REV. 04/10

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XCHANGER™ MODEL X2D

INSTALLATION INSTRUCTIONS

OWNER'S INSTRUCTIONS, DO NOT DESTROY

THIS DEVICE MUST BE INSTALLED BY A QUALIFIED PERSON.

READ INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION AND OPERATION OF THE XCHANGER.

P/N 8504164

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XCHANGER™ is a trademark of Tjernlund Products, Inc.

Tjernlund Products welcomes your comments and questions. Call us at (651) 426-2993, (800) 255-4208, Fax (651) 426-9547, email us at fanmail@tjfans.com or write to: Customer Service, Tjernlund Products, Inc., 1601 Ninth Street, White Bear Lake, MN 55110-6794.

DESCRIPTION

The XCHANGER model X2D is a dual fan mechanical ventilator capable of exhausting inside air, providing fresh outside air or providing a balanced air exchange. The fans can be independently switched on or off or be easily reversed to provide fresh outside air or exhaust inside air. The XCHANGER X2D includes a dehumidistat control which operates the fan(s) based on the relative humidity sensed by the control inside the home. The dehumidistat control includes an “On” setting that will operate the fan(s) continuously or the switch can be turned “Off” so the fan(s) do not operate during undesired seasons. The XCHANGER can also be operated by a standard plug-in wall timer. Tjernlund’s optional SCP speed control kit is also available if desired.

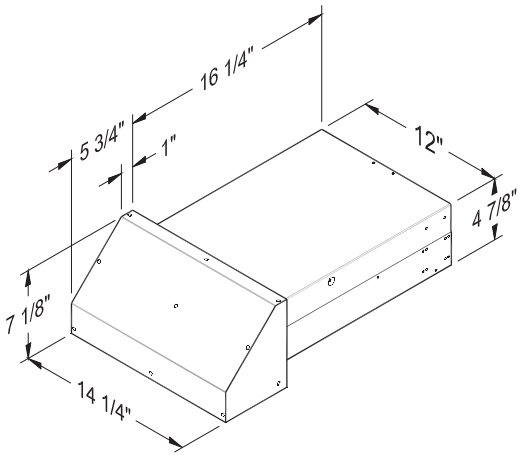
SPECIFICATIONS

MODEL X2D XCHANGER

	1 FAN	2 FANS
Voltage	120	120
Watts	20	40
Amps	0.3	0.6
CFM	90	180

Dehumidistat: 20% - 80% RH Range

Rough-in Wall Opening Dimensions: 12 1/4” x 5 1/4””



GENERAL INFORMATION

Each XCHANGER is electrically factory line tested before shipment. After opening carton, Inspect thoroughly for hidden damage.

INSTALLATION RESTRICTIONS

WARNING: Improper installation, adjustment, alterations, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the equipment supplier.

WARNING: Do not exhaust air from mechanical room unless makeup air is also supplied or equipment in mechanical room is sealed combustion. Carbon monoxide poisoning may result. An optional ducting kit is available from Tjernlund so exhaust can be removed from outside the mechanical room if necessary.

Observe proper location of hood as described on page 3.

Only XCHANGER fans can be plugged into control or damage may result.

CAUTIONS

WARNING: Failure to install, maintain and/or operate the XCHANGER in accordance with manufacturer’s instructions may result in conditions that can produce bodily injury and property damage.

1. Disconnect power supply to fans and/or control when reversing fan direction or servicing the XCHANGER. Failure to do so may result in personal injury and/or equipment damage.
2. Make certain the power source is adequate for the XCHANGER requirements. Do not add the XCHANGER to a circuit where the total electrical load is unknown.

XCHANGER DEHUMIDISTAT CONTROL MODULE OPERATION

The XCHANGER control module includes an adjustable dehumidistat control which activates the fan(s) if the relative humidity rises above the selected set-point. The dehumidistat can be turned fully clockwise to the 'on' position for constant fan(s) operation or it can be turned fully counter-clockwise to 'off' during seasons or times when it is not desired for the XCHANGER fan(s) to run.

