

# PENNSYLVANIA RAILROAD COMPANY.

PHILADELPHIA, BALTIMORE & WASHINGTON RAILROAD COMPANY.  
NORTHERN CENTRAL RAILWAY COMPANY.  
WEST JERSEY & SEASHORE RAILROAD COMPANY.

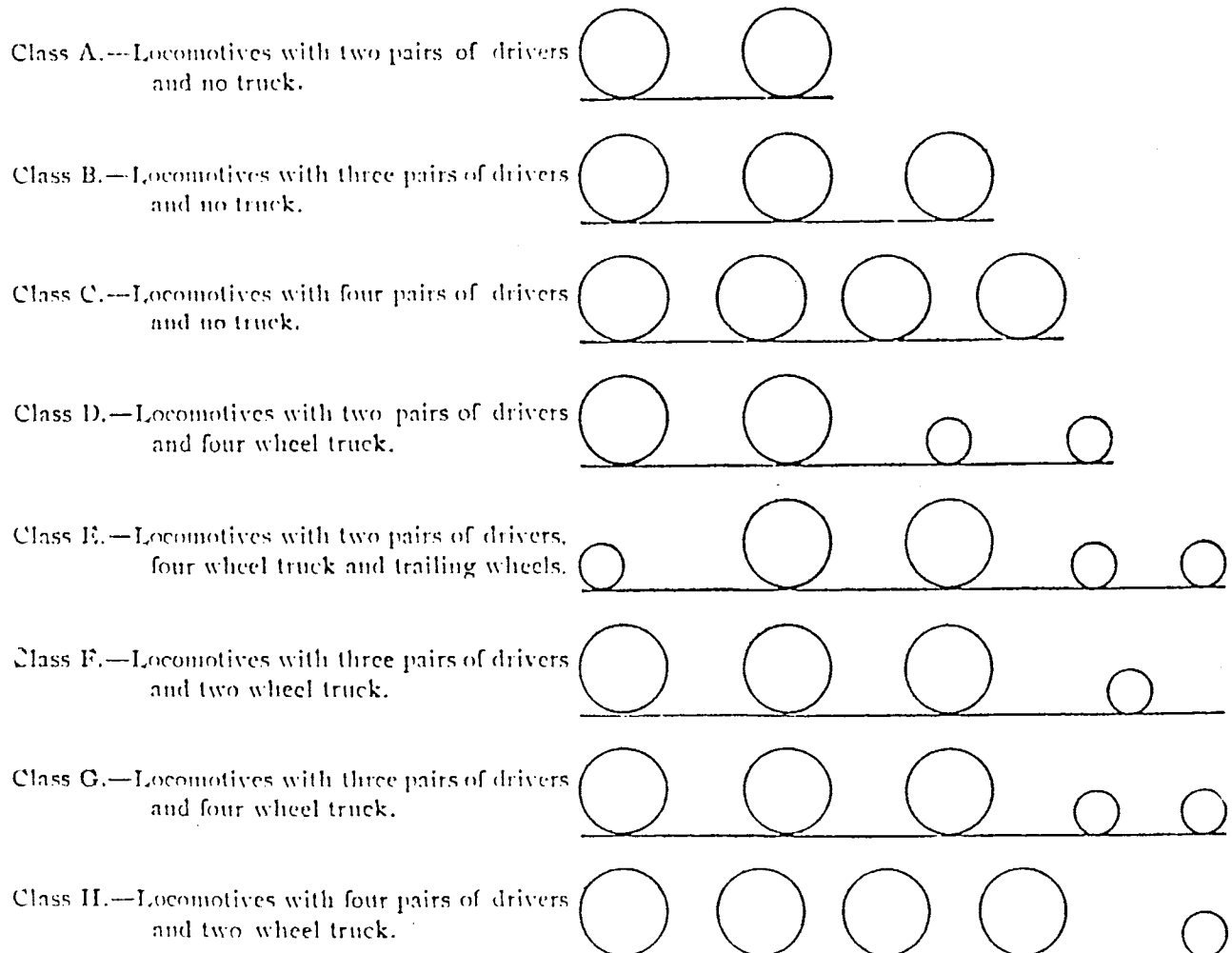
No. 109—C.

## CLASSIFICATION AND DESCRIPTION OF LOCOMOTIVES.

(SUPERSEDING CLASSIFICATION AND DESCRIPTION NO. 109 B, DATED MAY 1ST, 1902.)

For the convenience of the Motive Power Department and to more clearly designate the different classes of locomotives in the equipment, it has been found necessary to abandon the old alphabetical classification and substitute a new classification, using a primary letter to designate the type, numbers to designate the different classes of any type, and small suffix letters to designate modifications of any particular class of locomotives.

In this classification the locomotives are grouped into typical classes according to the number of wheels used under them, irrespective of the service for which they are intended, as follows:—



Under these eight general types the different classes of locomotives are classified as follows :

- Class A 1, formerly class Q, 44" drivers.
- Class A 2, formerly class Q, 50" drivers, with tender.
- Class A 2 a, formerly class Q, 50" drivers, without tender.
- Class A 3, formerly class U.
- Class A 3 a.
  
- Class B 1, formerly class F. (Now out of existence.)
- Class B 2, formerly class H. (Now out of existence.)
- Class B 3, formerly class M, old type.
- Class B 4, formerly class M, type of 1891.
- Class B 4 a, formerly class M, type of 1893.
- Class B 5, formerly class I, converted into six-wheel shifting engines.
- \*Class B 6.
- Class B 7, formerly class H 3, converted into six wheel shifting engines.
- Class B 7 a, formerly class H 3 a, converted into six-wheel shifting engines.
- Class B 8.
  
- Class C, none of this class has been built.
  
- Class D 1, formerly class A bit. (Now out of existence.)
- Class D 2, formerly class B. (Now out of existence.)
- Class D 2 a, formerly class BA.
- Class D 3, formerly class C bit.
- Class D 4, formerly class C anth.
- Class D 4 a, formerly class CA anth. (Now out of existence.)
- Class D 5, formerly class G. (Now out of existence.)
- Class D 6, formerly class K, 78" drivers. (Now out of existence.)
- Class D 6 a, formerly class K, 72" drivers.
- Class D 6 b, formerly class K, 72" drivers. (68" drivers substituted for 72" drivers.)
- Class D 7, formerly class A anth., 68" drivers.
- Class D 7 a, formerly class A anth., 62" drivers.
- Class D 8, formerly class N.
- Class D 8 a, formerly class O, 130 lbs.
- Class D 9, formerly class O, 160 lbs., 54" boiler, 62" drivers. (Now out of existence.)
- Class D 9 a, formerly class O, 160 lbs., 54" boiler, 68" drivers. (Now out of existence.)
- Class D 10, formerly class O, 160 lbs., 57" boiler, 62" drivers.
- Class D 10 a, formerly class O, 160 lbs., 57" boiler, 68" drivers.
- Class D 11, formerly class P, 140 lbs., 62" drivers.
- Class D 11 a, formerly class P, 140 lbs., 68" drivers.
- Class D 12, formerly class P, 160 lbs., 54" boiler, 62" drivers. (Now out of existence.)
- Class D 12 a, formerly class P, 160 lbs., 54" boiler, 68" drivers. (Now out of existence.)
- Class D 13, formerly class P, 160 lbs., 57" boiler, 62" drivers, type of 1892. (Now out of existence.)
- Class D 13 a, formerly class P, 160 lbs., 57" boiler, 68" drivers, type of 1892.
- Class D 13 b, formerly class P, 160 lbs., 57" boiler, 62" drivers, type of 1893. (Now out of existence.)
- Class D 13 c, formerly class P, 160 lbs., 57" boiler, 68" drivers, type of 1893.
- Class D 14, formerly class P, 175 lbs., 78" drivers.
- Class D 14 a, formerly class P, 175 lbs., 80" drivers.
- Class D 14 b, formerly class P, 175 lbs., 80" drivers. (68" drivers substituted for 80" drivers.)
- Class D 15, formerly class T compound.
- Class D 16, formerly class L, 68" drivers.
- Class D 16 a, formerly class L, 80" drivers.
- Class D 16 b,

Class D 16 c,  
Class D 16 d,

Class E 1, (Now out of existence.)  
Class E 1 a, formerly Eng. No. 269.  
Class E 2,  
Class E 2 a,  
\*Class E 2 b,  
Class E 3,  
Class E 3 a,

Class F 1, formerly known as mogul simple.  
Class F 1 a,  
Class F 2, formerly known as mogul compound. (Now out of existence.)  
Class F 3,  
Class F 3 a, (None of this class has been built.)  
Class F 3 b,  
Class F 3 c,

Class G 1, formerly class D. (Now out of existence.)  
Class G 1 a, formerly class DE. (Now out of existence.)  
Class G 2, formerly class E.  
\*Class G 3, formerly class X, 68" drivers.  
\*Class G 3 a, formerly class X, 62" drivers.  
Class G 4,  
\*Class G 4 a,  
\*Class G 4 b,

Class H 1, formerly class I.  
\*Class H 2, formerly class S.  
Class H 3, formerly class R, built prior to December, 1889.  
Class H 3 a, formerly class R, built after December, 1889.  
Class H 3 b, formerly class R, type of 1893.  
\*Class H 3 c,  
Class H 3 d, (None of this class has been built.)  
Class H 3 e, (None of this class has been built.)  
Class H 3 f, (None of this class has been built.)  
\*Class H 4,  
Class H 5,  
Class H 6,  
Class H 6 a,  
Class H 7, (None of this class has been built.)

None of the classes marked thus \* have been built for lines east of Pittsburgh.

Future modifications of any of the existing classes will be designated by small suffix letters as previously explained, while entirely new classes of any particular type will be designated by the proper primary letters and numerals.

The principal dimensions and characteristics of the different classes of locomotives are given on succeeding pages, on which are also given both the old and present classification letters.

