



## TJERNLUND PRODUCTS, INC.

1601 Ninth Street • White Bear Lake, MN 55110-6794  
 PHONE (800) 255-4208 • (651) 426-2993 • FAX (651) 426-9547  
 Visit our web site • www.tjernlund.com

### Rooftop Inducers FOR NATURAL GAS, LP, OIL-FIRED, SOLID FUEL HEATING APPLIANCES AND GENERAL VENTILATION



**RT750 & RT1500**  
 For Gas & Oil Applications

**RT750H & RT1500H**  
 For Solid Fuel Applications

Rooftop Inducers are tested and Listed to UL  
 Standard 378 for Draft Equipment  
 Rated up to 1000° F

Rooftop Inducers are tested and Listed to  
 ANSI/UL 705-2004 Power Ventilators

Rooftop Inducers are tested and Listed to CAN3-B255-M81  
 for Mechanical Flue-Gas Exhausters  
 Restricted to Non-Solid Fuel applications only under the  
 scope of standard CAN3-B255-M81  
 Rated up to 575° F / 300° C in Canada

**For non-condensing applications only. Not suitable for Side Wall terminations.**

**IMPORTANT:** Use of this product could cause flues to reverse (back-draft) on other heating equipment within the same structure if adequate make-up air is not provided. Check for flue gas spillage of atmospherically vented heaters after rooftop Inducer installation and always have working carbon monoxide detectors installed per the CO detector manufacturer's instructions and local codes. Make-up / combustion air fans are available from Tjernlund if necessary.

**⚠️ 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, PERSONAL INJURY OR PROPERTY DAMAGE. THIS INSTALLATION MANUAL DOES NOT CONTAIN ANY SYSTEM DESIGN DOCUMENTATION.

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

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Tjernlund Products welcomes your comments and questions. Call us at 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

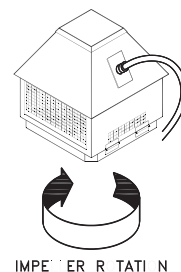
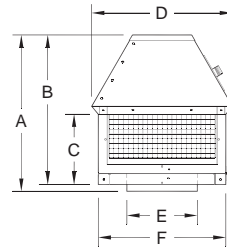
RT750 & RT1500 models are supplied with the model PSA-1 Fan Proving Switch which will disable the burner(s) if an Inducer malfunction should occur and are compatible with Tjernlund UC1, UCRT and DCOP1 interlock controls. The RT750H & RT1500H are supplied with a wall mount speed control to vary inducer performance in solid fuel applications. The Rooftop Inducer may be used on positive or negative pressure rated chimneys because the fan creates a negative pressure throughout the entire venting system. Suitable for use on natural gas, LP-gas, oil-fired, solid fuel heating systems or general ventilation. Also applicable for dryers, gas fireplaces, stoves, BBQ's or pizza ovens. The Rooftop Inducer must always be installed outdoors at the vent system termination. Refer to heating appliance manufacturer's instructions regarding specific venting requirements.

### GENERAL SELECTION INFORMATION

Selection of a Rooftop Inducer involves determination of the maximum volume of air or gases to be handled, their density and the maximum static pressure which the fan must overcome. Rooftop Inducer performance needs to be de-rated from 70°F performance curves to anticipated air or gas temperatures. Please feel free to contact us for application and model selection assistance by calling 800-255-4208 or email us at fanmail@tjfans.com. Vent layout or other information can be faxed to 651-426-9547. See "Sizing a Common Manifold Serving Multiple Heaters" on Page 12 for manifold considerations.

### DIMENSIONS AND SPECIFICATIONS

MODEL		RT750 RT750H	RT1500 RT1500H	
Voltage		120 VAC	120 VAC	
RPM		1550	1550	
Amps		1.2	5.8	
Power Rating	hp	1/12	1/2	
	kW	.063	.373	
Weight	lbs	34	47	
	kgs	15.42	21.32	
Dimensions	<b>A</b>	in	17 1/2	22 1/2
		mm	445	572
	<b>B</b>	in	16 3/4	21 3/4
		mm	425	552
	<b>C</b>	in	8	11 1/4
		mm	203	286
	<b>D</b>	in	16	18 1/2
		mm	406	470
	(inlet) <b>E</b>	in	7 15/16	11 15/16
		mm	201	303
	<b>F</b>	in	14 1/2	17
		mm	368	432



**ROOFTOP INDUCER SELECTION TABLES**

**Models RT750 & RT1500 Selection  
Table for Gas & Oil Applications  
SEA LEVEL ATMOSPHERIC WITH DRAFT HOOD**

MODEL	VENT PIPE DIAMETER*	BTU/HOUR INPUT	MAX. EQUIVALENT PIPE LENGTH (FT) @ 400°F STACK
RT750	8"	400,000 to 700,000	100'
RT750	8"	700,000 to 900,000	50'
RT750	8"	900,000 to 1,100,000	25'
RT750	10"	700,000 to 1,000,000	100'
RT750	10"	1,000,000 to 1,200,000	50'
RT750	10"	1,200,000 to 1,300,000	25'
RT1500	12"	1,000,000 to 2,000,000	100'
RT1500	12"	2,000,000 to 2,400,000	50'
RT1500	12"	2,400,000 to 2,600,000	25'
RT1500	14"	2,000,000 to 2,500,000	100'
RT1500	14"	2,500,000 to 2,700,000	50'
RT1500	14"	2,700,000 to 2,900,000	25'

**SEA LEVEL FAN ASSISTED / POWER BURNER  
WITH BAROMETRIC DRAFT CONTROL**

MODEL	VENT PIPE DIAMETER*	BTU/HOUR INPUT	MAX. EQUIVALENT PIPE LENGTH (FT) @ 400°F STACK
RT750	8"	500,000 to 900,000	100'
RT750	8"	900,000 to 1,200,000	50'
RT750	8"	1,200,000 to 1,400,000	25'
RT750	10"	900,000 to 1,200,000	100'
RT750	10"	1,200,000 to 1,500,000	50'
RT750	10"	1,500,000 to 1,700,000	25'
RT1500	12"	1,200,000 to 2,700,000	100'
RT1500	12"	2,700,000 to 3,200,000	50'
RT1500	12"	3,200,000 to 3,500,000	25'
RT1500	14"	2,700,000 to 3,500,000	100'
RT1500	14"	3,500,000 to 3,700,000	50'
RT1500	14"	3,700,000 to 3,900,000	25'

**\*IMPORTANT:** Select the inducer based on the BTU/hr input of the appliance(s) rather than the diameter of the appliance(s) vent outlet or chimney. Vent/Chimney sizes listed are the smallest inside diameter recommended for the associated BTU/hr input. Use a tapered reducing collar or transition fitting if the vent is reduced to the pipe diameter listed in selection table. To determine equivalent feet, add the total length of straight vent pipe plus 10 feet for each 90 degree elbow and 5 feet for each 45 degree elbow.

**Models RT750H & RT1500H  
Selection for Solid Fuel Fireplaces**

Efficient draft that moves smoke up the chimney and keeps it from entering the living area is dependent on maintaining a negative pressure capture velocity at the hearth opening. Even if glass fireplace doors are present, reducing the open area, a negative pressure capture velocity must be calculated based on the entire hearth opening since the doors need to be opened to add additional logs.

Multiply the vertical and horizontal hearth opening to determine the face area opening in square feet. If the fireplace is open on the sides or back total all openings to arrive at the total face area.

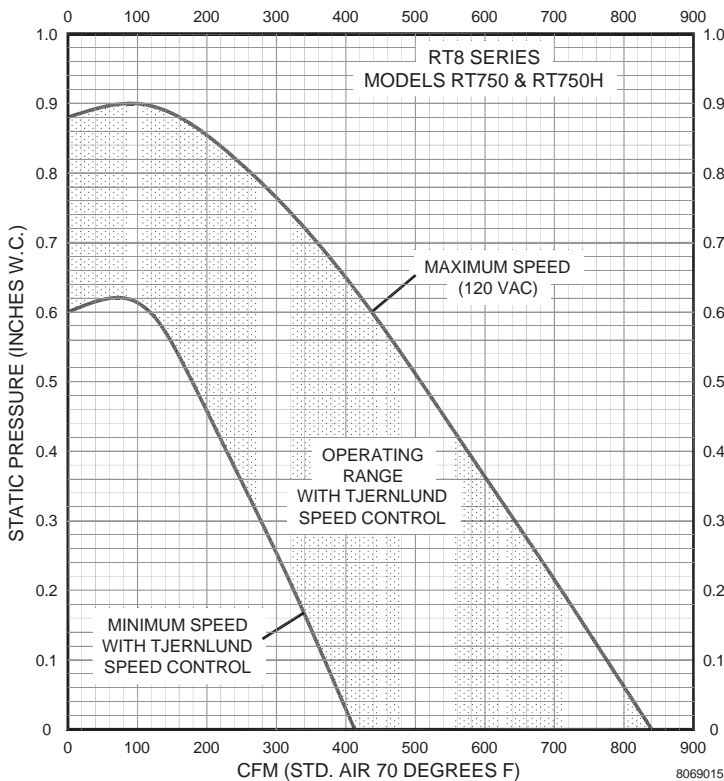
If typically the fire can be maintained but smoke drifts into the room, select the model which has a face area capacity equal or greater than the face opening.