STANDARD PLUG-IN TIMER OPERATION

A standard adjustable timer can also be utilized for timed operation of the XCHANGER fan(s). Plug timer into standard outlet and plug XCHANGER control module into wall timer. Turn dehumidistat control fully clockwise to the 'on' position. Both outlets in XCHANGER control module will be controlled by the wall timer.

TJERNLUND OPTIONAL SCP SPEED CONTROL OPERATION

Tjernlund's optional SCP speed control can be used to vary the speed of both XCHANGER fans. Plug SCP speed control into standard outlet and plug XCHANGER control module into SCP speed control. Both outlets in XCHANGER control module will be controlled by the SCP speed control.

RECOMMENDED PATTERNS OF OPERATION

The XCHANGER X2D model includes a dehumidistat control which can cycle the XCHANGER fan(s) automatically based on the relative humidity level of the house or it can be operated based on recommendations below.

A standard plug-in wall timer can be programmed based on the lifestyle or needs of the occupants. For example, a family with smokers may want to cycle the XCHANGER more frequently than a family of non-smokers.

Another program may be to cycle the XCHANGER during peak usage of exhaust fans, such as bathroom, kitchen, laundry or utility. Outdoor air should be brought in at these peak times to help balance out pressure inside the house.

The XCHANGER can be cycled on and off at regular intervals to periodically provide fresh air to the home, exhaust stale air or have one fan bring air in and the other fan exhaust air for a balanced air exchange. It can also be ran like an economizer to bring outside air in during evening time when it is cooler outside.

HYPOTHETICAL XCHANGER OPERATION BASED ON LIFESTYLE

The example below shows a possible way in which cycling times of the XCHANGER may be determined based on household occupant lifestyles.

6:00 A.M. to 9:00 A.M. = Outside fresh air should be brought into the house continuously to compensate for morning routines. Bathing, cooking, laundry and other activities such as smoking necessitate that outside fresh air to be brought in. Depressurization of the house at these times is common with many exhaust fans running at one time.

9:00 A.M. to 4:00 P.M. = House is normally vacant with parents at work and children at school. Cycle XCHANGER on and off for 15 minute intervals to assure fresh air is supplied to the house.

4:00 P.M. to 8:00 P.M. = Outside fresh air should be brought into the house continuously to compensate for evening routines. Bathing, cooking, laundry and other activities such as smoking necessitate the need for outside fresh air to be brought in. Depressurization of the house at these times is common with many exhaust fans running at one time.

8:00 P.M. to 6:00 A.M. = All members of the household are usually present. Outside fresh air is needed to dilute occupant generated carbon dioxide during sleeping. Cycle XCHANGER on and off for 15 minute intervals, with occasional 30 minute intervals to assure fresh air is supplied to house.

XCHANGER OPERATION BASED ON AIR CHANGES PER HOUR

This method of operation can be used to supplement or provide for guaranteed air change rates. Table 1 shows the constant Cubic Feet Per Minute (CFM) of air necessary to produce the desired Air Change Per Hour rate (ACH), assuming natural infiltration of outside air at a rate of .10 ACH. Square footage is determined by calculating the finished living space of the house. Garages and crawl space should not be included. The constant CFM figures shown assume that the living space has standard 8 foot ceilings.

TABLE 1

DESIRED AIR CHANGES PER HOUR (ACH)

		0.15	0.20	0.25	0.30	0.35
SQUARE FOOTAGE OF LIVING SPACE	1000	7	13	20	27	33
	1500	10	20	30	40	50
	2000	13	27	40	53	67
	2500	17	33	50	67	83
	3000	20	40	60	80	100

1. Determine square footage of house living space on left hand column.

2. Pick desired air change rate from top row.

3. Locate intersection of these points to determine constant CFM that should be obtained to meet desired ACH.

The EXCHANGER will provide 180 CFM with both fans and 90 CFM with one fan operating. Where the CFM delivery of the XCHANGER exceeds that listed in Table 1, a standard plug-in wall timer can be set so the XCHANGER is cycled to obtain the desired ACH or Tjernlund's optional SCP speed control may be used.

