

ZERO ZONE LOW TEMP CASES (RVZC)

Converting Electric Defrost to Hot Gas Defrost

PURPOSE

To retrofit an existing Zero Zone RVZC low temp display case from electric defrost to hot gas defrost.

SCOPE

This procedure covers the conversion of electric defrost to hot gas defrost for 2 to 5-door RVZC low temp display cases.

RESPONSIBILITY

Zero Zone Contractors or Zero Zone Service Technicians.

ASSOCIATED DOCUMENTS

1. SP-3002
2. SP-3055
3. 31-0210

PARTS REQUIRED

4. 67-0022 CPR CPLG 1/2OD 100-E (2 pieces)
5. 67-0043 CPR TEE 1/2X3/8X1/2OD 111RRECE (1 piece)
6. 67-0044 CPR TEE 7/8X7/8X1/2OD 111R-KKE (1 piece)
7. 67-0135 DIST SIDE PORT ADPTR 1/2" ASC- 4-4 (1 piece)
8. 69-0041 VLV CHECK ACK-8 SWT A17936 (1 piece)
9. 69-0050 CPR HD 3/8 ODX20' 38ACR20 C&C (See supplied kit)
10. 69-0051 CPR HD 1/2 OD X20' 12ACR20 C&C (See supplied kit)
11. 69-0052 CPR HD 7/8 OD X20' 78ACR20 C&C (See supplied kit)
12. 69-0055 CPR SD 3/8 OD X 50' 38R50 (See supplied kit)
13. 69-0056 CPR SD 1/2 OD 12R50 (See supplied kit)
14. 69-0420 VLV CHECK ACK-14 SWT A17939 (1 piece)
15. 69-0459-05 CPR SD 1/2" HG SERPENTINE 5VZ (1 piece)
16. 70-0420-03 FLAP (SEAL ROT CUT-OUT) NEOPRENE (1 piece)
17. 70-0604 CLIP HOT GAS VZ (6 pieces)



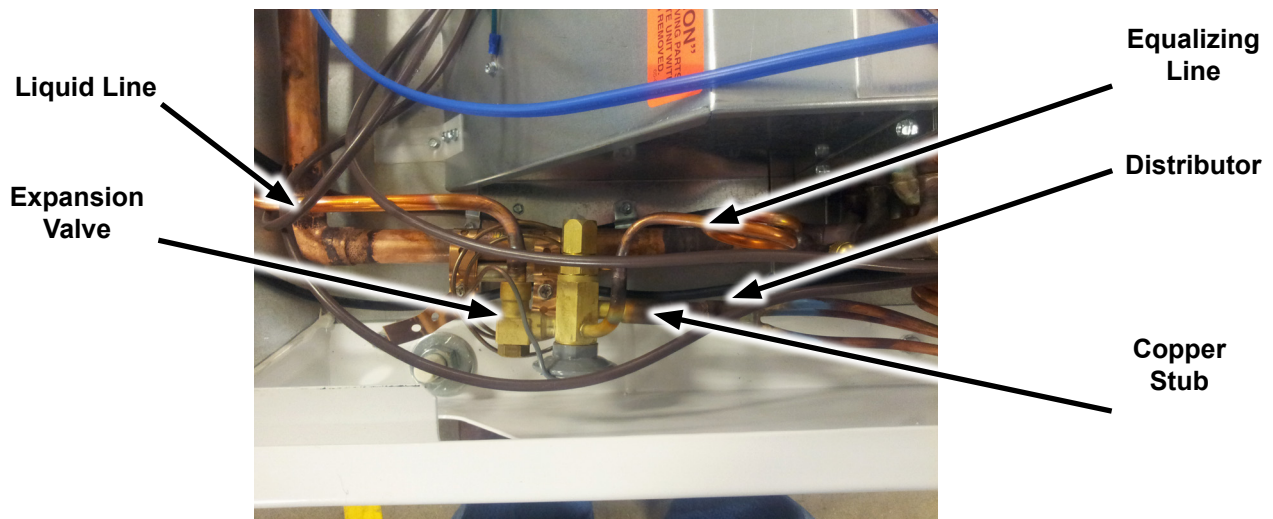
TOOLS NEEDED

1. Skinny long nose pliers
2. AVK installation gun for Rivnut
3. Copper tube cutter
4. Brazing torch
5. Brazing rod
6. Socket set and driver
7. Drill with 19/64 bit

PROCEDURE

Note: Use SP-3002 as a reference for layout.

