

GEC **TRACTION**



**Electric locomotives
and
multiple units**

LIST OF SALES
MAY 1982

World sales outside United Kingdom

MAY 1982

Railway	Equipment	Voltage	Quantity	Date Ordered
ARGENTINA				
Ferrocarril Nacional General Bartolome Mitre	Motorcoach power equipments	800v dc	67	1913
		800v dc	111	1929
Ferrocarril Nacional Domingo Faustino Sarmiento	Motorcoach power equipments	800v dc	76	1921
Total powered vehicles equipped (plus trailer cars)			254	
AUSTRALIA				
New South Wales Government Railways	Motorcoach power equipments	1500v dc	530	1925/1945
	Control equipment and motors for 2700hp locomotive	1500v dc	1	1946
	3820hp Co-Co locomotives complete	1500v dc	40	1950
	Motorcoach power equipments	1500v dc	80	1954
	Double deck motorcoach power equipment	1500v dc	1	1967
	Double deck interurban coach power equipments	1500v dc	8	1968
Victorian Government Railways	Motorcoaches complete	1500v dc	400	1913
	Motorcoach power equipments	1500v dc	40	1925
	2400hp Co-Co locomotives complete	1500v dc	25	1954
	Motorcoach power equipments	1500v dc	190	1954/1958
	Motorcoach power equipments (including choppers)	1500v dc	200	1979
Western Australian Government Railways	600hp Bo-Bo shunting locomotive complete	600v dc	1	1924
Broken Hill	600hp Bo-Bo shunting locomotives complete	600v dc	3	
Total vehicles equipped (plus trailer cars)			1519	
BRAZIL				
Sao Paulo State Railways	Motorcoaches complete	1500v dc	7	1926
	Motor Freight Cars complete	1500v dc	3	
Estrado de Ferro Santos a Jundiá	3000hp Co-Co locomotives complete	3000v dc	15	1948
	Motorcoaches complete	3000v dc	9	
Paulista Railway	2340hp 1Co-Co1 passenger locomotive complete	3000v dc	1	1926
Rede Mineira de Viacao	1072hp Bo-Bo mixed traffic locomotives complete	3000v dc	14	1949
	600hp Bo-Bo mixed traffic locomotives complete	1500v dc	5	1926
Estrada de Ferro Central do Brazil	3-car emu trains complete (700hp)	3000v dc	90	1936/1945
	3-car emu train power equipments	3000v dc	50	1954
	3-car emu trains complete (1280hp)	3000v dc	50	1954
	Motorcoaches complete	3000v dc	50	1954
Rede de Viacao Parana-Santa Catarina (since transferred to R.M. de Viacao)	1080hp Bo-Bo mixed traffic locomotives complete	3000v dc	10	1950
RFFSA (Rio suburban)	Power equipments for 180 tonne Co-Co locomotives	25kV 60Hz	35	1976
	Motorcoach power equipments (including some licence built)	3000v dc	120	1978
EBTU-Recifé suburban	Motor coach power equipments	3000v dc	24	1982
Total powered vehicles equipped (plus trailer cars)			483	
CANADA				
Montreal Harbour Commissioners	1720hp Bo-Bo locomotives complete	2400v dc	9	1923
Canadian National Railways	760hp Bo-Bo locomotive power equipments	600v dc	2	1923
British Columbian Electric	Motorcoach power equipments	600v dc	20	1925
Toronto Transit Commission	Motorcoach control equipments	600v dc	140	1952/1955
Total powered vehicles equipped (plus trailer cars)			171	

Frontispiece: One of a fleet of 25kV 50 Hz suburban multiple-unit trains supplied by Metro-Cammell Ltd to the Kowloon-Canton Railway in Hong Kong.

