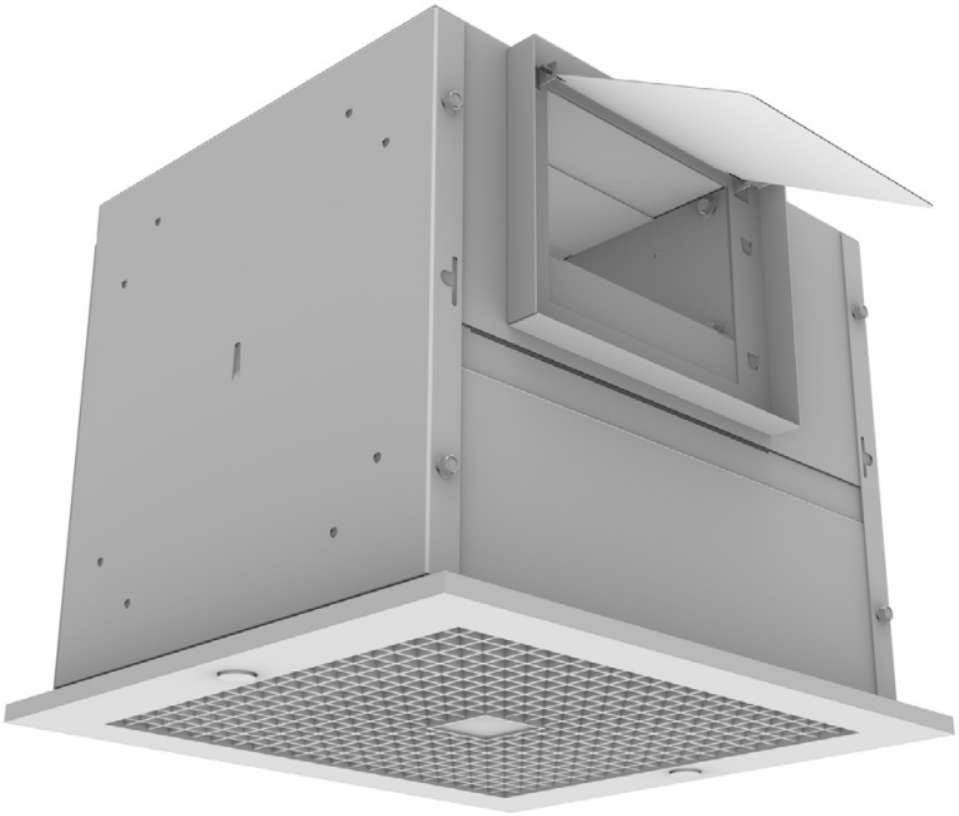
PENNBARRY Z3H, Z12H Zephyr Ceiling and Inline Fans User Manual

Contents

PENNBARRY™

PENNBARRY Z3H, Z12H Zephyr Ceiling and Inline Fans



Specifications

- **Product** Name: Zephyr Ceiling & Inline Fans
- **Models:** Z3H through Z12H
- **Manufacturer:** PennBarry

Product Usage Instructions

Storage

Long-term storage requires special attention. Units should be stored on a level, solid surface, preferably indoors. If outside storage is necessary, protect the units against moisture and dirt by encasing the cartons in plastic or some similar weatherproof material.

Unpacking

1. Place the carton in an upright position and remove staples or use a sharp (knife edge) tool to CAREFULLY cut or scribe the sealing tape on both sides at the top of the carton.
2. Open carton flaps and remove any cardboard, wooden filler pieces, loose components, or accessories shipped with the unit.
3. Carefully remove the unit from the carton and inspect for any damage that may have occurred during transit.

Installation

1. For general ventilating use only, do not use to exhaust hazardous or explosive materials and vapors.
2. Remove internal protective shipping trays and fillers. Check for and remove any loose hardware from the inside of the fan housing.

3. Assemble adjustable flanges to fan housing with provided self-tapping metal screws.
4. Secure the adjustable flanges to each joist using the appropriate hardware.
5. Attach a properly sized duct-to-duct sleeve mounted on the fan housing and run this duct system to an appropriate wall or roof cap.

FAQ

Q: What should I do if my PennBarry fan is received damaged?

A: If your fan is received damaged, immediately inspect the unit for any visible damage and contact PennBarry customer service for assistance.

Q: Can I use the Zephyr Ceiling & Inline Fans to exhaust hazardous materials?

A: No, the fans are designed for general ventilating use only and should not be used to exhaust hazardous or explosive materials and vapors.

IMPORTANT! Read before proceeding!

- Read carefully before attempting to assemble, install, operate, or maintain the product described. Protect yourself and others by observing all safety information.
- Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

INTRODUCTION & INSTALLATION

Storage

- Long-term storage requires special attention. Units should be stored on a level, solid surface, preferably indoors.
- If outside storage is necessary, protect the units against moisture and dirt by encasing the cartons in plastic or some similar weatherproof material.

Unpacking

- Place the carton in an upright position and remove staples or use a sharp (knife edge) tool to CAREFULLY cut or scribe the sealing tape on both sides at the top of the carton.
- Open carton flaps. Remove any cardboard and wooden filler pieces, as well as loose components or accessories shipped with the unit.
- Carefully remove the unit from the carton. Inspect the unit for any damage that may have occurred during transit and check for loose, missing, or damaged parts.

Installation

- **CAUTION** For general ventilating use only, do not use to exhaust hazardous or explosive materials and vapors.
- Remove internal protective shipping trays and fillers. Check for and remove any loose hardware or particles

from the inside of the fan housing. Disconnect the motor cord and plug from the internal terminal box and receptacle.

- On installations made before a final ceiling is installed, with access from below, the following procedure applies.
- Assemble adjustable flanges to fan housing with four self-tapping metal screws provided. The adjustable flanges should be located as illustrated in Figure 1.
- PennBarry Ceiling Fans are quiet. They are designed for applications where a low-noise, high-reliability ceiling or cabinet fan is required.
- With air capacities from 30 to 1600 CFM, they’re ideally suited for use in ventilating bathrooms or other low to medium-CFM applications.
- Housings are fabricated of sturdy galvanized steel to ensure durability. Acoustic insulation, in combination with matched motor and wheel assemblies, lowers sound levels and improves air performance.
- Further, motors are mounted on vibration isolators to minimize noise levels. Together, these features ensure years of problem-free, quiet operation.

Receiving and Handling

- PennBarry fans are carefully inspected before leaving the factory. When the unit is received, inspect the carton for any signs of tampering. Inspect the unit for any damage that may have occurred during transit and check for loose, missing, or damaged parts.
- Mishandled units can void the warranty provisions. PennBarry is not responsible for damages incurred during shipment.
- Avoid severe jarring and/or dropping. Handle units with care to prevent damage to components or special finishes.
- **Note:** Standard Zephyrs are set up for RA (right angle discharge). For TD (top discharge) or TDA (Inline), see conversion instructions
- **Note:** On model Z6S / H, when using a variable speed controller, wire to the high (h) setting only.
- Using appropriate hardware (i.e. wood screws or sheet metal screws, depending on joist construction), secure the adjustable flanges to each joist. Attach a properly sized duct-to-duct sleeve mounted on the fan housing.
- Run this duct system to an appropriate wall or roof cap. The discharge side must be guarded unless it is connected to the duct.

