



# TJERNLUND PRODUCTS, INC.

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## INSTALLATION INSTRUCTIONS FOR MODELS EF-6, EF-8, EF-10, EF-12, EF-14 DUCT BOOSTER® FANS



### MOTOR SPECIFICATIONS & PERFORMANCE DATA

SELECTION TABLE

MODEL	MOTOR SPECIFICATIONS	FREE AIR CFM	DUCT LENGTH IN FEET		
			25 FEET CFM	50 FEET CFM	75 FEET CFM
EF-6	120V 30 Watt .40A	180	150	100	90
EF-8	120V 56 Watt 1.1A	325	300	250	200
EF-10	120V 1/100 HP .46A	475	400	325	275
EF-12	120V 1/35 HP 1.25A	875	800	700	600
EF-14	120V 1/25 HP 1.70A	1200	1100	1000	900

1. Table is based on straight metal duct. 90 degree elbows are equivalent to 10 feet of straight duct. 45 degree elbows are equivalent to 5 feet of straight duct. Performance is based on 70° F. standard air.
2. The number after the EF-matches the round duct diameter. Example: The EF-6 connects to 6" round duct.
3. For complete dimension and performance specifications consult factory.

### GENERAL INFORMATION

The EF-Series DUCT BOOSTER Fans are designed to increase the flow of heated air in warm air heating systems or cooled air in central air conditioning systems. They may also be installed in the duct work of a gravity warm air furnace.

The EF-6 through EF-10 fans are usually used in branch ducts, not the main supply or "trunk line" duct. Models EF-12 & EF-14 can be mounted in branch ducts & the main supply or "trunk line". All models can be easily mounted in sheet metal or flexible duct.

**DO NOT** install the EF-Series fans where the temperature of air within the duct exceeds 150 degrees F. This temperature would rarely be found on a forced air system but would exist close to the furnace on a gravity warm air system. Locating the fan near the end of the duct will provide the most efficient performance.

### INSTALLATION

#### FLEXIBLE DUCT (Figure A)

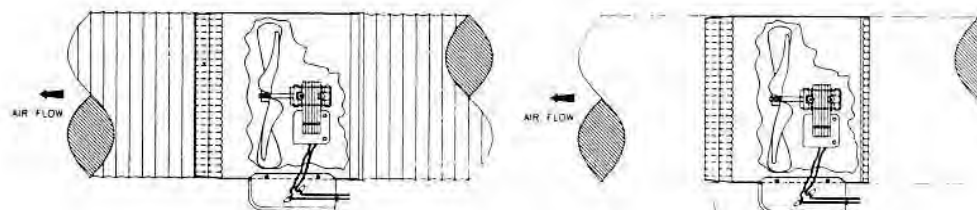
Choose a seam or other point in the duct where the EF-Series fan will be mounted. Locating the fan near the outlet end of the duct will provide the most efficient performance. Cut or separate the flexible duct and install the fan. Fan blade should be facing the direction of the air flow. Seal both sides with duct tape and/or a flexible duct clamp. Support with plumber's strap or other suitable method if necessary.

#### SHEET METAL DUCT (Figure B)

Choose a joint on the existing duct where the EF-Series fan will be mounted. Locating the fan near the outlet end of the duct will provide the most efficient performance. Separate the existing duct sections at the joint. Cut a piece of duct on the female side of the existing duct 1 inch shorter than the shroud length of the EF-Series model being installed. **NOTE: DO NOT CUT OFF A PIECE OF EXISTING DUCT WHICH HAS THE CRIMPED END.** Insert fan in duct with fan blade facing the direction of air flow. Seal joints with duct tape. If extra support is necessary, use screws provided. Support with plumber's strap or other suitable method if necessary.