Railway	Equipment	Voltage	Quantity	Date Ordered
CHILE				
Chilean State Railway	Motorcoach power equipments	3000v dc	20	1970
CZECHOSLOVAKIA				
Czechoslovak State Railways	1000hp Bo-Bo locomotive power equipments	1500v dc	2	1926
DENMARK				
Danish State Railways	Motorcoach power equipments (camshaft control)	1500v dc	117	1933/1960
		1500v dc	45	1965
		1500v dc	30	1966
		1500v dc	36	1967
		1500v dc	30	1968
		1500v dc	24	1969
		1500v dc	24	1969
		1500v dc	24	1970
		1500v dc	24	1971
		1500v dc	1	1972
		1500v dc	40	1974
		1500v dc	25	1975
		Motorcoach power equipments (chopper control)	1500v dc	4
Total powered vehicles equipped (plus trailer cars)			424	
EIRE				
Coras Iompair Eireann	Motorcoach power equipments (chopper control)	1500v dc	40	1980
FRANCE				
Chemin de Fer du Midi	1400 Bo-Bo locomotive power equipments	1500v dc	10	1922
	2100hp 2Co-Co2 locomotive power equipments	1500v dc	4	
	Motorcoach power equipments	1500v dc	19	
	1400hp locomotive power equipments	1500v dc	80	
	1600hp locomotive power equipments	1500v dc	40	
	2100hp locomotive power equipments	1500v dc	6	
	Motorcoach power equipments	1500v dc	26	
Total powered vehicles equipped (plus trailer cars)			185	
HONG KONG				
Mass Transit Railway Corporation	Motorcoach power equipments	1500v dc	140	1976
		1500v dc	70	1978
		1500v dc	150	1979
		1500v dc	70	1980
		1500v dc	40	1982
			470	
Kowloon - Canton Railway	Motorcoach power equipments	25kV 50Hz	45	1979
		25kV 50Hz	16	1982
			61	
HUNGARY				
Hungarian State Railways	2500hp 1-Do-1 passenger & freight locomotive equipments	16000v 50 hz	26	1931
ITALY				
Italian State Railways	2200hp locomotive control equipments	3000v dc	3	1926

Railway	Equipment	Voltage	Quantity	Date Ordered
INDIA				
Western Railway (formerly Bombay, Baroda & Central Indian Railway)	Bo-Bo battery shunting locomotive complete	440v dc	2	1925
	4-car train power equipments	1500v dc	40	1926
	3-car train power equipments	1500v dc	48	1948/1955
	Sets of conversion equipment for 3-car sets	1500v dc	18	1958
	3-car train power equipments	1500v dc	21	1960/1961
Central Railway (formerly Great Indian Peninsula Railway)	2160hp 2Co passenger locomotive complete	1500v dc	1	1927
	2600hp C-C freight locomotives complete	1500v dc	41	1928
	2160hp 2-Co-1 locomotives complete	1500v dc	22	1929/1938
	Motorcoach power equipments	1500v dc	53	1928
	Motorcoach power equipments	1500v dc	32	1948
	3600hp Co-Co locomotives complete	1500v dc	29	1954/1961
Southern Railway (formerly South Indian Railway)	3-car articulated trains complete	1500v dc	24	1930
	Electric locomotives plus 2 battery tenders	1500v dc	4	
Eastern Railway	3-car motorcoach power equipments	3000v dc	36	1955
	3120hp Co-Co locomotives complete	3000v dc	12	1956
	Sets of conversion equipments for 3-car trains	25kV ac 50Hz	16	1962
	Motorcoach power equipments	25kV ac 50Hz	2	1962
	Locomotive power equipments (dual mode)	1500v dc/ 25kV ac	34	1972
CLW Jessops & ICF for Western & Central Railways (with BHEL)	Motorcoach power equipments	1500v dc	more than 200	1961/1973
ICF for Eastern Railways (with BHEL)	Motorcoach power equipments	25kV ac	more than 150	1963/1973
CLW for Eastern Railway	Locomotive power equipments	1500v dc	57	1968/1973
ICF for Western & Central Railway	Motorcoach control equipments	1500v dc	15	1973
Total powered vehicles equipped (plus trailer cars)			over 850	
JAPAN				
Imperial Government Railways of Japan (Tokio - Suburban)	1200hp Bo-Bo locomotives complete	600 and	2	1922
	Traction motors for emu trains	1500v dc	81	
	1224hp Bo-Bo traffic locomotives complete	1500v dc	29	1922/1925
(Tokio - Atami)	1800 2Co-Co2 express passenger locomotives complete	1500v dc	8	
Other Japanese Railways	Locomotive power equipments	1500v dc	20	1923/1930
	Motorcoach equipments	1500v dc	374	
	Motorcoach equipments	600v dc	173	
Total powered vehicles equipped (plus trailer cars)			687	
KOREA				
Seoul Subway	134 - 3 car subway trains with chopper control	1500v dc	268	1982
Total powered vehicles equipped (plus trailer cars)			268	
MOROCCO				
Moroccan Railways	1300hp locomotive power equipments	3000v dc	10	1924
	1440hp locomotive power equipments	3000v dc	16	
	Motorcoach power equipments	3000v dc	10	
Total powered vehicles equipped (plus trailer cars)			36	
NETHERLANDS				
N.V. Nederlandse Spoorwegen	Motorcoach power equipments	1500v dc	47	1925/1927
	Traction motors	1500v dc	472	1930/1962
	Control equipments	1500v dc	11	
	Power equipment for Postal car (Thyristor Control)	1500v dc	1	1967
	Chopper control equipments (V stock)	1500v dc	2	1968
	Chopper control equipments (Sprinter stock)	1500v dc	4	1972
Total powered vehicles equipped			183	