1. Pump compressor down and disconnect electric power to freezer.
2. Open coil cover and flip fan housing back (You may remove Tek screws from bottom hinges to acquire more room).
3. Remove the left fan shroud, and replace with part number 31-0210 SHIELD FAN SHROUD HOT GAS VZS or cut out the bottom right angle corner of the existing bracket 2.75" long by 1.3" high. See drawing 31-0210.
4. Disconnect the thermostats from U bends of right end of evaporator.
5. Cut the liquid line approximately 1" from the expansion valve.

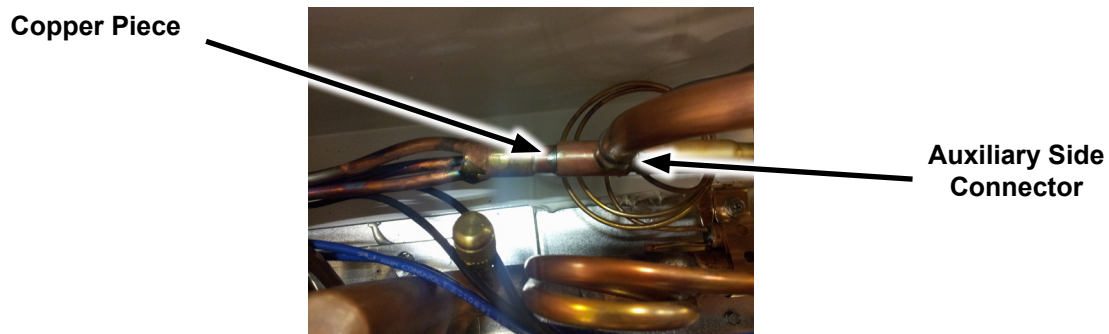


6. Un-sweat the expansion valve from the evaporator (on multi circuit evaporators this will entail removing the valve from the copper stub on the coil distributor.)
7. Bend equalizing line so as not to kink but to move valve to make room to work.
8. Using a Narrow Needle nose pliers to remove the snap ring, holding the Distributor orifice in place
9. Remove orifice from distributor.

10. Place orifice in the small end of the Auxiliary Side Connector (67-0135)



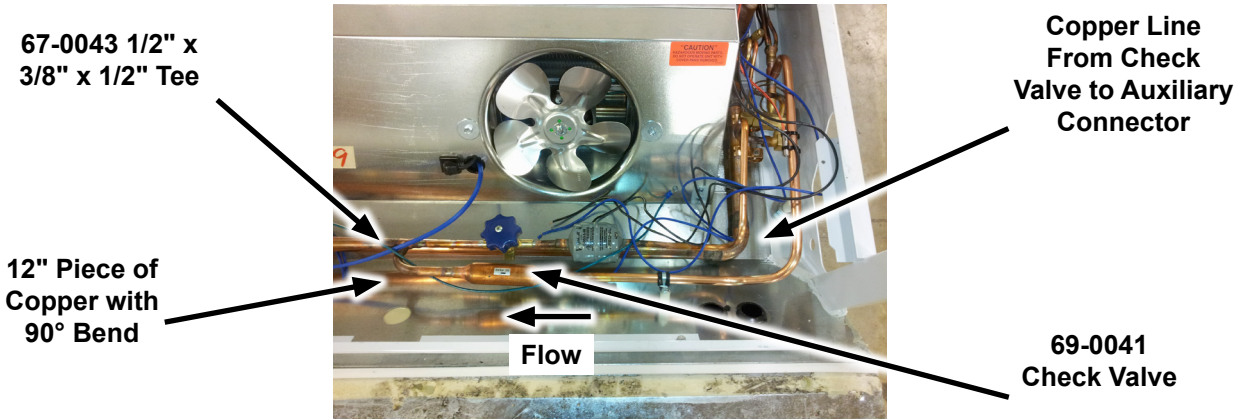
11. Secure orifice with Snap ring supplied with Auxiliary side connector
12. Braze Auxiliary side connector onto the copper piece from the distributor. The side port should be in the upright position