Figure 1

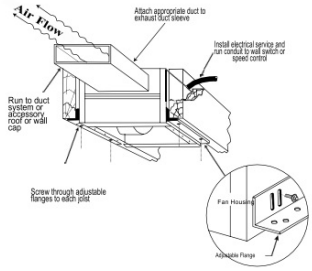


Figure 2a

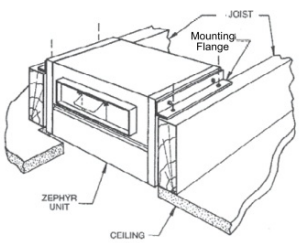
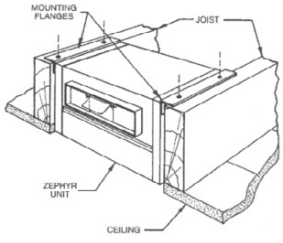


Figure 2b



- Normally, power is brought up from within the building through conduit lines and located at the terminal box. Before wiring is attempted, always lock out the primary and secondary power source. Utilizing the pre-punched hole found at the terminal box on the fan housing, insert a 3/8” electrical connector. All wiring furnished should be in strict accordance with the National Electrical Code and local, state, and federal standards. Complete the installation by cutting a 9 1/2” by 12 1/2” ceiling opening for the Z3, Z5 and Z6; 11 7/8” by 13 3/4” for the Z8 and Z81; 14 1/2” by 18” for the Z10; and 14 1/2” by 23 3/4” for Z101, Z102, Z12 and Z121 ceiling fan.
- Installation of ceiling fans in suspended ceiling systems requires a minimum of 10 gauge solid wire for hanging

or suspending the ceiling fan. Four wires per unit should be connected to the pre-punched holes of the adjustable mounting flanges (after the flanges have been mounted to the fan housing as outlined above).

- **Note:** For the Z12 and Z121, 1/4” threaded rods or perforated steel strips should be used per fan as illustrated in Figure 4.
- If installation is to be made with the ceiling in place, access must be from above. The following procedure should be used for installing the Zephyr ceiling fans. Assemble the adjustable flanges to the fan housing as illustrated in Figures 2 or 2A. Position adjustable flanges so the unit is flush with the top side of the ceiling surface. Tighten the adjustable flanges and secure them with the appropriate hardware (wood screws or sheet metal screws, depending on framing construction). Use the housing as a template, punch or drill a small hole through the ceiling at each corner of the housing, and cut an opening in the ceiling, using these holes as a guide. Install the duct and electrical service under the instructions listed in the previous section.
- In installations where the ceiling is already installed and there is no access from above, the following procedure should be followed. Before cutting the ceiling opening, determine the exact location of framing or support members. Cut holes in the ceiling using care not to exceed the dimensions of the ceiling grille. Note: The ceiling hole should be cut so that one edge of the hole is in line with the inside face of the joist. The hole must be large enough to permit passage of the fan housing into the ceiling space. Care should be taken not to exceed the ceiling grill dimensions when cutting.
- Remove the blower assembly from the housing. For single blower units, remove two #10 sheet metal screws near the blower; slide the power pack to the left to release it from the housing. (For double blower units, remove one 1/4” bolt).
- Electrical service should now be brought up to the fan location. This should be done under the instructions listed in the previous section.
- To secure housing in ceiling space, raise the housing into place with one edge of the housing against joist “A” (see Figure 3). Determine if it is necessary to build out from joist “B” so that the housing can be secured from both sides. If building out is necessary, an appropriate piece(s) of wood should be utilized. These wood spacers should be nailed to joist “B” to increase the thickness of the joist at the point where the fan will be installed. The fan housing should fit snugly between joist “A” and joist “B” (or the built-out section of joist “B”). If spacers are required for joist “B”, they should be sized according to the dimension of the fan housing. Using care to avoid damage to the housing, secure the housing to the joists by nailing through the pre-punched holes found at the top and bottom of the housing sides.
- These pre-punched holes would normally be utilized as a point of attachment for the adjustable flanges; however, these flanges will not be necessary with this type of installation.

Figure 3

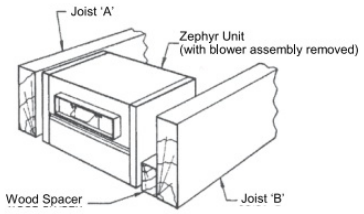


Figure 4

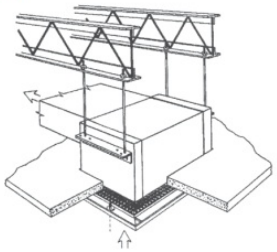


Figure 5a

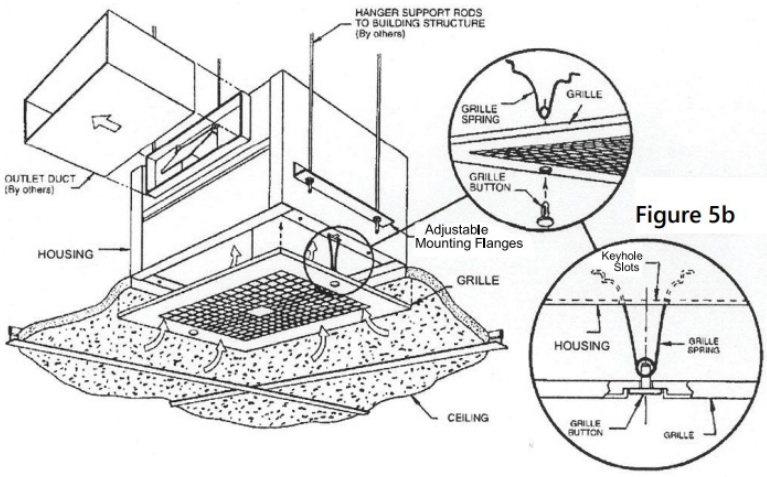


Figure 5b

- Before the nails are driven snug, care should be taken to ensure that the housing is 1/4” above the ceiling level. Nails should now be secured. Care should be taken to ensure that the nail head is large enough to prevent slipping through the pre-punched holes.
- A washer can be used to increase the bearing surface. Re-attach the blower assembly to the housing. Lock out primary and secondary power sources and secure electrical lines to the terminal box. This should be done under the procedure outlined
- For all of the installation situations described above, the egg crate ceiling grill should be installed as a final step. This is done by first assembling the two torsion springs to the grill. Use the torsion springs and grill buttons from the hardware kit provided.
- Insert the grille buttons into the ceiling grill as shown in Figure 5a through the slot in the grill buttons. The grill is now ready for assembly to the housing. Lift the grill into position below the housing.
- Insert the two torsion springs into the keyhole slots located in the center of the housing as shown in Figure 5B. Push the grill towards the housing

Electrical Connections

Before attempting any repair or installation work, be certain that all power to the motor and electrical accessories is turned off and locked in the off position.

