Spruce RV Series
Operation Instruction and Parts Manual

Fan Installation & Operating Instructions
Please Read and Save These Instructions.

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

1. **WARNING!** For General Ventilating Use Only. Do Not Use to Exhaust Hazardous, Corrosive or Explosive Materials, Gases or Vapors. See Vapor Intrusion Application Note #AN001 for important information on VI Applications. See RadonAway.com/vapor-intrusion.

2. **NOTE:** Fan is suitable for use with solid state speed controls; however, use of speed controls is not generally recommended.

2. **WARNING!** Check voltage at the fan to ensure it corresponds with nameplate.

3. **WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.

4. **NOTICE!** There are no user serviceable parts located inside the fan unit. **Do NOT attempt to open.** Return unit to the factory for service.

5. **WARNING!** Do not leave fan unit installed on system piping without electrical power for more than 48 hours. Fan failure could result from this non-operational storage.

6. **WARNING!** TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

   a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.

   b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

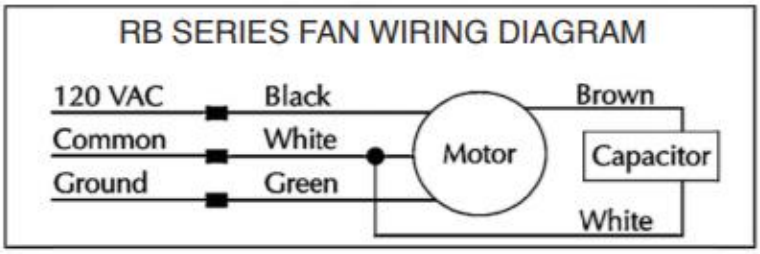
   c) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire rated construction.

   d) Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent backdrafting. Follow the heating equipment manufacturers' guidelines and safety standards such as those published by any National Fire Protection Association, and the American Society for Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), and the local code authorities.

   e) When cutting or drilling into a wall or ceiling, do not damage electrical wiring and other hidden utilities.

   f) Ducted fans must always be vented to outdoors.

   g) If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application and be connected to a GFCI (Ground Fault Circuit Interrupter) protected branch circuit.



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Fan Series

RV100 p/n 28040
RV125 p/n 28042
RV150 p/n 28041
RV200 p/n 28049

1.0 MOUNTING

The Spruce RV Series fans may be mounted at any angle without affecting performance although the vertical mounting position shown in Fig. 1 is highly recommended. If the vertical mounting position is not possible, care should be taken to avoid creating a low spot in the fan/duct system where condensation might accumulate in the fan housing as shown in Fig. 2. In situations where horizontal mounting is desired and condensation is likely to occur (bathroom ventilation in cold climates) this problem might be avoided by mounting the fan 30 degrees beyond horizontal as shown in Fig. 3.

Fig. 1

Fig. 2

Fig. 3

2.0 FAN SEALING

RV Series Fans are factory sealed, no additional caulk or other materials are required to inhibit air leakage.

3.0 DUCTING

Any type of ducting is acceptable, however, flexible nonmetallic ducting is recommended for easy installation and quieter operation. Insulated flexible ducting is highly recommended in cold climates to prevent the warm bathroom air from forming condensation in the ducting where it is exposed to colder attic air. The outlet of the fan should always be ducted to the outside. Avoid venting the outlet of the fan directly into an attic area. The excess moisture from the bathroom can cause damage to building structure and any items stored in the attic. Multiple venting points may be connected together using a T or Y fitting. Ideally duct should be arranged such that equal duct lengths are used between intake and T or Y fitting, this will result in equal flow rates in each intake branch. If adjustable intake grilles are used on multi-intake systems, then the opening on each grill should be equal in order to minimize noise and resistance. Straight smooth runs of rigid metal ducting will present the least resistance and maximize system performance. The Equivalent Length of Rigid Metal Ducting resulting in .2" WC pressure loss for each fan model is provided in the specification section of these instructions. Flexible ducting, if used, must always be as close to being fully extended as possible. Formed rigid metal duct elbows will present the least resistance and maximize system performance, recommended bend radius of elbow is at least 1.5 x duct diameter.

To ensure quiet operation of our inline and remote fans, each fan shall be installed using sound attenuation techniques appropriate for the installation. For bathroom and general ventilation applications, at least 8 feet of insulated flexible duct shall be installed between the exhaust or supply grille(s) and the fan. RV Series fans are not suitable for kitchen range hood remote ventilation applications. The ducting from this fan to the outside of the building has a strong effect on the airflow, noise and energy use of the fan. Use the shortest, straightest duct routing possible for best performance, and avoid installing the fan with smaller ducts than recommended. Insulation around the ducts can reduce energy loss and inhibit mold growth. Fans installed with existing ducts may not achieve their rated airflow.

4.0 BACKDRAFT DAMPERS

Backdraft dampers allow airflow in only one direction preventing cold/hot drafts from entering the vented area and minimize possible condensation and icing within the system while the fan is not operating. Backdraft dampers are highly recommended at each intake grille for bathroom ventilation in all cold climate installations. Installation instructions are included with Spruce backdraft dampers.