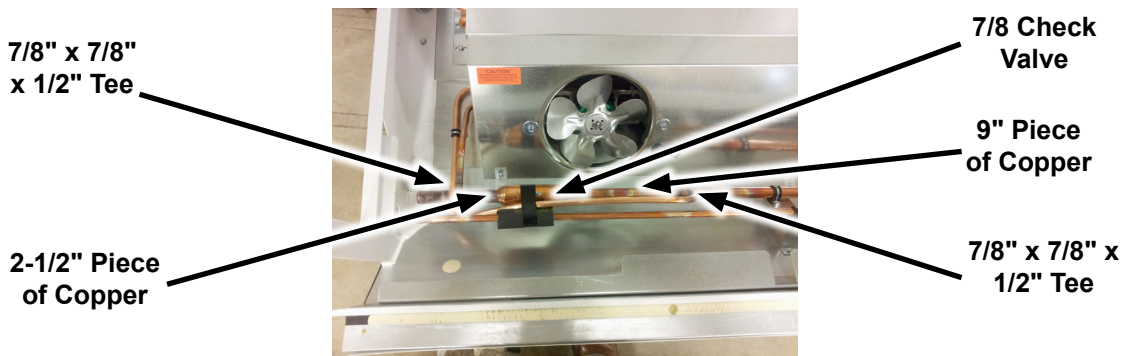
13. Remove the stub still attached in the inlet of the Thermal Expansion Valve and braze the expansion valve onto the Auxiliary side connector. Re-braze liquid line into inlet of expansion Valve.
14. Install threaded inserts per instruction SP-3055 into base pan.
15. Lay serpentine coil onto drain pan and install per instruction SP-3055.



16. Cut Liquid line approximately 3" before first component in liquid line. (for freezers with heat exchangers this would be the $\frac{3}{8}$ " line on the inlet of the heat exchanger)



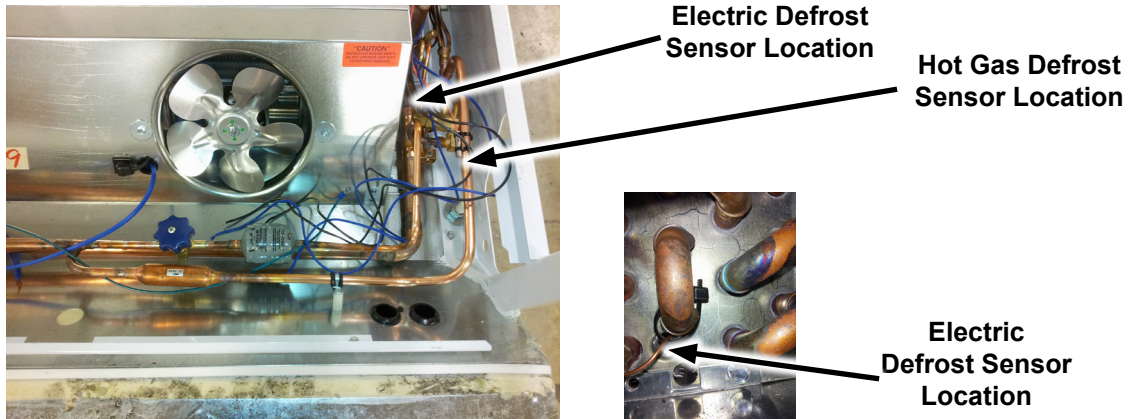
17. Braze Part number 67-0043 $\frac{1}{2}$ " x $\frac{3}{8}$ " x $\frac{1}{2}$ " copper tee onto the liquid line with the $\frac{3}{8}$ " port angled parallel to the inside front of the case.
18. Braze a 12" x $\frac{1}{2}$ " soft drawn copper with a 90° bend in the middle port of the $\frac{1}{2}$ " x $\frac{3}{8}$ " x $\frac{1}{2}$ " copper tee. The open end should be toward the right.
19. Braze a $\frac{1}{2}$ " check valve 69-0041 on the line from the $\frac{1}{2}$ " x $\frac{3}{8}$ " x $\frac{1}{2}$ " copper tee. The flow should be toward the tee.
20. Braze $\frac{1}{2}$ " soft drawn line from the $\frac{1}{2}$ " check valve to the Auxiliary side connector near the expansion valve.
21. Cut the $\frac{7}{8}$ " suction line 24" from the left end frame.



