

# **OPERATING AND INSTRUCTION MANUAL**

**LAD1-42**

Manual C-15 Rev 12/75

**Despatch Industries**

1-800-473-7373

# WARNING

1. BEFORE OPERATING THIS EQUIPMENT, CAREFULLY READ INSTRUCTION MANUAL.
2. THE USER(S) OF THIS EQUIPMENT MUST COMPLY WITH OPERATING PROCEDURES AND TRAINING OF OPERATING PERSONNEL AS STATED IN THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) OF 1970, SECTION 5, AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), 86A OF 1973 (ARTICLE 100, SECTION 2D, 5 AND APPENDIX I).
3. DO NOT USE ANY ENCLOSED CONTAINERS, FLAMMABLE SOLVENT, OR OTHER FLAMMABLE MATERIALS IN THIS EQUIPMENT. (EXAMPLES: SPRAY CAN, SEALED JAR OF WATER, ALCOHOL, KEROSENE, OIL, PAPER, ETC.). (SEE DESIGN SPECIFICATION SHEET).
4. HIGH VOLTAGE PRESENT ON THIS EQUIPMENT. SERVICE BY AUTHORIZED PERSONNEL ONLY.
5. DO NOT ATTEMPT ANY SERVICE ON THIS EQUIPMENT WITHOUT OPENING MAIN POWER DISCONNECT SWITCH.

FAILURE TO FOLLOW THESE WARNINGS CAN RESULT IN PROPERTY DAMAGE, INJURY, OR DEATH.

015

INSTRUCTIONS FOR OPERATING  
DESPATCH OVEN MODEL LAD 1-42H

Remove all packing materials and inspect unit and accessories for damage.

Attach rubber feet to the bottom corners of the oven. They are required for proper cooling of the control compartment and to prevent damage to counter surfaces.

Install shelf angles and shelves supplied.

Placing material on the perforated floor plate will cause poor temperature uniformity within the work chamber.

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DO NOT ATTEMPT ANY SERVICE ON THIS EQUIPMENT WITHOUT OPENING MAIN POWER DISCONNECT SWITCH.

POWER CONNECTIONS

Connect electric supply directly to unit as indicated on electrical drawing with all required grounding or safety equipment and in compliance with applicable codes, ordinances and accepted safe practices.

START-UP

See additional instructions regarding operation of control instrument.

Set hi-limit instrument 10-15 degrees above operating temperature. If hi-limit is exceeded, it must be manually reset.

Set control instrument to desired temperature.

Turn control switch "on". The pilot light will indicate when the heater is on.

There are fresh air and exhaust dampers located on the back of the oven. These dampers are controlled by knobs on the front of the oven. To open damper, pull knob out.

When placing material in oven, allow the maximum amount of air space around the various parts being processed. This will tend to equalize the temperature throughout the work chamber.

## SHUT DOWN

Turn control switch "off".

## OPTIONAL FORCED EXHAUST

This oven can be equipped with a forced exhaust system. This unit is field installed and can be purchased from Despatch Oven Company.

## ADJUSTMENT OF CONTROLLER

Before making any adjustments, allow oven to operate at desired temperature for one hour. Remove front cover by removing screw beneath the dial. Pull cover out from the bottom. There are two potentiometers; the band width and manual reset. After making adjustments, allow oven to stabilize for 10 minutes. Repeat if necessary.

**Band Width** - This is factory set at 5°F., which is the minimum setting. If oven is operating at low temperatures with light loads, a temperature overshoot may result. This can be observed on the deviation meter. To reduce or eliminate overshoot, increase band width; for best control sensitivity, use smallest possible band width.

**Manual Reset** - This is factory set for operation at 400°F. and dampers closed. When using different temperatures and damper settings the meter may indicate a deviation from the set point. If close accuracy is required and meter is left of center, turn manual reset clockwise. If meter is to the right of center, turn manual reset counter-clockwise. One-eighth turn on the adjustment potentiometer will result in one division of correction on the deviation meter.