FIGURE A

FIGURE B



**OPERATION**

The EF-Series fans can be operated and controlled in several manners:

1. Manually with an ON/OFF switch or the Tjernlund Products, Inc. Variable Speed Controller Model SC-1, sold separately. NOTE: EF-12 and EF-14 will require the SC-1 pot to be adjusted for higher RPM.
2. By using the optional Tjernlund Products, Inc., Model PS1503 DUCT AIRSTAT, sold separately. The DUCT AIRSTAT will automatically control the operation of the EF-Series fan in **both** heating and cooling systems. When the air handler begins to supply warm or cool air the DUCT AIRSTAT senses positive pressure and starts the EF-Series fan. The DUCT AIRSTAT can be mounted on the plenum, trunk or branch lines, (See Figure C).
3. The EF-Series fans can be wired in parallel with a gas or oil-fired central furnace blower motor. WARNING: THE FURNACE BLOWER MOTOR MUST BE 120 VAC, 1 PHASE, 60 CYCLES. BLOWER MOTOR MUST NOT BE A VARIABLE SPEED TAP OR SOLID STATE SPEED CONTROL TYPE, (See Figure D).

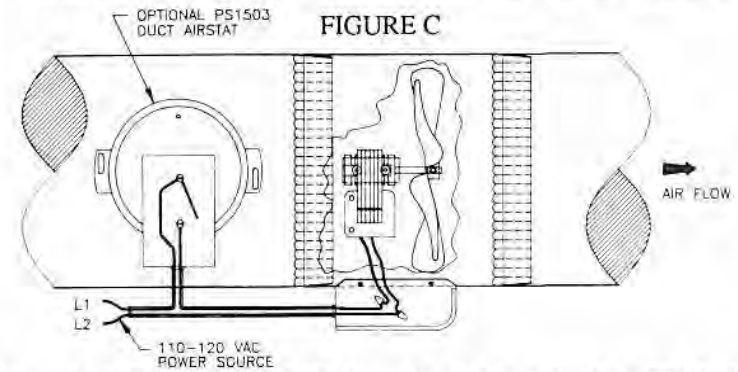
The basic furnace wiring and components should not be disturbed except for wiring connections of the EF-Series fan and the furnace blower motor at the junction box in the furnace.

The wiring of the furnace to the EF-Series fan must be 14 AWG wire and the furnace should be protected by overcurrent protection (fuses or circuit breakers) rated 15 amps or less.

