



SD001

System Data for Mechanical and Electrical Coupling of Rail Vehicles

System Data in support of GM/RT2190

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Part 1 Mechanical Coupling System Data

1.1 Index of mechanical interconnection systems

1.1.1 By system reference number

SYSTEM	Description	Typical or initial application
M001	Screw coupling system	
M002	Instanter coupling system	
M003	Drophead buckeye automatic coupling system	
M004	Alliance coupling system	
M005	Compact coupling system	
M006	Tightlock coupling system	
M007	Automatic latched coupling system	
M008	Semi-permanent (bar) coupling system	
M009	Swinghead coupling system	

1.1.2 By vehicle type and class

1.1.2.1 Locomotives

SYSTEM	Description	Vehicle class(es)
M001	Screw both ends	CI08, 09, 20, 31, 33/0, 33/2, 37, 47, 56, 57/0, 57/6, 58, 59, 60, 66/4, 66/5, 66/6, 66/9, 86, 87, 90/1 and 92
M003	Drophead buckeye automatic both ends	CI33/1, 73, 90/0, and 91
M007	Automatic latched type 12 from Dellner	CI57/3
M009	Swinghead coupler both ends	CI66/0, 67



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1.1.2.2 Diesel and diesel electric multiple units

SYSTEM	Description	Vehicle class(es)
M001	Screw both ends	CI121
M005	BSI cab ends	CI142, 143, 144, 150/0, 168 and 170
M005	BSI all ends	CI150/1, 150/2, 153, 155, 156, 158, 159, 165 and 166
M003	Drophead buckeye automatic cab ends, Alliance intermediate ends	CI205 and 207
M007	Automatic latched type 330 from Scharfenberg at cab ends	CI175 and 180
M007	Automatic latched type 12 from Dellner at cab ends	CI220, 221 and 222

1.1.2.3 Electrical multiple units

SYSTEM	Description	Vehicle class(es)
M003	Drophead buckeye automatic cab ends, Alliance intermediate ends	CI312, 411, 412, 421, and 423
M006	Tightlock cab ends	CI313, 314, 315, 317, 318, 319, 320, 321, 322, 323, 334, 357, 365, 455, 456, 465, 466, 507 and 508
M003	Drophead buckeye automatic cab ends	CI325 and 442
M007	Automatic latched type 10 from Scharfenberg cab ends	CI332
M007	Automatic latched type 10 from Dellner cab ends	CI333
M007	Automatic latched type 12 from Dellner at cab ends	CI350, 360, 375, 376, 377, 378, 390, 444 and 450 (390 at "non-standard" height)
M006	AAR type from Scharfenberg cab ends	CI458
M007	Automatic latched type 330 from Scharfenberg cab ends and between cars 4 and 5	CI460
See 1.1.3 below	Wedgelock cab ends	CI483 (Isle of Wight stock)

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1.1.2.4 Coaching Stock

SYSTEM	Description	Vehicle class(es)
M001	Drawhook only cab end	Mk2 DBSO
M003	Drophead buckeye automatic non cab end	
M003	Drophead buckeye automatic sub set ends	CI488 subsets
M003	Drophead buckeye automatic both ends	CI489
M001	Drawhook front end	Mk3 DLV (also known as DVT)
M003	Drophead buckeye automatic rear end	
M003	Drophead buckeye automatic both ends	All other Mk1, 2 and 3 locomotive hauled passenger vehicles
M001	Drawhook front end	Mk4 DLV (also known as DVT)
M006	Tightlock rear end	
M003	Drophead buckeye automatic, non gangwayed end	Mk4 TOE
M006	Tightlock (not EMU compatible)	
M006	Tightlock (not EMU compatible) both ends	Mk4 passenger vehicles

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1.1.3 Miscellaneous

1.1.3.1 Cab end HST power cars

Connection points are fitted to the cab ends of HST power cars. The connection points allow rescue and assistance by other HST sets and locomotives by means of adaptor couplers carried on the vehicle.

1.1.3.2 Wedgelock couplers

Wedgelock couplers are used on some London Underground trains and CI483 Isle of Wight trains (which are ex London Underground trains).

1.1.3.3 AAR type E and F couplers

AAR type E and F couplers are used on certain types of intermediate freight vehicles which operate in block formation.

1.1.3.4 EMU centre couplers

Centre buffer and three link couplers are used on intermediate ends of vehicles of certain types of EMU and other vehicles not used for passenger services. Some vehicles with this type of coupler are subject to imminent withdrawal.

