

11957

(A) 538489

**FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS**  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Cimco Division of Toromont Industries Ltd. 65 Villiers St. Toronto, Ontario M5A 3S1  
(Name and address of Manufacturer)

2. Manufactured for TOROMONT PROCESS SYSTEMS 10121 BARLOW TRAIL N CALGARY, ALBERTA T3J 3C6 CANADA  
(Name and address of purchaser)

3. Location of installation SAME AS ABOVE  
(Name and address)

4. Type: HORIZONTAL HEAT EXCHANGER 8003120  
(Shell, wall, or opening) (Type, separator, M. vessel, heat exch., etc.) (ASME Code No.)  
T4238.2 975D1003R0 N/A 2005  
(Code) (Drawing No.) (Part No.) (Year Bldg.)

5. ASME Code, Section VIII, Div. 1 2004 N/A N/A  
(Edition and Addenda (Date)) (Code Case No.) (Special Service per UG-120.0)

Items 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

8. Shell: (a) No. of course(s): 1 (b) Overall length (ft. & in.): 29'-8-1/8"

No.	Course(s)		Material Spec./Grade or Type	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
	Diameter, in.	Length, (ft. & in.)		Nom.	Corr.	Type	Full, Spot, None	EE	Type	Full, Spot, None	EE	Temp.	Time
1	12 3/4"OD	29'-8-1/8"	SA-106-B	0.688	0.0625"	SMLS	NONE	1	2	NONE	0.65	-	-

7. Heads: (a) N/A (b) N/A  
(Part Spec. No., Grade or Type) H.T. - Time & Temp. (Part Spec. No., Grade or Type) H.T. - Time & Temp.

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
	Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	EE
(a)	/	/	/	/	/	/	/	/	/	/	/	/	/
(b)	/	/	/	/	/	/	/	/	/	/	/	/	/

If removable, bolts used (describe other fastenings) N/A  
(Part Spec. No., Grade, Size, No.)

8. Type of Jacket N/A Jacket Closure N/A  
(Describe as open & vent, bar, etc.)

If bar, give dimensions N/A If bolted, describe or sketch.

9. MAWP 1415 N/A psi at max. temp. 150 N/A °F Min. design metal temp. -20 °F at 1415 psi.  
(Nominal) (External) (Internal) (External)

10. Impact test Impact test exempt per Para. UCS-66(b) and UG-20(f).

11. Hydro., pneu., or comb. test pressure 1840 Proof test N/A  
(Indicate per or as and the temperature(s) impact tested)

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-516-70N 11 3/8" 2" 0.0625" WELDED  
(Shellory (Part Spec. No.) Dia., in. (subject to pressure) Nom. Dia., in. Cor. Allow., in. Attachment (welded or bolted))  
N/A N/A N/A N/A N/A  
(Flaring (Part Spec. No.) Dia., in. Nom. Dia., in. Cor. Allow., in. Attachment)

13. Tubes: SA-178 3/4" 0.063" 104 STRAIGHT  
(Part Spec. No., Grade or Type O.D., in. Nom. Dia. or pipe Number Type (straight or U))

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell: (a) No. of course(s): 2 (b) Overall length (ft & in.): 2' - 9 5/8"

No.	Course(s)		Material Spec./Grade or Type	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
	Diameter, in.	Length, (ft. & in.)		Nom.	Corr.	Type	Full, Spot, None	EE	Type	Full, Spot, None	EE	Temp.	Time
2	12 3/4"OD	1'-4-13/16"	SA-106-B	0.688	0.0625"	SMLS	NONE	1	1	SPOT	1	-	-

15. Heads: (a) SA-516-70N (b) -  
(Part Spec. No., Grade or Type) H.T. - Time & Temp. (Part Spec. No., Grade or Type) H.T. - Time & Temp.

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
	Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	EE
(a)	ENDS	2.5875"	0.0625"	/	/	/	/	17 13/16"	/	/	/	/	/
(b)													

If removable, bolts used (describe other fastenings) 48 PCS - 7/8" BLACK STUDS BOLTS X 7" LONG SA-193-B7 C/W 96 PCS - 9 UNC HEX NUTS SA-194-2H  
(Part Spec. No., Grade, Size, No.)

FORM U-1 (Back)

16. MAWP 1415 1415 psi at max. temp. 150 150 °F Min. design metal temp. -20 °F at S1415/T1415 psi  
(Internal) (External) (Nominal) (External)
17. Impact test Impact test exempt per Para. UCS-68(b) and UG-20(f).  
(Indicate per or as and the temperature(s) impact tested)
18. Hydro, Pneu., or comb. test pressure 1840 Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
VENT (TESTING)	1	3/4"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	CHANNEL
VENT (TESTING)	1	3/4"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	SHELL
GLYCOL INJECTION	1	2"	R.F.W.N.	SA-106-B	SA-350-LF2	SCH-80	0.0625	N/A	WELDED	WELDED	HEAD
DRAIN [4" PROJ.]	1	1"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	SHELL
EQUALIZATION LINE	1	1-1/2"	N/A	SA-106-B	N/A	SCH-80	0.0625	N/A	WELDED	N/A	CHANNEL
WET GAS OUT [T.S.]	1	6"	R.F.W.N.	SA-106-B	SA-350-LF2	SCH-80	0.0625	SA-516-70N	WELDED	WELDED	CHANNEL
WET GAS IN [T.S.]	1	6"	N/A	SA-106-B	N/A	SCH-80	0.0625	SA-516-70N	WELDED	N/A	CHANNEL
DRY GAS OUT [S.S.]	1	6"	N/A	SA-106-B	N/A	SCH-80	0.0625	SA-516-70N	WELDED	N/A	SHELL
DRY GAS IN [S.S.]	1	6"	R.F.W.N.	SA-106-B	SA-350-LF2	SCH-80	0.0625	SA-516-70N	WELDED	WELDED	SHELL

20. Supports: Skirt No. Lugs 2 Legs NO Others 2 SADDLES Attached WELDED / SHELL  
(Yes or No) (No.) (No.) (Described) (Where and how)
21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:  
 (List the name of part, item number, mfg's. name and identifying number)  
N/A
22. Remarks: VESSEL INTENDED FOR NON-CORROSIVE SERVICE.  
AS BUILT DWG# 975D1016R3

**CERTIFICATE OF SHOP 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. 10537 Expires September / 16 / 2006

Date: 07-Nov-05 Name Cimco Division of Toromont Industries Ltd. Signed [Signature]  
(Manufacturer) (Representative)

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**CERTIFICATE OF SHOP INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Ontario and employed by J.S.S.A. of Ontario have inspected the pressure vessel described in this Manufacturer's Data Report on Oct 18/05, 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 NOV 8/05 Signed [Signature] Commissions ONT 52  
(Author of Inspection) (No. of Board Iss. endorsement, State, Prov. and No.)

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**CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE**

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code for Pressure Vessels, Section VIII, Division 1.

U Certificate of Authorization No. \_\_\_\_\_ Expires \_\_\_\_\_

Date \_\_\_\_\_ Name \_\_\_\_\_ Signed \_\_\_\_\_  
(Manufacturer) (Representative)

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**CERTIFICATE OF FIELD ASSEMBLY INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of \_\_\_\_\_ and employed by \_\_\_\_\_ of \_\_\_\_\_ have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items \_\_\_\_\_, not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of \_\_\_\_\_ psi. 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 \_\_\_\_\_ Signed \_\_\_\_\_ Commissions \_\_\_\_\_  
(Author of Inspection) (No. of Board Iss. endorsement, State, Prov. and No.)



