

# MODEL MAC-4 MULTIPLE APPLIANCE CONTROL

For Interlocking Power Venters, Draft Inducers IN-FORCERS or Dampers with up to four burners

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# DESCRIPTION

The MAC-4 is used for wiring up to 4 heating appliances with Draft Inducers, Power Venters, IN-FORCERs or 115V Dampers. It is suitable for any combination of 24 VAC and 115 VAC control systems for gas and oil burners.

# **OWNER INSTRUCTIONS, DO NOT DESTROY**

A Recognize this symbol as an indication of important Safety Information!

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THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT AND OPERATION OF THIS UNIT. READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION OR OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN IMPROPER INSTALLATION, ADJUST-MENT, SERVICE OR MAINTENANCE POSSIBLY RESULTING IN FIRE, ELECTRI-CAL SHOCK, CARBON MONOXIDE POISONING, EXPLOSION, OR PERSONAL INJURY OR PROPERTY DAMAGE.

# PLEASE READ CAREFULLY AND KEEP ON JOB SITE FOR FUTURE REFERENCE.

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- 1. Failure to install, maintain and/or operate the MAC-4 in accordance with manufacturer's instructions may result in conditions that can produce bodily injury and property damage.
- 2. The safety interlock and system operation performance checks must be performed on each appliance interlocked with the MAC-4 in accordance with the Power Venter, Draft Inducer, IN-FORCER or Damper installation instructions.

### ELECTRICAL

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All wiring from the MAC-4 to the appliance must be appropriate Class 1 wiring as follows: installed in rigid metal conduit, intermediate conduit, rigid non-metallic conduit, electrical metallic tubing, Type MI Cable, Type MC Cable or be otherwise suitably protected from physical damage.

The disconnect means and circuit protection are to be provided by the installer of this device.

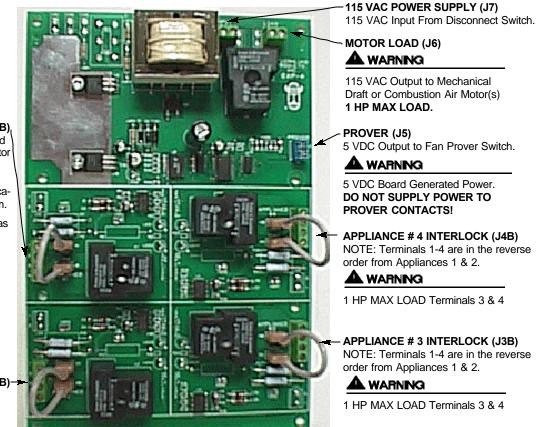
# SEQUENCE OF OPERATION OF MAC-4 INTERLOCKED WITH 24 VAC & 115 VAC APPLIANCE CONTROL CIRCUITS

The circuit board of the MAC-4 is designed for a simple three wire interlock with up to four separate burners. Upon a call for heat the "hot" leg of the burner circuit is intercepted and routed to the MAC-4 terminal strip. When the MAC-4 is activated, the power venter, draft inducer, IN-FORCER or damper starts. The proving switch makes and the intercepted "hot" leg is returned to the burner circuit, allowing the burner to fire.

ELECTRICAL SPECIFICATIONS TABLE		
SYSTEM POWER Requirements	L1, L2 (J7)	GREATER THAN OR EQUAL TO "LOAD" DEMAND Plus 1/10 AMP
	J18, J28, J38, J48	1/10 AMP EACH, TERMINALS 1 & 2
POWER SWITCHING Capacity	J18, J28, J38, J48	1 H.P. MAX 🛛 120 VAC EACH, TERMINALS 3 & 4
	LOAD (J8)	1 H.P. MAX O 120 VAC
PROVER SWITCH LOAD NEEDS	"PROVER" (J5)	1/10 AMP MIN ELECTRICAL POWER FOR PROVER IS SUPPLIED BY THE MAC-4. DO NOT CONNECT EXTERNAL POWER.
		FIQURE 4842111

Disconnect electrical power to this control and to the heating appliances is serves before servicing. Do not connect electrical power to prover block. Doing so will damage the MAC-4. Do not connect more than one appliance to each appliance block. Doing so will damage the MAC-4.