**Maximum Face Area:**  
RT750H            14 Ft<sup>2</sup>  
RT1500H        28 Ft<sup>2</sup>

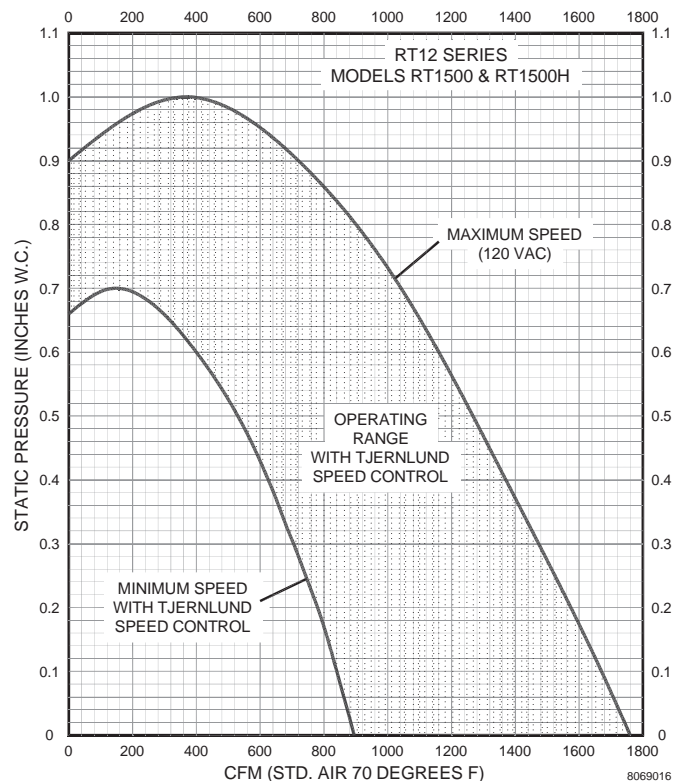
Tjernlund offers free design recommendations for unusual fireplace designs, such as free-standing and custom gas fireplaces. If in doubt, consult factory.

**ROOFTOP INDUCER FAN CURVES**

**MODELS RT750 & RT750H**



**MODELS RT1500 & RT1500H**



## INSTALLATION RESTRICTIONS

### WARNING

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

### WARNING

The Rooftop Inducer 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 Fuel Gas Code (NFPA 54), NFPA 211 or 31 when applicable, the latest edition of the National Electrical Code (NFPA 70) and the Occupational Safety and Health Act (OSHA) when applicable. In the absence of local codes in Canada, installations must comply with the Canadian Electrical Code (CSA Std 22.1), the latest edition of the Natural Gas Installation Code (CAN/CGA-B149.1), the Propane Installation Code (CAN/CGA-B149.2) and the Installation Code for Oil Burning Equipment (CSA Std B139-M91).

Improper installation can create a hazardous condition such as an explosion, fire, electrical shock or carbon monoxide poisoning resulting in property damage, personal injury or death.

1. The Rooftop Inducer may be installed on natural gas, LP-gas, oil-fired, solid fuel heating systems or general ventilation systems. The Rooftop Inducer is not suitable for use on condensing equipment.
2. The Rooftop Inducer was tested with exit flue gas temperatures of 1000°F (537°C) U.S. and 575°F (300°C) Canada.
3. The Rooftop Inducer may not be installed on incinerators or incinerating toilets.
4. The Rooftop Inducer must always be installed at the vent system termination. Not suitable for Side Wall terminations.
5. The Rooftop Inducer shall not be installed on an appliance with an automatic valve having a manual opener unless the manual opener has been rendered inoperative or the automatic valve has been replaced with a valve not equipped with a manual opener.
6. RT750 / RT1500 Rooftop Inducers may only be installed on appliances equipped with a draft hood, draft diverter, barometric draft control or other dilution air providing source.

The Rooftop Inducer is designed to fit any type of nominal (8" Models RT750 / RT750H) or (12" Models RT1500 / RT1500H) diameter vent pipe. Vent pipe must be installed and supported according to manufacturer's instructions and/or in accordance with NFPA 211, "Chimneys and Vents". Factory insulated vent pipe may reduce clearances to combustibles when penetrating a combustible roof. Refer to vent pipe manufacturer's instructions for details.

## INSTALLER CAUTIONS

### WARNING

Disconnect the power supply when making wiring connections or when working around the Inducer impeller and motor. Failure to do so can result in electrical shock, personal injury, death or property damage.

1. The model PSA-1 Fan Proving Switch provided must be interlocked with the heating appliance burner(s).
2. Plan the vent system so that the code required clearances are maintained from plumbing, wiring and combustibles.
3. Make certain the power supply is adequate for Rooftop Inducer motor requirements. Do not add the Rooftop Inducer to a circuit where the total load is unknown.
4. The installer must verify that the appliance(s) on which the Rooftop Inducer will be installed is in a safe operating condition. Consult appliance manufacturer's Instructions for details.
5. Rooftop Inducer housing is single wall. Standard clearances to combustibles must be maintained.

## CONDITIONS D'INSTALLATION

### WARNING

Ne pas installer, entretenir et/ou utiliser le Système d'admission d'air pour toit conformément aux directives du fabricant pourrait entraîner des circonstances qui causeront des blessures et endommageront la propriété.

### WARNING

Le Système d'admission d'air pour toit doit être installé par un installateur qualifié conformément aux présentes directives et à toutes les normes applicables à la localité. En l'absence de normes locales au Canada, les installations doivent respecter le Code canadien de l'électricité (CSA Std 22.1), la dernière version du Code d'installation du gaz naturel (CAN/CGA-B149.1), le Code d'installation du propane (CAN/CGA-B149.2) et le Code d'installation des appareils de combustion au mazout (CSA Std B139-M91).

Une installation inadéquate pourrait entraîner un danger, comme une explosion, un feu, une décharge électrique ou un empoisonnement au monoxyde de carbone qui endommagera la propriété, occasionnera des blessures ou même la mort.

1. Le Système d'admission d'air pour toit peut être installé sur des systèmes de chauffage aux gaz naturels, aux gaz de pétroles liquéfiés, au mazout ou aux combustibles solides ou systèmes de ventilation générale. Le Système d'admission d'air pour toit ne convient pas aux systèmes de condensation.

2. Le Système d'admission d'air pour toit a été testé à des températures des gaz à la sortie du conduit de 575°F (300°C) Canada.
3. Le Système d'admission d'air pour toit ne doit pas être installé sur des incinérateurs, des cuvettes sanitaires à incinération ou des appareils brûlant un combustible solide.
4. Le Système d'admission d'air pour toit doit toujours être installé à l'extrémité du système de ventilation. Il ne doit être monté qu'en plaçant l'arbre de moteur à la verticale.
5. Le Système d'admission d'air pour toit ne doit pas être installé sur un appareil équipé d'une valve automatique ayant un dispositif d'ouverture manuel, à moins que le dispositif d'ouverture manuel ne fonctionne plus ou que la valve automatique a été remplacée par une valve sans dispositif d'ouverture manuel.
6. Les modèles RT750 / RT1500 du Système d'admission d'air pour toit ne peuvent être installés que sur les appareils équipés d'un coupe-tirage, d'une hotte de tirage, du réglage barométrique du tirage ou toute autre source de ventilation de dilution.

Le Système d'admission d'air pour toit est conçu pour tout tuyau de ventilation d'un diamètre nominal de (8" Modèles RT750 / RT750H) ou (12" Modèles RT1500 / RT1500H). Un tuyau de ventilation isolé en usine pourrait réduire les distances sécuritaires requises par rapport aux matières inflammables lorsqu'il pénètre un toit ou un mur inflammable. Pour de plus amples renseignements, consultez les directives du fabricant du tuyau de ventilation.

## PRÉCAUTIONS À PRENDRE PAR L'INSTALLATEUR

### ⚠ WARNING

Débranchez le bloc d'alimentation avant d'effectuer des branchements électriques ou de travailler autour du rotor et du moteur du ventilateur, afin de ne pas être victime d'une décharge électrique, de blessures et même de mort, ou d'endommager la propriété.

1. L'interrupteur de vérification du ventilateur du modèle PSA-1 fourni doit être interverrouillé avec le ou les brûleurs de l'appareil de chauffage.
2. Montez le système de ventilation en respectant les normes de distances sécuritaires du code par rapport à la plomberie, au filage électrique et aux matières inflammables.
3. Assurez-vous que le bloc d'alimentation convient aux exigences du moteur du Système d'admission d'air pour toit. N'ajoutez pas le Système d'admission d'air pour toit à un circuit dont vous ignorez la charge totale.
4. Le technicien doit vérifier que l'appareil sur lequel sera installé le Système d'admission d'air pour toit est dans une condition d'utilisation sécuritaire. Pour de plus amples renseignements, consultez les directives du fabricant de l'appareil.
5. Le Système d'admission d'air pour toit est logé dans un seul mur. Il faut respecter les normes de distances sécuritaires par rapport aux matières inflammables.

## ROOFTOP INDUCER TERMINATION CLEARANCES

### U.S. INSTALLATIONS

Terminate the Rooftop Inducer so that proper minimum clearances are maintained as cited in the latest edition of the National Fuel Gas Code (NFPA 54), NFPA 211 or 31 when applicable.

### CANADIAN INSTALLATIONS

In the absence of local codes in Canada, installations must comply with the latest edition of the Natural Gas Installation Code (CAN/CGA-B149.1), the Propane Installation Code (CAN/CGA-B149.2), the Installation Code for Oil Burning Equipment (CSA Std B139-M91) or as follows:

The Rooftop Inducer base must be a minimum of 9" above a roof. Optional roof mounting kits are available from Tjernlund.

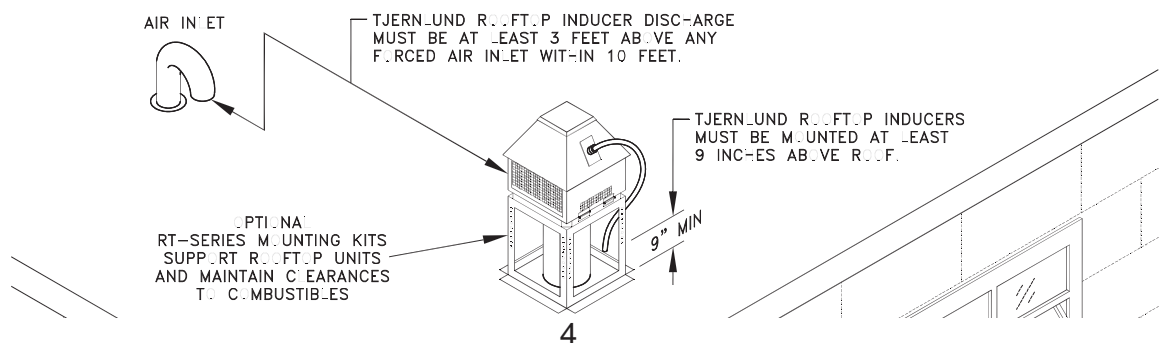
- A venting system shall not direct flue gases so as to jeopardize people, overheat combustible structures, or enter buildings.