Sales in United Kingdom

LONDON TRANSPORT

Equipment		Quantity	Date Ordered
TUBE LINES (600v dc)			
Motorcoach power equipments		448	1901-1927
Motorcoach control equipments		343	1928-1936
Motorcoach power equipments	(prototype 1938 stock)	6	1935
	(Northern & Bakerloo Lines)	926	1938-1948
		15	1955
	(Piccadilly Lines)	380	1957
	(Woodford-Hainault automatic operation)	12	1959
	(Central Line)	527	1960
Motorcoach control equipment	(Victoria Line)	158	1965
Chopper control equipments		5	1965-68
Motorcoach control equipments	(Bakerloo & Northern Lines)	120	1971
	(Bakerloo & Northern Lines)	132	1971
	(Piccadilly Heathrow Line)	350	1972
Chopper control equipments		2	1975
Total power cars equipped		3424	
SURFACE LINES (600v dc)			
Motorcoach power equipments		576	1902-1919
Motorcoach control equipments		295	1928-1937
Metadyne control equipments		250	1936
Motorcoach power equipments	(R stock for District & Circle □ Lines)	371	1938-1959
	(Surface stock refurbishing)	246	1955-1959
	(A60 & A62 Stock for Metropolitan Line)	232	1959-1961
Motorcoach control equipment	(C69 stock for Circle & Metropolitan Lines)	106	1968
	(C77 Stock)	33	1975
	(D78 Stock)	300	1976
Total power cars equipped		2409	
Locomotives	13¾ ton tube locomotives	2	1890
	Tube locomotive power equipments	15	1903-1906
	Surface locomotive control equipments	22	1904-1906
	1200hp main line surface locomotives	20	1919-1922
	Metadyne control equipments for tube locomotives	3	1936
	Control equipments for battery locomotives	32	1938-1969
	Control equipments for battery locomotives	11	1972
Total		105	
GRAND TOTAL powered vehicles	equipped (plus trailer cars)	5938	



Victoria Line tube stock at Northumberland Park Depot.

