

Installation and Servicing Instructions

UK 151 B
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Guide for Installation, Commissioning and Servicing of Reznor Gas Fired Unit Air Heaters Series X and U

Covers Models
X 100 THRU 400
XA 100 THRU 400
XB 100 THRU 400
XD 175 THRU 400
XE 100 THRU 400
UA50 and 75
UB50 and 75
UC50 and 75

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1.1 THESE AIR HEATERS ARE FOR USE WITH NATURAL GAS ONLY.

Warranty is void if -

- (1) Internal wiring has been modified by user/installer or service undertaking without Reznor's written agreement.
- (2) Heater is operated in the presence of chlorinated vapours.
- (3) Air through heater is not provided in accordance with the data plate.
- (4) The flue arrangement and air supply for the heater is not in accordance with Reznor recommendations or codes of practice referred to in this document.

1.2 Introduction

Reznor X and U Series Air Heaters are gas fired fanned circulation air heaters covering a range of heat outputs as described in the technical data. Reznor X Air Heaters may be base mounted or suspended. Reznor U Series Air Heaters may only be used in suspended applications since clear access is required to the bottom of the Unit for the entry of the combustion air and for burner removal. Both styles are primarily intended for heating commercial or industrial premises. The air heater will be equipped with either an axial fan (UA and XA models) or centrifugal blower (UC, UB, XB and XE) models which are mounted behind the heat exchanger.

Pressed steel flared port Reznor X or U Type aerated ribbon burner is used throughout both Series.

All Models have a built in draught diverter venting at the front and the unit must be connected to an individual natural draught flue via the flue socket located at the top of the air heater.

When referring to right and left hand it should be noted that Reznor assume that warmed air from the heater will always blow onto the back of ones neck.

2. Technical Data Only

2.1 Full technical data will be found on the model description leaflet attached to this document.

3. General Requirements

3.1 Related Documents

The installation of the air heater(s) must be in accordance with the relevant requirements of the Gas Safety Regulations, Building Regulations and the I.E.E. Regulations.

It should be in accordance also with any relevant requirements of the local gas region, local authority, and fire authority and the relevant recommendations of the following documents:- British Standard Codes of Practice, CP331 Installation of Pipes and Meters for Town Gas.

Part 3. Low pressure installation pipes.
CP 3. Ch.IV Precautions against fire.

Part 2. Shops and Departmental Stores

Part 3. Office buildings, and the relevant standards of the following document:- "Standards of Installation for Gas Fired Industrial Warm Air Heaters" (published by Industrial Warm Air Heater Manufacturers' Association Ltd.).

Related documents are, from time to time revised and additional documents published. Whilst every effort is made to keep literature current ITT Reznor cannot be responsible for the above listing being correct or complete at the time of issue.

Where air heaters are used in installations where the total input is less than 60 KW B.S.5864 and B.S.5440 must also be followed.

3.2 Location

The location chosen for the air heater must permit the provision of a satisfactory flue system and an adequate air supply. Sufficient space must be provided around the air heater for air circulation and servicing. The air heater must be installed strictly in accordance with any fire regulations or insurance company's requirements appertaining to the area in which the air heater is located, particularly where special fire risks are involved, such as areas where petrol vehicles are housed, where cellulose spraying is carried out, in woodworking departments etc. The air heater must be installed so that it is level and if supported, (X Series models only), must be on a non combustible surface which is capable of adequately supporting the weight of the air heater and any ancillary equipment.

Suspended air heaters must be rigidly fixed, e.g. by using steel eye bolts, straps or chains, using all of the suspension points fitted.

To prevent a hazard to personnel working below and to personnel employed to service the heater, consideration must be given to accessibility for servicing.

The air heater must not be installed in conditions for which it is not specifically designed, e.g. where the atmosphere is highly corrosive or salty and where high wind speeds may affect the burner operation. Where the location of the air heater is such that it might suffer external mechanical damage, e.g. from overhead cranes, fork lift trucks, it must be suitably protected.

Ducting which may be used on UB,UC,XB and XE models should be kept as short and direct as possible having regard to the satisfactory distribution of

the heated air.

Any combustible material adjacent to the air heater and its flue system must be so placed or shielded as to ensure that its temperature does not exceed 65°C (150°F).

Suspended heaters are most effective when located as close to the working zone as possible and this fact should be kept in mind when determining the mounting heights to be used, however, discharged air should not be directed at room occupants. At those points where infiltration of cold air is excessive such as entrance doors, it is desirable to locate the air heater so that it will discharge directly toward the source of cold air from a distance of 1.5 - 3.0 metres (5.0 - 10.0 feet).

3.3 Gas Supply

3.3.1 Service Pipes

The local gas region should be consulted at the installation planning stage in order to establish the availability of an adequate supply of gas. An existing service pipe must not be used without prior consultation with the local region.

3.3.2 Meters

A gas meter is connected to the service pipe by the local gas region or the local gas region contractor.

An existing meter should be checked, preferably by the gas region to ensure that the meter is adequate to deal with the rate of gas supply required.

3.3.3 Installation Pipes

Installation pipes should be fitted in accordance with CP331.3

Pipework from the meter to the air heater(s) must be of adequate size. Do not use pipes of a smaller size than the air heater gas connection.

The complete installation must be tested for soundness as described in the above code.

3.3.4 Boosted Supplies

Where it is necessary to employ a gas pressure booster the controls must include a low pressure cut-off switch at the booster inlet.

The local gas region must be consulted before a gas pressure booster is fitted.

3.4 Flue System

3.4.1 Detailed recommendations for flueing are given in the "Standards of Installation for Gas Fired Industrial Warm Air Heaters", published by the Industrial Warm Air Heater Manufacturers' Association Ltd. The following notes are intended to give general guidance only.

Normally Reznor Air Heaters will be connected to an individual flue. If, however, more than one air heater is to be connected to a single flue, the common flue should be of an area which is equal to the area of the largest

single flue plus 50% of the area of each additional flue.

All Reznor air heaters must be installed with a flue connected to vent outside the building. The temperature of the combustion products leaving the heater is approximately 260°C (500°F) hence they rise naturally in the flue, therefore unnecessary bends and obstructions should be avoided. Combustion products contain water vapour which may condense out in the case of long or exposed flues. Prevention of condensation within the flue should be an important factor in the design of the flue system. In order to minimize condensation the use of double walled flue pipe or insulation is recommended. If double walled flue pipe is used it should be of a type acceptable to British Gas.

Where condensation in the flue is unavoidable provision should be made for condensate to flow freely to a point at which it can be released, preferably into a gully. The condensate pipe from the flue to the disposal point should be of non-corrodible material of not less than 22mm (¾ in.) diameter.

Reznor X and U Series air heaters are equipped with a built in draught diverter which prevents the recirculation of combustion products, no external draught diverter or barometric damper should be installed.

If the heater is to be installed with ducting or to blow through a wall opening a clearance of at least 150mm (6") must be allowed in front of the heater to allow for correct operation of the draught diverter.

Reznor Unit Air Heaters have flue sockets sized to accept single wall metal flue pipe and fittings. Where double wall flue pipes or asbestos flue pipe are used a suitable adaptor is required.

Asbestos cement flue pipe must only be used when the air heater is rigidly mounted on a base platform.

Facilities should be made for disconnecting the flue pipe(s) from the air heater(s) for inspection and servicing purposes. Bends with removal covers should be fitted for inspection and cleaning purposes where considered appropriate.

The flue system should ensure safe and efficient operation of the air heater(s) to which it is attached, protect the combustion process from wind effects and disperse the products of combustion to the external air.

The flue should terminate in a freely exposed position and must be so situated as to prevent the products of combustion entering any opening in a building in such concentration as to be prejudicial to health or a nuisance.

It is recommended that consideration be given to the fitting of a terminal at the flue outlet, if the cross-section is over 200mm (8") diameter. For heaters with flue size of 200mm (8") or less in cross-sectional area an approved flue terminal should be fitted.

The vertical height of the flue pipe, measured from the flue connection socket of the unit to

the outside terminal should be of minimum 1.8m (6 feet) in order to provide an adequate natural draught. If this is inapplicable, the installation of a fan assisted flue extractor should be considered.

Horizontal runs of flue pipe should be avoided whenever possible. A near horizontal run of 3m (10 feet) maximum should not be exceeded. A positive rise, in the direction of the flue gases to be evacuated, of 65mm (2.5") per 300mm (12") of run is recommended. Where near horizontal flues are used, a terminating flue with a minimum vertical height of one and a half times the horizontal length must be provided.

3.4.2 Reznor air heaters are despatched with the flue socket in a vertical position. On XA Models where it is necessary to run a flue from the rear of the heater the flue socket adaptor plate can be relocated to suit the requirement.

1. To do so, remove the sheet metal screws securing the plate and remove the plate.
2. Replace the plate with the flue socket facing the rear of the heater and replace the fixing screws.

3.4.3 Adapting a Reznor Air Heater for use with a Flue Gas Power Extractor.

When using a Reznor air Heater with a flue gas extractor, the existing flue collar should be removed and the extractor adaptor flue socket fitted. Since the Reznor flue extractor must be fitted in the horizontal position, it is normally more convenient to fit the extractor flue socket in the horizontal position. If requested, air heaters may be adapted for flue gas extractors before leaving the factory. Two sizes of flue gas extractors are available for use with X and U series model. Size 100mm (4") is used on models up to 51kW (175,000 Btu) input. Model size 150mm (6") is used on models up to 117kW (400,000 Btu) input.

On no account should an extractor motor be fitted with the motor shaft in the vertical position. To fit the extractor adaptor plate, remove the sheet metal screws on the angled flue socket adaptor plate and discard the flue socket assemble. Fit the extractor adaptor angled flue socket with the extension plate on the extreme edge and replace the screws. The Reznor extractor adaptor plate is fitted with a baffle where required in order to maintain heater efficiency at the correct level.

On blower models where the cabinet is fitted over the angled flue plate, a separate adaptor is available on request.

3.5 Air Supply

The following notes are intended to give general guidance. In all cases there must be provision for an adequate supply of air for both combustion and ventilation. Where the air heater(s) is to be installed in the space to be heated the air heater(s) requires the space containing it to have, or be provided with, a permanent free air vent, Fig. 1, A, 4.5cm² per 1kW 1 in² for every 5,000 Btu/h of heat input. See Table 3, Col. 1. The air vent should be either direct to outside air or to an adjacent room or internal space that itself

has an air vent direct to outside air, Fig. 1, B.

Where the air heater(s) is installed in a compartment, free air vents to the compartment should be installed at both high and low levels in accordance with Tables 1 or 2 below:

Table 1 - for Air Heater(s) Total Input Rating not exceeding 60 kW.

Position of Air Vents	Air Vent Areas	
	Air from Room or Internal Space	Air direct from Outside
High Level	9cm ² per kW (2 in ² per 5000 Btu/h)	4.5cm ² per kW (1 in ² per 5000 Btu/h)
Low Level	18cm ² per kW (4 in ² per 5000 Btu/h)	9cm ² per kW (2 in ² per 5000 Btu/h)

Fig.1

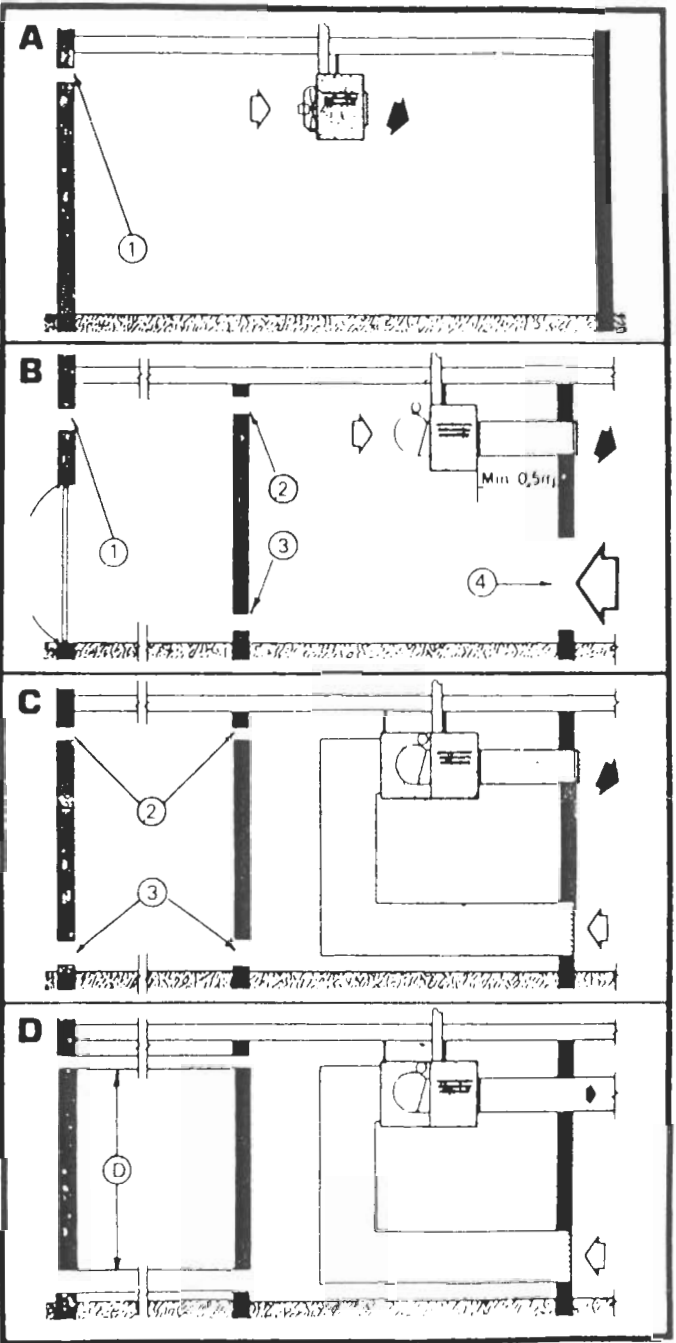


Table 2 - for Air Heater(s) Total Input Rating Exceeding 60kW

Total Input Rating of Air Heater(s)	Air Vent Area (Air direct from outside)
Up to 730 kW (Up to 2,500 000 Btu/h)	4.5cm ² per kW (1 in ² per 5,000 Btu/h)
730 to 1320 kW (2,500 000 to 4,500 000 Btu/h)	3 300 cm ² (500 in ²)
Above 1320 kW (Above 4,500 000 Btu/h)	2.5cm ² per kW (1 in ² per 9,000 Btu/h)

Where compartment air vents are open to a room or internal space, the room or internal space should be provided with air vents.
The air vent should have negligible resistance and must not be sited in any position where it is likely to be easily blocked or flooded, or in any position adjacent to an

extraction system which is carrying flammable vapour. Ducts installed for the purpose of providing free air ventilation, F. 1 D, should be sized according to the air flow required, having regard for pressure losses especially losses imposed by the use of elbows and fittings. Where two or more air heaters are installed in the same room or

compartment, whether or not they are supplied as a combined unit, the aggregate input rating should be used for sizing the air vents.
If the room or compartment from which ventilation air is drawn contains an extractor fan permanent air vents must be sized to take this into account. If the air heater(s) is installed in a

room or compartment from which ventilation air is drawn and the warmed air discharged from the air heater is ducted into a separate space to be heated, provision must be made for a positive intake free air duct to be installed, or a relief free air vent sized to take into account the volume of air flowing through the air heater.

