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MODEL FAI4 FRESH AIR INTAKE KIT

INCLUDES DBM4 BOOSTER
FAN AND 4" INTAKE HOOD



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 FAI4.

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IN-FORCER™ 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 IN-FORCER™ FAI4 Powered Air Intake kit includes a DBM4 Booster Fan and 4" Intake Hood. It provides a simple and economical way to provide fresh, outside air to dilute trapped pollutants and replace air vented by exhaust fans and fuel burning equipment. Plug into a switched outlet, use a remote on/off switch or a plug-in timer to operate on a desired schedule. Standard 4" flex or metal duct may be used for ducting. The efficient 75 CFM fan consumes only 18 watts.

FAI4 INTAKE KIT SPECIFICATIONS

Intake Hood Diameter 4"
 DBM4 Inlet/Outlet Diameter 4"

		DUCT LENGTH IN FEET				
MODEL	MOTOR SPECIFICATIONS		0 FEET CFM	10 FEET CFM	20 FEET CFM	
FAI4*	120 VOLT	18 WATTS	.20 AMPS	75	62	50

*The FAI4 is a model DBM4 Booster Fan with a 4" Intake Hood. Performance is based on using the DBM4 Booster Fan with the FAI4 Intake Hood.

GENERAL INFORMATION

Each FAI4 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.

Observe proper location of hood as described on page 3. The FAI4 must only be installed with the hood on an exterior wall.

CAUTIONS

WARNING: Failure to install, maintain and/or operate the FAI4 in accordance with manufacturer's instructions may result in conditions that can produce bodily injury and property damage.

Disconnect power supply to fan and/or controls when servicing the FAI4. Failure to do so may result in personal injury and/or equipment damage. Make certain the power source is adequate for the FAI4 requirements. Do not add the FAI4 to a circuit where the total electrical load is unknown.

A minimum 2 foot section of pipe is necessary on discharge side to prevent injury from fingers or objects placed in operating fan.

OPTIONAL CONTROL METHODS

STANDARD PLUG-IN TIMER OPERATION

A standard plug-in timer can be utilized for to cycle the FAI4 at desired times or periods.

TJERNLUND OPTIONAL DH2P DEHUMIDISTAT CONTROL OPERATION

Tjernlund's optional DH2P dehumidistat control can be used to operate the FAI4 based on humidity levels. The DH2P features on/off settings or 20% - 80% Relative Humidity operating range

TJERNLUND OPTIONAL SCP SPEED CONTROL OPERATION

Tjernlund's optional SCP speed control can be used to vary the speed the FAI4. Plug SCP speed control into standard outlet and plug FAI4 into SCP speed control.

RECOMMENDED PATTERNS OF OPERATION

A standard plug-in timer can be programmed based on the lifestyle or needs of the occupants. For example, a family with smokers may want to cycle the FAI4 more frequently than a family of non-smokers.

Another timed method may be to cycle the FAI4 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 FAI4 can be cycled on and off at regular intervals to periodically provide fresh air to the home. It can also be ran like an economizer to bring outside air in during evening time when it is cooler outside.

If using the optional DH2P dehumidistat control, the FAI4 can automatically cycle based on the relative humidity level of the house or it can be operated based on recommendations below. It is generally recommended to maintain a Relative Humidity (RH) below 60% to inhibit mold growth.

HYPOTHETICAL OPERATION BASED ON LIFESTYLE

The example below shows a possible way in which cycling times of the FAI4 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 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 occupants at work or school. Cycle FAI4 on and off for 15 minute intervals per hour 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 to compensate for evening 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.

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 FAI4 on and off for 15 minute intervals, with occasional 30 minute intervals to assure fresh air is supplied to house.

FAI4 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.

- Determine square footage of house living space on left hand column.
- Pick desired air change rate from top row.
- Locate intersection of these points to determine constant CFM that should be obtained to meet desired ACH.

The FAI4 will provide up to 75 CFM. Where the CFM delivery of the FAI4 exceeds that listed in Table 1, a standard plug-in timer can be set so the FAI4 is cycled to obtain the desired ACH or Tjernlund's optional SCP speed control may be used.

EXAMPLE

2500 square feet of living space
.2 ACH desired ventilation rate equals 33 CFM
FAI4 capacity of 75 CFM

In this example a plug-in timer may be set so that the FAI4 operates for one half hour straight each hour or two fifteen minute periods.