22. Cut the $\frac{7}{8}$ " suction line 7" from the left end frame.
23. Braze a $\frac{7}{8}$ " x $\frac{7}{8}$ " x $\frac{1}{2}$ " Tee to end closest to the TXV. The $\frac{1}{2}$ " Port should be in the vertical direction.
24. Braze a 9" piece of $\frac{7}{8}$ " of copper to the $\frac{7}{8}$ " opened end of the tee.
25. Braze the $\frac{7}{8}$ " check valve (69-0420) to the copper stub with the flow direction moving away from the TXV.
26. Braze a 2- $\frac{1}{2}$ " piece of $\frac{7}{8}$ " copper into the open end of the Check valve.
27. Braze a $\frac{7}{8}$ " x $\frac{7}{8}$ " x $\frac{1}{2}$ " Tee onto the $\frac{7}{8}$ " stub from the check valve so as the $\frac{1}{2}$ " port is facing the serpentine coil.
28. Braze the other $\frac{7}{8}$ " port onto the stub leading out of the case.
29. Braze a $\frac{1}{2}$ " copper line from the tee closest to the end frame to one of the ends open ends of the serpentine coil. The line should run through the cutout of the left fan shroud.
30. Braze a $\frac{1}{2}$ " copper line from the open port of the remaining tee to the remaining open end of the serpentine coil.
31. Below is what the end product should look like.



32. Attach neoprene flap to the inside of the coil shield to cover the gap between the copper lines and the cutout.
33. Close fan housing and coil cover
34. Move Defrost probe from inside the coil to the hot gas bypass line 4" from the tee.



35. Reset control parameters to the defrost settings listed on the electrical drawing.
36. Evacuate system.
37. Recharge system
38. Re-connect electrical power