Table 3. Air Supply Requirements for Single Air Heaters Installations.

Model Number	Net Input kW (Btu x 1000)	Free area of vent to Outside air		Free area of Vents for a compartment				Free area of intake air for circulation	
		(1)	(1)	(2)	(2)	(3)	(3)	(4)	(4)
		cm ²	in ²	cm ²	in ²	cm ²	in ²	cm ²	in ²
50	15(52)	68	11	136	22	272	44	5,580	865
75	23 (78)	104	16	208	32	416	64	8,390	1,300
100	30 (104)	135	21	270	42	540	84	11,160	1,730
125	38 (130)	171	27	342	54	684	108	18,840	2,300
150	46 (156)	207	32	414	64	828	128	19,520	3,025
175	53 (182)	239	37	478	74	956	148	20,440	3,168
225	69 (234)	311	48	622	96	1244	192	26,000	4,030
300	91 (312)	410	64	820	128	1640	256	35,290	5,470
400	122 (416)	549	85	1098	170	2196	340	46,450	7,200

Where two or more air heaters are installed in the same room or compartment, whether or not they are supplied as a combined unit, the aggregate input rating should be used for sizing the air vents.

3.6 Air Distribution System.

Recommendations for the air distribution are given in the document entitled "Standards of Installation for Gas Fired Industrial Warm Air Heaters". The following notes are of particular importance.
All delivery and return-air ducts, including air filters, jointing and any insulation or lining must be constructed entirely of materials which will not contribute to a fire, are of adequate strength and dimensionally stable for the maximum internal and external temperatures to which they are to be exposed during commissioning and normal operation. In the selection of materials account must be taken of the working environment and the air temperatures which will result when the overheat limit thermostat is being commissioned. Where inter-joint spaces are used as duct routes they should be suitably lined with a fire-resisting material.
A full and unobstructed return air path to the air heater(s) must be provided.
If the air heater(s) is to be installed in a plant room the return-air and warm air discharge arrangement must be such as to avoid interference with the operation of the flue by the air circulation fan. The return-air intake(s) and the warm air outlet(s) should, therefore, be fully ducted in the plant room, to and from the heater(s) respectively. The openings in the structure of the plant room through which the ducting passes must be fire stopped.
Care must be taken to ensure that return-air intakes are kept clear of sources of smells and fumes, and in special circumstances where there is any possibility of pollution of the air by dust, shavings, etc. precautions must be taken by carefully positioning return-air intakes and by the provision of screens to prevent contamination.
In addition, where there is a risk of combustible material being placed close to the warm air outlets suitable barrier rails should be provided to prevent any combustible material

being within 900mm (3ft.) of the outlets.
When connecting ductwork to the air heater it is essential that an air tight seal is maintained so that leaks of air under pressure do not escape and cause turbulence in and around the draught diverter and combustion air in-take location.
Note: The installation of a warm air heating system **MUST** be in strict accordance with any fire regulations or insurance company's requirements appertaining to the area in which the system is installed. In addition where a warm air heating system is installed in a shop or departmental store or an office building, any relevant recommendations of CP3: Ch.IV appertaining to such buildings, with respect to the installation maintaining the integrity of any fire escape route, must be complied with.
3.7 Electrical Supply
All electrical wiring external to the air heater must be installed in accordance with the I.E.E. Regulations and any local regulations which apply. Check the air heater data plate for details of supply voltage, cycle rating and fuse values. A separate line voltage supply with means of isolation should be provided to the heater and connected to the terminal block in the wiring box inside the heater. Conduits must be installed so as not to interfere with service panels of the heater.
The connection points are shown clearly on the wiring diagram, on the wiring box lid, and on the copy attached to this document.
Whether a single air heater or a number are to be wired as part of a single installation, an isolation switch must be provided so that each heater can be separately disconnected. Reznor air heaters are equipped with **24 volt** controls and use a double wire gas control valve supply. Install a **24 volt** room thermostat in accordance with the manufacturers recommendations and connect it to the heater using the terminal block located in the wiring box. See separate instructions for the installation

and connection of optional equipment.
On no account should more than one air heater be connected to a single thermostat and/or time switch.
If the air heater is to be controlled by a time switch the gas control valve circuit should be opened by a single pole time switch wired in series with the room thermostat.
Where it is necessary and/or desirable to control multiple units from a single time switch, the manufacturer must be consulted, and the following should be carefully considered.
(a) I.E.E. Regulations must be adhered to and an isolator provided which isolates both the main input to the unit and the separate 240v supply to the time switch.
(b) On no account must the mains input to the fan control be isolated.
(c) When deciding how many units may be switched from a single time switch it should be born in mind where a ventilation system is also used that the time switch may also be serving the air circulation fan motor.
Reference should be made to the unit rating data and the switch manufacturers rating to establish how many air heaters can be connected to a single time switch.
(d) Since the thermostat is connected into the 24v circuit of the unit and that the cost of such items in minimal when compared to the total cost of installation Reznor recommend the use of individual thermostats with each heater.
(e) On no account should 2 heaters be connected to a single 24v thermostat as permanent damage may result to the controls and possibly to the heater.
3.7.1 If the thermostat to be used is not supplied by Reznor care should be taken to see that it is compatible with the current being drawn on the control system used, 240 volt thermostats with anticipators having a separate neutral supply will cause permanent damage to the heater control system when used in conjunction with the standard 24 volt control system. Similar damage will occur if a

time switch is used which does not have separate motor connections and load connections.
4. Installation of Air Heaters
4.1 General
(a) Every care is taken to ensure Reznor air heaters are received in good condition.
(b) Reznor Unit air heaters are normally installed so that the bottom/underside is visible. To prevent scuffing during handling it is possible to remove the carton and timber packing without disturbing the pallet, to do so -
Cut the securing band, Lift upwards the cardboard carton to expose the supporting corner packing.
The pallet is attached to the heater by steel clips which need not be removed until the heater is in its installed location.
(c) Immediately upon receipt of the heater unpack it and check to ensure it is undamaged. Any damage found must be notified to the transporter within two normal working days of delivery, otherwise claims will not be accepted. Check also that the heater is correctly described with the delivery note and with the order requirement.
(d) If the heater is to be installed on a roof or bracket, remove pallet prior to placing heater.
(e) After suspension remove the screws holding the clips and replace the screws into the heater to secure the bottom corner legs of the casing.
4.2 Installation Clearances
Left and Right hand reference.
The Reznor unit air heater must be installed having regard to clearances around the heater taking into account the minimum distance the heater and flue system must be from combustible material and so as to permit safe access for servicing.
The minimum distances for X and U Series unit heaters is -
(a) At the front of the heater - 150mm (6ins)
(b) At the right hand side of the heater - width of heater + 300 mm (12 ins)
(c) At the left hand side of the heater - 600 mm (24 ins)
(d) At the rear most point of the heater - 600 mm (24 ins)
(e) At the top of the heater - 600 mm (24 ins)
(f) On 'U' Series air heaters 24 inches of clear space must be left below the heater for access to the burner compartment. In no way must the openings at the bottom of the unit be restricted as this will interfere with the combustion air supply.
(g) On units supplied with the burner controls on the left hand side, clearances B and C above must be reversed.
These distances apply to wall mounted and suspended air

heater installations. For multi air heater installations the minimum distance one heater may be installed from another is the same dimension as described above, except where air heaters are installed side by side when space between the heaters can be regarded as dimension (b)

Note: When referring to right and left hand it should be noted that Reznor assume that warmed air from the heater will always blow onto the back of one's neck.

4.3 Installing Unit Air Heaters

The Reznor X and U Series unit air heaters may be fixed using chains, straps or eyebolts employing all of the suspension eyes fitted at the top of the heater. (Also 1" BSP free turning female pipe threaded mounting sockets may be used. These are available as optional extras.) Alternatively X series air heaters may be supported on brackets from a wall. Check the total weight of the complete installation from data sheet and ensure that floor joist, roof trusses, walls etc. are strong enough to carry the weight of the heater and ancillary equipment.

All suspension and supporting material must be non combustible and capable of withstanding the effects of corrosion.

If noise insulation mounting pads etc. Ref.5.4, are used to insulate the structure ensure that all gas supply pipes, ducts, flue pipes and electrical connections to the heater are made with flexible connections, otherwise the effect of the flexible mounting will be reduced and the possibility exists of vibration in the heater causing damage to other parts of the installation.

4.4 Condensate Drainage

If condensation is likely to occur provision should be made for condensate to flow to a point where it can be drained preferably into a gully.

4.5 Gas Connections

Gas connections should be made through the top of the heater on the right hand side. A gas service tap should be included in the supply pipe close to the heater. An approved jointing compound should be used. Allowance to enable the separation of the connecting union in the event of the burner manifold being removed must be made when connecting the gas service pipe.

Before final connection, gas supply pipes should be purged in accordance with C.P. 331. The inlet gas pressure required by Reznor X and U series heaters is:

	M bar	in.w.g
Natural gas	17.5	7.0

4.6 Electrical Connections.

All electrical connections should be made in the main wiring box located on the right hand side of the heater. Screw type terminals

are employed and connections should be made having regard to the wiring diagram located in the wiring box cover and accompanying this document. Table 4 below indicates supply cable sizes required for Reznor X a U series air heaters and is based upon the use of copper conductors.

Based upon a volt drop per ampere per metre of 40mV total volt drop must not exceed 2.5% of the nominal voltage.

See 3.7 regarding suitability of thermostat.

4.7 Casing

Upon completion of the installation and commissioning/testing ensure that all casing panels etc. are secured to the heater and that all assembly screws are in place.

5. Air Distribution

5.1 General

Where Reznor models XB, XE, UB and UC heaters are to be used connected to ductwork low heat capacity materials should be used for the construction of delivery ducts and for any insulating material applied to them.

Joints and seams of supply ducts and fittings must be securely fastened and made airtight.

All ducting must be securely supported in such a way that it is not under undue strain and does not sag. No undue strain should be placed on any of the joints or the heater(s).

5.2 Insulation.

It is preferable for all warm-air ducting to be thermally insulated. All delivery and return-air ducts in spaces where heating is not required must be insulated.

5.3 Isolation

Where damp conditions are likely to be encountered, and in particular where ducts are installed in concrete floors, the ducting requires protection in the form of a vapour barrier membrane, which must remain puncture-free.

When a soft insulating material is used, care must be taken not to compress it when applying the membrane otherwise the insulating properties will be impaired.

5.4 Noise Reduction

If a reduction of air-borne fan noise is necessary an internal duct lining of porous material may be applied. For maximum effectiveness the lining should be applied close to the heater on both the discharge and return-air ducts.

Where a reduction of vibration transmission from the heater(s) to the ducting is required the ducting should be connected to the heater spigot(s) via an airtight flexible coupling of non-combustible material. Before fitting a flexible coupling it must be ensured that a minimum clearance of 13mm (1/2") will be maintained between the ends of the ducting and the heater

spigot(s).

To allow for thermal expansion, whether or not fire-stopping is required, openings in walls, partitions, etc. through which ducts pass should be made large enough to give a clearance around the duct and the whole duct should be supported at intervals along its length so that it is free to move relative to the supports. (Failure to adhere to this instruction may lead to noise generation due to thermal expansion and contraction.)

Note: Models XB, UB and UC are limited to a maximum external static resistance of 0.5m bar (0.2") water gauge. Therefore, the duct system should be sized to deliver the desired air quantity to the space being served without exceeding 0.5m bar (0.2") friction loss. Duct connection should be made with "U" type mounting flanges on the top and bottom of the connecting duct. It then can be slid over the flanges of the heater giving an air tight fit. "U" type clips should be provided for the side flanges to ensure tight joints. Sheet metal screws should be used for fastening ducts and "U" clips to heater flange.

5.5 Positioning of Warm Air Registers.

Although registers can be positioned in the floor, low or high in the wall or in the ceiling it is preferable to use low wall or floor outlets in order to minimise vertical temperature gradients and to obtain good heat distribution.

To minimise noise levels, discharge registers should preferably be mounted away from corners.

When design considerations permit, the size, shape and number of registers should be chosen so that an even and uniform distribution of warm air is obtained.

Registers should incorporate a means of making a good seal between the register frame and the wall face to avoid staining deposition by warm air leakage. This is particularly important with high level positions.

5.6 Room Thermostat Siting.

The selection of the correct position for the room thermostat(s) is particularly important.

