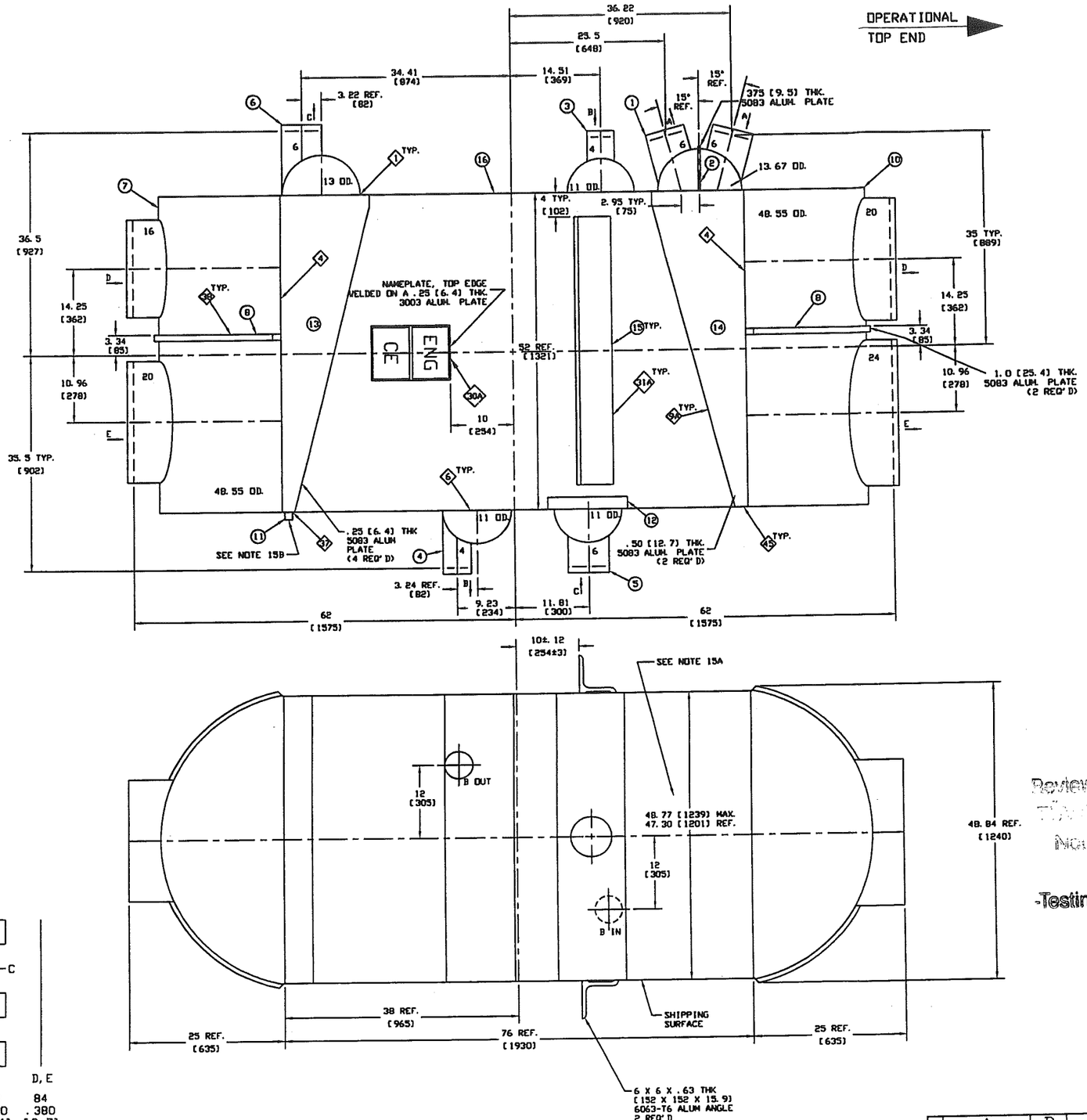

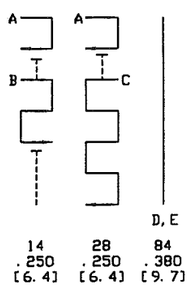

FLOW DIAGRAM

NOTES:

