FOR REPLACEMENT ON IN-FORCER MODELS PAI-3,4 WITH CIRCUIT BOARD BUILT IN

**WARNING**

Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.

1. Jumper wire provided must be installed on optional limit location if it is not being utilized.
2. Blue and Yellow wires from Fan Prover must be connected to Auxiliary Prover (3 & 4) contacts.
3. Red wires from High Limit must be connected to Auxiliary Limit (9 & 0) contacts.
4. Gray wires from Alarm Sequencer must be connected to Alarm Sequencer (5 & 6) contacts.
   Black and White wires from Alarm Sequencer must be connected to Alarm Sequencer (7 & 8) contacts.

**IMPORTANT:** Jumper wire must be installed across H & PH terminals when IN-FORCER Fan Prover is wired into Auxiliary Prover (3 & 4) contacts. It is not necessary to wire the Fan Prover in series with the H & PH terminals as shown in the MAC-3 Instructions enclosed when the Prover is wired in series with the Auxiliary Prover (3 & 4) contacts. All Fan Provers must be wired in series with the H & PH or Auxiliary Prover (3 & 4) contacts. Do not put jumper wire across H & PH terminals if Prover circuit is installed across those terminals.

FOR REPLACEMENT ON MAC-3 CONTROLLER

**WARNING**

 Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.

1. Jumper wire provided must be installed on optional limit location if it is not being utilized.
2. Jumper wires provided must be installed on Auxiliary Prover terminals (3 & 4) and Auxiliary Limit terminals (9 & 0) if they are not being utilized.
3. For detailed wiring see MAC-3 Instructions enclosed P/N 8504043.

**MAC-3 CIRCUIT BOARD FEATURES**

- Aux. Limit switch in series with optional limit on terminal strip
- Optional Alarm Sequencer proves Fan Prover Operation (not limit operation)
- Used in conjunction with Optional Alarm Sequencer
- Optional Limit (Spill Switch)
- 115 VAC Proven “HOT” From Fan Prover
- 115 VAC Neutral To Inducer / Venter / IN-FORCER
- 115 VAC “HOT” To Inducer / Venter / IN-FORCER motor & Fan Prover
- Auxiliary Operation Switch (i.e. Manual or Gas Pressure)
- 115 VAC Input From Disconnect Switch
- Aux. Prover contacts in series with H & PH contacts on output terminals
- Aux. Motor in parallel with H & N used for additional Power Venter, Inducer, IN-FORCER
MODEL
MAC-3
MULTIPLE APPLIANCE CONTROL

For Interlocking one Power Venter, Draft Inducer
IN-FORCER™ or Damper with up to three burners

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DESCRIPTION

The MAC-3 is used for wiring up to 3 heating appliances with a single Draft Inducer, Power Venter, IN-FORCER or 115V Damper. It is suitable for both 24 VAC and 115 VAC control systems for gas and oil burners. Plug-in relays must be purchased separately depending on control system voltage of appliance.

Use Tjernlund part # 950-1040 relay For 24 VAC control systems.
Use Tjernlund part # 950-0480 relay For 115 VAC control systems.

OWNER INSTRUCTIONS, DO NOT DESTROY

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

⚠️ WARNING

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, ADJUSTMENT, SERVICE OR MAINTENANCE POSSIBLY RESULTING IN FIRE, ELECTRICAL SHOCK, CARBON MONOXIDE POISONING, EXPLOSION, OR PERSONAL INJURY OR PROPERTY DAMAGE.
CAUTIONS

1. Failure to install, maintain and/or operate the MAC-3 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-3 in accordance with the Power Venter, Draft Inducer, IN-FORCER or Damper installation instructions.

ELECTRICAL

WARNING

All wiring from the MAC-3 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-3 INTERLOCKED WITH 24 VAC & 115 VAC APPLIANCE CONTROL CIRCUITS

The circuit board of the MAC-3 is designed for a simple three wire interlock with up to three separate burners. Upon a call for heat the “hot” leg of the burner circuit is intercepted and routed to the MAC-3 terminal strip. The MAC-3 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. Plug-in relays must be purchased separately depending on control system voltage of appliance.