A venting system shall not terminate within (4 ft U.S.) (1.8 m / 6ft Canada) of the following:

- A window, door or mechanical air supply inlet of any building
- A gas service regulator vent outlet
- A combustion air inlet
- A direction facing combustible materials or openings of surrounding buildings

A venting system shall not terminate within 1m (3ft) of the following:

- At least 3 feet above any forced air inlet located within 10 feet.
- Above a gas meter/regulator assembly within 1m (3ft) horizontally of the vertical centreline of the regulator
- An oil tank or an oil tankfill inlet





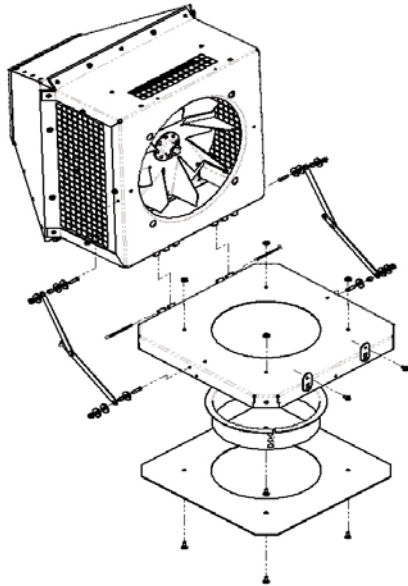
**⚠ WARNING**

The Rooftop motor side is heavy. Remove (2) hinge pins and (2) latch screws opposite hinge side to separate the motor section from the mounting base prior to installation. When removing the motor side, use extreme caution so internal parts such as the impeller are not damaged.

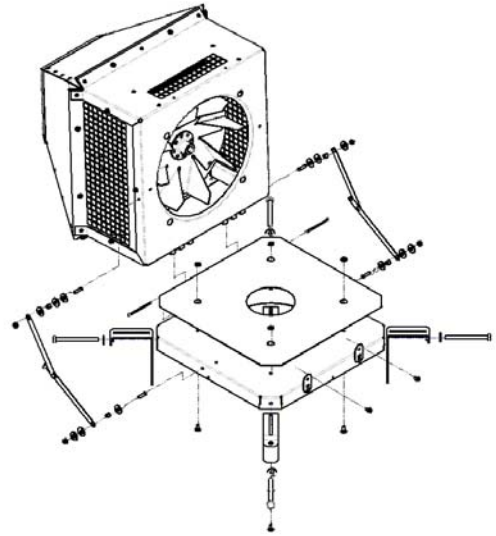
Make sure vent pipe is adequately installed and supported for weight of inducer. Tjernlund's optional RT-Series rooftop stands or a frame to support weight of inducer may be necessary. The vent extending above the roofline may be shortened for a more stable and aesthetic installation since the Rooftop Inducer provides draft regardless of chimney height.

**IMPORTANT:** Disconnect the power supply when making wiring connections or when working around the fan impeller and motor. Failure to do so can result in electrical shock, personal injury, death or property damage.

**INSTALLATION ISOMETRIC FOR METAL VENT PIPE**



**INSTALLATION ISOMETRIC FOR TILE LINED CHIMNEY**



**INDUCER BASE INSTALLATION**

All models include mounting kits to securely attach the Inducer Base to any type of insulated or single wall metal pipe or tile lined flue.

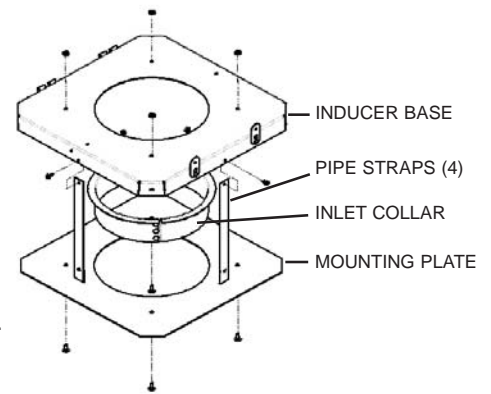
**MOUNTING INDUCER BASE ON METAL VENT PIPE**

**NOTE:** Discard adapter plate, finger clamps and 3 1/2" bolts if mounting on metal vent pipe.

A Mounting Plate and Inlet Collar is included with each Rooftop Inducer. The RT750 Series collar will slip inside any metal pipe as small as 8" diameter ID and as large as 12" OD. The RT1500 Series collar will slip inside any metal pipe as small as 12" ID and as large as 20" OD. If your application has a metal pipe smaller than the noted diameters use an increaser appropriate for pipe type to transition to minimum diameter noted.

1. Insert Inlet Collar through Mounting Plate. Place Inducer Base on top of Inlet Collar and Mounting Plate to sandwich Inlet Collar flange between them. Insert (4) 1/2" 10-32 carriage bolts through Mounting Plate and Inducer Base and tighten (4) 10-32 lock nuts on top of Inducer Base. Secure (4) Pipe Straps to the holes on the sides of the Inducer Base with included (4) 3/8" 8-32 screws and lock nuts, (See Diagram A).
2. **IMPORTANT:** Before inserting Inlet Collar / Inducer Base assembly into vent pipe note that the electrical connection is on the hinged side of the Inducer. Make sure that the Inducer Base is positioned so that Inducer swings towards the desired direction. Using RTV or equivalent high temperature silicone apply a generous bead to the top edge of the metal vent pipe. Insert Inlet Collar / Inducer Base assembly into vent pipe considering hinge location. Insert the large adjustable pipe clamp through the loops of the pipe straps and tighten pipe clamp until it snugly grips the OD of the vent. **NOTE:** RT1500 Series will have to use both pipe clamps provided, (See Diagram B).

**DIAGRAM A**



**DIAGRAM B**



PLACE A GENEROUS BEAD OF HIGH TEMP SILICONE ON TOP OF PIPE BEFORE PLACING INLET COLLAR / INDUCER BASE ASSEMBLY ON VENT PIPE. INSERT PIPE CLAMP THROUGH STRAPS AND TIGHTEN.

## MOUNTING INDUCER BASE ON CLAY TILE FLUE LINERS

**NOTE:** Discard mounting plate, pipe straps and pipe clamps if mounting on a tile flue liner.

1. Flip the Inducer Base bottom side up and position finger clamps in each corner. Place washer on (4) 3 1/2" adjustment bolts and insert through holes in corners and thread into finger clamp. Insert (4) 1/2" 10-32 carriage bolts through slots in finger clamps and through Inducer Base holes. Loosely secure on top side of Inducer Base with included (4) 10-32 lock nuts, (See Diagram C).
2. Place a generous bead of RTV or equivalent high temperature silicone on top of tile liner, (See Diagram D). Position the Inducer Base on top of the chimney liner, inserting the finger clamps into the liner interior. **IMPORTANT:** Note location of hinges to make sure that the Inducer Base is positioned so that Inducer swings towards the desired direction. The electrical whip is located on the hinged side. Once positioned in center of flue, pull the head of each 3 1/2" adjustment bolts out until the finger clamps make contact with the interior wall of the liner. Tighten opposite corners until finger clamps firmly secure the Inducer Base to the liner interior. **CAUTION:** Over-tightening could crack tile liner, (See Diagram E).

DIAGRAM C



INSERT 3 1/2" ADJUSTMENT BOLTS & WASHER THRU HOLES IN CORNERS, THREAD INTO FINGER CLAMP. INSERT STAINLESS 10-32 CARRIAGE BOLTS THROUGH SLOTS IN FINGER CLAMPS INDUCER BASE HOLES. LOOSELY SECURE ON TOP SIDE OF INDUCER BASE WITH INCLUDED 10-32 LOCK NUTS.

DIAGRAM D



PLACE A GENEROUS BEAD OF RTV OR EQUIVALENT HIGH TEMPERATURE SILICONE ON TOP OF CHIMNEY TILE LINER.

DIAGRAM E



TIGHTEN OPPOSITE CORNERS UNTIL FINGER CLAMPS SNUGLY SECURE THE INDUCER BASE TO THE LINER INTERIOR. **CAUTION:** OVERTIGHTENING COULD CRACK TILE LINER.

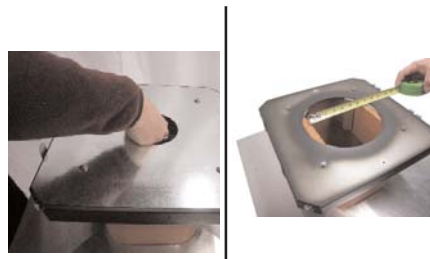
3. When finger clamps are firmly tightened, tighten down finger clamp 10-32 lock nuts on top of Inducer Base, (See Diagram F).
4. Place Adapter Plate on Inducer Base and mark Adapter Plate underside with a marker by tracing the interior of chimney, **CAUTION:** Sharp edges-wear gloves. If underside cannot be easily marked take measurements of chimney to determine Adapter Plate opening, (See Diagram G).
5. If Adapter Plate can't be easily marked by tracing interior of chimney, mark center lines on Adapter Plate and use chimney opening measurements to mark the Adapter Plate to cut out chimney opening, (See Diagram H).