1. Connect motor per nameplate to correct power supply.
2. Install all wiring, protection, and grounding under the national electrical code and local requirements.
3. Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
4. To prevent motor failure when a speed controller is used, the unit must be started at high speed before turning to low speed.

- CAUTION For low speed, insulate black lead as shown in Figure 7.
- For high speed, insulate red lead and connect black to black with a wire nut.
- **Note:** On Model Z6S / H, when using a variable speed control, wire to the high (H) setting only.
- Make all of the necessary connections by using two wire nuts. A separate ground wire must be connected to

the grounding screw. Reinstall the cover of the junction box.

Maintenance

- **CAUTION** To reduce the risk of injury, disconnect from the power supply before servicing.
- The blower wheel, housing, and grille should be cleaned of dust and grease if required. Power should be disconnected before cleaning the internal parts of the ceiling fan.
- Remove the grill. Use a vacuum cleaner with the appropriate attachments and vacuum dust from the grill. Wash the grill with a warm, soapy solution of water. Allow the grill to air dry thoroughly before reinstalling.
- To clean the blower wheel(s) and housing, unplug the blower from the integral terminal box. Remove the blower assembly from the housing. For single blower units, remove two #10 sheet metal screws near the blower discharge and slide to the left.
- For double-blower units, remove one 1/4” bolt next to the motor. Vacuum blower wheel, if necessary, the wheel can be washed. Use extreme caution – do not allow water to enter the motor. Wipe the blower wheel dry with an absorbent cloth. Before replacing the blower/motor assembly, wipe out the interior of the housing. Replace the blower/motor assembly and secure it with self-tapping screws. Plug in blower motor into the terminal box.

Figure 6: Internal Electrical Connections, PSC Single Speed

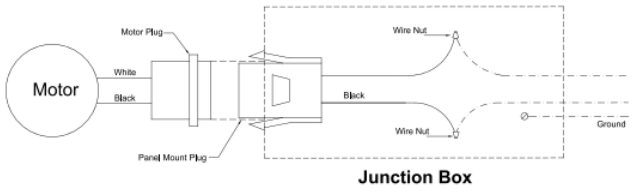
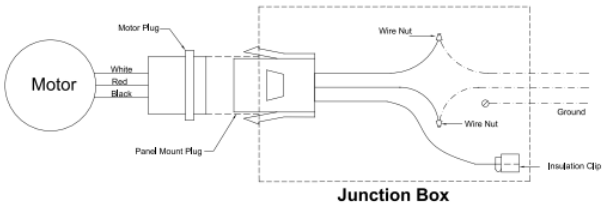


Figure 7: Internal Electrical Connections, PSC Two Speed Motors



Field wiring by other Factory wire

Figure 8: Internal Electrical Connections, Z8-GP/GPE, 115 V motor

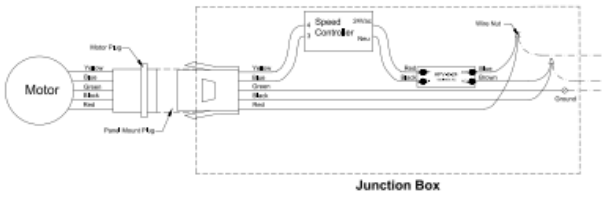


Figure 9: Internal Electrical Connections, Z8-GP/GPE, 208 -230 V motor

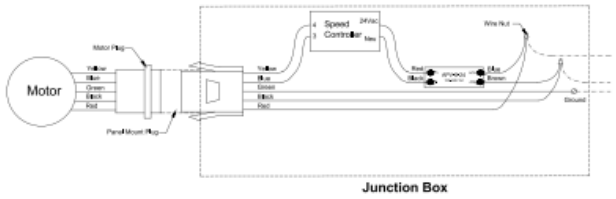


Figure 10: Internal Electrical Connections, Z10-GP/GPE, 115 V motor

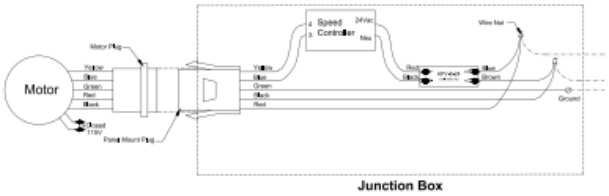


Figure 11: Internal Electrical Connections, Z10-GP/GPE, 230 V motor

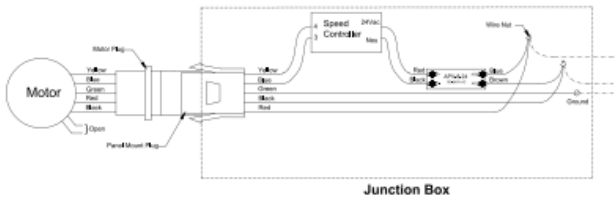
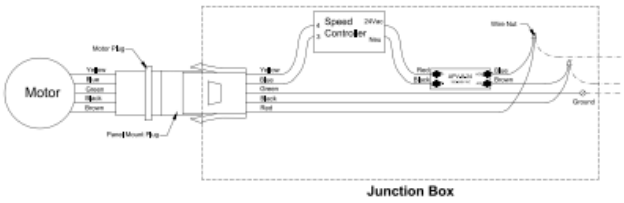


Figure 12: Internal Electrical Connections, Z12-GP/GPE, 120 V motor



---- Field wiring by other —— Factory wire

- **Note:** All motors are checked before shipment; however, if motor defects should develop, prompt service can be obtained from the nearest authorized service station of the motor manufacturer while under warranty. Exchange, repair, or replacement will be provided on a no-charge basis if the motor is defective within the warranty period. The PennBarry representative in your area will provide the name and address of an authorized service station if requested. Do not return defective motors to Pennbarry.
- **WARNING:** The motor guarantee is void unless overload protection is provided in the motor wiring circuit.

Hidden Danger

- In addition to the normal dangers of rotating machinery, fans present an additional hazard in their ability to suck in not only air but loose materials as well. Solid objects can pass through the fan and be discharged by the impeller as potentially dangerous projectiles.
- Intake to duct work should, whenever possible, be screened to prevent the accidental entrance of solid objects. Access doors or grills to a duct system should never be opened with the fan running.
- When a fan is being started for the first time, a complete inspection of the duct work and interior of the fan should be made (with the power locked off) to make certain there is no foreign material that can be sucked into or blown through the ductwork.

