

62046035

Job 10-32
OTS-150W

FORM H-2 MANUFACTURER'S DATA REPORT FOR ALL TYPES OF BOILERS
EXCEPT WATERTUBE AND THOSE MADE OF CAST IRON
As Required by the Provisions of the ASME Code Rules, Section IV

1. Manufactured and certified by Saskatoon Boiler Mfg. Co. Ltd., 2011 Quebec Avenue, Saskatoon, SK, S7K 1W5
(name and address of manufacturer)
2. Manufactured for Northern Blizzard Resources Inc., 5301 - 62nd Street, Lloydminster, AB, T9V 2E5
(name and address of purchaser)
3. Location of installation Northern Blizzard Resources Inc., Morgan 10-34-51-04 W4M Battery, AB
(name and address)
4. Unit identification Marine Boiler 7119 U1463.23 B1659C(r0) 477 2011
(complete boiler, superheater, waterwall, economizer, etc.) (manufacturer's serial no.) (CRN) (drawing no.) (National 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 Code, Section IV, 2007 A09
(year) (addenda (as applicable)(date)) (Code Case no.)
- Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report None

- (name of part, item number, manufacturer's name, and identifying stamp)
6. Shells or drums 1 SA-516-70 0.3125" 60" 105" TS/TS ---- ----
(no.) (material spec., gr.) (thickness) (inside diameter) (length (overall)) (inside diameter) (length (overall))
7. Joints Double Butt Welded 85% Double Butt Welded Two
(long. (seamless, welded)) (eff. (compared to seamless)) (girth (seamless, welded)) (no. of shell courses)
8. Tubesheet SA-516-70 0.75" Tube holes 148 x 2.025"
(material spec., grade) (thickness) (number and diameter)
9. Tubes: No. SA-178-A Straight Diameter 2" Length 105.5" Gauge 0.095" mw
(material spec., grade) (straight or bent) (if various, give max. and min.) (or thickness)
10. Heads None
(material spec. no.) (thickness) (flat, dished, ellipsoidal) (radius of dish)
11. Furnace SA-53-B 0.50" Nom. 1 24" OD 105" Pressure Zone 105.75" Plain Seams ERW
(material spec., gr.) (thickness) (no.) (size (O.D. or W x H)) (length (each section)) (total) (type (plain, corrugated, etc.)) (type (seamless, welded))
12. Staybolts None
(no.) (size (diameter)) (material spec., gr.) (size) (tolerance) (net area) (pitch (horizontal and vertical)) (MAWP)
13. Stays or braces:

Location	Material Spec.	Type	Number and Size	Pitch	Total Net Area	Fig. HG-343 L/I	Dist. Tubes to Shell	MAWP
(a) F.H. above tubes	SA-36	Through	2 of 1.75"	11"	4.81 sq in	1.0	14"	160 psig
(b) R.H. above tubes	SA-36	Through	2 of 1.75"	11"	4.81 sq in	1.0	14"	160 psig
(c) F.H. below tubes	----							
(d) R.H. below tubes	----							
(e) Through stays	SA-36	Through	10 of 1.0"	7.188"	7.85 sq in	1.0	---	160 psig

14. Other parts: 1. Water Baffle Top & Btm Plates 2. Water Baffle Cap 3. -----
(brief description, i.e., dome, boiler piping)
1. SA-516-70, 11.625" x 74.688" Lg, 0.50" T, 15 psig Steam, 160 psig Water
2. SA-516-70, 3.313" x 74.688" Lg, 0.375" T, 15 psig Steam, 160 psig Water
3. -----
(material spec., grade, size, material thickness, MAWP)

15. Nozzles, inspection, and safety valve openings:

Purpose (inlet, outlet, drain, etc.)	No.	Diameter or Size	Type	How Attached	Material	Nominal Thickness	Reinforcement Material	Location
Handhole	8	2.75" x 3.5"	Obround	Bolted	NA	0.75" Cover	NA	Shell & TS
Manhole	None							
Outlet	1	6" 150#	RFSO	Welded	SA-106-B	0.280"	SA-516-70	Shell
Inlet	1	6" 150#	RFSO	Welded	SA-106-B	0.280"	SA-516-70	Shell
Safety Valve	1	2"	NPT Cplg	Welded	SA-105	3000#	NA	Shell
Drain	1	1-1/2"	NPT Cplg	Welded	SA-105	3000#	NA	Shell
Various	11	2" to 3/4"	NPT Cplg	Welded	SA-105	3000#	NA	Shell