# MAC-4 CIRCUIT BOARD FEATURES



APPLIANCE # 1 INTERLOCK (J1B)

Terminal 1: 18-130 VAC intercepted "hot" From Gas Valve or Burner Motor

Terminal 2: Neutral Return

Terminal 3: Used for special applications. Contact Factory for Diagram.

Terminal 4: Proven Hot Back to Gas Valve or Burner Motor

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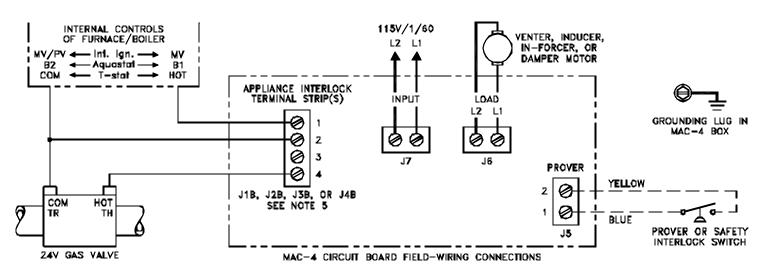
1 HP MAX LOAD Terminals 3 & 4

**NOTE:** Terminals 1 - 4 are the same for Appliances 1, 2, 3 & 4

APPLIANCE # 2 INTERLOCK (J2B)-

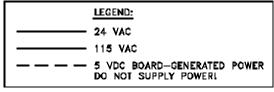
WARNNG
HP MAX LOAD Terminals 3 & 4

# MAC-4 WIRED WITH 24V GAS APPLIANCES AND ONE TJERNLUND POWER VENTER, DRAFT INDUCER, IN-FORCER OR 115V DAMPER (MOTOR LOAD UP TO 1 H.P.)

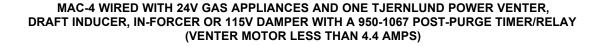


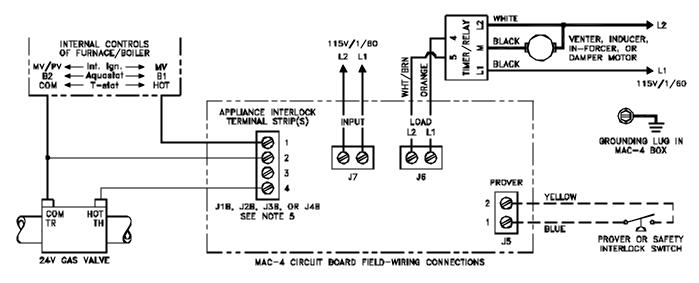
#### NOTES:

- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) FLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

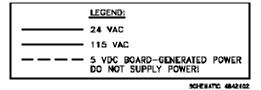


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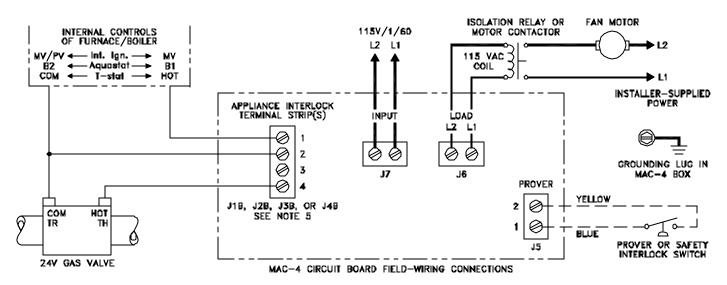




- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 5. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

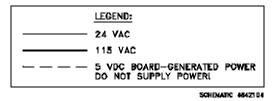


# MAC-4 WIRED WITH 24V GAS APPLIANCES AND ONE TJERNLUND POWER VENTER, DRAFT INDUCER OR IN-FORCER (MOTOR LOAD GREATER THAN 1 H.P.)