DIAGRAM F



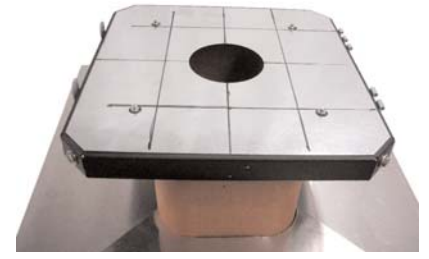
WHEN FINGER CLAMPS ARE FIRMLY TIGHTENED, TIGHTEN DOWN FINGER CLAMP LOCK NUTS ON TOP OF INDUCER BASE.

DIAGRAM G



EITHER MARK ADAPTER PLATE FROM UNDERSIDE (**CAUTION:** METAL IS SHARP WEAR GLOVES) OR TAKE MEASUREMENTS OF CHIMNEY TO DETERMINE ADAPTER PLATE OPENING.

DIAGRAM H



IF ADAPTER PLATE CAN'T BE EASILY MARKED BY TRACING INSIDE OF CHIMNEY, MARK CENTER LINES ON ADAPTER PLATE AND USE MEASUREMENTS FROM STEP 4 TO MARK LINES FOR ADAPTER PLATE OPENING.

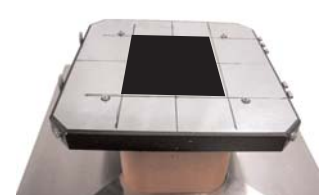
6. Fill any gaps on exterior of chimney flue and Inducer Base with RTV or equivalent high temperature silicone, (See Diagram I).
7. Use a tin snips or equivalent to cut marks made on Adapter Plate to expose inside of tile liner. Confirm Adapter Plate opening exposes full chimney opening. Place a **thin** bead of RTV or equivalent high temperature silicone around Adapter Plate opening and place silicone side down on Inducer Base, (See Diagram J).

DIAGRAM I



FILL ANY OPEN AREA BETWEEN EXTERIOR OF CHIMNEY FLUE AND INDUCER BASE PLATE WITH RTV OR EQUIVALENT HIGH TEMPERATURE SILICONE.

DIAGRAM J



USE A TIN SNIPS OR EQUIVALENT TO CUT MARKS MADE ON ADAPTER PLATE TO EXPOSE INSIDE OF TILE LINER. CONFIRM ADAPTER PLATE FULLY EXPOSES INSIDE OF CHIMNEY AND ADHERE TO INDUCER BASE WITH A **THIN** BEAD OF HIGH TEMP SILICONE.

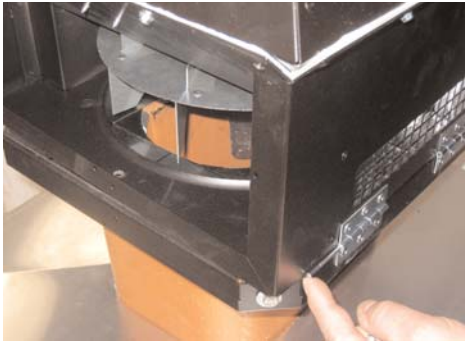
## ROOFTOP INDUCER MOUNTING AND SCISSOR HINGE ASSEMBLY

Set the Inducer top motor side on top of the Inducer Base, aligning the hinges. Insert the two hinge pins with the heads on the outside portion of the hinges, (See Diagram K).

Install hinges as follows: **Inducer Top hinge:** Insert 1/2" threaded stud through Inducer top, (2) washers, hinge (with stop on outside), spacer, washer and 10-32 lock nut. **Inducer Base hinge:** Insert 1/2" threaded stud through Inducer Base, washer, hinge (with stop outside), spacer, (2) washers and 10-32 lock nut, (See Diagram L). Use (2) provided 3/8" 8-32 self tapping screws to secure Inducer top to Inducer Base through the two oval brackets on front of Inducer.

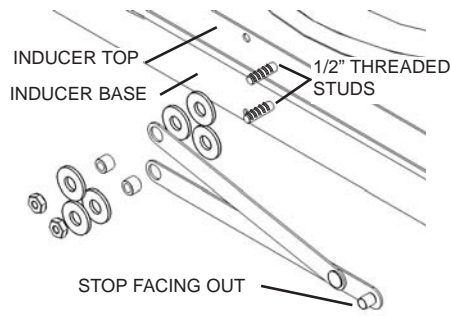
Insert Discharge Grilles **inside** Inducer Base on both sides with (3) 3/8" 8-32 self tapping screws provided. **IMPORTANT:** Grilles must be installed on **inside** of Inducer Base, (See Diagram M).

DIAGRAM K



INSERT BOTH HINGE PINS.

DIAGRAM L



ASSEMBLE HINGES ON BOTH SIDES PER DIAGRAM. **NOTE: STOPS MUST FACE OUT.**

DIAGRAM M



INSERT BOTH DISCHARGE GRILLES ON **INSIDE** OF INDUCER BASE WITH (3) SELF TAPPING SCREWS.

## MODEL RT750 / RT1500 - PSA-1 FAN PROVING SWITCH INSTALLATION

The RT750 and RT1500 models include the adjustable fan proving switch model PSA-1. Follow these general procedures for pressure switch installation and adjustment. **NOTE:** If using the DCOP1 control follow "Vent Pipe Sensing Sampling Tube & PSA-1 Fan Prover Location & Installation" section in DCOP1 manual.

1. Install Fan Proving Switch sampling tube in the vent connector 2-3 pipe diameters after the elbow or "T" that turns the vent from heater flue outlet from vertical to horizontal. For multiple heater venting into a common manifold, install after heater closest Rooftop Inducer. If the vent run is completely vertical, install after draft hood or barometric draft control. Installing the sampling tube nearer the Inducer will make the adjustment easier because the pressure sensed will be more negative and eliminate sensing pressure near the switch's bottom-end range, (See Diagram N)
2. Using a sharp drill bit to reduce burr, drill a 1/4" hole for Fan Proving Switch sampling tube. Screw sampling tube bracket to pipe with sampling hole centered, (See Diagram O).
3. Insert stainless steel sampling tube through 1/4" hole enough to just penetrate interior of vent pipe and lock in place with compression nut, (See Diagram O). With the Rooftop Inducer on, a reading with a draft gauge can be used to determine when interior of pipe has been penetrated.
4. **IMPORTANT:** Fan Proving Switch diaphragm must be mounted in a vertical position within six feet of the sensing location. Firmly insert flexible tubing on sampling tube and Fan Proving Switch nipple marked (LOW). Leave other Fan Proving Switch port open to room atmosphere. Make sure there are no sharp bends or kinks in flexible tubing, (See Diagram P).

DIAGRAM N

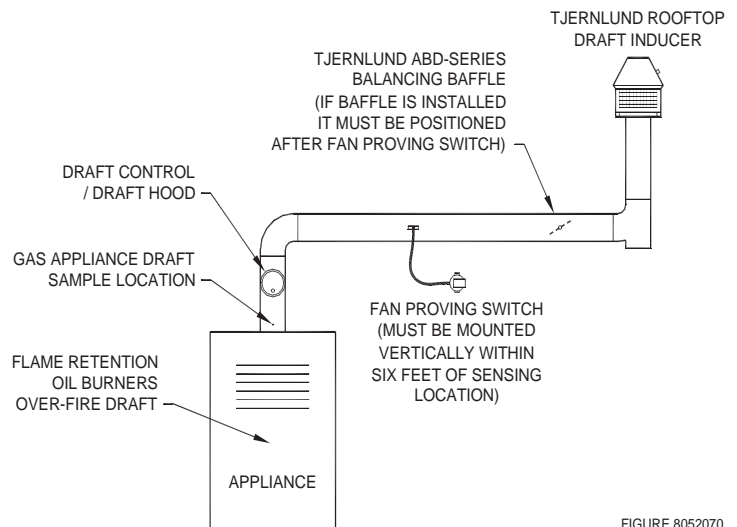


DIAGRAM O

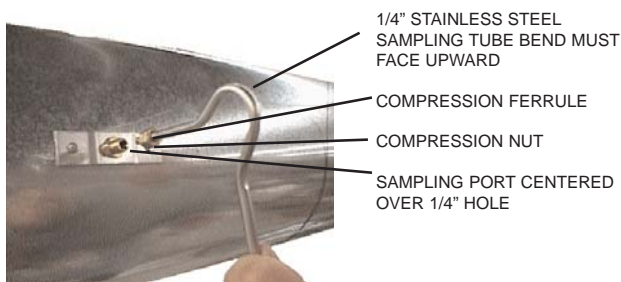
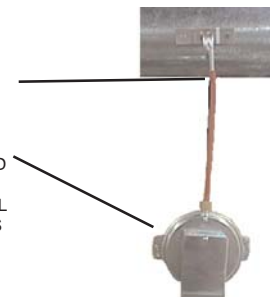


DIAGRAM P

FAN PROVING SWITCH MUST BE MOUNTED WITHIN SIX FEET OF SAMPLING TUBE.

**IMPORTANT:** SWITCH CAN BE ORIENTATED IN A 360° PLANE AS LONG AS DIAPHRAGM IS IN A VERTICAL ORIENTATION AND TUBING IS NOT KINKED.





**INSTALLING ELECTRICAL WHIP**

Remove the (2) 8-32 nuts holding coverplate and gasket on the electrical access of the Inducer. Pull the wires out of the Inducer and wire nut them to the electrical leads from the whip referencing appropriate diagram below. Carefully stuff the wired connections back into the Inducer and secure coverplate and gasket to Inducer housing using the nuts removed from above. Firmly tighten until gasket compresses, (See Diagram Q).

Secure box on opposite end of whip to power supply conduit and wire in accordance to the diagram appropriate for installation. Place provided gasket between cover and box firmly tighten.

DIAGRAM Q



**⚠ WARNING**

All wiring from the Rooftop Inducer to the appliance must be in compliance with local codes or in their absence, the National Electric Code (NFPA 70).

All wiring from the Rooftop Inducer to the appliance 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 or be otherwise suitably protected from physical damage.