Fan Guards

- All fans have moving parts that require guarding in the same way as other moving machinery. In areas that are

accessible only to experienced personnel, a standard industrial-type guard may be adequate.

- This type of guard will prevent the entry of thrown or dropped objects with a minimum restriction of airflow.
- Where the fan is accessible to untrained personnel or the general public, maximum safety guards should be used, even at the cost of some loss of performance.
- **CAUTION** To reduce the risk of injury of a person, install the fan at least 7 feet above the floor if no guard is installed.
- Roof-mounted equipment will require guards when access is possible, for example, by climbing children.
- Centrifugal fans may be connected directly to duct work which will prevent contact with the internal moving parts, but when the inlet or outlet is exposed, a suitable guard should be installed.
- Do not install it in the cooking or shower stall area.
- **CAUTION** Units are designed to handle clean air only. Avoid installation in corrosive and dusty environments.
- **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 the unit, switch the power OFF at the service panel and lock the service panel 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.
- **CAUTION** To reduce the risk of fire, electric shock, or injury to persons, observe the following.
- **A.** Installation work and electrical wiring must be done by a qualified person(s) under all applicable codes and standards, including fire-rated construction.
- **B.** Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel-burning equipment to prevent back-drafting. Follow the heating equipment manufacturer's guidelines and safety standards such as those published by the National Fire Protection Association (NFPA), The American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and local code authorities.
- **C.** When cutting or drilling into a wall or ceiling, do not damage electrical wiring and other hidden utilities.
- **D.** Ducted fans must always be vented to the outdoors.
- **E.** If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application.
- **F.** NEVER place a switch where it can be reached from a tub or shower.
- **CAUTION** For general ventilating use only. Do not use to exhaust hazardous or explosive materials and vapors.
- Use caution when handling sheet metal products. Protection should be used to avoid contact with sharp edges, or injury may occur.

IMPORTANT SAFETY INSTRUCTIONS

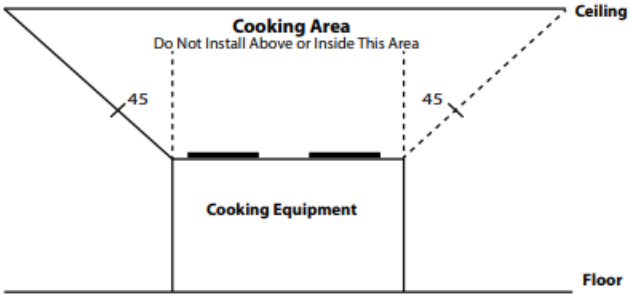
READ AND SAVE THESE INSTRUCTIONS WARNINGS AND CAUTIONS

WARNING To reduce the risk of fire, electric shock, or injury to persons, observe the following.

1. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
    - **FOR INDOOR USE ONLY.**
2. Before servicing or cleaning the unit, switch the power off at the 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.

3. Installation work and electrical wiring must be done by a qualified person(s) under all applicable codes and standards, including fire-rated construction.
4. Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel-burning equipment to prevent back-drafting. Follow the heating equipment manufacturer's guidelines and safety standards such as those published by the National Fire Protection Association (NFPA), the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.
5. When cutting or drilling into a wall or ceiling, do not damage electrical wiring and other hidden utilities.
6. Ducted fans must always be vented to the outdoors.
7. 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.
8. Wall unit must be installed with a minimum five feet (1.5m) mounting height from the floor.
9. Ceiling units must be installed with a minimum 8.2 feet (2.5m) mounting height from the floor.
10. To avoid the risk of personal injury or property damage from fire, avoid skin or flammable material contact with the LED heat sink and LED lens.
11. To reduce the risk of fire or electric shock, do not use this fan with any solid-state speed control device.
12. For wall insert mounting, the fan must be installed above a counter or large appliance that serves as a barrier.
13. Never place a switch where it can be reached from a tub or shower.
14. Do not install it in the cooking area. The diagram below, Figure 1, shows the minimum distance these fans should be placed in relation to cooking equipment.

FIGURE 13 MINIMUM INSTALLATION DISTANCE FROM COOKING AREA



ATTENTION!

- For indoor use only.
- Do not use with heated air over 55°C (131 °F). Not suitable for use with ridge conduit.
- Cord-connected models shall be marked with: "Do Not Use an Extension Cord with This Fan."
- This fan shall not be installed behind a suspended floor/ceiling or a structural wall, ceiling, or floor.

CAUTION

1. Avoid severe jarring and/or dropping of the unit. Handle the unit with care to prevent damage to components. This duct fan shall be installed a minimum of 1 m (3 ft) from any accessible opening of the duct.
2. For general ventilation use only. Do not use to exhaust hazardous or explosive materials and vapors.
3. Units are designed to handle clean air only. Avoid installation in corrosive and dusty environments.
4. To reduce the risk of injury, the unit should only be operated when fully assembled.
5. Equipment will require guards if it is accessible.

6. Centrifugal fans may be connected directly to duct work which will prevent contact with the internal moving parts, but when the inlet or outlet is exposed, a suitable guard should be installed.
7. Where the fan is accessible to untrained personnel or the general public, maximum safety guards should be used.

TABLE 1: ACCESSORIES MATRIX

Model	Roof Caps			Wall Cap	Brick Vent	Switches		Radiation‡ Damper	Metal Face Grill
	Flat	Curb Mnt.	Slope			Speed Ctrl.	Time Delay		
Z3H	WCF06	WCC06	SL20+	WC10	B68	LT30	AM12	DDA3	MFG6
Z5H	WCF06	WCC06	SL20+	WC10	B68	LT30	AM12	DDA3	MFG6
Z6S/H	WCF06	WCC06	SL20+	WC10	B68	LT30**	AM12	DDA3	MFG6
Z8S/H	WCF08	WCC08	SL20+	WC10	B68	LT30	AM12	DDA8	MFG8
Z81S	WCF08	WCC08	SL20+	WC10	B68	LT30	AM12	DDA8	MFG8
Z8GP/GPE	WCF08	WCC08	SL20+	WC10	B68	PWM****	–	DDA8	MFG8
Z10S/H	WCF08	WCC08	SL20+	SL20+	B100	LT50	AM12	DDA10	MFG10
Z10GP/GPE	WCF08	WCC08	SL20+	SL20+	B100	PWM****	–	DDA10	MFG10
Z101S	WCF10	WCC10	WCF10†	***	B120	LT30	AM12	DDA12	MFG12
Z102S	WCF10	WCC10	WCF10†	***	B120	LT50	AM12	DDA12	MFG12
Z12S	WCF12	WCC12	WCF12†	***	B120	LT50	AM12	DDA12	MFG12
Z12GP/GPE	WCF12	WCC12	WCF12†	***	B120	PWM****	–	DDA12	MFG12
Z121S	WCF12	WCC12	WCF12†	***	B120	LT50	AM12	DDA12	MFG12
Z102H	WCF14	WCC14	WCF14†	***	B120	LT40	AM12	DDA12	MFG12
Z12H	WCF14	WCC14	WCF14†	***	B120	LT40	AM12	DDA12	MFG12
Z14	WCF20	WCC20	CF	***	B120	LT40	AM12	–	MFG14
Z15	WCF20	WCC20	CF	***	B150	LT35	–	–	MFG15

