



## TJERNLUND PRODUCTS, INC.

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SUITABLE FOR SIDE WALL  
 OR VERTICAL TERMINATIONS

# MODEL CDB8 INSTALLATION INSTRUCTIONS

 Recognize this symbol as an indication of important Safety Information!

### OWNER INSTRUCTIONS, DO NOT DESTROY

#### WARNING

THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT AND OPERATION OF THIS PRODUCT. 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, PERSONAL INJURY OR PROPERTY DAMAGE.

**DO NOT DESTROY. PLEASE READ CAREFULLY AND  
 KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.**

## TABLE OF CONTENTS

	Page (s)
CDB8 Description .....	1
Specifications .....	1
Installation Warnings .....	2
Installation Cautions .....	2
Installation Layout / Considerations.....	2
Dryer Duct Sizing.....	3
Mounting.....	4
Wiring .....	4-5
Validating Proper System Operation .....	6
Maintenance .....	6
Service, Warranty and Replacement Parts .....	6-7

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Call us toll free at 800-255-4208, visit our web site @ [www.tjernlund.com](http://www.tjernlund.com) or email us at [fanmail@tjfans.com](mailto:fanmail@tjfans.com).

## DESCRIPTION

The CDB8 was designed specifically to aid the exhaust velocity of commercial capacity clothes dryers. Often times multiple clothes dryers share a common duct or a large clothes dryer exhausts into a long duct run where maintaining the transport velocity for the lint to remain suspended in the air stream is difficult. This causes lint build-up within the duct and dryer resulting in increased drying time, wasted energy and more frequent duct cleanings. The removal of the lint from the duct system can be a frequent and often times expensive task. The CDB8 is designed to boost the velocity within the duct so the lint is expelled to the outdoors or defined lint collection points. The CDB8 is designed to work on vertical and horizontal clothes dryer duct systems and can be part of a new or retrofit installation. A unique housing design with the inlet collar and outlet collar on the same plane allows the CDB8 to be used as a 90 degree elbow or with the addition of the IEK8 In-line Elbow Kit, can be installed in-line in a straight duct run. Horizontal exhaust duct termination hoods and multiple control options are also available.

## GENERAL INFORMATION

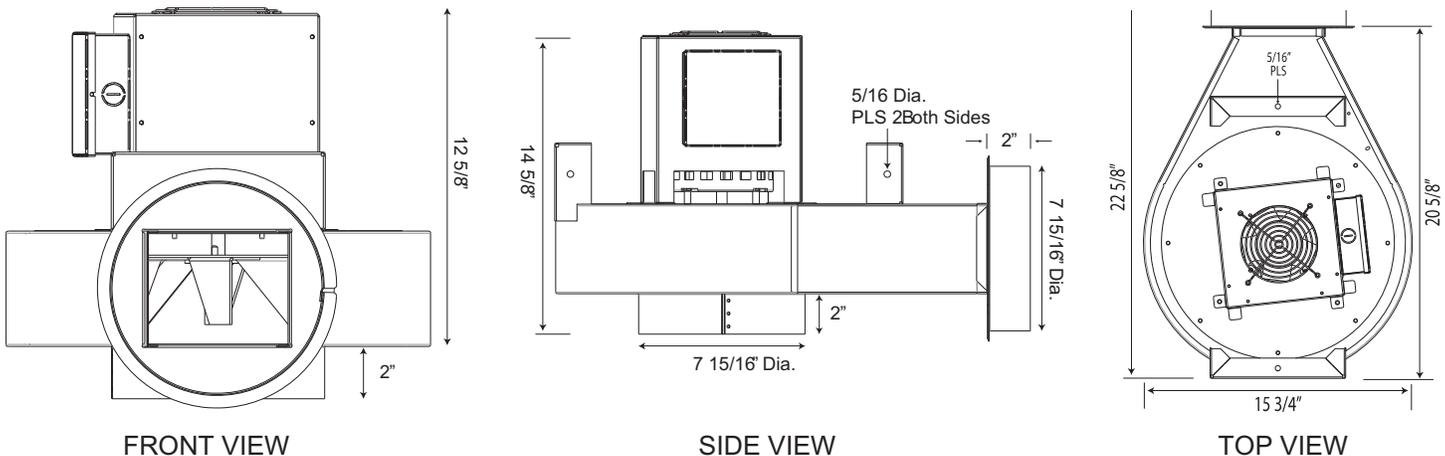
Each CDB8 is electrically factory line tested before shipment.