A. W. GIBBS,  
*General Superintendent Motive Power.*

OFFICE OF GENERAL SUPERINTENDENT MOTIVE POWER, }  
ALTOONA, PA. March 1st, 1904. }

PRESENT CLASSIFICATION.		A 1.	A 2	A 2a	A 3	A 3a		
OLD CLASSIFICATION.		Q.	Q	Q	U			
		44" DRIVERS.	50" DRIVERS. With Tender.	50" DRIVERS. Without Tend.				
1	No. of Pairs of Driving Wheels,	2	2	2	2	2		1
2	Diam. of Driving Wheels,	44"	50"	50"	50"	50"		2
3	Size of Driving Axle Journals,	7 1/4" D x 7 1/2" L.	7 1/4" D x 7 1/2" L.	7 1/4" D x 7 1/2" L.	8" D x 7 1/2" L.	8" D x 7 1/2" L.		3
4	Length of Driving Wheel Base,	7' 0"	7' 0"	7' 0"	7' 0"	7' 0"		4
5	Total Wheel Base of Engine,	7' 0"	7' 0"	7' 0"	7' 0"	7' 0"		5
6	Total Wheel Base of Engine & Tender,	No Tender.	31' 7 1/4"	No Tender.	37' 1"	Saddle Tank		6
7	No. of Wheels in Engine Truck,							7
8	Diam. of Wheels in Engine Truck,							8
9	Size of Engine Truck Axle Journals,							9
10	Spread of Cylinders,	81"	81"	81"	84"	84"		10
11	Size of Cylinders,	15" x 22"	15" x 24"	15" x 24"	17" x 24"	17" x 24"		11
12	Steam Ports,	1" x 12"	1" x 12"	1" x 12"	1 1/4" x 15 1/2"	1 1/4" x 15 1/2"		12
13	Exhaust Ports,	2" x 12"	2" x 12"	2" x 12"	2 1/4" x 15 1/2"	2 1/4" x 15 1/2"		13
14	Travel of Valve,	4"	4"	4"	5 1/4"	5 1/4"		14
15	Lap of Valve,	3/4"	3/4"	3/4"	3/4"	3/4"		15
16	Type of Boiler,	Straight with Radial Stays.	Straight with Radial Stays.	Straight with Radial Stays.	Belpaire	Belpaire.		16
17	Min. Internal Diam. of Boiler,	42 3/4"	42 3/4"	42 3/4"	51 1/4"	51 1/4"		17
18	Number of Tubes,	97	97	97	144	144		18
19	Outside Diam. of Tubes,	2"	2"	2"	2"	2"		19
20	Length of Tubes bet. Tube Sheets,	125 1/4"	129 3/4"	129 3/4"	128 1/4"	128 1/4"		20
21	Fire Area through Tubes, sq. ft.,	1.6	1.6	1.6	2.4	2.4		21
22	Size of Fire Box inside,	34 1/4" x 50 1/4"	34 1/4" x 50 1/4"	34 1/4" x 50 1/4"	34 1/4" x 59 1/4"	34 1/4" x 59 1/4"		22
23	Fire Grate Area, sq. ft.,	12.25	12.24	12.24	14.25	14.25		23
24	Ext. Heating Surface of Tubes, sq. ft.,	531.4	549.1	549.1	809.75	809.75		24
25	Heating Surface of Fire Box, sq. ft.,	63.0	52.9	52.9	90.10	90.10		25
26	Total Heating Surface of Boiler, sq. ft.,	594.4	602.0	602.0	899.85	899.85		26
27	Steam Pressure per square inch, lbs.,	125	125	125	160	160		27
28	No. of Wheels under Tender,		8		8			28
29	Diam. of Wheels under Tender,		30"		33"			29
30	Size of Tender Truck Axle Journals,		4 1/4" x 8"		4 1/4" x 8"			30
31	Wt. of Engine Empty, lbs.,	52200	60000	58530	72500			31
32	Wt. on Truck in Working Order, lbs.,							32
33	Wt. on 1st pair of Drivers, lbs.,	33100	35100	32400	36700	45000		33
34	Wt. on 2d pair of Drivers, lbs.,	30100	34200	37600	43500	53000		34
35	Wt. on 3d pair of Drivers, lbs.,							35
36	Wt. on 4th pair of Drivers, lbs.,							36
37	Wt. of Engine in Work'g Order, lbs.,	63500	69600	70000	80200	98000		37
38	Wt. of Tender Loaded, lbs.,		59700		61150			38
39	Ratio of Heat'g Surf. to Grate Surface,	48.5	49.1	49.1	63.1	63.1		39
40	Ratio of Ext'l Flue Heating Surface } to Fire Box Heating Surface,	8.4	10.3	10.3	9.0	9.0		40
41	Tractive Power per lb. of M. E. Press.,	112.5	108.0	108.0	138.7	138.7		41
42	Tractive Power with M. E. Pressure } equal to 1/2 of Boiler Pressure,	11250	10800	10800	17750	17750		42
43								43
44								44
45								45
46								46

	PRESENT CLASSIFICATION.	B 1.	B 2.	B 3.	B 4.	B 4 a.	B 5.	B 6.	
	OLD CLASSIFICATION.	F.	H.	M. Old Type.	M. Type of 1891.	M. Type of 1893.	Modified. I.		
1	No. of Pairs of Driving Wheels,	3	3	3	3	3	3	3	1
2	Diam. of Driving Wheels,	44"	44"	50"	50"	50"	50"	50"	2
3	Size of Driving Axle Journals,	6½"D x 7½"L	6½"D x 7½"L	7½"D x 7½"L	8"D x 7½"L	8"D x 7½"L	6½"D x 7½"L	8½"D x 12"L	3
4	Length of Driving Wheel Base,	9' 0"	9' 10"	10' 8"	10' 7"	10' 7"	9' 0"	11' 0"	4
5	Total Wheel Base of Engine,	9' 0"	9' 10"	10' 8"	10' 7"	10' 7"	9' 0"	11' 0"	5
6	Total Wheel Base of Eng. & Tender,	No Tender.	34' 11½"	34' 11½"	41' 6½"	41' 6½"	39' 0½"	48' 3½"	6
7	No. of Wheels in Engine Truck,								7
8	Diam. of Wheels in Engine Truck,								8
9	Size of Engine Truck Axle Journals,								9
10	Spread of Cylinders,	81"	81"	84"	84"	84"	84"	80"	10
11	Size of Cylinders,	15"x18"	15"x22"	10"x24"	10"x24"	10"x24"	20"x24"	22"x24"	11
12	Steam Ports,	1"x12"	1"x12"	1½"x15½"	1½"x15½"	1½"x15½"	1½"x17½"	18" Piston V. 7" Wide.	12
13	Exhaust Ports,	2"x12"	2"x12"	2½"x15½"	2½"x15½"	2½"x15½"	2½"x17½"		13
14	Travel of Valve,	4"	4"	5"	5"	5"	5"	5"	14
15	Lap of Valve,	¾"	¾"	¾"	¾"	¾"	¾"	¾"	15
16	Type of Boiler,	Straight with Crown Bars.	Straight with Crown Bars.	Altoona.	Belpaire.	Belpaire.	Altoona.	Belpaire, Sloping Top.	16
17	Min. Internal Diam. Boiler,	42½"	44½"	51½"	57"	57"	53½"	67½"	17
18	Number of Tubes,	89	91	119	128	128	138	325	18
19	Outside Diam. of Tubes,	2½"	2½"	2½"	2½"	2½"	2½"	2"	19
20	Length of Tubes bet. Tube Sheets,	149½"	156½"	169½"	177"	177½"	153½"	166½"	20
21	Fire Area through Tubes, sq. ft.,	1.93	2.51	3.29	3.53	3.53	3.75	5.39	21
22	Size of Fire Box, inside,	35"x44½"	35"x54½"	34½"x62½"	34½"x62½"	34½"x74½"	34½"x90"	66"x90"	22
23	Fire Grate Area, sq. ft.,	10.7	13.2	15.0	14.94	17.82	23.0	41.25	23
24	Ext. Heating Surface of Tubes, sq. ft.,	651.22	770.13	1102.07	1235.70	1235.70	1168.66	2343.00	24
25	Heating Surface of Fire Box, sq. ft.,	61.29	79.11	92.96	97.5	117.38	100.91	152.10	25
26	Total Heating Surface of Boiler, sq. ft.,	712.51	855.24	1195.03	1333.2	1353.08	1259.56	2495.10	26
27	Steam Pressure per square inch, lbs.,	125	125	125	160	160	125	205	27
28	No. of Wheels under Tender,		8	8	8	8	8	8	28
29	Diam. of Wheels under Tender,		30"	33"	33"	33"	33"	33"	29
30	Size of Tender Truck Axle Journals,		3½"x7"	4½"x8"	4½"x8"	4½"x8"	3½"x7"	5½"x10"	30
31	Wt. of Engine Empty, lbs.,	58500	57350	77000	94600	97000	81300	146000	31
32	Wt. on Truck in Working Order, lbs.,								32
33	Wt. on 1st pair of Drivers, lbs.,	19500	19700	33400	33750	36300	29400	60000	33
34	Wt. on 2d pair of Drivers, lbs.,	26070	22270	29500	38800	37400	29750	59500	34
35	Wt. on 3d pair of Drivers, lbs.,	25730	22730	24600	35550	36300	31850	50500	35
36	Wt. on 4th pair of Drivers, lbs.,								36
37	Wt. of Engine in Work'g Order, lbs.,	71300	61700	87500	108100	110000	91000	170000	37
38	Wt. of Tender Loaded, lbs.,		44800	42200	61150	70000	61150	132500	38
39	Ratio of Heat'g Surf. to Grate Surface,	66.5	64.8	79.7	89.2	75.9	54.7	60.4	39
40	Ratio of Ext'l Flue Heating Surface to Fire Box Heating Surface,	10.6	9.8	11.8	12.0	10.5	11.4	15.4	40
41	Tractive Power per lb. of M. E. Press.,	92.0	112.5	173.2	173.2	173.2	192.0	207.4	41
42	Tractive Power with M. E. Pressure equal to ¼ of Boiler Pressure,	9200	11250	17330	22170	22170	19200	34020	42
43	Diameter of Trailing Wheels,								43
44	Size of Trailing Axle Journal,								44
45									45
46									46