1.2 Freight vehicles

The freight wagon TSI is likely to mandate the fitment of screw couplings to wagons, or to the outer ends of fixed formation rakes of wagons. Currently the majority of freight vehicles are fitted at both ends with:

- a) A drawhook and Screw coupler.
- b) A drawhook and Instanter coupler (some older vehicles may still have 3 link chain type coupling).
- c) A drawhook and international Screw coupler (for vehicles used in international traffic).

d) Drophead buckeye automatic couplings.

e) Swinghead couplings.

f) Rotary head couplers.

g) AAR type E and F couplers.

In addition:

h) Some freightliner vehicles are fitted with Screw couplers at both outer ends of vehicle rakes and bar couplers at the intermediate positions.

i) FSA/FTA freightliner vehicles are fitted with standard Screw couplers at both outer ends of vehicle rakes with Screw couplers at lower height at the intermediate positions.

j) Detailed listings of coupler types fitted to individual vehicles can be obtained from the Rolling Stock Library, ATOS Origin IT Services (UK) Ltd, Building 10.1, Beeston Technology Park, Technology Drive, Beeston, NG9 2ND.

1.3 On-track machines

The majority of on-track machines (those vehicles of mobile rail plant which can travel outside of a possession) are fitted with draw hook and screw couplings. There are some vehicles which are intended to travel alone only and have no coupling arrangement.

1.4 Additional data

Ref	Description
MA001	Summary of compatibility between coupling systems
MA002	Adaptor couplers and equipment

Part 2 Electrical Connector System Data

2.1 Index of electrical interconnection systems

2.1.1 By system reference number

SYSTEM	Description	Typical or initial application
E001	Control interconnector - 19 way	1 st generation dms
E002	Control interconnector - 27 way	20*, 26, 31 & 37* sandite vehicles (ex GUVs) nos LNE 99025, LNE 99026 & LNE 99027 and some Mk2D and Mk2F vehicles
E003	Control interconnector - 27 way	33 & 73 for diesel working
E004	Control interconnector - 27 way	33/1 & 73/1 for electric working
E005	Control interconnector - 27 way	56 & 58
E006	Control interconnector - 27 way	59/0, 59/1, 59/2, 66 66/5, 66/6 & 67
E007	Control interconnector - 27 way	47/9 & 47390-47399
E008	Control interconnector - 27 way	Mk 1 demus
E009	Control interconnector - 27 way	Mk 1 d.c. emus
E010	Control interconnector - 27 way	CI442
E011	Control interconnector - 36 way	HST power cars and coaches

SYSTEM	Description	Typical or initial application
E012	Control interconnector - 36 way	CI60
E013	Control interconnector - 42 way	455 & 456
E014	Control interconnector - 42 way	150, 153, 155, 156 & 158-159
E015	Control interconnector - 61 way	CI92
E016	UIC 568 connector	ECML
E017	EP assist connector	Nightstock
E018	Control interconnector - 36 way butt type	1 st generation a.c. emus
E019	Control interconnector - Auto coupler	313-315, 317-323, 507, 508 & 508/2
E020	Control interconnector - Auto coupler	465 & 466
E021	Control interconnector - Auto coupler	141-144, 150, 153, 155, 156, 158 & 159
E022	Control interconnector - auto coupler	165 & 166
E023	Lighting control interconnector (RCH)	Mk1, 2 & 3 coaches and Mk3 sleepers
E024	Time Division Multiplex (TDM) control interconnector (using the RCH interconnector)	DBSO, Mk2, DVT 125, Mk3, CI47/7, 86, 87, 90, 91, DVT 225
E025	Electric train supply interconnector - 415V, 3 phase, 600A	HST power cars and coaches



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SYSTEM	Description	Typical or initial application
E026	Electric train supply interconnector - 1000V, 600A, single pole	Mk1, 2, 3 & 4 coaches and associated locomotives
E027	Electric train supply interconnector - 1500V, 800A, single pole	CI92
E028	UIC inter-vehicle communication system	CI91 and Mk4 coaches
E029	Control interconnector - 27 way	CI20*-20306-20311 inclusive CI37*-37607-37612 inclusive
E030	Control interconnector - Auto coupler	Turbostar CI170 subclasses /1/2/4
E031	Control train line functions and intermediate connections	Turbostar CI170 subclasses /5/6
E032	Control interconnector - Auto coupler	Coradia CI75 & 180
E033	Control interconnector - Auto coupler	Voyager CI20 & 221
E034	Control interconnector - Auto coupler	Juniper CI34 and 458
E035	Control interconnector - Auto coupler	CI168/1
E036	Jumper arrangement	Locomotive 73202 [CI460 rescue]
E037	Control interconnector - Auto coupler	CI378

Note: * CI20 and CI37 vary between E002 and E029.

