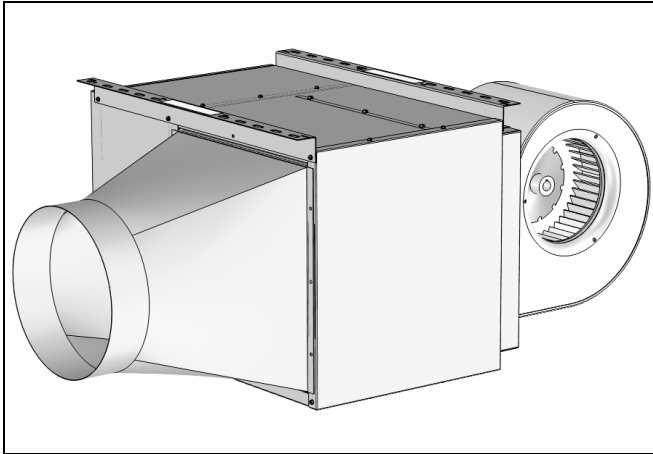


## INSTALLATION INSTRUCTIONS

### air discharge transition for connecting polytube duct Models HDB, HDC, BTS, BTP and BTC

#### ACCESSORY AIR DISCHARGE TRANSITION



#### AIR DISCHARGE TRANSITION FOR CONNECTING POLYTUBE DUCT

##### Model Application

The pre-fabricated air-discharge transition is designed for direct attachment to blower type unit heaters, Models HDB and HDC. The transition includes fasteners for attachment and a duct band and seal for connecting a polyethylene tube for greenhouse heating systems. The discharge transition is shipped in a separate carton and should be attached after the unit heater is installed to make handling easier.

##### Assembly/Installation

The recommended procedure for assembly and installation is described as follows:

1. Before beginning installation of the air discharge transition, remove all of the spring loaded louver blades from the unit heater on which the transition is to be installed (Figure 1.1). To remove the spring loaded louver blades, grasp the blade and apply pressure against the louver blade retaining spring. After compressing the spring, the tab on the opposite side of the louver blade can be removed from the unit, freeing the blade from the unit.

### **WARNING**

Gas supply shall be shut-off and the electrical power disconnected before proceeding with the installation. Failure to do so could result in fire, explosion, electrical shock, or the unit starting suddenly resulting in injury.

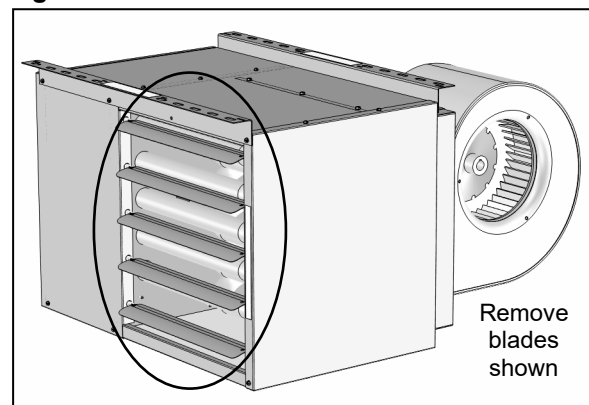
### **CAUTION**

The minimum area for the polytube air discharge holes must be maintained. Failure to do so will reduce airflow CFM and will result in overheating of the heat exchanger. More holes can be added however caution must be used to assure that the number of holes are not so great as to not allow proper inflation of the polytube. For hole sizes other than those shown in Tables 3.1 and 3.2, maintain equivalent total hole area as shown in those tables.

### **IMPORTANT**

1. The use of this manual is specifically intended for a qualified installation and service agency. All installation and service of these kits must be performed by a qualified installation and service agency.
2. These instructions must also be used in conjunction with the Installation and Service manual originally shipped with the appliance being converted, in addition to any other accompanying component supplier literature.