	PRESENT CLASSIFICATION.	B 7	B 7 a	B 8				
	OLD CLASSIFICATION.	MODIFIED. H 3	MODIFIED. H 3 a					
1	No. of Pairs of Driving Wheels,	3	3	3				1
2	Diam. of Driving Wheels,	50"	50"	50"				2
3	Size of Driving Axle Journals,	8" D x 8 1/2" L	8" D x 8 1/2" L	8 3/4" D x 12" L				3
4	Length of Driving Wheel Base,	9' 3"	9' 3"	11' 6"				4
5	Total Wheel Base of Engine,	9' 3"	9' 3"	11' 6"				5
6	Total Wheel Base of Eng. & Tender,	41' 10"	41' 10"	40' 6 1/2"				6
7	No. of Wheels in Engine Truck,							7
8	Diam. of Wheels in Engine Truck,							8
9	Size of Engine Truck Axle Journals,							9
10	Spread of Cylinders,	80"	80"	86"				10
11	Size of Cylinders,	20" x 24"	20" x 24"	20" x 24"				11
12	Steam Ports,	1 1/4" x 17 1/4"	1 1/4" x 17 1/4"	1 1/4" x 15 1/2"				12
13	Exhaust Ports,	2 1/2" x 17 1/4"	2 1/2" x 17 1/4"	2 1/2" x 15 1/2"				13
14	Travel of Valve,	5"	5"	5"				14
15	Lap of Valve,	3/4"	3/4"	3/4"				15
16	Type of Boiler,	Belpaire.	Belpaire.	Belpaire Steeping Top				16
17	Min. Internal Diam. Boiler,	59"	60"	60"				17
18	Number of Tubes,	183	174	247				18
19	Outside Diam. of Tubes,	2 1/2"	2 1/2"	2"				19
20	Length of Tubes bet. Tube Sheets,	156 1/4"	159"	163 1/2"				20
21	Fire Area through Tubes, sq. ft.,	5.0	3.8	4.13				21
22	Size of Fire Box inside,	42" x 107"	42" x 108"	60" x 69"				22
23	Fire Grate Area, sq. ft.,	31.1	31.5	31.62				23
24	Ext. Heating Surface of Tubes, sq. ft.,	1561.24	1358.0	1762.1				24
25	Heating Surface of Fire Box, sq. ft.,	166.8	140.3	106.1				25
26	Total Heating Surface of Boiler, sq. ft.,	1731.04	1498.3	1868.2				26
27	Steam Pressure per square inch, lbs.,	140	150	205				27
28	No. of Wheels under Tender,	8	8	8				28
29	Diam. of Wheels under Tender,	33"	33"	33"				29
30	Size of Tender Truck Axle Journals,	4 1/2" x 8"	4 1/2" x 8"	5 1/2" x 10"				30
31	Wt. of Engine Empty, lbs.,		108900	128900				31
32	Wt. on Truck in Working Order, lbs.,							32
33	Wt. on 1st pair of Drivers, lbs.,		37500	45900				33
34	Wt. on 2d pair of Drivers, lbs.,		35100	52600				34
35	Wt. on 3d pair of Drivers, lbs.,		50000	45600				35
36	Wt. on 4th pair of Drivers, lbs.,							36
37	Wt. of Engine in Work'g Order, lbs.,		122600	144109				37
38	Wt. of Tender Loaded, lbs.,	80000	80000					38
39	Ratio of Heat'g Surf. to Grate Surface,	55.6	47.5	59.1				39
40	Ratio of Ext'l Flue Heating Surface to Fire Box Heating Surface,	9.4	9.6	16.6				40
41	Tractive Power per lb. of M. E. Press.,	192	192	171.4				41
42	Tractive Power with M. E. Pressure equal to 1/2 of Boiler Pressure,	21500	23040	28114				42
43								43
44								44
45								45
46								46

PRESENT CLASSIFICATION.		D 1.	D 2.	D 2 a.	D 3.	D 4.	D 4 a.	D 5.	
OLD CLASSIFICATION.		A. BITUMINOUS.	B.	BA.	C. BITUMINOUS.	C ANTH.	CA Anth.	G.	
1	No. of Pairs of Driving Wheels,	2	2	2	2	2	2	2	1
2	Diam. of Driving Wheels,	63"	62"	68"	62"	62"	68"	50"	2
3	Size of Driving Axle Journals,	7"D x 7 1/2"L	7"D x 7 1/2"L	7"D x 7 1/2"L	7"D x 7 1/2"L	7"D x 7 1/2"L	7"D x 7 1/2"L	9 1/2"D x 7 1/2"L	3
4	Length of Driving Wheel Base,	8' 0"	8' 0"	8' 0"	8' 0"	8' 8"	8' 0"	7' 0"	4
5	Total Wheel Base of Engine,	22' 5 1/2"	22' 5 1/2"	22' 5 1/2"	22' 5 1/2"	22' 5 1/2"	22' 5 1/2"	10' 0 1/2"	5
6	Total Wheel Base of Eng. & Tender,	44' 6 1/2"	44' 6 1/2"	44' 6 1/2"	44' 0 1/2"	46' 10 1/2"	46' 10 1/2"	40' 6 1/2"	6
7	No. of Wheels in Engine Truck,	4	4	4	4	4	4	4	7
8	Diam. of Wheels in Engine Truck,	30"	28"	30"	28"	28"	30"	20"	8
9	Size of Engine Truck Axle Journals,	4 1/2" x 7 1/2"	4 1/2" x 7 1/2"	4 1/2" x 7 1/2"	4 1/2" x 7 1/2"	4 1/2" x 7 1/2"	4 1/2" x 7 1/2"	4 1/2" x 7 1/2"	9
10	Spread of Cylinders,	81"	81"	81"	81"	81"	81"	81"	10
11	Size of Cylinders,	17"x24"	18"x24"	18"x24"	17"x24"	17"x24"	17"x24"	15"x22"	11
12	Steam Ports,	1 1/2"x16"	1 1/2"x16"	1 1/2"x16"	1 1/2"x10"	1 1/2"x16"	1 1/2"x16"	1"x12"	12
13	Exhaust Ports,	2 1/2"x16"	2 1/2"x16"	2 1/2"x16"	2 1/2"x16"	2 1/2"x16"	2 1/2"x16"	2"x12"	13
14	Travel of Valve,	5"	5"	5"	5"	5"	5"	4"	14
15	Lap of Valve,	1"	1"	1"	1"	1"	1"	1"	15
16	Type of Boiler,	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Alraight. Crown Bars.	16
17	Min. Internal Diam. Boiler,	48 1/2"	48 1/2"	48 1/2"	48 1/2"	48 1/2"	48 1/2"	44 1/2"	17
18	Number of Tubes,	142	155	155	155	183	183	130	18
19	Outside Diam. of Tubes,	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2"	2"	2"	19
20	Length of Tubes bet. Tube Sheets,	131 1/2"	127 1/2"	127 1/2"	127 1/2"	125 1/2"	125 1/2"	115"	20
21	Fire Area through Tubes, sq. ft.,	3.16	3.37	3.37	3.37	3.05	3.05	2.17	21
22	Size of Fire Box, inside,	35"x66 1/2"	35"x72 1/2"	35"x72 1/2"	35"x72 1/2"	34 1/2"x110 1/2"	34 1/2" x 110 1/2"	35"x54 1/2"	22
23	Fire Grate Area, sq. ft.,	16.1	17.6	17.6	17.6	29.13	29.13	13.3	23
24	Ext. Heating Surface of Tubes, sq. ft.,	920.52	941.87	941.87	941.87	1002.60	1002.60	652.31	24
25	Heating Surface of Fire Box, sq. ft.,	131.72	115.11	115.11	115.11	155.55	155.55	69.04	25
26	Total Heating Surface of Boiler, sq. ft.,	1052.24	1056.98	1056.98	1056.98	1158.15	1158.15	721.35	26
27	Steam Pressure per square inch, lbs.,	125	125	125	125	125	125	125	27
28	No. of Wheels under Tender,	8	8	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	33"	33"	33"	33"	33"	33"	33"	29
30	Size of Tender Truck Axle Journals,	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 9"	3 1/2" x 7"	30
31	Wt. of Engine Empty, lbs.,	69000	72300	73900	70200	72900	73000	59200	31
32	Wt. on Truck in Working Order, lbs.,	29850	28000	28450	28150	25600	26540	24500	32
33	Wt. on 1st pair of Drivers, lbs.,	24690	27300	28330	26880	29160	28410	20500	33
34	Wt. on 2d pair of Drivers, lbs.,	23170	25200	25420	21070	27040	27110	20200	34
35	Wt. on 3d pair of Drivers, lbs.,								35
36	Wt. on 4th pair of Drivers, lbs.,								36
37	Wt. of Engine in Work'g Order, lbs.,	77700	80500	82200	79100	81800	82000	65200	37
38	Wt. of Tender Loaded, lbs.,	60000	60000	60000	60000	60000	60000	40800	38
39	Ratio of Heat'g Surf. to Grate Surface,	65.4	60.1	60.1	60.1	39.8	39.8	54.2	39
40	Ratio of Ext'l Fine Heating Surface } to Fire Box Heating Surface, }	7.0	8.2	8.2	8.2	6.4	6.4	9.4	40
41	Tractive Power per lb. of M. E. Press.,	102.0	125.4	114.4	111.9	111.9	102.0	88.4	41
42	Tractive Power with M. E. Pressure } equal to 1/2 of Boiler Pressure, }	10200	12540	11440	11100	11100	10200	8840	42
43									43
44									44
45									45
46									46

PRESENT CLASSIFICATION.		D 6.	D 6 a.	D 6 b.	D 7.	D 7 a.	D 8.	D 8 a.	
OLD CLASSIFICATION.		K. 78" DRIVERS.	K. 72" DRIVERS.		A ANTR. 68" DRIVERS.	A ANTR. 62" DRIVERS.	N.	O 150 lbs.	
1	No. of Pairs of Driving Wheels,	2	2	2	2	2	2	2	1
2	Diam. of Driving Wheels,	78"	72"	68"	68"	62"	62"	62"	2
3	Size of Driving Axle Journals,	8"D x 10 1/2"L	8"D x 10 1/2"L	8"D x 10 1/2"L	8"D x 10 1/2"L	8"D x 10 1/2"L	8"D x 7 1/2"L	8"D x 7 1/2"L	3
4	Length of Driving Wheel Base,	7' 9"	7' 9"	7' 9"	7' 9"	7' 9"	8' 6"	8' 6"	4
5	Total Wheel Base of Engine,	22' 8"	22' 8"	22' 8"	22' 8 1/2"	22' 8 1/2"	23' 5 1/2"	23' 5 1/2"	5
6	Total Wheel Base of Engine & Tender,	47' 10"	47' 10"	47' 10"	47' 10"	47' 10"	45' 6 1/2"	45' 6 1/2"	6
7	No. of Wheels in Engine Truck,	4	4	4	4	4	4	4	7
8	Diam. of Wheels in Engine Truck,	33"	33"	33"	33"	33"	33"	33"	8
9	Size of Engine Truck Axle Journals,	5 1/2"x9"	5 1/2"x9"	5 1/2"x9"	5 1/2"x10"	5 1/2"x10"	5 1/2"x10"	5 1/2"x10"	9
10	Spread of Cylinders,	77"	77"	77"	77"	77"	77"	77"	10
11	Size of Cylinders,	18"x24"	18"x24"	18"x24"	17"x24"	17"x24"	17"x24"	18"x24"	11
12	Steam Ports,	1 1/2"x16 1/2"	1 1/2"x16 1/2"	1 1/2"x16 1/2"	1 1/2"x16"	1 1/2"x16"	1 1/2"x17 1/2"	1 1/2"x17 1/2"	12
13	Exhaust Ports,	3 1/2"x16 1/2"	3 1/2"x16 1/2"	3 1/2"x16 1/2"	2 1/2"x16"	2 1/2"x16"	2 1/2"x17 1/2"	2 1/2"x17 1/2"	13
14	Travel of Valve,	5 1/2"	5 1/2"	5 1/2"	5"	5"	4 1/2"	5"	14
15	Lap of Valve,	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1"	1"	15
16	Type of Boiler,	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	16
17	Min. Internal Diam. of Boiler,	49 1/2"	49 1/2"	49 1/2"	49 1/2"	49 1/2"	53 1/2"	53 1/2"	17
18	Number of Tubes,	201	201	201	201	201	193	193	18
19	Outside Diam. of Tubes,	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2 1/4"	2 1/4"	19
20	Length of Tubes bet. Tube Sheets,	130 1/2"	130 1/2"	130 1/2"	136 1/2"	136 1/2"	131 1/2"	131 1/2"	20
21	Fire Area through Tubes, sq. ft.,	2.0	2.0	2.0	2.0	2.0	4.21	4.21	21
22	Size of Fire Box inside,	41 1/2" x 119 1/2"	41 1/2" x 119 1/2"	41 1/2" x 119 1/2"	41 1/2" x 119 1/2"	41 1/2" x 119 1/2"	35" x 72 1/2"	35" x 72 1/2"	22
23	Fire Grate Area, sq. ft.,	34.8	34.8	34.8	34.8	34.8	17.6	17.0	23
24	Ext. Heating Surface of Tubes, sq. ft.,	1085.0	1085.0	1085.0	1134.0	1134.0	1250.0	1250.0	24
25	Heating Surface of Fire Box, sq. ft.,	155.0	155.0	155.0	155.0	155.0	142.0	142.0	25
26	Total Heating Surface of Boiler, sq. ft.,	1240.0	1240.0	1240.0	1289.0	1289.0	1392.0	1392.0	26
27	Steam Pressure per square inch, lbs.,	140	140	140	140	140	130	130	27
28	No. of Wheels under Tender,	8	8	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	33"	33"	33"	33"	33"	33"	33"	29
30	Size of Tender Truck Axle Journals,	4 1/2"x8"	4 1/2"x8"	4 1/2" x 8	4 1/2"x8"	4 1/2"x8"	4 1/2"x8"	4 1/2"x8"	30
31	Wt. of Engine Empty, lbs.,	87800	87800	87800	84100	88250	81700	82000	31
32	Wt. on Truck in Working Order, lbs.,	31800	31800	31800	29500	31150	33600	33600	32
33	Wt. on 1st pair of Drivers, lbs.,	32900	32900	32900	33100	32530	30800	31300	33
34	Wt. on 2d pair of Drivers, lbs.,	32000	32000	32000	30900	32650	26900	27000	34
35	Wt. on 3d pair of Drivers, lbs.,								35
36	Wt. on 4th pair of Drivers, lbs.,								36
37	Wt. of Engine in Work'g Order, lbs.,	96700	96700	96700	93500	96330	91300	91900	37
38	Wt. of Tender Loaded, lbs.,	60000	60000	60000	60000	60000	60000	60000	38
39	Ratio of Heat'g Surf. to Grate Surface,	35.6	35.6	35.6	37.0	37.0	79.0	79.0	39
40	Ratio of Ext'l Flue Heating Surface to Fire Box Heating Surface,	7.0	7.0	7.0	7.3	7.3	8.8	8.8	40
41	Tractive Power per lb. of M. E. Press.,	99.7	108.0	114.4	102.0	111.9	111.9	125.4	41
42	Tractive Power with M. E. Pressure equal to 1/2 of Boiler Pressure,	11170	12100	12807	11420	12530	11640	13040	42
43									43
44									44
45									45
46									46