Use Tjernlund part # 950-1040 relay For 24 VAC control systems
Use Tjernlund part # 950-0480 relay For 115 VAC control systems

ELECTRICAL SPECIFICATIONS TABLE

<table>
<thead>
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<th>* SYSTEM POWER REQUIREMENTS</th>
<th>L1, L2</th>
<th>10 AMPS @ 115 VAC</th>
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<tr>
<td>J1, J2, J3</td>
<td>1 VA MIN. TERMINALS 1,2</td>
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<tr>
<th>* POWER SWITCHING CAPACITY</th>
<th>J1, J2, J3</th>
<th>7 AMPS EACH, TERMINALS 1,3</th>
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<tr>
<td>OUTPUTS H, N &amp; MOTOR 1,2</td>
<td>9 AMPS TOTAL @ 115 VAC MAX.</td>
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<th>USER-PROVIDED SWITCHING LIMITATION MINIMUMS</th>
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</tr>
<tr>
<td>OUTPUT H, PH</td>
<td>1.0 AMPS @ 115 VAC MIN.</td>
<td></td>
</tr>
</tbody>
</table>

* DO NOT POWER INDUCERS, VENTERS OR AIR INTAKES IN EXCESS OF 10 AMPS TOTAL LOAD. AN ISOLATION RELAY IS NEEDED FOR LOADS ABOVE 10 AMPS. SEE MANUFACTURER’S INSTRUCTIONS.

MAC-3 CIRCUIT BOARD FEATURES

- Auxiliary Operation Switch (i.e. Manual or Gas Pressure)
- 115 VAC Input From Disconnect Switch
- 115 VAC Proven “HOT” From Fan Prover
- 115 VAC Neutral To Inducer / Venter / IN-FORCER
- 115 VAC “HOT” To Inducer / Venter / IN-FORCER motor & Fan Prover
- Optional Limit (Spill Switch)
- Optional Alarm Sequencer proves Fan Prover Operation (not limit operation)
- Aux. Motor in parallel with H & N used for additional Power Venter, Inducer, IN-FORCER
- Aux. Prover contacts in series with contacts on output terminals
- Used in conjunction with Optional Alarm Sequencer

Appliance #3 Interlock
Appliance #2 Interlock
Appliance #1 Interlock

Tjernlund Products, Inc.
When wiring the MAC-3 with a Tjernlund Power Venter without a post-purge Timer/Relay only the Fan Proving Switch and motor leads are utilized for wiring. If you are wiring with a post-purge Timer/Relay see wiring on bottom of page 2. Our HSUL Series, GPAK-J/1 Series and Commercial HS-3,4,5 Series utilize our part # 950-1040 relays which can be plugged into the MAC-3 for 24V control systems. The HSUL-Series, GPAK-J/1 Series and model HS-5 include one part # 950-1040 relay. The models HS-3 and HS-4 include two part # 950-1040 relays.

MAC-3 WIRED WITH A TJERNLUND POWER VENTER, DRAFT INDUCER, IN-FORCER OR 115V DAMPER WITHOUT A POST-PURGE (VENTER MOTOR LESS THAN 9 AMPS)

MAC-3 WIRED WITH A TJERNLUND HST, GPAK-T SERIES POWER VENTER OR DRAFT INDUCER WITH A 950-1067 POST-PURGE TIMER/RELAY (VENTER MOTOR LESS THAN 4.4 AMPS)

NOTE: The WHITE/BROWN wire from terminal 5 of the Timer/Relay is ORANGE in the GPAK-T Series. The ORANGE wire from terminal 4 of the Timer/Relay is BLUE in the GPAK-T Series.
MAC-3 WIRED WITH A TJERNLUND MODEL SS1 OR SS2 SIDESHOT® VENT SYSTEM

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

“H” TERMINAL 9 AMPS MAX @ 115V
“H” = 115V HOT
“N” = 115V NEUTRAL
“PH” = 115V PROVEN HOT

MAC-3 WIRED WITH A POWER VENTER, DRAFT INDUCER OR IN-FORCER WITH A MOTOR GREATER THAN 9 AMPS
TJERNLUND MODELS INCLUDE THE XL DRAFT INDUCER, HS-5 POWER VENTER & PAI-7 IN-FORCER

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

“H” TERMINAL 9 AMPS MAX @ 115V
“H” = 115V HOT
“N” = 115V NEUTRAL
“PH” = 115V PROVEN HOT
The diagrams included with these instructions depict two burners interlocked with the MAC-3. To wire a third burner to the MAC-3, purchase the proper control voltage plug-in relay and wire according to the diagram suited for that application.

