

6647757

084011-CRN-3-R0  
Additional Drawing No. 147  
Header Volume (cu.ft.)

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS  
(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Air-X-Changers, A Harsco Company, 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA  
(Name and address of manufacturer)
2. Manufactured for Toromont Energy Systems, 10121 Barlow Trail N.E., Calgary, AB, T3J 3C6, CANADA  
(Name and address of purchaser)

3. Location of Installation UNKNOWN  
(Name and address)

4. Type Heat Exchanger 084011.3 U4212.213 HDR-3, REV0 61440 2008  
(Horiz. or Vert. tank) (Mfr's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 2007 to N/A  
Code Case Nos. N/A Special Service per UG-120(d) (year) Addenda (Date)

6. Shell: SA516 70 1.125 0.125 0' 6.9375" (OD) 1' 0.75"  
Mat'l. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)

7. Seams: Corner Joint N/A C=20 1150 0.75 N/A N/A N/A N/A  
Long. (Welded, Dbl., Sngl., Lap, Butt) R.T. (Spot or Full) Eff. (%) H.T. Temp. (°F) Time (hr) Girth. (Welded, Dbl., Sngl., Lap, Butt) R.T. (Spot or Full) Eff. (%) No. of Courses

8. Heads: (a) Mat'l: SA516 70 (b) Mat'l: SA516 70  
(Spec. No., Grade) (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	TOP, BTM	.625"	0.125	N/A	N/A	N/A	N/A	N/A	3.875" x 12.75"	N/A
(b)	ENDS	.625"	0.125	N/A	N/A	N/A	N/A	N/A	3.875" x 5.6875"	N/A

If removable, bolts used (describe other fastenings) N/A  
(Mat'l., Spec. No., Gr., Size, No.)

9. MAWP 655 N/A psi at max. temp. 300 N/A °F  
(internal) (external)

Min. design metal temp. -20 °F at 655 psi Hydro, pneu., or comb. test pressure HYDRO. at 852 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Mat'l.	Nom. Thk.	Reinforcement Mat'l.	How Attached	Location
IN/OUT	2	3"	300# RFWN	SA105/SA106 GR.B	SCH-160	Weld	Welded	Header
DRAIN	1	1"	CPLG	SA105	6000#	Weld	Welded	Header

11. Supports: Skirt NO Lugs N/A Legs N/A Other Structure Attached Bolted  
(Yes or no) (No.) (No.) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors, have been furnished for the following items of the report:

(2) Box Headers, SN 084011.3 FR/BK, Professional Fabricators, Inc  
(Name of part, item number, Mfr's name and identifying stamp)

(A) TUBES: 26 x .75" OD, Straight: YES, Length: 168", Gauge: 16BWG, Material: SA179 Rolled Tube  
Sheet (B) INSP. OPENINGS: 52, Type: 7/8X14UNF-Threaded, Material: SA105 (C) IMPACT REQUIREMENTS:  
IMPACT EXEMPT PER: UG 20 (f). Constructed in conformance with Appendix 28.

### CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1. "U" Certificate of Authorization No. 4241 expires 12/31/2008

Date 03/17/2008 Co. name Air-X-Changers, A Harsco Company Signed Key Foreman  
(Manufacturer) (Representative)

### CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by Air-X-Changers, A Harsco Company at 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province OK and employed by OneBeacon America Insurance Co. of Boston, MA have inspected the component described in this Manufacturer's Data Report on March 17, 2008 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 03/17/2008 Signed William B. Bonniwell Commissions 12752A, OK951  
(Authorized Inspector) (Nat'l Board (incl. endorsements), State, Prov. and No.)

66147768

084011-CRN-4-R0  
Additional Drawing No. 299  
Header Volume (cu. ft.)

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS  
(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Air-X-Changers, A Harsco Company, 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA  
(Name and address of manufacturer)

2. Manufactured for Toromont Energy Systems, 10121 Barlow Trail N.E., Calgary, AB, T3J 3C6, CANADA  
(Name and address of purchaser)

3. Location of Installation UNKNOWN  
(Name and address)

4. Type Heat Exchanger 084011.4 U4213.213 HDR-4, REV0 61441 2008  
(Horiz. or Vert. tank) (Mfr's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 2007 to N/A  
(year) (Addenda (Date))

N/A N/A  
Code Case Nos. Special Service per UG-120(d)

6. Shell: SA516 70 1.375 0.125 0' 7.25" (OD) 2' 1.75"  
Mat'l. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)

7. Seams: Corner Joint N/A C=20 1150 1 N/A N/A N/A N/A  
Long. (Welded, Dbl., Sngl., Lap, Butt) R.T. (Spot or Full) Eff. (%) H.T. Temp. (°F) Time (hr) Girth. (Welded, Dbl., Sngl., Lap, Butt) R.T. (Spot or Full) Eff. (%) No. of Courses

8. Heads: (a) Mat'l: SA516 70 (b) Mat'l: SA516 70  
(Spec. No., Grade) (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	TOP, BTM	.875"	0.125	N/A	N/A	N/A	N/A	N/A	3.875" x 25.75"	N/A
(b)	ENDS	.75"	0.125	N/A	N/A	N/A	N/A	N/A	3.875" x 5.5"	N/A

If removable, bolts used (describe other fastenings) N/A  
(Mat'l., Spec. No., Gr., Size, No.)

