

ENGINE N^o 1562.

BOILER CALCULATIONS

SHIPBUILDERS:-			TOTAL HEATING SURFACE 4030.6		
VARD N ^o			TOTAL GRATE SURFACE (OIL BURNING)		
BOILER BUILDERS			WORKING PRESSURE 180 LBS/IN ²		
ENGINE N ^o			N ^o OF BOILERS Two		
MATERIAL :- STEEL			DIAMETER 13'-6" MEAN		
[EXCEPT TUBES OF IRON]			LENGTH 11'-0" MEAN		
SHELL LONG JOINT	PLATE	$8 - \frac{1}{8}"$	85.937%	C.C. SIDES	$\frac{75(21-1)^2}{9\frac{3}{4}^2 + 8\frac{7}{16}^2}$ 184 LBS.
	RIVET	$\frac{8}{994 \times 5 \times 23 \times 1.875}$	86.94%	STAYS FOR DO	$\frac{(1\frac{5}{8} - 267)^2 \times 8250}{9\frac{3}{4} \times 8\frac{7}{16} - 1.7}$ 189 LBS.
	COMBINED	$\frac{8 \times \frac{1}{16} \times 29}{(8 - 2\frac{1}{4}) + (\frac{994 \times 23 \times 1.875}{8 \times \frac{1}{16} \times 29})}$	89.26%	C.C. BACKS	$\frac{75(20-1)^2}{8\frac{3}{4}^2 + 8\frac{1}{2}^2}$ 182 LBS.
	MAX: PITCH	$(6 \times \frac{1}{16}) + 1\frac{5}{8}$	8"	STAYS FOR DO	$\frac{(1\frac{5}{8} - 267)^2 \times 8250}{8\frac{3}{4} \times 8\frac{1}{2} - 1.7}$ 209 LBS.
SHELL PLATE		$29(34-2) \times 85.937$	180.19 LBS	C.C. TOPS	$\frac{75(21-1)^2}{9\frac{3}{4}^2 + 8\frac{7}{16}^2}$ 184 LBS.
V.		$\frac{160\frac{15}{16} \times 2.75}{(2 \times 8) + (1.15 \times 1\frac{1}{8})}$	$2\frac{29}{32}$ "	STAYS FOR DO	$\frac{(1\frac{5}{8} - 267)^2 \times 8250}{(9\frac{3}{4} \times 8\frac{7}{16}) - 1.7}$ 189 LBS.
VI		$(165 \times 8) + (67 \times 1\frac{1}{8})$	$2\frac{3}{32}$ "	GIRDERS	$\frac{495 \times 3 \times 8\frac{1}{2}^2 \times 40}{4(31\frac{19}{32} - 9\frac{3}{4}) 31\frac{19}{32} \times 8\frac{7}{16}}$ 183 LBS.
OUTER STRAP		$625 \times \frac{1}{16} \times (8 - 1\frac{1}{8})$	$\frac{13}{16}$ "	B.E. BOTTOM	$\frac{86(27-1)^2}{14\frac{3}{4} + 8\frac{3}{4}}$ 195 LBS.
INNER STRAP		$8 - 2\frac{1}{4}$ $D^o + \frac{1}{8}$	$\frac{15}{16}$ "	MARGINAL STAYS	$\frac{(1\frac{5}{8} - 267)^2 \times 8250}{(8 \times 10\frac{3}{8}) - 1.7}$ 185 LBS.
CIRC. JOINT PLATE		$\frac{3.438 - 1\frac{1}{8}}{3.438}$	67.27%	TOP ROW	$\frac{(1\frac{3}{4} - 267)^2 \times 8250}{(11\frac{3}{8} \times 8\frac{3}{4}) - 2}$ 186 LBS.
CIRC. JOINT RIVET		$\frac{994 \times 2 \times 23}{3.438 \times 1\frac{1}{16} \times 29}$	43.16%	CORNER	$\frac{(1\frac{3}{4} - 267)^2 \times 8250}{(11\frac{7}{8} \times 7\frac{1}{4}) - 2}$ 215 LBS.
V.		$(33 \times 3.438) + (67 \times 1\frac{1}{8})$	$1\frac{29}{32}$ "	STAY TUBES	$\frac{1.98 \times 2 \times 7500}{(179.59) - 29.75}$ 198 LBS.
FURNACES		$480(15\frac{1}{2} - 1)$	183 LBS.	CORNER	$\frac{1.98 \times 7500}{(10\frac{1}{4} \times 8\frac{1}{2}) - 21.1}$ 225 LBS.
F. TUBE PLATE		$\frac{37\frac{27}{32}}{52(32-1)^2}$	186 LBS.	TOP ROW	$\frac{1.98 \times 7500}{(11\frac{1}{4} \times 8\frac{1}{2}) - 21.1}$ 199 LBS.
B. TUBE PLATE		$\frac{14^2 + 8\frac{1}{2}^2}{38(25-1)^2}$	194 LBS.	SIDE ROW	$\frac{1.5 \times 7500}{(10\frac{5}{8} \times 8\frac{1}{2}) - 35.3}$ 204 LBS.
TOP END PLATE		$\frac{10\frac{5}{8}^2}{96(35-1)^2}$	182 LBS.	CENTRE	$\frac{50}{42\frac{3}{16}} [10(21-1) - 29]$ 202 LBS.
STAYS FOR DO.		$\frac{18\frac{1}{2}^2 + 16\frac{5}{8}^2}{(2\frac{3}{4} - 34)^2 \times 9500}$	183 LBS.	C.C. BOTTOM	
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