

EXPORT LOCOMOTIVE RATINGS

Model	HP Rating	Weigth		Engine	Generator	Truck		Motors	Gear Ratio	Max Speed		Continuous				One Hour			
										MPH	KPH	Speed		Tractive Effort		Max Speed		Tractive Effort	
												MPH	KPH	LBS	KGS	MPH	KPH	LBS	KGS
G-12	1425 / 1310	159,700		12-567C	D22	B-B	4-D29	63:14	62	100	12,0	19,3	33,460	15,180	10,7	17,2	36,960	16,700	
								62:15	66	106	13,0	20,9	30,730	13,940	11,6	18,7	33,940	15,390	
								61:16	71	114	14,1	22,7	28,350	12,860	12,6	20,3	31,310	14,200	
								60:17	77	124	15,3	24,6	26,220	11,890	13,6	21,9	28,960	13,140	
		69,950		12-567C	D22	A-1-A	4-D29	63:14	62	100	12,0	19,3	33,460	15,180	10,7	17,2	36,960	16,760	
								62:15	66	106	13,0	20,9	30,730	13,940	11,6	18,7	33,940	15,390	
	(Axle Load)	28,325	37,490					61:16	71	114	14,1	22,7	28,350	12,860	12,6	20,3	31,310	14,200	
								60:17	77	124	15,3	24,6	26,220	11,890	13,6	21,9	28,960	13,140	
		169,420				B-B	4-D57	62:15	66	106	10,3	16,6	38,600	17,510	9,9	15,9	39,840	18,070	
								61:16	71	114	11,2	18,0	35,600	16,150	10,8	17,4	36,640	16,620	
								60:17	77	124	12,1	19,5	32,940	14,940	11,8	19,0	34,000	15,420	
								59:18	83	134	13,0	20,9	30,600	13,880	12,6	20,3	31,600	14,330	
		180,260				A-1-A	4-D57	62:15	66	106	10,3	16,6	38,600	17,510	9,9	15,9	39,840	18,070	
	(Axle Load)	30,045	40,065					61:16	71	114	11,2	18,0	35,600	16,150	10,8	17,4	36,640	16,620	
								60:17	77	124	12,1	19,5	32,940	14,940	11,8	19,0	34,000	15,420	
								59:18	83	131	13,0	20,9	30,600	13,880	12,6	20,3	31,600	14,330	

GA12	1275 / 1200	129,000		12-567C	D25	1-B-B-1	2-D59MC	7,346:1	30	48	6,7	10,8	40,800	18,510	6,0	9,7	42,000	19,050
								6,300:1	35	56	7,8	12,6	35,100	15,920	7,0	11,3	36,200	16,420
	(Axle Load)	24,244	29,974					5,550:1	40	64	8,9	14,3	31,000	14,060	8,0	12,9	31,900	14,470
								4,925:1	45	72	9,8	15,8	27,400	12,430	9,0	14,5	28,200	12,790
								4,289:1	52	84	11,5	18,5	23,450	10,640	10,3	16,6	24,100	10,930
								3,740:1	59	95	13,1	21,1	20,700	9,390	11,7	18,8	21,300	9,660

GA12C	1275 / 1200	159,000	180,000	12-567C	D25	C-C	2-D59MC	7,346:1	30	48	6,7	10,8	40,800	18,510	6,0	9,7	42,000	19,050
								6,300:1	35	56	7,8	12,6	35,100	15,920	7,0	11,3	36,200	16,420
								5,550:1	40	64	8,9	14,3	31,000	14,060	8,0	12,9	31,900	14,470
								4,925:1	45	72	9,8	15,8	27,400	12,430	9,0	14,5	28,200	12,790
								4,289:1	52	84	11,5	18,5	23,450	10,640	10,3	16,6	24,100	10,930
								3,740:1	59	95	13,1	21,1	20,700	9,390	11,7	18,8	21,300	9,660

GR12	1425 / 1310	139,950		12-567C	D25	C-C	6-D29	63:14	60	97	7,5	12,1	50,820	23,050	6,6	10,60	56,100	25,450
								62:15	66	106	8,0	12,9	46,680	21,170	7,1	11,40	51,480	23,350
								61:16	71	114	8,8	14,2	43,140	19,570	7,8	12,60	47,760	21,660
								60:17	77	124	9,5	15,3	39,900	18,100	8,2	13,20	44,160	20,030
								59:18	83	134	10,2	16,4	37,050	16,810	8,8	14,20	41,030	18,610
								58:19	89	143	11,0	17,7	34,510	16,650	9,5	15,30	38,190	17,320
		208,250				C-C	6-D57	62:15	66	106	7,0	11,3	53,340	24,190	6,8	11,00	34,300	24,630
								61:16	71	114	7,7	12,4	49,020	22,230	7,5	12,10	50,040	22,700
								60:17	77	124	8,3	13,4	45,420	20,600	8,1	13,00	46,440	21,060
								59:18	83	131	8,8	14,2	42,120	19,110	8,6	13,80	43,020	19,510