5.0 ELECTRICAL WIRING

All wiring must be performed in accordance with the National Fire Protection Association's (NFPA) "National Electrical Code, Standard #70" current edition for all commercial and industrial work, and state and local building codes. All wiring must be performed by a qualified and licensed electrician. A Ground Fault Interrupter (GFI) circuit is not required in most installations; check your local codes. Ensure that all exterior electrical boxes are outdoor rated and properly sealed to prevent water penetration into the box. A means, such as a weep hole, is recommended to drain the box. Note that the fan is not intended for connection to rigid metal conduit.

6.0 APPLICATIONS

Suitable for general ventilation, bathroom venting, fresh air supply, duct boosting, building pressurization, etc.
Not suitable for kitchen range hood venting.

7.0 INSTALLATION

Step 1: Install Mounting Bracket as shown (Fig. 4). Insert Grommets into slots in Mounting Bracket. Orient the Electrical Box relative to Mounting Bracket as required. Attach the fan to the Mounting Bracket with 3 #10 self-tapping screws, provided. Avoid over tightening screws.

Step 2: Select location for fan mounting. A location 2/3 along the ducting, a minimum of 10 feet away from the inlet vent to the fan or the Y/T of a multi-intake system- will provide the quietest operation. Fan should be mounted vertically to prevent moisture from accumulating in the fan housing. Attach bracket to mounting structure with the 1 1/4" screws provided (Fig. 5).

Step 3: Connect ductwork between fan inlet and area to be vented through inlet grille (Fig. 6). Flexible, nonmetallic ducting is recommended for quietest operation and easiest installation. Insulated flexible ducting is highly recommended for bathroom ventilation in all cold climate installations. Metal worm drive clamps, spring clamps, and adjustable plastic ratchets are recommended for connection of ducting. Silicon caulk or duct tape may be used for additional sealing. Duct tape should be used to retain insulation.

Step 4: Connect inlet grille(s) (Fig. 7). An optional backdraft damper may be installed in the inlet grille to prevent cold air from backing into the inlet, prevent conditioned air from escaping and also prevent condensation from forming inside the ductwork. Backdraft dampers are highly recommended at each intake grille for bathroom ventilation in all cold climate installations.

Step 5: Connect outlet of fan to outside vent (Fig. 8). The outside vent may go through the roof, sidewall or soffit as desired. Flexible, nonmetallic ducting is recommended for quietest operation and easiest installation. Insulated flexible ducting is highly recommended for bathroom ventilation in all cold climate installations.

Step 6: Make electrical connection to fan (Fig. 9). Ensure any metal filing used in the installation is properly grounded. A plastic cable connector such as a T&B #3300 may be used to avoid any filing grounding problem. Observe the proper wiring connections (See Section 5.0). Note that the fan is not intended for connection to rigid metal conduit.

RB Series Wire	AC Connection
Black	AC Line
White	AC Common
Green or Grn/Ye	Ground


Fig. 4


Fig. 5


Fig. 6


Fig. 7


Fig. 8


Fig. 9

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RV SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for RV Series Commercial/Residential Fans:

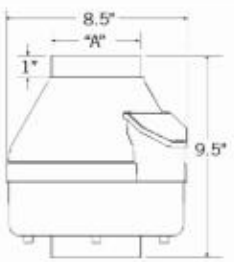
Typical CFM vs. Static Pressure "WC

	0"	.2"	.5"	.75"	1.0"	1.5"	2.0"	2.5"	Max Static Pressure
RV100	113	100	71	46	18	-	-	-	1.06" WC
RV125	116	110	98	87	72	43	-	-	2.08" WC
RV150	150	140	119	98	76	24	-	-	1.77" WC
RV200	187	170	144	121	87	1	-	-	1.51" WC

Power Consumption @ 120 VAC, 60Hz (1.4 Amp Maximum)

RV100	35-44 watts
RV125	48-68 watts
RV150	48-66 watts
RV200	49-66 watts

Size Chart



Fan Model	"A" Dim	Duct Size
RV100	3.9"	4"
RV125	3.9"	4"
RV150	3.9"	4"
RV200	5.9"	6"

Weight: 6 lbs.
Mounting: Mounting bracket included.
Recommended Ducting: 4", 5", or 6" Rigid Flexible Ducting
Storage Temperature Range: 32-100 degrees F.
Normal Operating Temperature Range: -20-120 degrees F.
Maximum Inlet Air Temperature: 90 degrees F Continuous
Continuous Duty: 3000 RPM
Thermally Protected: Class B
Rated for Indoor or Outdoor Use
Rated for Residential and Commercial use

LISTED Electric Fan
Intertek 77728
Conforms to UL STD. 507
Certified to CAN/CSA STD. C22.2 No.113
2100 HVI CERTIFIED

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Typical RV Series Fan Installation

1. RV Series Fans
   - RV 100 – 100 CFM Fan , P/N 28040
   - RV125 – 110 CFM Fan , P/N 28042
   - RV 150 – 140 CFM Fan , P/N 28041
   - RV 200 – 170 CFM Fan , P/N 28049

   Mounting Bracket Included
2. Flexible Duct
   Insulated Ducting is strongly recommended in colder climates
3A. Roof Vent Cap
   or
3B. Vent Hood
4. Y or T for Optional Second Vent
5. Vent Details
   - Deluxe Metal Backdraft Damper
   - Duct Grille & Collar

   Backdraft Dampers are strongly recommended in colder climates.