BRITISH RAIL DC MULTIPLE UNITS

600/750v dc unless otherwise stated

Eastern & London Midland Regions

Region	Class	Equipment		Qty	Date Ordered
NE		Motorcoach power equipments	Tyneside	92	1901-1919
LM		Motorcoach complete	Wirral & Mersey	24	1903
LM		Motorcoach power equipments	Merseyrail	40	1904
LM			Bury-Holcombe Brook 3600v	2	1912
LM			Manchester-Bury 1200v	60	1915
LM			Manchester-Bury 1200v	26	1921
LM		Motorcoaches complete	Wirral & Mersey	2	1923
LM		5 car train complete	Wirral & Mersey	1	1923
LM		5 car train control equipments	Merseyrail	11	1926
LM		5 car train power equipments	Euston-Watford	25	1926-1948
LM		5 car train power equipments	Altrincham	23	1930
LM	503	Motorcoaches complete	Wirral & Mersey	19	1936
LM	502	Motorcoach power equipments	Merseyrail	59	1938
E	306		Shenfield 1500v	92	1939-1949
LM	506		Manchester-Glossop 1500v	8	1939-1949
LM	503		Wirral & Mersey	24	1953
LM	501		Euston-Watford	57	1955
E	307		GE Outer suburban	65	1956
LM	504		Manchester-Bury 1200v	26	1958
LM	507		Merseyrail	66	1975
Total vehicles equipped (plus trailer cars)				722	

Southern Region

Class	Equipment		Qty	Date Ordered
	Motorcoach power equipments	(Waterloo & City)	10	1898
	Motorcoaches complete	(Waterloo & City)	5	1899
		(Waterloo & City)	12	1938
	Motorcoach power equipments		1006	1915-1933
	Motorcoach control equipments		122	1934
	Motorcoach power equipments		492	1935-1944
			940	1945-1954
			630	1955-1964
REP		Bournemouth Express 3200hp tractor units	22	1964
VEP		Bournemouth	20	1964
VEP		Brighton	35	1966
VEP		Central Division	50	1967
VEP/BIG/CIG		Central Division		1969
VEP & CIG			110	1970
PEP		High Density Stock	10	1971
VEP			41	1972
REP		Bournemouth Express 3200hp tractor units	4	1973
508		Inner suburban	48	1977
—		Chopper control	2	1978
510		Inner suburban	50	1980
510		Inner suburban	24	1981
Total 3683 Power car equipments plus 3611 Trailer car equipments				

PLE UNITS

BRITISH RAIL AC MULTIPLE UNITS

Region	Voltage	Class	Equipment	Qty	Date Ordered
LM	6.6kV	25Hz	Motorcoach power equipments	3	1908
LM	6.6kV	50Hz	301	4	1952
E	25/6.25kV	50Hz	302	112	1956
Sc	25/6.25kV	50Hz	303	91	1956
LM	25kV	50Hz	304	45	1956
E	25/6.25kV	50Hz	305	74	1956
E	25/6.25kV	50Hz	306	92	1958
E	25/6.25kV	50Hz	307	65	1958
E	25/6.25kV	50Hz	308	45	1960
E	25/6.25kV	50Hz	309	23	1961
LM	25kV	50Hz	310	50	1964
Sc	25/6.25kV	50Hz	303*	1	1965
Sc	25/6.25kV	50Hz	311	19	1969
E	25kV	50Hz	312	19	1973
E	25kV	50Hz	312	26	1973
E	25kV 50Hz/	750V dc	313	128	1973
LM	25kV	50Hz	312	4	1975
Sc	25kV	50Hz	314*	1	1975
Sc	25kV	50Hz	314*	20	1976
E	25kV	50Hz	315*	40	1978
LM	25kV	50Hz	317*	48	1979

Total vehicles equipped (plus trailer cars)

910

* Thyristor control

OTHER UK OPERATORS OF MULTIPLE UNITS

Railway	Voltage	Equipment	Qty	Date Ordered
Glasgow Underground	600v dc	Motorcoach power equipments	22	1934
	600v dc		33	1977
Liverpool Overhead Railway	550v dc	Traction Motors	150	1901-1952
	550v dc	Control equipments	46	
Post Office Railway (London)	440v dc	Traction units with wagons	90	1924
	440v dc	Emergency locomotives (battery powered)	3	1926
	440v dc	Tractor units	50	1930
	440v dc	Tractor units	10	1936
	440v dc	Tractor units	2	1961
Tyneside PTE	1500v dc	Motorcoach power equipments	2	1974
Tyne & Wear PTE	1500v dc		95	1976