9. MAWP 1310 N/A psi at max. temp. 300 N/A °F  
(internal) (external) (internal) (external)

Min. design metal temp. -20 °F at 1310 psi Hydro, pneu., or comb. test pressure HYDRO. at 1703 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Mat'l.	Nom. Thk.	Reinforcement Mat'l.	How Attached	Location
IN/OUT	2	3"	600# RFWN	SA105/SA106 GR.B	SCH-160	Weld	Welded	Header
DRAIN	1	1"	CPLG	SA105	6000#	Weld	Welded	Header

11. Supports: Skirt NO Lugs N/A Legs N/A Other Structure Attached Bolted  
(Yes or no) (No.) (No.) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors, have been furnished for the following items of the report:  
(2) Box Headers, SN 084011.4 FR/BK, Professional Fabricators, Inc  
(Name of part, item number, Mfr's name and identifying stamp)

(A) TUBES: 46 x .75" OD, Straight: YES, Length: 168", Gauge: 16BWG, Material: SA179 Rolled Tube  
Sheet (B) INSP. OPENINGS: 92, Type: 7/8X14UNF-Threaded, Material: SA105 (C) IMPACT REQUIREMENTS:  
IMPACT EXEMPT PER: UG 20 (f). Constructed in conformance with Appendix 28.

**CERTIFICATE OF SHOP/FIELD COMPLIANCE**  
We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1. "U" Certificate of Authorization No. 4241 expires 12/31/2008  
Date 03/17/2008 Co. name Air-X-Changers, A Harsco Company Signed Kay Foreman  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP/FIELD INSPECTION**  
Vessel constructed by Air-X-Changers, A Harsco Company at 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province OK and employed by OneBeacon America Insurance Co. of Boston, MA have inspected the component described in this Manufacturer's Data Report on March 17, 2008 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.  
Date 03/17/2008 Signed William B. Brumby Commissions 12752A, OK951  
(Authorized Inspector) (Nat'l Board (incl. endorsements), State, Prov. and No.)

6614773

084011-CRN-5  
Additional Drawing No. 256  
Header Volume (cu.ft.)

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS  
(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Air-X-Changers, A Harsco Company, 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA  
(Name and address of manufacturer)

2. Manufactured for Toromont Energy Systems, 10121 Barlow Trail N.E., Calgary, AB, T3J 3C6, CANADA  
(Name and address of purchaser)

3. Location of Installation UNKNOWN  
(Name and address)

4. Type Heat Exchanger 084011.5 U4214.213 HDR-5, REV0 61442 2008  
(Horiz. or Vert. tank) (Mfr's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 2007 to N/A  
(year) (Addenda (Date))

N/A N/A  
Code Case Nos. Special Service per UG-120(d)

6. Shell: SA516 70 1.625 0.125 0' 7.5" (OD) 1' 10.5"  
Mat'l. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)

7. Seams: Corner Joint N/A C=.20 1150 1 N/A N/A N/A N/A  
Long. (Welded, Dbl., Sngl., Lap, Butt) R.T. (Spot or Full) Eff. (%) H.T. Temp (°F) Time (hr) Girth. (Welded, Dbl., Sngl., Lap, Butt) R.T. (Spot or Full) Eff. (%) No. of Courses

8. Heads: (a) Mat'l: SA516 70 (b) Mat'l: SA516 70  
(Spec. No., Grade) (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	TOP, BTM	1.0"	0.125	N/A	N/A	N/A	N/A	N/A	3.875" x 22.5"	N/A
(b)	ENDS	.875"	0.125	N/A	N/A	N/A	N/A	N/A	3.875" x 5.5"	N/A

If removable, bolts used (describe other fastenings) N/A  
(Mat'l., Spec. No., Gr., Size, No.)