- Manufactured of galvanized steel. All other accessories are manufactured of aluminum.
- The kit is field installed and shipped separately from the fan.
- Z6H unit only.
- Use a brick vent. †4 in 12 max. pitch.
- Standard Assembly includes PWM control box

TABLE 2: ROOF CAPS

Model	A (Throat) Dia	B	C	E Sq	F	H	L Dia	* Damper Sq
WCF06	7	N/A	3 1/2	16 7/8	8	11 1/2	12	NA
WCF08	9	N/A	5 1/2	21 1/4	8	13 1/2	18 1/2	NA
WCF10	11	N/A	5 1/2	21 1/4	10	15 1/2	21	NA
WCF12	13	N/A	7	24	10	17	25	NA
WCF14	15	N/A	7	28	10	17	28	NA
WCF20	21	N/A	10 1/2	32	12	22 1/2	37	NA
WCC06	7	1	3 1/2	15	4	8 1/2	12	8 3/4
WCC08	9	1 1/2	5 1/2	18 1/2	4	11	18 1/2	11 1/4
WCC10	11	1 1/2	5 1/2	18 1/2	4	11	21	11 1/4
WCC12	13	2	7	20 1/2	4	13	25	15 3/4
WCC14	15	2	7	24 3/4	4	13	28	15 3/4
WCC20	21	2	101/2	28 1/2	5 1/2	18	37	19 3/4

Figure 14: Roof Caps (Models SL20 and WC10)

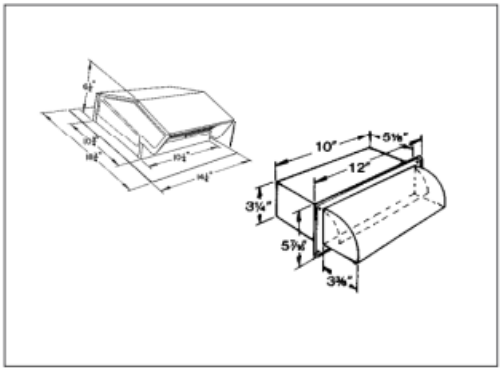
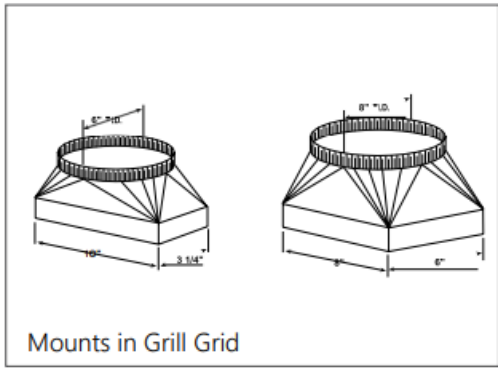
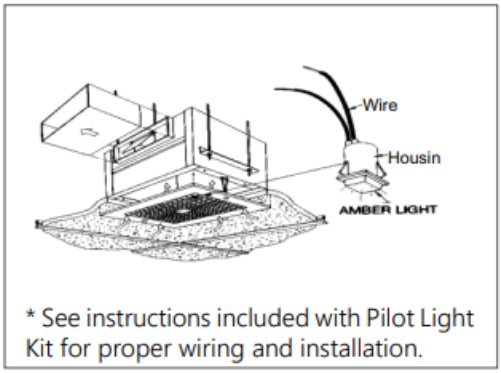


Figure 15: Duct transitions



Mounts in Grill Grid

Figure 16: Pilot Light



* See instructions included with Pilot Light Kit for proper wiring and installation.

Figure 17: Brick Vents

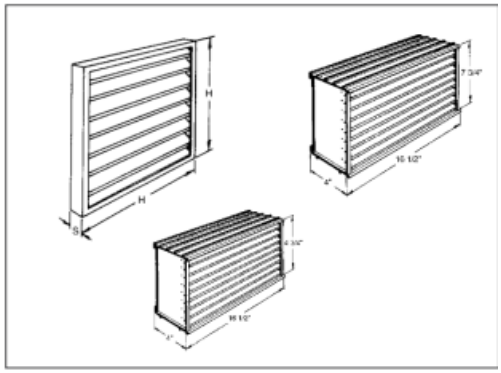


Figure 18: Weather Caps

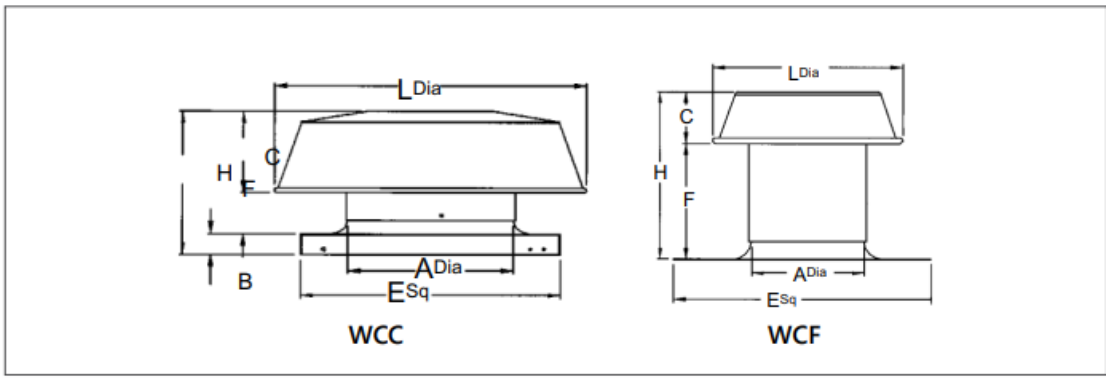


TABLE 3: DIMENSIONAL DATA

Model	Housing							Outlet Duct			Grill		TDA Intake Duct		
	A	B	C	D	E	E1	F	G	H	J	K	L	X	Y	Z
Z3H,Z5H, Z6S/H	12 1 /2	9 1/ 8	16	9 1/ 8	1 1/ 4	1 1/ 4	5 3/ 8	10	3 1/ 4	3/4	11	13 3 /4	10	6	1 5/ 8
Z8S/H,Z8 1S, Z8 GP /GPE	13 7 /8	11 3 /8	17 3 /8	11 3 /8	1 7/ 8	4	5 1/ 4	8	6	3/4	13 1 /4	14 7 /8	10	8	1 9/ 16
Z10S/H, Z 10 GP/ G PE	18	14 1 /8	21 1 /2	14 1 /8	3 5/ 8	6 3/ 8	8	8	6	3/4	15 1 /2	19 3 /8	14	10	2
Z101S,Z1 02S/H, Z1 2S/H,Z121 S, Z12 GP /GPE	24	14 1 /8	27 1 /2	14 1 /8	1	1	8	22	6	3/4	15 1 /2	25	20	10	2