**ROOFTOP INDUCER ELECTRICAL WHIP CONNECTIONS**

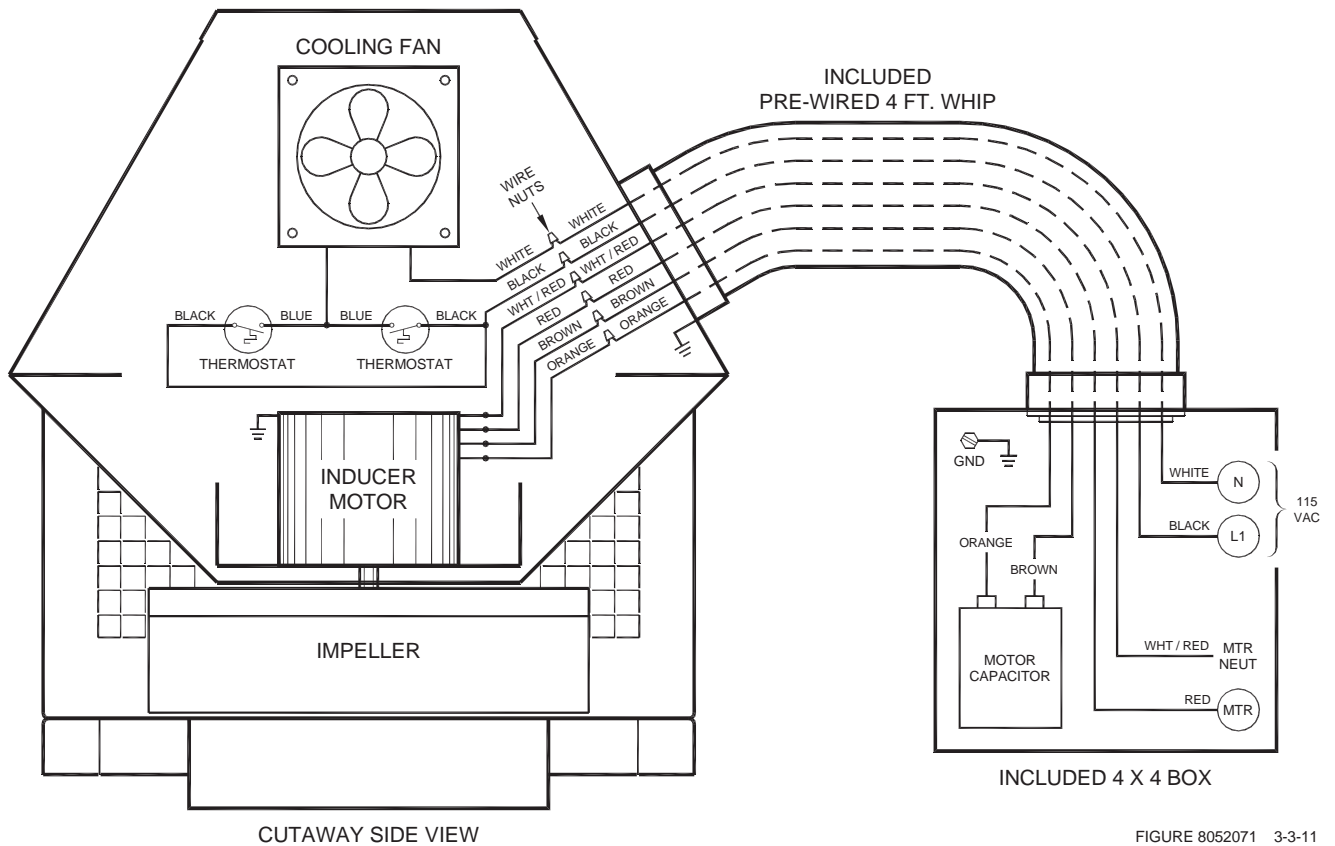


FIGURE 8052071 3-3-11

# MANUAL ON/OFF OPERATION

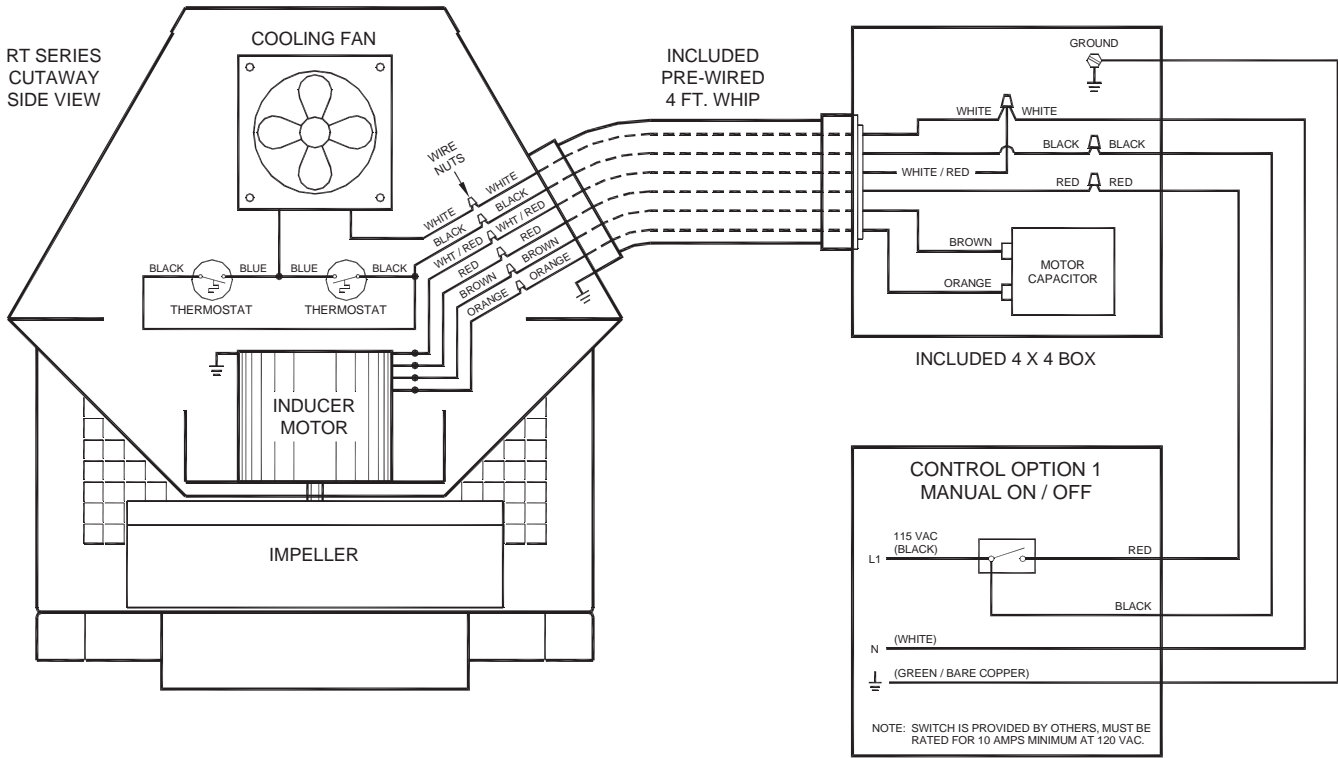


