

Chart heat Exchangers L.P.  
Inspection & Test Report

Stacking & Brazing

Cell 4

Sales Order # 502,1-1 Module # 1 Manufacturing # 15772B1

Operation	Instruction	Date & Operator Clock #	Date & Inspector Initials	W/H Points Int & Date
1. STACKING ASSEMBLY	WI9-040-002			
#1 Layer A - <del>Drawn</del>	WI10-02	46425/46505/46469	JE	1-10-05
#2 Layer B - <del>Drawn</del>	WI10-02	46425/46505/46469	JE	1-10-05
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Half Primary Stacking & Squareness	WI10-02	7754 77075 75399 75345	WJ	1-11-05
Primary Stacking & Squareness	WI10-02	7754 77075 75399 75345	EJ	01-12-05
Compression & Dimensional Record		46357 46463		
Braze Core / Module	Date	01/13/05	46394	
Fixture Removal / Dimensional	Date	1/15/05	46356 46409	
After Brazing			72681	

Chart heat Exchangers L.P.  
Inspection & Test Report

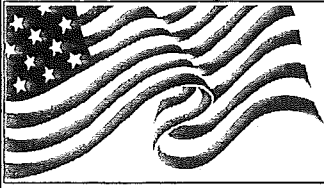
Stacking & Brazing

Cell 4

Sales Order # 509, 1-1 Module # 2 Manufacturing # 15772B-2

Operation	Instruction	Date & Operator Clock #	Date & Inspector Initials	W/H Points Int & Date
1. STACKING ASSEMBLY	WI9-040-002			
Layer #1A	WI10-02	<u>46412</u> <u>46463</u>	<u>TR 1-11-05</u>	
Layer #2B	WI10-02	<u>46412 46334</u> <u>46463 46439</u>	<u>1-11-05</u> <u>TR 11-50</u>	
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Half Primary Stacking & Squareness	WI10-02	<u>734339 469</u> <u>464846</u>	<u>EJH-CEJ</u>	
Primary Stacking & Squareness	WI10-02	<u>71844 77075</u> <u>75345 75378</u>	<u>EJO. 01-12-05</u>	
Compression & Dimensional Record		<u>46357</u> <u>46463</u>		
Braze Core / Module	Date <u>01/13/05</u>	<u>46394</u>		
Fixture Removal / Dimensional	Date <u>1/15/05</u>	<u>46356</u> <u>46409</u>		
After Brazing		<u>72681</u>		

Header Inspection Log									
			Sales Order #			509.1-1			
Header Assy. Item #	Stream Identification	Header Body Trace	End Piece Trace	Nozzle Trace	Misc. Material Trace	Final Insp. Initials & Date	X-Ray Initials & Date	X-Ray #	A.I. Review Initials & Date
8701	A-IN	S468C	S473C	S468C	P.DISK S458C	PJ 1-23-05			AJH 1-23-05
8702	A-OUT	S468C	S474C	T107C	PIPE T006C DISK S467C	PJ 1-21-05			HAL 1-21-05



# Chart Heat Exchangers

## Post Braze Inspection and Test Report

National Board Number:

5068

Job Number/Serial Number 509.1-1

Drawing Number: 15772A

Mfg. Number: 15772B-1&2

Review of Design Calculations, Assembly Drawings and I&amp;T Report

QC Review and approval of ITR: KILDate: 12/29/04AI Review and acceptance of ITR: [Signature]Date: 12-29-04

## General Documentation

Nameplate Verification

QC Inspection	Date	Authorized Inspector	Date
<u>[Signature]</u>	<u>2-11-05</u>	<u>[Signature]</u>	<u>2-11-05</u>

**General Operations**

	Emp #	Date	QC Insp	Date	AI Init & Date
Centerline Layout	75519	1-15-05			
Module core fit-up	46270/46352	1-23-05			
SFT Test & AI Insp module welds under headers	KIR	21.1.05			(P) 1/23/05
Weld and Inspect Port Posting	KIR	21.1.05			HW 1/27
Light Test			TZ	1-16-05	
Fin Measurements			TZ	1-16-05	
Port Measurements			TZ	1-20-05	

**Header Fit-up and Inspection**

Header	AI Hold (H)	Clean Check / Header Fit-up (Stamp # & Date)	Oxygen Service (QC Inspection)					
		Visual Inspection before fit up	Black Light					
A-In		20 1-24-05	20					
A-Out		20 "	20 1-23-05					
A-Vent		38 1/21/05						

n<sup>1</sup> AI to review header welds prior to fit-up of inactive vent or pan headers. LPT header welds if specified on assembly drawings