EXPORT LOCOMOTIVE RATINGS

Model	Horse-power Rating	Weight		Engine	Generator	Truck Arrangement	Motors	Gear Ratio	Max. Speed		Continuous				One Hour					
		Min. #	Max. #						Speed		Tractive Effort		Speed		Tractive Effort					
									MPH	KPH	MPH	KPH	LBS.	KGS.	MPH	KPH	LBS.	KGS.		
G12	1425/1310	159,700		12-567C	D22	B-B	4-D29	63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,7		
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
									61:16	71	114	14.1	22.7	28,350	12,860	12.6	20.3	31,310	14,200	
									60:17	77	124	15.3	24.6	26,220	11,890	13.6	21.9	28,960	13,140	
									63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760	
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
	(Axle Load)	28,325	37,490		12-567C	D22	A-1-A	4-D29	63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760	
										62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390
										61:16	71	114	14.1	22.7	28,350	12,860	12.6	20.3	31,310	14,200
										60:17	77	124	15.3	24.6	26,220	11,890	13.6	21.9	28,960	13,140
										63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760
										62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390
	169,950			12-567C	D22	A-1-A	4-D29	63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760		
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
									61:16	71	114	14.1	22.7	28,350	12,860	12.6	20.3	31,310	14,200	
									60:17	77	124	15.3	24.6	26,220	11,890	13.6	21.9	28,960	13,140	
									63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760	
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
	169,420			12-567C	D22	B-B	4-D57	63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760		
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
									61:16	71	114	14.1	22.7	28,350	12,860	12.6	20.3	31,310	14,200	
									60:17	77	124	15.3	24.6	26,220	11,890	13.6	21.9	28,960	13,140	
									63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760	
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
	180,260			12-567C	D22	A-1-A	4-D57	63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760		
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
									61:16	71	114	14.1	22.7	28,350	12,860	12.6	20.3	31,310	14,200	
									60:17	77	124	15.3	24.6	26,220	11,890	13.6	21.9	28,960	13,140	
									63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760	
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
(Axle-Load)	30,045	40,065		12-567C	D22	A-1-A	4-D57	63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760		
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
									61:16	71	114	14.1	22.7	28,350	12,860	12.6	20.3	31,310	14,200	
									60:17	77	124	15.3	24.6	26,220	11,890	13.6	21.9	28,960	13,140	
									63:14	62	100	12.0	19.3	33,460	15,180	10.7	17.2	36,960	16,760	
									62:15	66	106	13.0	20.9	30,730	13,940	11.6	18.7	33,940	15,390	
GA12	1275/1200	129,000		12-567C	D25	1-B-B-1	2-D59MC	7.346:1	30	48	6.7	10.8	40,800	18,510	6.0	9.7	42,000	19,050		
									6.300:1	35	56	7.8	12.6	35,100	15,920	7.0	11.3	36,200	16,420	
									5.550:1	40	64	8.9	14.3	31,000	14,060	8.0	12.9	31,900	14,470	
									4.925:1	45	72	9.8	15.8	27,400	12,430	9.0	14.5	28,200	12,790	
									4.289:1	52	84	11.5	18.5	23,450	10,640	10.3	16.6	24,100	10,930	
