

SALES ORDER 509.8-11

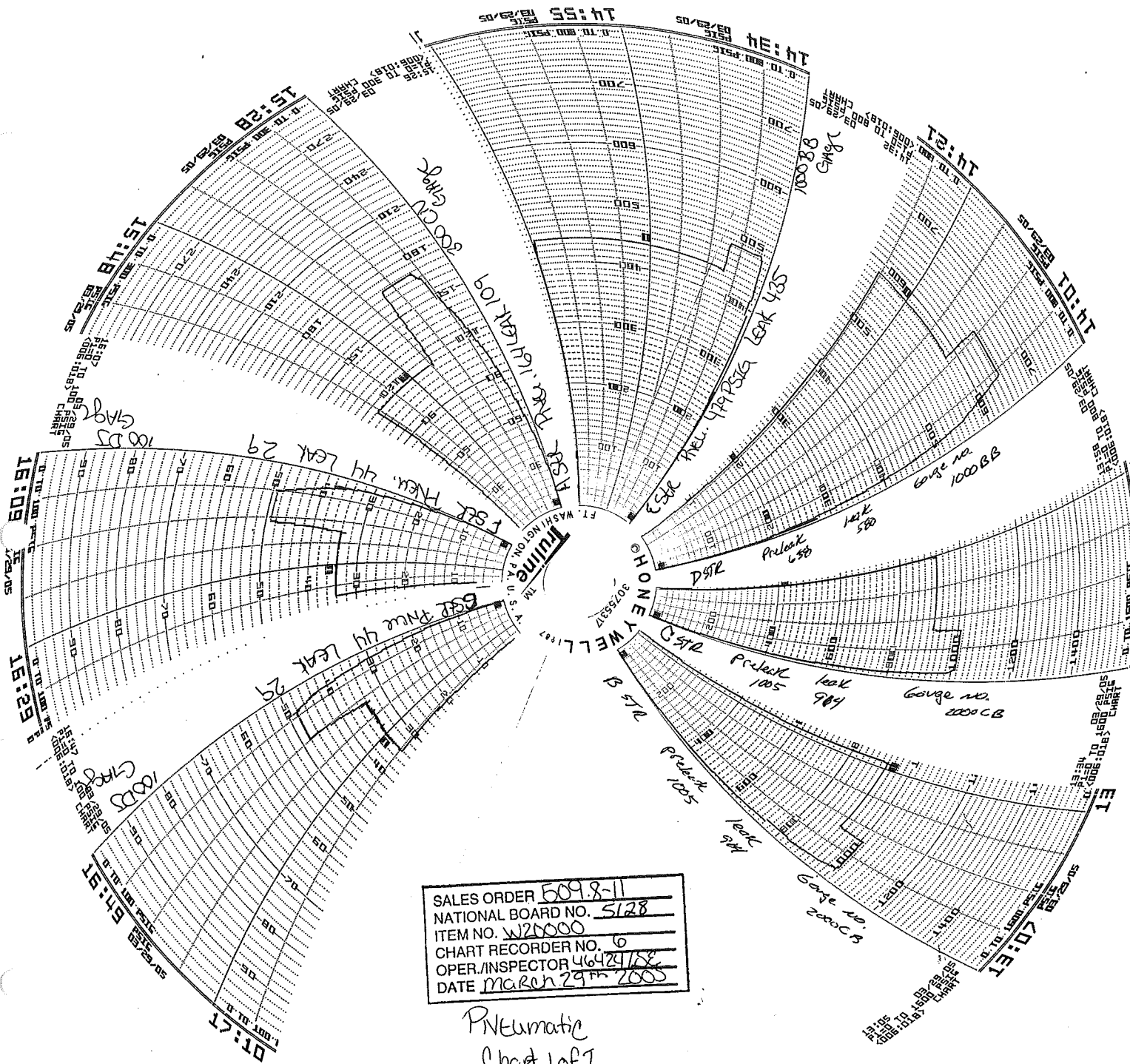
NATIONAL BOARD NO. 5128

ITEM NO. W30000

CHART RECORDER NO. 5

OPER./INSPECTOR 16424/REO

DATE 3-16-05



# Pneumatic Chart 1 of 1



Chart Heat Exchangers  
Chart Industries, Inc.

2191 Ward Avenue, La Crosse, WI 54601 USA  
Phone: 608.787.3333 Fax: 608.787.2226  
www.chart-ind.com

## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15770A Rev. A

1. STREAM UNDER VACUUM F

2. STREAM VACUUM VALUE 25 MICRONS

3. STREAM WITH HELIUM A BACKGROUND  $4.6 \times 10^{-8}$  STD CC/SEC

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  STD CC/SEC

5. TEST TIME: 20 MINUTES

6. RESULT: F STREAM =  $4.60 \times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7191054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

@ 76 °F

Rev. 10/23/03  
3/29/00

Gerald A. Bonsack  
Sr. Principle Mfg. Engineer  
Chart Heat Exchangers L.P. is a wholly owned subsidiary of Chart Industries, Inc.