FORM H-2 (Back)

16. Boiler supports 2 Saddles Welded
(no.) (type (saddles, legs, lugs)) (attachment (bolted or welded))
 17. MAWP 180 psig water Based on HW-701.3b Heating surface 707 sq. ft. Shop hydro. test 240 psig
(Code par. and/or formula) (total) (complete boiler)
 18. Maximum water temperature 250 deg F
 19. Remarks Handhole Covers: Saskatoon Boiler Mfg. Co. Ltd. 300 psig at 422 deg F, CRN 0H0655.324T157.

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this data report are correct and that all details of design, material, construction, and workmanship of this boiler conform to Section IV of the ASME BOILER AND PRESSURE VESSEL CODE.

"H" Certificate of Authorization no. 7904 expires 28 February, 2012
 Date 9 FEB 2011 Signed [Signature] Name Saskatoon Boiler Mfg. Co. Ltd.
(by representative) (manufacturer that constructed and certified boiler)

CERTIFICATE OF SHOP INSPECTION

Boiler constructed by Saskatoon Boiler Mfg. Co. Ltd. at Saskatoon, Saskatchewan, 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 Saskatchewan and employed by Technical Safety Authority of Saskatchewan

have inspected parts of this boiler referred to as data items 4, 6-11, 13-19 and have examined Manufacturers' Partial Data Reports for items _____ and state that, to the best of my knowledge and belief, the manufacturer has constructed this boiler in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the boiler 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 9 Feb 2011 Signed [Signature] Commissions SK/057 12287ANB
(Authorized Inspector) (National Bd. (incl. endorsements), state, prov., and no.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the field assembly construction of all parts of this boiler conforms with the requirements of Section IV of the ASME BOILER AND PRESSURE VESSEL CODE.

"H" Certificate of Authorization no. _____ expires _____
 Date _____ Signed _____ Name _____
(by representative) (assembler that certified and constructed field assembly)

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 _____

have compared the statements in this Manufacturer's Data Report with the described boiler and state that the parts referred to as data items _____, not included in the certificate of shop inspection, have been inspected by me and that to the best of my knowledge and belief the manufacturer and/or the assembler has constructed and assembled this boiler in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE. The described boiler was inspected and subjected to a hydrostatic test of _____.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the boiler 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) (National Bd. (incl. endorsements), state, prov., and no.)

SASKATOON BOILER MFG. CO. LTD.

FACTORY INSPECTION AND FIRE TEST REPORT - GAS FIRED JOB NUMBER 10-32

USER: NORTHERN BLIZZARD RESOURCES INC.

DEL: QTS-G 150 W SERIAL NO. 7119 ULC NO: AR530050

PROGRAMMER: MODEL NO. E110, EP160, ED510, EDV1 SERIAL NO: 1046-04

BLOWER MOTOR: MODEL NO. BROOKS S/N TLL2285 TYPE: _____ FRAME: W-DA184T-S

VOLTS: 480 PH: 3 HP: 7.5 RPM: 3460 AMPS: 8.6 SF: 1.15

MAGNETIC STARTER: CI 16 HEATERS: TI 16C B-12 AMPS

FIRE TESTS	LOW	HIGH
Comb Eff%	<u>86.5</u>	<u>82.3</u>
Stack Temp	<u>213</u>	<u>366</u>
O ₂ %	<u>5.7</u>	<u>5.2</u>
CO PPM	<u>3</u>	<u>53</u>
CO ₂ %	<u>8.6</u>	<u>8.9</u>
Nox PPM	<u>61</u>	<u>49</u>
Input- CFH	<u>1200</u>	<u>6276</u>

BURNER MODEL CRG-165-Z
 S/N 1110-405
 WATER PUMP MODEL ULC # 95
 S/N _____
 VOLTS _____
 AMPS _____
 STARTER _____
 HEATER _____