After opening carton, inspect thoroughly for hidden damage. If any damage is found notify freight carrier and your distributor immediately and file a concealed damage claim.

## CDB8 SPECIFICATIONS:

Volts: 115 VAC	Hz: 60	Amps: 6.5	RPM 1560	½ HP PSC Motor
Unit Length: 22 ½"	Width: 15 7/8"	Height: 16 1/8"	Weight: 25.5 lbs.	

Unit includes multiple mounting points to aid the installation of many mounting orientations. Motor can be positioned in any orientation from horizontal to vertical shaft down (**Not Shaft Up**). Unit includes a Patented thermostat activated motor cooling system for extended motor life.



## INSTALLATION WARNINGS

This Power Ventilator must be installed by a qualified installer in accordance with these instructions and all local codes or in their absence in accordance with the latest edition of the National Electrical Code (NFPA#70) and the Occupational Safety and Health Act (OSHA) when applicable. An improper installation of this product can create hazardous conditions such as an explosion, fire and electrical shock resulting in property damage, personal injury or death.

Failure to install, maintain and/or operate the Power Ventilator in accordance with the manufacturer's instructions may result in conditions which can produce bodily injury or property damage.

**DO NOT** handle this product without Hand Protection. Unit can have sharp edges that can cause damage to property and injury to personnel.

**DO NOT** exceed 200°F / 93° C duct exhaust temperature to the CDB8 inlet. Excessively hot exhaust air at the unit can damage the motor which will not be covered by warranty.

**DO NOT** use this Power Ventilator on Incinerators, Incinerating toilets, Condensing-Type Appliances or Solid Fuel Appliances.

**DO NOT** use this Power Ventilator outdoors in unsheltered conditions. This unit was designed to be mounted and used indoors where it is not exposed to water and the motor ambient temperature remains between 40°F and 110°F.

## CAUTIONS

The CDB8 must be installed by a qualified installer (an individual properly licensed and/or trained) in accordance with all local codes or, in their absence, in accordance with the National Electrical Code. Failure to install, maintain and/or operate the CDB8 in accordance with manufacturer's instructions may result in conditions which can produce bodily injury and property damage.

1. Disconnect power supply from the CDB8 when making wiring connections and servicing. Failure to do so may result in personal injury and/or equipment damage.
2. All installation restrictions and instructions must be followed when using the CDB8.
3. Make certain power source is adequate for the CDB8 Exhaust Fan requirements. Do not add equipment to a circuit when the total electrical load is unknown.

## INSTALLATION LAYOUT AND CONSIDERATIONS

When planning the installation of the CDB8, consider the following:

In anticipating the duct run (Length and Elbows), does the total CFM of all dryers to be exhausted align with the CDB8's performance rating including any De-Rating at higher elevations.

Will the duct run termination be sidewall or roof mounted? Has the termination hood been defined and does it have a low back pressure rating like the Tjernlund DEVH8 or DEVH12 Exhaust Hoods?

Will the CDB8 be used as a 90° elbow or will it be mounted within a straight duct run where the IEK8 In-Line Elbow Kit is required?

Has the mounting point, orientation and required hardware to mount the CDB8 been determined?

In consideration of the Power Supply Options, Power to the CDB8 is to be provided by a installer supplied Power Disconnect with Load Protection. Will the system be powered by a and Manual On / Off switch also provided by the installer or by way of one of the following Tjernlund Offered Options:

A. COP2DB Constant Operating Pressure Controller for automatic, variable speed operation of CDB8.

B. Part Number 950-8415 - On / Off Manual Speed Control . (Common on Large Single Dryers).

C. Model DR10 - Dryer Duct Booster Pressure Switch with Timing Circuit.

Has each of the dryers been identified and has the service manual for each been reviewed to determine the Minimum and Maximum dryer vent static pressure values and method of measure? (Max of 0.40" WC is Common)

Dryer 1      Max. Static Pressure +/- \_\_\_\_\_ " W.C., Min. Static Pressure + \_\_\_\_\_ " W.C.

Dryer 2      Max. Static Pressure +/- \_\_\_\_\_ " W.C., Min. Static Pressure + \_\_\_\_\_ " W.C.