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

RECOMMENDED INSTALLATION LOCATION

The FAI4 may be mounted anywhere in the house. The most common place to mount the Intake Hood is in the basement through the rim joist on top of the foundation wall.

It is required that the FAI4 be installed in a location where it will not be directed at the occupants. Do not discharge intake air onto water pipes or other equipment which may be affected by temperature extremes.

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.

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.

INTAKE HOOD TERMINATION CLEARANCES

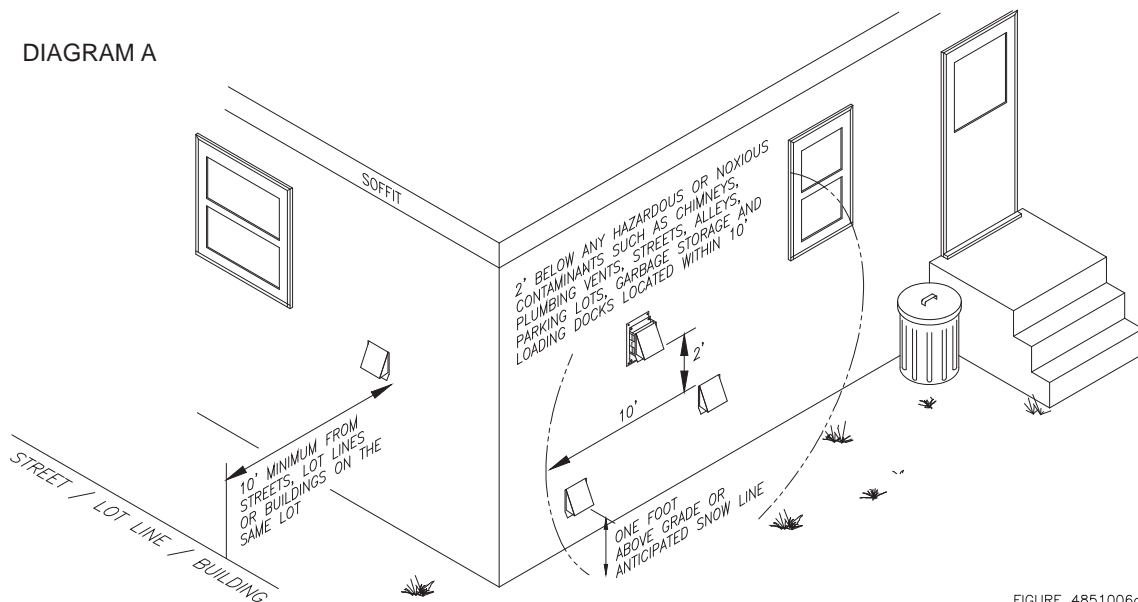
Install Intake Hood in accordance with BOCA national Mechanical Codes M-306.1 and M-306.1.1 as follows, (See Diagram A).

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 hazardous 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 Intake Hood should be a minimum of 1 foot above grade or anticipated snow line.



INSTALLATION (TOOLS REQUIRED)

- Reciprocating saw
- Siding tools (dependent on exterior finish)
- Drill and 1/2", 3/16" bits, 1/4" nut driver
- Level

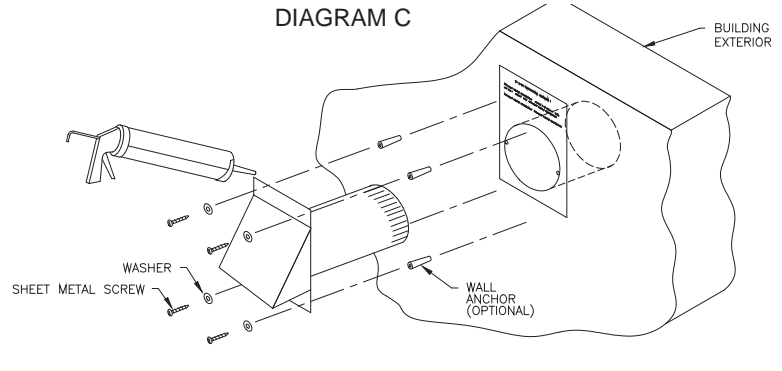
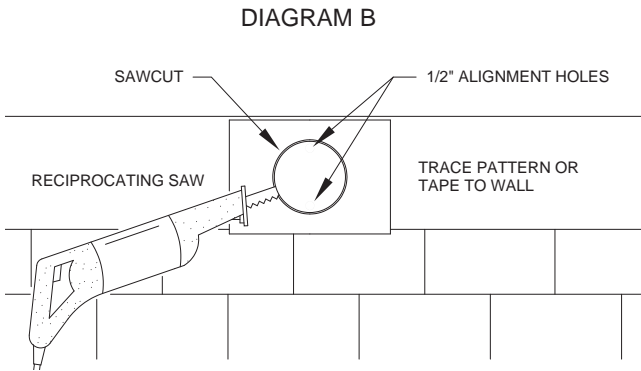
INSTALLATION OF INTAKE HOOD