**Figure 1.1 – Remove Louvers on Front of Unit**

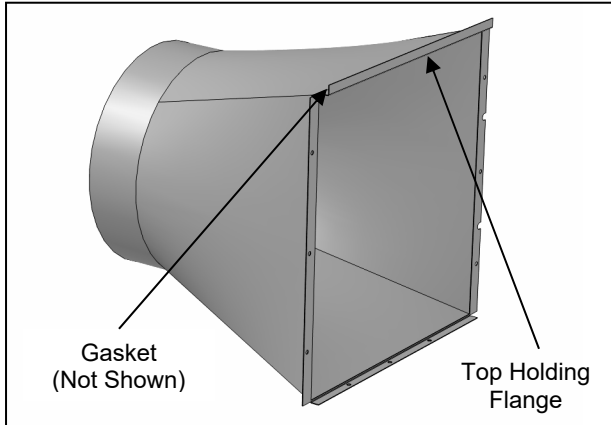


Note: These louver blades/springs can be discarded as they will not be used once the transition is installed.

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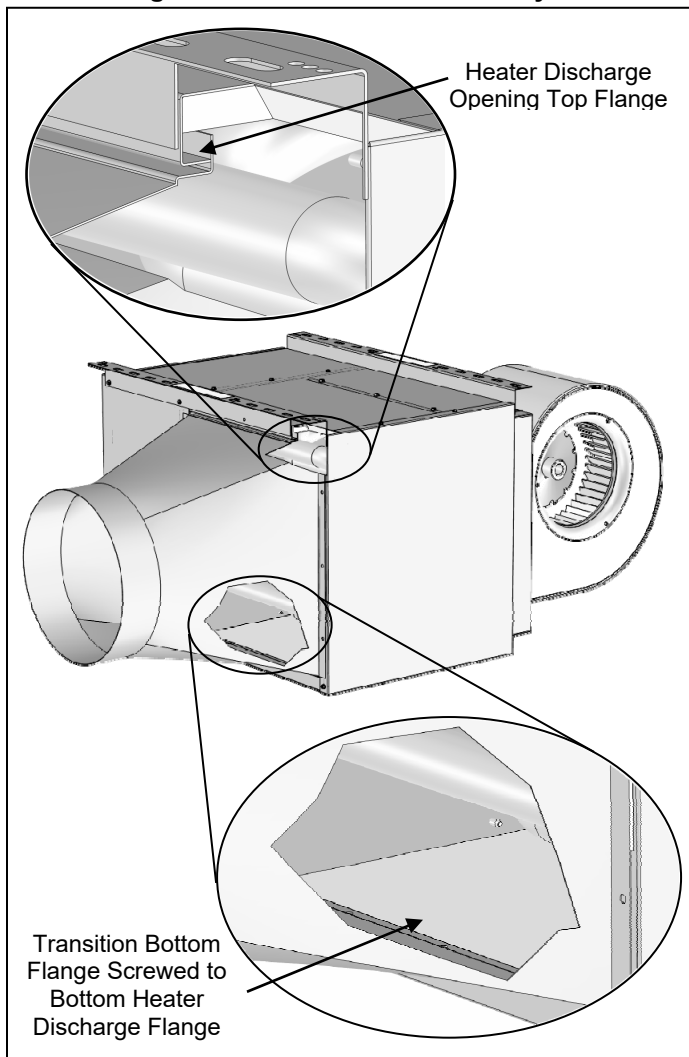
# INSTALLATION – AIR DISCHARGE TRANSITION FOR POLYTUBE DUCT

**Figure 2.1 – Air Discharge Transition**



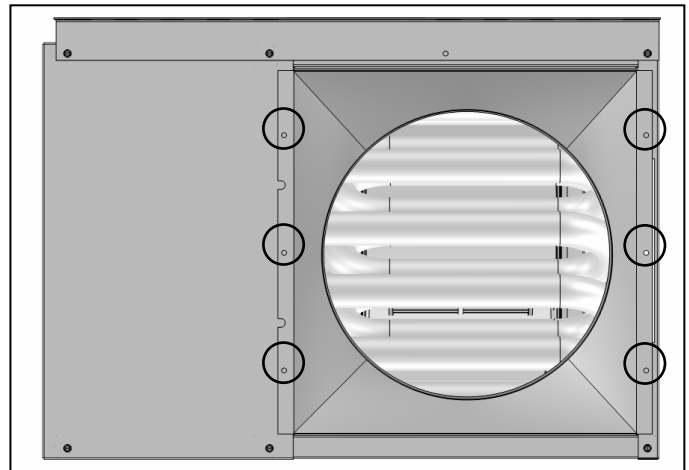
2. Guide the Top Holding Flange (Figure 2.1) of the transition behind the flange of the top opening of the unit (top of Figure 2.2) and guide the bottom flange of the transition into the heater discharge opening (bottom of Figure 2.2). For unit sizes 175-400, the top and bottom flanges on the transition includes a notch to clear the center support bracket on the unit.