**Pre-hydro Inspection and Tests**

	Emp #	Date	QC Insp	Date	AI Init & Date
1st Air Test	44324	2/2/05			
Support angle fit-up	N/A				
Visual Inspection, final welds (Weld Check)			8	1-26-05	1/27-05
Dimension Check			8	1-26-05	

Pneumatic and Leak Test								
Stream Identification	Pneumatic Test Pressure (PSIG)	Leak Test Pressure (PSIG)	Testor Emp # and Date	Inspector or 2nd Testor Emp# and Date	Internal Leak Test Emp # and Date	External Leak Test Emp# and Date	AI Hold Point Init & Date	
A	164	109	46348 128	800 1-28-05	NA	✓OK	2-28-05	
TUV								
A	164	109	46348 2/10/05	15 2/10/05	N/A	✓OK	TR 2/10/05	

Final Inspection				
	Emp #	Date	QC Insp	Date
Helium leak test	46352	2-9-05		
Header clean check inspection	46313	2/11/05	TR	2-11-05
External clean check (O <sub>2</sub> Service)	46313	2-11-05	TR	2-11-05
Final inspection				
Crate check(Tester)				
Loose parts verification				
ITR review and return to QC Office				

see Battery ITR

Chart heat Exchangers L.P.  
Inspection & Test Report

Stacking & Brazing

Cell 4

Sales Order # 309.1-2 Module # 3 Manufacturing # 1577213-3

Operation	Instruction	Date & Operator Clock #	Date & Inspector Initials	W/H Points Int & Date
1. STACKING ASSEMBLY	WI9-040-002			
#1 Layer A-Stream	WI10-02	<u>46409/75398</u>	<u>WV</u>	<u>1-13-05</u>
#2 Layer B-Stream	WI10-02	<u>46409/75398</u>	<u>WV</u>	<u>1-13-05</u>
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Half Primary Stacking & Squareness	WI10-02	<u>46409</u> <u>77544</u> <u>75398</u>	<u>Sayers #1 DM #80</u> <u>WV</u>	<u>1-13-05</u>
Primary Stacking & Squareness	WI10-02	<u>46409</u> <u>46445</u>	<u>SV</u>	<u>1-13-05</u>
Compression & Dimensional Record		<u>46409/72681</u>		
Braze Core / Module	Date	<u>1-19-05</u>	<u>46352</u>	
Fixture Removal / Dimensional After Brazing	Date	<u>1-20-05</u>	<u>46339</u>	

Chart heat Exchangers L.P.  
Inspection & Test Report

Stacking & Brazing

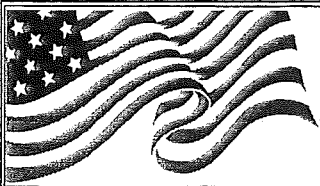
Cell 4

Sales Order # 5091-2 Module # 4 Manufacturing # 1577213-4

Operation	Instruction	Date & Operator Clock #	Date & Inspector Initials	W/H Points Int & Date
1. STACKING ASSEMBLY	WI9-040-002	46418		Re-Stack
#1 Layer A	WI10-02	46417 46445	SV 1-13-05	audit
Layer B	WI10-02	46418 46445/46417	SV 1-13-05	woody 1-14-
Layer	WI10-02			woody 1-14-
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Layer	WI10-02			
Half Primary Stacking & Squareness	WI10-02	46417/46418 46469/46445	SV 1-14-05	SV = 1 TAK. #75 woody 1-14-05
Primary Stacking & Squareness	WI10-02	46394 73433 46469	SV 1-14-05	Re done 1/2 J.umar
Compression & Dimensional Record		46409/77681		wood
Braze Core / Module	Date	1-19-05 46356		
Fixture Removal / Dimensional After Brazing	Date	1-20-05 46339		



Header Inspection Log									
Header Assy. Item #	Stream Identification	Header Body Trace	End Piece Trace	Sales Order #		Final Insp. Initials & Date	X-Ray Initials & Date	X-Ray #	A.I. Review Initials & Date
				Nozzle Trace	Misc. Material Trace				
8701	A-IN	S468C	S474C	S468C	P.DISK S458C	PJ 1-21-05			HAL 1-21-05
8702	A-OUT	S468C	S474C	T107C	PIPE T006C DISK S467C	PJ 1-21-05			HAL 1-21-05



# Chart Heat Exchangers

## Post Braze

### Inspection and Test Report

National Board Number:

5069

Job Number/Serial Number 509.1-2

Drawing Number: 15772A

Mfg. Number: 15772B-3+4

Review of Design Calculations, Assembly Drawings and I&amp;T Report

QC Review and approval of ITR: KIRDate: 12/29/04AI Review and acceptance of ITR: [Signature]Date: 12-29-04