The room thermostat should be fitted at a point which will be generally representative of the heated area (as far as temperature is concerned).

Draughty areas, areas subjected to direct heat e.g. from the sun and areas where the air movement is relatively stagnant, e.g. in recesses are all positions to be avoided for siting the thermostat.

The thermostat should generally be mounted about 1.5m (60") from the floor. See 3.7 regarding suitability of thermostat.

6. Commissioning and Testing

6.1 Electrical Installation.

Checks to ensure electrical safety should be carried out by a competent person. See 3.7 regarding suitability of thermostat.

6.2 Gas Installation

The whole of the gas installation, including the meter, should be inspected and tested for soundness and purged in

accordance with the recommendations of CP 331:3

6.3 Air Distribution System.

The system should be checked to ensure that the installation work has been carried out in accordance with the design requirements.

Particular attention should be given to the correct arrangements of delivery air ducts and registers if fitted, return air ducts and grilles and general adequacy of return air routes. Unit air heaters being used for free blow application should be checked to ensure that outlet air louvre blades are undamaged and are capable of being adjusted properly. Reznor XB, XD, XE, UB and UC air heaters incorporate a blower designed so that the discharge air volume can be adjusted to vary the output against changes in static pressure and to alter the leaving air temperature from the heater. To achieve this, an adjustable pulley is fitted to the motor to change the fan speed. (Fig.2). Loosen the jack screw referred to. Remove the belt. Using a hexagon wrench loosen the screw in the pulley collar on the side away from the motor then rotate the outer side of the pulley counter clockwise to reduce, clockwise to increase the speed of the blower. Ensure that the locking screw is tightened again after this operation. Re-adjust the belt tension. Check that the rotation of the fan or blower is correct.

6.4 Checks before lighting the Air Heater.

- On UA and XA heaters, check that the fan is free to rotate within the orifice plate. On UB, UC, XB, XD and XE heaters that the fan belt is correctly tensioned, see Fig. 2, and that drive pulleys are secure and properly aligned.
- Ensure that all fan and drive guards are secured into their correct position.
- Ensure that the **ELECTRICITY supply to the heater is switched OFF**.
- Check that all air delivery outlets are open.
- Check that the room thermostat is set to **OFF** or its lowest setting.
- Check that a time switch control is set to an **ON** cycle period.
- Reznor XE models can be fitted with intake air filters, check that these are fitted correctly, noting the air flow direction as indicated on the elements.

6.5 Lighting the Air Heater.

- Switch **OFF** main electricity supply to the heater.
- Turn **ON** the main gas supply to the heater.
- Fit pressure gauge to manifold test point.
- Depress and hold gas control valve start button.
- Using a taper or match light pilot burner accessible through mica window.
- Keep start button depressed for 20 seconds after pilot has lit. Release start button, pilot should remain alight. Check pilot flame height, Fig.3. **Important. If pilot light goes out for any reason, allow 3 minutes before relighting.**
- Switch on main electricity supply to heater.
- Adjust thermostat to maximum temperature setting.

Table 4.	Air Heater Motor Size		Rating	Fuse Value		Cable Size
	kW	hp	A	A		mm ²
Up to & including	0.37	0.5	1	5		1
	0.56	0.75	1.5	6		1.5
	1.12	1.5	2.5	10		2.5
	1.49	2.0	3.4	16		2.5
Two motors aggregate rating	(2.24	3.0	6.4	20		4
	(2.98	4.0	8.1	25		6

burner rail.

(f) Check the operation of the flame failure device on the heater to ensure that the device will shut off the burner within 10 seconds. To do so loosen the gland nut that secures the thermocouple to the gas control valve. When contact is broken no gas should pass through the control valve to the main burner or the pilot burner.

(g) Check that the controls governing the fan and overheat protection are operating satisfactorily. The heater fan control senses a rise in temperature to a preset degree and automatically switches electrical power to the air circulation fan when the temperature is lowered by the fan after the burner has completed its cycle as dictated by the room thermostat. The heater limit control operates only when the air temperature within the heater exceeds a certain pre-set limit. The switch cuts the low voltage electrical power supply to the gas control valve, thus stopping the supply of gas to the main burner. To test this device, block off the warmed air outlets, this will cause the temperature within the heater to rise and should cause the burner to go out in approximately 1 minute. The limit switch is the automatic re-set type.

(h) Check on/off operation by adjustment of the room

6.7 Balancing Air Distribution System.

Reznor unit air heaters supplied fitted with adjustable louvre blades should have the blades adjusted so the discharged air is directed toward the area to be heated in a suitable manner. Ducted systems should be checked and if necessary each outlet adjusted by means of the built in outlet air grille adjusting screw, or by using duct dampers if fitted. Balancing the system should be carried out in accordance with the system designers requirements and specification by using an anemometer to measure the air flow from each outlet point.

Upon satisfactory completion of commissioning and testing hand the "Users Instructions" to the user and explain the method of economic and efficient operation of the system. Ensure the user is fully conversant with the lighting, shut down and general operational procedure. Bring to the attention of the user the labels on the air heater, carrying instructions for lighting and the safe use of the heater. If fitted, advise the user of the need to clean and replace

6.9 Servicing

Advise the user or purchaser that for continued efficient and safe operation of the air heater(s), it is important that adequate servicing is carried out at regular intervals or as recommended by the local gas region.

The installer should recommend a list of spare parts to be kept by the user or purchaser particularly where the heater(s) is an essential part of any system and its being out of operation may cause problems, for example by frost damage to stock.

The installer should leave attached to the heater(s) on a permanent card(s):

- The date of installation, and
- The name and address of the installer.

SERIES X & U

Servicing Instructions

Spares, Short Parts List

[illegible]

Always quote model type and serial number
as described on Data plate **MAY 1982**

Section 7 Important

In the interest of safety ensure that a safe working platform is available, that clear access to the air heater can be gained and that whilst carrying out maintenance and service work no hazard exists to yourself and other personnel who may be working or present in the vicinity, i.e. injuries sustained from falling heater components, tools, bare wires etc. Always work in a clean comfortable manner having regard to the person's property that you are working in. Report all accidents to the customer or customers representative and your employer.

General

Warning: Before starting to service the air heater turn **OFF** the main gas supply to the heater at the service tap, switch **OFF** the main electricity supply to the heater after the air circulating fan has stopped. Reznor unit air heaters require regular maintenance to ensure efficient operation and to reduce the risk of heater failure. Maintenance and service must only be carried out by competent persons.

Periods between service are dependant upon the local environment where the air heater is installed. Regular inspection is recommended initially to ascertain routine intervals and under changing local environmental conditions consideration should be given to the interval between services. Refer to illustrations provided for indications of component location as a guide to removal and assembly. Items that require inspection during servicing are:-

1. Heater Casing. Check for damage that could be detrimental to the correct fitting of panels and could affect the correct working or noise level. Check that all assembly screws are fastened, replace missing screws. Check that all panels are fixed in place upon completion of service and that motors, fan and drive belt guards are fixed securely.

2. Heat Exchanger. To be checked when carrying out burner section and blower work. Inspect heat exchanger where visible inside and outside when burner and blower are removed and when able through air discharge louvres. Look for signs of severe corrosion, splits and perforations that would indicate a failure. This requires the use of an inspection lamp and mirror. Remove any deposits with a flexible flue brush. Remove loosened deposits with a vacuum cleaner.

If heat exchanger is found to be perforated advise user not to operate heater until a replacement has been fitted.

3. Burner. The orifice of a gas injector is machined to precision limits, do not clean with a hard sharp object that could damage or enlarge the size. Remove carefully, Fig. 4

Check main burner rails for soundness. Clean thoroughly, taking particular care to ensure that burner ports are free from lint and dust. Check gas injectors for cleanliness and tightness. If necessary clean with acetone. Do not over tighten. Remove pilot burner and thermocouple, clean including pilot burner gas supply pipe and replace.

Ensure that all manifold joints are sound and that the gas control valve is visually in good condition. Visually inspect main gas supply pipe to the air heater for security and corrosion.

4. Blower Assembly. Remove and clean.

Motor. Check that fan blade is tight onto its spindle, and accurately balanced. Do not bend or damage in any way or remove or reposition balancing tabs. The fan is a precision engineered component.

If fitted check for wear to the blower and motor pulley and check for tightness. Inspect condition of drive belts, renew if necessary.

Adjust for correct tension when replacing. **Ref 6.3**

5. Electrical. Check all visible wiring for damage and conduits for chafing and security. Check terminal wire grips, look for escaped conductor strands. Note conditions of transformer, look for any signs of overheating and short-circuiting. Check earth continuity. Remove thermal fan and limit control switches and clean. Fig. 5.6

6. Down Draught Diverter and Flue. If a flue gas exhauster is fitted pay particular care in cleaning the sail switch and check its functionality. Inspect down draught diverter and clean as necessary.

Check flue for deposits, leaking joints, support soundness, and corrosion attack. If fitted to a power flue gas extractor, check, clean and inspect wiring as described under blower and electrical items.

7. Air Filters. Remove, clean, oil or renew and replace as necessary.

8. Testing.

Recommission heater as described in **Section 6. 6.1 thru 6.9.**

Upon completion of the service, report the facts to the customer or customers representative and state in writing details of any faults found that require action, if the air heater(s) is being maintained sufficiently, and if it is evident that a component might fail before the next service interval, thus making the person aware of the risk of a breakdown of the air heater.

Fig. 2

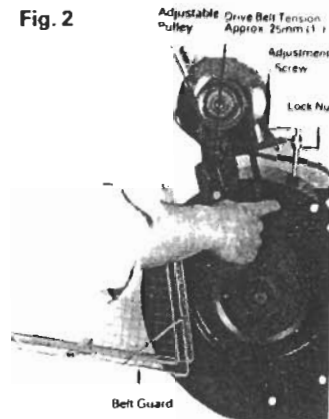
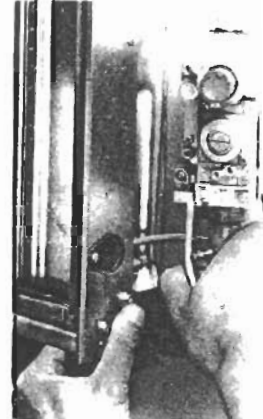


Fig. 4.



X Series
Removal of Burner Tray

Fig. 3.

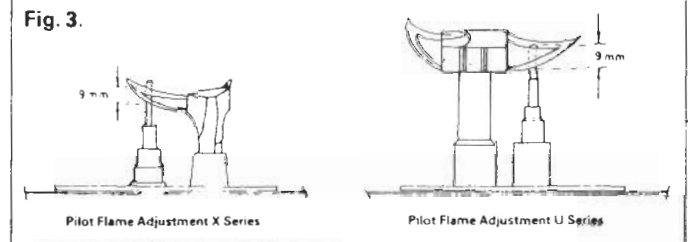


Fig. 5. Showing UA Model R.H. Side Cover removed

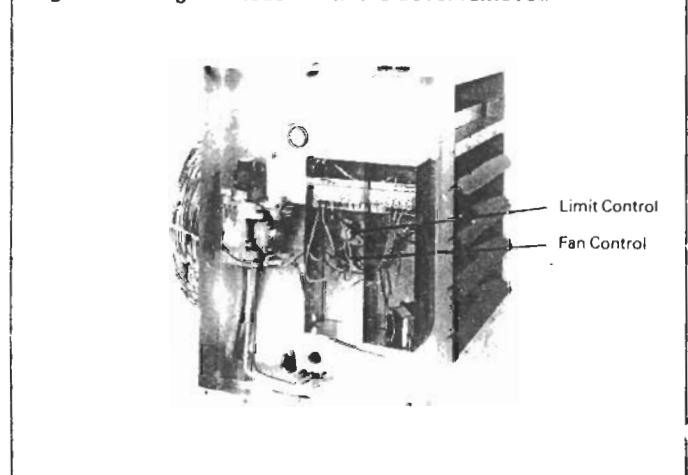
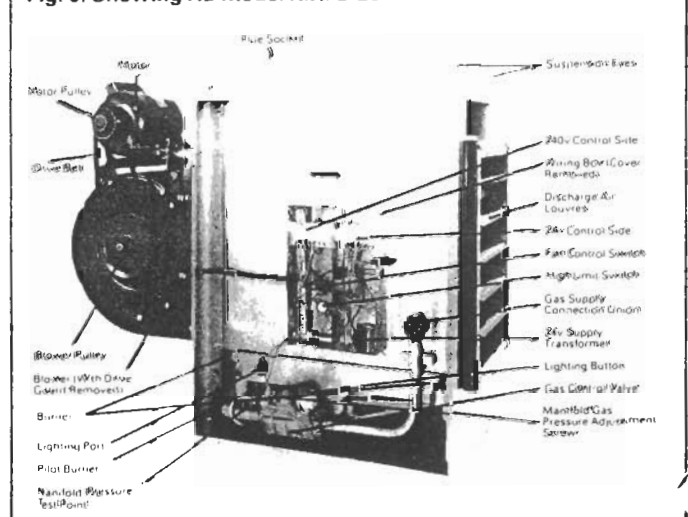


Fig. 6. Showing XB Model R.H. Side Cover Removed



Performance Data

Model No		UA 50	UA 75	UB 50	UB 75	UC 90	UC 75
CAPACITY	Input kW BTUH	15 52,000	23 78,000	15 52,000	23 78,000	15 52,000	23 78,000
	Output kW BTUH	12 40,000	18 60,000	12 40,000	18 60,000	12 40,000	18 60,000
AIR DELIVERY (A)	dm ³ /s CFM	291 618	437 927	291 618	437 927	291 618	437 927
VELOCITY (B)	m/sec FPM	2.30 456	3.40 685	2.30 456	3.40 685	2.30 456	3.40 685
THROW (C)	m ft	11.5 38	14.5 48	11.5 38	14.5 48	11.5 38	14.5 48
MOTOR	HP	1/40	1/40	1/4	1/4	1/4	1/4
BLOWER (ADJ. RANGE)	RPM	—	—	408/623	467/713	408/623	467/713
AIR FILTER SIZE	mm (ins.)	—	—	—	—	405 x 510 16 x 20	510 x 510 20 x 20
TOTAL WATTS (D)		133	133	173	206	195	232

