

# Modern LOCOMOTIVES ILLUSTRATED

## The *All Time* Guide to EMU Classifications



**Above:** The first franchise holder of the Great Eastern suburban lines from Liverpool Street was First Group, who commenced a repainting programme in 1997. The first unit to sport the new livery was inner-suburban Class 315 No. 315809, seen here at Shenfield on 15 April 1997. **CJM**

With the introduction of early computer-based train reporting in the 1960s, all multiple unit trains were given three digit numeric classifications. EMUs using ac as their prime power source were allocated numbers in the 3xx series, while dc powered sets were allocated numbers in the 4xx and 5xx series. For the first time, *MLI* have brought together a full tabulated list of three digit EMU classifications. Subsequent to the original listings, many sub-classes have been formed for specific sets or duties. ■

Class	Description and sub class detail
Class 300	Paper classification allocated to 'Royal Mail' EMU project (Class 307 converts), project changes to new stock as Class 325
Class 302	LTS Fenchurch Street-Shoeburyness four-car sets. Built 1959, 201-312 (302201-302312)
Class 303	Glasgow area three-car sliding door sets. Built 1960, 001-091 (303001-303091)
Class 304	LM four-car units. 001-045 (304001-304045) Built 1960 All reduced to three-car status 304/1 - Original design, 304/2 - Modified seating/equipment, 304/3 - Modified seating/equipment
Class 305	GE outer suburban four-car sets. Transferred to other Regional Railway areas 305/1 - three-car sets non gangwayed, 305/2 - three or four car sets gangwayed within sets
Class 306	Liverpool Street-Shenfield three-car sets. Built 1949 001-092 (306001-306092)
Class 307	GE outer suburban four-car sets. Built 1956 101-132 (307101-307132)
Class 308	GE outer suburban units 308/1 - GE outer suburban four-car sets. Built 1961 133-164 (308133-308164), 308/2 - GE outer suburban four-car sets 313-321 308/3 - GE outer suburban three-car sets 453-455, 308/4 - GE outer suburban four-car sets. Built 1960 501-519 (308501-308519)
Class 309	Clacton units. Built 1962, plus reforming 1974, 309/1 four-car units 601-607 (revised), 309/2 four-car buffet sets 611-618 (1973), 309/3 four-car units 621-627 (1973), 309/4 four-car units 605-608 (1973)
Class 310	LM four-car main line units. 046-095 (310046-095). Built 1966. Some units later modified for Centro use, others to NSE. Class 310/0 - Basic unit, Class 310/1 - Centro modified, Class 310/3 - Centro modified with refurbished interior and restored first class
Class 311	Glasgow area three-car sliding door sets. Built 1967 092- 110 (311092-311110)
Class 312	GE/GN outer suburban four-car sets. Built 1975 312001 etc, modified to 312701-312745 312/0 - Basic unit (312701-730), 312/1 - built with 6.25kV/25kV dual equipment 312781-312799)
Class 313	GN inner suburban sets. Built 1976. 313001-313064 (Originally allocated Nos. 313801 etc - not carried) 313/0 - As built sets, 313/1 - 313101-313134 Refurbished sets for Silverlink/London Overground, 313/2 - 313201-313215 Refurbished sets for Southern, 313/9 - Short term allocation for Clacton sets with ac operation only
Class 314	ScotRail three-car suburban units. Built 1979 314201-314216