FIGURE 8052072 3-7-11

# MANUAL SPEED CONTROL (INCLUDED WITH RT750H / RT1500H)

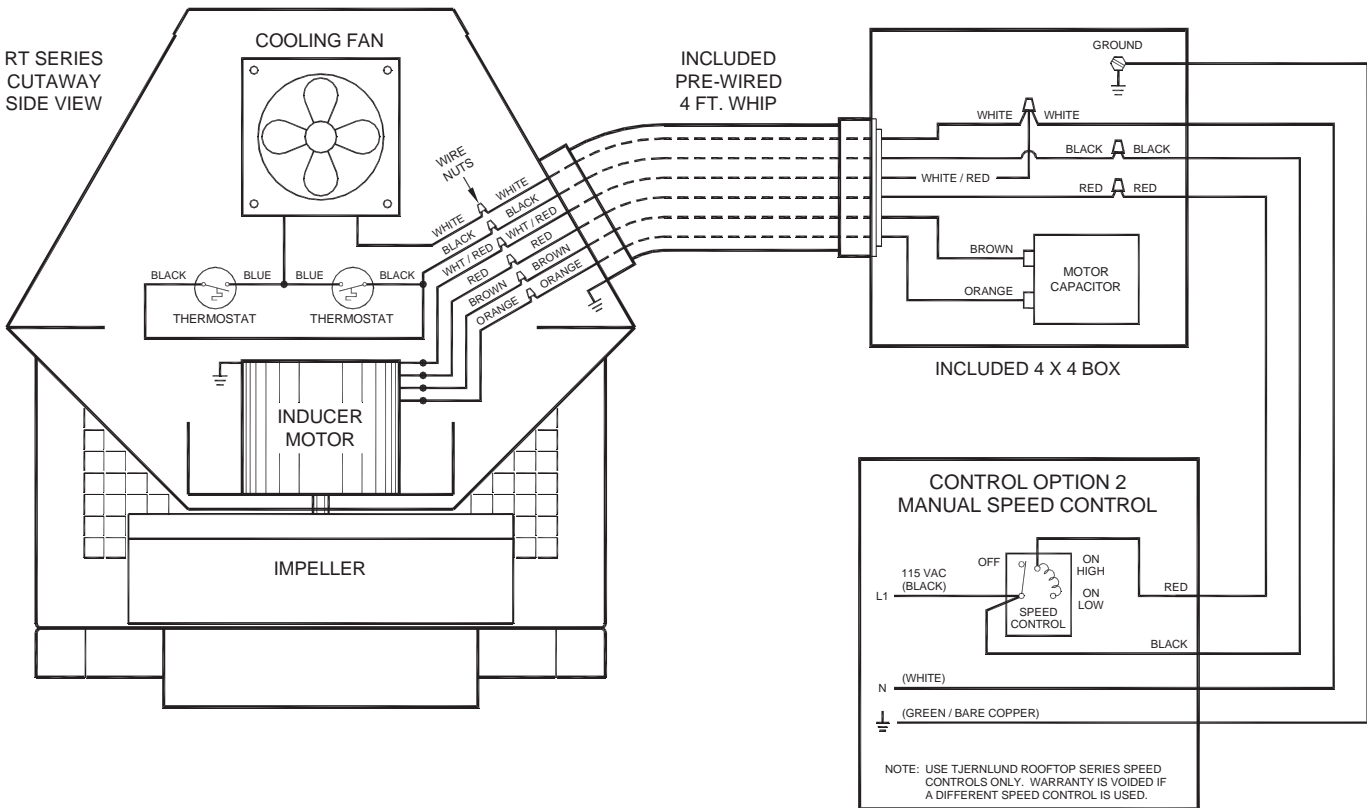
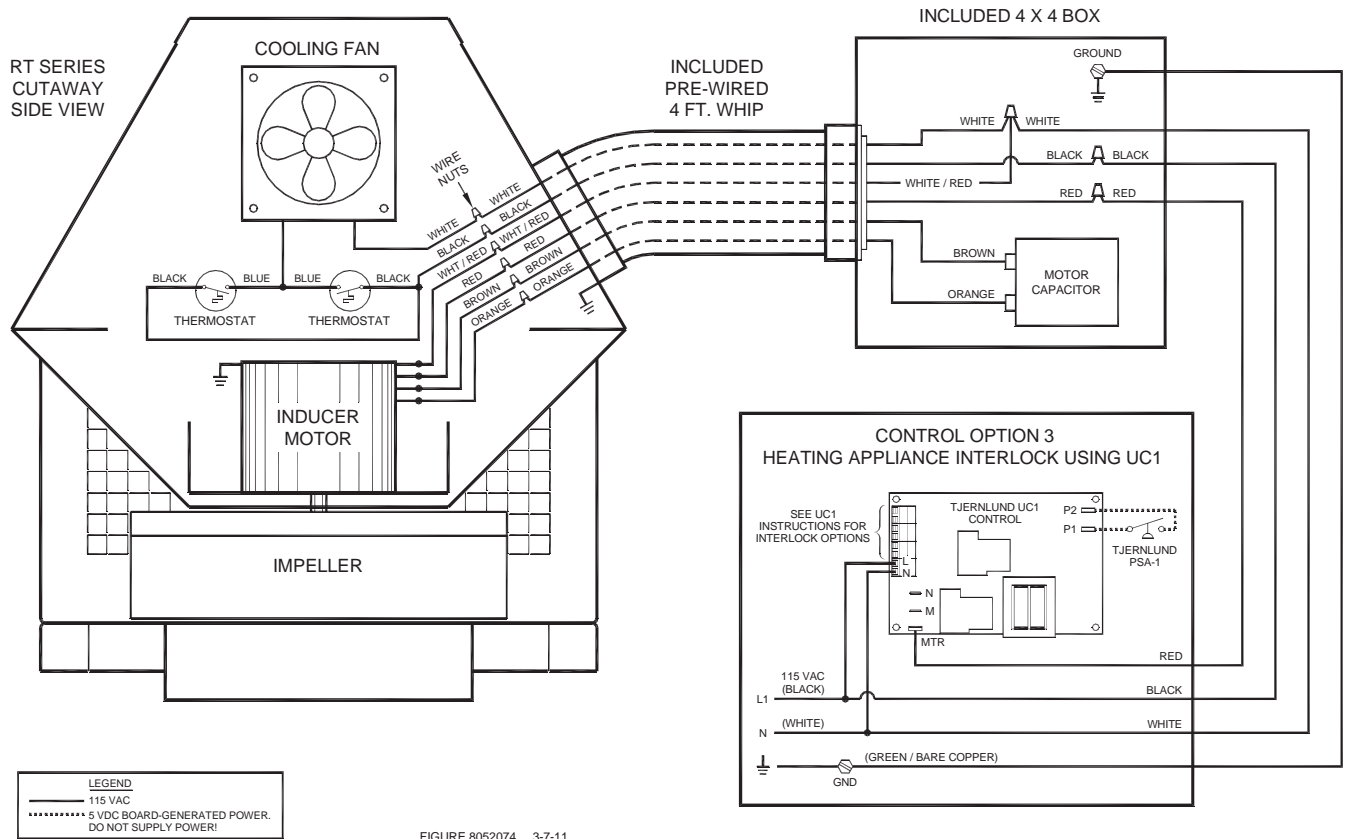
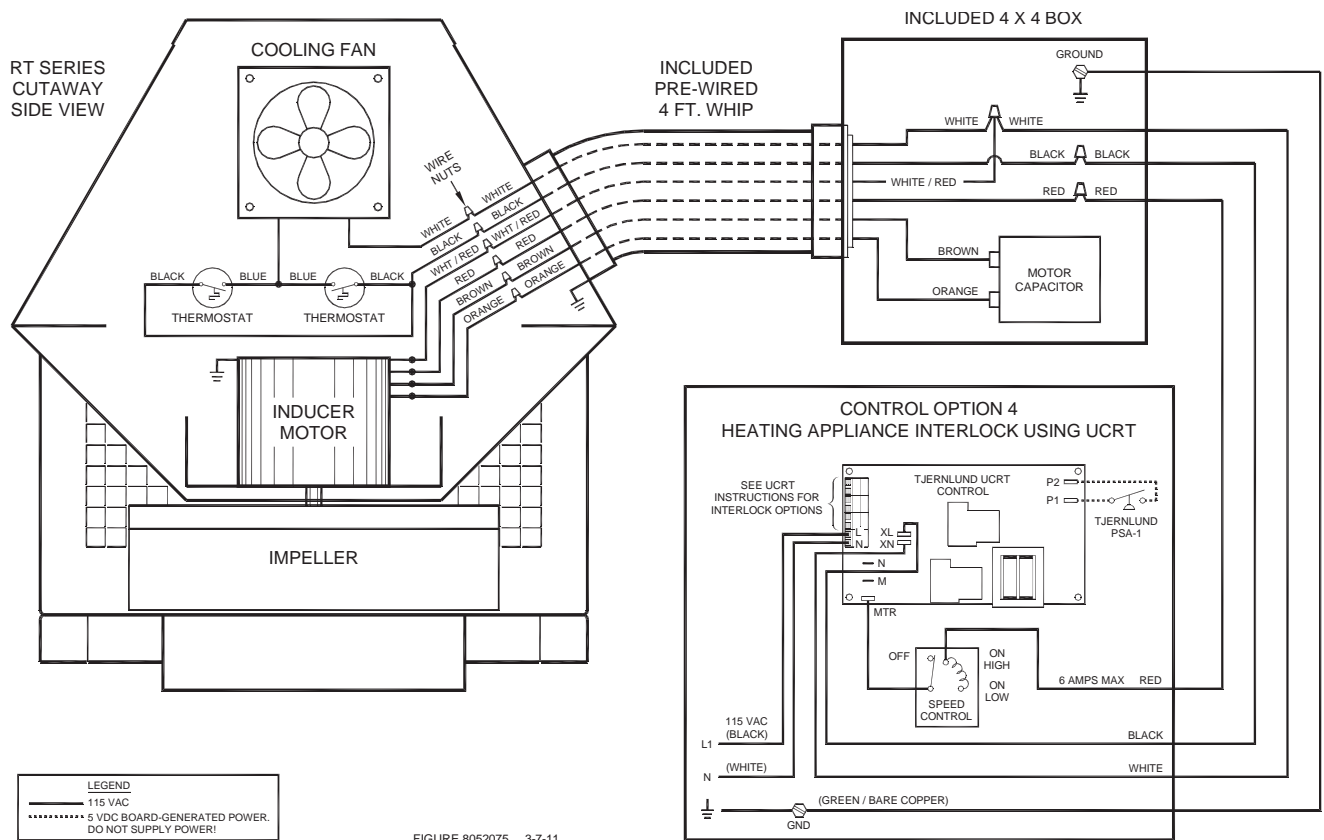