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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 589-8-11

DRAWING NO. 15770A REV-A

1. STREAM UNDER VACUUM D

2. STREAM VACUUM VALUE 47 MICRONS

3. STREAM WITH HELIUM B BACKGROUND  $5.5 \times 10^{-8}$  STD CC/SEC

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  STD CC/SEC

5. TEST TIME: 20 MINUTES

6. RESULT: D STREAM =  $6.20 \times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15770A REV. A

1. STREAM UNDER VACUUM E

2. STREAM VACUUM VALUE 46 MICRONS

3. STREAM WITH HELIUM B BACKGROUND  $4.1 \times 10^{-8}$  std cc/sec

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  std cc/sec

5. TEST TIME: 25 MINUTES

6. RESULT: E STREAM =  $3.65 \times 10^{-4}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 761054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15770A Rev-A

1. STREAM UNDER VACUUM F

2. STREAM VACUUM VALUE 27 MICRONS

3. STREAM WITH HELIUM B BACKGROUND  $3.4 \times 10^{-8}$  gmcc/sec

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  STD CC/SEC

5. TEST TIME: 30 MINUTES

6. RESULT: F STREAM =  $6.15 \times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161059 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15770A REV. A

1. STREAM UNDER VACUUM D

2. STREAM VACUUM VALUE 49 MICRONS

3. STREAM WITH HELIUM C BACKGROUND  $4.5 \times 10^{-8}$  STD-CC/SEC

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  STD-CC/SEC

5. TEST TIME: 20 MINUTES

6. RESULT: D STREAM = 5.50  $\times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161034 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.05 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15170A Rev. A

1. STREAM UNDER VACUUM E

2. STREAM VACUUM VALUE 46 MICRONS

3. STREAM WITH HELIUM C BACKGROUND  $9.75 \times 10^{-9}$  std cc/sec

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  std cc/sec

5. TEST TIME: 25 MINUTES

6. RESULT: E STREAM = 4.15  $\times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15770A REV. A

1. STREAM UNDER VACUUM F

2. STREAM VACUUM VALUE 24 MICRONS

3. STREAM WITH HELIUM C BACKGROUND  $1.35 \times 10^{-8}$  STD CC/SEC

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  STD CC/SEC

5. TEST TIME: 30 MINUTES

6. RESULT: F STREAM =  $3.40 \times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-U

DRAWING NO. 15770A REV-A

1. STREAM UNDER VACUUM F

2. STREAM VACUUM VALUE 25 MICRONS

3. STREAM WITH HELIUM D BACKGROUND  $4.6 \times 10^{-8}$  STD CC/SEC

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  STD CC/SEC

5. TEST TIME: 20 MINUTES

6. RESULT: F STREAM =  $4.6 \times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15770A Rev. A

1. STREAM UNDER VACUUM D

2. STREAM VACUUM VALUE 50 MICRONS

3. STREAM WITH HELIUM E BACKGROUND  $6.10 \times 10^{-8}$  std cc/sec

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  std cc/sec

5. TEST TIME: 20 MINUTES

6. RESULT: D STREAM = 6.60  $\times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15770A REV. A

1. STREAM UNDER VACUUM F

2. STREAM VACUUM VALUE 26 MICRONS

3. STREAM WITH HELIUM E BACKGROUND  $6.15 \times 10^{-8}$  STD CC/SEC

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.20 \times 10^{-3}$  STD CC/SEC

5. TEST TIME: 25 MINUTES

6. RESULT: F STREAM =  $6.80 \times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

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## HELIUM LEAK TEST REPORT

SALES ORDER NO. 509.8-11

DRAWING NO. 15770A Rev. A

1. STREAM UNDER VACUUM F

2. STREAM VACUUM VALUE 25 MICRONS

3. STREAM WITH HELIUM G BACKGROUND  $4.6 \times 10^{-8}$  STD CC/SEC

FOR EXTERNAL TESTS, HELIUM CONCENTRATION START N/A

END N/A

4. ACCEPTABLE LEAK RATE  
(FROM ASSY. DRAWING)  $1.0 \times 10^{-3}$  STD CC/SEC

5. TEST TIME: 20 MINUTES

6. RESULT: G STREAM =  $4.50 \times 10^{-8}$  STD - CC/SEC

7. TEST COMPLETION DATE: 3-25-05 OPERATOR: 46359

8. MASS SPECTROMETER, IDENTIFICATION #: EDWARDS II

CALIBRATED LEAK, SERIAL #: 7161054 LEAK RATE OF STD:  $1.1 \times 10^{-7}$  std cc/sec

RECALIBRATION DATE: 9-9-05 DISPLAYED LEAK:  $1.08 \times 10^{-7}$  std cc/sec

@ 76 °F



Heat Exchangers Division  
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This letter certifies that the Core as identified has been cleaned and inspected for oxygen services per Chart Standard Engineering Specification Section 9 No. 9-14.00.

Sales Order 509.8-11 Core No. \_\_\_\_\_

National Board No. 5128 Core Serial No. 509.8-11

Chart Inspector [Signature]

Date Inspected 4-1-05

CHART HEAT EXCHANGER L.P.

QUALITY DEPARTMENT

- (1) Attach White Original to Core Nameplate
- (1) One Copy to Quality Files