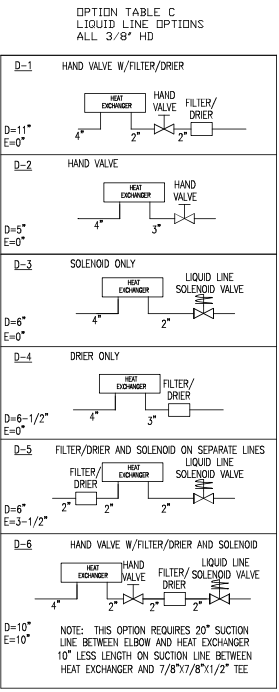
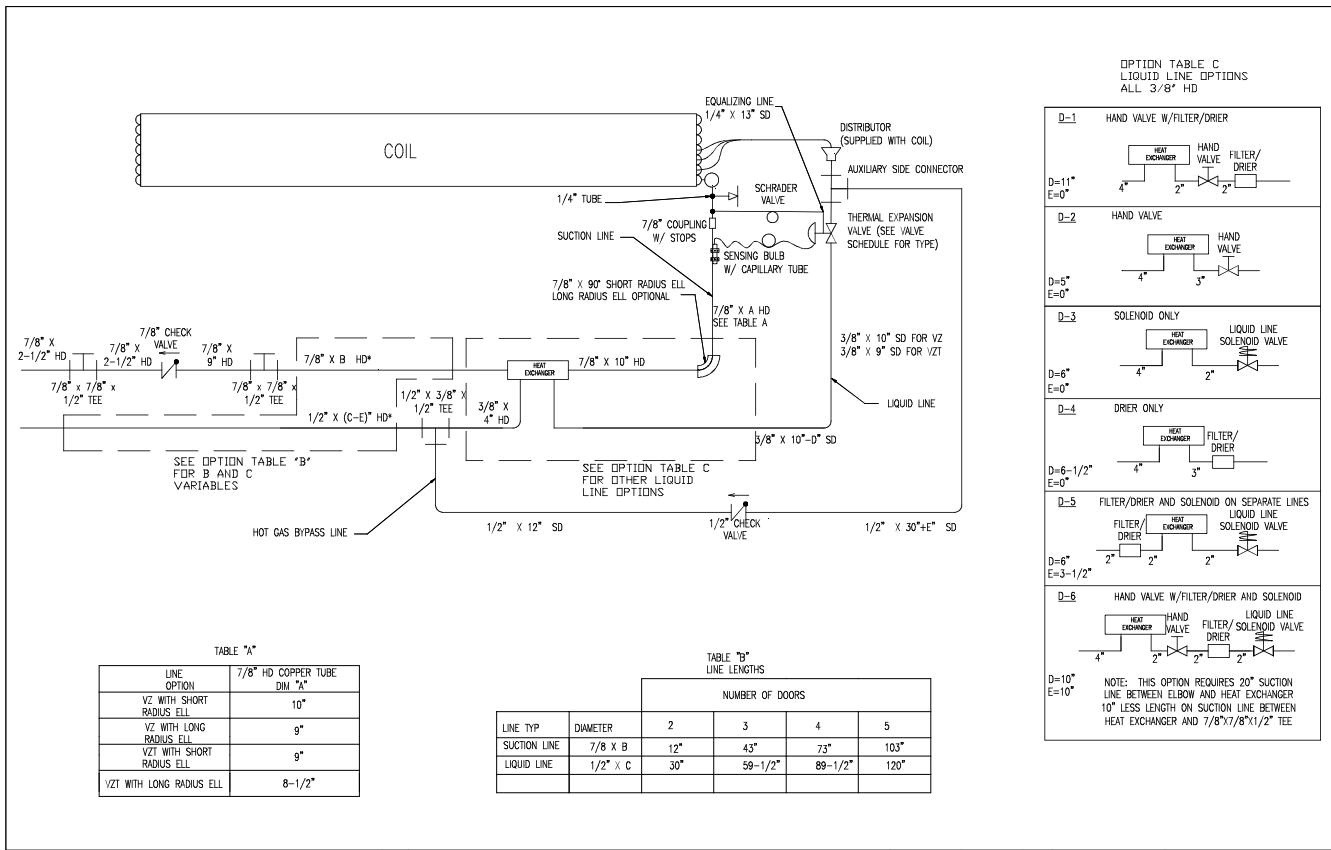


TABLE "A"

LINE OPTION	7/8" HD COPPER TUBE DIM. "A"
VZ WITH SHORT RADIUS ELL	10"
VZ WITH LONG RADIUS ELL	9"
VZT WITH SHORT RADIUS ELL	9"
VZT WITH LONG RADIUS ELL	8-1/2"

TABLE "B"
LINE LENGTHS

LINE TYPE	DIAMETER	NUMBER OF DOORS			
		2	3	4	5
SUCTION LINE	7/8 X B	12"	43"	73"	103"
LIQUID LINE	1/2" X C	30"	59-1/2"	89-1/2"	120"