EXAMPLE

3000 square feet of living space
.2 ACH desired ventilation rate equals 40 CFM
XCHANGER capacity of 90 CFM (with one fan running)

In this example the plug-in timer may be set so that the XCHANGER operates for one half hour straight each hour or two fifteen minute periods each hour.

RECOMMENDED INSTALLATION LOCATION

The XCHANGER may be mounted anywhere in the house. The best place to mount it is the basement through the rim joist on top of the foundation wall.

WARNING: Do not exhaust air from mechanical room unless makeup air is also supplied or equipment in mechanical room is sealed combustion. Carbon monoxide poisoning may result. An optional duct take-off kit is available so exhaust can be removed from outside the mechanical room if necessary.

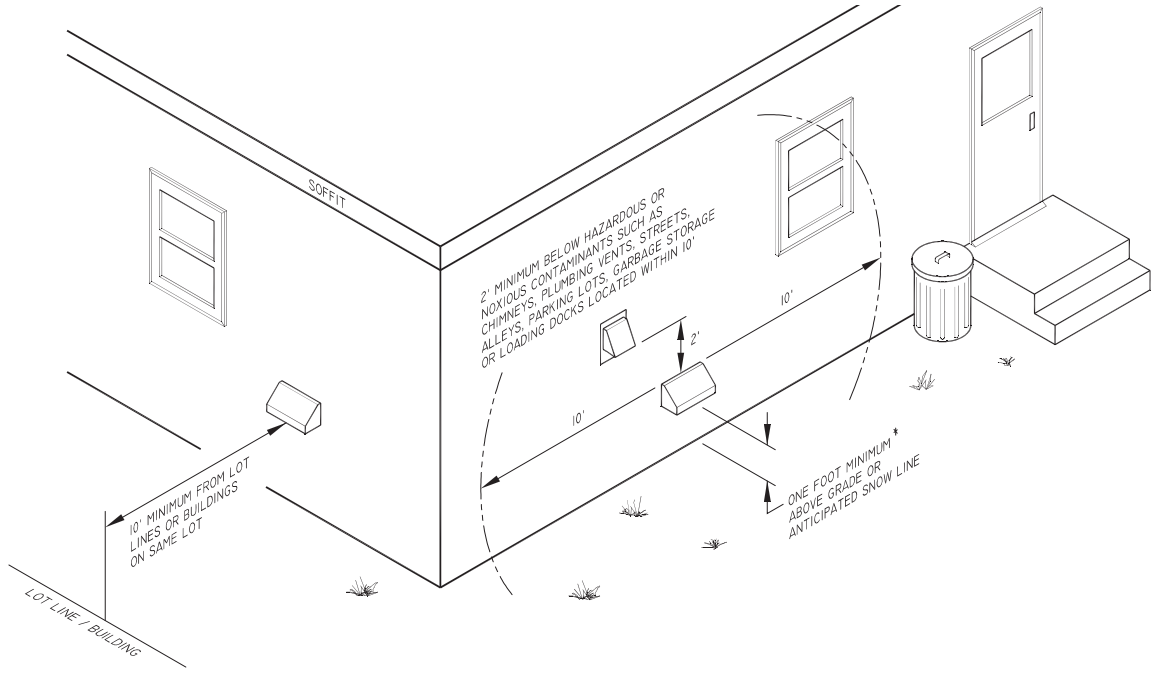
It is recommended that the XCHANGER be installed in a location where it will not be directed at the occupants or interior water pipes.

Do not terminate adjacent to thermostat. Outside temperatures can disrupt normal thermostat operation.

Do not terminate within three feet from a barometric draft control or intake grille of a heating appliance.

XCHANGER HOOD TERMINATION CLEARANCES

DIAGRAM A



Install XCHANGER in accordance with BOCA national Mechanical Codes M-306.1 and M-306.1.1 as follows, (See Diagram A).