X X X

CERTIFIED BY  
**CINCO** DIVISION OF  
TOROMONT INDUSTRIES LTD.  
TORONTO, ONTARIO, CANADA

MAX. ALLOWABLE WORKING PRESSURE      MAX. TEMPERATURE

SHELL SIDE	1415 PSIG	AT	150 °F
TUBE SIDE	1415 PSIG	AT	150 °F
MIN. DESIGN METAL TEMP	-20 °F	AT	S1415/T1415PSIG
SERIAL NO.	8003120	YEAR BUILT	2005
C.R.N.	T4238.2	INSPECTED BY	X

X X X | ITEM | E-100C

8003120



11957

(A) 538488

**FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS**  
**As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1**

1. Manufactured and certified by Cimco Division of Toromont Industries Ltd. 65 Villiers St. Toronto, Ontario M5A 3S1  
(Name and address of Manufacturer)

2. Manufactured for TOROMONT PROCESS SYSTEMS 10121 BARLOW TRAIL N CALGARY, ALBERTA T3J 3C6 CANADA  
(Name and address of purchaser)

3. Location of installation SAME AS ABOVE

4. Type: HORIZONTAL HEAT EXCHANGER 8003073  
(Plate, vort., or option) (Tank, agitator, etc. vessel, heat exch., etc.) (ASME Section No.)  
T4238.2 975D1003R0 N/A 2005  
(Code Case No.) (Drawing No.) (Plate No.) (Year Built)

5. ASME Code, Section VIII, Div. 1 2004 N/A N/A  
(Edition and Addenda (Date)) (Code Case No.) (Special Service per UG-120(e))

Items 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell: (a) No. of course(s): 1 (b) Overall length (ft. & in.): 29'-8-1/8"

Course(s)	Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment		
	No.	Diameter, in.	Length, (ft. & in.)	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.
1	12 3/4"OD	29'-8-1/8"	SA-106-B	0.688	0.0625"	SMLS	NONE	1	2	NONE	0.65	-	-

7. Heads: (a) N/A (b) N/A  
(ASME Spec. No., Grade or Type) H.T. - Time & Temp.

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical	Conical	Hemispherical	Flat	Side to Pressure		Category A		
	Min.	Corr.	Crown	Knuckle	Ratio	Apex Angle	Radius	Diameter	Convex	Concave	Type	Full, Spot, None	Eff.
(a)	/	/	/	/	/	/	/	/	/	/	/	/	/
(b)	/	/	/	/	/	/	/	/	/	/	/	/	/

If removable, bolts used (describe other fastenings) N/A  
(ASME Spec. No., Grade, Size, etc.)

8. Type of Jacket N/A Jacket Closure N/A  
(Courses on upper & lower, etc.)

If bar, give dimensions N/A  
 9. MAWP 1415 N/A psi at max. temp. 150 N/A °F Min. design metal temp. -20 °F at 1415 psi  
(Internal) (External) (Internal) (External)

10. Impact test Impact test exempt per Para. UCS-66(b) and UG-20(f).  
(Indicate yes or no and the component(s) impacted tested)

11. Hydro, pneu., or comb. test pressure 1840 Proof test N/A

Items 12 and 13 to be completed for tube sections.  
 12. Tubesheet: SA-516-70N 11 3/8" 2" 0.0625" WELDED  
(ASME Spec. No.) (Diam. to pressure) (Nom. thk., in.) (Corr. Allow., in.) (Attachment (bolted or laced))  
N/A N/A N/A N/A N/A

13. Tubes: SA-179 3/4" 0.063" 104 STRAIGHT  
(ASME Spec. No., Grade or Type) (O.D., in.) (Nom. O.D. or gauge) (Number) (Type (straight or U))

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.  
 14. Shell: (a) No. of course(s): 2 (b) Overall length (ft. & in.): 2' - 9 5/8"

Course(s)	Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment		
	No.	Diameter, in.	Length, (ft. & in.)	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.
2	12 3/4"OD	1'-4-13/16"	SA-106-B	0.688	0.0625"	SMLS	NONE	1	1	SPOT	1	-	-

15. Heads: (a) SA-516-70N (b) -  
(ASME Spec. No., Grade or Type) H.T. - Time & Temp.

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical	Conical	Hemispherical	Flat	Side to Pressure		Category A		
	Min.	Corr.	Crown	Knuckle	Ratio	Apex Angle	Radius	Diameter	Convex	Concave	Type	Full, Spot, None	Eff.
(a)	ENDS	2.5879"	0.0625"	/	/	/	/	17 13/16"	/	/	/	/	/
(b)													

If removable, bolts used (describe other fastenings) 48 PCS - 7/8" BLACK STUDS BOLTS X 7" LONG SA-193-B7 C/W 96 PCS - 9 UNC HEX NUTS SA-194-2H  
(ASME Spec. No., Grade, Size, etc.)

FORM U-1 (Back)

16. MAWP 1415 1415 psi at max. temp. 150 150 °F Min. design metal temp. -20 °F at S1415/T1415 psi

17. Impact test Impact test exempt per Para. UCS-66(b) and UG-20(f).

18. Hydro., Pneu., or comb. test pressure 1840 Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
SPARE	1	3/4"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	CONN.
SPARE	1	3/4"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	CONN.
SPARE	1	3/4"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	CONN.
SPARE	1	1"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	SHELL
CLYCOL INJECTION	1	2"	R.F.W.N	SA-105-B	SA-350-LF2	SCH 80	0.0625	N/A	WELDED	WELDED	HEAD
PI	2	1/2"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	CONN.
TI	2	3/4"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	CONN.
DRAIN	1	1"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	SHELL
EQUALIZATION LINE DRA	1	1/2"	N/A	SA-105	N/A	6000 LB	0.0625	N/A	WELDED	N/A	CONN.
EQUALIZATION LINE	1	1-1/2"	N/A	SA-105-B	N/A	SCH 80	0.0625	N/A	WELDED	N/A	CHANNEL
WET GAS OUT	1	6"	R.F.W.N	SA-105-B	N/A	SCH 80	0.0625	SA-516-70N	WELDED	N/A	CHANNEL
WET GAS IN	1	6"	R.F.W.N	SA-105-B	SA-350-LF2	SCH 80	0.0625	SA-516-70N	WELDED	WELDED	CHANNEL
DRY GAS OUT	1	6"	R.F.W.N	SA-105-B	SA-350-LF2	SCH 80	0.0625	SA-516-70N	WELDED	WELDED	SHELL
DRY GAS IN	1	6"	R.F.W.N	SA-105-B	N/A	SCH 80	0.0625	SA-516-70N	WELDED	N/A	SHELL

20. Supports: Skirt No. Lugs 2 Legs NO Others 2 SADDLES Attached WELDED / SHELL

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:  
(List the name of part, item number, mfg's. name and identifying number)

22. Remarks: VESSEL INTENDED FOR NON-CORROSIVE SERVICE.  
AS BUILT DWG# 875D1003R3

<b>CERTIFICATE OF SHOP COMPLIANCE</b> 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. <u>10637</u> Expires <u>September / 16 / 2006</u> Date: <u>07-Nov-05</u> Name <u>Cimco Division of Toromont Industries Ltd.</u> Signed <u>[Signature]</u> <small>(Manufacturer)</small>	
<b>CERTIFICATE OF SHOP INSPECTION</b> I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of <u>Ontario</u> and employed by <u>[Signature]</u> of <u>Ontario</u> have inspected the pressure vessel described in this Manufacturer's Data Report on <u>07/18/05</u> , 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: <u>07/18/05</u> Signed <u>[Signature]</u> Commissions <u>OUTS2</u> <small>(Authorized Inspector)</small> <small>(Chief Board Ins., endorsement, State, Prov. and Loc.)</small>	
<b>CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE</b> We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code for Pressure Vessels, Section VIII, Division 1. U Certificate of Authorization No. _____ Expires _____ Date _____ Name _____ Signed _____ <small>(Assembler)</small> <small>(Representative)</small>	
<b>CERTIFICATE OF FIELD ASSEMBLY INSPECTION</b> I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of _____ and employed by _____ of _____ have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items _____, not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of _____ psi. 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 _____ Signed _____ Commissions _____ <small>(Authorized Inspector)</small> <small>(Chief Board Ins., endorsement, State, Prov. and Loc.)</small>	



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CERTIFIED BY

**CINCO**

DIVISION OF  
TORONONT INDUSTRIES LTD.

TORONTO, ONTARIO, CANADA

MAX. ALLOWABLE  
WORKING PRESSURE

MAX.  
TEMPERATURE

SHELL SIDE

1415 PSIG

AT

150 °F

TUBE SIDE

1415 PSIG

AT

150 °F

MIN. DESIGN  
METAL TEMP

-20 °F

AT

S1415/T1415PSIG

BETAL NO.