## HI-LIMIT CALIBRATION

Turn oven on and allow oven to control at operating temperature for 15 minutes. Slowly turn down hi-limit until the instrument light comes "on". If this temperature is not the same as the control, the hi-limit should be re-calibrated. Remove knob or dial from the hi-limit shaft. Calibrating screw is located in center of the shaft. If temperature was higher than the control, turn calibrating screw counter-clockwise. If temperature was lower, turn the screw clockwise. Replace knob on shaft. Repeat above process if necessary. One turn of the calibration screw results in 120°F. correction. Caution: if there is doubt on the accuracy of the control, use a separate temperature indicating device.

## POWER REQUIREMENT

208/240 volt - 1 phase 60 cycle

3000 watts heating capacity - 14.4/12.5 amps

650°F. maximum temperature

Additional information available upon request.

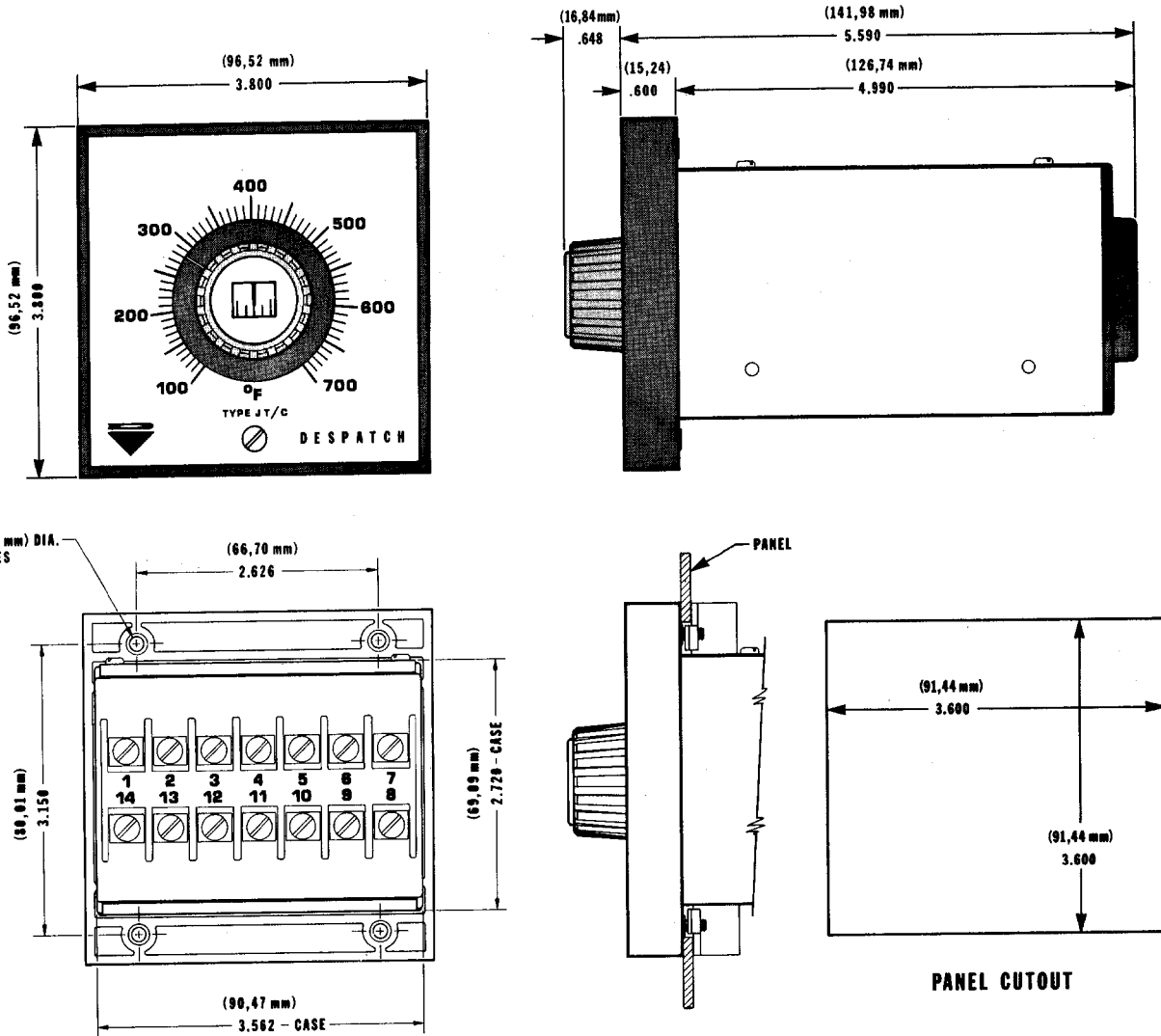
SP-59 12/76

C-15



10-25-74

THERMOCOUPLE TEMPERATURE CONTROLLER



SEE PAGE 2 and 3 FOR SPECIFICATIONS.  
SEE Page 4 for EXTERNAL WIRING DIAGRAM.