Total vehicles equipped

353

BRITISH RAIL LOCOMOTIVES

Region	Class	Equipment	Voltage	Qty	Date Ordered
NE		Shunting loco equipments	600/750v dc	2	1902
S		1470hp Co-Co power equipments	600/750v dc	3	1939
S	71	2500hp Bo-Bo power equipments	600/750v dc	24	1958
S	73/1	1600/600hp Bo-Bo electro-diesel power equipments	600/750v dc	6	1961
S	73/2	1600/600hp Bo-Bo electro-diesel locomotives complete	600/750v dc	43	1964
S	74	2500/650hp Bo-Bo electro-diesel conversion power equipments	600/750v dc	10	1968
NE		1100hp Bo-Bo power equipments	1500v dc	10	1914
LNE		1800hp 2C2 locomotive	1500v dc	1	1922
LNE	76	1868hp Bo-Bo mixed traffic power equipments	1500v dc	58	1941/
LNE		2760hp Co-Co express passenger power equipments	1500v dc	7	1954
S		1000hp Bo-Bo power equipments	6.6kV 25Hz ac	21	1922
LM		2500hp power equipment	25kV 50Hz ac	1	1957
LM	81	3300hp Bo-Bo locomotives complete	25kV 50Hz ac	25	1957
LM	82		25kV 50Hz ac	10	1958
LM	83		25kV 50Hz ac	15	1958
LM	84		25kV 50Hz ac	10	1958
LM	85	3300hp Bo-Bo power equipments	25kV 50Hz ac	40	1958
LM	86	3600hp Bo-Bo power equipments	25kV 50Hz ac	40	1963
LM	86	3600hp Bo-Bo locomotives complete	25kV 50Hz ac	60	1963
LM	87	5000hp Bo-Bo power equipments	25kV 50Hz ac	35	1971
LM	87	5000hp Bo-Bo power equipment (thyristor control)	25kV 50Hz ac	1	1973
Total			ac locomotives	258	
			dc locomotives	105	
			electro-diesel locomotives	59	
			GRAND TOTAL	422	



British Rail Class 87 ac locomotive

Railway	Equipment	Voltage	Quantity	Date Ordered
NEW ZEALAND				
New Zealand Government Railways	700hp Bo-Bo locomotives complete	1500v dc	5	1921
	400hp Battery locomotive	1500v dc	1	1921
	1200hp Bo-Bo locomotives complete	1500v dc	6	1927
	1240hp 2Do1 locomotives complete	1500v dc	10	1937
	Motorcoaches complete	1500v dc	48	1936/ 1950
	1800hp Bo-Bo mixed traffic locomotives	1500v dc	7	1950
	Motorcoach power equipments	1500v dc	44	1979
Total vehicles equipped (plus trailer cars)			121	
NORWAY				
Thamshavn-Lokken Railway	160hp locomotives complete	6600v	3	1908
	Saloon motorcoach	25Hz	1	
PAKISTAN				
Pakistan Western Railway	3650hp Bo-Bo thyristor controlled locomotives complete	25kV 50Hz	29	1966
PERU				
Peruvian Corporation (Guaqui-La-Paz)	560hp Bo-Bo locomotives complete	600v dc	1	1930
POLAND				
Polish State Railways	2200hp Bo-Bo locomotives complete	3000v dc	6	1936
	3-car train power equipments	300v dc	80	
	2200hp locomotive power equipments	3000v dc	6	1948
	2200hp locomotive power equipments (less motors)	3000v dc	2	
	3000hp Bo-Bo locomotives complete	3000v dc	20	1959
Polish Coal Mines Admin.	2500hp locomotives power equipments	3000v dc	9	1949
Total vehicles equipped			123	
PORTUGAL				
Estoril	1200hp Bo-Bo locomotive complete	1500v dc	1	1948
	Motorcoaches complete	1500v dc	11	1948/ 1951
	Motorcoach power equipments	1500v dc	13	1958/ 1968
	Motorcoach power equipments	1500v dc	21	1977
Total vehicles equipped (plus trailer cars)			46	
SOUTH AFRICA (industrial operators)				
Iscor	3340hp locomotive power equipments (6E)	3000v dc	2	1969
Consolidated Goldfields	1200hp Bo-Bo shunting locomotives	3000v dc	2	1949
	1200hp Bo-Bo shunting locomotives	3000v dc	2	1955
	28 ton Bo-Bo shunting locomotives	550v dc	3	1961
Total vehicles equipped for private railways			9	