	PRESENT CLASSIFICATION.	D 9.	D 9 a	D 10	D 10 a	D 11	D 11 a	D 12	
	OLD CLASSIFICATION.	O 160 lbs. 54" BOILER. 62" DRIVERS.	O 160 lbs. 54" BOILER. 68" DRIVERS.	O 160 lbs. 57" BOILER. 62" DRIVERS.	O 160 lbs. 57" BOILER. 68" DRIVERS.	P 110 lbs. 62" DRIVERS.	P 110 lbs. 68" DRIVERS.	P 160 lbs. 54" BOILER. 62" DRIVERS.	
1	No. of Pairs of Driving Wheels,	2	2	2	2	2	2	2	1
2	Diam. of Driving Wheels,	62"	68"	62"	68"	62"	68"	62"	2
3	Size of Driving Axle Journals,	8"D x 7 1/4"L	8"D x 7 1/4"L	8"D x 7 1/4"L	8"D x 7 1/4"L	8"D x 10 1/4"L	8"D x 11 1/4"L	8"D x 10 1/4"L	3
4	Length of Driving Wheel Base,	8' 0"	8' 0"	8' 0"	8' 0"	7' 9"	7' 9"	7' 0"	4
5	Total Wheel Base of Engine,	23' 5 1/2"	23' 5 1/2"	23' 5 1/2"	23' 5 1/2"	22' 8 1/2"	22' 8 1/2"	22' 8 1/2"	5
6	Total Wheel Base of Engine & Tender,	47' 4 1/2"	47' 4 1/2"	47' 4 1/2"	47' 4 1/2"	47' 10"	47' 10"	48' 7 1/2"	6
7	No. of Wheels in Engine Truck,	4	4	4	4	4	4	4	7
8	Diam. of Wheels in Engine Truck,	33"	33"	33"	33"	33"	33"	33"	8
9	Size of Engine Truck Axle Journals,	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	9
10	Spread of Cylinders,	77"	77"	77"	77"	77"	77"	77"	10
11	Size of Cylinders,	18" x 24"	18" x 24"	18" x 24"	18" x 24"	18 1/2" x 24"	18 1/2" x 24"	18 1/2" x 24"	11
12	Steam Ports,	1 1/4" x 17 1/4"	1 1/4" x 17 1/4"	1 1/4" x 17 1/4"	1 1/4" x 17 1/4"	1 1/4" x 17 1/4"	1 1/4" x 17 1/4"	1 1/4" x 17 1/4"	12
13	Exhaust Ports,	2 1/4" x 17 1/4"	2 1/4" x 17 1/4"	2 1/4" x 17 1/4"	2 1/4" x 17 1/4"	2 1/4" x 17 1/4"	2 1/4" x 17 1/4"	2 1/4" x 17 1/4"	13
14	Travel of Valve,	5"	5"	5"	5"	5"	5"	5"	14
15	Lap of Valve,	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	15
16	Type of Boiler,	Belpaire.	Belpaire.	Belpaire.	Belpaire.	Wagon Top. Crown Bars.	Wagon Top. Crown Bars.	Belpaire. Raked Top.	16
17	Min. Internal Diam. of Boiler,	53 1/4"	53 1/4"	56 1/4"	56 1/4"	53 1/4"	53 1/4"	53 1/4"	17
18	Number of Tubes,	195	195	190	190	240	240	210	18
19	Outside Diam. of Tubes,	2"	2"	2"	2"	2"	2"	2"	19
20	Length of Tubes bet. Tube Sheets,	136"	136"	136"	136"	130 1/2"	130 1/2"	136"	20
21	Fire Area through Tubes, sq. ft.,	3.26	3.26	3.27	3.27	4.0	4.0	3.5	21
22	Size of Fire Box inside,	35 1/4" x 72 1/2"	35 1/4" x 72 1/2"	34 1/4" x 72 1/2"	34 1/4" x 72 1/2"	41 1/2" x 119 1/2"	41 1/2" x 119 1/2"	40" x 119 1/2"	22
23	Fire Grate Area, sq. ft.,	17.6	17.6	17.34	17.34	34.8	34.8	33.25	23
24	Ext. Heating Surface of Tubes, sq. ft.,	1156.0	1156.0	1163.0	1163.0	1365.81	1365.81	1244.0	24
25	Heating Surface of Fire Box, sq. ft.,	127.6	127.6	93.0	93.0	164.39	164.39	138.0	25
26	Total Heating Surface of Boiler, sq. ft.,	1283.6	1283.6	1256.0	1256.0	1530.20	1530.20	1382.0	26
27	Steam Pressure per square inch, lbs.,	160	160	160	160	140	140	160	27
28	No. of Wheels under Tender,	8	8	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	33"	33"	33"	33"	33"	33"	33"	29
30	Size of Tender Truck Axle Journals,	4 1/4" x 8"	4 1/4" x 8"	4 1/4" x 8"	4 1/4" x 8"	4 1/4" x 8"	4 1/4" x 8"	4 1/4" x 8"	30
31	Wt. of Engine Empty, lbs.,	87350	88950	91750	93050	97900	90100	94850	31
32	Wt. on Truck in Working Order, lbs.,	36900	36850	37650	38200	34300	32800	33150	32
33	Wt. on 1st pair of Drivers, lbs.,	31100	31950	32700	32800	38200	34700	35900	33
34	Wt. on 2d pair of Drivers, lbs.,	28700	29500	32650	32600	36200	33100	36250	34
35	Wt. on 3d pair of Drivers, lbs.,								35
36	Wt. on 4th pair of Drivers, lbs.,								36
37	Wt. of Engine in Work'g Order, lbs.,	96700	98300	103000	103600	108700	100600	105300	37
38	Wt. of Tender Loaded, lbs.,	80000	80000	80000	80000	60000	60000	70000	38
39	Ratio of Heat'g Surf. to Grate Surface,	72.9	72.9	74.3	74.3	44.0	44.0	41.5	39
40	Ratio of Ext'l Flue Heating Surface } to Fire Box Heating Surface, }	9.0	9.0	12.5	12.5	8.3	8.3	9.0	40
41	Tractive Power per lb. of M. E. Press.,	125.4	114.3	125.4	114.3	132.4	120.8	132.4	41
42	Tractive Power with M. E. Pressure } equal to 2/3 of Boiler Pressure, }	16050	14630	16050	14630	14830	13530	16950	42
43									43
44									44
45									45
46									46