Dryer 3      Max. Static Pressure +/- \_\_\_\_\_ " W.C., Min. Static Pressure + \_\_\_\_\_ " W.C.

Is the "Make Up" air for all of the dryers sufficient and operational?

## SELECTING THE PROPER COMMERCIAL DRYER DUCT BOOSTER DUCT SIZE

Dryers operate most efficiently when exhaust velocities between 1200-2200 feet-per-minute (FPM) are maintained. The number of co-ducted dryers operating, exhaust fan model selection and the diameter and length of the common exhaust duct can dramatically affect exhaust velocity. Follow the recommendations below to maximize the efficiency of the Tjernlund exhaust system and connected dryers.

Over sizing the exhaust manifold will reduce velocities and allow more opportunity for lint to drop out of the exhaust stream. Undersized or excessively long exhaust manifolds will increase drying time and operating costs. CDB8 controller set point adjustments will allow velocities to be fine tuned.

### Common exhaust manifold sizing and Dryer Booster Fan selection

1. Based on the CFM total for all connected dryers find the Total Dryer CFM value in the left column of the table equal to or greater than that CFM and determine the common manifold minimum or maximum duct diameter.
2. Trace to the right to select the Dryer Booster and determine the maximum equivalent length of common duct based upon your choice of either the minimum or maximum duct diameter.

#### Example:

4 Dryers @ 225 CFM/ea.

4 x 225 = 900 Total Dryer CFM

Minimum duct diameter at 900 CFM is 9 inches

Maximum duct diameter at 900 CFM is 12 inches

Installing a common duct sized between 9" and 12" is the optimal size range for maintaining a proper velocity across all operating conditions. Trace to the right to select the desired Dryer Booster and maximum equivalent feet of common duct based on your duct diameter choice.

#### Important Common Manifold Construction Recommendations

Always install a capped length of straight pipe at least 1 pipe diameter long behind the dryer farthest from the exhaust termination for a stable place to measure exhaust pressure. Always connect individual dryers to the common manifold using wye connectors pointed towards the exhaust termination. Do not use straight tee connections.

## CDB8 DRYER BOOSTER DUCT SIZING

Total Dryer CFM	Common Manifold Minimum Duct Dia.	Common Manifold Maximum Duct Dia.	Indoor Mount CDB8	Max Equivalent Feet @ Min. Duct Diameter	Max Equivalent Feet @ Max. Duct Diameter
400	6"	8"	CDB8	120	200
500	7"	9"	CDB8	160	200
600	8"	10"	CDB8	165	200
700	8"	10"	CDB8	100	200
800	9"	10"	CDB8	100	150
900	9"	12"	CDB8	30	125
1000	10"	12"	CDB8	15	30
1100	10"	12"	CDB8	NA	NA
1200	10"	14"	NA	NA	NA
1300	10"	14"	NA	NA	NA
1400	12"	14"	NA	NA	NA
1500	12"	14"	NA	NA	NA

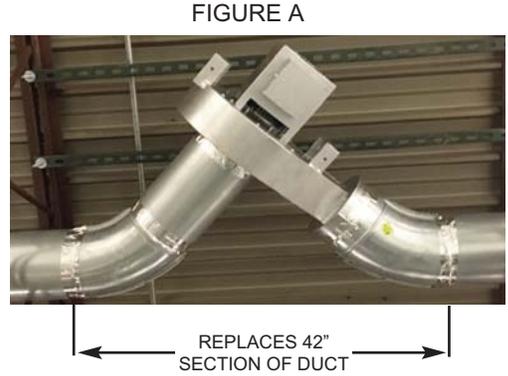
Contact Tjernlund Tech Service for advice on applications outside this table.

## MOUNTING

The Universal Mounting Bracket System with multiple mounting points aids the installation using industry standard materials like threaded rod and plumbers strap. The CDB8 Unique Housing design allows for the removal of the all drive components without the need to remove the housing from the duct connections. In addition, the electrical box connection point can be easily positioned every 45 degrees around the motor axis to aid in installation. Motor can be positioned in any orientation from horizontal to vertical shaft down **Important: motor must not be mounted with the Shaft Up.**

### HORIZONTAL MOUNTING WITH IEK8 IN-LINE ELBOW KIT

When mounting for a horizontal application, the IEK8 8" In-Line Elbow kit allows the CDB8 to be installed In-line, maintaining a straight line exhaust duct. Replaces 42" section of straight duct. It includes (2) 8" diameter sweep elbows, (1) 12" length and (1) 4" length of 8" diameter duct. Use tapered transitions prior to and after elbows if duct size of manifold is larger. **DO NOT** use sheet metal screws to join sections. Aluminum duct tape is preferred. Follow all local codes and use suitable methods for supporting CDB8 and all attached duct, (See Figure A).