Use Tjernlund part # 950-1040 relay for 24 VAC control systems
Use Tjernlund part # 950-0480 relay for 115 VAC control systems
MAC-3 WIRED WITH UP TO THREE OIL BURNERS WITH R8184G CONTROLS - BURNER MOTOR LESS THAN 7 AMPS

MAC-3 WIRED WITH UP TO FIVE 24V GAS BURNERS AND ONE POWER VENTER, DRAFT INDUCER OR IN-FORCER
MAC-3 WIRED WITH A POWER VENTER OR DRAFT INDUCER AND A COMMERCIAL IN-FORCER

MAC-3 CIRCUIT BOARD WIRING SCHEMATIC

NOTES:
- THE DISCONNECT MEANS AND CIRCUIT PROTECTION ARE TO BE PROVIDED BY THE INSTALLER OF THIS DEVICE.
- MAXIMUM BOARD LOADING:
  - R, N & AUX MOTOR 1 & 2 9 AMPS @ 115VAC
  - T = 115VAC HOT
  - Z = 115VAC HOT
  - M = 115VAC NEUTRAL

- ALL WIRING IS LINE VOLTAGE WITH THE EXCEPTION OF APPLIANCE INTERLOCK RELAYS K1, K2, K3 AND CONNECTIONS TO CONTACT SIDE OF K4 RELAY IF APPLIANCE CONTROL CIRCUIT IS 24V
- ALL L2 (NEUTRAL) CIRCUITS ARE RETURNED TO INPUT L2 VIA TRACES ON CIRCUIT BOARD
- SOME COMPONENTS ARE NOT LOCATED WHERE SHOWN IN THIS SCHEMATIC
- J1, J2, J3 = APPLIANCE INTERLOCK TERMINAL STRIP
- K1, K2, K3 = APPLIANCE INTERLOCK RELAY
- K4 = FAN, PROVER ISOLATION RELAY

4840345
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-3 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-3 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-3 date code component was taken from. If MAC-3 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

| 24 Volt Relay       | 950-1040 |
| 115 Volt Relay      | 950-0480 |
| 4PDT Isolation Relay| 950-0481 |
| Alarm Sequencer     | 950-0478 |
| Circuit Board only  | 950-0484 |

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

TJERNLUND LIMITED ONE YEAR WARRANTY

Tjernlund Products, Inc. warrants to the original purchaser of this product that the product will be free from defects due to faulty material or workmanship for a period of (1) year from the date of original purchase or delivery to the original purchaser, whichever is earlier. Remedies under this warranty are limited to repairing or replacing, at our option, any product which shall, within the above stated warranty period, be returned to Tjernlund Products, Inc. at the address listed below, postage prepaid. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, AND TJERNLUND PRODUCTS, INC. EXPRESSLY DISCLAIMS LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF THIS PRODUCT. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES AND NO AGENT IS AUTHORIZED TO ASSUME FOR US ANY LIABILITY ADDITIONAL TO THOSE SET FORTH IN THIS LIMITED WARRANTY. IMPLIED WARRANTIES ARE LIMITED TO THE STATED DURATION OF THIS LIMITED WARRANTY. Some states do not allow limitation on how long an implied warranty lasts, so that limitation may not apply to you. In addition, some states do not allow the exclusion or limitation of incidental or consequential damages, so that above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state. Send all inquires or products requiring warranty work to Tjernlund Products, Inc. 1601 9th Street, White Bear Lake, MN 55110-6794. Phone (651) 426-2993 • (800) 255-4208 • Fax (651) 426-9547.