**Figure 2.2  
Air Discharge Transition Installed Cutaway Views**

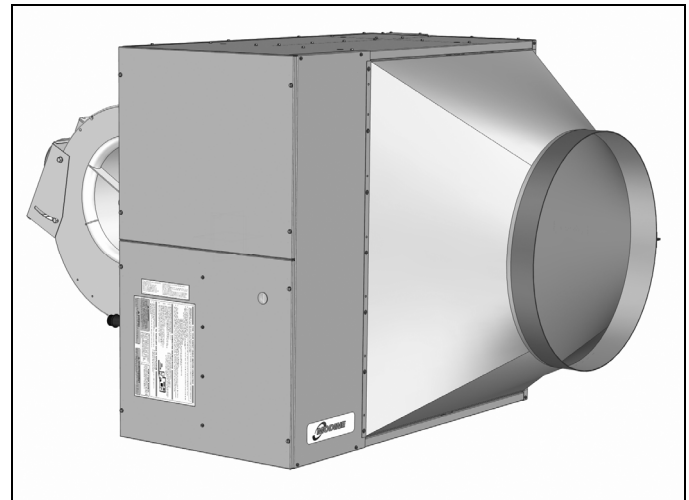


3. Insert the strip seal (gasket) supplied with the kit between the top holding flange (refer to Figure 2.1) and the top opening of the unit. This will prevent the discharge transition from rattling during operation.
4. Holding the transition in place and reaching through the round transition opening, drill pilot holes for (3) #10 x 1/2" sheet metal screws, using the holes in the bottom flange of the transition as a template. Secure bottom of transition to the unit using (3) #10 x 1/2" self-drilling screws (bottom of Figure 2.2).
5. To complete the transition installation, use (6) #10 x 1/2" self drilling sheet metal screws to fasten the transition side flanges to the unit heater (Figure 2.3).

**Figure 2.3 – Air Discharge Transition**



**Figure 2.4  
Air Discharge Transition Installed on Model  
BTS/BTP**



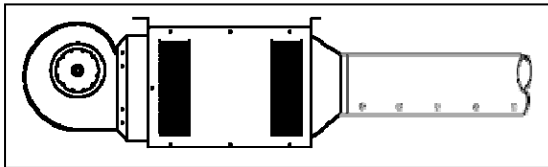
**Table 3.1 – HDB/HDC/BTS/BTP/BTC Performance Data for Units with Polytube<sup>①</sup>**

Model	Growing Area Coverage	Input	Output	Air Flow	Air Temp Rise	Minimum Motor HP	Polytube Diameter	Total Required Polytube Hole Area	Total Required Polytube Hole Quantity by Hole Diameter <sup>②</sup>		
									3"	2 1/2"	2"
No.	Sq. Ft.	BTU/Hr	BTU/Hr	CFM	°F	HP	Inches	Sq. Ft.			
<b>HDB/HDC 60</b>	603	60,000	49,200	905	49	1/4	12	0.95	19	29	43
<b>HDB/HDC 75</b>	675	75,000	61,500	1013	55	1/3	12	1.07	21	32	48
<b>HDB/HDC100</b>	1143	100,000	82,000	1714	43	1/2	18	1.80	36	54	81
<b>HDB/HDC125</b>	1147	125,000	102,500	1721	54	1/2	18	1.81	36	54	82
<b>BTS/BTP150</b>	1347	150,000	123,000	2020	55	1/3	18	2.13	43	64	96
<b>BTS/BTP175</b>	1571	175,000	143,500	2357	55	1/2	18	2.48	50	74	112
<b>BTS/BTP200</b>	1796	200,000	164,000	2694	55	1	18	2.84	57	85	128
<b>BTS/BTP250</b>	2245	250,000	205,000	3367	55	1	24	3.54	71	106	159
<b>BTS/BTP300</b>	2693	300,000	246,000	4040	55	1	24	4.25	85	128	191
<b>BTS/BTP350</b>	3143	350,000	287,000	4714	55	1 1/2	24	4.96	99	149	223
<b>BTS/BTP400</b>	3591	400,000	328,000	5387	55	3	24	5.67	113	170	255
<b>BTC215</b>	2244	215,000	199,950	3366	55	1	24	3.54	72	104	162
<b>BTC260</b>	2714	260,000	241,800	4071	55	1 1/2	24	4.29	87	126	196
<b>BTC310</b>	3236	310,000	288,300	4854	55	2	24	5.11	104	150	234