**WIRING**

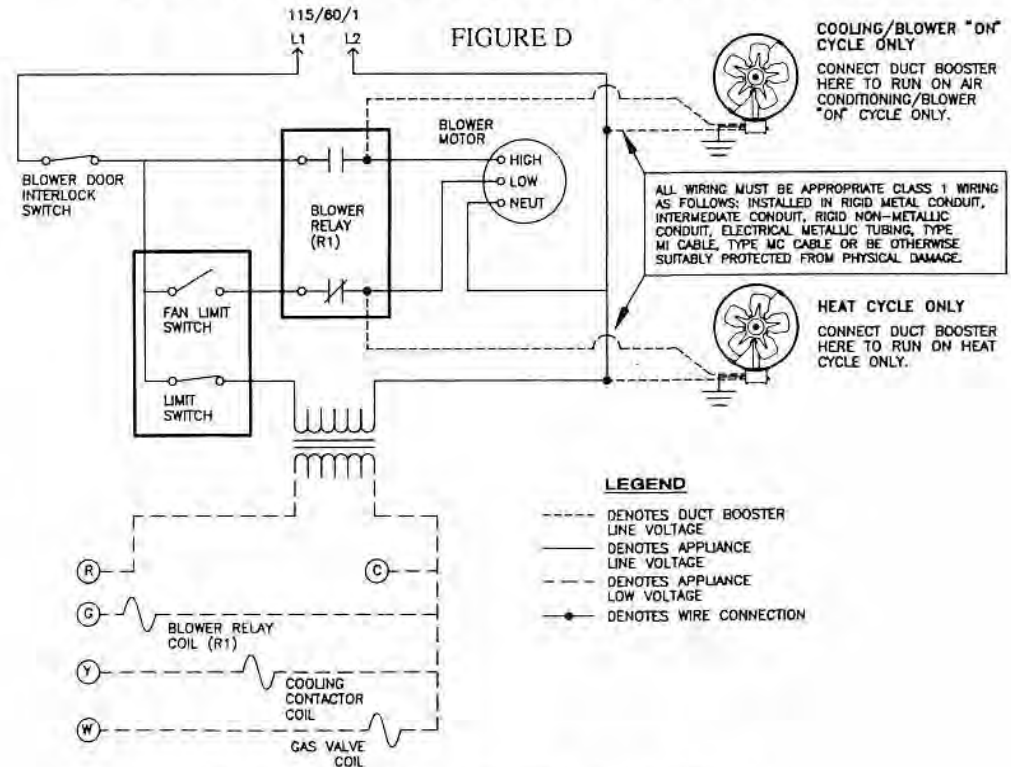
**IMPORTANT**

1. For electrical supply connections use wires suitable for at least 75° C when used on a heated duct system.
2. When installed on a warm air system without filters, flexible conduit or equivalent with sufficient slack in the conduit should be used to facilitate cleaning of blades. Refer to "Maintenance".
3. Electrical conduit must be routed away from warm air system ducts. Use adequate supports if necessary.
4. The motor wires and the power source wires are connected black to black and white to white. The green wire is used for grounding purposes only.



**NOTE:** DO NOT install the PS1503 on the air flow side of the EF-Series fan. This will keep the fan running constantly.

**WIRING EF-SERIES FANS IN PARALLEL WITH HEAT CYCLE OR COOLING/BLOWER "ON" CYCLE**



**CAUTION:** FURNACE PHYSICAL WIRING ARRANGEMENTS MAY DIFFER FROM DIAGRAM TO AVOID FIRE OR SHOCK HAZARD ALL INSTALLATIONS INVOLVING CONNECTION TO EXISTING FURNACE WIRING MUST BE MADE WITHIN FURNACE JUNCTION BOX.

**CAUTION:** THE DUCT BOOSTER CANNOT BE WIRED INTO BOTH THE LOW (HEATING) AND HIGH (AIR CONDITIONING/FAN "ON") CONTACTS OF THE BLOWER RELAY. DOING SO WILL SHORT OUT THE BLOWER.

**CAUTION:** THE FAN/LIMIT SWITCH, FAN CENTER RELAY AND ASSOCIATED WIRING MUST BE RATED FOR THE ADDITIONAL POWER CONSUMPTION OF THE DUCT BOOSTER.

**NOTE:** IF OPERATION IS NECESSARY DURING ALL BLOWER CONDITIONS, USE A TJERNLUND PRODUCTS, INC. MODEL PS1503 DUCT AIRSTAT

## MAINTENANCE

If installed on a forced warm air or cooling system where filters are properly installed and maintained, no cleaning of the EF-Series fan or motor should be required.

If installed on a gravity warm air heating system without filters, the EF-Series fan should be removed from the duct and cleaned before each heating season.

The EF-Series fans have high temperature lubrication and require no oiling.

## LIMITED PARTS WARRANTY

Tjernlund products, Inc. warrants the components of the EF-Series fans for one year from date of original 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 EF-Series fan if it is operative, except for the defective part.

## WARRANTY CLAIM PROCEDURE

Tjernlund Products, Inc. will issue credit or provide a free part to replace one that becomes defective during the one year warranty period. Tjernlund will automatically extend the warranty to 18 months from the date code found on the product nameplate. If the part is over 18 months old, proof of date of installation in the form of a distributor 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 complete unit to ensure that the date code of the defective component corresponds with the complete unit. This will help preclude possible credit refusal.

**Please direct any installer who wants to make a warranty claim to follow these instructions:**

1. Determine the defective part. If unable to determine the defective part, call your Tjernlund distributor or Tjernlund Products, Inc. at 1-800-255-4208 for troubleshooting assistance.
2. After the faulty component is determined, return it to your Tjernlund Products, Inc. distributor for replacement. Please include the date code of the EF-Series fan with the defective component. The date code is listed on the fan nameplate. If the date code is over 18 months you will need to provide a copy of the original installation or sales receipt to your distributor.

## COVERED PARTS

Motors  
Fan Blades

## 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 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 one (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, with 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 of 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 to Tjernlund Products, Inc., 1601 9th St., White Bear Lake, MN 55110-6794 (651) 426-2993.

## EF-SERIES REPLACEMENT PARTS LIST

MODEL	MOTOR#	FANBLADE#
EF-6	950-0416	950-0417
EF-8	950-0428	950-0418
EF-10	950-0425	950-0419
EF-12	950-0424	950-0420
EF-14	950-0423	950-0421