A Average temperature rise 33° C (60° F)

B At air outlet

C Average

D Controls included - maximum value

Unless otherwise instructed airflow is set at customer's specification on the assumption that filters are clean and based on cold air, no allowance is made by Reznor for filter air capacity reduction

Dimensions

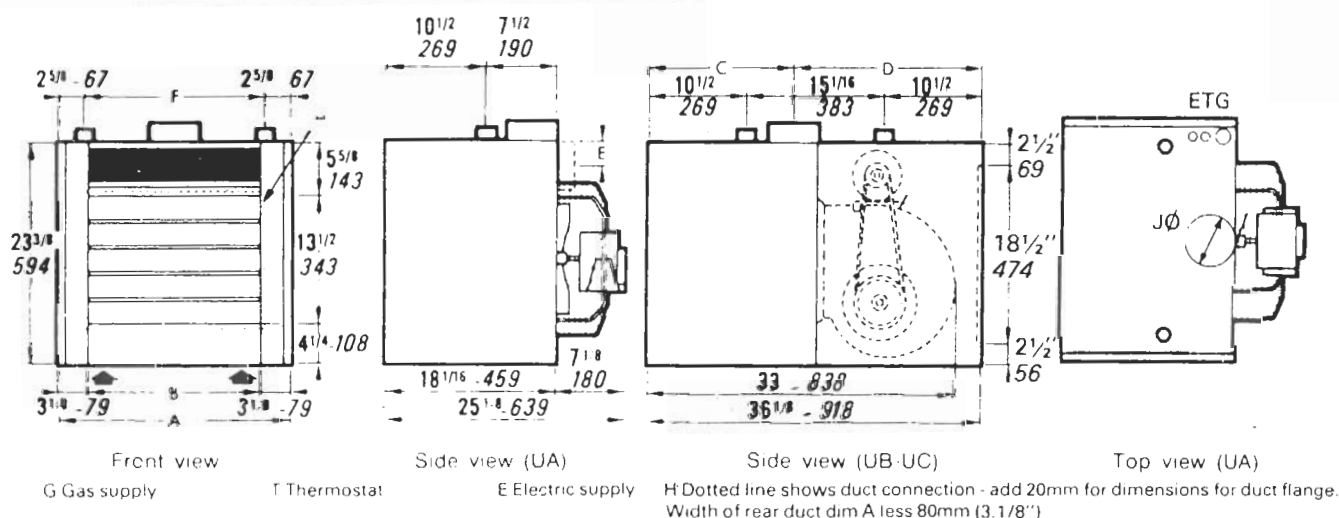


Table of dimensions, gas connection sizes and weights (mm/ins.)

Model No		UA 50	UA 75	UB 50	UB 75	UC 50	UC 75
A	Width	489 - 19 1/4	628 - 24 3/4	489 - 19 1/4	628 - 24 3/4	489 - 19 1/4	628 - 24 3/4
B	Air outlet width	330 - 13	470 - 18 1/2	330 - 13	470 - 18 1/2	330 - 13	470 - 18 1/2
C	Flue/front	408 - 16	395 - 15 1/2	408 - 16	395 - 15 1/2	408 - 16	395 - 15 1/2
D	Flue/back	—	—	—	—	522 - 20 1/2	522 - 20 1/2
E	Flue/top	51 - 2	63 - 2 1/2	—	—	—	—
F	Hangers C/C	355 - 14	495 - 19 1/2	355 - 14	495 - 19 1/2	355 - 14	495 - 19 1/2
	flue collar size (internal)	130 - 5	130 - 5	130 - 5	130 - 5	130 - 5	130 - 5
	Gas connection size (all gases) *	1/2	1/2	1/2	1/2	1/4	1/4
	Net weight (approx.)	kg (lbs)	36 - 80	45 - 100	50 - 110	61 - 135	57 - 125
	Shipping weight (approx.)	kg (lbs)	43 - 92	50 - 110	58 - 129	70 - 152	66 - 144

For asbestos flue pipe a suitable adaptor must be used. * Not supply line size

Max gas inlet pressure all sizes 20 ins w.g. (50 mbar.) Nominal inlet pressure N.G. 8 ins w.g. (20 mbar.) LPG 16 ins w.g. (40 mbar.)

Reznor UK

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Division of Johnson & Starley Ltd
Registered in England No 185924
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Remarks:

Use of this type of heater in corrosive or inflammable atmosphere is not recommended. Warranty is void if heater is operated in presence of chlorinated vapours.

Models and Data:

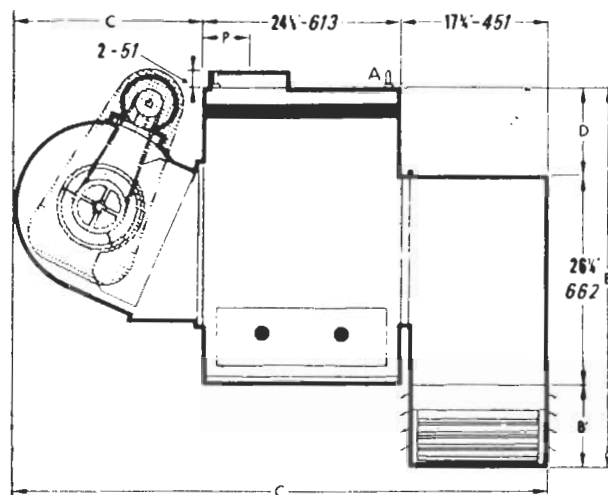
Subject to modification without prior notice.

Other Products:

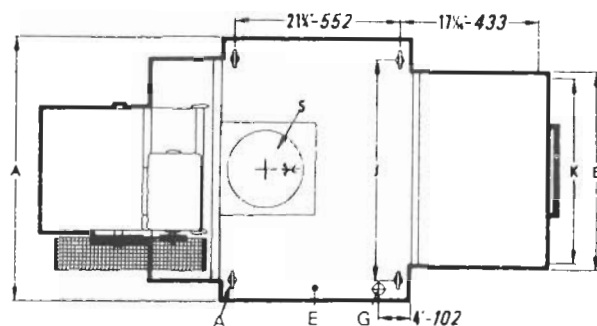
Gas fired unit heaters and radiant heaters.
Direct fired make-up air units.
Floor standing units.
Roof mounted heating/cooling units.
Gas fired suspended unit heaters.

Reznor UK

Dimensions (mm/ins)



Side view (control side)



Top view

A Eye bolts

E Electric supply

G Gas supply

Model No		175	225	300	400
A	Width	697 - 27 1/2	837 - 33	1 046 - 41 1/4	1 326 - 52 1/4
B	Height	1 072 - 42 1/4	1 148 - 45 1/4	1 202 - 47 3/8	1 256 - 49 1/2
B	Nozzle height	255 - 10	255 - 10	309 - 12 1/8	363 - 14 1/8
C	Length	1 661 - 65	1 661 - 65	1 610 - 63 3/8	1 661 - 65
C	Blower length	588 - 23 1/2	588 - 23 1/2	546 - 21 1/2	588 - 23 1/2
D	Nozzle top	155 - 6 1/8	231 - 9 1/8	231 - 9 1/8	231 - 9 1/8
E	Nozzle width	486 - 19 1/8	625 - 24 5/8	835 - 32 7/8	1 114 - 43 7/8
J	Eyebolts Ctrs	552 - 21 3/4	692 - 27 1/4	902 - 35 1/2	1 181 - 46 1/2
K	Eyebolts Ctrs	-	605 - 23 7/8	814 - 32	1 094 - 43
P	Flue c/c to back	92 - 3 5/8	127 - 5	127 - 5	127 - 5
S	Flue size (Min. dia.)	152 - 6	203 - 8	203 - 8	254 - 10
S	Flue Collar size (internal)	181 - 7	207 - 8 2	207 - 8 2	258 - 10.2
GAS CONNECTION SIZE (ins) *		1/2	1/2	3/4	3/4
Net weight (Approx)		kg/lbs	159 - 350	203 - 447	258 - 568
Shipping weight (Approx)		kg/lbs	194 - 427	258 - 568	320 - 704

For asbestos flue pipe a suitable adaptor must be used.

* Not supply line size.

Max gas inlet pressure all sizes 20 ins w.g. (50 mbar.) Nominal inlet pressure N.G. 8 ins w.g. (20 mbar.) LPG 16 ins w.g. (40 mbar.)

Reznor

UK.151B Appendix 'A'

November 87

SUPPLEMENTARY COMMISSIONING & SERVICE INSTRUCTIONS

REZNOR UK X & U SERIES GAS FIRED AIR HEATERS FITTED WITH PERMANENT PILOT BURNERS AND LOW VOLTAGE CONTROLS

Applies to NATURAL GAS ONLY. To be included in Document UK 151.B

This supplement applies only to Reznor Natural Gas fired air heaters fitted with Option 8 two stage high/low burner control where permanent pilots are employed to light the main burner.

With effect November 1987 Honeywell are phasing out of production multifunctional gas valve models 8650A, 8850A 24 volt. These valves are fitted with two stage valve operators models V8324 B1001 Fig. 1. Reznor supply low voltage permanent pilot two stage air heaters preset for $\pm$ 50% rate 1st stage 100% rate 2nd stage. The first stage adjustment is not available for on-site alteration.

The V.8650A and V.8850A 24 volt valves are now obsolete. This instruction therefore, applies to both new production and spare part replacement.

Two stage multifunctional valves for future use on low voltage control systems are Honeywell models V.8600P and V.8800P 24 volt. These valves incorporate a High/Low Regulator see Fig. 2. The basic valve and operator is the same as a single stage valve but two stage pressure control and operation is via a switched pressure regulator.

As with the old system Reznor will supply all two stage control for Natural Gas air heaters factory preset to provide $\pm$ 50% rate. Table 1 indicates 50% and 100% gas pressures for each model air heater using suffix P multifunctional controls.

WARNING

DO NOT ADJUST 1ST STAGE (LOW FIRE) GAS BURNER PRESSURE BELOW THE RATING STATED, PROPER CROSS LIGHTING OF THE MULTI BURNER RIBBONS WILL NOT TAKE PLACE AT LOWER GAS PRESSURES.

Should adjustment of burner pressure be required for any reason proceed as follows:

1. Connect a manometer to burner pressure test point
2. Following lighting procedure light the air heater (pilot burner)
3. Adjust room thermostat to 1st stage (low fire) switching mode
4. Main burner should now light. Check pressure and compare with Table 1 as appropriate.
5. Following indications Fig. 2 turn screw 'B' clockwise to increase pressure, counter-clockwise to reduce pressure

6. Adjust room thermostat to 2nd stage (high fire) check pressure.
- 7 To adjust turn screw 'A' clockwise to increase pressure, counter-clockwise to reduce pressure
8. Replace cover cap after adjustment

WIRING

It will be noted that wiring on the old V.8324B1001 valve operator was a common feed looped to both operator terminals (c) and the 1st stage (low fire) switch line to terminal W1 and 2nd stage h(high fire) to terminal W2.

The wiring for V.8336A High/Low Regulator must be in accordance with the wiring diagram as under. It should be noted that the V.804A operator to which the V.8336A regulator is attached has terminal marking numbers 1 & 2. The V.8336A solenoid has "Faston" terminal markings 7-8 and Earth whilst the Din female plug is marked 1-2 and Earth. Terminals are as follows:

Common Terminal 1 V.804A to 1 on Din plug corresponds to terminal 7 on V.8336A

First stage terminal 2 on V.804A

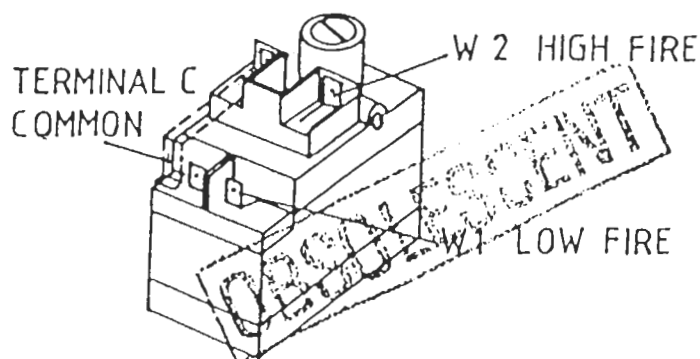
Second stage terminal 2 on Din plug corresponds with terminal 8 on V.8336A.

NB. This instruction applies to Reznor Natural Gas Fired Permanent Pilot 24 Volt 2 Stage Air Heaters only.

TABLE 1.