1. REFER TO BRAZ-ICH FOR INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS. ASSURE COMPLIANCE WITH REQUIREMENTS PARTICULARLY OPERATING CONDITIONS TO PREVENT OVER PRESSURIZATION, THERMAL SHOCK AND OPERATION OUTSIDE DESIGN TEMPERATURE RANGE. REFER TO DRAWING 910-6847 FOR RECOMMENDED HEAT EXCHANGER LIFTING INSTRUCTIONS AND DRAWING 910-6431 FOR INSTRUCTIONS ON ROLLING HEAT EXCHANGER TO SIDE OTHER THAN SHIPPING SURFACE.
2. COLD BOX FABRICATOR TO DRILL APPROPRIATE HOLES OR SLOTS IN SUPPORT ANGLES FOR MOUNTING HEAT EXCHANGER AS DESCRIBED IN BRAZ-ICH.
3. HEAT EXCHANGER DESIGNED, CONSTRUCTED, AND STAMPED PER THE LATEST MANDATORY EDITION AND ADDENDA OF THE ASME PRESSURE VESSEL CODE, SECTION VIII, DIV. 1 AND REGISTERED WITH THE NATIONAL BOARD.
4. CORROSION ALLOWANCE: ALUMINUM = 0.0000 INCHES
5. SEE DRAWING 15771C FOR MAXIMUM ALLOWABLE PIPE LOADS.
6. THE HEADERS AND NOZZLES ARE LABELED ON THE DRAWING WITH THEIR NOMINAL PIPE SIZE (NPS). IF A STANDARD SIZE IS NOT USED THE PIPING IS LISTED AT ITS ACTUAL OUTSIDE DIAMETER AND LABELED "OD". UNLESS SHOWN OTHERWISE ALL NOZZLES ARE ON THE HEAT EXCHANGER CENTERLINE.
7. TOLERANCE ON ALL DIMENSIONS IS +/-.25 INCH [6] UNLESS OTHERWISE NOTED. ANGULAR TOLERANCE ON NOZZLES IS CONTROLLED BY THE TOLERANCE ON THE CARTESIAN COORDINATE DIMENSIONS (X,Y,Z). IN NO CASE SHALL THE ANGULAR TOLERANCE EXCEED 3 DEGREES.
8. STREAM: A B C D E
   MAWP (PSIG) [BARG]: 145 [10.0] | 145 [10.0] | 145 [10.0] | 89 [6.0] | 89 [6.0]
   DESIGN TEMP DEG. F [C]: +150 MAX. [66] MAX. | -320 MIN. [-196] MIN.
9. TESTING INFORMATION:
   LEAK TEST INDICATIVE AREAS TO 15 PSIG [1.0 BARG]

STREAM		A	B	C	D	E
FIRST AIR	(PSIG) [BARG]	40 [2.8]	40 [2.8]	40 [2.8]	10 [.7]	10 [.7]
PROTEST W/ WATER	(PSIG) [BARG]	---	---	---	44 [3.0]	44 [3.0]
PROOF	(PSIG) [BARG]	810 [15.0]	810 [15.0]	810 [15.0]	30 [2.2]	30 [2.2]
LEAK	(PSIG) [BARG]	145 [10.0]	145 [10.0]	145 [10.0]	SEE NOTE 17A	SEE NOTE 17B

   WHERE: I. WITNESS REQUIRED.
   MAXIMUM DRYING TEMP 250 DEG F. (121 DEG C.)
   HELIUM VACUUM LEAK TEST

STREAMS	MAX. ALLOW. LEAKAGE
C-A	1E-3 STD CC/SEC. (NBAR L/S)
C-B	1E-3 STD CC/SEC. (NBAR L/S)
C-D	1E-3 STD CC/SEC. (NBAR L/S)
C-E	1E-3 STD CC/SEC. (NBAR L/S)
C-C	1E-3 STD CC/SEC. (NBAR L/S)

10. THE "A" STREAM TO BE CLEANED FOR OXYGEN SERVICE.
11. CONNECTIONS TO BE SUITABLY MARKED FOR FIELD TRIM.
12. UNIT TO SHIP WITH DRY AIR AT 5 PSIG (.3 BARG) IN ALL STREAMS. GAUGES ARE REQUIRED.
13. ESTIMATED WEIGHT = 6400 LBS. (DRY) [2993] KG
    14400 LBS. (FILLED WITH WATER) [6530] KG
    (WARNING: DO NOT HYDRO TEST IN FIELD WITH WATER)
14. STREAM VOLUME:

STREAM	A	B	C	D	E
CU FT. (CU M.)	4.7 (.13)	4.9 (.14)	11.7 (.33)	44.6 (1.26)	99.0 (1.67)