<sup>①</sup> Based on 1.5 cfm/ft<sup>2</sup> air circulation requirement, polytube length 150 ft. and approximately 0.2" W.C. E.S.P.

<sup>②</sup> For all polytubes, the number of holes shown in the figure 3.1 would be accurate for all lengths. Space holes evenly across the length of the polytube used.

**Figure 3.1 – Unit with Polytube**



## Tube Installation

The polyethylene tube providing air distribution throughout the greenhouse is simply and directly connected to the heater outlet transition with a gasket and a clamp as illustrated in Figure 1.

1. Thread a tube end through the clamp about 2" to 4".
2. Orient the tube so that the 3" distribution holes are in the bottom quadrants to direct the tempered air stream to both sides of the house.
3. Fit tube end and clamp over the gasketed outlet transition and secure clamp with a screwdriver.
4. Unroll tube to length desired and tie up end opposite heater.

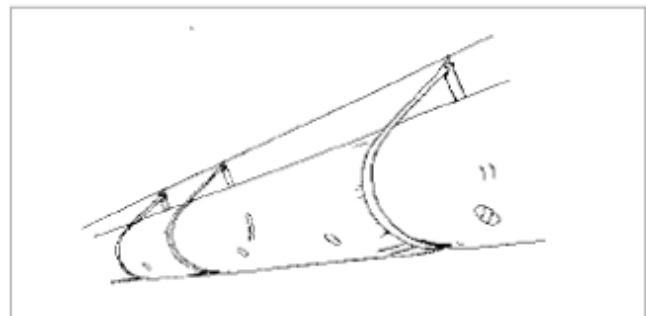
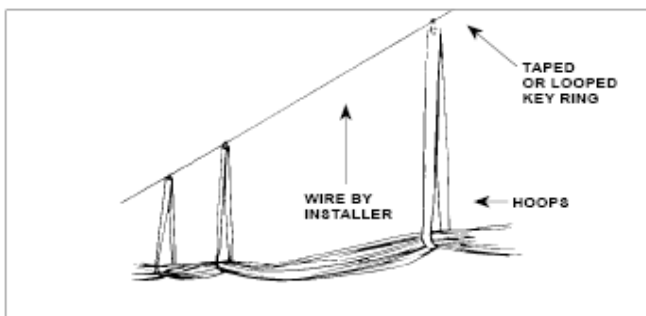
## Tube Suspension

For optimum air distribution the tube should be suspended about 7' to 9' above the floor with the hoops and key rings supplied. The tube must be hung straight without bends or twists. The hoops supplied are special straps of cross-laminated plastic for durability that include eyelets at each end.

for clipping into the key ring. The key ring, with strap and tube may be clipped onto either a long lead wire or an eyebolt in the truss construction of the greenhouse. Because of the variety of greenhouse constructions, no further provisions for suspension are provided other than the hoops and key rings.

Recommended tube suspension with hoops is approximately 8' apart, which will be adequate for polytube weight (12 lbs. per 100') and sufficient to dampen-out snapping action when the tube is initially inflated. For wire suspension make sure the key rings are properly anchored, i.e., either tied, taped, or looped into the wire to prevent shifting.

## Polytube installed on outlet transition



**Figure 4.1**

Modine Manufacturing Company has a continuous product improvement program, and therefore reserves the right to change design and specifications without notice.