REZNOR AIR HEATER		BURNER PRESSURE NATURAL GAS	
MODEL	SIZE	HIGH	LOW
		mbar	
U Series	50	14.7	3.7
U "	75	14.7	3.7
X Series	100	9.5	2.4
X "	125	9.5	2.4
X "	150	9.8	2.5
X "	175	9.5	2.4
X "	225	9.5	2.4
X "	250	11.7	2.9
X "	300	9.5	2.4
X "	400	9.5	2.4

FIGURE 1.
HONEYWELL V.8324 2 STAGE OPERATOR TERMINAL ARRANGEMENT

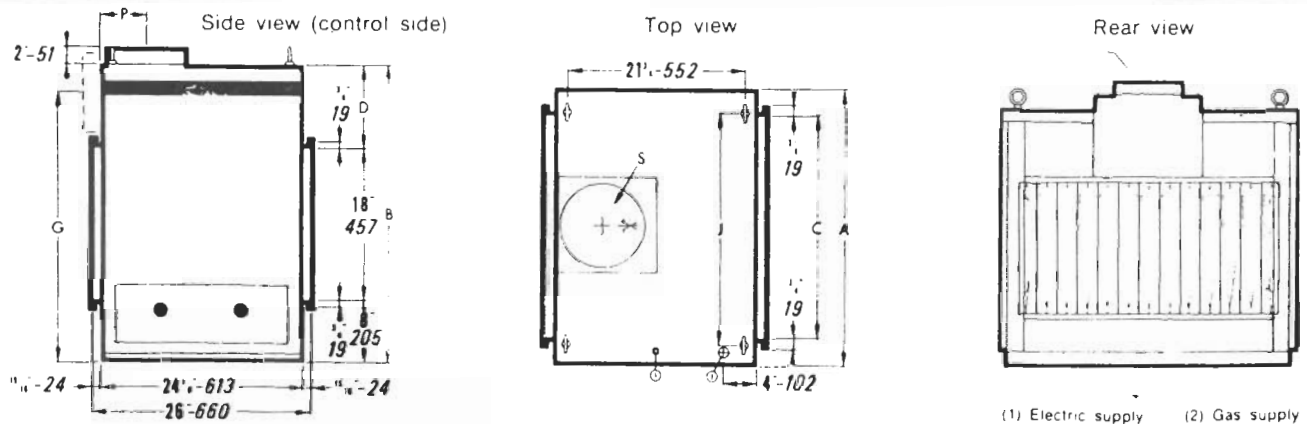


Trouble	Probable Cause	Remedy
PILOT BURNER WILL NOT LIGHT	1. Main gas supply to air heater turned off. 2. Incorrect lighting procedure. 3. Blocked injector orifice. 4. Excessive high or low gas pressure. 5. Gas supply tubing damaged preventing gas flow. 6. Faulty gas control valve. 7. No gas.	1. Check, turn on. 2. Read starting instructions. 3. Clean. Do not prick out orifice with a hard implement. Re Section 7 - 3. 4. Check data plate, adjust if necessary. 5. Inspect and renew as necessary. Ensure compression olive fitting is not too tight. 6. Renew control. 7. Check for air in gas supply line and purge as per CP 331.
PILOT BURNER LIGHTS BUT WILL NOT ESTABLISH.	1. Loose connection of thermocouple lead to control valve. 2. Pilot flame too small. 3. Faulty thermocouple. 4. Faulty gas control valve.	1. Remove at control end, clean and re-fit 2. Adjust pressure, flame should just envelop thermocouple probe. Fig: 3 3. Test and renew. 4. Renew.
PILOT BURNER LIGHTS AND ESTABLISHES - NO GAS TO MAIN BURNER	1. Electricity to air heater switched OFF. 2. Thermostat is satisfied or faulty. 3. Timed switch in OFF mode. 4. Open circuit to gas control valve. 6. Faulty gas control valve.	1. Check - switch on. 2. Reset thermostat and test. Renew if necessary. 3. Check and adjust. 4. Check 24 volt wiring, test at gas control valve, transformer and limit thermostat switch. Check 2amp fuse. 6. Renew.
COOL AIR IS DELIVERED ON START UP - DURING OPERATION, CONTINUOUSLY WHEN BURNER IS OFF.	1. Fan control switch heater element wiring incorrect. 2. Defective fan control switch. 3. Blower running too fast. 4. Incorrect gas pressure. 5. Manual over-ride air circulation switch in ON position.	1. Check with wiring diagram in wiring box. 2. Test - replace as necessary. 3. Adjust speed. (Blower models only). 4. Check according to Data plate. 5. Switch OFF.
AIR CIRCULATION FAN MOTOR WILL NOT RUN	1. Open circuit. 2. Fan control switch not operating. 3. Contactor inoperative (3 phase). 4. Defective motor.	1. Check wiring and connection. 2. Test - renew as necessary. 3. Test - renew as necessary. 4. Renew.
AIR CIRCULATION FAN MOTOR RUNS AND STOPS WHILE GAS BURNER IS LIT	1. Fan control switch heater element improperly wired or faulty. 2. Faulty fan control switch. 3. Motor overload device cycling on/off. 4. Low ambient air temperature causing fan control switch to cool to open condition.	1. Check with wiring diagram in wiring box. 2. Check - renew as necessary. 3. Compare motor load with rating plate, adjust air flow or static pressure to reduce load. 4. Maintain higher ambient air temperature in space being heated. This symptom will stop as heater continues to raise local ambient temperature.
AIR CIRCULATION FAN MOTOR CUT OUT ON OVERLOAD	1. Incorrect circulation fan speed. XA UA 2. Incorrect static pressure in duct system. 3. Low voltage.	1. Check air through put. Check outlet air louvres are open 2. Check and adjust duct dampers. 3. Check electrical power supply to air heaters.

Performance data

Model No		100	125	150	175	225	300	400	
CAPACITY	Input	30 104,000	38 130,000	46 156,000	53 182,000	69 234,000	91 312,000	122 416,000	
	Output	23 80 000	29 100 000	35 120 000	41 140 000	53 180 000	70 240 000	94 320 000	
dm ³ /s	C.F.M.								
277	584	Temp rise °C °F	71 128						
		Press drop pascals W.G.	12 0.05						
555	1 169	Temp rise °C °F	36 64	44 79	53 95	62 112			
		Press drop pascals W.G.	31 0.12	21 0.08	17 0.07	17 0.07			
833	1 754	Temp rise °C °F	24 43	30 54	36 65	44 74	53 95	71 128	
		Press drop pascals W.G.	53 0.21	35 0.14	29 0.11	29 0.11	17 0.07	11 0.04	
1111	2 339	Temp rise °C °F	18 32	22 40	27 49	31 56	40 72	53 95	
		Press drop pascals W.G.	91 0.36	51 0.2	43 0.17	43 0.17	25 0.1	18 0.07	
1389	2 923	Temp rise °C °F		18 32	21 38	25 45	32 58	43 77	
		Press drop pascals W.G.		81 0.32	61 0.24	61 0.24	36 0.14	26 0.1	
1667	3 508	Temp rise °C °F			18 32	21 38	27 49	36 65	47 85
		Press drop pascals W.G.			81 0.32	81 0.32	51 0.2	35 0.14	17 0.07
1944	4 093	Temp rise °C °F			15 27	18 32	23 41	30 54	41 74
		Press drop pascals W.G.			103 0.41	103 0.41	67 0.27	43 0.17	22 0.09
2222	4 678	Temp rise °C °F					20 36	27 49	36 65
		Press drop pascals W.G.					85 0.34	55 0.22	28 0.11
2500	5 263	Temp rise °C °F					18 32	24 43	32 58
		Press drop pascals W.G.					105 0.42	66 0.26	33 0.13
2777	5 847	Temp rise °C °F						21 38	28 50
		Press drop pascals W.G.						81 0.32	4 0.16
3333	7 017	Temp rise °C °F						18 32	24 43
		Press drop pascals W.G.						118 0.47	52 0.21
3888	8 187	Temp rise °C °F							20 36
		Press. drop pascals W.G.							67 0.27
4444	9 356	Temp rise °C °F							18 32
		Press drop pascals W.G.							85 0.34
4999	10 526	Temp rise °C °F							16 29
		Press drop pascals W.G.							107 0.43
5555	11 695	Temp rise °C °F							14 25
		Press drop pascals W.G.							

Dimensions



Dimensions (mm/ins.) and weights

Model No		100	125	175	225	300	400
A	Width	487 - 19 1/4	557 - 22	697 - 27 1/2	837 - 33	1046 - 41 1/4	1326 - 52 1/4
B	Height	819 - 32 1/4	819 - 32 1/4	819 - 32 1/4	895 - 35 1/4	895 - 35 1/4	895 - 35 1/4
C	Front/rear opening - width	317 - 12 1/2	387 - 15 1/4	527 - 20 3/4	667 - 26 1/4	877 - 34 1/2	1157 - 45 1/2
D	Front/rear opening - top	157 - 6 1/8	157 - 6 1/8	157 - 6 1/8	233 - 9 1/8	233 - 9 1/8	233 - 9 1/8
J	Eyeboils Clrs	343 - 13 1/2	417 - 16 3/8	552 - 21 3/4	692 - 27 1/4	902 - 35 1/2	1181 - 46 1/2
P	Flue c/c to back	82 - 3 1/4	82 - 3 1/4	92 - 3 5/8	127 - 5	127 - 5	127 - 5
G	Flue c/c to floor (Optional horizontal)	778 - 30 5/8	778 - 30 5/8	768 - 30 1/4	809 - 31 7/8	809 - 31 7/8	809 - 31 7/8
S	Flue size (Min diameter)	127 - 5	127 - 5	152 - 6	203 - 8	203 - 8	254 - 10
S	Flue collar size (Internal)	155 - 6.1	155 - 6.1	181 - 7	207 - 8.2	207 - 8.2	258 - 10.2
GAS CONNECTION SIZE *		1/2	1/2	1/2	1/2	3/4	3/4
Net Weight (Approx.)		kg/Lb 68 - 150	kg/Lb 75 - 165	kg/Lb 84 - 185	kg/Lb 104 - 230	kg/Lb 129 - 285	kg/Lb 161 - 355
Shipping Weight (Approx.)		kg/Lb 76 - 168	kg/Lb 82 - 182	kg/Lb 92 - 202	kg/Lb 114 - 252	kg/Lb 141 - 312	kg/Lb 175 - 387

For asbestos flue pipe a suitable adaptor must be used. * Not supply line size

Max gas inlet pressure all sizes 20 ins w.g. (50 mbar.) Nominal inlet pressure N.G. 8 ins w.g. (20 mbar.) LPG 16 ins w.g. (40 mbar.)

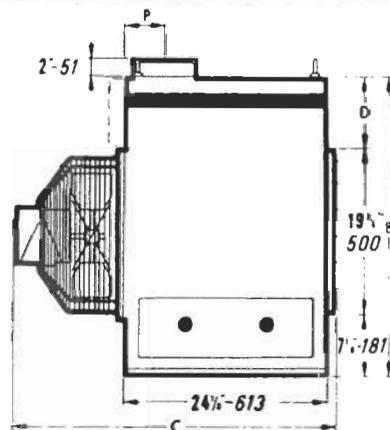
INSTALLATION: Ensure that units are fitted in accordance with the installation instructions provided with the unit or available from the Reznor Sales Office prior to delivery of the equipment.

Performance data.

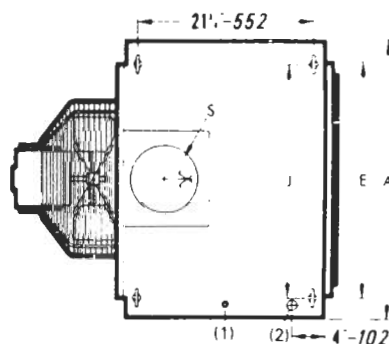
Model No.		100	125	150	175	225	300	400
CAPACITY	Input kW Btu/h	30 104,000	38 130,000	46 156,000	53 182,000	69 234,000	91 312,000	122 416,000
	Output kW Btu/h	23 80,000	29 100,000	35 120,000	41 140,000	53 180,000	70 240,000	94 320,000
AIR FLOW (A)	dm ³ /s CFM	480 1018	600 1271	720 1530	840 1783	1080 2289	1440 3054	1920 4072
THROW (B)	m ft	12 39	14 46	15 49	17 56	20 66	24 79	28 92
MOTOR (Inc. Controls)	WATTS	110	180	200	200	235	400 (D)	470 (D)
ELECTRICAL RATING (C)	AMPS	.45	.75	.83	.83	1.0	1.66	2.0

(A) Air Temperature rise : approximately 40°C (72°F) (B) Average value (C) Including controls (D) 2 Motors and fans

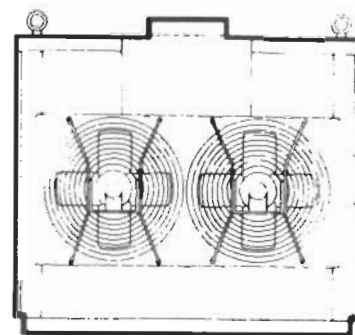
Dimensions



Side view (control side)



Top view



Rear view

(1) Electric supply (2) Gas entry point

(E) Nominal asbestos flue pipe size (F) Inside diameter to suit sheet metal pipe. (G) Not supply line size.

Model No.		100	125	150	175	225	300	400
A Width	mm - ins	487 - 19 1/4	557 - 22	697 - 27 3/4	697 - 27 3/4	837 - 33	1046 - 41 1/4	1326 - 52 1/4
B Height		819 - 32 1/4	819 - 32 1/4	819 - 32 1/4	819 - 32 1/4	895 - 35 1/4	895 - 35 1/4	895 - 35 1/4
C Length		880 - 34 3/4	911 - 36	940 - 37	940 - 37	980 - 38 1/2	911 - 36	980 - 38 1/2
D Front opening/top		138 - 5 1/2	138 - 5 1/2	138 - 5 1/2	138 - 5 1/2	214 - 8 1/2	214 - 8 1/2	214 - 8 1/2
E Front opening		361 - 14 1/4	431 - 17	571 - 22 1/2	571 - 22 1/2	711 - 28	921 - 36 1/4	1201 - 47 1/4
J Eyebolts Ctrs.		343 - 13 1/2	416 - 16 3/4	552 - 21 3/4	552 - 21 3/4	692 - 27 1/4	902 - 35 1/2	1102 - 43 1/2
P Flue C/C to back		62 - 2 3/4	82 - 3 1/4	92 - 3 3/4	92 - 3 3/4	127 - 5	127 - 5	127 - 5
S Flue size (Min diameter)		127 - 5	127 - 5	152 - 6	152 - 6	203 - 8	203 - 8	254 - 10
S Flue collar size (F) (Internal)		155 - 6 1/4	155 - 6 1/4	181 - 7 1/4	181 - 7 1/4	207 - 8 1/4	207 - 8 1/4	258 - 10 1/4
GAS CONNECTION SIZE *		1/2	1/2	1/2	1/2	1/2	1/2	1/2
Net Weight (Approx.)	kg lbs	80 - 176	87 - 192	94 - 207	94 - 207	118 - 260	146 - 321	192 - 422
Shipping Weight (Approx.)	kg lbs	88 - 194	95 - 209	104 - 224	104 - 224	128 - 282	158 - 348	206 - 454

For asbestos flue pipe a suitable adaptor must be used.

