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Heat Recovery System (HRS) Installation Manual

66683 Rev 0

Heat Recovery System Installation

General Notes

This system is pre-assembled for transportation, and will require some disassembly in order to be permanently installed.

The vent duct and hood extend upwards past the intersection of the exterior wall and roof. There is very little horizontal clearance in this location so there can be no roof overhang in this area.

The mounting frame for this system is designed to attach to an exterior wall. The system design permits attachment to walls of virtually any construction type. The wall must be reasonably flat and the exterior finish should not have any significant profile.

Should wood frame construction be used, the frame is designed for 16 inch on center mounting. In addition, if the exterior finish of the building is wood, install a sheet metal barrier between the generator cooling fins and the wall surface.

Uncrating

- Remove the lid from the crate
- Remove the Actuator Cover screws and the actuator cover. Store in a safe area. [Item H15, Figure 2](#)
- Remove screws securing complete assembly to the crate.
- Carefully lift the Duct Assembly from the shipping.
- Remove the fan assembly from the crate and store in a safe area.

Disassembly

- Remove damper linkages at damper control arms. [Item H7, Figure 2](#)
- Remove and retain screws from the wrapper. [Item H1, Figure 2](#)
- Remove wrapper by lifting straight up to clear the damper control arms.
- Place wrapper in an area where it will not be damaged. Pay particular attention to the actuator assembly.

Create Wall Openings and Attach Mounting Frame to Wall

Position frame on exterior wall in desired location. [Item H2, Figure 2](#)

Note: Mount the frame as high as possible on the exterior wall while ensuring that top of upper hole is located below interior ceiling of building. Further, the upper end of the frame cannot extend past the intersection of the roof and the exterior wall.

- Level the frame and mark the upper and lower damper door holes.
- Remove frame from wall.
- Cut and finish the upper and lower damper door holes as required.
- Reposition and level the frame in the correct location and secure to the exterior wall through the frame's pre-drilled holes. (Holes @ 16" O.C.)
- Seal any gaps between the building wall and the frame with supplied caulking materials.
- Remove tape from damper door assemblies.

Attaching Generator to Mounting Frame

- Remove the thermoelectric generator (TEG) from the crate by undoing the 4 bolts holding the TEG to the crate.
- P5050/P-5100 System: Temporarily remove the Rain Cap and Exhaust stack from the cabinet. This

- will later allow the sheet metal wrapper to slide over the TEG.
- 5220 System: Temporarily remove the Limiter Converter from the left-hand side of the TEG and the Exhaust stack from the cabinet. This will later allow the sheet metal wrapper to slide over the TEG.
- Remove and retain the temporary shipping legs.

Note for 5220 system: There are fragile electronic components located on the underside of the cabinet. Use care to ensure they are not damaged. The TEG may be placed on end with the cooling fins down, when shipping legs are removed.

Note the double vertical rows of 1/4" cap screws located approximately midway along the Length of the TEG. The following discussion concerns the row of cap screws located closest to the cooling fins on both sides of the TEG.

- Remove and retain the top and bottom 1/4" cap screws from the TEG.
- Loosen the middle two cap screws approximately 6 full turns from fully engaged.
- Lift and position the TEG so that the cap screws engage and drop into the slotted holes in the frame.
- Install the top and bottom 1/4" cap screws on both sides of the TEG.
- Level TEG and tighten all eight (8) screws securing the TEG to the mounting frame.
- Using a carpenter's square, adjust the TEG until perpendicular to the building wall.

Attaching the Wrapper to the Mounting Frame

- Re-install the Wrapper on the frame using the supplied screws. [Item H1, Figure 2](#)

Note: ensure that the mounting frame angle leg fits between the insulation and outer sheet metal of the wrapper so that the insulation is not crushed.

- To ensure weather tightness, thoroughly seal the side of the duct that contacts the building wall with the supplied caulking materials.
- Mark, cut and finish the thermostat wire hole as required. A 7/8" hole is supplied in wrapper.
- Re-attach linkages to the damper door control arms (top and bottom).
- Feed the thermostat control cable from the actuator through the previously drilled hole in the building wall.
- Install square to round transition duct to the top of the wrapper using supplied screws (3 per each of the 3 sides). Ensure the square to round transition fits over the wrapper to prevent water leakage.

Note: Use the supplied materials to seal the contact area between the wall and the transition.

- Determine the required length of the 12" diameter warm air exhaust extension, adjust and install.
- Attach the AeroFoil Ventilator to the top of the extension using supplied screws.

Thermostat Installation

- Mount the thermostat in the desired position on the inner building wall away from both warm and cold drafts.

Damper Door and Linkage Adjustment

- With both damper doors closed, adjust the control arms on the damper and actuator shaft to 45 degrees. [Figure 1](#)
- Connect a 24 VDC supply to the actuator motor leads and observe the door movement from closed to open. Disconnect the supply and observe the doors close.
- Adjust control arms and linkage if necessary to obtain full closure and opening of the damper doors to slightly touch the insulation at the far side of the duct.