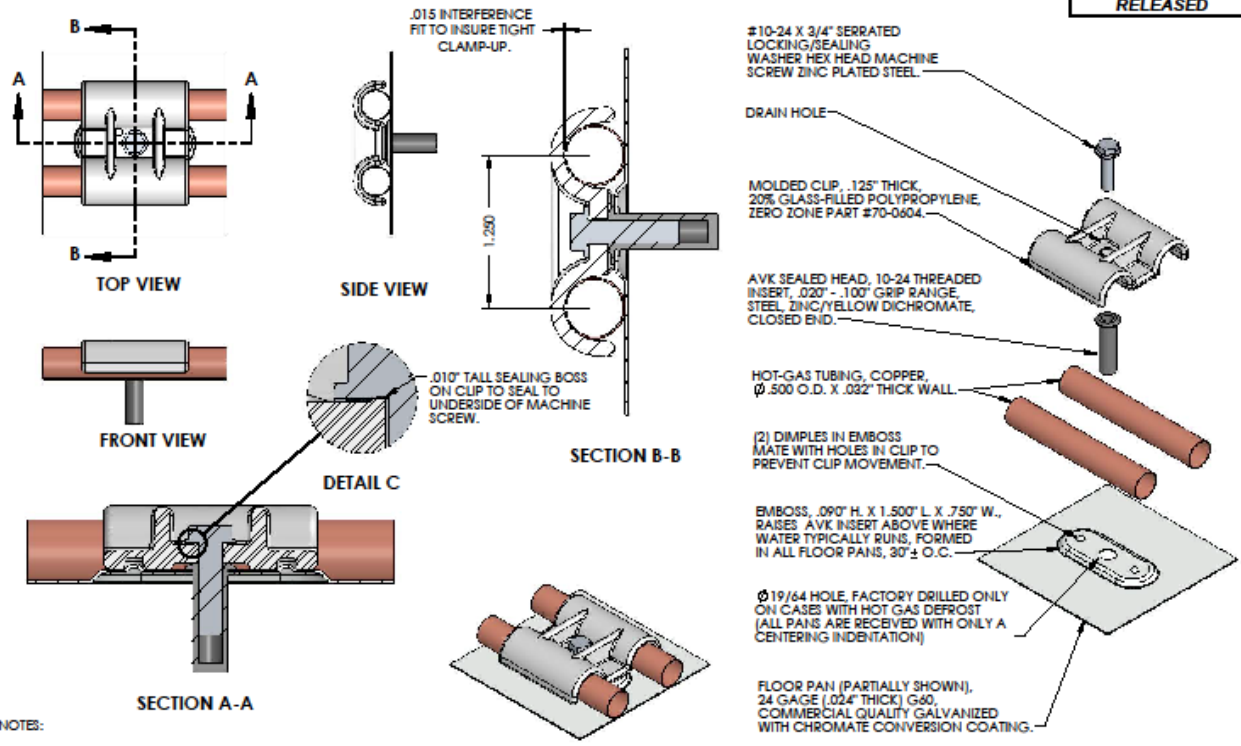
TOLERANCES U.O.S			H	G	F	E	D	C	B	A	NO	REVISIONS				
FRACTIONAL	DECIMAL	ANGULAR														
D DESIGNATES ± 1/8	-	-														
C DESIGNATES ± 1/16	-	-														
B DESIGNATES ± 1/32	ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED															
A DESIGNATES ± 1/64																
											9582	7/25/12	AP	SCALE	CHECKED BY	
											ECN NO.	DATE	BY	NONE		