### VERTICAL MOUNTING

The unique housing design of CDB8 with the inlet collar and outlet collar on the same plane allows the CDB8 to be used as a 90 degree elbow. Use tapered transitions if duct size of manifold is larger. **DO NOT** use sheet metal screws to join sections. Aluminum duct tape is preferred. Follow all local codes and use suitable methods for supporting CDB8 and all attached duct, (See Figure B).



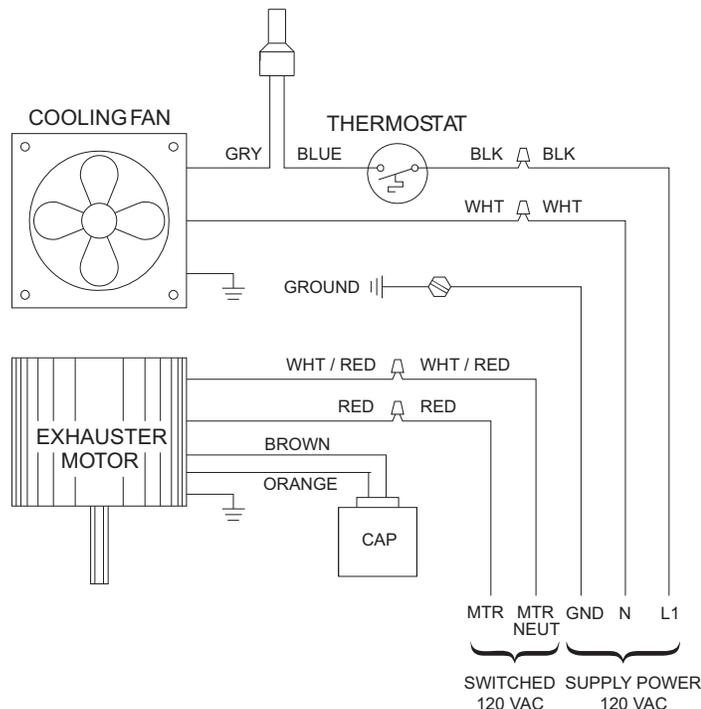
## WIRING

The CDB8 must be wired by a qualified installer (an individual properly licensed and/or trained) in accordance with these instructions and in accordance with all local codes or in their absence, with the current editions of NFPA 70, National Electrical Code in the U.S. or CSA C22.1-12 Canadian Electrical Code in Canada.

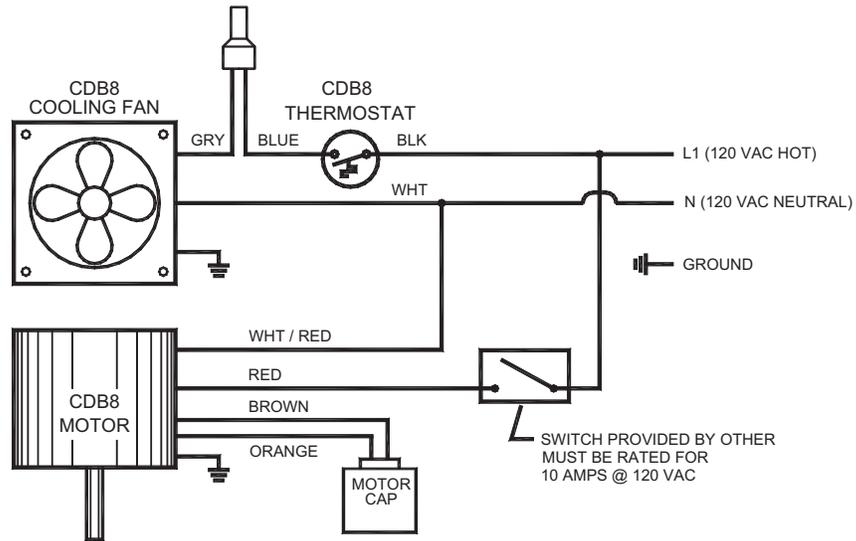
All wiring from the CDB8 to the Dryer Exhaust Fan junction box must be appropriate Class 1 wiring as follows: installed in rigid metal conduit, intermediate metal conduit, rigid non-metallic conduit, electrical metallic tubing, Type MI Cable, Type MC Cable, or be otherwise suitably protected from physical damage.