2.1.2 By vehicle type and class

2.1.2.1 Locomotives

SYSTEM	Description	Vehicle class(es)
E002	Control interconnector - 27 way	20*, 26, 31 & 37*
E003	Control interconnector - 27 way	33 & 73 for diesel working
E004	Control interconnector - 27 way	33/1 & 73/1 for electric working
E005	Control interconnector - 27 way	56 & 58
E006	Control interconnector - 27 way	59/0, 59/1, 59/2, 66 66/5, 66/6 & 67
E007	Control interconnector - 27 way	47/9 & 47390-47399
E011	Control interconnector - 36 way	43 power cars
E012	Control interconnector - 36 way	60
E015	Control interconnector - 61 way	92
E024	Time Division Multiplex (TDM) control interconnector (using the RCH interconnector)	47/7, 86, 87, 90, 91
E025	Electric train supply interconnector - 415V, 3 phase, 600A	43 power cars



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SYSTEM	Description	Vehicle class(es)
E026	Electric train supply interconnector - 1000V, 600A, single pole	31, 33, 37, 73, 86, 87, 90, 91
E027	Electric train supply interconnector - 1500V, 800A, single pole	92
E028	UIC inter-vehicle communication system	Class 91
E029	Control interconnector - 27 way	CI20*-20306-20311 inclusive CI37*-37607-37612 inclusive
E036	Jumper arrangement	Vehicle 73202 [CI460 rescue vehicle]

Note: * CI20 and CI37 vary between E002 and E029.

2.1.2.2 Diesel and diesel electric multiple units

SYSTEM	Description	Vehicle class(es)
E001	Control interconnector - 19 way	100 -131
E008	Control interconnector - 27 way	205 & 207
E014	Control interconnector - 42 way	150, 153, 155, 156 & 158-159
E021	Control interconnector - Auto coupler	141-144, 150, 153, 155, 156, 158 & 159
E022	Control interconnector - Auto coupler	165 & 166
E030	Control interconnector - Auto coupler	CI170/1/2/4
E031	Control train line functions and intermediate connections	CI170/5/6
E032	Control interconnector - Auto coupler	CI175 & 180
E033	Control interconnector - Auto coupler	CI220 & 221

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2.1.2.3 Electrical multiple units

SYSTEM	Description	Vehicle class(es)
E009	Control interconnector - 27 way	411, 412, 421-423, 488, 489, 930 & 931
E010	Control interconnector - 27 way	442
E011	Control interconnector - 36 way	43 (power cars and Mk3 HST coaches)
E012	Control interconnector - 36 way	60
E013	Control interconnector - 42 way	455 & 456
E018	Control interconnector - 36 way butt type	302-312
E019	Control interconnector - Auto coupler	313-315, 317-323, 507, 508 & 508/2
E020	Control interconnector - Auto coupler	465 & 466
E033	Control interconnector - Auto coupler	220 & 221
E034	Control interconnector - Auto coupler	34 [Scotrail-JO4] 58 [SWT – JO3]
E037	Control interconnector - Auto coupler	378

2.1.2.4 Coaching stock

SYSTEM	Description	Vehicle class(es)
E002	Control interconnector - 27 way	Some Mk2D and Mk2F vehicles
E011	Control interconnector - 36 way	Mk3 HST coaches
E015	Control interconnector - 61 way	CTNS
E016	UIC 568 connector	CTNS and ECML
E017	EP assist connector	Nightstock
E023	Lighting control interconnector (RCH)	Mk 1, 2 & 3 coaches and Mk 3 sleepers
E024	Time Division Multiplex (TDM) control interconnector (using the RCH interconnector)	DBSO, Mk2, DVT125, Mk3, DVT225 & Nightstock
E025	Electric train supply interconnector - 415V, 3 phase, 600A	Mk3 HST coaches
E026	Electric train supply interconnector - 1000V, 600A, single pole	Mk1, 2, 3 & 4 coaches and Mk 3 sleepers
E027	Electric train supply interconnector - 1500V, 800A, single pole	Nightstock
E028	UIC inter-vehicle communication system	Mk4 coaches