Figure 19: Models Z3H, Z5H and Z6S/H

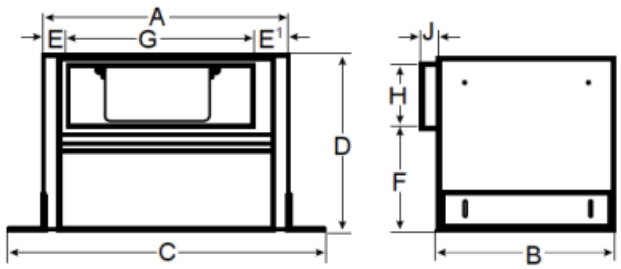


Figure 20: Models Z8S/H, Z8GP/GPE AND Z81S

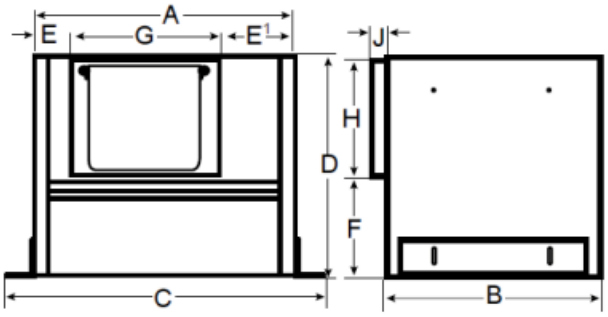


Figure 21: Model Z10S/H and Z10GP/GPE

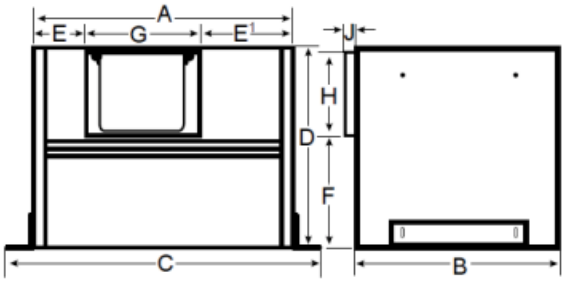


Figure 22: Models Z101S, Z102S/H, Z12S/H, Z12GP/GPE, Z121S

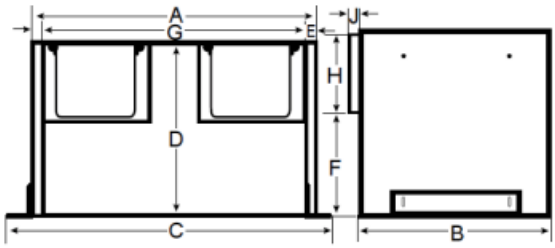


Figure 23

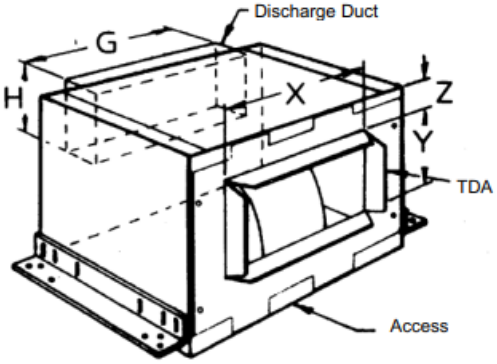
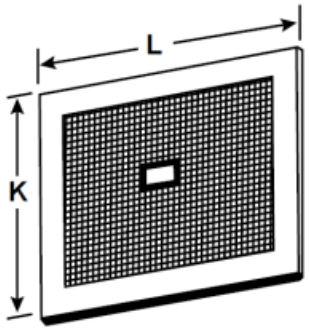


Figure 24



TYPICAL EXPLODED VIEWS

Figure 25: Models Z3H, 5H, 6S/H, 8S/H, 8GP/GPE 81S, 10S/H & 10GP/GPE

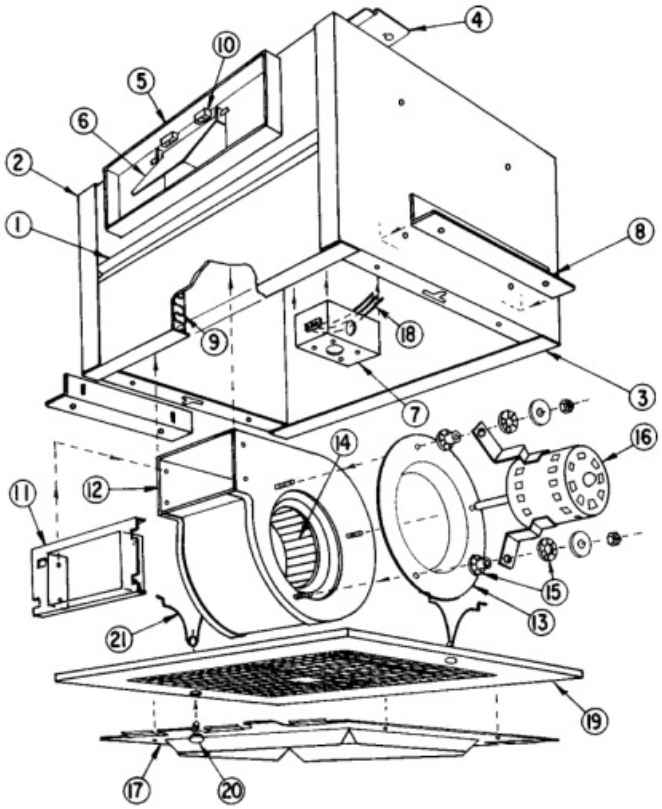
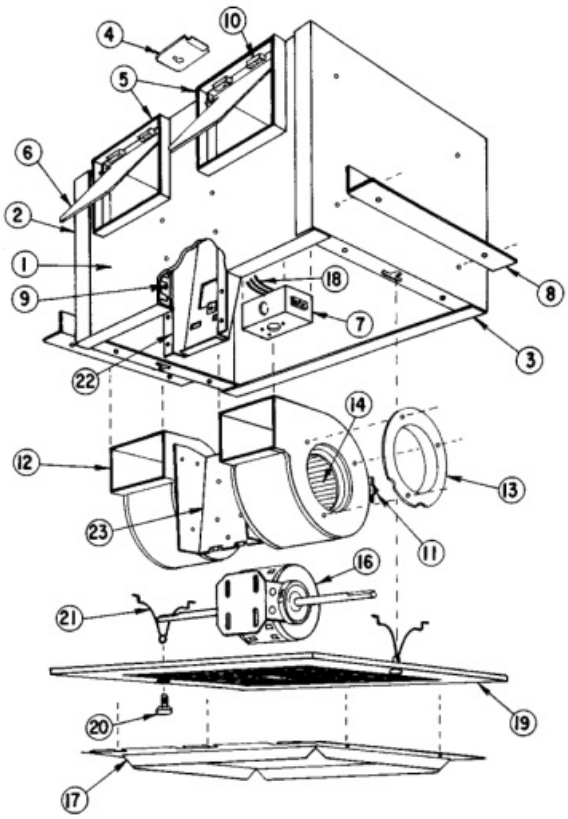