IMPORTANT: Before cutting opening through wall, confirm FAI4 hood termination clearances are met as noted above. If installing the Intake Hood through a wall thicker than 8", it will be necessary to add a piece of rigid pipe to extend through wall.

CAUTION: When cutting or drilling into wall, do not damage electrical wiring and other hidden utilities.

1. Remove Intake Hood Hole Template from page 6 and attach template to interior rim joist or wall intake hood will penetrate.
2. Using 1/2" bit, drill pilot holes noted on 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.

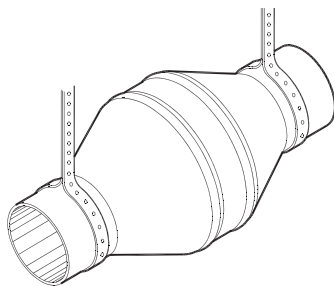
- Remove template from interior wall and attach to building exterior, aligning pilot holes made in step 2.
- Using a reciprocating saw and appropriate blade, cut opening following the template outline for Intake Hood, (See Diagram B).
- Knock out material exposing hole through the wall.
- Drill (4) 3/16" holes through Intake Hood 1" in from sides on top and bottom lip. If mounting on masonry wall, insert Intake Hood through wall to mark & drill (4) 3/16" wall anchor holes. Apply exterior rated caulk to back of Intake Hood and fasten to wall as shown. Apply a bead of exterior rated caulk around Intake Hood flange and exterior of building, (See Diagram C).



INSTALLATION OF FAI4 FAN

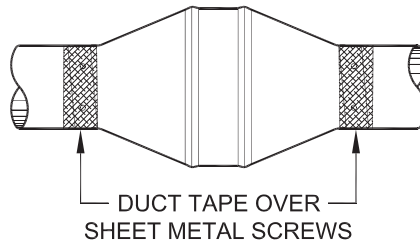
Properly support FAI4 fan with plumber's strap and attach rigid or flex duct as shown in diagrams below.

Mounting with Perforated Strap



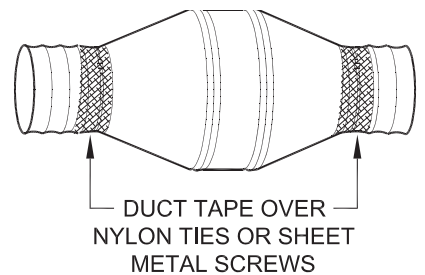
Encircle with Perforated Plumber's Strap and Secure Tightly

Connection with Rigid Duct



Use Sheet Metal Screws (1" Max) and Over-Wrap with Duct Tape

Connection with Flex Duct



Use Nylon Ties or Sheet Metal Screws and Over-Wrap with Duct Tape

INSTALLATION OF FLEX OR RIGID DUCT

CAUTION: A minimum 2 foot section of pipe is necessary on discharge side to prevent injury from fingers or objects placed in operating fan.

Plan duct runs with desired CFM requirements in mind, see performance chart on page 1. Standard 4" metal or flex duct is acceptable for intake and supply runs. If using flex duct, make sure adherence to manufacturer's restrictions is followed. All flex duct runs should be tapered gradually to prevent severe bends and kinks that may add resistance and reduce CFM. Make bends with as large a radius as possible and keep flex duct as straight as possible for extended runs. In cold climates, insulated flex or insulating metal duct is recommended.

Each 90 degree elbow of 4" metal duct is equal to 6 feet of straight pipe, each 45 degree elbow is equal to 3 feet of straight pipe.

The discharge should terminate three feet from a barometric draft control or intake grille of an appliance. If this is not possible terminate on sides or opposite side of intake on appliance. Never terminate within 3 feet from the front or intake side of appliance. Supply duct should also terminate a minimum of 18 inches above floor or other obstructions if perpendicular to them.