12-5-73

GENERAL: The 35-06-AV thermocouple temperature controller is a time-proportioning, solid state switching controller that provides operation with the minimization of objectionable RFI. The panel mount DIN size case features an easily read dial scale and high resolution set-point potentiometer of instrument quality to provide greater set-point accuracy. The high torque feature of the potentiometer prevents set-point changes due to equipment vibration. It includes deviation meter to give indication of process temperature.

The solid-state output will handle inductive or resistive loads, and can be used to actuate solenoids, magnetic contactors, and relays. It will also actuate solid-state SCR's and triacs in single or three phase applications. The output is externally mounted for quick and easy replacement in the event of field shorting or failure.

TEMPERATURE RANGES & SENSOR: 100 - 700°F. Type "J" T/C.

LINE VOLTAGE: 120/240 VAC ( $\pm 10\%$ ) 50/60 Hz.

POWER CONSUMPTION: 2.0 VA (Controller only).

OPERATING AMBIENT: 30° to 125°F.

OUTPUT: Zero-switching, isolated, normally open solid-state contact 1 ampere at 115 or 230 VAC resistive or inductive load. Isolated from controller supply voltage. Contact closes when T.C. sensor temperature below set-point.

TIME PROPORTIONING: Fixed cycle time of 10 seconds.

PROPORTIONAL BAND ADJUSTMENT: Typically 5 to 50°F.

SENSOR: Type "J" or "K" thermocouple.

T.C. BREAK PROTECTION: In the event of open T.C. the controller will de-energize load power.

COLD JUNCTION COMPENSATION: Automatic cold junction compensation eliminates the need for external reference. T.C. is connected directly to unit.

INDICATION: Null meter in center of knob indicates temperature relative to set-point. First index mark on either side of center mark indicates width of proportional band.

SET-POINT CALIBRATION ACCURACY:  $\pm 1\%$  of span, for T.C. resistance of 100 ohms or less.

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**WATLOW WINONA, INC.**

WINONA, MINNESOTA 55987

1265 EAST SANBORN STREET

PHONE 507 454-5300



12-5-73

SET-POINT SHIFT WITH LINE VOLTAGE:  $\pm 10\%$  variation of line voltage will produce a set-point shift of less than  $\pm .25\%$  of span.

SET-POINT SHIFT WITH AMBIENT: Typically  $5\mu\text{v}/^\circ\text{F}$  ambient referred to the input.

CONTROL ACCURACY: Typically  $\pm 1$  degree, depending on design of thermo system.

ISOLATION: T.C. input to load, line and frame ground.

D.C. Resistance  $10^{11}$  Ohm.

Capacitance 50 Pf.

MANUAL RESET: Includes manual reset adjustment to correct for offset (droop) present in the process system under constant load condition.

Example: Set-point  $400^\circ\text{C}$  and measured temperature  $390^\circ\text{C}$  - droop  $10^\circ\text{C}$ . Turn manual reset pot clockwise approximately  $1/4$  turn. Allow system to stabilize and re-adjust if necessary.