CONTROL TESTS
 HI Limit MR: OK
 Opr Cont OK
 Mod Cont OK
 Lwco # 1 OK
 Lwco # 2 —
 Flame Monitor OK
 Air Sw OK
 Low Fire Sw OK
 HI Gas SW OK 28"
 Low Gas SW OK 12"
 Flow SW ✓
 HI Water —
 Ind Lites OK
 Alarms ✓
 Dielectric Test OK
 Remote S.D. ✓
 Gas Leaks NIL

PRESSURES

	LOW	HIGH
Inlet ⁱⁿ psf	<u>5</u>	<u>5</u>
Reg ⁱⁿ psf	<u>1.0</u>	<u>0.9</u>
Gas Train ⁱⁿ wc	<u>24.5</u>	<u>17.4</u>
Manifold ⁱⁿ wc	<u>2</u>	<u>7.3</u>
Wind Box ⁱⁿ wc	<u>3</u>	<u>8.6</u>
Comb ⁱⁿ wc	_____	_____
Pilot ⁱⁿ wc	<u>4.2</u>	_____
Amps Blower	<u>4.7</u>	<u>7.8</u>
Amps Water Pump	<u>—</u>	<u>—</u>
Boiler Temp	<u>240</u>	Pressure <u>13</u> Purge Time <u>60</u>

Air Band 3/4" DIFF PL. Gas Head 1/2" IN Orifice Size 57 X 13/64 Ign Funnel _____ Baffle Plate 3" Choke Ring —

AIR BAFFLE 10 7/8 ODX 8 7/8 ID, GAS SPREADING SOLID 8 3/8 ODX 7 1/8 ID

DIFF PLATE SCOTCH 6 3/8 ODX 3 1/4 ID C/W 4.6 MM HOLES

15 BOILER HAS HONEYWELL MODULATING GAS VALVE

COMPLETED BY: Tygon Williams DATE: Feb 18/11

SASKATOON BOILER MFG. CO. LTD.

Job #10-32

Date: March 14, 2011

SPARE PARTS LIST FOR: Northern Blizzard Resources, Lloydminster, AB

BOILER MODEL: OTS-G150W

SERIAL NO: 7119

The spare parts have been divided into three categories as follows:

RM - Routine Maintenance - Items which should be on site

CO - Items which should be stocked for Critical Operation

RL - Remote Locations - items to be stocked, where locations are more than a few hours delivery from Saskatoon

Burner: **CRG-165-2 S/N 1110-405**

RM	CO	RL	ITEM	PRICE
X				
X			Electrodes (set)	WP478C
X			Fuses	10 amp
X			Lubricant for plug valves	(3) 3/8" lube sticks
X			Inspection opening gaskets	(8) 2 1/2" x 3 1/2" OB
X			Rear Baffle Gasket	13 ft. Tadpole Tape
X			Burner Gasket	7' - 1 1/4" Rope
	X		Refractory Cement	6# Kel Seal
	X		Programming control	E110-ED510-EP160-EUV1
	X		Hi Limit Control	L4008E1040 Man.
	X		Operating Control	T775M 2048
	X		Modulatng Control	T77M 2048
	X		Modulating Motor	M9484F001
	X		Low Level Control	3E2C
	X		Pump Control	N/A
	X		Linkage Arms	(2) 3 1/2" Lg.
	X		Rod Ends	(2) 1/4"
	X		Air Switch	AFS-A
	X		Safety Valve	9.9 x 5 x 1 1 Kunkle 927 set at 160 psi
		X	Blower Fan Wheel (1) set)	10.6 x 4.5 x 1-1/8" Bore
		X	Door Gaskets	34 ft.
		X	Ignition Transformer	1092F
		X	Scanner Assembly	UV1A-6
		X	Pilot Solenoid Valve	(2) V4046C 1054 - 3/8"
		X	Main Gas Valve Actuator	(2) V4055D 1019
		X	Main Gas Valve Body	(2) V5055C 1000 & V5055A 1038
		X	Blower Motor	7 1/2 HP 480V-3-60
X			Burner Refractory	SBM
			Rear Sight Glass	#B-1740-5
			Valve	Honeywell 1 1/2" V51E 1000
FOR GAS/OIL OR OIL FIRED BOILERS				
X				N/A
X			Oil Nozzles	N/A
X			Cartridge for Oil Filter	N/A
X			Filter for air compressor	N/A
	X		Belts (set)	N/A
		X	Air compressor	N/A
		X	Oil Solenoid Valve	N/A
		X	Oil Pump	N/A
		X	Compressor &/or Pump motor	N/A

