tr>
<td>Return Flow Fault Mode at 20 Bar Pressure Drop</td>
<td>39 GPM (147 Liters/Min.)</td>
<td>116 GPM (440 Liters/Min.)</td>
</tr>
<tr>
<td>Max. Return Flow Without Malfunction</td>
<td>104 GPM Normal Mode (395 L/Min.)</td>
<td>in Excess of 317 GPM (1,200 L/Min.)</td>
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<tr>
<td></td>
<td>75 GPM Fault Mode (265 L/Min.)</td>
<td>in Excess of 237 GPM (900 L/Min.)</td>
</tr>
<tr>
<td>Internal Leakage—Valve Not Energized</td>
<td>0.01 in³ (170 mm³/min @ 160 Bar)</td>
<td>0.12 in³ (2,000 mm³/min @ 160 Bar)</td>
</tr>
<tr>
<td></td>
<td>0.03 in³ (60 mm³/min @60 Bar)</td>
<td>0.045 in³ (750 mm³/min @60 Bar)</td>
</tr>
<tr>
<td>Internal Leakage—Valve Energized</td>
<td>0.026 in³ (420 mm³/min @ 160 Bar)</td>
<td>0.12 in³ (2,000 mm³/min @ 160 Bar)</td>
</tr>
<tr>
<td></td>
<td>0.006 in³ (100 mm³/min @60 Bar)</td>
<td>0.045 in³ (750 mm³/min @60 Bar)</td>
</tr>
<tr>
<td>Valve Overlap</td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td>Control Volume</td>
<td>0.14 in³ (2.3 cm³)</td>
<td>0.19 in³ (3.2 cm³)</td>
</tr>
<tr>
<td>Recommended Filtration</td>
<td>25 Micron</td>
<td></td>
</tr>
<tr>
<td>Seals</td>
<td>Buna</td>
<td></td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>24 V DC or 110/50 110/60 V AC</td>
<td></td>
</tr>
<tr>
<td>Inrush Solenoid Power</td>
<td>DC=18.6 W AC=58 VA</td>
<td></td>
</tr>
<tr>
<td>Holding Power</td>
<td>DC=18.6 W AC=30 VA</td>
<td></td>
</tr>
<tr>
<td>Switching Time On</td>
<td>DC=29 ms AC=19-28 ms</td>
<td>DC=33 ms AC=22-32 ms</td>
</tr>
<tr>
<td>Switching Time Off</td>
<td>DC=10 ms AC=8-19 ms</td>
<td>DC=15 ms AC=13-24 ms</td>
</tr>
<tr>
<td>Number of Switches Per Hour</td>
<td>DC=60,000 AC=50,000</td>
<td></td>
</tr>
<tr>
<td>Relative Duty cycle</td>
<td>100%</td>
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</tr>
<tr>
<td>Electrical Connection (Solenoids)</td>
<td>DIN 43650</td>
<td></td>
</tr>
<tr>
<td>Electrical Connection (Switches)</td>
<td>DIN 43650</td>
<td></td>
</tr>
<tr>
<td>Solenoid Enclosure Rating</td>
<td>IP 64</td>
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</table>
RETURN MATERIALS AUTHORIZATION REQUEST FORM

To return material for any reason contact the sales department in our organization at our organization at 1-800-922-7533 for an RMA number. All return materials shipments must be prepaid. Complete this form and send with material to Rockford Systems LLC, 5795 Logistics Parkway, Rockford, Illinois 61109. Make sure the RMA 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 RMA No. ______________ Original Invoice No. ______________ Date ______________
Part No. ______________ Serial No. ______________ Description ______________

Service Requested:  
☐ Full Credit ☐ 25% Restocking ☐ Repair & Return ☐ Warranty Replacement

Reason for return (describe in detail):
__________________________________________________________

Original Invoice No. ______________ Date ______________ Replacement Invoice No. ______________ Date ______________
Return Materials Authorized By ____________________________ Date ______________

ORDER FORM FOR SIGNS AND LITERATURE

This instruction manual references signs and literature available for your machines. This order form is for your convenience to order additional signs and/or literature as needed. (This order form is part of your installation manual so please make a copy of it when ordering.)

Company ____________________________
Address ______________________________
City __________________ State __________ Zip __________
Phone __________________ Fax __________
Name ____________________________ Purchase Order No. ______________ Date ______________

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
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<tr>
<td>KSL-269</td>
<td>Installation Manual</td>
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<tr>
<td>KSC-000</td>
<td>Operator Safety Precautions Sign</td>
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<tr>
<td>KSC-054</td>
<td>Danger Sign—5” x 6” (English)</td>
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<tr>
<td>KSC-054S</td>
<td>Danger Sign—5” x 6” (Spanish)</td>
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<tr>
<td>KSC-054F</td>
<td>Danger Sign—5” x 6” (French)</td>
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<tr>
<td>KSC-055</td>
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<tr>
<td>KSC-055F</td>
<td>Danger Sign—5” x 6” (French)</td>
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<tr>
<td>FAB</td>
<td>Catalog—Controls and Safeguarding for Fabricating Machines</td>
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</tbody>
</table>

For prices and delivery, please use the address, phone, or fax number listed on the front cover of this manual.

Your Signature ____________________________ Date ______________