FIGURE 8052073 3-7-11

## CONNECTIONS WITH OPTIONAL UC1 INTERLOCK CONTROL



## CONNECTIONS WITH OPTIONAL UCRT INTERLOCK/SPEED CONTROL



# CONNECTIONS WITH OPTIONAL DCOP1 DRAFT COP CONTROL

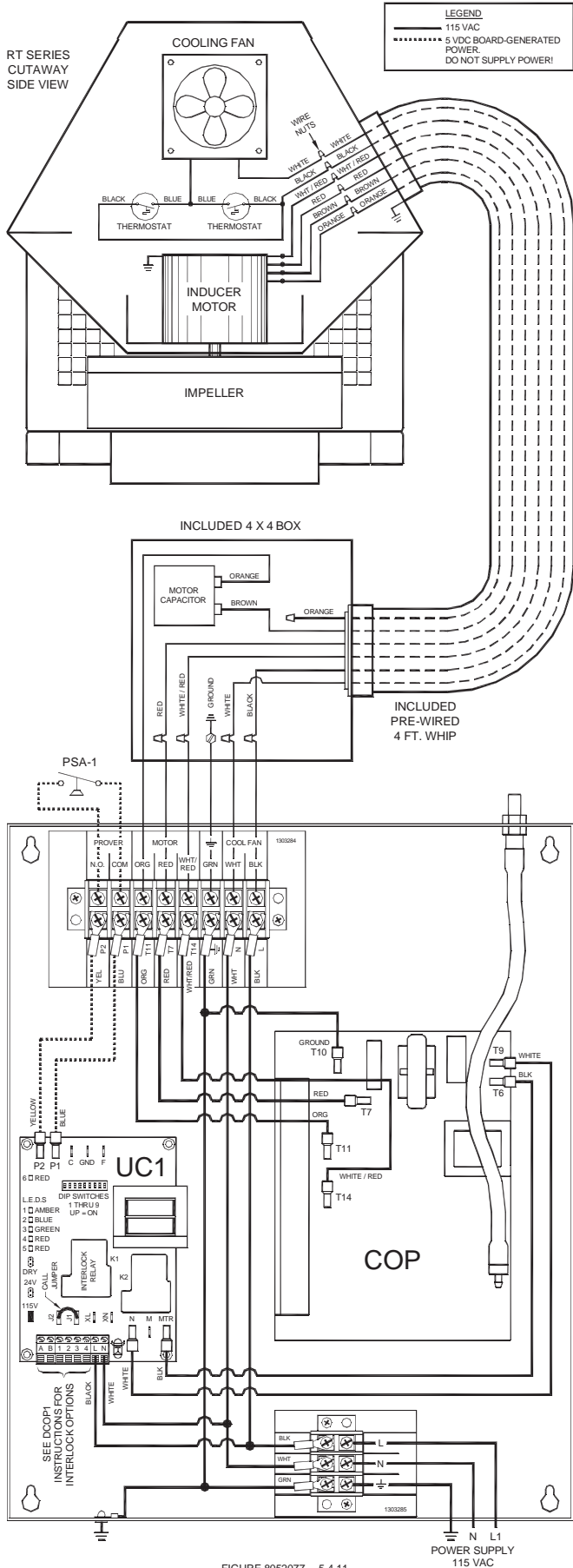


FIGURE 8052077 5-4-11

# CONNECTIONS WITH OPTIONAL XCOP1 EXHAUST COP CONTROL

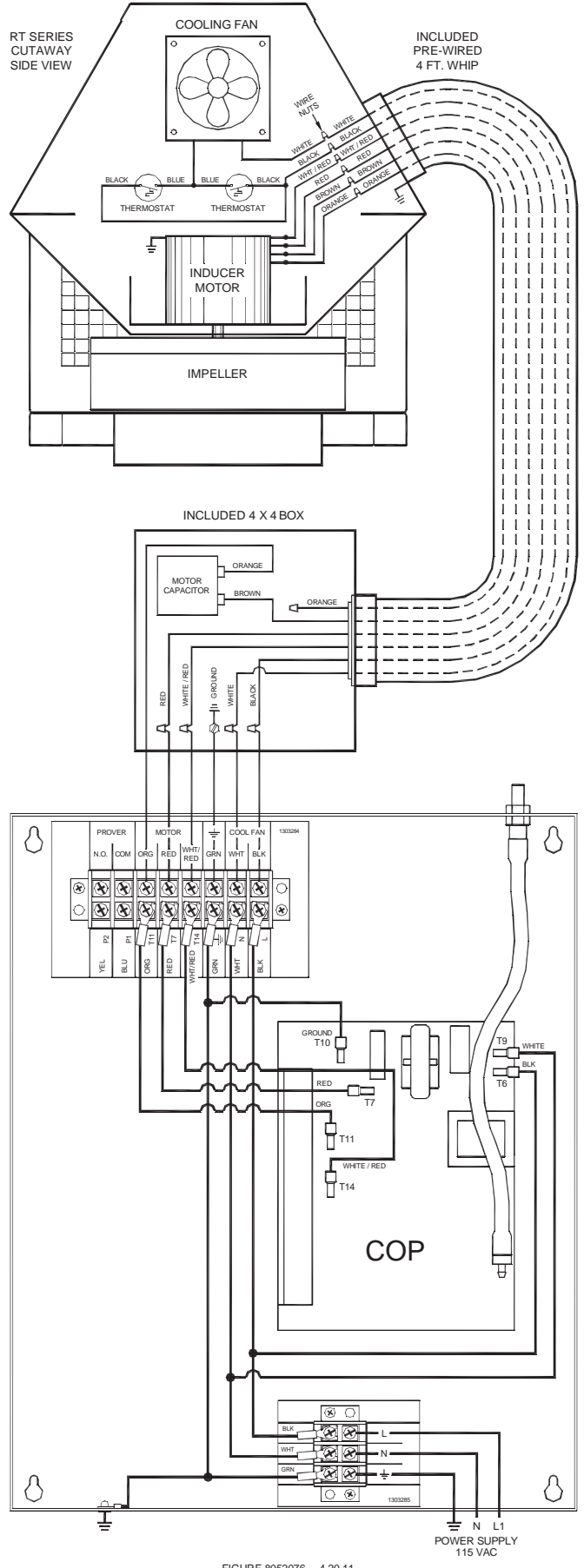


FIGURE 8052076 4-20-11



## SIZING A COMMON MANIFOLD SERVING MULTIPLE HEATERS

The most important step towards assuring that individual heaters vented into a common manifold draft smoothly is to size the manifold large enough to negate the affects that velocity in the manifold has on the junctions of the heater vent connections.

Exhaust gases moving too quickly in a common vent manifold can amplify the draft at vent connectors by aspirating across the connector opening and creating an amplified siphon affect. With a properly sized common vent manifold, velocities are maintained below the point where they have a significant affect on the draft of the individual heater connections.

It is important to note that these sizing recommendations are for the common vent manifold only and that the typically smaller minimum vent diameter listed in the RT-Series Inducer selection table may be used for the remainder of the horizontal vent and chimney. The larger diameter vent common manifold should extend at least 2 diameters beyond the connection point of the last heater farthest from the Inducer.

1. When in doubt, get help from Tjernlund Tech Service at 800-255-4208, push 0 and ask for technical assistance or email fanmail@tjfans.com with details of your job.
2. If velocities are known, avoid exceeding 1200 FPM in the vent common manifold.
3. When possible use 45° Manifold Tee connections to the common vent manifold in the direction of the Inducer instead of 90° Tee connections.
4. Draft hoods/diverters create a disconnect from the heater's flue outlet greatly buffering sudden changes in draft. Even if using our DCOP1 Constant Pressure Controller which reacts quickly to maintain the draft/exhaust set-point we still recommend installing single acting barometric draft controls on fan assisted and power burner heaters. The barometric draft controls react instantly to spikes in vent exhaust volume so that precise draft is always maintained.
5. If possible, locate the larger exhaust volume (i.e. higher BTU/hr. input) vent connections closer to the Inducer. This reduces the affect of their exhaust on smaller volume connections.
6. The size of the common vent manifold should be at least 90% of the total area of all individual vent connections. See example below.

Breech Size Diameter	Area (Square Feet)
3"	0.0491
4"	0.0873
5"	0.1364
6"	0.1964
8"	0.3491
10"	0.5454
12"	0.7854
14"	1.0690
16"	1.3960
18"	1.7670
20"	2.1820

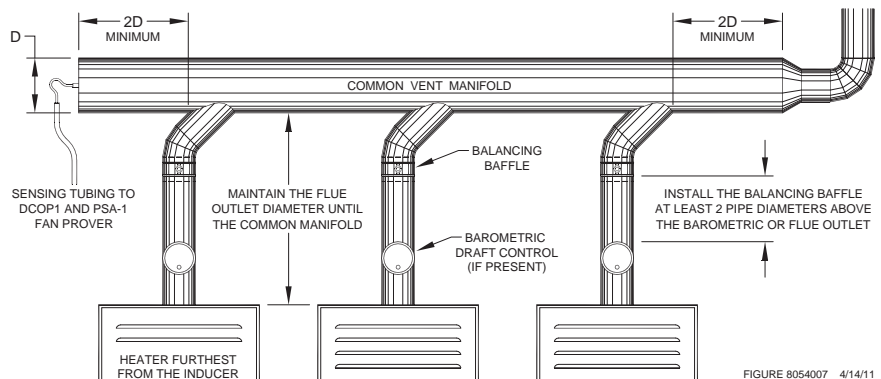


FIGURE 8054007 4/14/11

**Example:** A vent layout is required for a job that consists of 4 heating appliances. 1 Appliance has an 8" diameter vent connectors, 2 appliances have 6" diameter vent connectors and 1 appliance has a 4" diameter vent connector. Add these areas together:

$$\begin{array}{r}
 1 \times 0.3491 = 0.3491 \\
 2 \times 0.1964 = 0.3928 \\
 1 \times 0.0873 = 0.0873 \\
 \hline
 0.8292
 \end{array}$$

Total Area = 0.8292 Square Feet x 0.90 (90%) = 0.7463. In looking at the table above, this area is greater than a 10" diameter pipe but smaller than a 12" diameter pipe. 12" diameter vent is the minimum size the common vent manifold diameter should be. It is perfectly acceptable to be larger than this area if desired. It is also acceptable to have this area be reduced as the vent system works backward towards the appliance furthest from the Inducer. In this example, the common vent manifold should extend at least 36" past the last appliance connection point.

1. Drill an appliance draft sampling hole in the vent riser after each draft diverter or between the flue outlet and the draft hood / barometric draft control of each appliance. For most oil burners sample over-fire draft. Connect draft gauge to sampling hole, (See Diagram N, Page 7).
2. For installations with a barometric draft control: Adjust weight on draft control to minimum or most responsive position (Less Draft).
3. **WARNING: This step requires that the wires connected to the PSA-1 Fan Prover terminals be temporarily removed and jumpered together. Disconnect power before proceeding.**

Remove power source and connect leads attached to the C (common) and N/O (normally open) terminals of the PSA-1 together. Attach a continuity tester to the C and N/O terminals of the PSA-1 Switch. Turn the PSA-1 adjustment screw counter clockwise until it seats against the stop. **The PSA-1 must be reconnected to the interlocked heaters(s) per the appropriate wiring diagram after completing these procedures. Failure to do so may result in a hazardous condition such as an explosion, fire or carbon monoxide poisoning resulting in property damage, personal injury or death.** If installing this product in conjunction with a Tjernlund Products UC1 interlock control the number 9 dip switch must be positioned in the up/'on' position.