Class 315	Great Eastern four-car suburban units. Built 1980-81 315801-315861
Class 316	Classification given to traction development units, one rebuilt from Class 307 stock and the other from Class 210 and 455 vehicles
Class 317	Class 317 Original 'Bed-Pan' units, then to WAGN, now First Capital Connect/NXEA. Built from 1981 317/1 - Original units with pressure ventilation 317301-317348, 317/2 - Modified sets with convection heating 317349-317398 317/6 - Refurbished 317/2s, revised layout 317649-317672, 317/7 - Refurbished and modified 317/0s for Stansted Airport duties 317708-317732 (nine sets)
Class 318	Glasgow area suburban units. Built 1986-87 318250-318270
Class 319	Originally built as 'Thameslink' units, now with First Capital Connect 319/0 - Original build - 319001-319060, 319/1 - Follow-on build, modified style and equipment - 319161-319186 319/2 - Seven sets modified for Victoria-Brighton 'express' 319214-319220, 319/3 - Refurbished 319/1 sets for Thameslink 'City Metro' service 319361-319386, 319/4 - Refurbished 310/0 sets for Thameslink 'City Flier' service 319421-319460
Class 320	Glasgow area suburban units. Built 1990 320301-321322
Class 321	BREL outer suburban/main line units. Built 1988-90 321/3 - Built for Great Eastern use, 321/4 - Built for WCML use, 321/9 - Built for West Yorkshire PTE
Class 322	Modified version of Class 321 originally for 'Stansted Express' duties, now working for First ScotRail. 322481-322485
Class 323	Hunslet-Barclay suburban units for Birmingham Cross-City, built 1992-95 323201-323243
Class 325	Royal Mail 'Railnet' units, based on 'Networker' and Class 319 but with standard draw-gear and TDM. Built 1995 325001-325016
Class 331	Original classification for 'Heathrow Express' stock - amended to Class 332
Class 332	Siemens built three-five-car units for 'Heathrow Express' service. 1997-98, 332001-332014
Class 333	Siemens WYPTE/Northern sets for Leeds local services. 2000-02, 333001-333016
Class 334	Alstom 'Juniper' four-car units for ScotRail/SPTE 2000-02, 334001-334040
Class 341	Allocated to proposed 'CrossRail' units
Class 342	Allocated to fleet of 184 'Networker' EMUs for use on proposed high speed Channel Tunnel line between Kent Coast and London
Class 350	Siemens 'Desiro' units for West Coast/ London Midland 350/1 - 350101 - 350130 Built 2004-05, 350/2 350231 - 350267 Built 2008-09 Allocated prior to the IC125 power-car-train project - tilting body, rebuild for electric operation at 2,680hp Also allocated to Royal Mail 'Railnet' EMUs in 1994 - changed to Class 325
Class 357	Adtranz 'Electrostar' four-car sets for c2c (ex-LTS) 357/0 Porterbrook-owned units 357001-357046, 375/2 Angel Trains-owned units 357201-357228
Class 360	Siemens 'Desiro' units 360/1 - four-car sets for First Great Eastern now National Express East Anglia - 360101-360121 Built 2002-03, 360/1 - four-five-car sets for Heathrow Connect 360101-360105 Built 2004-06
Class 365	ABB 'Networker Express' stock for Connex SE and WAGN, now all First Capital Connect, 365501-365541 Built 1994-95
Class 370	BR Advanced Passenger Train
Class 371	Allocated to 'Thameslink 2000' stock six-car sets
Class 373	'Eurostar' Channel Tunnel units official classification - 373/1 for GB, SNCF and SNCB sets, 373/2 'Regional' (short) sets Numeric classification 373/0 - GB sets, 373/1 - SNCB sets, 373/2 - SNCF sets, 373/3 - Regional sets
Class 375	Adtranz/Bombardier 'Electrostar' for Connex then Southeastern, 1999-2005 375/3 three-car 'express' sets 375301-375310 three-car dc power, 375/6 four-car 'express' sets 375601-375630 four-car dual power 375/7 four-car 'express' sets 375701-375715 four-car dc power, 375/8 four-car 'express' sets 375801-375830 four-car dc power 375/9 four-car 'express' sets 375901-375927 four-car dc power