## General Documentation

Nameplate Verification

QC Inspection	Date	Authorized Inspector	Date
<u>OK</u>	<u>2-1-05</u>	<u>[Signature]</u>	<u>2-1-05</u>

**General Operations**

	Emp #	Date	QC Insp	Date	AI Init & Date
Centerline Layout	75379	1-23-05			
Module core fit-up	46320/46320	1-26-05			
SFT Test & AI Insp module welds under headers	46320/46320	1-26-05			2-2-05
Weld and Inspect Port Posting	N/A	1-26-05			2-2-05
Light Test			OK - RM	2-1-05	
Fin Measurements			SV	2-1-05	
Port Measurements			SV	2-1-05	

**Header Fit-up and Inspection**

Header	AI Hold (H)	Clean Check / Header Fit-up (Stamp # & Date)	Oxygen Service (QC Inspection)						
		Visual Inspection before fit up	Black Light						
A-In		33-7/1/27/05	TH						
A-Out		33-7/1/27/05	TH						
A-Vent		33-7/1/27/05	TH						

n<sup>1</sup> AI to review header welds prior to fit-up of inactive vent or pan headers. LPT header welds if specified on assembly drawings

**Pre-hydro Inspection and Tests**

	Emp #	Date	QC Insp	Date	AI Init & Date
1st Air Test	46320	1/31/05			
Support angle fit-up					
Visual Inspection, final welds (Weld Check)			SV	1-31-05	2-3-05
Dimension Check			SV	1-31-05	

Pneumatic and Leak Test							
Stream Identification	Pneumatic Test Pressure (PSIG)	Leak Test Pressure (PSIG)	Testor Emp # and Date	Inspector or 2nd Testor Emp# and Date	Internal Leak Test Emp # and Date	External Leak Test Emp# and Date	41 Hold Point Init & Date
A	164	109	46353 2/3/05	REM 2/3/05	N/A	VoK	2/3-05
TUV							
A	164	109	46348 2/10/05	RS 2-10-05	N/A	VoK	TR 2/10/05

Final Inspection				
	Emp #	Date	QC Insp	Date
Helium leak test	<del>46418</del> 46359	2-4-05		
Header clean check inspection	46287	2/11/05	JA	2/1/05
External clean check (O <sub>2</sub> Service)	46297	2/16/05	JA	2/1/05
Final inspection				
Crate check(Tester)				
Loose parts verification				
ITR review and return to QC Office				

See Battery ITR

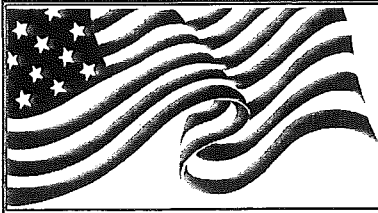


Chart Heat Exchangers  
Post Braze  
Inspection and Test Report  
For Battery Assemblies

Job/Serial Number: 509.2-3

Drawing Number: 15772Z

Review of Assembly Drawings and I&T Report

QC Review and approval of ITR: SLK

Date: 2/2/05

AI Review of ITR: [Signature]

Date: 2-2-05

**General Operations**

	Emp #	Date	QC Insp	Date	AI Init & Date
Level Frame	N/A	10/2			
Position Exchanger/s and Transit( Inspection)	N/A	10/2			

**Pre-Pneumatic Inspection and Tests**

	Emp #	Date	QC Insp	Date	AI Init & Date
Visual Inspection, final welds (Weld Check)			W	2-8-05	2-11-05
Dimension Check			W	2-8-05	
LPT complete per drawing requirement			W	2-11-05	

Pneumatic and Leak Test						
Stream Identification	Pneumatic Test Pressure (PSIG)	Leak Test Pressure (PSIG)	Testor Emp # and Date	Inspection Emp# and Date	External Leak Test Emp# and Date	AI Hold Point Init & Date
A	164	109	46348 2/10	PS 2/10/05	✓ OK	2/10-05

Final Inspection					
	Emp #	Date	QC Insp	Date	AI Init & Date
Shipping pressure and labeling	46313	2/11/05	PS	2-12-05	
Crate check	25519	2/12/05	PS	2-12-05	
Loose parts verification	46021	2/12/05	PS	2-12-05	
Final inspection			PS	2-12-05	
ITR review and return to QC Office			PS	2-12-05	

# LIQUID PENETRANT EXAMINATION REPORT

Procedure: WI 10-26 (Revision 10/20/04)

Liquid Penetrant Type: Visible

Penetrant Type: Magnaflux SKL-WP or SKL-HF/SKL-6-

Developer Type: Magnaflux SKD-S2

Cleaner: Spot Check: SKC-5

All Personnel Certified to ASME and SNT-TC-1A Level II

Lighting: General lighting assisted by portable lighting, 100 FTC minimum

[illegible]