									3.740:1	59	95	13.1	21.1	20,700	9,390	11.7	18.8	21,300	9,660	
(Axle Load)	24,244	29,974		12-567C	D25	1-B-B-1	2-D59MC	7.346:1	30	48	6.7	10.8	40,800	18,510	6.0	9.7	42,000	19,050		
									6.300:1	35	56	7.8	12.6	35,100	15,920	7.0	11.3	36,200	16,420	
									5.550:1	40	64	8.9	14.3	31,000	14,060	8.0	12.9	31,900	14,470	
									4.925:1	45	72	9.8	15.8	27,400	12,430	9.0	14.5	28,200	12,790	
									4.289:1	52	84	11.5	18.5	23,450	10,640	10.3	16.6	24,100	10,930	
									3.740:1	59	95	13.1	21.1	20,700	9,390	11.7	18.8	21,300	9,660	
*GA12C	1275/1200	159,000	180,000	12-567C	D25	C-C	2-D59MC	7.346:1	30	48	6.7	10.8	40,800	18,510	6.0	9.7	42,000	19,050		
									6.300:1	35	56	7.8	12.6	35,100	15,920	7.0	11.3	36,200	16,420	
									5.550:1	40	64	8.9	14.3	31,000	14,060	8.0	12.9	31,900	14,470	
									4.925:1	45	72	9.8	15.8	27,400	12,430	9.0	14.5	28,200	12,790	
									4.289:1	52	84	11.5	18.5	23,450	10,640	10.3	16.6	24,100	10,930	
									3.740:1	59	95	13.1	21.1	20,700	9,390	11.7	18.8	21,300	9,660	
GR12	1425/1310	139,950		12-567C	D25E	C-C	6-D29	63:14	60	97	7.5	12.1	50,820	23,050	6.6	10.6	56,100	25,450		
									62:15	66	106	8.0	12.9	46,680	21,170	7.1	11.4	51,480	23,350	
									61:16	71	114	8.8	14.2	43,140	19,570	7.8	12.6	47,760	21,660	
									60:17	77	124	9.5	15.3	39,900	18,100	8.2	13.2	44,160	20,030	
									59:18	83	134	10.2	16.4	37,050	16,810	8.8	14.2	41,030	18,610	
									58:19	89	143	11.0	17.7	34,510	16,650	9.5	15.3	38,190	17,320	
	(Axle Load)	208,250			12-567C	D25E	C-C	6-D57	63:14	60	97	7.5	12.1	50,820	23,050	6.6	10.6	56,100	25,450	
										62:15	66	106	8.0	12.9	46,680	21,170	7.1	11.4	51,480	23,350
										61:16	71	114	8.8	14.2	43,140	19,570	7.8	12.6	47,760	21,660
										60:17	77	124	9.5	15.3	39,900	18,100	8.2	13.2	44,160	20,030
										59:18	83	134	10.2	16.4	37,050	16,810	8.8	14.2	41,030	18,610
										58:19	89	143	11.0	17.7	34,510	16,650	9.5	15.3	38,190	17,320
	208,250			12-567C	D25E	C-C	6-D57	63:14	60	97	7.5	12.1	50,820	23,050	6.6	10.6	56,100	25,450		
									62:15	66	106	8.0	12.9	46,680	21,170	7.1	11.4	51,480	23,350	
									61:16	71	114	8.8	14.2	43,140	19,570	7.8	12.6	47,760	21,660	
									60:17	77	124	9.5	15.3	39,900	18,100	8.2	13.2	44,160	20,030	
									59:18	83	134	10.2	16.4	37,050	16,810	8.8	14.2	41,030	18,610	
									58:19	89	143	11.0	17.7	34,510	16,650	9.5	15.3	38,190	17,320	
	208,250			12-567C	D25E	C-C	6-D57	63:14	60	97	7.5	12.1	50,820	23,050	6.6	10.6	56,100	25,450		
									62:15	66	106	8.0	12.9	46,680	21,170	7.1	11.4	51,480	23,350	
									61:16	71	114	8.8	14.2	43,140	19,570	7.8	12.6	47,760	21,660	
									60:17	77	124	9.5	15.3	39,900	18,100	8.2	13.2	44,160	20,030	
									59:18	83	134	10.2	16.4	37,050	16,810	8.8	14.2	41,030	18,610	
									58:19	89	143	11.0	17.7	34,510	16,650	9.5	15.3	38,190	17,320	
	208,250			12-567C	D25E	C-C	6-D57	63:14	60	97	7.5	12.1	50,820	23,050	6.6	10.6	56,100	25,450		
									62:15	66	106	8.0	12.9	46,680	21,170	7.1	11.4	51,480	23,350	
									61:16	71	114	8.8	14.2	43,140	19,570	7.8	12.6	47,760	21,660	
									60:17	77	124	9.5	15.3	39,900	18,100	8.2	13.2	44,160	20,030	
									59:18	83	134	10.2	16.4	37,050	16,810	8.8	14.2	41,030	18,610	
									58:19	89	143	11.0	17.7	34,510	16,650	9.5	15.3	38,190	17,320	