	PRESENT CLASSIFICATION.	D 12 a	D 13.	D 13 a.	D 13 b.	D 13 c.	D 14.	D 14 a.	
	OLD CLASSIFICATION.	P 160 lbs. 54" BOILER. 68" DRIVERS.	P 160 lbs. 57" BOILER. 62" DRIVERS. Type of 1892.	P 160 lbs. 57" BOILER. 63" DRIVERS. Type of 1892.	P 160 lbs. 57" BOILER. 62" DRIVERS. Type of 1893.	P 160 lbs. 57" BOILER. 68" DRIVERS. Type of 1893.	P 175 lbs. 78" DRIVERS.	P 175 lbs. 80" DRIVERS.	
1	No. of Pairs of Driving Wheels,	2	2	2	2	2	2	2	1
2	Diam. of Driving Wheels,	68"	62"	68"	62"	68"	78"	80"	2
3	Size of Driving Axle Journals,	8"D x 10 1/2"L	8"D x 10 1/2"L	8"D x 10 1/2"L	8 1/2"D x 10 1/2"L	8 1/2"D x 10 1/2"L	8 1/2"D x 10 1/2"L	8 1/2"D x 10 1/2"L	3
4	Length of Driving Wheel Base,	7' 9"	7' 9"	7' 9"	7' 9"	7' 9"	7' 9"	7' 9"	4
5	Total Wheel Base of Engine,	22' 8 1/2"	22' 8 1/2"	22' 8 1/2"	22' 8 1/2"	22' 8 1/2"	22' 8 1/2"	22' 9 1/2"	5
6	Total Wheel Base of Eng. & Tender,	48' 7 1/2"	48' 7 1/2"	48' 7 1/2"	48' 7 1/2"	48' 7 1/2"	48' 7 1/2"	40' 3 1/2"	6
7	No. of Wheels in Engine Truck,	4	4	4	4	4	4	4	7
8	Diam. of Wheels in Engine Truck,	33"	33"	33"	33"	33"	36"	36"	8
9	Size of Engine Truck Axle Journals,	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	9
10	Spread of Cylinders,	77"	77"	77"	77"	77"	77"	77"	10
11	Size of Cylinders,	18 1/2" x 24"	18 1/2" x 24"	18 1/2" x 24"	18 1/2" x 24"	18 1/2" x 24"	18 1/2" x 24"	19" x 24"	11
12	Steam Ports,	1 1/2" x 17 1/2"	1 1/2" x 17 1/2"	1 1/2" x 17 1/2"	1 1/2" x 17 1/2"	1 1/2" x 17 1/2"	1 1/2" x 17 1/2"	1 1/2" x 20"	12
13	Exhaust Ports,	2 1/2" x 17 1/2"	2 1/2" x 17 1/2"	2 1/2" x 17 1/2"	2 1/2" x 17 1/2"	2 1/2" x 17 1/2"	3" x 17 1/2"	3" x 20"	13
14	Travel of Valve,	5"	5"	5"	5"	5"	5 1/2"	6"	14
15	Lap of Valve,	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1 1/4"	15
16	Type of Boiler,	Belpaire Raised Top.	Belpaire.	Belpaire.	Belpaire.	Belpaire.	Belpaire.	Belpaire.	16
17	Min. Internal Diam. Boiler,	53 1/2"	56 1/2"	56 1/2"	56 1/2"	56 1/2"	56 1/2"	57"	17
18	Number of Tubes,	210	258	258	258	258	258	258	18
19	Outside Diam. of Tubes,	2"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	19
20	Length of Tubes bet. Tube Sheets,	136"	135 1/2"	135 1/2"	135 1/2"	135 1/2"	136"	136"	20
21	Fire Area through Tubes, sq. ft.,	3.5	3.72	3.72	3.72	3.72	3.72	3.72	21
22	Size of Fire Box, inside,	40" x 119 1/2"	40" x 119 1/2"	40" x 119 1/2"	40" x 119 1/2"	40" x 119 1/2"	40" x 119 1/2"	40" x 119 1/2"	22
23	Fire Grate Area, sq. ft.,	33.25	33.22	33.22	33.22	33.22	33.25	33.25	23
24	Ext. Heating Surface of Tubes, sq. ft.,	1244.0	1435.0	1435.0	1435.0	1435.0	1435.0	1435.0	24
25	Heating Surface of Fire Box, sq. ft.,	138.0	137.0	137.0	137.0	137.0	148.0	148.0	25
26	Total Heating Surface of Boiler, sq. ft.,	1382.0	1572.0	1572.0	1572.0	1572.0	1583.0	1583.0	26
27	Steam Pressure per square inch, lbs.,	160	175	175	175	175	175	175	27
28	No. of Wheels under Tender,	8	8	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	33"	33"	33"	33"	33"	33"	36"	29
30	Size of Tender Truck Axle Journals,	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	30
31	Wt. of Engine Empty, lbs.,	96100	99660	100900	100200	102400	111300	114500	31
32	Wt. on Truck in Working Order, lbs.,	33150	35000	35000	35800	35300	40000	39760	32
33	Wt. on 1st pair of Drivers, lbs.,	36500	37700	38950	38700	40700	42000	43500	33
34	Wt. on 2d pair of Drivers, lbs.,	36850	37000	38250	38200	37700	40600	43800	34
35	Wt. on 3d pair of Drivers, lbs.,								35
36	Wt. on 4th pair of Drivers, lbs.,								36
37	Wt. of Engine in Work'g Order, lbs.,	106500	109700	112200	112700	113700	122600	127050	37
38	Wt. of Tender Loaded, lbs.,	70000	70000	70000	70000	70000	70000	70000	38
39	Ratio of Heat'g Surf. to Grate Surface,	41.5	47.3	47.3	47.3	47.3	47.6	47.6	39
40	Ratio of Ext'l Flue Heating Surface } to Fire Box Heating Surface,	9.0	10.4	10.4	10.4	10.5	9.7	9.7	40
41	Tractive Power per lb. of M. E. Press.,	120.8	132.4	120.8	132.4	120.8	105.3	108.3	41
42	Tractive Power with M. E. Pressure } equal to 1/2 of Boiler Pressure,	15460	18540	16910	18540	16910	14740	15160	42
43									43
44									44
45									45
46									46

	PRESENT CLASSIFICATION.	D 14 b.	D 15.	D 16.	D 16 a.	D 16 b.	D 16 c.	D 16 d.	
	OLD CLASSIFICATION.		T COMPOUND.	L 68" DRIVERS. 1895.	L 80" DRIVERS. 1895.				
1	No. of Pairs of Driving Wheels,	2	2	2	2	2	2	2	1
2	Diam. of Driving Wheels,	68"	84"	68"	80"	68"	80"	80"	2
3	Size of Driving Axle Journals,	8½" D x 10¼" L	8½" D x 12¼" L	8½" D x 12¼" L	8½" D x 12¼" L	9½" D x 12¼" L	8½" D x 12¼" L	9½" D x 12¼" L	3
4	Length of Driving Wheel Base,	7' 9"	8' 0"	7' 9"	7' 9"	7' 9"	7' 9"	7' 9"	4
5	Total Wheel Base of Engine,	22' 9¼"	23' 11¼"	22' 9¼"	22' 9¼"	22' 9¼"	22' 9¼"	22' 9¼"	5
6	Total Wheel Base of Eng. & Tender,	49' 3¼"	48' 1"	50' 3¼"	50' 3¼"	50' 3¼"	50' 3¼"	50' 3¼"	6
7	No. of Wheels in Engine Truck,	4	4	4	4	4	4	4	7
8	Diam. of Wheels in Engine Truck,	30"	42"	33"	30"	33"	36"	30"	8
9	Size of Engine Truck Axle Journals,	5½" x 10"	6" 12"	5½" x 10"	5½" x 10"	5½" x 10"	5½" x 10"	5½" x 10"	9
10	Spread of Cylinders,	77"	79"	78"	78"	78"	78"	78"	10
11	Size of Cylinders,	19" x 24"	<small>H. P. 16½" x 20"</small> 18½" x 20"	18½" x 20"	18½" x 20"	18½" x 20"	18½" x 20"	18½" x 20"	11
12	Steam Ports,	1½" x 20"	2½" x 29"	1½" x 20"	1½" x 20"	1½" x 20"	1½" x 20"	1½" x 20"	12
13	Exhaust Ports,	3" x 20"	5½" x 29"	3" x 20"	3" x 20"	3" x 20"	3" x 20"	3" x 20"	13
14	Travel of Valve,	6"	7"	6"	6"	6"	6"	6"	14
15	Lap of Valve,	1½"	<small>H.P. 1½" x 20"</small> 1½"	1½"	1½"	1½"	1½"	1½"	15
16	Type of Boiler,	Belpaire.	Belpaire	Belpaire.	Belpaire.	Belpaire Sloping Top.	Belpaire Sloping Top.	Belpaire Sloping Top.	16
17	Min. Internal Diam. Boiler,	57"	59½"	58½"	58½"	58½"	58½"	58½"	17
18	Number of Tubes,	258	289	310	310	310	310	310	18
19	Outside Diam. of Tubes,	1½"	1½"	1½"	1½"	1½"	1½"	1½"	19
20	Length of Tubes bet. Tube Sheets,	136"	140½"	136½"	136½"	136½"	136½"	136½"	20
21	Fire Area through Tubes, sq. ft.,	3.72	4.6	4.48	4.48	4.48	4.48	4.48	21
22	Size of Fire Box, inside,	40" x 119½"	40" x 108"	40" x 119½"	40" x 119½"	40" x 119½"	40" x 119½"	40" x 119½"	22
23	Fire Grate Area, sq. ft.,	33.25	30.0	33.0	33.0	33.0	33.0	33.0	23
24	Ext. Heating Surface of Tubes, sq. ft.,	1435.0	1662.0	1746.6	1746.6	1734.0	1734.0	1734.0	24
25	Heating Surface of Fire Box, sq. ft.,	148.0	163.0	171.4	171.4	166.2	166.2	166.2	25
26	Total Heating Surface of Boiler, sq. ft.,	1583.0	1825.0	1918.0	1918.0	1900.2	1900.2	1900.2	26
27	Steam Pressure per square inch, lbs.,	175	205	185	185	185	185	185	27
28	No. of Wheels under Tender,	8	6	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	33"	42"	36"	36"	36"	36"	36"	29
30	Size of Tender Truck Axle Journals,	4½" x 8"	4½" x 9"	4½" x 8"	4½" x 8"	4½" x 8"	4½" x 8"	4½" x 8"	30
31	Wt. of Engine Empty, lbs.,	114500	130000	120900	120200	121800	121800	121900	31
32	Wt. on Truck in Working Order, lbs.,	39750	50300	41700	41400	40900	43800	44450	32
33	Wt. on 1st pair of Drivers, lbs.,	43500	48500	48300	48100	50400	48100	47650	33
34	Wt. on 2d pair of Drivers, lbs.,	43800	46700	45300	44700	46700	46800	45900	34
35	Wt. on 3d pair of Drivers, lbs.,								35
36	Wt. on 4th pair of Drivers, lbs.,								36
37	Wt. of Engine in Work'g Order, lbs.,	127050	145500	135300	134500	138000	138700	138000	37
38	Wt. of Tender Loaded, lbs.,	70000	70000	80000	80000	80000	80000	80000	38
39	Ratio of Heat'g Surf. to Grate Surface,	47.0	60.8	58.1	58.1	57.9	57.9	57.9	39
40	Ratio of Ext'l Flue Heating Surface } to Fire Box Heating Surface, }	9.7	10.2	10.1	10.1	10.05	10.05	10.05	40
41	Tractive Power per lb. of M. E. Press.,	127.4	126.8	130.8	111.2	130.8	111.2	111.2	41
42	Tractive Power with M. E. Pressure } equal to ½ of Boiler Pressure, }	17830	20800	19360	10160	10300	10460	10400	42
43									43
44									44
45									45
46									46