Class 376	Bombardier 'Electrostar' five-car inner-suburban, high-density use, Built 2004-05 376001-376036
Class 377	Adtranz/Bombardier 'Electrostar' for Connex then Southern, 2001-05 377/1 four-car 'express' sets 377101-377164 four-car dc power, 377/2 four-car 'express' sets 377201-377215 four-car dual power 377/3 three-car 'express' sets 377301-377328 three-car dc power (built as 375/3), 377/4 four-car 'express' sets 377401-377475 four-car dc power
Class 378	Bombardier 'Capitalstar' sets for London Overground 378/0 three-car sets dual voltage 378001-378024, 378/1 four-car sets dc only 378135-378154, 378/2 four-car dual voltage 378225-378257
Class 379	Bombardier Electrostar for East Anglia franchise, four-car sets, 379001-379030
Class 380	Siemens 'Desiro' sets for ScotRail. 378/0 three-car sets 380001-380022, 378/1 four-car sets 380101-380116
Class 381	Allocated to dual-voltage 'Networker' - Project withdrawn
Class 390	Alstom/Virgin Trains 'Pendolino' stock for WCML 2000-03 - 390001-390053 (extra sets on order)
Class 395	Hitachi-built 'Javelin' six-car sets for domestic operation over HS1 and on Kent main line - 2007-09, 395001-395029
Class 401	SR design 2-BIL units
Class 402	SR design 2-HAL units - also covered 2-PAN series
Class 403	SR design 5-BEL units
Class 404	SR design 4-COR units
Class 405	SR 4-SUB units 4101-4753 (various builds), 405/1 and 405/2 sub classes issued for detail technical differences
Class 410	BR design 4-BEP 7001-7022. Built 1956-59 410/1 - Fitted with 1951 equipment, 410/2 - Fitted with 1957 equipment. Later refurbished as class 412
Class 411	Original 1972 classification - SR design EPB stock Revised classification - BR design 4-CEP 7101-7211. Built 1956-58 411/1 - Original units fitted with 1951 equipment, 411/2 - Units fitted with 1957 electric equipment 411/3 - Prototype refurbished unit, 411/4 - Classification used for three-car units in 1993-94 411/5 - Refurbished class 411/2, 411/9 - three-car sets for Connex operation in 2000
Class 412	Original 1972 classification - SR/BR design 2-HAP stock Revised classification - BR refurbished 4-BEP. 2301-2306, rebuilt from Class 410
Class 413	Original 1972 classification - SR/BR design 2-EPB stock Revised classification - BR design HAP units coupled in pairs as 4-CAP, 413/2 - 1951 equipment, 413/3 - 1957 equipment
Class 414	Original 1972 classification 414/1 - 1951 equipped 4-CEP units, 414/2 - 1951 equipped 4-BEP units Revised classification - SR/BR 2-HAP units. Built 1957-58 414/1 - SR designed units, 414/2 - BR designed units with 1951 equipment, 414/3 - BR designed units with 1957 equipment
Class 415	SR/BR 4-EPB 5001-5366 (later amended) Built from 1951, 415/1 - SR design units, 415/2 - BR design units, 415/4 - Facelifted 415/1s 415/5 - Sets formed with compartment vehicles in 1980s, 415/6 - Refurbished 415/2s, 415/7 - BR design units with express gear ratio
Class 416	SR/BR 2-EPB 5651-5795 (later amended) Built from 1953 416/1 - SR design units, 416/2 - BR design units, 416/3 - Refurbished SR design units, 416/4 - Refurbished BR design units
Class 418	BR 2 SAP units - Modified from 2-HAP. 5901-5942. Introduced 1974 as SAP 418/1 - Modified from 1951 equipped HAP, 418/2 - Modified from 1957 equipped HAP
Class 419	Single MLVs. 68001-68010. Built 1959-61
Class 420	BR design 4-BIG. 7031-7058. Built 1965-70 - Code changed to 422 in 1983 420/1 - Original design fitted with electric parking brake, 420/2 - Modified 1970 design