8003073

AT

2005

CALL

T4238.2

DESIGNED BY

X

X X X

X

ITEM

E-101A

1003121





11957

(A) 538475

**FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS**  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Cimco Division of Toromont Industries Ltd. 65 Villiers St. Toronto, Ontario M5A 3S1  
(Name and address of Manufacturer)

2. Manufactured for TOROMONT PROCESS SYSTEMS - ALTAGAS 10121 BARLOW TRAIL N CALGARY, ALBERTA, T3J 3C6 CANADA  
(Name and address of purchaser)

3. Location of installation SAME AS ABOVE  
(Name and address)

4. Type: VERTICAL STABILIZER REBOILER 8003371A/B  
(Mark, vol., or sphere) (Mark, material, pt. vessel, heat exch., etc.) (Mfg's serial No.)  
T4400.2 975D1006R0 N/A 2005  
(CRN) (Drawing No.) (Mfg's Cat. No.) (Year Built)

5. ASME Code, Section VIII, Div. 1 2004 N/A N/A  
(Edition and Addenda (Date)) (Code Case No.) (Special Service per UG-120(a))

Items 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell: (a) No. of course(s): 1 (b) Overall length (ft. & in): 4'-9-11/16"

Course(s) No.	Diameter, in.	Length, (ft. & in.)	Material Spec./Grade or Type	Thickness		Long. Joint (Cat. A) Type	Circum. Joint (Cat. A, B, & C)			Heat Treatment			
				Nom.	Corr.		Type	Full, Spot, None	Eff.	Temp.	Time		
1	8 5/8" O.D.	4'-9-11/16"	SA-53-B	0.322"	0.0625"	REW	NONE	0.85	2	NONE	0.65	N/A	N/A

7. Heads: (a) N/A (b) N/A

Location (Top, Bottom, Ends)	Radius				Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
	Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a) N/A	/	/	/	/	/	/	/	/	/	/	/	/	/
(b) N/A	/	/	/	/	/	/	/	/	/	/	/	/	/

If removable, bolts used (describe other fastenings) N/A

8. Type of Jacket N/A Jacket Closure N/A  
(Describe as open & weld, bar, etc.)

9. MAWP 270 N/A psi at max. temp. 300 N/A °F Min. design metal temp. -20 °F at 270 psi.  
(Internal) (External) (Internal) (External)

10. Impact test Impact test exempt per Para. UCS-66(a)

11. Hydro., pneu., or comb. test pressure 300 Proof test N/A  
(Indicate yes or no and the component(s) being tested)

12. Tubesheet: SA-516-70 7.981" 1-1/4" 0.0625" WELDED  
(Material (Mfg Spec. No.)) (Dia., in. subject to pressure) (Nom. Thk., in.) (Corr. Allow., in.) (Attachment (welded or bolted))  
N/A N/A N/A N/A N/A  
(Flanging (Mfg Spec. No.)) (Dia., in.) (Nom. Thk., in.) (Corr. Allow., in.) (Attachment)

13. Tubes: SA-214 3/4" 14 43 STRAIGHT  
(Mfg Spec. No., Grade or Type) (O.D., in.) (Nom. Thk., in. or BS1585) (Number) (Type (straight or U))

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell: (a) No. of course(s): 2 (b) Overall length (ft. & in): 1' - 10 1/4"

Course(s) No.	Diameter, in.	Length, (ft. & in.)	Material Spec./Grade or Type	Thickness		Long. Joint (Cat. A) Type	Circum. Joint (Cat. A, B, & C)			Heat Treatment			
				Nom.	Corr.		Type	Full, Spot, None	Eff.	Temp.	Time		
1	8 5/8" O.D.	9 1/8"	SA-53-B	0.322"	0.0625"	REW	NONE	0.85	2	NONE	0.65	N/A	N/A
1	8 5/8" O.D.	1' - 1 1/8"	SA-53-B	0.322"	0.0625"	REW	NONE	0.85	2	NONE	0.65	N/A	N/A

15. Heads: (a) \*SA-105 (b) \*SA-105

Location (Top, Bottom, Ends)	Radius				Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A	
	Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None
(a) TOP	N/A	0.0625"	/	/	/	/	15"	/	/	/	/	/
(b) BOTTOM	N/A	0.0625"	/	/	/	/	15"	/	/	/	/	/

If removable, bolts used (describe other fastenings) 48 PCS 7/8" - 9 UNC STUDS BOLTS X 7" LONG SA-193-B7 C/W 96 PCS 7/8" - 9 UNC HEX NUT SA-194-2H  
(Mfg. Spec. No., Grade, Size, No.)

FORM U-1 (Back)

16. MAWP 350 270 psi at max. temp. 250 300 °F Min. design metal temp. -20 °F at S270/T350 psi.

17. Impact test Impact test exempt per Para. UCS-68(e)

18. Hydro, pneu, or comb. test pressure 385 Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
DRAIN [S.S.]	1	3/4"	N/A	SA-105	N/A	3000 LB	0.0625	N/A	WELDED	N/A	SHELL
VENT [S.S.]	1	3/4"	N/A	SA-105	N/A	3000 LB	0.0625	N/A	WELDED	N/A	SHELL
DRAIN [T.S.]	1	3/4"	N/A	SA-105	N/A	3000 LB	0.0625	N/A	WELDED	N/A	HEAD
VENT [T.S.]	1	3/4"	N/A	SA-105	N/A	3000 LB	0.0625	N/A	WELDED	N/A	HEAD
GLYCOL OUTLET [S.S.]	1	2"	R.F.S.O.	SA-106-B	SA-105	SCH-80	0.0625	N/A	WELDED	WELDED	SHELL
GLYCOL INLET [S.S.]	1	2"	R.F.S.O.	SA-106-B	SA-105	SCH-80	0.0625	N/A	WELDED	WELDED	SHELL
HC LIQUID OUTLET [T.S.]	1	4"	R.F.S.O.	SA-106-B	SA-105	SCH-40	0.0625	N/A	WELDED	WELDED	CHANNEL
HC LIQUID INLET [T.S.]	1	2"	R.F.S.O.	SA-106-B	SA-105	SCH-80	0.0625	N/A	WELDED	WELDED	CHANNEL

20. Supports: Skirt No. Lugs NO Legs NO Others NO Attached N/A

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:  
(List the name of part, item number, mfg's. name and identifying number)

22. Remarks: Vessel intended for non-corrosive service.  
BOTH TOP AND BOTTOM HEADS ARE 8" - 300LB BLIND FLANGE SA-105.  
AS BUILT DWG#975D1006R0

**CERTIFICATE OF SHOP 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. 10637 Expires SEPTEMBER - 16 - 2006

Date 3 NOV. 2005 Name Cimco Division of Toromont Industries Ltd. Signed [Signature]

**CERTIFICATE OF SHOP INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Ontario and employed by T.S.S.A. of Ontario have inspected the pressure vessel described in this Manufacturer's Data Report on Oct 20/05, 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 Nov 8/05 Signed [Signature] Commissions ONT2

**CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE**

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code for Pressure Vessels, Section VIII, Division 1.

U Certificate of Authorization No. \_\_\_\_\_ Expires \_\_\_\_\_

Date \_\_\_\_\_ Name \_\_\_\_\_ Signed \_\_\_\_\_

**CERTIFICATE OF FIELD ASSEMBLY INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of \_\_\_\_\_ and employed by \_\_\_\_\_ of \_\_\_\_\_ have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items \_\_\_\_\_, not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of \_\_\_\_\_ psi. 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 \_\_\_\_\_ Signed \_\_\_\_\_ Commissions \_\_\_\_\_

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W  
RES

X X X

270 PSIG

300 °F

350 PSIG

250 °F

-20 °F

S270/T350 PSIG

8003371A

2005

T4400.2

X

X

E-104



(A) 538484

11957

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

1. Manufactured and certified by Cimco Division of Toromont Industries Ltd. 65 Villiers St. Toronto, Ontario M5A 3S1 Canada.
2. Manufactured for TOROMONT PROCESS SYSTEMS 10121 BARLOW TRAIL N CALGARY, ALBERTA T3J 3C6 CANADA
3. Location of installation SAME AS ABOVE
4. Type VERTICAL 8003067A-B T4184.2 900D3539R1 N/A 2005
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
6. Shell: SA-106-B 0.375" 1' - 0" 12' - 0"
7. Seams: SMLS N/A B5 N/A N/A TYPE 2 N/A 1
8. Heads: (a) Matl. SA-516-70 (b) Matl. SA-516-70

Table with 10 columns: 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). Rows for TOP and BOTTOM.

9. MAWP 150 psi at max. temp. 350 \*F. Min. design metal temp. -20 \*F at 150 psi. Hydro., pneu., or comb. test pressure 195 psi.

10. Nozzles, inspection and safety valve openings: Table with 9 columns: Purpose (Inlet, Outlet, Drain), No., Diam. or Size, Type, Matl, Nom. Thk., Reinforcement Matl, How Attached, Location. Rows for LSH, PI / INSPECTION, TI / INSPECTION, LC, LG, DRAIN, FUEL GAS BUYBACK, GAS OUTLET, GAS INLET.