15. CUSTOMER NOTE:
    A. ESTIMATED BRAZE HEIGHT. ACTUAL BRAZE HEIGHT MAY VARY +/-.12 INCH[TYP] (+/- 10 MM) OF BRAZE HEIGHT. MAX DIMENSION INCLUDES TOLERANCE ON BRAZE HEIGHT PLUS HEADER ATTACHMENT PLATES.
    B. CUSTOMER TO REMOVE PLASTIC PLUG(S) FOLLOWING INSTALLATION AND JUST PRIOR TO INSULATING UNIT.
16. CUSTOMER REQUIREMENT:
    A. ALL PRESSURE RETAINING WELDS TO BE 100% DYE PENETRANT EXAMINED PER ASME CODE, SECTION VIII, DIVISION 1.
    B. UNIT TO BE SHRINK WRAPPED IN PLASTIC W/ DESICCANT.
17. PRODUCTION NOTES: (NOT APPLICABLE TO FIELD INSTALLATION)
    A. INSTALL TWO RELIEF VALVES NOT EXCEEDING 93 PSIG (3.7 BARG) ON "B" STREAM. PERFORM LEAK TEST AT 89 PSIG (6.0 BARG). REMOVE RELIEF VALVES AFTER TEST.
    B. INSTALL TWO RELIEF VALVES NOT EXCEEDING 93 PSIG (3.7 BARG) ON "C" STREAM. PERFORM LEAK TEST AT 89 PSIG (6.0 BARG). REMOVE RELIEF VALVES AFTER TEST.
18. PED NOTE:
    A. HEAT EXCHANGER TO COMPLY WITH EU PED 97/23/EC; ASSESSMENT MODULE B+F.
    B. PED NOTIFIED BODY IS TUV INDUSTRIE SERVICE GMBH, SUD GRUPPE.
    C. ASSESSMENT CATEGORY IV, ALL WORKING FLUIDS ARE GROUP 1.

Reviewed
[illegible] Zertifizierstelle GmbH
Notified Body - Pressure Equipment Directive 97/23/EC
-Testing Laboratory-
MAR 23 2005

STREAM	INLET HEADER O.D. X WALL	INLET NOZZLE O.D. X WALL	OUTLET HEADER O.D. X WALL	OUTLET NOZZLE O.D. X WALL
A (CLOX)	13.670 X .250 (347 X 6.4)	6.625 X .280 (168 X 7.1)	COMMON W/ A-IN	6.625 X .280 (168 X 7.1)
B (LAIR)	11.000 X .250 (279 X 6.4)	4.500 X .237 (114 X 6.0)	11.000 X .250 (279 X 6.4)	4.500 X .237 (114 X 6.0)
C (LIN)	11.000 X .250 (279 X 6.4)	6.625 X .280 (168 X 7.1)	13.000 X .250 (330 X 6.4)	6.625 X .280 (168 X 7.1)
D (LPGAN)	48.550 X .375 (1233 X 9.5)	16.000 X .250 (406 X 6.4)	48.550 X .375 (1233 X 9.5)	20.000 X .250 (508 X 6.4)
E (VN)	COMMON W/ D-IN	20.000 X .250 (508 X 6.4)	COMMON W/ D-OUT	24.000 X .250 (610 X 6.4)

ALL MATERIAL IN TABLE ABOVE IS 5083 ALUM

REVISION RECORD					
	A	B			
REV'D MATL THK OF ATTACH PLATES, UNIT WEIGHT WAS UNIT IS 12415			DR DOVAL DATE 11-10-04	STD ENGR SPEC 11-6.00	CHART HEAT EXCHANGERS, LP. ALL RIGHTS RESERVED THIS DRAWING AND INFORMATION ARE PROPRIETARY AND CONFIDENTIAL PROPERTY OF CHART HEAT EXCHANGERS, LP. WITHOUT WHOSE PRIOR WRITTEN CONSENT IT MAY NOT BE COPIED, USED OR COMMUNICATED TO OTHERS WHOLLY OR IN PART. © CHART HEAT EXCHANGERS, LP. ALL RIGHTS RESERVED
SPLITTER PLATE REF DIM WAS 49.312			CHKD LARSON DATE 11-15-04	NOTE 9. SES 9-9.01 PARA 1.2.1, 3.1.2, 3.4.1.	
ADDED SPEC SSMY. MADE E SIZE			PROD ENG GOETHEL DATE 11-17-04	NOTE 10. SES 9-14.00	LEGEND: ○ PART NUMBER (PRODUCTION USE ONLY) ◇ JOINT DETAIL-REF.(PRODUCTION USE ONLY) □ FIN DATA INFORMATION △ DIMENSIONAL REVISION ▷ SPECIAL NOTATION
PROD SYMBOLS L. EBERT 1-25-05			MFG ENG DATE		DIMENSIONS: PRIMARY IN INCHES, SECONDARY IF SHOWN IN [MM]
REVISED NOTE 16B AND C, ECN 5-18-05 SSMITH			WELD ENG DATE	THIRD ANGLE PROJECTION	

Chart Hea

BRAZED ALUMIN
HEAT EXCHANG
5 STREAM PLATE

ITEM NO. W23001

SIZE D | DWG NO. 15771A

509.9 (1) 11/04