MAINTENANCE

The FAI4 Intake Hood screen must be inspected every 3 to 6 months. Remove any foreign material such as leaves, lint, cottonwood or other items.

HOW HOW TO OBTAIN SERVICE ASSISTANCE

1. If you have any questions about the FAI4 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
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 FAI4 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 FAI4 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. All receipts should include the date code of the FAI4 to ensure that the defective component corresponds with the complete unit. This will help prevent possible credit refusal.

- 1.) 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 FAI4 date code component was taken from. Credit or replacement will only be issued to a Tjernlund distributor after the defective 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

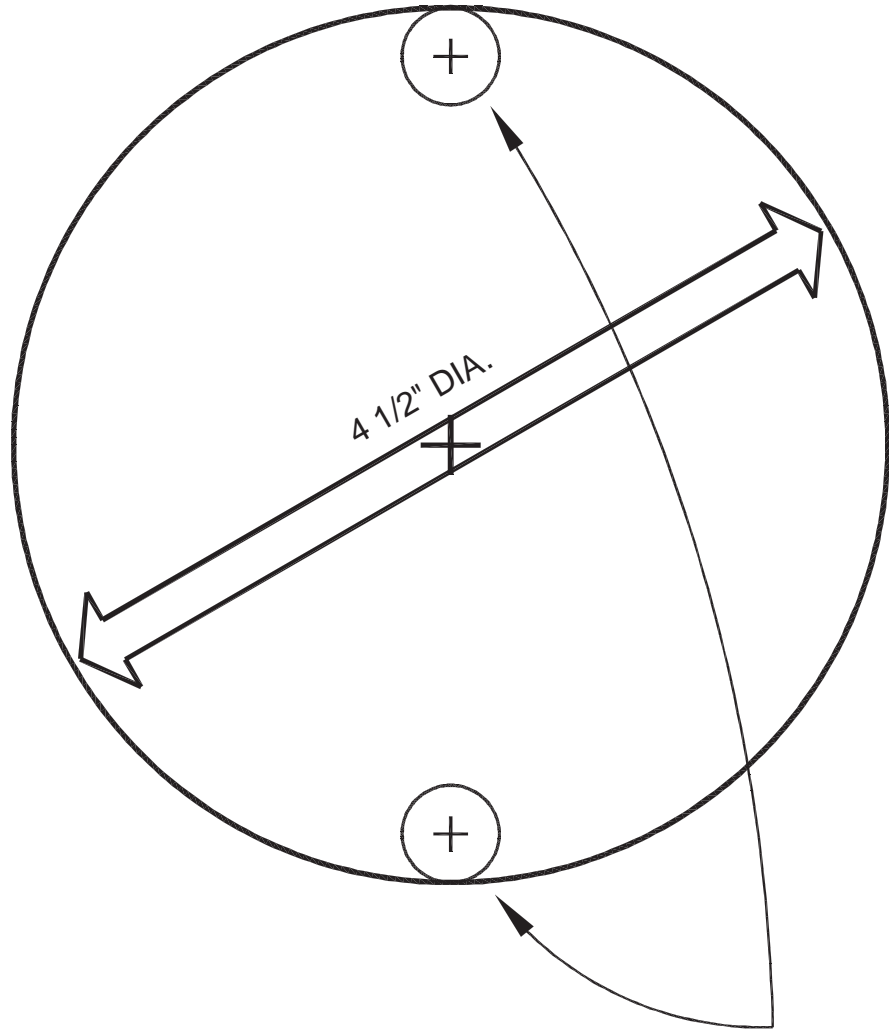
FAI4 PARTS AND ACCESSORIES

REPLACEMENT PARTS	MODEL
FAI4 Fan Assembly	DBM4
ACCESSORIES	MODEL
Plug-In Speed Control	SCP
DH2P Dehumidistat Control	DH2P

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.

INTAKE HOOD HOLE TEMPLATE
(For proper use of this template,
see FAI4 installation instructions.)



1/2" PILOT HOLES:
DRILL FROM INSIDE OF
STRUCTURE. USE TEMPLATE
FOR EXTERIOR ALIGNMENT.

POSITION TEMPLATE ON RIM JOIST OR THE WALL INTAKE
HOOD WILL PENETRATE, TAKING INTO CONSIDERATION
THE SPACE NEEDED TO DRILL PILOT HOLES.

(Cut on dotted line to remove template.)