**NOTE:** The wiring diagrams shown in this manual do not include the use of the COP2DB Constant Pressure Controller. See COP2DB manual for wiring diagram.

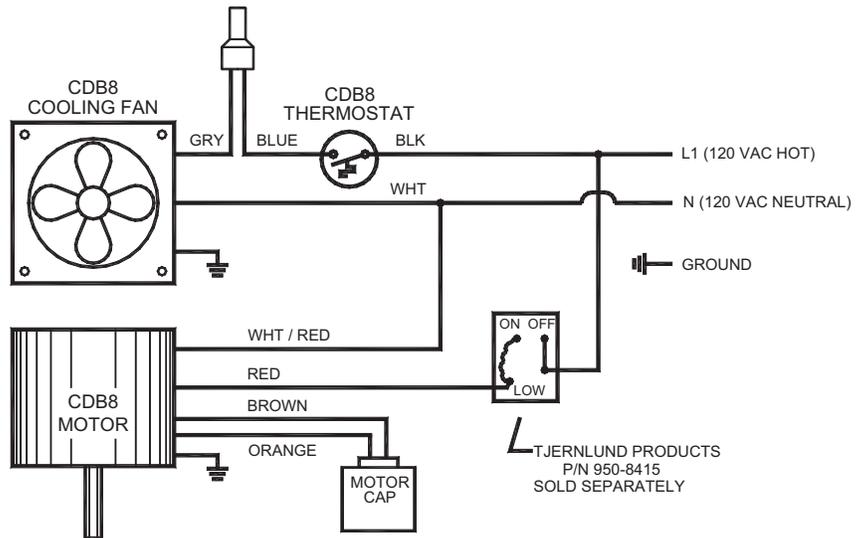
### INTERNAL WIRING OF CDB8



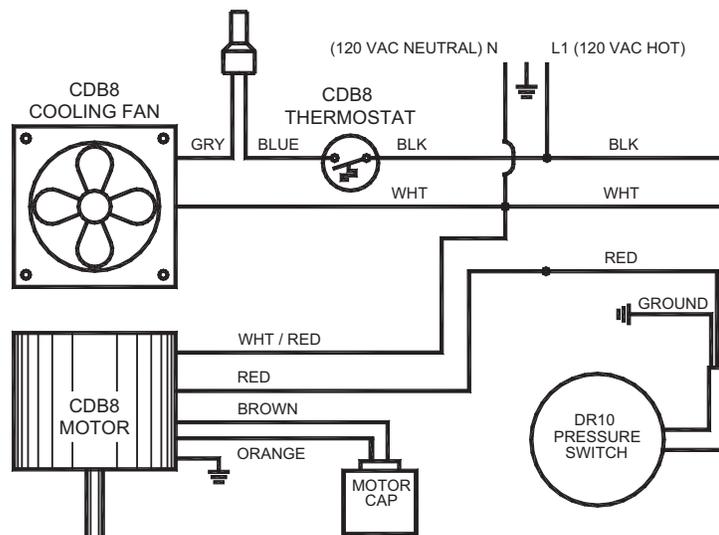
## CDB8 - MANUAL ON / OFF OPERATION



## CDB8 - WIRED WITH OPTIONAL 950-8415 MANUAL SPEED CONTROL



## CDB8 - WIRED WITH OPTIONAL DR10 PRESSURE SENSING SWITCH



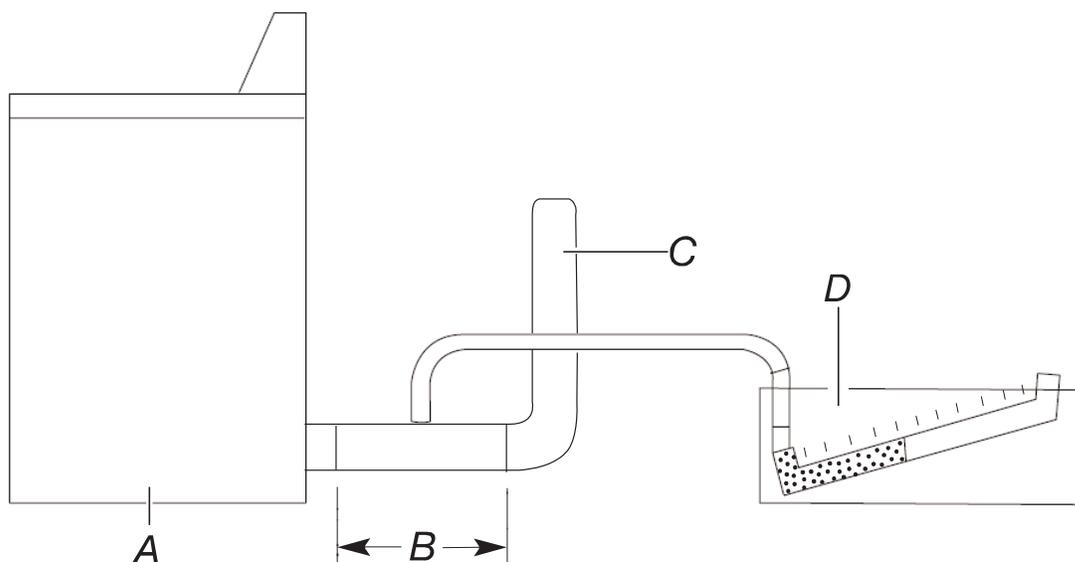
## VALIDATING PROPER SYSTEM OPERATION

For each dryer connected to the duct system, acquire the approved Back Pressure Range from the Dryer manufacturer. Turn on all other air consuming devices in the spaces where the dryers are located. Follow the Back Pressure measuring method defined below. Cycle all dryers and all combination of dryers to confirm the dryer manufacturer's approved back pressure range is maintained. If dryer manufacturers maximum allowable back pressure data is not available adjust dryer booster fan speed so that measured back pressure does not exceed 0.40" w.c. for any connected dryer.

### MEASURING AND VERIFYING ACTUAL SYSTEM BACK PRESSURE

Back pressure should be measured with an empty dryer, a clean lint screen and with the dryer operating in the **Air Only** cycle (**no heat**)

- A. Dryer should be empty and running on **Air Only** cycle (**no heat**)
- B. 12" minimum section on straight duct - measure back pressure from the center
- C. To vent system
- D. Verify reading on Pressure Gauge / Manometer is within Dryer Manufacturer's allowable back pressure range.



## MAINTENANCE

Reference Dryer Manufacturer's recommendations for Dryer exhaust duct cleaning and maintenance. Depending on use, but at least every 2 years, we recommend cleaning the dryer exhaust vent. On an annual basis make sure that exhaust hood flapper or back draft damper is clean of lint and moves freely. The CDB8 drive and cooling fan motor are maintenance free. Blow or vacuum any accumulated dust and lint away from drive and cooling fan motor enclosure.