Figure 26: Models Z101S, 102S/H, 12S/H, 12GP/GPE & 121S



Legend

1. Housing
2. End
3. Access Panel
4. Wiring Box Cover Plate
5. Duct Flange
6. Damper Blade
7. Junction Box
8. Housing Bracket
9. Insulation; Parts A, B, & C
10. Damper Stop
11. Blower Bracket
12. Blower Housing Assembly
13. Inlet
14. Wheel
15. Grommets, 2 Part: Male & Female (single blower units only)
16. Motor
17. TDA Panel (Blank Off Plate) (not shown)
18. Wiring Assembly (2 & 3 Lead Versions) 3M Connector
19. Grill
20. Grill Button
21. Grill Spring

22. Box Brace (Double blower units only)
23. Motor Plate (Double blower units only)

Parts Replacement

If replacing parts, do so with properly selected components that duplicate the original parts correctly. Incorrectly sized parts can damage the fan.

CONVERSION INSTRUCTIONS

MODELS: Z3H, Z5H, Z5S/H, Z8S/H, Z8 GP/GPE, Z81S, Z10S/H & Z10 GP/GPE

RA / TD Ceiling Fan Conversions

RIGHT ANGLE (RA) TO TOP DISCHARGE (TD) CONVERSION

Note: As a standard, Zephyr RA / TD's are furnished with a Right Angle (RA) discharge as shown in Figure 27.

1. Disassemble the access panel from the housing by removing the two #10 sheet metal screws and then removing the panel by pulling it towards the housing opening as shown in Figure 27.
2. Reassemble the access panel by rotating the access panel 90º and remounting it to the housing. Slide in the 3 locking tabs to the housing flange and reinstall the two #10 sheet metal screws. See Figure 28.

Figure 27: "RA" (Right Angle)

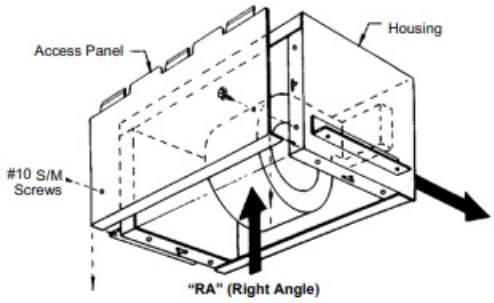
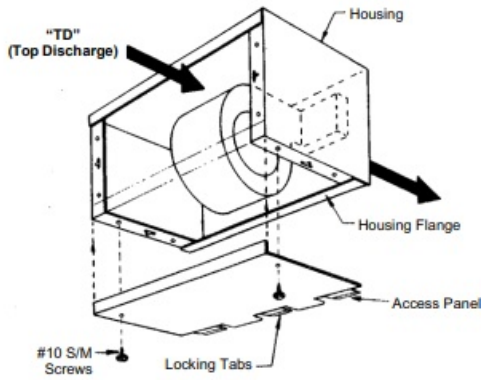


Figure 28: "TD" (Top Discharge)



TDA In-line Fan Conversions

TDA IN-LINE TO RIGHT ANGLE DISCHARGE CONVERSION

Note: As a standard, Zephyr TDAs are furnished with an In-line discharge as shown in Figure 29.

1. Disassemble the TDA panel from the housing by removing the four #10 sheet metal screws. Remove both panels as shown in figure 29.
2. Reassemble both the TDA and access panels after exchanging locations. First, slide the 3 locking tabs of the TDA panel into the housing flange. Second, slide the 3 tabs of the access panel into the housing. Third, engage the access panel return flange into the 3 locking tabs on the TDA panel. Finally, reinstall the six #10 sheet metal screws. See Figure 30.

Figure 29: "TDA" (In-Line)

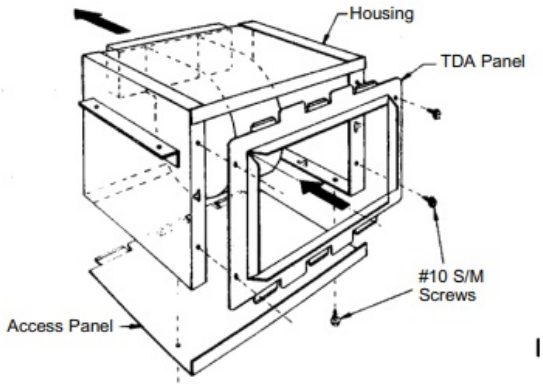
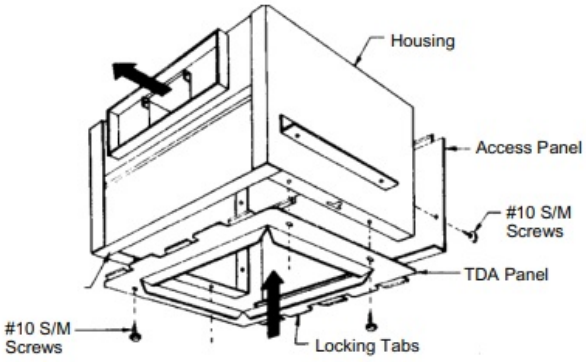


Figure 30: "TDA" (Right Angle)



MODELS: Z101S, Z102S, Z12S, Z102H, Z12H & Z12 GP/GPE

RA / TD Ceiling Fan Conversions

RIGHT ANGLE (RA) TO TOP DISCHARGE (TD) CONVERSION

Note: As a standard, Zephyr RA / TD's are furnished with a Right Angle (RA) discharge as shown in Figure 31.

1. Disassemble the access panel from the housing by first removing the four #10 sheet metal screws and then removing the panel as shown in Figure 31.
2. Reassemble the access panel by rotating the access panel 90º and remounting it to the housing. Finally, reinstall the four #10 sheet metal screws. See figure 32.