* Not supply line size.

Max gas inlet pressure all sizes 20 ins w.g. (50 mbar.) Nominal inlet pressure N.G. 8 ins w.g. (20 mbar.) LPG 16 ins w.g. (40 mbar.)

INSTALLATION: Ensure that units are fitted in accordance with the installation instructions provided with the unit or available from the Reznor Sales Office prior to delivery of the equipment.

Performance data

Model N°	Capacity		External Static Pressure		Temperature rise °C-°F															
					20°C 36°F		25°C 45°F		30°C 54°F		35°C 63°F		40°C 72°F		45°C 81°F		50°C 90°F		56°C 99°F	
	Input kW BTU/H	Output kW BTU/H	Pascals	W.G.	dm³/s CFM		dm³/s CFM		dm³/s CFM		dm³/s CFM		dm³/s CFM		dm³/s CFM		dm³/s CFM			
					kW HP	kW HP	kW HP	kW HP	kW HP	kW HP	kW HP	kW HP	kW HP	kW HP						
100	30 104,000	23 80,000	—	75	—	0.3	0.75	1.0	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75
							986	789	657	563	493	441	394	338						
			75	175	0.3	0.7	0.75	1.0	0.75	1.0	0.56	0.75	0.56	0.75	—	—	—	—	—	—
							1089	1671	1392	1194	1044	928	835	759						
125	38 130,000	29 100,000	—	75	—	0.3	0.75	1.0	0.75	1.0	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75
							1232	986	821	704	616	537	492	448						
			75	175	0.3	0.7	0.75	1.0	0.75	1.0	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75
							2611	2089	1741	1492	1305	1161	1044	949						
150	46 156,000	35 120,000	—	75	—	0.3	1.12	1.5	1.12	1.5	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75
							1479	1183	986	845	739	657	591	537						
			75	175	0.3	0.7	1.50	2.0	1.50	2.0	0.75	1.0	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75
							3134	2506	2089	1791	1566	1392	1253	1139						
175	53 182,000	41 140,000	—	75	—	0.3	1.50	2.0	1.50	2.0	1.12	1.5	0.56	0.75	0.56	0.75	0.56	0.75	0.56	0.75
							1726	1381	1150	986	863	767	690	627						
			75	175	0.3	0.7	—	—	—	—	1.12	1.5	0.75	1.0	0.56	0.75	0.56	0.75	0.56	0.75
							3656	2925	2438	2089	1828	1625	1462	1329						
225	69 234,000	53 180,000	—	75	—	0.3					1.12	1.5	0.75	1.0	0.56	0.75	0.56	0.75	0.56	0.75
											1479	1268	1109	986	887	808				
			75	175	0.3	0.7					1.50	2.0	1.12	1.5	0.75	1.0	0.56	0.75	0.56	0.75
											3184	2686	2351	2089	1880	1709				
300	91 312,000	70 240,000	—	75	—	0.3					1.50	2.0	0.75	1.0	0.75	1.0	0.56	0.75	0.56	0.75
											1927	1690	1479	1315	1183	1075				
			75	175	0.3	0.7					2 x 2 x 1.12 1.5	1.12 1.5	1.12 1.5	0.75 1.0	0.56 0.75	0.56 0.75				
											4179	3582	3134	2786	2507	2279				
400	122 416,000	94 320,000	—	75	—	0.3					2 x 2 x 1.12 1.5	1.50 2.0	1.12 1.5	0.75 1.0	0.56 0.75	0.56 0.75				
											2630	2254	1972	1735	1578	1434				
			75	175	0.3	0.7					2 x 2 x 1.50 2.0	2 x 2 x 1.12 1.5	1.12 1.5	1.12 1.5	0.75 1.0	0.56 0.75				
											5572	4776	4179	3715	3343	3039				
			175	300	0.7	1.2					2 x 2 x 1.12 1.5	2 x 2 x 1.12 1.5	1.50 2.0	1.12 1.5	1.12 1.5	1.12 1.5				

For other duties not
indicated, please
consult factory

TECHNICAL DATA

Unit Heaters XB

UK 157 B
FEBRUARY 1984

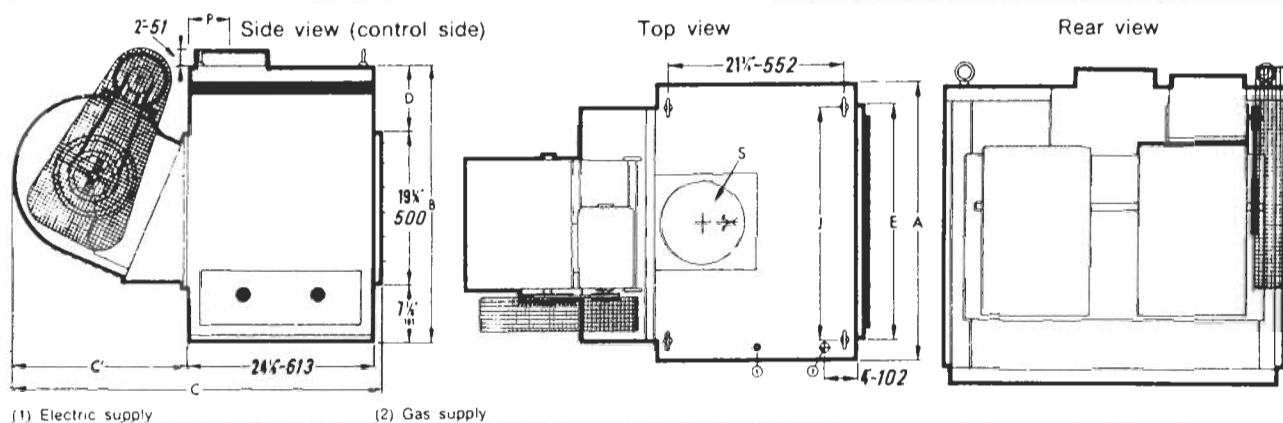
Performance data

Model No			100	125	150	175	225	300	400
CAPACITY	Input	kW BTU/h	30 104,000	38 130,000	46 156,000	53 182,000	69 234,000	91 312,000	122 416,000
	Output	kW BTU/h	23 80,000	29 100,000	35 120,000	41 140,000	53 180,000	70 240,000	94 320,000
AIR FLOW (Free Blowing) 28°C (50°F) Temp. Rise			dm ³ /s CFM	699 1 481	874 1 852	1 049 2 222	1 223 2 593	1 471 3 117	1 747 4 117
AIR FLOW (Ducted) 50 Pa - 0.2" W.C. Ext. Static Pressure 33°C (60°F) Temp. Rise (same blower speed as above)			dm ³ /s CFM	583 1 235	728 1 543	874 1 852	1 020 2 160	1 311 2 778	1 747 4 117
THROW - FREE FLOW (AVERAGE)			m ft	12 39	14 46	15 49	17 56	20 66	24 79
MOTOR (Std. single phase)			WATTS	380 A	380 A	380 A	380 A	550	740
ELECTRICAL RATING (B)			AMPS	2.0	2.0	2.0	2.0	4.1	6.0

(A) For 3 phase minimum motor capacity is 550 watts (¾ hp)

(B) Including controls

Dimensions



Dimensions (mm/ins) and weights

Model No		100	125	150	175	225	300	400
A	Width	487 - 19 1/4	557 - 22	697 - 27 1/2	697 - 27 1/2	837 - 33	1 046 - 41 1/4	1 326 - 52 1/4
B	Height	819 - 32 1/4	819 - 32 1/4	819 - 32 1/4	819 - 32 1/4	895 - 35 1/4	895 - 35 1/4	895 - 35 1/4
C	Length	1 040 - 41	1 189 - 46 3/4	1 231 - 48 5/8	1 231 - 48 5/8	1 231 - 48 5/8	1 189 - 46 3/4	1 231 - 48 5/8
C	Blower length	397 - 15 3/4	546 - 21 1/2	588 - 23 1/2	588 - 23 1/2	588 - 23 1/2	546 - 21 1/2	588 - 23 1/2
D	Front opening/top	148 - 5 1/2	138 - 5 1/2	138 - 5 1/2	138 - 5 1/2	214 - 8 1/2	214 - 8 1/2	214 - 8 1/2
E	Front opening	361 - 14 1/4	431 - 17	571 - 22 1/2	571 - 22 1/2	711 - 28	921 - 36 1/4	1 201 - 47 1/4
J	Eyebolts Ctrs	343 - 13 1/2	416 - 16 3/8	552 - 21 3/4	552 - 21 3/4	692 - 27 1/4	902 - 35 1/2	1 181 - 46 1/2
P	Flue C/C to back	82 - 3 1/4	82 - 3 1/4	92 - 3 5/8	92 - 3 5/8	127 - 5	127 - 5	127 - 5
S	Flue size (Minimum) (Diameter)	127 - 5	127 - 5	152 - 6	152 - 6	203 - 8	203 - 8	254 - 10
S	Flue collar size (Internal)	155 - 6.1	155 - 6.1	181 - 7.1	181 - 7.1	207 - 8.2	207 - 8.2	258 - 10.2
GAS CONNECTION SIZE (Ins) *		1/2	1/2	1/2	1/2	1/2	3/4	3/4
Net Weight (Approx.)		kg/Lb	98 - 216	115 - 254	134 - 295	134 - 295	143 - 315	173 - 382
Shipping Weight (Approx.)		kg/Lb	113 - 250	139 - 307	159 - 351	159 - 351	173 - 382	208 - 460

For asbestos flue pipe a suitable adaptor must be used.

* Not supply line size.

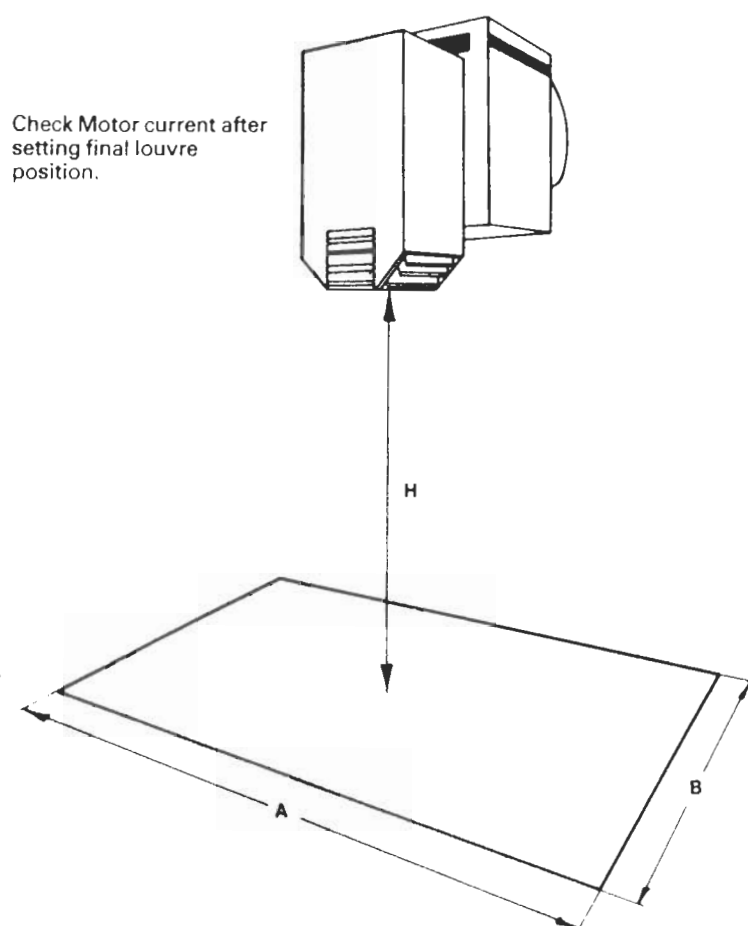
INSTALLATION: Ensure that units are fitted in accordance with the installation instructions provided with the unit or available from the Regional Sales Office prior to delivery of the equipment.

Performance data

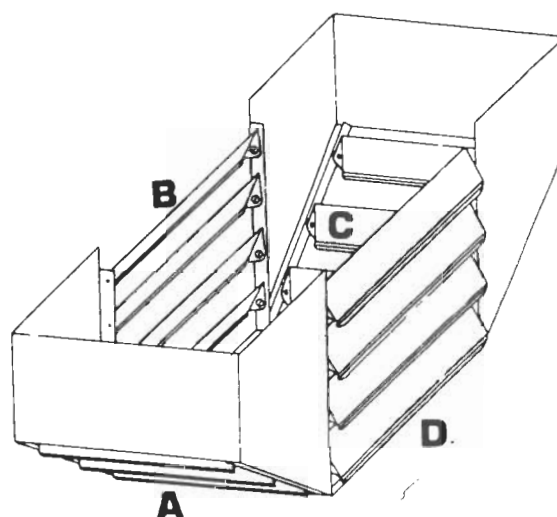
Model No			175	225	300	400
CAPACITY	Input	kW	53	69	91	122
		BTUH	182,000	234,000	312,000	416,000
	Output	kW	41	53	70	94
		BTUH	140,000	180,000	240,000	320,000
ELECTRICAL RATING* WATTS	Standard	A	400	600	600	800
	High Performance	B	800	800	NA	NA

* Including controls.

Air pattern at floor level A × B in relation to mounting height H



Louvre settings of down-flow nozzle



The table below gives the number of louvres which may be opened on sides named by letters in headings. All other louvres must be closed. Number of louvres varies according to the model.