M-306.1 LOCATION: Outside air exhaust and intake openings shall be located a minimum of 10 feet (3048mm) from lot lines or buildings on the same lot. When openings front on a street or public way, the distance shall be measured to the centerline of the street or public way.

M-306.1.1 INTAKE OPENINGS: Outside air intake openings shall be located a minimum of 10 feet (3048mm) from any hazard or noxious contaminant such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks. When a source contaminant is located within 10 feet (3048mm) of an intake opening, such opening shall be located a minimum of 2 feet (610mm) below the contaminant source.

IN ADDITION TO THESE CODES THE MANUFACTURER RECOMMENDS THAT:

- The XCHANGER hood should be a minimum of 1 foot above grade or anticipated snow line.

INSTALLATION (TOOLS REQUIRED)

- Reciprocating saw
- Drill and 1/2" bit
- 5/16" nut runner or socket
- Phillips screwdriver
- Siding tools (dependent on exterior finish)
- Level

INSTALLATION

NOTE: Before cutting opening through wall, confirm hood termination clearances are met as shown on page 3.

1. A) Center template and tape to the rim joist between the floor joists/trusses XCHANGER will be mounted through, (See Diagram B).

   B) If XCHANGER is not being installed between floor joists or trusses, attach the template to the wall it will be exiting, ensuring XCHANGER will be level.

2. Using 1/2" bit, drill pilot holes noted on the template from inside through rim joist, wall board, siding, etc., keeping drill bit perpendicular to the wall. 1/2" bit must be long enough to penetrate through exterior.

3. Use a level to mark (4) holes drilled in in step 2 and connect the holes on building exterior, (See Diagram C). Use a saw to remove material between marks, (See Diagram D).

DIAGRAM B

CENTER TEMPLATE BETWEEN JOIST OR PLACE ON WALL XCHANGER WILL EXIT.

DIAGRAM C

DRILL (4) 1/2" CORNER HOLES THROUGH WALL AND CONNECT HOLES ON EXTERIOR WITH A LEVEL.

DIAGRAM D

CUT HOLE ALONG MARKED LINES.

4. For vinyl or other types of lap siding, level XCHANGER and trace outer flange on XCHANGER housing and trim siding back enough to install J channel or appropriate flashing, (See Diagram E).

5. Insert (6) push clips through embossed holes of housing. Direction of clips must be as shown, (See diagram F).

6. Insert XCHANGER housing through wall with fan openings facing down, (See Diagram G).

DIAGRAM E

LEVEL XCHANGER AND TRACE FLANGE. TRIM SIDING BACK SO XCHANGER FLANGE CAN BE MOUNTED FLUSH TO EXTERIOR.

DIAGRAM F

INSERT (6) PUSH CLIPS THROUGH EMBOSSED HOES OF HOUSING. CLIPS MUST BE INSERTED AS SHOWN.

DIAGRAM G

INSERT XCHANGER HOUSING THROUGH WALL. FAN OPENINGS MUST FACE DOWN.

7. Level housing and secure to wall using (4) screws, (See Diagram H). Install J channel or appropriate flashing around XCHANGER mounting flange. Do not cover up mounting flange or hood will not snap on push clips, (See Diagram I).

8. Carefully align and then snap hood on (6) push clips. Apply a bead of caulking around hood and wall, (see Diagram J).

DIAGRAM H

LEVEL HOUSING AND SECURE TO WALL USING (4) SCREWS.

DIAGRAM I

INSTALL J CHANNEL OR APPROPRIATE FLASHING AROUND XCHANGER MOUNTING FLANGE.