Railway	Equipment	Voltage	Quantity	Date Ordered	
SOUTH AFRICA – continued					
South African Railways (Locomotives)	1200hp Bo-Bo mixed traffic locomotives complete (1E)	3000v dc	172	1922/1942	
	Sets of traction motors for 1200hp shunting locomotives	3000v dc	12	1937	
	2700hp Co-Co mixed traffic locomotives complete (3E)	3000v dc	28	1944	
	1200hp Bo-Bo shunting locomotives (ES)	3000v dc	10	1949	
	3030hp 1 Co-Co 1 passenger locomotives complete (4E)	3000v dc	40	1951/2	
	2020hp Bo-Bo mixed traffic locomotives complete (5E)	3000v dc	160	1954/1956	
	2380hp Bo-Bo mixed traffic locomotives complete	(5E1)	3000v dc	135	1957
		(5E1)	3000v dc	130	1962
		(5E1)	3000v dc	100	1963
		(5E1)	3000v dc	100	1964
		(5E1)	3000v dc	225	1965
	3340hp Bo-Bo mixed traffic locomotive power equipments	(6E)	3000v dc	80	1968
		(6E1)	3000v dc	20	1968
		(6E1)	3000v dc	50	1969
		(6E1)	3000v dc	100	1970
		(6E1)	3000v dc	50	1971
		(6E1)	3000v dc	100	1971
		(6E1)	3000v dc	100	1972
		(6E1)	3000v dc	100	1974
		(6E1)	3000v dc	150	1975
		(6E1)	3000v dc	105	1977
		(6E1)	3000v dc	85	1980
		(6E1)	3000v dc	60	1980
(6E1)		3000v dc	65	1982	
Total dc locomotives for SAR			2177		
South African Railways (Locomotives)	5000hp 168 tonne thyristor controlled Co-Co freight locomotives complete (9E)	50kV 50Hz	25	1975	
	(9E)	50kV 50Hz	6	1980	
Total locomotives for South African Railways ac & dc			2208		
South African Railways (Multiple Units)	Motorcoach power equipments (1500v later converted to 3000v dc)	3000v dc	95	1927/1938	
	1200hp Motorcoach power equipments	3000v dc	54	1944	
		3000v dc	52	1950	
		3000v dc	20	1952	
		3000v dc	105	1955	
		3000v dc	6	1956	
	1600hp Motorcoach power equipments	3000v dc	141	1960	
		3000v dc	15	1963	
		3000v dc	80	1964	
		3000v dc	70	1965	
		3000v dc	98	1967	
		3000v dc	55	1968	
		3000v dc	69	1969	
		3000v dc	2 *	1970	
		3000v dc	70	1971	
		3000v dc	76	1972	
	3000v dc	95	1973		
	3000v dc	24 *	1973		
	3000v dc	123	1975		
	3000v dc	147	1977		
3000v dc	203	1980			
* with chopper control	Total power car equipments plus trailer car equipments		1600		
			3541		
	Total ac & dc powered vehicles equipped for SAR		3808		