11. Supports: Skirt YES Lugs NO Legs NO Other N/A Attached BOTTOM HEAD / WELDED

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: N/A. Impact test exempt per Para. UCS-66(a) and UG-20(f). Vessel intended for non-corrosive service. BUILT IN ACCORDANCE W/DWG.# 900D3539R1

CERTIFICATE OF SHOP 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. 10637 expires Sept 16, 2006. Date OCT. 28, 2005 Co. Name Cimco Division of Toromont Industries Ltd. Signed [Signature]

CERTIFICATE OF SHOP INSPECTION. I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Ontario and employed by [Signature] have inspected the component described in this Manufacturer's Data Report on [Signature], 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 [Signature] Signed [Signature] Commissions [Signature]

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150 PSIG

350 °F

X

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-20 °F

150 PSIG

8003067A

2005

T4184.2

INSULATED

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X

V104





11957

A 538487

**FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS**  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Cimco Division of Toromont Industries Ltd. 65 Villiers St. Toronto, Ontario M5A 3S1  
(Name and address of Manufacturer)

2. Manufactured for TOROMONT PROCESS SYSTEMS, 10121 BARLOW TRAIL N, CALGARY, ALBERTA, T2J 3C8  
(Name and address of purchaser)

3. Location of installation SAME AS ABOVE  
(Name and address)

4. Type: HORIZONTAL SUBCOOLER 8003372A-B  
(Part, mat., or symbol) (Tank, separator, etc. vessel, heat exch., etc.) (Mfg's serial No.)  
T4399.2 975D1078R0 N/A 2005  
(CRD) (Drawing No.) (Part Id. No.) (Year Built)

5. ASME Code, Section VIII, Div. 1 2004 N/A N/A  
(Edition and Addenda (Date)) (Case Class No.) (Special Services per UG-1200)

Items 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell: (a) No. of course(s): 1 (b) Overall length (ft. & in.): 13' - 8 5/8"

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length, (ft. & in.)	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time	
1	6-5/8" O.D.	13' - 8 5/8"	SA-53-B	0.28	0.0625"	ERW	NONE	0.85	2	NONE	0.65	-	-	

7. Heads: (a) N/A (b) N/A  
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp. (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp.

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A	
	Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None
(a)	/	/	/	/	/	/	/	/	/	/	/	/
(b)												

If removable, bolts used (describe other fastenings) N/A

8. Type of Jacket N/A Jacket Closure N/A  
(Mat'l Spec. No., Grade, Size, No.) (Describe no. eggs & weld, etc.)

If bar, give dimensions N/A If bolted, describe or sketch.  
9. MAWP 300 N/A psi at max. temp. 250 N/A °F Min. design metal temp. -20 °F at 300 psi  
(Internal) (External) (Internal) (External)

10. Impact test Impact test exempt per Para. UCS-66(b) and UG-20(f)  
(Indicate post or pre and the component(s) impact tested)

11. Hydro., pneu., or comb. test pressure 390 Proof test N/A

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-516-70 6.065" 1-1/4" 0.0625" WELDED  
(Stationary (Mat'l Spec. No.)) (Dist. in. (adjacent to process)) (Nom. dia. in. or gauge) (Corr. Allow., in.) (Attachment (qualified or not))  
N/A N/A N/A N/A N/A  
(Floating (Mat'l Spec. No.)) (Dist. in.) (Nom. dia. in.) (Corr. Allow., in.) (Attachment)

13. Tubes: SA-214 5/8" 0.065" 31 STRAIGHT  
(Mat'l Spec. No., Grade or Type) (O.D. in.) (Nom. dia. in. or gauge) (Number) (Type (straight or U))

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): 2 (b) Overall length (ft & in): 1' - 6 5/8"

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length, (ft. & in.)	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time	
1	6-5/8" O.D.	10 13/16"	SA-106-B	0.432	0.0625"	SMLS	NONE	0.85	2	NONE	0.65	-	-	
1	6-5/8" O.D.	7 13/16"	SA-106-B	0.432	0.0625"	SMLS	NONE	0.85	2	NONE	0.65	-	-	

15. Heads: (a) SA-516-70N (b) -  
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp. (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp.

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A	
	Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None
(a)	ENDS	1.7899"	0.0625"	/	/	/	/	12.125"	/	/	/	/
(b)												

If removable, bolts used (describe other fastenings) 32 PCS 3/4" - 11 UNC X 7" LONG STUDS SA-193-B7 C/W 64 PCS 3/4"-11 UNC HEX NUTS SA-194-2H  
(Mat'l Spec. No., Grade, Size, No.)

FORM U-1 (Back)

16. MAWP 1415 300 psi at max. temp. 150 250 °F Min. design metal temp. -20 °F at S300/T1415 psi  
(Internal) (External) (Internal) (External)

17. Impact test Impact test exempt per Para. UCS-66(a) and UG-20(f).  
(Indicate year or year and the temperature(s) tested below)

18. Hydro, Pneu., or comb. test pressure 1840 Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
DRAIN [TS]	1	3/4"	N/A	SA-105	N/A	6000 LB	0.0625"	N/A	WELDED	N/A	CHANNEL
DRAIN [SS]	1	3/4"	N/A	SA-105	N/A	3000 LB	0.0625"	N/A	WELDED	N/A	SHELL
VENT [TS]	1	3/4"	N/A	SA-105	N/A	6000 LB	0.0625"	N/A	WELDED	N/A	CHANNEL
DRAIN [SS]	1	3/4"	N/A	SA-105	N/A	3000 LB	0.0625"	N/A	WELDED	N/A	SHELL
HC LIQUID OUTLET [TS]	1	1"	R.F.S.O.	SA-106-B	SA-105	SCH-160	0.0625"	N/A	WELDED	WELDED	CHANNEL
HC LIQUID INLET [TS]	1	1"	R.F.W.N.	SA-106-B	SA-105	SCH-160	0.0625"	N/A	WELDED	WELDED	CHANNEL
PSV	1	3"	R.F.S.O.	SA-106-B	SA-105	SCH-40	0.0625"	N/A	WELDED	WELDED	SHELL
PROPANE OUYLET [SS]	1	2"	R.F.W.N.	SA-106-B	SA-105	SCH-40	0.0625"	N/A	WELDED	WELDED	SHELL
PROPANE INLET [SS]	1	2"	R.F.S.O.	SA-106-B	SA-105	SCH-40	0.0625"	N/A	WELDED	WELDED	SHELL

20. Supports: Skirt No. Lugs NO Legs NO Others 2 SADDLES Attached SHELL / WELDED  
(No. or %)(No.)(No.)(Description)(Where and how)

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:  
 (List the name of part, item number, mfg's. name and identifying number)

22. Remarks: VESSEL INTENDED FOR NON-CORROSIVE SERVICE.  
AS BUILT DWG# 975D1078R0

**CERTIFICATE OF SHOP 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. 10637 Expires September / 16 / 2006

Date NOV. 10, 2005 Name Clmco Division of Toronto Industries Ltd. Signed *London B. Bell*  
(Manufacturer) (Inspector)

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**CERTIFICATE OF SHOP INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Ontario and employed by T.S.S.A. of Ontario have inspected the pressure vessel described in this Manufacturer's Data Report on NOV 2 105, 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 NOV 16/05 Signed *P. E. Kelly* Commissions ONT 52  
(Authorized Inspector) (Next Board Incl. endorsement, State, Prov. and No.)

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**CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE**

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code for Pressure Vessels, Section VIII, Division 1.

U Certificate of Authorization No. \_\_\_\_\_ Expires \_\_\_\_\_

Date \_\_\_\_\_ - Name \_\_\_\_\_ Signed \_\_\_\_\_  
(Assembled) (Representative)

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**CERTIFICATE OF FIELD ASSEMBLY INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of \_\_\_\_\_ and employed by \_\_\_\_\_ of \_\_\_\_\_ have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items \_\_\_\_\_, not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of \_\_\_\_\_ psi. 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 \_\_\_\_\_ Signed \_\_\_\_\_ Commissions \_\_\_\_\_  
(Authorized Inspector) (Next Board Incl. endorsement, State, Prov. and No.)