ZERO ZONE, INC.
NORTH PRARIE, WI
PROPRIETARY INFORMATION

VZ REFRIGERATION 2-5 30" DOORS
W/HOT GAS DEF & HEAT EXCHANG

DRAWN BY AL ROEKER DATE 7/25/12
DRAWING NO. SP-3002

CHECKED BY
REV. LVL. A

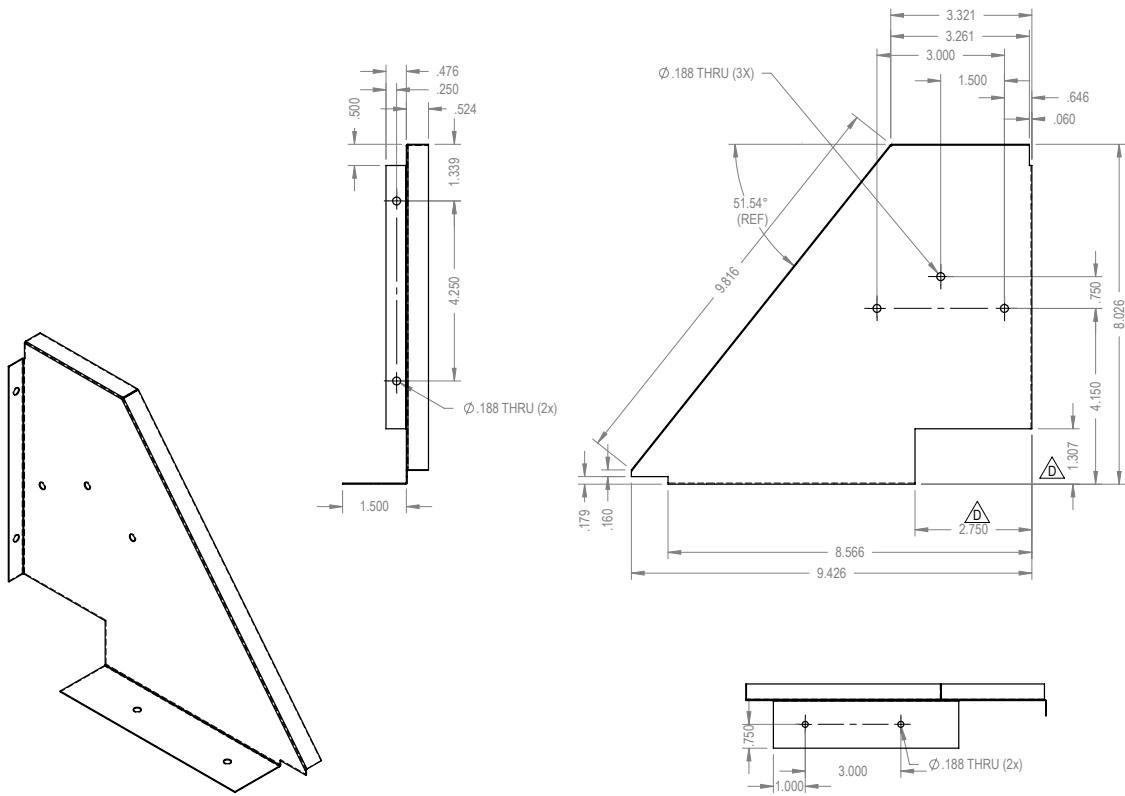


NOTES:

1. ONE NEW CLIP REPLACES TWO OF THE CURRENT COPPER CLIPS.
2. CONVERTING FROM HOT GAS TO ELECTRIC DEFROST:
 - A. REMOVE SCREWS, CLIPS AND HOT GAS SERPENTINE.
 - B. REINSTALL SCREW INTO THREADED INSERT & TIGHTEN TO RESEAL.
3. CONVERTING FROM ELECTRIC TO HOT GAS DEFROST:
 - A. FIELD DRILL \varnothing 19/64 HOLES IN CENTER INDENTATION AT EACH EMBOSS.
 - B. INSTALL AVK THREADED INSERTS, HOT GAS SERPENTINE AND SCREWS.

REV.	DESCRIPTION	ECH No.	DATE	BY
B	.090 DEPTH OF SHEET METAL EMBOSS WAS .100, NUMEROUS MINOR REVS. MADE TO CLIP.	NONE	11/26/13	AR

DATE: SEE ABOVE	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN DECIMAL INCH	
DESIGNER: SEE ABOVE	DATE: 11/26/13	
DRAWN BY: SEE ABOVE	SCALE: NOT TO SCALE	HOT GAS CLIP MOUNTING SP-3055 SHEET 1 OF 1



MATERIAL: PER SP-01946 SHEET, 24GA GALV.				UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN DECIMAL INCH		ZERO ZONE, INC. 110 NORTH CAROLIDGE DRIVE NORTH PRABIE, WISCONSIN USA 53153			
FINISH: PER SP-01946 (NONE)				DRAWN BY: Bob Sweet		DESCRIPTION: SHIELD FAN SHROUD HOT GAS VZS		REVISION: D	
TOLERANCES: STANDARD (UNLESS OTHERWISE SPECIFIED)				SCALE: NOT TO SCALE		DRAWING No: 31-0210		DATE: 08/02/2005 SHEET: 1 OF 1	
PART WEIGHT: (N/A)				NO MANUAL REVISIONS		SHEET SIZE: A			
REVISION INFORMATION D 1.307 WAS .800, 2.750 WAS 2.694 8268 08.17.09 BS C 4.150 WAS 2.745 7251 01.30.06 BS				COPYRIGHT INFORMATION THIS DRAWING AND THE INFORMATION CONTAINED WITHIN IS THE SOLE PROPERTY OF ZERO ZONE, INC. ANY USE OF THIS DOCUMENT OR DISCLOSURE OF ITS CONTENTS, BY REPRODUCTION OR OTHER MEANS, WITHOUT THE WRITTEN CONSENT OF ZERO ZONE, INC. IS STRICTLY PROHIBITED.					

Revision Log		
Revision Letter	Date	Revision Statement
A	11/26/2013	NEW ISSUE