Changeover switch

Prices listed are effective for 30 days only, from date issued, FOB factory, Saskatoon

All applicable taxes extra

SK-1068

PREVENTATIVE MAINTENANCE

RECOMMENDED FOR

SASKATOON BOILERS – ALL TYPES – ALL SIZES – ALL FUELS

DISPLAY ONE OF THESE CARDS IN A VISIBLE LOCATION AS NEAR AS POSSIBLE TO THE BURNER. AN ADDITIONAL CARD SHOULD BE DISPLAYED IN THE BOILER ROOM WHERE IT WILL BE EASILY ACCESSIBLE IN AN EMERGENCY.

MAINTENANCE INSTRUCTIONS: A regular maintenance program is critical to ensure that your boiler will operate reliably and efficiently. Your maintenance program will consist of daily, weekly, monthly, semi-annual, and annual tests that will confirm that all parts of the boiler are operating as intended. The frequencies and tests recommended by **Saskatoon Boiler** are listed below. An experienced operator may have to increase the frequency or add additional checks depending on the actual operating conditions or jurisdictional requirements. The owner's safety program, maintenance lockout procedures and hazard assessment requirements must be followed.

DAILY

1. Blowdown the boiler through each blowdown connection for a minimum of five seconds.
2. While the boiler is operating, blowdown the water column(s) to the low water cut off point. If the unit does not shut down, correct the fault.
3. Check the stack temperature.
4. Verify that combustion gasses are not leaking from the boiler into the boiler room.
5. Verify that the boiler pressure or water temperature is not excessive.
6. Verify the fuel and water levels. The boiler must not run out of either during operation.
7. Add lubricating oil to the air compressor oil reservoir if low.

WEEKLY

1. Observe the operation of the electronic combustion control to ensure that it functions as described in the manufacturer's documentation.
2. Clean the boiler exterior so that oil and dust do not accumulate. Pay extra attention to the operating components.
3. Inspect the feedwater or circulation system and maintain it per the manufacturer's recommendations.
4. Steam Boilers - Test the feedwater and compare it against the water standards supplied by the water treatment company.
5. Turn the oil strainer(s).

MONTHLY

1. Perform a Try Lever Test; refer to the "SAFETY AND OPERATION CHECK PROCEDURES" section of the manual for the try lever test procedure.
2. Test the high limit control to be sure that it operates satisfactorily.
3. Inspect the burner air damper linkages and damper connections. Tighten if required.
4. Lubricate the blowdown valve(s).
5. Clean the air compressor intake filter.
6. Clear the electrode porcelains of any carbon deposits.

SEMI-ANNUALLY

1. Thoroughly clean the furnace and tubes.
2. Check for any tube or boiler leaks.
3. Replace the gasket around the rear turn chamber with a new one.
4. Clean the sight glass in the rear door. Replace if necessary.
5. If the unit is equipped with a non-freeze siphon drain for the pressure controls, it must be disassembled and cleaned.
6. Inspect the fuel tank, water tank, lines and connections for leaks. Repair or tighten as necessary.
7. Flush the air compressor.
8. Drain and flush the oil strainer(s).

ANNUALLY

1. Remove all handhole and manway covers and inspect the waterside of the boiler for corrosion or scale build-up.
2. Flush the inside of the boiler with a hose, making sure to remove all sludge and deposits.
3. Return the handhole and manway covers with new gaskets.
4. Disconnect the piping on the discharge side of the feedwater pipe and inspect for scale buildup.
5. Inspect the check valve(s) in the feedwater system to determine that they are seating properly.
6. Lubricate the electric motors if they are equipped with grease fittings.
7. Replace the fusible plug if so equipped.
8. Inspect the fuel filter and replace if necessary.
9. Check the fuel pump pressure to ensure that the pressure conforms to the manufacture's requirements, adjust or replace the fuel pump as required.
10. If the unit is equipped with probe type level controls, they should be removed and cleaned.
11. Verify that the safety valve(s) are in proper working condition.
12. Remove, inspect and clean all components of the burner oil nozzle assembly. See the "BURNER AND BURNER OIL ASSEMBLY SERVICING AND MAINTENANCE" section of the manual.
13. Lubricate the manual shut-off valve(s).