X X X

CERTIFIED BY  
**CIMCO** DIVISION OF  
TOROMONT INDUSTRIES LTD.  
TORONTO, ONTARIO, CANADA

MAX. ALLOWABLE  
WORKING PRESSURE

MAX  
TEMPERATURE

SHELL SIDE	300 PSIG	AT	250 °F
TUBE SIDE	1415 PSIG	AT	150 °F
MIN. DESIGN METAL TEMP.	20 °F	AT	S300/T1415 PSIG
SERIAL NO.	8003372A	YEAR BUILT	2005
C.R.N.	43992	INSPECTED BY	X

X

ITEM E-103

1033621



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538486

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Cimco Division of Toromont Industries Ltd. 65 Villiers St. Toronto, Ontario M5A 3S1
2. Manufactured for TOROMONT PROCESS SYSTEMS 10121 BARLOW TRAIL N CALGARY, ALBERTA T3J 3C5 CANADA
3. Location of installation SAME AS ABOVE
4. Type: HORIZONTAL CHILLER & SURGE DRUM 8003071A
5. ASME Code, Section VIII, Div. 1 2004 N/A N/A

Items 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell: (a) No. of course(s): CHILLER 1 (b) Overall length (ft. & in): CHILLER 19' - 5 3/4" SURGE DRUM 15' - 5/8"

Table with columns: Course(s), Material, Thickness, Long. Joint (Cat. A), Circum. Joint (Cat. A, B, & C), Heat Treatment. Rows for Chiller and Surge Drum.

7. Heads: (a) SA-516-70 (b) N/A

Table for Heads: Location (Top, Bottom, Ends), Thickness, Radius, Elliptical, Conical, Hemispherical, Flat, Side to Pressure, Category A.

If removable, bolts used (describe other fastenings) N/A

8. Type of Jacket N/A Jacket Closure N/A

9. MAWP 270 N/A psi at max. temp. .150 N/A \*F Min. design metal temp. -20 \*F at .270 psi

10. Impact test: Impact test exempt per Para. UCS-66(b) and UG-20(f)

11. Hydro., pneu., or comb. test pressure 351 Proof test N/A

12. Tubesheet: SA-516-70 13 1/4" 3 1/2" 0.0625" WELDED

13. Tubes: SA-179 3/4" 0.083" 122 STRAIGHT

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): 1 (b) Overall length (ft. & in): 1 - 4 1/4"

Table with columns: Course(s), Material, Thickness, Long. Joint (Cat. A), Circum. Joint (Cat. A, B, & C), Heat Treatment. Row for Shell.

15. Heads: (a) SA-516-70 (b) SA-234-WPB

Table for Heads: Location (Top, Bottom, Ends), Thickness, Radius, Elliptical, Conical, Hemispherical, Flat, Side to Pressure, Category A.

If removable, bolts used (describe other fastenings) 40 PCS 1" - 8 UNC X 7 3/4" LG THRD. STUD SA-193-B7 CW 80 PCS 1" - 8 UNC HEX NUT SA-194-2H

FORM U-1 (Back)

16. MAWP 1415 270 psi at max. temp. 150 150 °F Min. design metal temp. -20 °F at S270T1415 psi.  
 17. Impact test Impact test exempt per Para. UCS-65(a) and UG-20(f)  
 18. Hydro. Press., or comb. test pressure 1840 Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Cert.		Nozzle	Flange	
INSPECTION	2	3/4"	N/A	SA-105	N/A	3000LB	0.0625"	N/A	WELDED	N/A	HEAD
GLYCOL INJECTION	1	2"	RFLWN	SA-105-B	SA-350 LF2	N/A	0.0625"	N/A	WELDED	WELDED	HEAD
BOOT DRAIN	1	3/4"	N/A	SA-105	N/A	3000LB	0.0625"	N/A	WELDED	N/A	BOOT
VENT/P.L.	1	3/4"	N/A	SA-105	N/A	3000LB	0.0625"	N/A	WELDED	N/A	SHELL
HOT GAS SENSING POINT	1	3/4"	N/A	SA-105	N/A	3000LB	0.0625"	N/A	WELDED	N/A	SHELL
OIL COOLER RETURN	1	3/4"	N/A	SA-105	N/A	3000LB	0.0625"	N/A	WELDED	N/A	SHELL
LEVEL GAUGE	2	3/4"	N/A	SA-105	N/A	3000LB	0.0625"	N/A	WELDED	N/A	SHELL/BOOT
LEVEL COLUMN	2	1 1/2"	N/A	SA-105	N/A	3000LB	0.0625"	N/A	WELDED	N/A	SHELL/BOOT
BOOT	1	6"	N/A	SA-105-B	N/A	SCH 40	0.0625"	N/A	WELDED	N/A	SHELL
LSHH	2	3/4"	N/A	SA-105	N/A	3000LB	0.0625"	N/A	WELDED	N/A	SHELL
PROPANE OUTLET	2	4"	RFWN	SA-105-B	SA-350 LF2	SCH 40	0.0625"	N/A	WELDED	WELDED	SHELL
PROPANE INLET	2	4"	RFWN	SA-105-B	SA-350 LF2	SCH 80	0.0625"	N/A	WELDED	WELDED	SHELL
WET GAS OUTLET	1	6"	RFWN	SA-105-B	SA-350 LF2	SCH 80	0.0625"	N/A	WELDED	WELDED	CHANNEL
WET GAS INLET	1	6"	RFWN	SA-105-B	SA-350 LF2	SCH 80	0.0625"	SA-516-70	WELDED	WELDED	CHANNEL
RISERS	3	8"	N/A	SA-105-B	N/A	SCH 40	0.0625"	N/A	WELDED	N/A	SHELL

20. Supports: Skirt No. Lugs NO Legs NO Others 2 SADDLES Attached SHELL / WELDED

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:  
 (List the name of part, item number, mfg.'s name and identifying number)  
N/A

22. Remarks: VESSEL INTENDED FOR NON-CORROSIVE SERVICE.  
AS BUILT DWG# 875D998R1  
\*ONE END HEAD IS A 14" X 6" SCH.80 BWECCENTRIC REDUCER SA-234-WPB.

**CERTIFICATE OF SHOP 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. 10637 Expires September /16 / 2006  
 Date OCT. 31, 2005 Name Cimco Division of Toromont Industries Ltd. Signed [Signature]

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**CERTIFICATE OF SHOP INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Ontario and employed by T.S.S.A. of Ontario have inspected the pressure vessel described in this Manufacturer's Data Report on 08/19/05, 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 Nov 1/05 Signed [Signature] Commissions ONT 52

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**CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE**

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code for Pressure Vessels, Section VIII, Division 1.



U Certificate of Authorization No. \_\_\_\_\_ Expires \_\_\_\_\_  
 Date \_\_\_\_\_ Name \_\_\_\_\_ Signed \_\_\_\_\_

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**CERTIFICATE OF FIELD ASSEMBLY INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of \_\_\_\_\_ and employed by \_\_\_\_\_ of \_\_\_\_\_ have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items \_\_\_\_\_, not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of \_\_\_\_\_ psi. 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 \_\_\_\_\_ Signed \_\_\_\_\_ Commissions \_\_\_\_\_

 <b>UW</b> <b>RES-S</b> <b>RT-4T</b>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>		
	CERTIFIED BY  DIVISION OF TORONTO HYDRO INDUSTRIES LTD. TORONTO, ONTARIO, CANADA		
MAX. ALLOWABLE WORKING PRESSURE	270 PSIG	MAX. TEMPERATURE	150 °F
TUBES SIDE	1415 PSIG	AT	150 °F
MIN. DESIGN METAL THICKNESS	-20 °F	AT	S270/T1415 PSIG
SERIAL NO.	8003071A	YEAR MADE	2005
ORDER NO.	T4194.2	EXPORTED TO	X
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	MODEL	E-101





11957

① 538492, on name plate bracket

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

Manufactured and certified by Cimco Division of Toromont Industries Ltd. 65 Villiers St Toronto, Ontario Canada M5A 3S1

2. Manufactured for TOROMONT PROCESS SYSTEMS 10121 BARLOW TRAIN N CALGARY, ALBERTA, T2J 3C6

3. Location of installation SAME AS ABOVE

4. Type HORIZONTAL 8003068A-B T4183.2 900D3541R1 N/A 2005

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

6. Shell: SA-106-B 0.375 0.0625" 1'-11-1/4" 10'-8-5/8"

7. Seams: SMLS N/A 85 N/A N/A TYPE 3 N/A 1

8. Heads: (a) Mat'l. SA-516-70 (b) Mat'l. 1

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) ENDS	0.313"	0	-	-	2:1	-	-	-	CONCAVE
(b)									