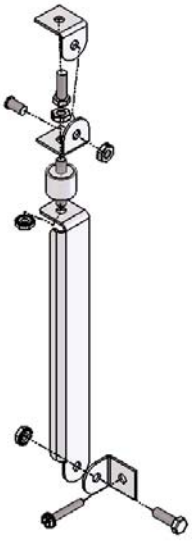
DIAGRAM J

CAREFULLY ALIGN AND THEN SNAP HOOD ON (6) PUSH CLIPS. APPLY A BEAD OF CAULKING AROUND HOOD AND SIDING.

9. insert screen in hood. Bend screen slightly before inserting if screen is loose, (See Diagram K).

10. Assemble mounting bracket, (See Diagram L). Attach assembled bracket to bottom of XCHANGER. Mark bracket mounting location on wall with a slight upward pitch in rear of XCHANGER and connect to wall using provided wall anchor, (See Diagram M).

DIAGRAM L



ASSEMBLE XCHANGER MOUNTING BRACKET.

DIAGRAM K

INSERT SCREEN IN HOOD. BEND SCREEN SLIGHTLY IF SCREEN IS LOOSE AND REINSERT.

DIAGRAM M

ATTACH MOUNTING BRACKET TO BOTTOM OF XCHANGER. INSTALL BRACKET SO XCHANGER HAS A SLIGHT UPWARD PITCH N REAR.

11. The damper stop prevents unwanted air infiltration through either fan. The Damper stop can be adjusted so the damper does not swing open into the house by wind or a negative pressure in the house. **IMPORTANT:** The damper stop prevents the damper from swinging inward and should not be used if using the XCHANGER fan to bring outside air in. With the damper stop pushed all the way forward, the damper will swing both ways. With the damper stop pulled all the way back, the damper will only swing to the outside. Use the damper stop only if you want to block air infiltration into the house during seasons when the XCHANGER is not being used or when using the XCHANGER to exhaust air. .

12. **WARNING:** Unplug fans from dehumidistat control when changing direction to prevent damage or injury. Insert fans in desired direction for either exhaust or intake. See arrow on bottom of fan cartridge or side of fan shroud for air flow direction. Once installed confirm the air is being exhausted or supplied depending upon application, (See Diagram O).

13. Insulate around XCHANGER housing, (See Diagram P). **IMPORTANT:** Use of expanding foam on top of XCHANGER case may interfere with damper slides on top of XCHANGER case. Make sure damper slides move freely.

DIAGRAM N

THE DAMPER WILL SWING BOTH WAYS WITH THE DAMPER STOP PUSHED FORWARD, THE DAMPER WILL ONLY SWING TO THE OUTSIDE WITH THE DAMPER STOP PULLED ALL THE WAYS BACK.

DIAGRAM O

WARNING: UNPLUG FANS WHEN CHANGING DIRECTION. SEE ARROW ON BOTTOM OF FAN CARTRIDGE OR SIDE OF FAN SHROUD FOR AIR FLOW DIRECTION.

DIAGRAM P

INSULATE AROUND XCHANGER HOUSING.

XCHANGER DEHUMIDISTAT CONTROL MODULE INSTALLTION & OPERATION

Install XCHANGER dehumidistat control module on wall with provided screws and wall anchors and plug in XCHANGER fans into side outlets.