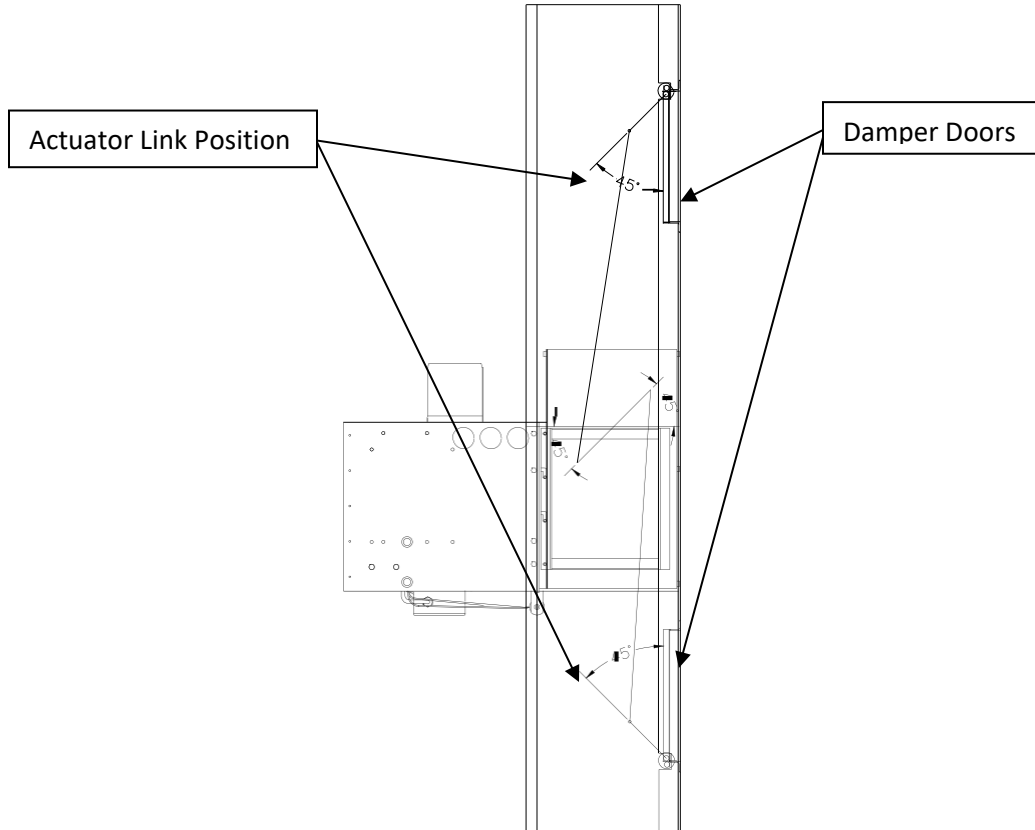


Figure 1
Dampers shown in closed position.

Attaching Actuator Cover to the Wrapper

- Position cover over actuator assembly and linkages, then reattach to wrapper using the supplied screws. Items H1 & H15, Figure 2

Completing TEG Installation

- Run and connect fuel line to the TEG. Refer to TEG Manual.
- Run and connect electrical cables from control panel to TEG power terminals. Refer to TEG Manual and engineering system drawings
- Run and connect Alarm Cables from control panel to the TEG VRS terminals. Refer to TEG Manual and engineering system drawings.
- P-5050/P-5100 System: Reinstall the Exhaust stack and Rain Cap on the TEG. Ensure that the rain cap vents are inside the duct attached to the front of the wrapper. Figure 2
- 5220 System: Reinstall the TEG Limiter Converter and the Exhaust stack on the TEG.

Fan Installation (Optional)

- Locate fan in the desired position on the ceiling and attach with supplied screws.
- Run and connect electrical cables from TEG +24 Volt Bus to the fan as shown in engineering system drawings.