Figure 31: "RA" (Right Angle)

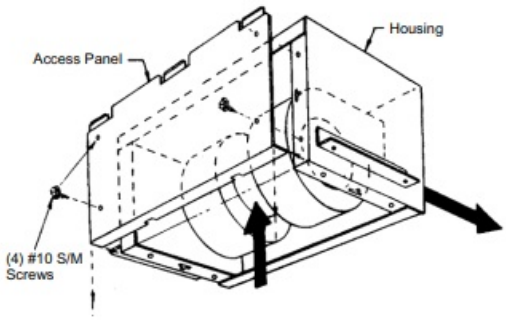
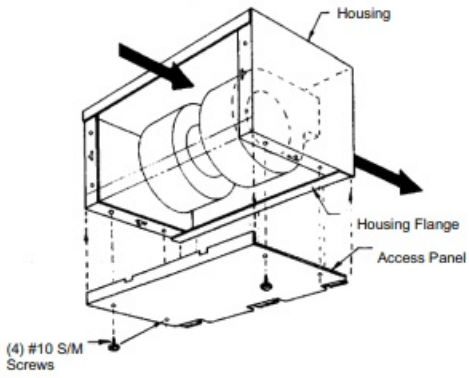


Figure 32:"TD" (Top Discharge)



TDA In-line Fan Conversions

TDA IN-LINE TO RIGHT ANGLE DISCHARGE CONVERSION

Note: As a standard, Zephyr TDAs are furnished with an In-line discharge as shown in Figure 33.

1. Disassemble the TDA panel from the housing by removing the four #10 sheet metal screws securing the TDA panel to the housing and then remove the access panel by removing the four #10 sheet metal screws. Remove both panels as shown in figure 33.
2. Reassemble both the TDA and access panels after exchanging locations. First, slide the 3 locking tabs of the TDA panel into the housing flange. Second, engage the access panel return flange into the 3 locking tabs on the TDA panel. Finally, reinstall the eight #10 sheet metal screws. See figure 34.

Figure 33: "TDA" (In-Line)

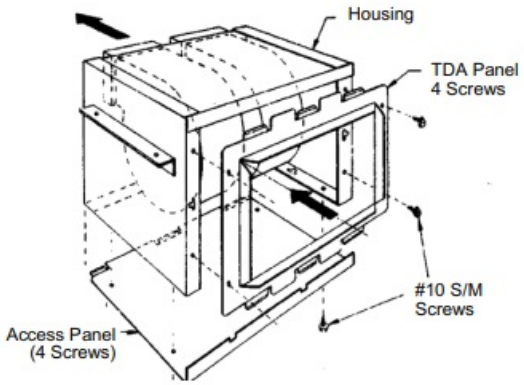
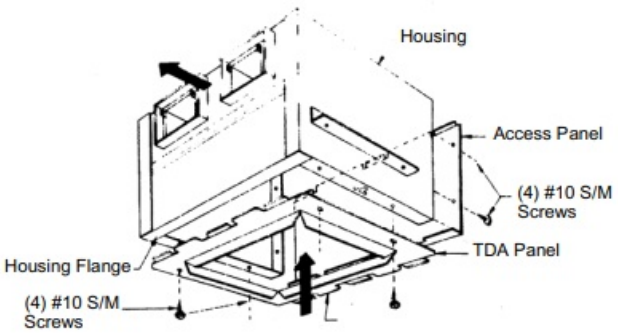


Figure 34: "TDA" (Right Angle)



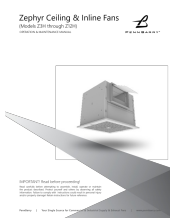
TROUBLESHOOTING CHECKLIST

Symptom	Possible Cause(s)	Corrective Action
Excessive noise	1. Defective or loose motor bearings	1. Replace motor with same frame size, RPM, HP
	2. Ventilator base is not securely anchored	2. Reset properly
	3. Loose or unbalanced wheel/propeller	3. Tighten screws, remove build-up, balance wheel/propeller
	4. Misaligned pulleys or shaft	4. correct alignment
	5. Loose or damaged wheel/propeller	5. Replace wheel/propeller
	6. The wheel running in the wrong direction	6. Reverse direction
Fan inoperative	1. Blown fuse or open circuit breaker	1. Replace fuses or circuit breaker
	2. Loose or disconnected wiring	2. Shut off power and check wiring for proper connections
	3. Defective motor	3. Repair or replace motor
	4. Broken belts	4. Replace belts
Insufficient airflow	1. Open access doors or loose sections of ducts	1. Check for leakage
	2. Clogged filters	2. Clean filters
	3. Operation in the wrong direction	3. Correct rotation of wheel/propeller
	4. Insufficient make-up air direction	4. Add make-up fan or louver opening
Water leaking into ductwork or collection of grease under the fan	1. Fan installed with a slope in the wrong direction	1. Slope should be fitted in the direction of the drainage opening or grease collection box and drain spout
	2. Clogged drain spout	2. Clean drain spout
	3. The cooling tube or motor dome top removed	3. Install a new cooling tube with a gasket and dome top
	4. Grease container full	4. Empty grease box

Motor overheating	1. Belt slippage	1. Adjust tension or replace bad belts
	2. Overvoltage or undervoltage	2. Contact the power supply company
	3. Operation in the wrong direction	3. Reverse direction of motor
	4. Fan speed too high	4. Slow down the fan by opening the variable pitch pulley on the motor shaft
	5. Incorrect motor (service factor 1.0, low ambient temperature)	5. Replace motor with correct open, NEMA service factors (1.15 or higher) with 40 degrees ambient
	6. Blocked cooling tube or leaky gasket	6. Remove the blockage and seal the cooling tube in place
	7. Insufficient airflow to kitchen hood fan operating on low speed with kitchen in full operation	7. Check airflow under the hood and adjust kitchen equipment output
	8. Undersized motor	8. Check motor ratings with catalog speed and air capacity chart

- **Note:** Care should be taken to follow all local electrical, safety, and building codes. Provisions of the National Electric Code (NEC), as well as the Occupational Safety and Health Act (OSHA), should be followed.
- All motors are checked prior to shipment. If motor defects should develop, prompt service can be obtained from the nearest authorized service station of the motor manufacturer while under warranty. Exchange, repair, or replacement will be provided on a no-charge basis if the motor is defective within the warranty period. The PennBarry representative in your area will provide the name and address of an authorized service station if requested.
- **WARNING:** The motor guarantee is void unless overload protection is provided in the motor wiring circuit.
- PennBarry is proud to be your preferred manufacturer of commercial and industrial fans and blowers. Learn how PennBarry can assist you in your next application by contacting your PennBarry.
- Representative or visiting us on the web at **www.pennbarry.com.**
- **PennBarry**
- **www.pennbarry.com**
- **pennbarrysales@pennbarry.com**
- **tel: 972.212.4700**
- **fax: 972.212.4702**
- PennBarry reserves the right to make changes at any time, without notice, to models, construction, specifications, options, and availability. This manual illustrates the appearance of PennBarry products at the time of publication.
- View the latest updates on the PennBarry website.
-

Documents / Resources



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Z3H Z12H Zephyr Ceiling and Inline Fans, Z3H Z12H, Zephyr Ceiling and Inline Fans, Ceiling and Inline Fans, Inline Fans, Fans

References

- **User Manual**