	PRESENT CLASSIFICATION.	E 1.	E 1 a.	E 2.	E 2 a.	E 2 b	E 3.	E 3 a.	
	OLD CLASSIFICATION.								
1	No. of Pairs of Driving Wheels,	2	2	2	2	2	2	2	1
2	Diam. of Driving Wheels,	80"	80"	80"	80"	80"	80"	80"	2
3	Size of Driving Axle Journals,	9 $\frac{1}{4}$ " D x 13 $\frac{1}{2}$ " L.	9 $\frac{1}{4}$ " D x 13 $\frac{1}{2}$ " L.	9 $\frac{1}{4}$ " D x 13 $\frac{1}{2}$ " L.	9 $\frac{1}{4}$ " D x 13 $\frac{1}{2}$ " L.	9 $\frac{1}{4}$ " D x 13 $\frac{1}{2}$ " L.	9 $\frac{1}{4}$ " D x 13 $\frac{1}{2}$ " L.	9 $\frac{1}{4}$ " D x 13 $\frac{1}{2}$ " L.	3
4	Length of Driving Wheel Base,	7' 5"	7' 5"	7' 5"	7' 5"	7' 5"	7' 5"	7' 5"	4
5	Total Wheel Base of Engine,	26' 6 $\frac{1}{2}$ "	30' 9 $\frac{1}{2}$ "	30' 9 $\frac{1}{2}$ "	30' 9 $\frac{1}{2}$ "	30' 9 $\frac{1}{2}$ "	30' 9 $\frac{1}{2}$ "	30' 9 $\frac{1}{2}$ "	5
6	Total Wheel Base of Eng. & Tender,	60' 5"	53' 9 $\frac{1}{8}$ "	60' 2 $\frac{1}{8}$ "	60' 2 $\frac{1}{8}$ "	60' 2 $\frac{1}{8}$ "	60' 2 $\frac{1}{8}$ "	60' 2 $\frac{1}{8}$ "	6
7	No. of Wheels in Engine Truck,	4	4	4	4	4	4	4	7
8	Diam. of Wheels in Engine Truck,	36"	30"	30"	30"	36"	30"	30"	8
9	Size of Engine Truck Axle Journals,	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	9
10	Spread of Cylinders,	85 $\frac{1}{2}$ "	85 $\frac{1}{2}$ "	85 $\frac{1}{2}$ "	85 $\frac{1}{2}$ "	85 $\frac{1}{2}$ "	85 $\frac{1}{2}$ "	85 $\frac{1}{2}$ "	10
11	Size of Cylinders,	20 $\frac{1}{2}$ " x 20"	20 $\frac{1}{2}$ " x 20"	20 $\frac{1}{2}$ " x 20"	20 $\frac{1}{2}$ " x 20"	20 $\frac{1}{2}$ " x 20"	22" x 20"	22" x 20"	11
12	Steam Ports,	1 $\frac{1}{2}$ " x 20"	1 $\frac{1}{2}$ " x 20"	1 $\frac{1}{2}$ " x 20"	1 $\frac{1}{2}$ " x 20"	1 $\frac{1}{2}$ " x 20"	1 $\frac{1}{2}$ " x 20"	1 $\frac{1}{2}$ " x 20"	12
13	Exhaust Ports,	3" x 20"	3" x 20"	3" x 20"	3" x 20"	3" x 20"	3" x 20"	3" x 20"	13
14	Travel of Valve,	7"	7"	7"	7"	7"	7"	7"	14
15	Lap of Valve,	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	15
16	Type of Boiler,	Belpaire. Woolen Type.	Radial Stay Wide Fire Box.	Radial Stay Wide Fire Box.	Belpaire. Wide Fire Box.	Belpaire. Wide Fire Box.	Radial Stay Wide Fire Box.	Belpaire. Wide Fire Box.	16
17	Min. Internal Diam. Boiler,	65 $\frac{1}{2}$ "	65 $\frac{1}{2}$ "	65 $\frac{1}{2}$ "	65 $\frac{1}{2}$ "	65 $\frac{1}{2}$ "	65 $\frac{1}{2}$ "	65 $\frac{1}{2}$ "	17
18	Number of Tubes,	353	290	315	315	315	315	315	18
19	Outside Diam. of Tubes,	1 $\frac{1}{2}$ "	2"	2"	2"	2"	2"	2"	19
20	Length of Tubes bet. Tube Sheets,	156"	180"	180"	180"	180"	180"	180"	20
21	Fire Area through Tubes, sq. ft.,	4.33	5.10	5.26	5.26	5.26	5.26	5.26	21
22	Size of Fire Box, inside,	102" x 96"	66" x 111"	72" x 111"	72" x 111"	72" x 111"	72" x 111"	72" x 111"	22
23	Fire Grate Area, sq. ft.,	68.0	50.8	55.5	55.5	55.5	55.5	55.5	23
24	Ext. Heating Surface of Tubes, sq. ft.,	2102.0	2278.0	2474.0	2474.0	2474.0	2474.0	2474.0	24
25	Heating Surface of Fire Box, sq. ft.,	218.0	152.0	166.0	166.0	166.0	166.0	166.0	25
26	Total Heating Surface of Boiler, sq. ft.,	2320.0	2430.0	2640.0	2640.0	2640.0	2640.0	2640.0	26
27	Steam Pressure per square inch, lbs.,	185	185	205	205	205	205	205	27
28	No. of Wheels under Tender,	6	6	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	42"	42"	36"	36"	36"	36"	36"	29
30	Size of Tender Truck Axle Journals,	5" x 9"	5" x 9"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	5 $\frac{1}{4}$ " x 10"	30
31	Wt. of Engine Empty, lbs.,	154700	150500	157000	162000	163100	158200	163100	31
32	Wt. on Truck in Working Order, lbs.,	38125	36335	36600	35500	33650	35000	33700	32
33	Wt. on 1st pair of Drivers, lbs.,	50250	49590	53700	55500	56750	55000	56700	33
34	Wt. on 2d pair of Drivers, lbs.,	51300	51105	55300	60900	61600	56800	61500	34
35	Wt. on 3d pair of Drivers, lbs.,	33775	32320	31000	31000	31150	31200	31200	35
36	Wt. on 4th pair of Drivers, lbs.,								36
37	Wt. of Engine in Work'g Order, lbs.,	173450	169350	176600	182000	183150	177800	183100	37
38	Wt. of Tender Loaded, lbs.,	90000	90000	132500	132500	143800	132500	132500	38
39	Ratio of Heat'g Surf. to Grate Surface,	34.2	47.8	47.56	47.56	47.56	47.56	47.56	39
40	Ratio of Ext'l Fire Heating Surface } to Fire Box Heating Surface,	9.6	14.9	14.9	14.9	14.9	14.9	14.9	40
41	Tractive Power per lb. of M. E. Press.,	136.6	136.6	136.6	136.6	136.6	157.3	157.3	41
42	Tractive Power with M. E. Pressure } equal to $\frac{1}{2}$ of Boiler Pressure,	20220	20220	22400	22400	22400	25800	25800	42
43	Diameter of Trailing Wheels,	56"	50"	50"	50"	50	50"	50"	43
44	Size of Trailing Axle Journal,	7" x 11 $\frac{1}{2}$ "	7" x 11 $\frac{1}{2}$ "	7" x 11 $\frac{1}{2}$ "	7" x 11 $\frac{1}{2}$ "	7" x 11 $\frac{1}{2}$ "	7" x 11 $\frac{1}{2}$ "	7" x 11 $\frac{1}{2}$ "	44
45									45
46									46

	PRESENT CLASSIFICATION.	F 1.	F 1 a.	F 2.	F 3.	F 3 a.	F 3 b.	F 3 c.
	OLD CLASSIFICATION.	MOGUL SIMPLE.		MOGUL COMPOUND.				
1	No. of Pairs of Driving Wheels,	3	3	3	3	3	3	3
2	Diam. of Driving Wheels,	62"	62"	62"	62"	68"	62"	62"
3	Size of Driving Axle Journals,	5 1/4" D x 12" L	5 1/4" D x 12" L	5 1/4" D x 12" L	5 1/4" D x 12" L	5 1/4" D x 12" L	5 1/4" D x 12" L	5 1/4" D x 12" L
4	Length of Driving Wheel Base,	14' 6"	14' 6"	14' 6"	14' 0"	14' 0"	14' 0"	14' 0"
5	Total Wheel Base of Engine,	23' 4"	23' 4"	23' 4"	23' 10"	23' 10"	23' 10"	23' 10"
6	Total Wheel Base of Eng. & Tender,	51' 1 1/2"	51' 1 1/2"	51' 1 1/2"	54' 5 1/2"	54' 5 1/2"	54' 5 1/2"	54' 5 1/2"
7	No. of Wheels in Engine Truck,	2	2	2	2	2	2	2
8	Diam. of Wheels in Engine Truck,	33"	33"	33"	33"	33"	33"	33"
9	Size of Engine Truck Axle Journals,	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"
10	Spread of Cylinders,	86"	86"	86"	86"	86"	80"	80"
11	Size of Cylinders,	20" x 28"	20" x 28"	H. P. 20" x 28" L. P. 18" x 28"	20" x 28"	20" x 28"	20" x 28"	20" x 28"
12	Steam Ports,	1 1/2" x 18"	1 1/2" x 18"	H. P. 1 1/2" x 18" L. P. 1 1/2" x 18"	1 1/2" x 18"	1 1/2" x 18"	1 1/2" x 18"	1 1/2" x 18"
13	Exhaust Ports,	3" x 18"	3" x 18"	H. P. 3" x 18" L. P. 3" x 18"	3" x 18"	3" x 18"	3" x 18"	3" x 18"
14	Travel of Valve,	6"	6"	H. P. 6" L. P. 6"	6"	6"	6"	6"
15	Lap of Valve,	1"	1"	H. P. 1" L. P. 1"	1"	1"	1"	1"
16	Type of Boiler,	Beltpaire.	Beltpaire. Rising Top.	Beltpaire.	Radial Stay. Rising Top.	Radial Stay. Rising Top.	Radial Stay. Wide Fire Box.	Beltpaire. Wide Fire Box.
17	Min. Internal Diam. Boiler,	60 1/2"	60 1/2"	60 1/2"	67 1/2"	67 1/2"	67 1/2"	67 1/2"
18	Number of Tubes,	279	283	279	356	356	364	364
19	Outside Diam. of Tubes,	2"	2"	2"	2"	2"	2"	2"
20	Length of Tubes bet. Tube Sheets,	140 1/2"	140 1/2"	140 1/2"	145 1/2"	145 1/2"	145 1/2"	145 1/2"
21	Fire Area through Tubes, sq. ft.,	4.66	4.72	4.66	5.7	5.7	6.08	6.1
22	Size of Fire Box, inside,	40" x 108"	40" x 108"	40" x 108"	39 1/2" x 111 1/2"	39 1/2" x 111 1/2"	60" x 102.7"	60" x 102.7"
23	Fire Grate Area, sq. ft.,	30.0	30.1	30.0	30.25	30.25	47.1	47.1
24	Ext. Heating Surface of Tubes, sq. ft.,	1725.0	1737.1	1725.0	2264.8	2264.0	2314.9	2314.9
25	Heating Surface of Fire Box, sq. ft.,	153.0	146.8	153.0	166.5	166.5	154.2	153.7
26	Total Heating Surface of Boiler, sq. ft.,	1878.0	1883.9	1878.0	2431.3	2430.5	2469.1	2468.6
27	Steam Pressure per square inch, lbs.,	185	185	205	205	205	205	205
28	No. of Wheels under Tender,	8	8	8	8	8	8	8
29	Diam. of Wheels under Tender,	36"	33"	36"	33"		33"	36"
30	Size of Tender Truck Axle Journals,	4 1/2" x 8"	4 1/2" x 8"	4 1/2" x 8"	5" x 9"		5" x 9"	5 1/2" x 10"
31	Wt. of Engine Empty, lbs.,	130400	131900	140800	145250		146300	147000
32	Wt. on Truck in Working Order, lbs.,	18000	18600	22400	20950		22200	23000
33	Wt. on 1st pair of Drivers, lbs.,	41050	41700	42500	48700		49050	49000
34	Wt. on 2d pair of Drivers, lbs.,	44650	45100	46100	48350		47450	48200
35	Wt. on 3d pair of Drivers, lbs.,	41500	41800	45000	45000		43800	45700
36	Wt. on 4th pair of Drivers, lbs.,							
37	Wt. of Engine in Work'g Order, lbs.,	146100	147200	156800	163000		162500	165900
38	Wt. of Tender Loaded, lbs.,	80000	96000	80000	112000		112000	143000
39	Ratio of Heat'g Surf. to Grate Surface,	62.6	62.58	62.6	80.3	80.3	50.5	52.41
40	Ratio of Ext'l Flue Heating Surface } to Fire Box Heating Surface,	11.2	11.8	11.2	13.6	13.6	15.0	15.00
41	Tractive Power per lb. of M. E. Press.,	180.6	180.6	180.6	180.6	164.7	180.6	180.6
42	Tractive Power with M. E. Pressure } equal to 1/2 of Boiler Pressure,	26730	26730	29620	29620	27012	29620	29620
43	Diameter of Trailing Wheels,							
44	Size of Trailing Axle Journal,							
45								
46								