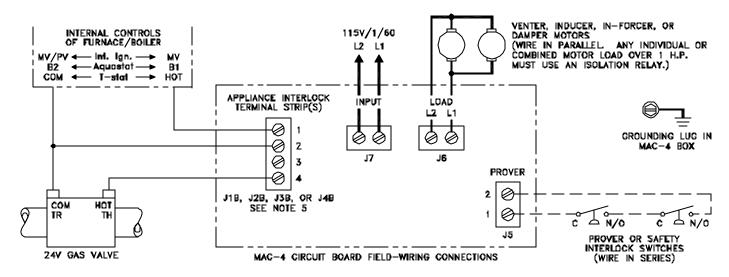


#### NOTES:

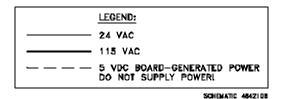
- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).



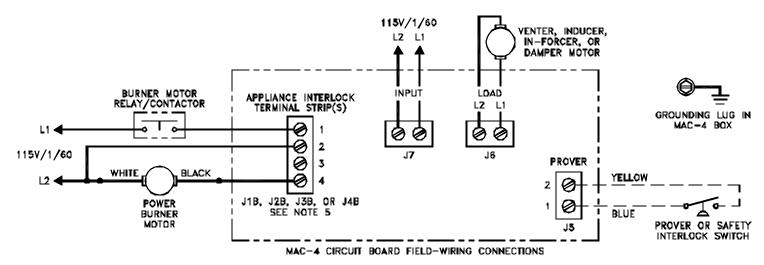
# MAC-4 WIRED WITH 24V GAS APPLIANCES AND MULTIPLE TJERNLUND POWER VENTERS, DRAFT INDUCERS OR IN-FORCERS (IF INDIVIDUAL OR COMBINED MOTOR LOAD EXCEEDS 1 H.P., SEE DIAGRAM ABOVE FOR EXAMPLE OF ISOLATION RELAY WIRING)



- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

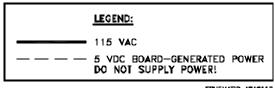


# MAC-4 WIRED WITH 115V GAS APPLIANCES AND ONE TJERNLUND POWER VENTER, DRAFT INDUCER, IN-FORCER OR 115V DAMPER (MOTOR LOAD UP TO 1 H.P.)

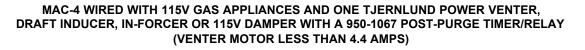


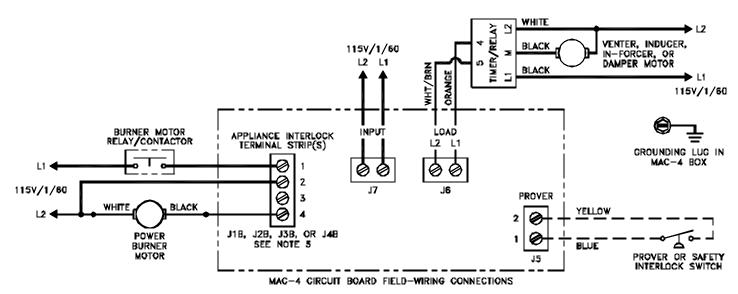
NOTES:

- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

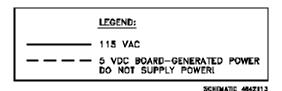




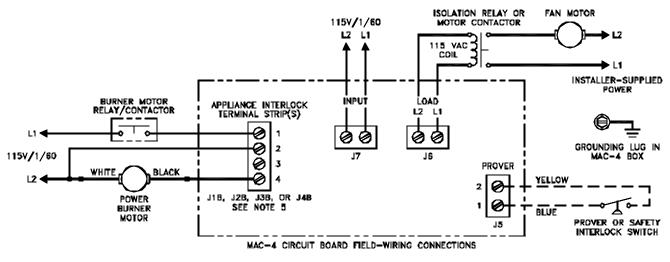




- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

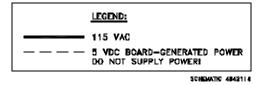


# MAC-4 WIRED WITH 115V GAS APPLIANCES AND ONE TJERNLUND POWER VENTER, DRAFT INDUCER OR IN-FORCER (MOTOR LOAD GREATER THAN 1 H.P.)