Railway	Equipment	Voltage	Quantity	Date Ordered
SPAIN				
Ferrocarriles de Cataluna (Barcelona Suburban)	Motorcoach power equipments	600 & 1200v dc	12	1923
RENFE (Spanish National Railways)	Traction motors for emu trains	1500v dc	212	1927/1936
	3600hp 150 ton passenger locomotive	1500v dc	1	1928
	3600hp Co-Co locomotives complete	3000v dc	75	1950/1957
Total vehicles equipped (plus trailer cars)			300	
TAIWAN				
Taiwan Railway Administration	2840hp thyristor controlled locomotives	25kV 60Hz	20	1974
	1600hp 5 car express multiple unit trains with thyristor control (complete)	25kV 60Hz	13	1974
USA				
Amax	Chopper controlled locomotives complete	1400/ 600v dc	4	1979
USSR				
Moscow-Mitishi Railway	Motorcoach control equipments 840hp	1500v dc	27	1926
VENEZUELA				
La Guaira-Caracas Railway	Motorcoaches complete	1650v dc	4	1927
ZAMBIA				
Roan Selection Trust	800hp locomotives	1500v dc	2	1949

Summary (at December 1980)

3793	electric locomotives
18119	electric multiple units (suburban and transit)
6173	diesel electric locomotives and multiple units
7192	industrial locomotives

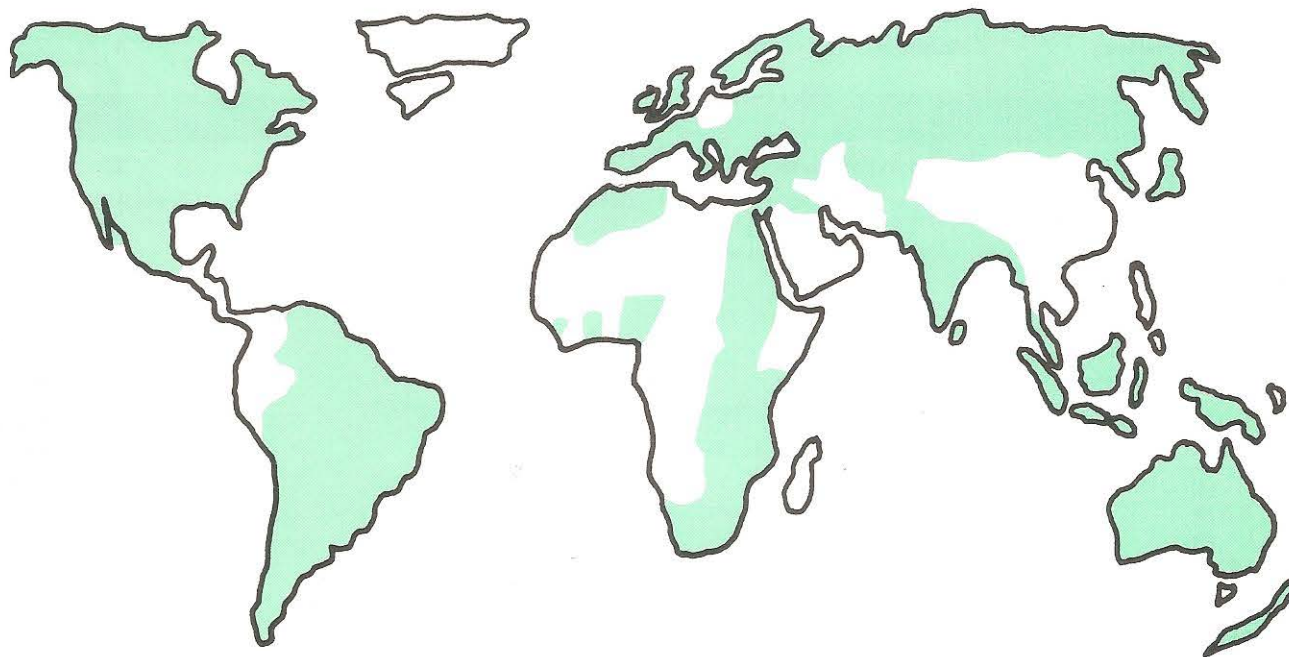
GRAND TOTAL 35,277 electric and diesel vehicles


**GEC Traction Limited
introduced
electric traction
to**

Argentina
Australia
(Victoria
New South Wales)
Brazil
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**GEC Traction have been
associated with complete
electrification projects
in**

Argentina
Australia
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 Where GEC Traction electric
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GEC Traction Limited

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