Open louvres may be adjusted to obtain proper deflection and air pattern

Louvres A and C can be adjusted from horizontal to vertical down blow; B and D from horizontal to 45% down.

Louvre settings. (No. of louvres open on each side)

Air distribution	Units with standard air delivery				Units with increased air delivery			
	Two directions (Table 1)		Four directions (Table 2)		Two directions (Table 3)		Four directions (Table 4)	
	A	C	A	B C D	A	C	A	B C D
XD 175, 225	1	2	1	1 1 1	2	3	2	2 2 2
XD 300	2	2	1	1 1 1	3	3	2	2 2 2
XD 400	3	3	1	1 1 2	4	4	2	1 2 3

For protection of fan motor and proper heater operation, do not open or close all louvres at a time.

INSTALLATION: Ensure that units are fitted in accordance with the installation instructions provided with the unit or available from the Reznor Sales Office prior to delivery of the equipment.

Units with standard air delivery

Floor pattern A × B in meters for two-way throw

Table 1

Model	Motor HP (1)	Air flow dm ³ /s CFM B	Blower RPM		Mounting height H in meters											
			min	max	3	3 60	4 20	4 80	5 40	6	6 60	7 20	7 80	8 40	9	9 60
					Floor pattern A × B in meters											
XD 175	1/2 HP 1PH 1/2 HP 3PH	750 1588	467	713	11x5	10x5	9x5	—	—	—	—	—	—	—	—	—
XD 225	1/2 HP 1PH 1/2 HP 3PH	999 2118	458	649	15x6	14x6	13x6	13x6	—	—	—	—	—	—	—	—
XD 300	1/2 HP 1PH 1/2 HP 3PH	1303 2765	598	834	21x9	20x9	19x9	19x9	18x9	17x9	16x9	15x9	—	—	—	—
XD 400	1HP 1PH 1HP 3PH	1749 3706	516	731	29x12	28x12	27x12	25x12	25x12	24x12	23x12	22x12	19x12	18x12	17x12	16x12

B $\Delta t \pm 44^{\circ} \text{C}$ (79.2° F)

Floor pattern A × B in meters for four-way throw

Table 2

Model C	Motor HP	Air flow dm ³ /s CFM D	Blower RPM		Mounting height H in meters					
			min	max	3	3 60	4 20	4 80	5 40	
					Floor pattern A × B in meters					
XD 300	1/2 HP 1PH 1/2 HP 3PH	1300 2765	598	834	9x9	8x8	—	—	—	—
XD 400	1HP 1PH 1HP 3PH	1750 3706	516	731	13x13	12x12	11x11	11x11	10x10	—

C Smaller sizes omitted because of low air volume D $\Delta t \pm 44^{\circ} \text{C}$ (79.2° F)

Units with increased air delivery

Floor pattern A × B in meters for two-way throw

Table 3

Model	Motor HP	Air flow dm ³ /s CFM F	Blower RPM		Mounting height H in meters											
			min	max	3	3 60	4 20	4 80	5 40	6	6 60	7 20	7 80	8 40	9	9 60
					Floor pattern A × B in meters											
XD 175	1/2 HP 1PH 1/2 HP 3PH	1019 2159	467	713	16x7	15x7	14x7	13x6	12x6	12x6	—	—	—	—	—	—
XD 225	1HP 1PH 1HP 3PH	1312 2779	458	649	21x9	21x9	20x9	19x9	18x9	17x9	16x9	15x9	15x9	—	—	—
XD 300	1 1/2 HP 3PH	1749 3706	598	834	29x12	28x12	27x12	26x12	25x12	24x12	23x12	22x12	21x12	20x12	19x12	18x12
XD 400	2HP 3PH	2332 4941	516	731	37x15	38x15	37x15	36x15	35x15	34x15	33x15	32x15	31x15	30x15	29x15	28x15

E Three phase motors 380/440 V F $\Delta t \pm 33^{\circ} \text{C}$ (59.4° F)

Floor pattern A × B in meters for four-way throw

Table 4

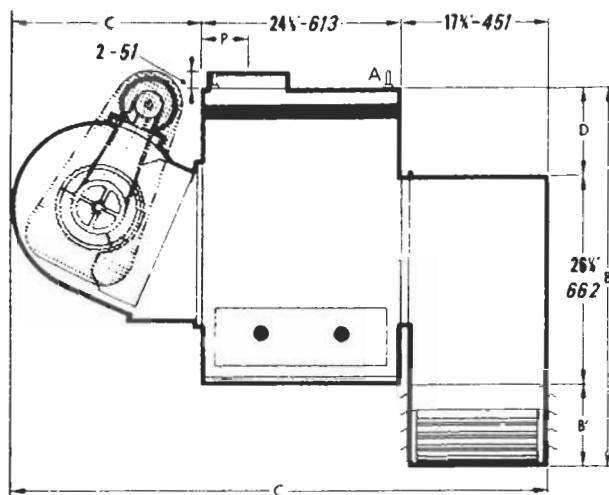
Model	Motor HP	Air flow dm ³ /s CFM I	Blower RPM		Mounting height H in meters					
			min	max	3	3 60	4 20	4 80	5 40	6
					Floor pattern A × B in meters					
XD 225	1 1/2 HP 3PH	1312 2779	458	649	9x9	7x7	—	—	—	—
XD 300	1 1/2 HP 3PH	1749 3706	598	834	13x13	12x12	11x11	10x10	—	—
XD 400	2HP 3PH	2332 4941	516	731	18x18	17x17	16x16	15x15	14x14	13x13

Smaller sizes omitted because of low air volume

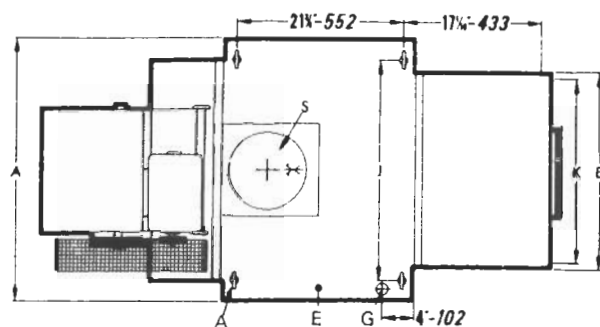
H Three phase motors 380/440 V

I $\Delta t \pm 33^{\circ} \text{C}$ (59.4° F)

Dimensions (mm/ins)



Side view (control side)



Top view

A Eye bolts

E Electric supply

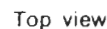
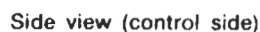
G Gas supply

Model No	175	225	300	400
A Width	697 - 27 1/2	837 - 33	1 046 - 41 1/4	1 326 - 52 1/4
B Height	1 072 - 42 1/4	1 148 - 45 1/4	1 202 - 47 3/8	1 256 - 49 1/2
B Nozzle height	255 - 10	255 - 10	309 - 12 1/8	363 - 14 1/8
C Length	1 661 - 65	1 661 - 65	1 610 - 63 3/8	1 661 - 65
C Blower length	588 - 23 1/2	588 - 23 1/2	546 - 21 1/2	588 - 23 1/2
D Nozzle top	155 - 6 1/8	231 - 9 1/8	231 - 9 1/8	231 - 9 1/8
E Nozzle width	486 - 19 1/8	625 - 24 5/8	835 - 32 7/8	1 114 - 43 7/8
J Eyebolts Ctrs.	552 - 21 3/4	692 - 27 1/4	902 - 35 1/2	1 181 - 46 1/2
K Eyebolts Ctrs	-	605 - 23 7/8	814 - 32	1 094 - 43
P Flue c/c to back	92 - 3 5/8	127 - 5	127 - 5	127 - 5
S Flue size (Min. dia.)	152 - 6	203 - 8	203 - 8	254 - 10
S Flue Collar size (internal)	181 - 7	207 - 8.2	207 - 8.2	258 - 10.2
GAS CONNECTION SIZE (ins) *	1/2	1/2	3/4	3/4
Net weight (Approx.)	kg/lbs 159 - 350	168 - 370	203 - 447	258 - 568
Shipping weight (Approx.)	kg/lbs 194 - 427	204 - 449	258 - 568	320 - 704

For asbestos flue pipe a suitable adaptor must be used.

* Not supply line size.

Max gas inlet pressure all sizes 20 ins w.g. (50 mbar.) Nominal inlet pressure N.G. 8 ins w.g. (20 mbar.) LPG 16 ins w.g. (40 mbar.)



B Electric supply (controls and 1-phase motors)

Model No.	100	125	150	175	225	300	400
A Width	487-19 1/4	557-22	697-27 1/2	697-27 1/2	837-33	1047-41 1/4	1326-52 1/4
B Height	819-32 1/4	819-32 1/4	819-32 1/4	819-32 1/4	895-35 1/4	895-35 1/4	895-35 1/4
C Length	1247-49	1501-59	1501-59	1501-59	1501-59	1501-59	1501-59
D Front opening/top	140-5 1/2	140-5 1/2	140-5 1/2	140-5 1/2	216-8 1/2	216-8 1/2	216-8 1/2
E Front opening - width	317-12 1/2	387-15 1/4	527-20 3/4	527-20 3/4	667-26 1/4	877-34 1/4	1157-45 1/2
E1 Front flange - width	355-14	425-16 3/4	565-22 1/4	565-22 1/4	697-27 3/4	915-36	1194-47
F Rear opening - height	705-27 3/4	705-27 3/4	705-27 3/4	705-27 3/4	781-30 3/4	781-30 3/4	781-30 3/4
G Rear opening - width	383-15	452-17 3/4	592-23 1/4	592-23 1/4	734-28 3/4	942-37	1220-48
H Eyebolts Ctrs.	613-24 1/8	864-34	864-34	864-34	864-34	864-34	864-34
J Eyebolts Ctrs.	343-13 1/2	413-16 3/8	553-21 3/4	553-21 3/4	693-27 1/4	903-35 1/2	1183-46 1/2
M Flue c/c to front	526-20 3/4	526-20 3/4	526-20 3/4	526-20 3/4	489-19 1/4	489-19 1/4	489-19 1/4
N Flue c/c to back	699-27 1/2	952-37 1/2	952-37 1/2	952-37 1/2	991-39	991-39	991-39
Q Blower cabinet-length	609-24	864-34	864-34	864-34	864-34	864-34	864-34
R Blower cabinet - width of door	492-19 3/8	746-29 3/8	746-29 3/8	746-29 3/8	746-29 3/8	746-29 3/8	746-29 3/8
S Flue size (Minimum dia)	127-5	127-5	152-6	152-6	203-8	203-8	254-10
S Flue collar size (Internal)	155-6.1	155-6.1	181-7	181-7	207-8.2	207-8.2	258-10.2
Air filters (Dimension and quality)	1 405 x 635 16 x 25	2 510 x 510 20 x 20	2 510 x 635 20 x 25	2 510 x 635 20 x 25	2 405 x 635 16 x 25 2 405 x 510 16 x 20	2 510 x 635 20 x 25 2 510 x 510 20 x 20	2 405 x 635 16 x 25 3 510 x 635 20 x 25
GAS CONNECTION SIZE (ins)	1/2	1/2	1/2	1/2	1/2	3/4	3/4
Net weight (Approx.) kg/Lb	125-275	155-341	185-407	185-407	210-462	265-583	320-704
Shipping weight (Approx.) kg/Lb	145-319	183-403	215-473	215-473	245-539	305-671	365-803

INSTALLATION: Ensure that units are fitted in accordance with the installation instructions provided with the unit or available from the Reznor Sales Office prior to delivery of the equipment.

* Not supply line size

Performance data

Model N°	Capacity		External Static Pressure		Temperature rise °C-°F															
					20°C 36°F		25°C 45°F		30°C 54°F		35°C 63°F		40°C 72°F		45°C 81°F		50°C 90°F		56°C 99°F	
	Input kW BTU/H	Output kW BTU/H	Pascals	W G	dm³/s CFM		dm³/s CFM		dm³/s CFM		dm³/s CFM		dm³/s CFM		dm³/s CFM		dm³/s CFM			
					kW HP	kW HP	kW HP	kW HP	kW HP	kW HP	kW HP	kW HP	kW HP	kW HP						
100	30 104,000	23 80,000	— 75	— 0.3	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75		
					986	789	657	563	493	441	394	338								
			75 175	0.3 0.7	0.75 1.0	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	— —	— —	— —	— —	— —	— —	— —	— —		
					1089	1671	1392	1194	1044	928	835	759								
125	38 130,000	29 100,000	— 75	— 0.3	0.75 1.0	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75		
					1232	986	821	704	616	537	492	448								
			75 175	0.3 0.7	0.75 1.0	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75		
					2611	2089	1741	1492	1305	1161	1044	949								
150	46 156,000	35 120,000	— 75	— 0.3	1.12 1.5	1.12 1.5	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75		
					1479	1183	986	845	739	657	591	537								
			75 175	0.3 0.7	1.50 2.0	1.50 2.0	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75		
					3134	2506	2089	1791	1566	1392	1253	1139								
175	53 182,000	41 140,000	— 75	— 0.3	1.50 2.0	1.50 2.0	1.12 1.5	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75		
					1726	1381	1150	986	863	767	690	627								
			75 175	0.3 0.7	— —	— —	1.12 1.5	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75		
					3656	2925	2438	2089	1828	1625	1462	1329								
225	69 234,000	53 180,000	— 75	— 0.3	For other duties not indicated, please consult factory				1.12 1.5	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75			
									1479	1268	1109	986	887	808						
			75 175	0.3 0.7					1.50 2.0	1.12 1.5	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	
									3184	2686	2351	2089	1880	1709						
300	91 312,000	70 240,000	— 75	— 0.3	For other duties not indicated, please consult factory				1.50 2.0	0.75 1.0	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75			
									1927	1690	1479	1315	1183	1075						
			75 175	0.3 0.7					2 x 1.12 - 1.5	2 x 1.12 - 1.5	1.12 1.5	1.12 1.5	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	
									4179	3582	3134	2786	2507	2279						
400	122 416,000	94 320,000	— 75	— 0.3	For other duties not indicated, please consult factory				2 x 1.12 - 1.5	2 x 1.12 - 1.5	1.50 2.0	1.12 1.5	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75			
									2630	2254	1972	1735	1578	1434						
			75 175	0.3 0.7					2 x 1.50 - 2.0	2 x 1.12 - 1.5	1.12 1.5	1.12 1.5	0.75 1.0	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	0.56 0.75	
									5572	4776	4179	3715	3343	3039						
			175 300	0.7 1.2					2 x 1.12 - 1.5	2 x 1.12 - 1.5	2 x 1.12 - 1.5	1.50 2.0	1.12 1.5	1.12 1.5	1.12 1.5	1.12 1.5				