Class 421	Original 1972 classification - 421/1 - 1957 equipped 4-CEP, 421/2 - 1957 equipped 4-BEP Revised classification BR design 4-CIG 7301-7438. Built 1964-70 421/1 - Original phase 1 sets fitted with electric parking brake, 421/2 - Production sets with manual parking brake 421/3 - Refurbished phase 1 electric park brake sets, 421/4 - Refurbished phase 2 manual park brake sets 421/5 - Refurbished sets with 'Greyhound' speed equipment, 421/7 - three-car 3-COP units for Brighton-Portsmouth 'Coastway' use 421/8 - Refurbished sets with 'Greyhound' speed equipment, former 422s with 411 TS vice TRBS
Class 422	Original 1972 classification - 422/1 - MLV, 422/2 - TLV, Revised classification 4-BIG units from 1988 422/0 - 8 DIG units for London-Brighton service (formed of one class 421 and one class 422/0, 422/2 - 4 BIG refurbished phase 2 422/3 - 4 BIG facelifted phase 1 or 2 (Mk6 Power bogies)
Class 423	Original 1972 classification BR design EPB units Revised classification BR design 4-VEP 7701-7894. Built 1967-73, 423/0 - Original units, 423/1 - Refurbished sets 423/2 - Modified 423/1s with all standard seating (open) for South London Metro, 423/4 - Original classification for refurbished sets, changed to 423/1
Class 424	Original 1972 classification - 1957 equipped 2-HAP units Revised classification - Used for trial rebuilding of 'Networker Classic' from frames of 1963 stock
Class 427	Modified 4-VEP stock with extra luggage space 4-VEG for use on Victoria-Gatwick service
Class 430	SR 4-REP units 3001-3015. Built 1966-72 - classification until 1983
Class 431	Original 1972 classification 431/1 production 4-CIG units, 431/2 production 4-BIG units
Class 432	Original 1972 classification 4 VEP and 8 VAB units, Revised classification BR 4-REP units 3001-3015, reclassified from class 430 in 1983
Class 438	Amended classification of 4-TC sets (42)8001-(42)8034
Class 441	Original 1972 classification REP units
Class 442	Original 1972 classification TC stock 442/1 - 3-TC, 442/2 - 4-TC Revised classification 'Wessex Electric 5-WES units, Built 1988-1989, 2401-2422 (now on Southern/Gatwick Express
Class 444	Siemens Desiro five-car 23m vehicle main line sets for SWT, Built 2002-05, 444001-444045
Class 445	BR 4-PEP prototype suburban unit 4001-4002. Built 1971
Class 446	BR 2-PEP prototype suburban unit 2001. Built 1972
Class 447	Classification allocated to 'Battersea Bullet' EMUs - cancelled
Class 450	Siemens 'Desiro' outer-suburban 20m vehicle sets. Built 2003-05 450001-450117 450/2 Allocated to 32 five-car 20m vehicle 'Desiro' EMUs for SWT- cancelled 450/5 Allocated to High Capacity sets 450543-450570
Class 451	Original 1972 classification for 3-TIS units
Class 452	Original 1972 classification for 4-VEC units