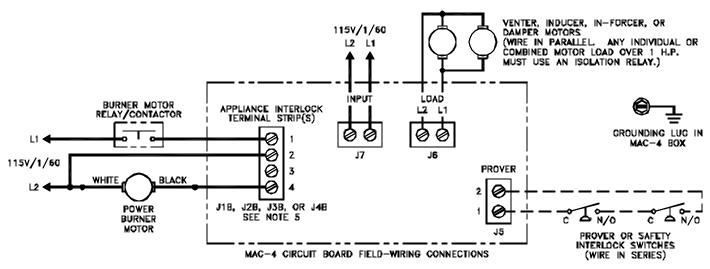
#### NOTES:

- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J38 & J48) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J18 & J28) TERMINAL POSITIONS.



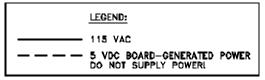
6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

# MAC-4 WIRED WITH 115V GAS APPLIANCES AND MULTIPLE TJERNLUND POWER VENTERS, DRAFT INDUCERS OR IN-FORCERS (IF INDIVIDUAL OR COMBINED MOTOR LOAD EXCEEDS 1 H.P., SEE DIAGRAM ABOVE FOR EXAMPLE OF ISOLATION RELAY WIRING)



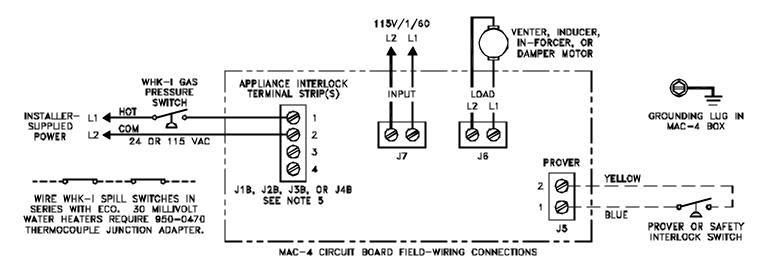
### NOTES:

- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).



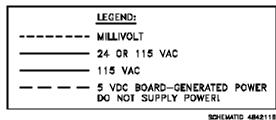
SCHEMATIC 4842113

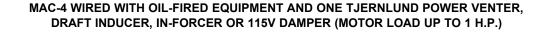
# MAC-4 WIRED WITH MILLIVOLT GAS APPLIANCES AND ONE TJERNLUND POWER VENTER, DRAFT INDUCER, IN-FORCER OR 115V DAMPER (MOTOR LOAD UP TO 1 H.P.)

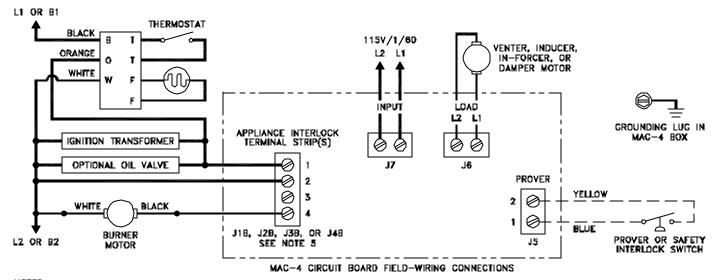


#### NOTES:

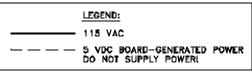
- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" 3. (J6) FLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS. 5.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).