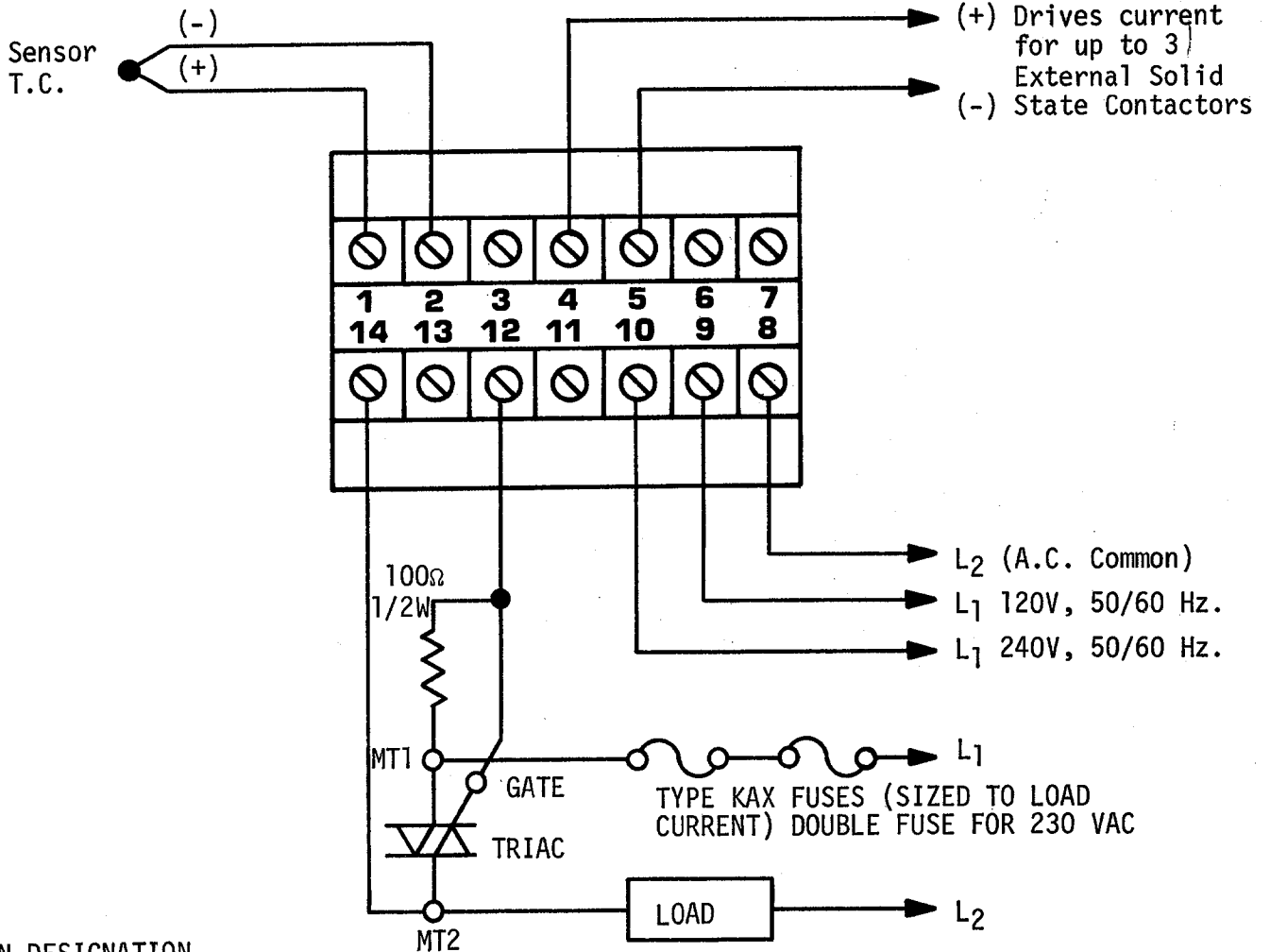
ISO-DRIVE OUTPUT: Will drive one or more solid state contactors such as the 50-07-03 and 50-07-04.

ORDERING INFORMATION: Specify model number, thermocouple type and range.



11-22-74

EXTERNAL WIRING DIAGRAM



PIN DESIGNATION

- 1 - T.C. (+)
- 2 - T.C. (-)
- 3 - Blank
- 4 - Iso-Drive (+) Used for driving single or
- 5 - Iso-Drive (-) Multiple Solid State Contactors.
- 6 - Blank
- 7 - Blank
- 8 - A.C. Line Common, L<sub>2</sub>
- 9 - 120 VAC Line, L<sub>1</sub>
- 10 - 240 VAC Line L<sub>2</sub>
- 11 - Blank
- 12 - Triac - Gate
- 13 - Triac - MT<sub>1</sub>
- 14 - Triac - MT<sub>2</sub>



