

INSPECTION CERTIFICATE

JOHNSTON BOILER

Ferrysburg, Michigan 49409

1. Boiler manufactured for: Fort Hill Natural Gas Authority of: Easley, SC 29642
2. Type: FIRETUBE SCOTCH MARINE Order No: 9023 Drawing No: 101D0467
3. Serial nos; (Mfg's.) 9023-01 (A.S.M.E) 8609 (States) _____
4. Shell: Diam: 80" I.D. Length over all: 178 1/2" No. of courses: Two
5. Longitudinal Joints: WELDED BUTT Riveting: _____ Diam. Hole: _____ Pitch: _____
6. Efficiency: 85% Rivets: (Made by): _____ (Material): _____
 THICKNESS: Of Shell: 7/16" Of butts: _____ Of heads: 1/2" Of furnace: 3/8"
7. STAYBOLTS: Made by: U.S. Steel Material: SA-675-70
 Diam. outside: 1" Net area: .7854 sq.in. Max. pitch: 12 1/2"
8. STAYS Above tubes: 14 - 1" Dia. Front 7 - 1" Dia. Rear
 Area: Front Head: 748 sq. in. Rear head: 908 sq.in.
 Stays below tubes: NONE Area: _____
9. TUBES: No: 172 Diam: 2" Length: 178", 141" Material: SA-178-A
10. DOME: NONE Grate Area: _____ sq. ft.
11. Constructed for pressure: 60# WATER Tested to: 90 lbs. per sq. in.

MATERIAL

DESCRIPTION	Yield Point Sq. In.	ULT. Strength Sq. In.	ELONG. in 8 Inches	Red Area %	Thick- ness	CHEMICAL ANALYSIS				GRADE	HEAT Number
						Copper	Carbon	Mang.	Phos. Sulph.		
Shell, front course	41200	62100	28%	—	7/16"	.16	.49	.013	.006	285	801Y06680
Shell, rear course	41200	62100	28%	—	7/16"	.16	.49	.013	.006	285	801Y06680
Furnace 1st Cse.	41200	62100	28%	—	7/16"	.16	.49	.013	.006	285	801Y06680
Furnace 2nd Cse.											
Rear Head	48200	80900	25%	—	1/2"	.24	1.12	.020	.007	516	841Y00520
Front Head	50500	79000	24%	—	1/2"	.28	.93	.013	.015	515	D21492
Comb. Chamb. Rear Hd.	46100	77900	20%	—	1/2"	.23	1.00	.017	.014	516	803X73660
Comb. Chamb. Tube Sht.	46100	77900	20%	—	1/2"	.23	1.00	.017	.014	516	803X73660
Comb. Chamb. Wrapper	44100	60700	28%	—	3/8"	.10	.50	.018	.009	285	802U33450
Fur. Extn. Shell											
Drum Shell											
Drum Head											
Drum Reinforce											

WE CERTIFY the above data to be correct and that all details of material, construction and workmanship on this boiler conform to the boiler rules of the AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

JOHNSTON BOILER COMPANY

Date: 9 March 1993

By: Gordon Royce

**FORM H-2 MANUFACTURERS' 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 Johnston Boiler Company 300 Pine St. Ferrysburg, MI 49409
(name and address of manufacturer)

2. Manufactured for Fort Hill Natural Gas Authority Easley, SC 29642
(name and address of purchaser)

3. Location of installation Hunt Rd. and Highway 8 7.6 Miles N. of I-85 Easley, SC 29642
Firetube (name and address)

4. Unit identification Scotch Marine 9023-01 — 101D0467 8609 1993
(complete boiler, superheater, waterwall, economizer, etc.) (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 Code, Section IV, 1992 — —
(year) (addenda (date)) (Code Case no.)

Manufacturers' Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of this report: _____

(name of part, item number, mfr's. name and identifying stamp)

6. Shells or drums: One SA-285-C 7/16" 80" 178" — —
(no.) (mat'l. spec., gr.) (thickness (in.)) (dia. (I.D.)) (length (overall)) (dia. (I.D.)) (length (overall))

7. Joints: Welded 85% Welded Two
(long. (seamless, welded)) (eff. (as compared to seamless)) (girth (seamless, welded)) (no. of shell courses)

8. Tubesheet: SA-516-70 1/2" Tube holes: 172 2 1/32"
(mat'l. spec., grade) (thickness) (no. & dia.)

9. Tubes: No. SA-178-A STRAIGHT Dia. 2" Length 141, 178 Gauge #13 BWC
(mat'l. spec., grade) (straight or bent) (if various, give max. & min.) (or thickness)

10. Heads: SA-516-70 1/2" FLAT —
(mat'l. specification no.) (thickness) (flat, dished, ellipsoidal) (radius of dish)

11. Furnace: SA-285-C 3/8" ONE 30" O.D. // // // // 150 1/2" Plain Seams: Welded
(mat'l. spec., gr.) (thickness) (no.) (size (O.D. or W x H)) (length (each section)) (total) (type (plain, corrugated, etc.)) (type (seamless, welded))

12. Staybolts: 17 1" SA-675-70 — — 0.785 sq. in. 12.5", 12.5" 71
(no.) (size (dia.)) (mat'l. spec., gr.) (size) (telltale) (net area) (pitch (hor. and vert.)) (MAWP (psi))

13. Stays or braces:

Location	Mat'l. Spec.	Type	No. & Size	Pitch	Total Net Area	Fig. HG 343 L/1	Dist. Tubes to Shell	Area to be Stayed	MAWP psi.
(a) F.H. above tubes	SA-675-70	DTAG	14, 1"	12"	11.0		20.0	748	150
(b) R.H. above tubes	SA-675-70	DTAG	7, 1"	12"	5.5		20.0	908	61
(c) F.H. below tubes									
(d) R.H. below tubes									
(e) Through stays									

14. Other parts 1. W. C. Piping 2. — 3. —
(brief description — i.e. dome, boiler piping, etc.)

- SA-53-B 1" Threaded Pipe Sch. #80
 - _____
 - _____
- (mat'l. spec., grade, size, material thickness, MAWP)

15. Nozzles, inspection and safety valve openings:

Purpose (inlet, outlet, drain, etc.)	No.	Dia. or Size	Type	How Attached	Mat'l	Nom. Thickness	Reinforcement Mat'l.	Location
Handhole up to 3" x 4"	Seven	3 1/4" X 5"	ELLIPSE	BOLTED	NA	—	NA	SEE P-6
Manhole	ONE	12" X 16"	ELLIPSE	BOLTED	N/A	—	N/A	Front
MAIN OUTLET	ONE	8"	S.O. FL'G.	WELDED	SA-105	150#	N/A	TOP
MAIN RETURN	ONE	8"	S.O. FL'G.	WELDED	SA-105	150#	N/A	TOP
BLOWDOWN	TWO	2"	S.O. FL'G.	WELDED	SA-105	150#	N/A	BOTTOM
FEED	TWO	1 1/2"	CPL'G	WELDED	SA-106-B	300#	N/A	BOTH SIDES

16. Boiler supports: TWO SADDLES WELDED
(no.) (type (saddles, legs, lugs)) (attachment (bolted or welded))

17. Design pressure: 60 Based on HG-340 (60) Heating surface 1,503 Shop hydro. test 90
(psi) (Code par. and/or formula) (sq. ft. or KW (total)) (psi (complete boiler))

A
B
C
D
E
F