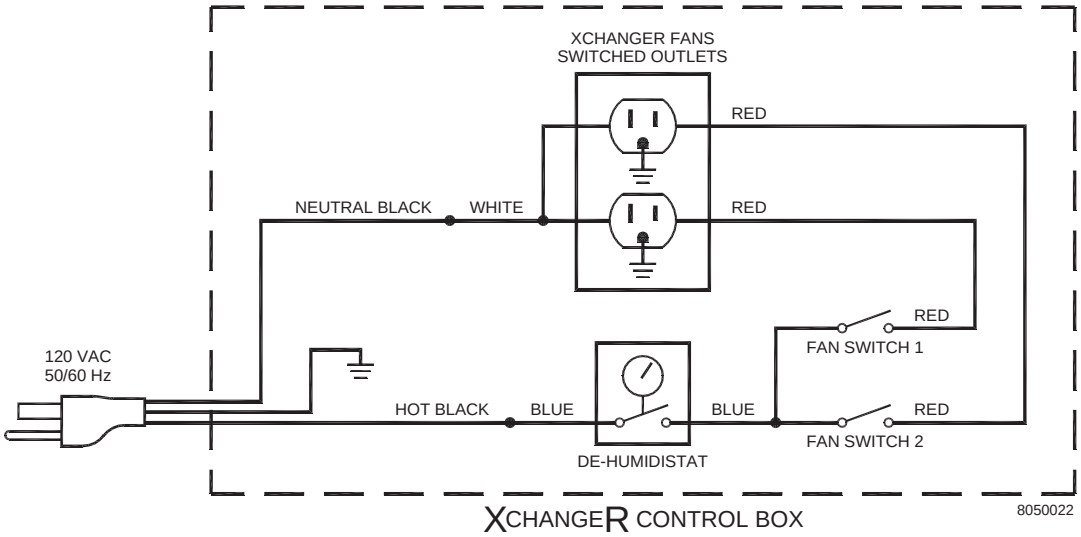
IMPORTANT: Do not plug other devices into dehumidistat control or damage may result. Once fans are installed in XCHANGER, plug in dehumidistat control into standard outlet.

DIAGRAM Q

SCREW DEHUMIDISTAT CONTROL TO WALL AND PLUG IN FANS INTO SIDE OUTLETS.

The XCHANGER control module includes an adjustable dehumidistat control which activates the fan(s) if the relative humidity rises above the selected set-point. The dehumidistat can be turned fully clockwise to the 'on' position for constant fan(s) operation or it can be turned fully counter-clockwise to 'off' during seasons or times when it is not desired for the XCHANGER fan(s) to run. Each XCHANGER fan is independently controlled by its own on/off switch. To inhibit mold growth it is recommended that the Relative Humidity (RH) be below 60%. Turn switch(s) off during seasons or applications where it is not desired to run that fan, (See Diagram Q).

XCHANGER LADDER DIAGRAM



XCHANGER CONTROL BOX

MAINTENANCE

The XCHANGER hood screen must be inspected every 3 to 6 months. Remove any foreign material such as leaves, lint, cottonwood or other items, (See Diagram K).

HOW HOW TO OBTAIN SERVICE ASSISTANCE

1. If you have any questions about your XCHANGER or if it requires adjustment, repair or routine maintenance, we suggest that you contact your installer, contractor or service agency.

2. If you require technical information contact Tjernlund Products, Inc. at 1-800-255-4208 or email us at fanmail@tjfans.com.

When contacting Tjernlund Products, Inc., please have the following information available:

1. Model number and date code of the XCHANGER
2. Name and address of installer and service agency
3. Date of original installation and dates any service work was performed
4. Details of the problem

LIMITED PARTS WARRANTY AND CLAIM PROCEDURE

Tjernlund Products, Inc. warrants the components of the XCHANGER 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 XCHANGER 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 XCHANGER to ensure that the defective component corresponds with the complete unit. This will help preclude possible credit refusal.

1.) Follow troubleshooting guide to determine defective component. If unable to determine faulty component, contact your Tjernlund distributor, Tjernlund Products Technical Customer Service Department at 1-800-255-4208 for troubleshooting assistance or email us at fanmail@tjfans.com.

2.) After the faulty component is determined, return it to your Tjernlund distributor for replacement. Please include XCHANGER date code component was taken from. If the 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 Pdefective part has been returned prepaid to Tjernlund.

WHAT IS NOT COVERED

Product installed contrary to our installation instructions
Product that has been altered, neglected or misused
Any freight charges related to the return of the defective part
Any labor charges related to evaluating and replacing the defective part

TJERNLUND LIMITED 1 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.

XCHANGER REPLACEMENT PARTS LIST

XCHANGER Fan Assembly	950-8350
XCHANGER Dehumidistat Coverplate Assembly (Includes dehumidistat, switches & coverplate)	950-8351
XCHANGER X2D Hood Screen	950-8352