	PRESENT CLASSIFICATION.	G 1.	G 1 a.	G 2.	G 3.	G 3 a.	G 4.	G 4 a.	
	OLD CLASSIFICATION.	D.	Dx.	E.	X. 68" DRIVERS.	X. 62" DRIVERS.			
1	No. of Pairs of Driving Wheels,	3	3	3	3	3	3	3	1
2	Diam. of Driving Wheels,	56"	50"	50"	68"	62"	72"	62"	2
3	Size of Driving Axle Journals,	6½" D x 7½" L	6½" D x 7½" L	6½" D x 7½" L	8" D x 9" L	8" D x 9" L	5¼" D x 13" L	5¼" D x 13" L	3
4	Length of Driving Wheel Base,	12' 5"	12' 5"	12' 8"	11' 10"	11' 10"	13' 10"	13' 10"	4
5	Total Wheel Base of Engine,	23' 8"	23' 8"	23' 8"	23' 0½"	23' 0½"	25' 5"	25' 5"	5
6	Total Wheel Base of Eng. & Tender,	45' 4½"	45' 4½"	45' 4½"	51' 1½"	51' 1½"	57' 6½"	56' 1½"	6
7	No. of Wheels in Engine Truck,	4	4	4	4	4	4	4	7
8	Diam. of Wheels in Engine Truck,	28"	26"	26"	33"	33"	36"	30"	8
9	Size of Engine Truck Axle Journals,	4½" x 7½"	4½" x 7½"	4½" x 7½"	5½" x 10"	5½" x 10"	5½" x 10"	5½" x 10"	9
10	Spread of Cylinders,	81"	81"	81"	88"	88"	90"	90"	10
11	Size of Cylinders,	18" x 22"	18" x 22"	18" x 22"	19" x 24"	19" x 24"	20" x 28"	20" x 28"	11
12	Steam Ports,	1½" x 16"	1½" x 16"	1½" x 16"	1½" x 23"	1½" x 23"	1½" x 20"	1½" x 20"	12
13	Exhaust Ports,	2½" x 16"	2½" x 16"	2½" x 16"	2½" x 23"	2½" x 23"	3" x 20"	3" x 20"	13
14	Travel of Valve,	5"	5"	5"	5½"	5½"	6"	6"	14
15	Lap of Valve,	¾"	¾"	¾"	1"	1"	1"	1"	15
16	Type of Boiler,	Wagon Top. Crews Bars.	Wagon Top. Crews Bars.	Wagon Top. Crews Bars.	Belpatre.	Belpatre.	Radial Stay.	Radial Stay.	16
17	Min. Internal Diam. Boiler,	48½"	48½"	48½"	59½"	59½"	67"	67"	17
18	Number of Tubes,	119	119	123	241	241	356	356	18
19	Outside Diam. of Tubes,	2½"	2½"	2½"	2"	2"	2"	2"	19
20	Length of Tubes bet. Tube Sheets,	152½"	152½"	146½"	167"	167"	170½"	170½"	20
21	Fire Area through Tubes, sq. ft.,	3.28	3.28	3.39	4.0	4.0	5.94	5.94	21
22	Size of Fire Box, inside,	35" x 59½"	35" x 59½"	35" x 67"	41½" x 107½"	41½" x 107½"	39½" x 111½"	39½" x 111½"	22
23	Fire Grate Area, sq. ft.,	14.5	14.5	16.34	31.1	31.1	30.8	30.8	23
24	Ext. Heating Surface of Tubes, sq. ft.,	997.25	997.25	984.83	1755.00	1755.00	2652.2	2652.2	24
25	Heating Surface of Fire Box, sq. ft.,	95.97	95.97	111.27	146.39	146.39	162.43	162.43	25
26	Total Heating Surface of Boiler, sq. ft.,	1093.22	1093.22	1096.10	1901.39	1901.39	2814.63	2814.63	26
27	Steam Pressure per square inch, lbs.,	125	125	125	180	180	225	225	27
28	No. of Wheels under Tender,	8	8	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	33"	33"	33"	33"	33"	36"	33"	29
30	Size of Tender Truck Axle Journals,	3½" x 7"	3½" x 7"	3½" x 7"	4½" x 8"	4½" x 8"	5½" x 10"	5½" x 10"	30
31	Wt. of Engine Empty, lbs.,	74800	73180	75800	127150	126200	166100	163000	31
32	Wt. on Truck in Working Order, lbs.,	25100	24880	22700	25450	25300	45000	44000	32
33	Wt. on 1st pair of Drivers, lbs.,	18600	17570	19700	35100	34650	45500	44500	33
34	Wt. on 2d pair of Drivers, lbs.,	20800	20570	23300	38400	37800	48500	48000	34
35	Wt. on 3d pair of Drivers, lbs.,	19800	19570	19100	39050	38300	46000	45500	35
36	Wt. on 4th pair of Drivers, lbs.,								36
37	Wt. of Engine in Work'g Order, lbs.,	84300	82590	84800	138000	136050	185000	182000	37
38	Wt. of Tender Loaded, lbs.,	60000	60000	60000	73000	73000	143000	112000	38
39	Ratio of Heat'g Surf. to Grate Surface,	75.4	75.4	67.0	61.1	61.1	91.3	91.3	39
40	Ratio of Ext'l Flue Heating Surface to Fire Box Heating Surface,	10.4	10.4	8.8	12.0	12.0	16.3	16.3	40
41	Tractive Power per lb. of M. E. Press.,	127.3	142.5	142.5	127.4	139.7	153.3 188.3	180.6	41
42	Tractive Power with M. E. Pressure equal to ¼ of Boiler Pressure,	12730	14250	14250	18350	20120	27090 30868	32510	42
43									43
44									44
45									45
46									46

	PRESENT CLASSIFICATION.	G 4 b						
	OLD CLASSIFICATION.							
1	No. of Pairs of Driving Wheels,	3						1
2	Diam. of Driving Wheels,	62"						2
3	Size of Driving Axle Journals,	5 1/2" x 13" L						3
4	Length of Driving Wheel Base,	13' 10"						4
5	Total Wheel Base of Engine,	25' 5"						5
6	Total Wheel Base of Engine & Tender,	50' 1 1/2"						6
7	No. of Wheels in Engine Truck,	4						7
8	Diam. of Wheels in Engine Truck,	30"						8
9	Size of Engine Truck Axle Journals,	5 1/2" x 10"						9
10	Spread of Cylinders,	90"						10
11	Size of Cylinders,	20" x 28"						11
12	Steam Ports,	1 1/2" x 20"						12
13	Exhaust Ports,	3" x 20"						13
14	Travel of Valve,	0"						14
15	Lap of Valve,	1"						15
16	Type of Boiler,	Replate Wide Fire Box.						16
17	Min. Internal Diam. of Boiler.	67"						17
18	Number of Tubes,	356						18
19	Outside Diam. of Tubes.	2"						19
20	Length of Tubes bet. Tube Sheets,	170 1/2"						20
21	Fire Area through Tubes, sq. ft.,	5.94						21
22	Size of Fire Box inside,	66" x 100"						22
23	Fire Grate Area, sq. ft.,	45.8						23
24	Ext. Heating Surface of Tubes, sq. ft.,	2652.2						24
25	Heating Surface of Fire Box, sq. ft.,	137.1						25
26	Total Heating Surface of Boiler, sq. ft.,	2789.3						26
27	Steam Pressure per square inch, lbs.,	225						27
28	No. of Wheels under Tender,	8						28
29	Diam. of Wheels under Tender,	36"						29
30	Size of Tender Truck Axle Journals.	5 1/2" x 10"						30
31	Wt. of Engine Empty, lbs.,							31
32	Wt. on Truck in Working Order, lbs.,							32
33	Wt. on 1st pair of Drivers, lbs.,							33
34	Wt. on 2d pair of Drivers, lbs.,							34
35	Wt. on 3d pair of Drivers, lbs.,							35
36	Wt. on 4th pair of Drivers, lbs.,							36
37	Wt. of Engine in Work'g Order, lbs.,							37
38	Wt. of Tender Loaded, lbs.,	143000						38
39	Ratio of Heat'g Surf. to Grate Surface,	60.9						39
40	Ratio of Ext'l Flue Heating Surface to Fire Box Heating Surface,	19.3						40
41	Tractive Power per lb. of M. E. Press.,	180.0						41
42	Tractive Power with M. E. Pressure equal to 1/3 of Boiler Pressure,	32510						42
43								43
44								44
45								45
46								46