**Below:** The modern order of the day on the Great Eastern lines from London Liverpool Street, with BREL-built Class 315, 317, 321 and Siemens Class 360 stock dominating the service. Painted in the latest National Express East Anglia livery, the first of the Class 321/3 build No. 321301 pulls away from Stratford with a semi-fast service from Clacton on 28 April 2010. The East Anglia franchise is up for renewal in 2011 and it is likely that yet another new livery will be applied to these units. **CJM**





Class 453	Original 1972 classification for Waterloo & City stock
Class 455	BR/SR replacement suburban stock. Built 1982-85 455/7 - Phase 2 units, 455/8 - Phase 1 units, 455/9 - Phase 3 units
Class 456	BR/SR replacement suburban stock two-car units. Built 1990-91, 456001-456024
Class 457	Used for modified Class 455 and 210 stock when used for dc 'Networker' traction development work
Class 458	Alstom 'Juniper' sets for SWT - (45)8001-(45)8030 Built 1998-2000
Class 460	Alstom 'Juniper' 8-car sets for Gatwick Express 460001-460008
Class 461	Original 1972 classification for 2-PEP
Class 462	Original 1972 classification for 4-PEP
Class 465	BREL/Met-Cam 'Networker' units, replacement stock for Kent Link, Built 1991-94 465/0 - BREL/ABB phase 1 sets 465001-465050, 465/1 - ABB phase 2 sets 465151-465197, 465/2 - Metro Cammell (GEC) phase 1 sets 465201-465250, 465/3 - Originally allocated to 'Networker Express' project - changed to 365/5, 465/9 - Refurbished 465/2s with low-density interiors and first class 465906-465932
Class 466	Met Cam 'Networker' two-car sets for Kent Link, Built 1993-94, 466001-466043
Class 471	Allocated to Kent Coast main Line 'Networker' units (800 vehicles as main line version of Class 465) - cancelled
Class 480	Eight-car 8-VAB unit. 8001, modified from VEP stock plus loco hauled buffet
Class 482	Temp allocation given to reformed 8-MIG units (CIG with Buffet) Nos. 2601, 2602 Replacement Waterloo & City line stock, built as part of LUL Central line order. Built 1993, Class number later withdrawn - Stock sold to LUL TOPS numbers 482501-482510
Class 483	Replacement Isle of Wight stock. Rebuilt 1989-90 from ex-LUL stock, 001-009
Class 485	Isle of Wight 4-VEC units. Introduced 1967, 041-046
Class 486	Isle of Wight 3-TIS units. Introduced 1967, 031-035
Class 487	Waterloo & City 1940 stock. Motors 51-62, Trailers 71-86
Class 488	Gatwick Express modified loco-hauled passenger stock 1983-84, 488/2 - two-car sets 8201 fleet, 488/3 - three car sets 8301 fleet
Class 489	Gatwick Express driving vans, rebuilt from Class 414 DMB stock in 1983-84. 68500-09, set Nos. 9101-9110
Class 491	BR 4-TC sets 401-434. Rebuilt 1966/72
Class 492	BR 3-TC units 301-303, rebuilt 1966 from loco-hauled stock, 492/8 - used by temp formation of 5 TCB sets for Bournemouth line 280x
Class 499	Rebuilt loco-hauled BGs as trailer vehicles for MLV. Classified TLV. Nos. 68201-206. Most returned to locohaunched stock
Class 501	Three-car LM sets for North London line. Built 1957. Car Nos. M61135-88, M70135-88, M75135-88
Class 502	Three-car LM sets for Liverpool-Southport line. Built 1939. Car Nos. M28311-66, M29545-98, M29862-96
Class 503	Three-car LM sets for Wirral and Mersey lines. Built 1938-56. Car Nos. M28371-94/672-90, M29702-20/29821-846, M29131-156/271-289
Class 504	Two-car LM sets for Manchester-Bury line. Built 1959. Car Nos. M65436-460, M77157-82
Class 506	Three-car LM sets for Manchester-Hadfield line. Built 1954 Car Nos. M59401-08, M59501-08, M59601-08
Class 507	BR/BREL Merseyrail three-car units. Built 1978-80. 507001-507033
Class 508	BR/BREL Four-car suburban units built 1979-80 for SR, 508001-508043. Transferred to Merseyrail as three car sets, some later returned to Connex (Southeastern) and Silverlink (London Overground), 508/0 - As delivered - 508001 - 508043, 508/1 - Merseyrail sets - 508103 - 508143, 508/2 - Southeastern sets 508201 - 508212, 508/3 - Silverlink (London Overground) sets - 508301 - 508303
Class 510	Originally allocated to SR suburban replacement stock - changed to Class 455

List Correct to 05/10

**Below:** Set No. 417 was used for a number of pre-service trial runs in mid 1960. One operated on 2 June 1960 from Ilford to Liverpool Street and then to Hertford East, stopping at Rye House for a photo shoot, where this image was captured. It will be noticed that the buck-eye coupling is in the lowered position. **CJM Collection**