If removable, bolts used (describe other fastenings) N/A

9. MAWP 300 psi at max. temp. 300 °F  
 Min. design metal temp. -20 °F at 300 psi. hydro., pneu., or comb. test pressure 390 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Mat'l	Nom.	Reinforcement	How Attached	Location
INSPECTION	2	2"	CPLG	SA 105	3000 LB	N/A	WELDED	HEAD
SUMMER BYPASS	1	1"	CPLG	SA 105	6000 LB	N/A	WELDED	SHELL
TEMP. INDICATOR	1	3/4"	CPLG	SA 105	6000 LB	N/A	WELDED	SHELL
SPARE	1	3/4"	CPLG	SA 105	6000 LB	N/A	WELDED	SHELL
LIQUID OUTLET	1	2"	SMLS	SA-106-B	SCH-160	N/A	WELDED	SHELL
LEVEL GAUGE	1	3/4"	CPLG	SA-105	6000 LB	N/A	WELDED	SHELL
LEVER GAUGE	1	3/4"	CPLG	SA-105	6000 LB	N/A	WELDED	SHELL
PSV	1	1-1/2"	SMLS	SA-106-B	SCH-160	N/A	WELDED	SHELL
LIQUID INLET	1	3"	SMLS	SA-106-B	SCH-80	N/A	WELDED	SHELL
PRESSURE INDICATOR	1	3/4"	CPLG	SA-105	6000 LB	N/A	WELDED	SHELL
PCV INLET	1	1"	CPLG	SA-105	6000 LB	N/A	WELDED	SHELL

11. Supports: Skirt NO Lugs / Legs / Other 2 SADDLES Attached SHELL / WELDED

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

Impact test exempt per Para. UCS-66(a) and UG-20(f)  
 Vessel intended for non-corrosive service.  
 As built DWG #900D3541R1

**CERTIFICATE OF SHOP 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. 10637 expires Sept. 15, 2006.

Date NOV. 04, 2005 Co. Name Cimco Division of Toromont Industries Ltd. Signed [Signature]

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**CERTIFICATE OF SHOP INSPECTION**

Vessel constructed by Cimco Division of Toromont Industries Ltd. at 65 Villiers St. Toronto, Ontario

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Ontario and employed by T.O.S.S.A. have inspected the component described in this Manufacturer's Data Report on Oct 21/05 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 NOV 7/05 Signed [Signature] Commissions ONT 52

(12/87)

set: 300 PSI  
 PSV → Cap: 3101 SCFM

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Handwritten mark or symbol on the right margin.


Small vertical text or mark on the right margin.

Handwritten mark or symbol on the right margin.

Handwritten text at the bottom center of the page.

Handwritten mark or symbol on the right margin.

Handwritten text at the bottom of the page, possibly a signature or footer.

	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	
	CERTIFIED BY USTIMCO DESIGN BY TORONTO INDUSTRIAL TORONTO, ONTARIO, CANADA	
	MAX. ALLOWABLE WORKING PRESSURE	MAX. TEMPERATURE
SHELL SIDE	300 PSIG	AT 300 °F
TUBE SIDE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MIN. DESIGN METAL TEMP	-20 °F	AT 300 PSIG
SERIAL NO.	8003068A	YEAR BUILT 2005
C.R.N.	T4183.2	INSPECTED BY <input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	V105



11957

① 538485

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

1. Manufactured and certified by Cimco Division of Toromont Industries Ltd. 65 Villiers St. Toronto, Ontario M5A 3S1 Canada.  
(Name and address of Manufacturer)

2. Manufactured for TOROMONT PROCESS SYSTEMS 10121 BARLOW TRAIL N CALGARY, ALBERTA T3J 3C6 CANADA  
(Name and address of Purchaser)

3. Location of Installation SAME AS ABOVE  
(Name and address)

4. Type VERTICAL 8003070A-B T4274.2 800D3540R3 N/A 2005  
(Mark, or vert. h/d) (Mfg's serial No.) (CPLG) (Drawing No.) (Plant, Bld. 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  
2004  
Year

to N/A N/A N/A  
Address (Dist) Code Dist Nos. Special Services per UG-120(a)

6. Shell: SA-106-B 0.375" 0.0625" 1' - 0" 5' - 0"  
Mat'l (Spec. No., Grade) Nom. Thk. (In.) Cor. Allow. (In.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)

7. Seams: SMLS N/A 85 N/A N/A SINGLE N/A 1  
Long. (Welded, Col.) R.T. (Spot or Full) Ed. (In.) R.T. Temp. (°F) Temp. (In.) Circ. (Welded, Col.) R.T. (Spot, Parallel, or Full) No. of Courses

8. Heads: (a) Mat'l. SA-516-70 (b) Mat'l. SA-516-70  
(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	0.290"	0.0625"	-	-	2:1	-	-	-	CONCAVE
(b) BOTTOM	0.290"	0.0625"	-	-	2:1	-	-	-	CONCAVE

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

9. MAWP 150 psi at max. temp. 350 °F  
 -Min. design metal temp. -20 °F at 150 psi. Hydro., pres., or comb. test pressure 165 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
INSPECTION	1	3/4"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
LI	1	1 1/2"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
FROM PCV-604	1	3/4"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
PI / INSPECTION	1	3/4"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
TI	1	3/4"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
LSHH	2	3/4"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
LG	2	3/4"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
GLYCOL OUT	1	1"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
HC SKIM	1	1"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
INLET	1	1"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL
DRAIN	1	1"	CPLG	SA-105	6000LB	N/A	WELDED	HEAD
OUTLET GAS/INSPECTION	1	1"	CPLG	SA-105	6000LB	N/A	WELDED	HEAD
LC	1	1"	CPLG	SA-105	6000LB	N/A	WELDED	SHELL

11. Supports: Skirt YES Lugs NO Legs NO Other N/A Attached BOTTOM HEAD / WELDED  
(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: N/A  
(Name of part, item number, Mfg's name and identifying stamp)

Impact test exempt per Para. UCS-66(a)  
 Vessel intended for non-corrosive service.  
 BUILT IN ACCORDANCE W/DWG.# 800D3540R3

<b>CERTIFICATE OF SHOP COMPLIANCE</b>	
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. <u>10637</u> expires <u>Sept 16, 2005</u>	
Date <u>OCT. 31, 2005</u>	Co. Name <u>Cimco Division of Toromont Industries Ltd.</u> Signed <u>[Signature]</u>
<small>(Manufacturer)</small>	
<b>CERTIFICATE OF SHOP INSPECTION</b>	
Vessel constructed by <u>Cimco Division of Toromont Industries Ltd.</u> at <u>65 Villiers St. Toronto, Ontario</u>	
I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of <u>Ontario</u> and employed by <u>[Signature]</u>	
have inspected the component described in this Manufacturer's Data Report on <u>Oct 14/05</u> , 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 <u>NOV 1/05</u>	Signed <u>[Signature]</u> Commissions <u>ONT 52</u>
<small>(Inspector)</small>	
<small>(Plant Design Dept., endorsement, State, Prov. and No.)</small>	

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	X      X      X	
	CERTIFIED BY <b>GIMCO</b> DIVISION OF TORONTO INDUSTRIES LTD. TORONTO, ONTARIO, CANADA	
	MAX. ALLOWABLE WORKING PRESSURE	MAX. TEMPERATURE
SHELL SIDE	150	AT 350
TUBE SIDE	X	AT X
WALL DESIGN	-20	AT 150
METAL TEMP.		
SERIAL NO.	8003070A	2005
C.I.N.	X	X
CELL	T4274.2	V-102





**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 543225

1. Manufactured and certified by Toromont Process Systems Division of Toromont Industries, 10121 Barlow Trail NE, Calgary, Alberta, Canada, T3J 3C6  
(Name and address of manufacturer)

2. Manufactured for Altas Services Inc., 1800, 407-2 St., S.W., Calgary, Alta., T2P 2Y3  
(Name and address of purchaser)

3. Location of installation Stock  
(Name and address)

4. Type Horizontal 11957401 T4113.2 11957-401 sh1/2 RevA - 2005  
(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 2004  
Year

to -

6. Shell: SA516-70N 1.75" .0625" 3'-2.5" 120"  
Addenda (Date) (Mat'l. (Spec. No., Grade)) (Nom. Thk. (in.)) (Code Case Nos. (Corr. Allow. (in.)) (Diam. I.D. (ft. & in.)) (Special Service per UG-120(d)) (Length (overall) (ft. & in.))