Close all access doors and openings to the mechanical room that would typically be closed during heating equipment operation. Fire all other heating equipment not connected to this vent system and operate exhaust fans or air consuming devices within the facility that could affect the air pressure of the mechanical room.

4. Activate Rooftop Inducer and adjust balancing baffle(s) or speed control so that (-0.08" W.C. or -20 Pa) is read at the appliance draft sampling position(s) referenced in Step 1. The PSA-1 switch contacts should close. If switch contacts do not close move pressure sampling probe closer to the Inducer. **Do not** move sampling probe between manual damper and Inducer inlet.
5. Activate burner(s) at full capacity. Gradually adjust balancing baffle(s) or speed control to maintain a slight negative draft (-0.02" to -0.05" W.C. or -5 to -12.5 Pa) at the heater's draft sampling location(s). Allow vent temperatures to reach steady state by referencing breaching flue gas temperatures.
6. Once flue gas temperatures have stabilized, verify that balancing baffle(s) or speed control are adjusted so that a slight negative draft (-0.02" to -0.05" W.C. or -5 to -12.5 PA) is measured at draft sampling location(s). Individual appliance vent connections may require balancing baffles to evenly regulate draft.
7. Adjust balancing baffle(s) or speed control so that a slight positive draft (neutral to +0.01" W.C. or +2.5 Pa) is measured at the appliance draft sampling location. Flue gases should just start to spill from the draft hood/draft diverter or barometric draft control.
8. Turn the PSA-1 Fan Prover Switch adjustment screw clockwise in 1/6-turn increments, waiting 2-3 seconds after each adjustment until the pressure switch opens and no continuity is read. Shut off heater for 5 minutes while continuing to allow inducer to operate.
9. Fire heater and readjust the balancing baffle(s) or speed control so that a negative draft (-0.02 to -0.05" W.C. or -5 to -12.5 Pa ) is once again measured at the appliance draft sampling location. This readjustment must be enough to cause the PSA-1 Fan Prover Switch to close. The PSA-1 may take a few moments to close after each adjustment.
10. Confirm Fan Prover Switch set point by adjusting balancing baffle(s) or speed control so that a slight positive draft (neutral to +0.01" W.C. or +2.5 Pa) is measured at the appliance draft sampling location. Flue gases should just start to spill from the draft hood/draft diverter or barometric draft control and the Fan Prover Switch should open. Readjust the balancing baffle(s) or speed control so that a negative draft (-0.02 to -0.05" W.C. or -5 to -12.5 Pa) is once again measured at the appliance draft sampling location. Verify that the PSA-1 Fan Prover Switch closes.
11. **IMPORTANT:** Reconnect PSA-1 Fan Prover leads to switch that were jumpered together in Step # 3. Run entire heating/vent system through 3 cycles to verify proper burner light off and operation. Verify that each appliance lights off properly with all other appliances not firing. If barometric draft control(s) are excessively open, adjust weight so the draft control damper opens less and repeat process starting with Step # 3.
12. Sign and date these instructions to verify that the PSA-1 Fan Prover interlock was completed.

**These instructions must remain on premises. SIGN: \_\_\_\_\_ DATE: \_\_\_\_\_**

#### MODEL RT750H / RT1500H SPEED CONTROL ADJUSTMENT

Model RT750H and RT1500H include a motor speed control. Do not alter the internal pot or use a different motor speed control. Do not wire so that speed control varies the motor cooling fan speed. Always have the inducer operating prior to and during the entire burn cycle of a solid fuel stove or fireplace.

#### SPEED CONTROL INSTALLATION

1. Install the speed control in an indoor location adjacent to the solid fuel stove or fireplace, ideally where the flames and smoke can be viewed when speed adjustments are made.
2. The speed control requires a 2"x4" electrical box. 14-3 w/ground electrical wire is recommended because it consists of a white (neutral), Black (constant hot), Red (switched variable through speed control) and Green (ground) leads. Commercial applications may require 12 gauge wire and electrical disconnect on roof.

3. After speed control is installed as wired per the Manual Speed Control diagram on the bottom of Page 9, install included faceplate to junction box and push adjustment knob onto shaft of speed control.
4. Verify that Rooftop inducer activates when speed control is switched on and that Inducer performance decreases when knob is turned fully clockwise. This can be done by holding a candle in the unlit fireplace or stove near the flue outlet and observing flame and smoke.

## COMBUSTION AIR

Adequate combustion air is vital for proper combustion and for safe venting. Likewise, for proper Inducer performance, adequate combustion air must be available to the appliance. Many installers assume adequate combustion air is present, especially in older structures. In some cases this is a false assumption, because many structures have been made "tight" due to weatherization. Size the combustion air opening(s) into the equipment room as outlined in NFPA 31, 54 & 211. Tjernlund's IN-FORCER™ combustion air intake systems provide a convenient, automated way to supply combustion air to the equipment room. When installing the Rooftop Inducer it is not necessary to supply any more combustion air than normally required when conventional venting.

## INSPECTION & MAINTENANCE

The Rooftop Inducer is designed for continuous use. The motor is equipped with permanently lubricated sealed ball bearings which do not require oiling.

A vent pipe / chimney inspection must be performed annually. The inspection should include checking all vent pipe and connections for blockage and leaks. A safety interlock test as outlined in Step # 11 under "RT750 / RT1500 PSA-1 Fan Proving Switch Adjustment" starting on Page 12 must also be performed annually for models RT750 & RT1500.

For oil and solid fuel applications inspect impeller after (3) months and set up a periodic inspection and cleaning routine as necessary. If used on a fireplace that is used regularly (2-3 times a week), semi annual chimney cleaning may be required to prevent creosote buildup. If used on a commercial wood-fired pizza oven cleaning may be required every 2-3 months. No matter how often used, a chimney serving wood-fired appliances should be cleaned and inspected at least once a year.

### CLEANING

**IMPORTANT:** Disconnect the power supply when making wiring connections or when working around the fan impeller and motor.

1. Remove (2) latch screws opposite hinge side on the front of Rooftop Inducer housing. Open housing until side hinge stops are engaged. Remove discharge grilles for greater access to impeller.
2. If necessary, use scraper and/or brush to clean soot and creosote buildup on the impeller and inside inducer base. Use caution not to displace impeller balancing weights.

## TROUBLESHOOTING

**PROBLEM:** Inducer Vibrates

**SOLUTION:** Clean Impeller.

**PROBLEM:** The Inducer does not operate.

**SOLUTION:** Confirm that the Inducer is properly wired. Verify that circuit breaker has not tripped. Check for 120 VAC at output of speed control when turned to 100% on position (if equipped). If voltage is measured at speed control output check for 120 VAC at junction box motor leads. If 120 VAC is present replace motor.

**PROBLEM:** The motor High Limit is tripping.

**SOLUTION:** Check to confirm that Cooling Fan is operational by supplying 120 VAC direct voltage to Cooling Fan. Make sure that Rooftop Inducer cooling air inlets are not blocked (cooling air inlets are smaller grilles on hinged & opposite hinged side). Verify flue gas temps are suitable for the Inducer ratings.

## HOW TO OBTAIN SERVICE ASSISTANCE

If you have any questions about your Rooftop Inducer or if it requires adjustment, repair or routine maintenance, we suggest that you initially contact your installer, contractor or service agency. If you require technical information contact Tjernlund Products, Inc. at 1-800-255-4208 with the following information:

1. Model and Lot # of the Rooftop Inducer.
2. Name and address of installer and service agency.
3. Date of original installation and dates any service work was performed.

## LIMITED PARTS WARRANTY AND CLAIM PROCEDURE

Tjernlund Products, Inc. offers a two year mechanical and corrosion (Inducer housing and components must be compromised, adversely affecting normal operation due to corrosion) warranty on the Rooftop Inducer. 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 or misapplication are not covered under this warranty. This warranty DOES NOT cover the complete Rooftop Inducer if it is operative, except for the defective part.

Tjernlund Products, Inc. will issue credit to your Rooftop Inducer provider or provide a free part to replace one that becomes defective during the two year warranty period. All receipts should include the Lot # of the Rooftop Inducer to ensure that the defective component corresponds with the complete unit. This will help prevent possible credit refusal.

1. Determine defective component. If unable to determine faulty component, contact your Rooftop Inducer provider 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 Rooftop Inducer provider for replacement. Please include Rooftop Inducer Lot # component was taken from. The Lot # is located on the Rooftop Inducer nameplate on the Inducer housing. Credit or replacement will only be issued to your Rooftop Inducer provider after the defective part has been returned prepaid to Tjernlund.

### REPLACEMENT PARTS COVERED BY WARRANTY

#### MOTOR KIT

RT750 / RT750H MOTOR KIT            950-8602  
RT1500 / RT1500H MOTOR KIT        950-8603

#### 115 VAC COOLING FAN KIT

RT750 / RT1500                            950-0020

#### COOLING FAN T-STAT

ALL MODELS                                 950-8301

#### IMPELLER KIT

RT750 / RT750H IMPELLER KIT        950-8604  
RT1500 / RT1500H IMPELLER KIT     950-8605

#### FAN PROVER KIT

RT750 / RT1500                            950-8470

#### SPEED CONTROL KIT

RT750H SPEED CONTROL                950-8600  
RT1500H SPEED CONTROL               950-8601

### WHAT IS NOT COVERED

- Product installed contrary to our installation instructions, altered, neglected or misused.
- Product that has been wired incorrectly or damaged by a malfunctioning or mistuned burner
- Any freight charges related to the return of the defective part
- Any labor charges related to evaluating and replacing the defective part

#### TJERNLUND LIMITED TWO YEAR WARRANTY

Tjernlund Products, Inc. warrants to the original purchaser that this product will be corrosion\* resistant and free from mechanical defects due to faulty material or workmanship for a period of (2) years 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 or email us at fanmail@tjfans.com.

\*Inducer housing and components must be compromised, adversely affecting normal operation due to corrosion.