**No. E-782-2**

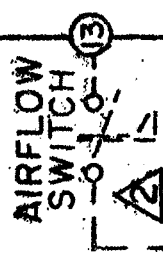
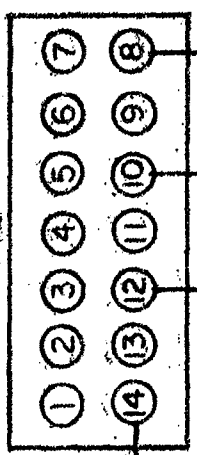
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**LADI-42H**

**DESPATCH OVEN COMPANY**  
 MINNEAPOLIS, MINNESOTA

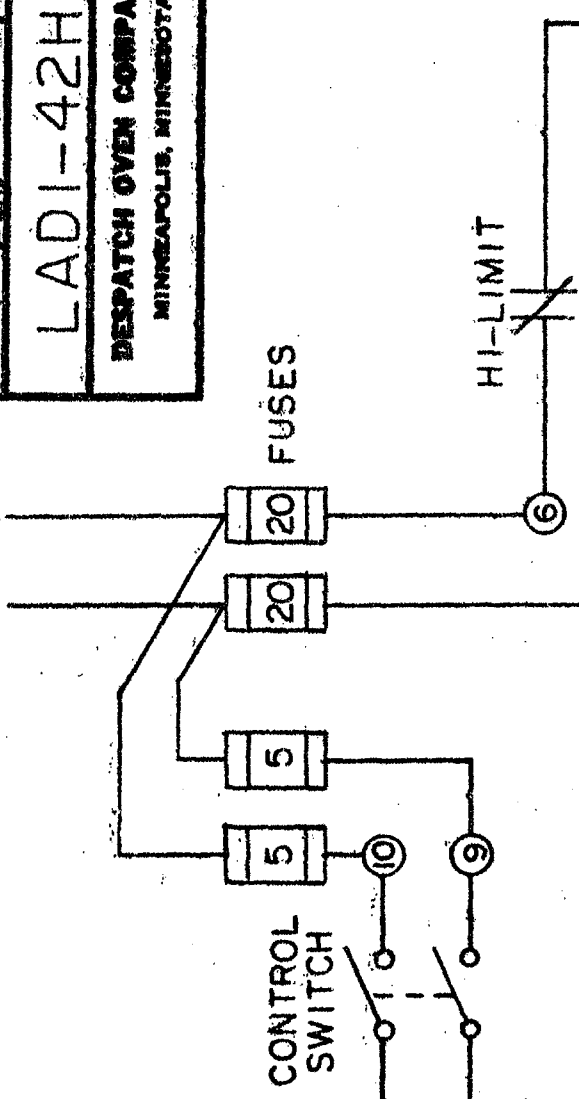
240-1-60 LINE  
 OR  
 208-1-60 LINE

WAYNCO CONTROL



CONTROL SWITCH

FUSES



TO MOTORS

**LEGEND**

- TERMINALS
- △ 208VOLT OPERATION  
-CHANGE 2-5 JUMPER TO 2-4
- △ FORCED EXHAUST OPTION  
-CONNECT MOTOR TO TERMINALS 11 AND 12  
-REPLACE 11-13 JUMPER WITH AIRFLOW SWITCH

# Material List

LAD1-42

| Item  | Part Number | Description                                   |
|-------|-------------|---|
| CI    | 208745      | DES2000 Digitronic Replacement Controller Kit |
| T/C   | 051443      | Thermocouple Type J                           |
| HL    | 012391      | H-2 Hi-limit                                  |
| M     | 008341      | Motor 1/3 HP                                  |
|       | 007293      | Fan Wheel 9-1/8" Dia.                         |
| 1-2F  | 007471      | Fuse Block 2 Pole 250V                        |
|       | 007457      | A25X20 Fuse 250V                              |
| 3-4F  | 007471      | Fuse Block 2 Pole 250V                        |
|       | 007532      | 5 Amp Fuse 250V                               |
| H     | 055166      | 3000 Watt Heater 208/240V                     |
| TR    | 203580      | SSR Relay replacement Kit                     |
| R     | 010499      | 10K Ohm Resistor 1W +/-5%                     |
| 1LT   | 008661      | #36EN21111-24 Red Light                       |
| 1SW   | 012181      | Power Switch DPST                             |
| Seal  | 011181      | Door Seal                                     |
| Latch | 008199      | Latch Adjustable                              |