7. Seams: Type1 Full 1 1150+-25 1.75 Type1 Full 1  
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, Partial, or Full) No. of Courses

8. Heads: (a) Matl. SA516-70N (b) Matl. SA516-70N  
(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)	End	1.75"	0.0625"	-	-	SE2:1	-	-	-	Concave
(b)	End	1.75"	0.0625"	-	-	SE2:1	-	-	-	Concave

If removable, bolts used (describe other fastenings) -

9. MAWP 1415 - psi at max. temp. 150 °F.  
(internal) (external) (internal) (external)

Min. design metal temp. -20 °F at 1415 Psi. Hydro., pneu., or comb. test pressure 1840 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Matl.	Nom. Thk.	Reinforcement Matl.	How Attached	Location
			SEE	ATTACHED	U4	FORM		

11. Supports: Skirt - Lugs - Legs - Other Saddle Attached Shell/Welded  
(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: -  
(Name of part, item number, Mfr's name and identifying stamp)

Item: V-101 Vessel Type: Low Temp Separator Construction Drawing: 11957-401 Sh 1/2 Rev 1C  
 Volume: 111.6 Cubic Feet Impact testing: No; per UG-20(f) See Note #16 &17

**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. 33,658  
 expires November 26, 2005

Date 25 Oct 05 Co. name Toromont Process Systems Division of Toromont Industries Signed [Signature]  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP/FIELD INSPECTION**

Vessel constructed by Toromont Process Systems Division of Toromont Industries at Calgary, Alberta, Canada

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Alberta and employed by Alberta Boilers Safety Association

have inspected the component described in this Manufacturer's Data Report on \_\_\_\_\_ 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 \_\_\_\_\_ Signed \_\_\_\_\_ Commissions \_\_\_\_\_  
(Authorized Inspector) (Nat'l Board (incl. endorsements), State, Prov. and No.)







Ⓐ 543225

U  
W  
RH  
HT

CERTIFIED BY  
**TOROMONT PROCESS SYSTEMS**  
CALGARY, ALBERTA, CANADA

M.A.W.P. 1415 PSI @ 150 SF

M.A.E.W.P. PSI @ F

M.D.M.T. -20 F @ 1415 PS

SERIAL # 11957401 YEAR BUILT 2005

ITEM # V101 CRN T 4113.2



CERTIFIED BY

# TOROMONT PROCESS SYSTEMS

CALGARY ALBERTA CANADA

W

MAWP 1415 PSI @ 150

MAEWP 1415 PSI @ 150

MDMT -20 PSI @ 1415

SERIAL # N/A YEAR BUILT 2005

ITEM # COIL CRN # T 4113.2





**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 *\*\*Corrected Copy***

Manufactured and certified by Toromont Process Systems, 10121 Barlow Trail NE, Calgary, Alberta, Canada, T3J 3C6 *543307*  
(Name and address of manufacturer)

2. Manufactured for Altas Services Inc., 1800, 407-2 St., S.W., Calgary, Alta., T2P 2Y3  
(Name and address of purchaser)

3. Location of installation Stock  
(Name and address)

4. Type Vertical 11957402 \*\*T4415.2 11957-402 Rev.0 - 2005  
(Horiz. or vert., tank) (Mfr's serial No.) (CRN) (Drawing No.) (Natl. 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 2004  
Year

6. Shell: SA-106-B .375", .322" 0.0625" 1'-0", 0'-8" 30'-0"  
Addenda (Date) Code Case Nos. Special Service per UG-120(d)  
 Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)

7. Seams: Type S Nil 1 - - Type 1 Spot .70 2  
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, Eff. (%), No. of Courses or Full)

8. Heads: (a) Matl. SA 234 WPB (b) Matl. SA 234 WPB  
(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	** .282"	0.0625"	-	-	SE 2:1	-	-	-	Concave
(b)	Bottom	** .328"	0.0625"	-	-	SE 2:1	-	-	-	Concave

If removable, bolts used (describe other fastenings) SA 193 Gr B7 1 1/8" dia  
(Mat'l., Spec. No., Gr., Size, No.)

9. MAWP 350 - psi at max. temp. 400 - °F.  
(internal) (external) (internal) (external)

Min. design metal temp. -20 °F at 350 Psi. Hydro., pneu., or comb. test pressure 455 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Matl.	Nom. Thk.	Reinforcement Matl.	How Attached	Location
			SEE	ATTACHED	U4	FORM		

11. Supports: Skirt Yes Lugs 2 Legs - Other - Attached Shell & Welded  
(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: -  
(Name of part, item number, Mfr's. name and identifying stamp)

V-103 Vessel Type: De-Ethanizer Column Construction Drawing: 11957-402 Rev1B Volume: 15.89Cubic Ft. Impact Testing: No, per UG-20(f)

**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. 33.658 expires November 26, 2008

Date 01 Dec 05 Co. name Toromont Process Systems Signed Daw  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP/FIELD INSPECTION**

Vessel constructed by Toromont Process Systems at Calgary, Alberta, Canada

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Alberta and employed by ABSA

have inspected the component described in this Manufacturer's Data Report on 12 Dec 2005 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 5/12/02 Signed [Signature] Commissions Altas  
(Authorized Inspector) (Natl Board (incl. endorsements), State, Prov. and No.)





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**FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS**  
 (Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only) CUST. P.O.# 189058  
 As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

**DUPLICATE**

Manufactured and certified by HENRY TECHNOLOGIES LIMITED, 36 CRAIG STREET BRANTFORD, ONTARIO CANADA N3T 5T6  
 (Name and address of manufacturer)

2. Manufactured for TOROMONT ENERGY SYSTEMS INC, 10121 Barlow Trail N.E., Calgary, AB T3J-3C6  
 (Name and address of purchaser)

3. Location of installation UNKNOWN  
 (Name and address)

4. Type: HORIZONTAL C250849A(1-3) L9799.213 R200183D/1 N/A 2005  
 (Horiz. or vert. tank) (Mfg'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 2004 EDITION  
 Year

to 1518-5  
 Addenda (Date) Code Case Nos. Special Service per UG 120(B)

6. Shell: SA-53 Gr B 3/8" 1/16" 12-3/4" OD 26-1/2"  
 Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)

7. Seams: ERW NONE 85% - - SNGL BUTT NONE 1  
 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, Eff. (%) or Full) No. of Courses

8. Heads: (a) Matl. SA 516-70 NORMALIZED (b) Matl. SA 516-70 NORMALIZED  
 (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)	END	0.2938"	1/16"	-	-	2:1	-	-	-	CONCAVE
(b)	END	0.2938"	1/16"	-	-	2:1	-	-	-	CONCAVE

If removable, bolts used (describe other fastenings) BOLTS: SA 193-B7, 5/8-11UNC, QTY = 12  
 (Matl., Spec. No., Gr., Size, No.)

9. MAWP 400 - psi at max. temp. 400 - °F  
 (internal) (external) (internal) (external)  
 Min. design metal temp. -20 °F at 400 psi. hydro pneu. hydro test pressure 440 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Matl.	Nom. Thk.	Reinforcement Matl.	How Attached	Location
Handhole	1	11"	BOLT PAD	SA-516-70N	1-1/2"	-	WELDED	END
CONN.	2	2-1/2"	PIPE	SA-106 GR B	SCH. 80	-	WELDED	SIDE/END
CONN.	1	1-1/2"	CPLG.	SA-105N	6000 LB	-	WELDED	SIDE
CONN.	2	3/4"	CPLG.	SA-105N	6000 LB	-	WELDED	TOP/BOTTOM

11. Supports: Skirt NO Lugs - Legs - Other - Attached -  
 (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: -  
 (Name of part, item number, Mfg's name and identifying stamp)

FOR CORROSIVE SERVICE  
NO IMPACT TEST AS PER UCS-66  
HEADS ARE HOT FORMED

**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: 29646  
 expires Jun-05-2006  
 Date Oct 20/05 Co. Name HENRY TECHNOLOGIES LIMITED (Manufacturer) Signed Michael Dintuis (Representative)

**CERTIFICATE OF SHOP / FIELD INSPECTION**

Vessel constructed by HENRY TECHNOLOGIES LIMITED at 36 CRAIG STREET BRANTFORD, ONTARIO CANADA N3T 5T6  
 I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of ONTARIO and employed by T.S.S.A.  
 have inspected the component described in this Manufacturer's Data Report on Oct. 17, 2005, 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 Oct 21, 05 Signed [Signature] (Authorized Inspector) Commissions 02V33 (Nat'l Board, (incl. endorsements) State, Prov. and No.)







# CONSTRUCTION DATA REPORT FOR PIPING SYSTEMS

In accordance with the provisions of the Safety Codes Act

Shop Construction ; Field Construction ; Final Data Report ;  
 Partial Data Report  (from one ABSA-authorized Contractor to another ABSA-authorized Contractor).

### Complete both sides of this Form

1. Constructed By: Toromont Process Systems Owner's Job No: 11957  
(Name of ABSA authorized primary contractor or subcontractor)  
10121 Barlow Trail NE Calgary Alberta T3J 3C6  
(Address)

Alberta Quality Program No. AQP-1405(S) Expiry Date: November 26 2008

2. Constructed For: Same As Above  
(Name of primary contractor if different from above)

Same As Above  
(Address)

Alberta Quality Program No. AQP- - Expiry Date: -  
(Required when the primary contractor undertakes some/all of the quality functions, e.g., Mat'l supply, NDE, PWHT, Tie-in, fabrication, hydro test, final assembly etc.)