## HOW TO OBTAIN SERVICE ASSISTANCE

1. If you have any questions about your CDB8 or if it requires adjustment or repair, contact your installer, contractor or service agency.
2. If you require technical information contact Tjernlund Products, Inc. at 1-800-255-4208 with the following information.
  1. Model of the Exhaust Fan.
  2. Name and address of installer and any service agency who performed work on the system.
  3. Date of original installation and dates any service work was performed.
  4. Details of the problem as you can best describe them.

## LIMITED PARTS WARRANTY AND CLAIM PROCEDURE

Tjernlund Products, Inc. warrants the components of the CDB8 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. This warranty DOES NOT cover the complete CDB8 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. 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 CDB8 to ensure that the defective component corresponds with the complete unit. This will help prevent possible credit refusal.

1. Follow troubleshooting guide to determine defective component. If unable to determine faulty component, contact your Tjernlund distributor or Tjernlund Technical Customer Service 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 CDB8 date code component was taken from. The date code is located on the Electrical Box cover. If the date code is older than one year, 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 part has been returned prepaid to Tjernlund and verified defective.

## WHAT IS NOT COVERED

Product installed contrary to our installation instructions, 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

## REPLACEMENT PARTS

<u>Component</u>	<u>Part Number</u>
CDB8 Motor Kit	950-9330
CDB8 Impeller Kit	950-9331
Heat Sync Cooling Fan T-Stat	950-8301
Heat Sync Cooling Fan	950-0020

### 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 inquiries regarding 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 • Email fanmail@tjfans.com.