(OK)

1/29/6

ROLLING RESISTANCE
4 Axle Cars

20 Metric Tons
Per Car (BTC)

25 Metric Tons
Per Car

30 Metric Tons
Per Car

35 Metric Tons
Per Car

40 Metric Tons
Per Car

50 Metric Tons
Per Car

60 Metric Tons
Per Car

70 Metric Tons
Per Car

ROLLING RESISTANCE - Kg/M. Ton

Based on Davis Formula:

$$R = \underbrace{0.65}_{\text{RESIST. DESCANSOS}} + \underbrace{\frac{13.15}{W}}_{\text{RESIST. PASTORAS}} + \underbrace{0.014V}_{\text{RESIST. RINOS}} + \frac{0.00094AV^2}{Wn} \text{ Kg/M. Ton}$$

0 20 40 60 80 100

SPEED - Kilometers Per Hour

W = peso por eje [Tm]

n = nº de ejes

V = velocidad [km/hr]

A = area [m²]

ca = 5.72 m²

Bc = 7.8 m²

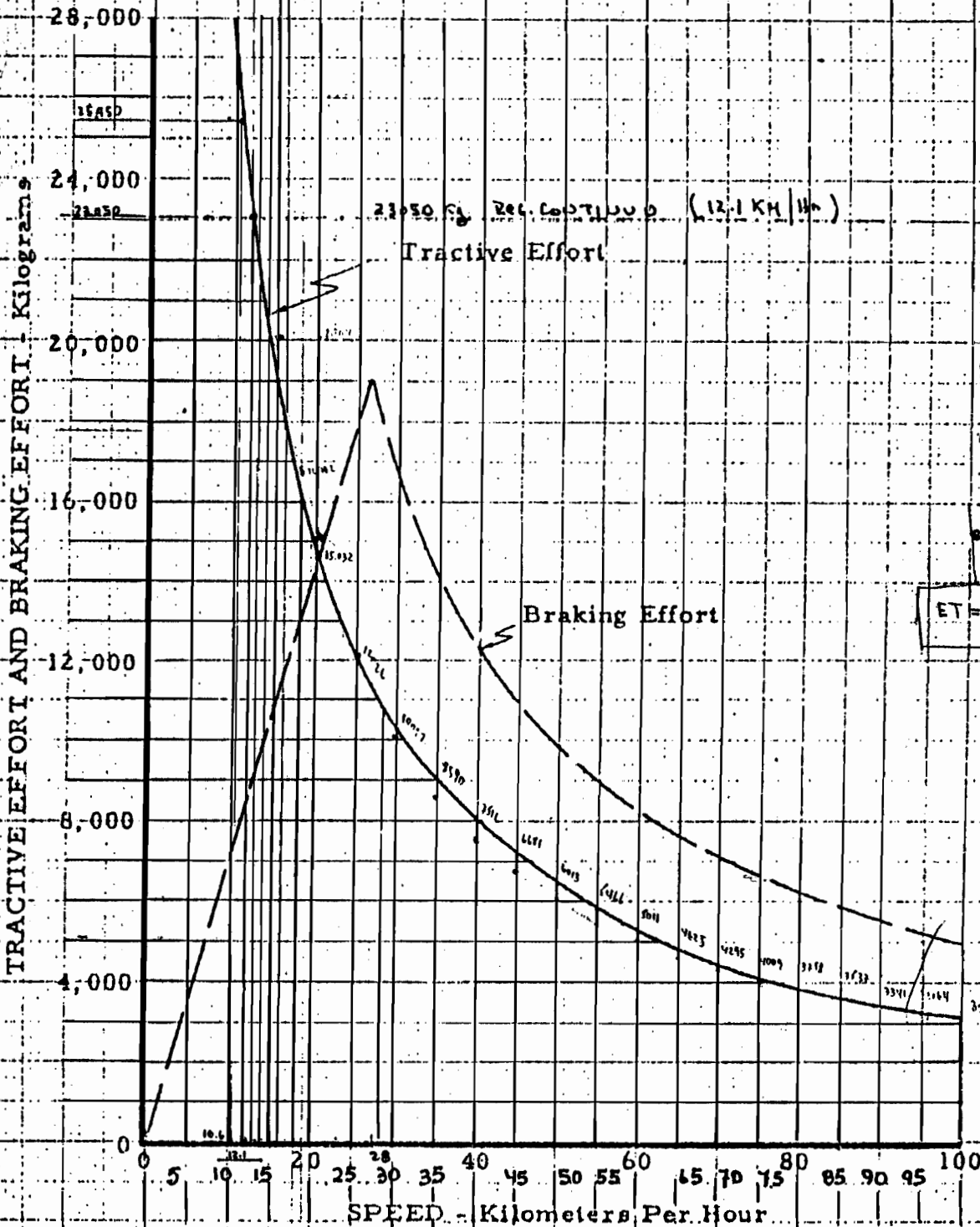
cc = 7.5 m²

XE-5

SPEED-TRACTIVE EFFORT
SPEED-BRAKING EFFORT

9/20/61

1425/1310 HP Model GR12 Locomotive
63:14 Gear Ratio



1HP = 746 watt
1HP = 0.746 kW
170 = 127.4 kW
270 = 201.3 kW
S.T. Pot. (CV) = 221
KWL (CV) = 221
ET = $\frac{1310 \cdot 230 \cdot 0.85}{V \cdot L}$