3. Owner: AltaGas Services Inc c/o Excelsior Engineering Ltd. 800 703 6 Ave SW Calgary Alberta T2P 0T9  
(Name and address)

LSD : 7-33-90-12 W6M  
(Location of installation)

Alberta Quality Program No. AQP- - Expiry Date: -  
(Required when the owner undertakes some/all of the quality functions, e.g., Mat'l supply, NDE, PWHT, Tie-in, fabrication, hydro test, final assembly etc.)

4. Piping Design Alberta Registration No.: PP-  
(Required if aggregate piping volume is over 0.5m<sup>3</sup>)

5. WP No.: WP-496.2 ; Company: Toromont Process Systems ; Owner's WP No. (If used): WP-  
(Alberta Registration No.) (Alberta Registration No.)

WPS No(s). used: WP # 1,5,6 ; Owner's WPS No(s). (If used): -

6. Code: ASME B31.1 Non Boiler External Piping ; ASME B31.1 Boiler External Piping

ASME B31.3  - Service category: Normal , D , M , High Pressure ; B31.5 ; B31.9 .

Drawing No. Rev. No. Line No.	Fluid (Air/Stm. Etc.)	Des. Press. KPA	Des. Temp °C	Test Press. KPA	Test Medium	Pipe Mat'l Spec. & Grade	C.A. IN	Pipe NPS & Schedule	Flange Material & Rating	PWHT/ Preheat Temp. °F	R.T. %	Other NDE
SEE												
ATTACHED												
SUPPLIMENTARY												
SHEETS												

Partial Data Reports, properly identified and certified by ABSA-authorized contractors, as listed below are attached to and form part of this Data Report

No.	Line No.	Spool No.	Drg. No. (with Rev. No.)	Contractor (Name)	AQP No.	Expiry date
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**Remarks:** Provide additional comments including noting any code work that was not performed by the ABSA-authorized contractor(s) supplying this document as a Partial Data Report but which must be completed by another ABSA-authorized contractor who assumes overall responsibility for conformance with the Safety Codes Act & Regulations and applicable ASME Codes, and who assures that all required code work is completed prior to putting the piping system into service.

**Endorse certificate 'A' or 'B'**

**A. CERTIFICATE OF COMPLIANCE**

Signed by the subcontractor when supplying this certificate as a Partial Data Report

We certify that the statements in this Data Report are correct and that materials, construction and workmanship of the piping fabrication conform to the registered quality system and the applicable Piping code(s).

Date: \_\_\_\_\_  
Subcontractor

\_\_\_\_\_  
Print Authorized Representative's Name                      Signature

**This certificate is not valid unless it forms part of a Final Data Report signed by Primary Contractor**

**B. CERTIFICATE OF COMPLIANCE**

Signed by the primary contractor when supplying this certificate as a Final Data Report

We certify that the statements in this Data Report are correct and that piping job no. 11957 described in this Data Report was constructed in accordance with the Province of Alberta Safety Codes Act and Regulations, and applicable ASME Piping Code(s).

Date: December 7 2005                      Toromont Process Systems

\_\_\_\_\_  
Print Authorized Representative's Name                      Signature

Rob Power

Primary Contractor  
*Rob Power*

**CERTIFICATE OF INSPECTION**

I, the undersigned, employed by HILL FOR EXCELSIOR / ALTAGAS have inspected the piping job no. 11957 described in this Construction Data Report and state that, to the best of my knowledge and belief, the Contractor has constructed this piping in accordance with the applicable Sections of the ASME Piping Codes and Province of Alberta Safety Codes Act and Regulations.

Date: December 7 2005

Date: \_\_\_\_\_

Cam Harker  
Print Owner's Inspector's Name                      Owner's Inspector's Signature

*Cam Harker*

Name: \_\_\_\_\_ Sign.: \_\_\_\_\_

ABSA Safety Codes Officer  
(BOILER EXTERNAL PIPING ONLY)

## CONSTRUCTION DATA REPORT FOR PIPING SYSTEMS SUPPLEMENTARY SHEET

Owner : AltaGas Services Inc

Job No. 11957

Drawing No. Rev. No. Line No.	Fluid (Air/Stm. Etc.)	Des. Press. KPA	Des. Temp. °C	Test Press. KPA	Test Medium	Pipe Mat'l Spec. & Grade	C.A. MM	Pipe NPS & Schedule	Flange Material & Rating	PWHT/ Preheat Temp. °F	R.T. %	Other NDE
Dwg # 11957-101 Rev 4												
6"-HG-E101-1-C61-C75 6"-HG-E102-1-C61-C64 6"-HG-V101-1-C61-C64	GAS	9756	-29 / 66	14634	WATER	SA-106B	1.6	6" XH ¾" XH	SA-105N 600# SA-105N 3000# NPT / SW	60 / NA	5 / NA	VISUAL
6"-P-E102-2-C11-C64 4"-P-F101-1-C11-C25 1"-FG-E101-2.1-C11 ¾"-P-C101-2-C11-C25 1"-P-V104-1.1-C11 1"-HG-V103-1.1-C11 1"-HL-E105-1-C11	PROPANE Hydrocarbons	1861	-29 / 66	2047	AIR	SA-106B	1.6	6" STD 4" STD 2" STD 1" XH ¾" XH	SA-105N 300# SA-105N 150# SA-105N 3000# NPT / SW	60 / NA	5 / NA	VISUAL
3"-P-C101-1-C31 3"-P-V104-1-C31 2"-P-V105-1-C31 1"-HL-E105-1-C31 2"-P-E103-2-C31 2"-P-E103-1-C31 ¾"-P-C101-2-C31-C25 ½"-L-V104-2-C31 1"-P-V104-1.1-C31 1"-P-V104-1.2-C31 1"-HL-V103-2-C31 E103 PSV	PROPANE Hydrocarbons LUBE OIL	2069	-29 / 121	2276	AIR	SA-106B	1.6	4" STD 3" STD 2 ½" STD 2" STD 1 ½" XH 1" SCH 160 1" XH ½" SCH 160 ½" XH ¾" SCH 160 ¾" XH	SA-105N 300# SA-105N 150# SA-105N 3000# NPT / SW	60 / NA	5 / NA	VISUAL
2"-HL-V103-3-C31-H25 2"-HG-V103-1-C31 1 ½"-HG-V103-1-C31 1 ½"-FG-PCV302A/B-1.1-C11 2"-FG-V102-1.3-C11 1"-HL-E103-1-C31-C38	PROPANE Hydrocarbons	2415	-29 / 121	2657	AIR	SA-106B	1.6	2" STD 1 ½" XH 1" XH	SA-105N 300# SA-105N 3000# NPT / SW	60 / NA	5 / NA	VISUAL
8"-HG-HEADER-1-C11 1 ½"-HL-DRAIN-1-C11 1"-HL-V102-2-C11 2"-G-P102-1-C11-H25 1"-HG-V106-2-C11	PROPANE Hydrocarbons GLYCOL	1689	-29 / 66	1858	AIR	SA-106B	1.6	8" STD 6" STD 4" STD 3" STD 2" XH 1" XH	SA-105N 150# SA-105N 3000# NPT / SW	60 / NA	5 / NA	VISUAL
Glycol Injection Nozzles 1"-G-P101A/B-1-C61 1"-FG-E101-2-C61 1"-FG-E101-2.1-C61 1"-HL-V101-2-C61-C38	GLYCOL Hydrocarbons	9756	-29 / 66	10732	AIR	SA-106B	1.6	1" SCH 160 1" XH ½" SCH 160 3/8" SCH 160	SA-105N 600# SA-105N 3000# NPT / SW	60 / NA	NA	VISUAL
1"-G-V101-3-C11-C38 1"-G-DRAIN-1-C11 1"-G-V106-1-C11 1"-G-H101-3-C11 1"-G-F103-1-C11	GLYCOL	1035	-20 / 66	1138	AIR	SA-106B	1.6	1" XH	SA-105N 3000# NPT / SW	60 / NA	NA	VISUAL

Date <u>12/07/05</u>	Toromont Process Systems Division of Toromont Industries	by <u>Rob Lewis</u>	
	(Contractor)	(Authorized Representative)	
Date <u>[Signature]</u>	Date <u>07-DEC-05</u>	Provincial Inspector	
Owner's/Client's Inspector		(BOILER EXTERNAL PIPING ONLY)	

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