RAIN CAP
BEHIND SHIELD

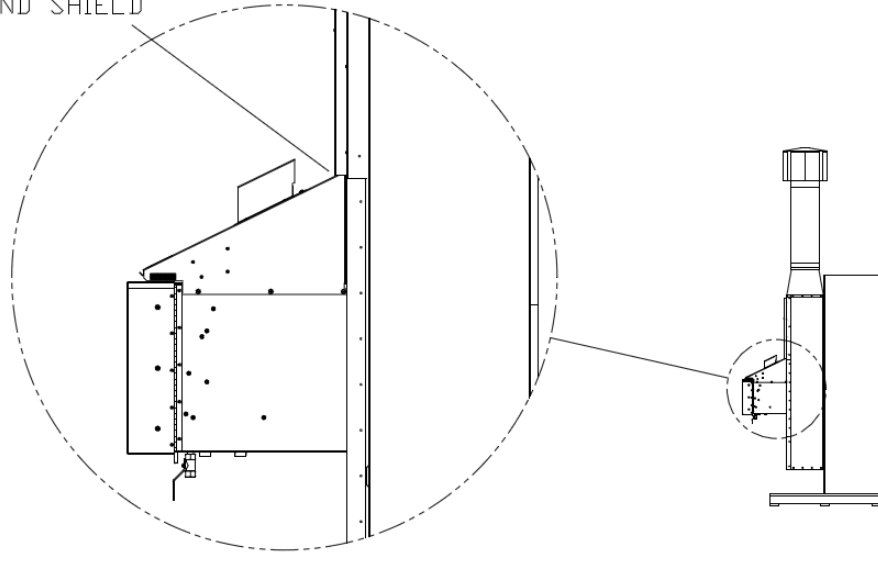


Figure 2 P-5050 & P-5100 Rain Cap Position in Heat Recovery System

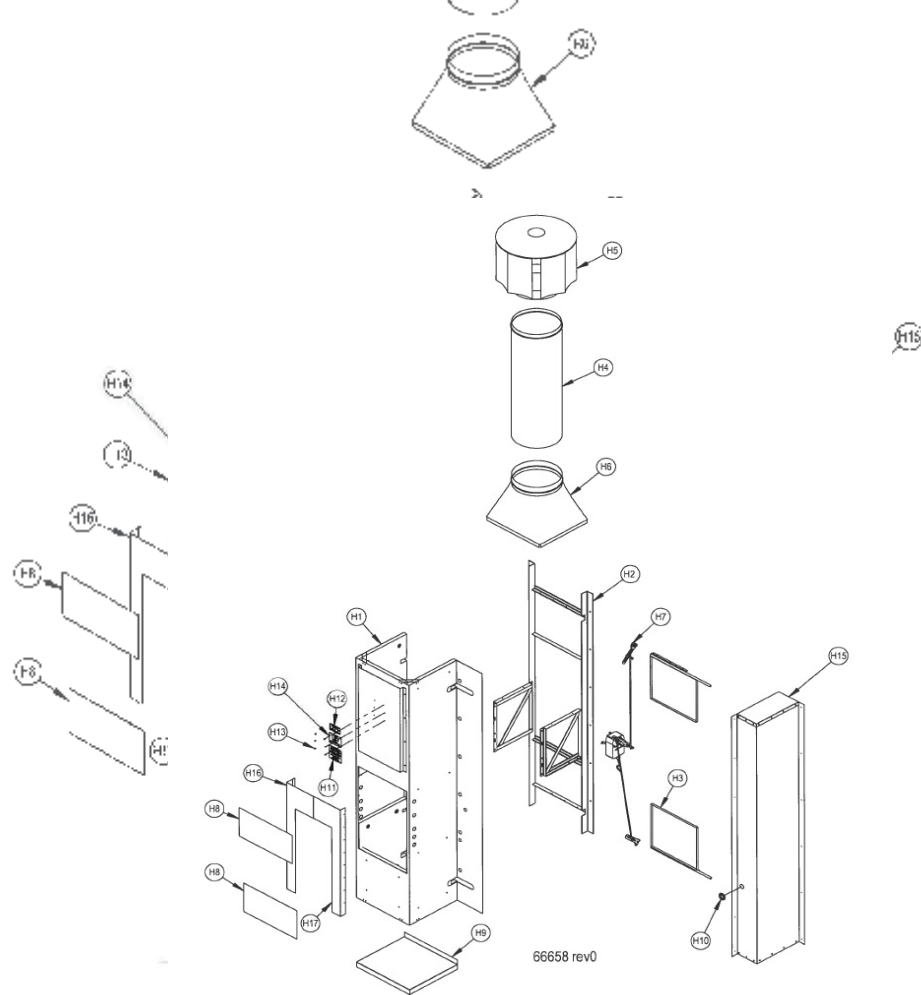


Figure 3 Heat Recovery System

Item	Part No.	Description
H1	4300-65700	DUCT WRAPPER, W/ INSULATION, 16" DEEP HRS, P-5050/P-5100/5220
H2	4300-65701	DUCT FRAME WELDMENT, 16" DEEP HRS, P-5050/P-5100/5220
H3	4300-65811	DAMPER WELDMENT, TOP & BOTTOM, 16" DEEP, P-5100 HRS
H4	4300-21061	TUBE, 12" DIA. X 36" LG, GALV. STEEL, HRS
H5	4300-01165	VENTILATOR, AERO-FOIL
H6	4300-65720	TRANSITION, 18" X 16" TO 12" DIA., 15" DEEP HRS
H7	4300-21065	ACTUATOR ASSEMBLY, HRS
H8	4300-65721	FILLER, DUCT, HRS, P-5050/P-5100/5220
H9	4300-65722	SCREEN, INLET, 16" DEEP HRS, P-5050/P-5100/5220
H10	2900-06939	GROMMET, SPAENAU RB-106
H11	3600-00684	LABEL, CAUTION, HOT SURFACES
H12	3600-00683	LABEL, GLOBAL
H13	2506-24441	SCREW, SELF TAP, P-H-P, #6-3/8, SS, SPAENAU# 531-025
H14	3600-06609	LABEL, CAUTION, HOT
H15	4300-65876	COVER, ACTUATOR ASSY, 16" DEEP HRS
H16	4300-66641	COVER, UPPER OPENING, HRS, P-5050/P-5100/5220, LEFT
H17	4300-65719	COVER, UPPER OPENING, HRS, P-5050/P-5100/5220, RIGHT