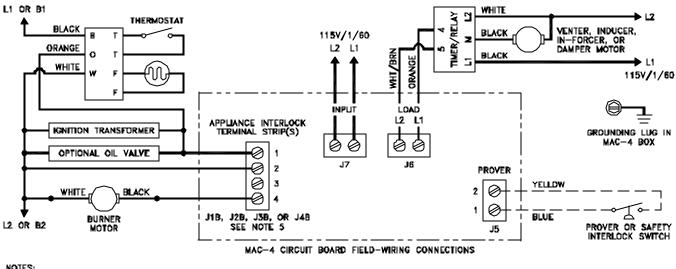




- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 3. 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

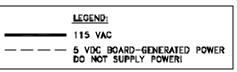


# MAC-4 WIRED WITH OIL-FIRED EQUIPMENT AND ONE TJERNLUND POWER VENTER, DRAFT INDUCER, IN-FORCER OR 115V DAMPER WITH A 950-1067 POST-PURGE TIMER/RELAY (VENTER MOTOR LESS THAN 4.4 AMPS)



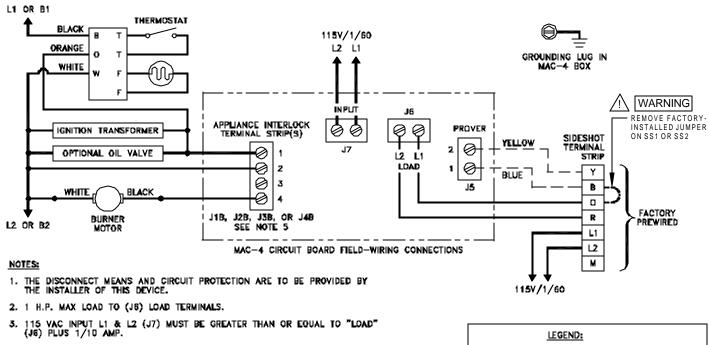
# NOTES:

- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP. 3.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

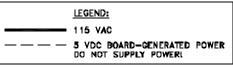


SCHEWATIC ABARIDS

# MAC-4 WIRED WITH OIL-FIRED EQUIPMENT AND TJERNLUND SIDESHOT MODEL SS1 OR SS2

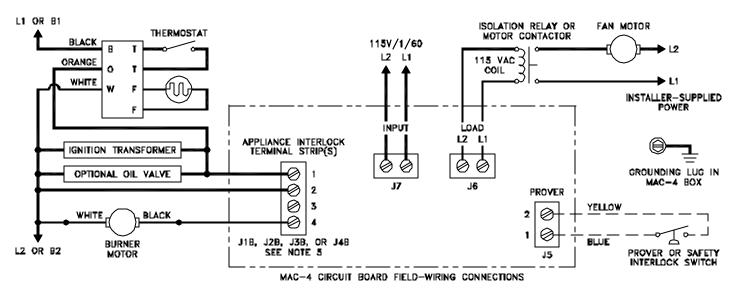


- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J38 & J48) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J18 & J28) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).



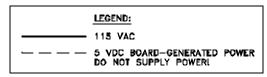
SCHEMATIC 4842105

# MAC-4 WIRED WITH OIL-FIRED EQUIPMENT AND ONE TJERNLUND POWER VENTER, DRAFT INDUCER OR IN-FORCER (MOTOR LOAD GREATER THAN 1 H.P.)



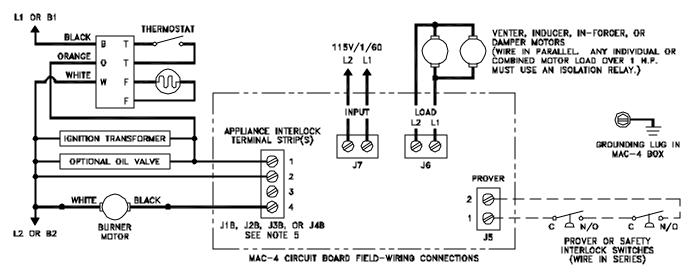
#### NOTES:

- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- 115 VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J3B & J4B) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J1B & J2B) TERMINAL POSITIONS.
- 6. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).