9. MAWP 1650 N/A psi at max. temp. 300 N/A °F  
(internal) (external) (internal) (external)

Min. design metal temp. -20 °F at 1650 psi Hydro, pneu., or comb. test pressure HYDRO. at 2145 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Mat'l.	Nom. Thk.	Reinforcement Mat'l.	How Attached	Location
IN/OUT	2	2"	1500# RFWN	SA105/SA106 GR.B	SCH-160	Weld	Welded	Header
DRAIN	1	1"	CPLG	SA105	6000#	Weld	Welded	Header

11. Supports: Skirt NO Lugs N/A Legs N/A Other Structure Attached Bolted  
(Yes or no) (No.) (No.) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors, have been furnished for the following items of the report:  
(2) Box Headers, SN 084011.5 FR/BK, Professional Fabricators, Inc  
(Name of part, item number, Mfr's name and identifying stamp)

(A) TUBES: 50 x .75" OD, Straight: YES, Length: 168", Gauge: 16BWG, Material: SA179 Rolled Tube Sheet (B) INSP. OPENINGS: 100, Type: 7/8X14UNF-Threaded, Material: SA105 (C) IMPACT REQUIREMENTS: IMPACT EXEMPT PER: UG 20 (f). Constructed in conformance with Appendix 28.

CERTIFICATE OF SHOP/FIELD COMPLIANCE  
We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1. "U" Certificate of Authorization No. 4241 expires 12/31/2008  
Date 03/17/2008 Co. name Air-X-Changers, A Harsco Company Signed Key Foreman  
(Manufacturer) (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION  
Vessel constructed by Air-X-Changers, A Harsco Company at 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province OK and employed by OneBeacon America Insurance Co. of Boston, MA have inspected the component described in this Manufacturer's Data Report on March 17, 2008 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.  
Date 03/17/2008 Signed William B. Bonniwell Commissions 12752A, OK951  
(Authorized Inspector) (Nat'l Board (incl. endorsements), State, Prov. and No.)

6614774

084011-CRN-6-R0  
Additional Drawing No. 256  
Header Volume (cu.ft.)

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS  
(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)  
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Air-X-Changers, A Harsco Company, 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA  
(Name and address of manufacturer)

2. Manufactured for Toromont Energy Systems, 10121 Barlow Trail N.E., Calgary, AB, T3J 3C6, CANADA  
(Name and address of purchaser)

3. Location of Installation UNKNOWN  
(Name and address)

4. Type Heat Exchanger 084011.6 U4210.213 HDR-6, REV0 61443 2008  
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing No.) (National Board number) (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 2007 to N/A  
(year) [Addenda (Date)]

N/A N/A  
(Code Case numbers) (Special Service per UG-120(d))

6. Shell: SA516 70 1 0.125 0' 5.5" (OD) 1' 2.8750"  
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))

7. Seams: Corner Joint N/A C=20 1150 °F 1 N/A N/A N/A N/A  
(Long. (welded, dbl., sngl., lap, butt)) R.T.(Spot or Full) Eff.(%) (H.T. temp) Time (hr) [Girth. (welded, dbl., sngl., lap, butt)] [R.T. (spot or full)] Eff(%) No. of Courses

8. Heads: (a) Material SA516 70 (b) Material SA516 70  
(Spec. no., grade) (Spec. no., grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	TOP, BTM	.875"	0.125	N/A	N/A	N/A	N/A	N/A	3.875" x 22.5"	N/A
(b)	ENDS	.75"	0.125	N/A	N/A	N/A	N/A	N/A	3.875" x 3.75"	N/A

If removable, bolts used (describe other fastenings) N/A  
(Material, spec. number, grade, size, number)

9. MAWP 1650 psi N/A at max. temp. 300 °F N/A  
(Internal) (External) (Internal) (External)

Min. design metal temp. -20 °F at 1650 psi Hydro, pneu., or comb. test pressure HYDRO. at 2145 psi

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	Number	Diameter or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached	Location
IN/OUT	2	2"	1500# RFWN	SA105/SA106 GR.B	SCH-160	Weld	Welded	Header
DRAIN	1	1"	CPLG	SA105	6000#	Weld	Welded	Header

11. Supports: Skirt NO Lugs N/A Legs N/A Other Structure Attached Bolted  
(Yes or no) (Number) (Number) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors, have been furnished for the following items of the report:  
(2) Box Headers, SN 084011.6 FR/BK, Professional Fabricators, Inc  
(Name of part, item number, Manufacturer's name and identifying stamp)

(A) TUBES: 26 x .625" OD, Straight: YES, Length: 168", Gauge: 16BWG, Material: SA179 Rolled Tube  
Sheet (B) INSP.OPENINGS: 52, Type: 3/4X16UNF-Threaded, Material: SA105 (C) IMPACT REQUIREMENTS:  
IMPACT EXEMPT PER: UG 20 (f). Constructed in conformance with Appendix 28.

## CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization No. 4241 expires 12/31/2008

Date 03/17/2008

Co. name

Air-X-Changers, A Harsco Company  
(Manufacturer)

Signed

Ray Foreman  
(Representative)

## CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by Air-X-Changers, A Harsco Company at 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province OK and employed by OneBeacon America Insurance Co. of Boston, MA have inspected the component described in this Manufacturer's Data Report on March 17, 2008 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 03/17/2008

Signed

William B. Broun  
(Authorized Inspector)

Commissions

12752A, OK951

(National Board (incl. endorsements), State, Province and number)