Performance Data

Model No		UA 50	UA 75	UB 50	UB 75	UC 50	UC 75
CAPACITY	Input kW BTU/h	15 52,000	23 78,000	15 52,000	23 78,000	15 52,000	23 78,000
	Output kW BTU/h	12 40,000	18 60,000	12 40,000	18 60,000	12 40,000	18 60,000
AIR DELIVERY (A)	dm ³ /s CFM	291 618	437 927	291 618	437 927	291 618	437 927
VELOCITY (B)	m/sec FPM	2.30 456	3.40 685	2.30 456	3.40 685	2.30 456	3.40 685
THROW (C)	m ft	11.5 38	14.5 48	11.5 38	14.5 48	11.5 38	14.5 48
MOTOR	HP	1/40	1/40	1/4	1/4	1/4	1/4
BLOWER (ADJ. RANGE)	RPM	—	—	408/623	467/713	408/623	467/713
AIR FILTER SIZE	mm (ins.)	—	—	—	—	405 x 510 16 x 20	510 x 510 20 x 20
TOTAL WATTS (D)		133	133	173	206	195	232

A Average temperature rise 33° C (60° F)

B At air outlet

C Average

D Controls included - maximum value

Unless otherwise instructed airflow is set at customer's specification on the assumption that filters are clean and based on cold air, no allowance is made by Reznor for filter air capacity reduction

Dimensions

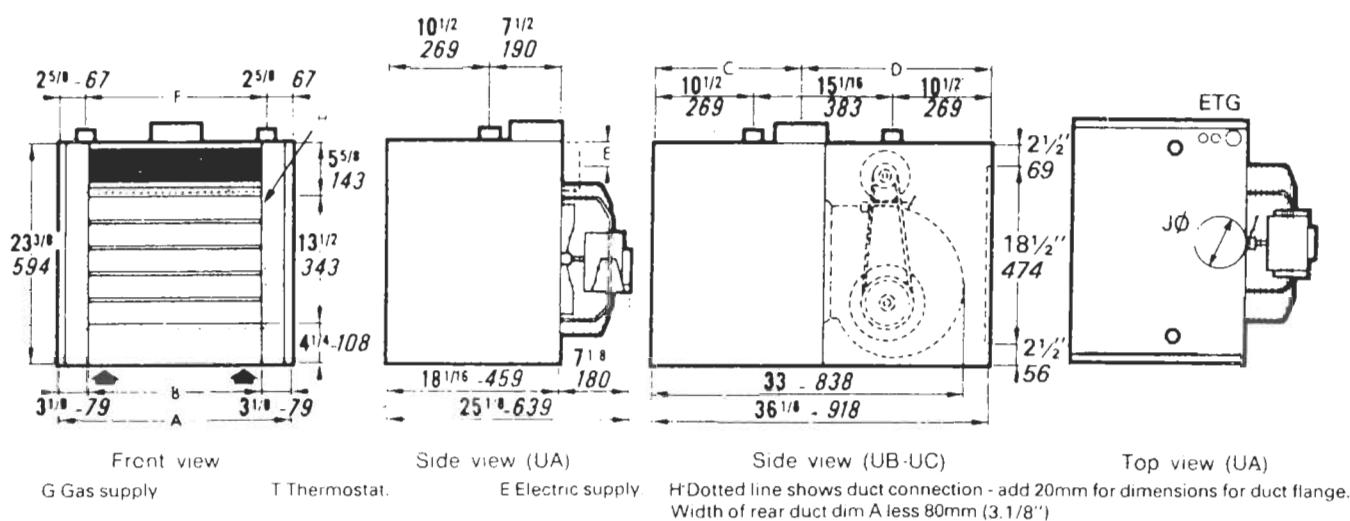


Table of dimensions, gas connection sizes and weights (mm/ins.)

Model No		UA 50	UA 75	UB 50	UB 75	UC 50	UC 75	
A	Width	489 - 19 1/4	628 - 24 3/4	489 - 19 1/4	628 - 24 3/4	489 - 19 1/4	628 - 24 3/4	
B	Air outlet width	330 - 13	470 - 18 1/2	330 - 13	470 - 18 1/2	330 - 13	470 - 18 1/2	
C	Flue/front	408 - 16	395 - 15 1/2	408 - 16	395 - 15 1/2	408 - 16	395 - 15 1/2	
D	Flue/back	—	—	—	—	522 - 20 1/2	522 - 20 1/2	
E	Flue/top	51 - 2	63 - 2 1/2	—	—	—	—	
F	Hangers C/C	355 - 14	495 - 19 1/2	355 - 14	495 - 19 1/2	355 - 14	495 - 19 1/2	
Flue collar size (internal)		130 - 5	130 - 5	130 - 5	130 - 5"	130 - 5	130 - 5"	
Gas connection size (all gases) *		1/2	1/2	1/2	1/2"	1/2	1/2"	
Net weight (approx.)		kg (lbs)	36 - 80	45 - 100	50 - 110	61 - 135	57 - 125	70 - 155
Shipping weight (approx.)		kg (lbs)	43 - 92	50 - 110	58 - 129	70 - 152	66 - 144	78 - 166

For asbestos flue pipe a suitable adaptor must be used. * Not supply line size

Max gas inlet pressure all sizes 20 ins w.g. (50 mbar.) Nominal inlet pressure N.G. 8 ins w.g. (20 mbar.) LPG 16 ins w.g. (40 mbar.)

Reznor UK

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Remarks:

Use of this type of heater in corrosive or inflammable atmosphere is not recommended. Warranty is void if heater is operated in presence of chlorinated vapours.

Models and Data:

Subject to modification without prior notice.

Other Products:

Gas fired unit heaters and radiant heaters.
Direct fired make-up air units.
Floor standing units.
Roof mounted heating/cooling units.
Gas fired suspended unit heaters.

Reznor UK

Hang this card near your heater

1. Important. In the interest of safety and user satisfaction, these instructions should be read and fully understood. To operate safely and efficiently this appliance must be serviced regularly by a competent person.

The name and address of the Reznor approved service agent for your area is stated on a label attached to the air heater. Or seek advice of your installer or local Gas Region Service Centre who will arrange for service or contract service. Difficulties in this regard should be addressed in writing to the manufacturers office.

Failure to accept this advice could affect applicable warranties.

Warning. This appliance must be earthed.

2. General. Reznor X and U series air heaters are designed and manufactured to provide many years of reliable service. Reznor have built into your air heater safety, quality, reliability and good performance. Every appliance is factory inspected and tested and comprehensive instructions have been provided to the installer in an endeavour to ensure that your heater is correctly fitted and commissioned so that it will do the job for which it is designed.

3. How the Air Heater works. A gas burner is controlled on and off by a thermostat and/or a time switch control, which can be regulated by the user. A permanent pilot burner is employed to light the gas burner and is used to maintain a safety sensor for automatic shut down in the event of flame failure, thus preventing unburnt gas escaping to cause a hazard. The burner heats a sealed steel exchanger from which products of combustion are exhausted via a flue system to the outdoor atmosphere. When the temperature in the air heater casing reaches a prescribed degree, thermally activated switches switch on the air circulation fan and in the event of overheating shut down the burner thus ensuring safe operation. The air circulation fan will not start at the same time as the burner and

will continue to run when the burner has shut down. This ensures that cold air will not be blown from the heater and that the heater is cooled adequately at the end of a heating cycle.
NOTE: Left and right definitions referred to in these instructions are assuming that discharged air will blow onto the back of ones neck.

4. Starting the Air Heater

Before starting the Air Heater: Ensure that all warm air louvres and ducting grilles, if fitted are open.

X Series Models.

Locate the pilot burner and the gas control valve which are situated behind the bottom hinged lower access panel on the right hand side of the air heater. The pilot burner is directly behind the lighting port window. (Figs. 1 or 2.)

U Series Models

Locate the pilot burner and gas control valve which are situated behind the access panel on the right hand side of the air heater. The panel is removed by pulling outward the two black securing studs and then lifting the panel upwards to disengage top locating pins. The pilot burner is directly behind the lighting window, which is the upper window above the pilot burner mounting bracket and pipe work. (Fig. 3)

To start the Air Heater

- Ensure that the main gas supply to the air heater is **ON**.
 - Switch **OFF** the electricity supply to the air heater.
 - Set room thermostat to **OFF** or its **LOWEST** setting. If fitted ensure time switch is set to an **ON** cycle.
 - Depress and hold control valve start button. (X300 and X400 series models **WHITE** button.)
 - Using a lighted taper or match light pilot burner, while keeping start button depressed.
 - Keep start button depressed 20 seconds after pilot has lit.
- IMPORTANT: If pilot light goes out for any reason allow 3**

minutes before lighting.

- Replace pilot port window and burner compartment access panel.
- Switch **ON** the electricity supply to the air heater.
- Adjust room thermostat to desired temperature or switch on control switch as applicable, and main burner will light.

To stop the Air Heater

Adjust the room thermostat to lowest setting or **OFF**, or if fitted switch off the manual control switch.

The air heater will remain ready for use immediately these controls are re-adjusted.

To turn off completely for a prolonged period -

- Adjust room thermostat or switch **OFF** control switch as described above.
- Turn clockwise the gas control valve start button. (X300 and X400 series models depress the **RED** gas control valve **OFF** button.)
- Switch **OFF** the main electricity supply to the air heater, and the gas supply using the externally located gas tap.

5. Air Circulation

Some Reznor unit air heaters are connected to an air fan over-ride switch, this enables forced air to be used for circulation purposes when the air heater is not used for heating purposes. i.e. summer months.

- Switch **ON** mains electricity supply to the air heater.
- Switch **ON** the manual over-ride switch.

6. Air filters

6.1 Some Reznor unit air heaters are fitted with intake air filters and in some installations filters may be fitted into a return air ducting system or relief opening.

To ensure maximum efficiency from your air heater air filters must be cleaned or replaced regularly, it is suggested every 2 - 4 weeks, dependent upon your local environment.

6.2 To clean or replace.

- Set room thermostat to **OFF** or

its lowest setting. Switch to **OFF** manual switch if fitted. Wait until air circulation fan stops automatically.

b. Switch **OFF** mains electricity supply to air heater.

c. Locate air filters and carefully withdraw the elements from their location racks. Clean or renew and replace.

Care should be taken to ensure that any washable elements are dried prior to refitting and that all air heater access panels are replaced correctly and securely before switching **ON** the electricity supply to restart the heater.

6.3 During the low ambient temperature periods (i.e. cold morning start up) the air circulation fan may run and stop at irregular intervals. This is due to the cold air being drawn through the air heater cooling the thermostatic fan switch to below its normal constant running temperature. This is normal and will be automatically corrected as the ambient temperature rises.

7. Maintenance and Servicing.

Maintenance and service must only be carried out by competent persons.

Periods between service are dependent upon the local environment where the air heater is installed. Regular inspection is recommended initially to ascertain routine intervals and where local environmental circumstances change, i.e. different processes being carried out in a factory, the service interval should be reconsidered.

Ask your installer, service undertaking or the manufacturer about inspection and service intervals.

The air heater should be serviced at least once every heating season.

See over for diagrams

Fig.1 Lighting Instructions

X100THRU X225 Series

Fig.3 Lighting Instructions
U Series

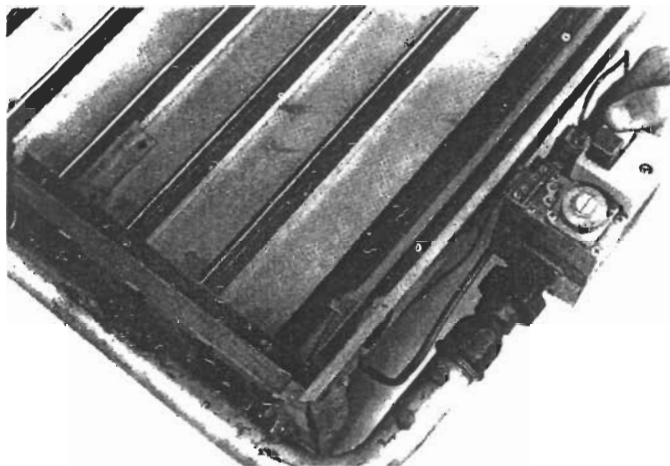
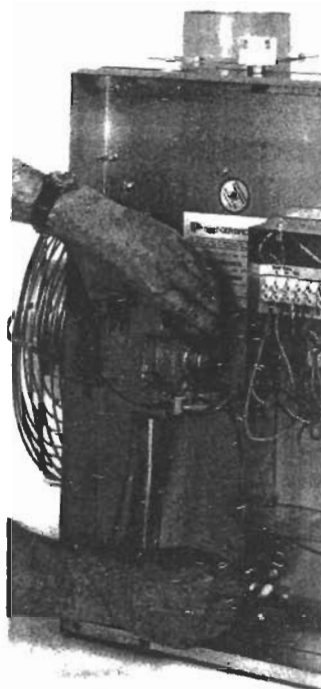
Heater Type

Serial No.



Fig.2 Lighting Instructions

X300 & X400 Series



**Our approved Reznor
Service Agent in your
area is:**

Service Record

Reznor UK

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