	PRESENT CLASSIFICATION.	H 1.	H 2.	H 3.	H 3 a.	H 3 b.	H 3 c.	H 3 d.	
	OLD CLASSIFICATION.	I.	S.	R. Built prior to December, 1889.	R. Built after December, 1889.	R. Type of 1893.			
1	No. of Pairs of Driving Wheels,	4	4	4	4	4	4	4	1
2	Diam. of Driving Wheels,	50"	50"	50"	50"	50"	50"	50"	2
3	Size of Driving Axle Journals,	6½" D x 7½" L	7" D x 7½" L	6" D x 8½" L	8" D x 8½" L	8" D x 8½" L	8" D x 10½" L	8" D x 8½" L	3
4	Length of Driving Wheel Base,	13' 8"	13' 8"	13' 10"	13' 10"	13' 10"	13' 10"	13' 10"	4
5	Total Wheel Base of Engine,	21' 6"	21' 6"	21' 0"	21' 0"	21' 9"	21' 8"	21' 9"	5
6	Total Wheel Base of Eng. & Tender,	47' 7½"	47' 8½"	48' 10"	40' 0"	40' 0"	40' 9"	48' 10"	6
7	No. of Wheels in Engine Truck,	2	2	2	2	2	2	2	7
8	Diam. of Wheels in Engine Truck,	28"	28"	28"	28"	28"	28"	28"	8
9	Size of Engine Truck Axle Journals,	5" x 7½"	4½" x 7½"	5½" x 8½"	5½" x 8½"	5½" x 8½"	5½" x 8½"	5½" x 8½"	9
10	Spread of Cylinders,	84"	84"	86"	86"	86"	88"	86"	10
11	Size of Cylinders,	20" x 24"	20" x 24"	20" x 24"	20" x 24"	20" x 24"	20" x 28"	20" x 24"	11
12	Steam Ports,	1½" x 17½"	1½" x 17½"	1½" x 17½"	1½" x 17½"	1½" x 17½"	1½" x 21"	1½" x 17½"	12
13	Exhaust Ports,	2½" x 17½"	2½" x 17½"	2½" x 17½"	2½" x 17½"	2½" x 17½"	3" x 21"	2½" x 17½"	13
14	Travel of Valve,	5"	5"	5"	5"	5"	5"	5"	14
15	Lap of Valve,	¾"	¾"	¾"	¾"	¾"	1"	¾"	15
16	Type of Boiler,	Altoona.	Straight Top Crown Rate.	Belpaire.	Belpaire.	Belpaire.	Belpaire.	Altoona.	16
17	Min. Internal Diam. Boiler,	53½"	57"	59"	60"	60"	60"	59"	17
18	Number of Tubes,	138	147	183	174	174	174	183	18
19	Outside Diam. of Tubes,	2½"	2½"	2½"	2½"	2½"	2½"	2½"	19
20	Length of Tubes bet. Tube Sheets,	153½"	158½"	156½"	159"	159"	159"	156½"	20
21	Fire Area through Tubes, sq. ft.,	3.75	3.2	5.0	3.8	3.8	3.8	5.19	21
22	Size of Fire Box, inside,	34½" x 96"	34½" x 95½"	42" x 107"	42" x 108"	42" x 108"	42" x 108"	42" x 107"	22
23	Fire Grate Area, sq. ft.,	21.0	22.75	31.1	31.5	31.5	31.5	31.22	23
24	Ext. Heating Surface of Tubes, sq. ft.,	1158.65	1140.42	1564.24	1358.0	1358.0	1358.0	1564.60	24
25	Heating Surface of Fire Box, sq. ft.,	100.91	119.52	160.80	140.3	140.3	140.3	149.24	25
26	Total Heating Surface of Boiler, sq. ft.,	1259.56	1259.94	1731.04	1498.3	1498.3	1498.3	1713.84	26
27	Steam Pressure per square inch, lbs.,	125	140	140	150	150	150	140	27
28	No. of Wheels under Tender,	8	8	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	33"	33"	33"	33"	33"	33"	33"	29
30	Size of Tender Truck Axle Journals,	3½" x 7"	4½" x 8"	4½" x 8"	4½" x 8"	4½" x 8"	4½" x 8"	4½" x 8"	30
31	Wt. of Engine Empty, lbs.,	85200	94550	102000	116000	116100			31
32	Wt. on Truck in Working Order, lbs.,	13000	12050	14030	15600	16130	18075		32
33	Wt. on 1st pair of Drivers, lbs.,	23300	23520	24220	21500	21890	22000		33
34	Wt. on 2d pair of Drivers, lbs.,	21000	23970	23870	30500	29240	29000		34
35	Wt. on 3d pair of Drivers, lbs.,	18700	22250	26750	30000	30530	26500		35
36	Wt. on 4th pair of Drivers, lbs.,	19700	26760	25750	31000	30950	35600		36
37	Wt. of Engine in Work'g Order, lbs.,	95700	108550	114620	128600	128740	131175		37
38	Wt. of Tender Loaded, lbs.,	70000	80000	80000	80000	80000	63700	80000	38
39	Ratio of Heat'g Surf. to Grate Surface,	54.7	55.4	55.6	47.5	47.5	47.5	54.9	39
40	Ratio of Ext'l Flue Heating Surface to Fire Box Heating Surface,	11.4	9.5	9.4	9.6	9.6	9.6	10.5	40
41	Tractive Power per lb. of M. E. Press.,	192.0	192.0	192.0	192.0	192.0	224	192	41
42	Tractive Power with M. E. Pressure equal to ½ of Boiler Pressure,	19200	21500	21500	23040	23040	29380	21504	42
43	Diameter of Trailing Wheels,	8 2700							43
44	Size of Trailing Axle Journal,								44
45									45
46									46



	PRESENT CLASSIFICATION.	H 3 e	H 3 f	H 4.	H 5.	H 6	H 6 a	H 7	
	OLD CLASSIFICATION.								
1	No. of Pairs of Driving Wheels.	4	4	4	4	4	4	4	1
2	Diam. of Driving Wheels,	50"	50"	56"	56"	50"	56"	56"	2
3	Size of Driving Axle Journals,	8"D x 8 1/2"L.	8"D x 8 1/2"L.	8 1/4"D x 10"L.	9"D x 13 1/2"L.	9"D x 13 1/2"L.	9"D x 13 1/2"L.	8 1/2"D x 13 1/2"L.	3
4	Length of Driving Wheel Base.	13' 10"	13' 10"	16' 11"	17' 6"	16' 6 1/2"	16' 6 1/2"	16' 6 1/2"	4
5	Total Wheel Base of Engine.	21' 9"	21' 9"	25' 5"	25' 11 1/2"	24' 0"	24' 9"	24' 11"	5
6	Total Wheel Base of Eng. & Tender.	49' 9"	49' 9"	53' 1 1/2"	57' 3"	56' 8 1/2"	58' 1 1/2"	59' 6 1/2"	6
7	No. of Wheels in Engine Truck,	2	2	2	2	2	2	2	7
8	Diam. of Wheels in Engine Truck,	28"	28"	30"	30"	30"	30"	30"	8
9	Size of Engine Truck Axle Journals,	5 1/2" x 8 1/2"	5 1/2" x 8 1/2"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	5 1/2" x 10"	9
10	Spread of Cylinders,	80"	80"	88"	90"	88"	88"	90"	10
11	Size of Cylinders,	20" x 24"	20" x 24"	22" x 28"	23 1/2" x 28"	22" x 28"	22" x 28"	24" x 28"	11
12	Steam Ports,	1 1/2" x 17 1/2"	1 1/2" x 17 1/2"	1 1/2" x 21"	1 1/2" x 21"	1 1/2" x 21"	1 1/2" x 21"	1 1/2" x 21"	12
13	Exhaust Ports,	2 1/2" x 17 1/2"	2 1/2" x 17 1/2"	3" x 21"	3" x 21"	3" x 21"	3" x 21"	3 1/2" x 21"	13
14	Travel of Valve,	5"	5"	6"	6"	6"	6"	6"	14
15	Lap of Valve,	3"	3"	1"	1"	1"	1"	1"	15
16	Type of Boiler,	Altoona.	Altoona.	Belpaire.	Belpaire, Sleeping Top.	Belpaire, Sleeping Top.	Belpaire, Wide Fire Box.	Belpaire, Wide Fire Box.	16
17	Min. Internal Diam. Boiler,	59"	59"	68"	69 1/2"	69 1/2"	69 1/2"	76 1/2"	17
18	Number of Tubes,	183	183	316	369	369	373	508	18
19	Outside Diam. of Tubes,	2 1/4"	2 1/4"	2"	2"	2"	2"	2"	19
20	Length of Tubes bet. Tube Sheets,	156 1/2"	156 1/2"	168"	168"	163 1/2"	164 1/2"	170"	20
21	Fire Area through Tubes, sq. ft.,	5.19	5.19	5.278	6.234	6.234	6.302	8.48	21
22	Size of Fire Box, inside,	42" x 107"	42" x 107"	40" x 106"	40" x 120"	40" x 120"	60" x 107"	72" x 127"	22
23	Fire Grate Area, sq. ft.,	31.22	31.22	29.7	33.33	33.33	49.11	63.41	23
24	Ext. Heating Surface of Tubes, sq. ft.,	1564.60	1564.60	2316.00	2632.5	2632.5	2675.0	3768.0	24
25	Heating Surface of Fire Box, sq. ft.,	149.24	149.24	154.00	197.00	180.00	166.5	198.0	25
26	Total Heating Surface of Boiler, sq. ft.,	1713.84	1713.84	2470.00	2829.5	2812.5	2841.5	3966.0	26
27	Steam Pressure per square inch, lbs.,	140	140	205	185	205	205	205	27
28	No. of Wheels under Tender,	8	8	8	8	8	8	8	28
29	Diam. of Wheels under Tender,	33"	33"	33"	33"	33"	36"	36"	29
30	Size of Tender Truck Axle Journals,	4 1/2" x 8"	4 1/2" x 8"	5" x 9"	5" x 9"	5" x 9"	5 1/2" x 10"	5 1/2" x 10"	30
31	Wt. of Engine Empty, lbs.,			154950	173100	162900	171600		31
32	Wt. on Truck in Working Order, lbs.,			18000	20800	20100	20500		32
33	Wt. on 1st pair of Drivers, lbs.,			36600	41600	43800	43500		33
34	Wt. on 2d pair of Drivers, lbs.,			39800	43000	40200	41500		34
35	Wt. on 3d pair of Drivers, lbs.,			40000	45600	41500	46000		35
36	Wt. on 4th pair of Drivers, lbs.,			39800	45500	40900	42000		36
37	Wt. of Engine in Work'g Order, lbs.,			174200	196500	186500	193500		37
38	Wt. of Tender Loaded, lbs.,	80000	80000	96000	112000	112000	143000	143000	38
39	Ratio of Heat'g Surf. to Grate Surface,	54.9	54.9	83.2	84.36	84.36	57.87	62.52	39
40	Ratio of Ext'l Flue Heating Surface to Fire Box Heating Surface,	10.5	10.5	15.0	2 1/2" = 13.7 2 1/4" = 12.8	14.62	16.07	19.03	40
41	Tractive Power per lb. of M. E. Press.,	192	192	242.0	276.1	242.0	242.0	288	41
42	Tractive Power with M. E. Pressure equal to 1/2 of Boiler Pressure,	21504	21504	39700	40860	39688	39688	47232	42
43									43
44									44
45									45
46									46