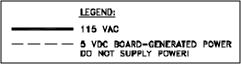


SCHEMATIC 4842110

# MAC-4 WIRED WITH OIL-FIRED EQUIPMENT AND MULTIPLE TJERNLUND POWER VENTERS DRAFT INDUCERS OR IN-FORCERS (IF INDIVIDUAL OR COMBINED MOTOR LOAD EXCEEDS 1 H.P., SEE DIAGRAM ON BOTTOM OF PAGE 7 FOR EXAMPLE OF ISOLATION RELAY WIRING)



- 1. THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- 2. 1 H.P. MAX LOAD TO (J6) LOAD TERMINALS.
- TIS VAC INPUT L1 & L2 (J7) MUST BE GREATER THAN OR EQUAL TO "LOAD" (J6) PLUS 1/10 AMP.
- 4. DO NOT SUPPLY POWER TO PROVER (J5) OR MAC-4 WILL BE DAMAGED.
- 5. APPLIANCE 3 AND 4 (J38 & J48) TERMINAL POSITIONS 1-4 ARE IN REVERSE ORDER FROM APPLIANCE 1 AND 2 (J18 & J28) TERMINAL POSITIONS.
- 5. 1 H.P. MAX LOAD TO APPLIANCE TERMINALS 3 AND 4 (J1B, J2B, J3B, J4B).



### SAFETY INTERLOCK TEST

- 1. Adjust each individual appliance thermostat or aquastat to call for heat.
- 2. Determine that the Power Venter, Draft Inducer or IN-FORCER operates before the gas valve or burner motor becomes energized.
- 3. Disconnect main power to MAC-4 board.
- 4. Remove connection to terminal 2 on Prover terminal block (J5). This will open circuit to the Prover(s) and interrupt the 5 VDC supplied by the MAC-4 board. Reestablish power to MAC-4 board which was disconnected in Step 3.
- 5. Adjust each individual appliance thermostat or aquastat to call for heat. The Power Venter, Draft Inducer or IN-FORCER motor should turn on but the appliance gas valve or burner motor **should not** be energized with the prover(s) circuit disconnected.

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DO NOT OPERATE AN APPLIANCE THAT OPERATES WITH THE PROVER CIRCUIT DISCONNECTED!

6. Reconnect the Prover(s) circuit to terminal 2 on Prover terminal block (J5). Repeat steps 1 and 2 above.

Follow Power Venter or Draft Inducer instruction guidelines on combustion air testing.

# LIMITED PARTS WARRANTY AND CLAIM PROCEDURE

Tjernlund Products, Inc. warrants the components of its products for one year from date of installation. This warranty covers defects in material and workmanship. This warranty does not cover normal maintenance, transportation or installation charges for replacement parts or any other service calls or repairs. Products that are tampered with, damaged, or defective due to malfunctioning appliances are not covered under this warranty. This warranty DOES NOT cover the complete MAC-4 if it is operative, except for the defective part.

Tjernlund Products, Inc. will issue credit or provide a free part to replace one that becomes defective during the one year warranty period. If the part is over 18 months old, proof of date of the installation in the form of the contractor sales/installation receipt is necessary to prove the unit has been in service for under one year. All receipts should include the date code of the MAC-4 to ensure that the defective component corresponds with the complete unit. This will help preclude possible credit refusal.

- 1.) If unable to determine faulty component, contact your Tjernlund distributor or Tjernlund Products Technical Customer Service Department at 1-800-255-4208 for troubleshooting assistance.
- 2.) After the faulty component is determined, return it to your Tjernlund distributor for replacement. Please include MAC-4 date code component was taken from. If MAC-4 date code is older than 18 months you will need to provide a copy of the original installation receipt to your distributor. Credit or replacement will only be issued to a Tjernlund distributor after the defective part has been returned prepaid to Tjernlund.

# REPLACEMENT PARTS COVERED BY WARRANTY

MAC-4 Circuit Board only

# WHAT IS NOT COVERED

Product installed contrary to our installation instructions

Product that has been altered, neglected or misused

Product that has been wired incorrectly

Any freight charges related to the return of the defective part

Any labor charges related to evaluating and replacing the defective part

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### TJERNLUND LIMITED ONE YEAR WARRANTY

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