PREPARATION AND WORKING

OF

FREIGHT TRAINS

OPERATIVE 5 MAY 1969

Operating Department, British Railways Board

(WHITE pages)

BR 30054/6
April 1969

WORKING MANUAL FOR RAIL STAFF

6. Preparation and Working of Freight Trains

A. Freight Train Classification

B. Assessing the Train

C. Notes on Special Circumstances

D. Method of Calculating Permitted Train Loads

E. Loads Permitted with Specific Brake Forces:

(i) Classes 4 and 6(a)

(ii) Classes 6(b), 7 and 8

F. Markings on Freight Stock

G. Classification of Locomotives

H. Local Information

J. Freight Train Guard's Journal: Notes on Compilation

A. Freight Train Classification

A1. Freight trains are classified as follows:

	Minimum brake force in accordance with—
Class 4	
Express freight train conveying vehicles permitted to run at 75 mph or over	Table E1
Freightliner	Table E1
Class 6	
(a) Fully-fitted Company or block train	Table E1
(b) Ordinary fully-fitted express freight train	Table E2
Class 7	
Express freight train not fully fitted	Table E2
Class 8	
Freight train not fully fitted	Table E2
Class 9	
(a) Unfitted freight train—where specially authorised	(see below)
(b) Freight train requiring to stop in section	(see below)

A2. The loads for Class 4 and Class 6(a) trains will be quoted separately for each train. Instructions for Class 9 trains will be issued as necessary by the Region/Division concerned.

B. Assessing the Train

B1. Before any freight train starts its journey, the following information must be known about it:

(a) **Its total tonnage** (including locomotive and brakevan)—to ensure that it is not too heavy for the locomotive or the route to be taken.

(b) **Its total brake force** (including the locomotive but *not* the brakevan) —to ensure that it can be stopped within safe limits.

(c) **The route availability** of the locomotive and of individual wagons— to ensure that the train does not contain any vehicles with too heavy an axle-loading for the route.

(d) **The maximum speed** at which the train may run.

(e) **Its length** in standard wagon length units.

B2. For individual wagons this information is shown in a panel on the side, thus:

EXCESS LENGTH	H	M	L	E
TONS				
VB				
RA				
MAX. SPEED				

The 'VB' figure indicates the brake force (in tons) for vacuum-braked vehicles. Panels on vehicles fitted with the air-brake carry an extra entry 'AB'. Where there is no 'AB' entry it must be assumed the vehicle is not so fitted.

B3. For locomotives the information is shown on a panel thus:

CLASS	
WEIGHT (tons)	
BKE FORCE (tons)	
RA	
MAX. SPEED	

B4. The class numbers for all locomotives are listed in Section G.

Duties of the Guard

B5. Standards in each of the five categories are laid down, for each journey, on a Train Preparation Form. It is the guard's responsibility to ensure that the train conforms with the standards *in every respect* before starting the journey. He should also take steps to ensure that, where traffic is available, the train is made up to the *total permitted load* so as to make the best use of the locomotive power, as indicated below.

(a) *Tonnage*

Loading staff are required to attach a label to each loaded wagon indicating whether the load is 'heavy' (H), 'medium' (M) or 'light' (L). The guard, after checking the label, must select the appropriate tonnage from the panel on the side of the wagon and include it in the total for the train, adding the tonnage for each wagon in turn to that of the locomotive and brakevan.

The total permitted load varies according to the type of train. The method of establishing the permitted load for a journey is shown in Section **D.**

(b) *Brake force*

Similarly, for brake-fitted wagons marshalled next to the locomotive and with brakes connected continuously, the guard must select the appropriate brake force marked (in tons), on the side of each of these wagons and add it to that of the locomotive. The total in this case must be not less than the figure laid down. When there are not enough fitted vehicles to reach the required brake force, the guard must see that the total load is reduced to an amount for which the available brake force is sufficient: see Section **E.**

Piped-only wagons are indicated by a 'zero' entry for brake force.

(c) *Route availability*

All sections of line are classified according to the axle-loading permitted over the section. The classification consists of a series of code numbers ranging from 1 to 10. The rating for the locomotive and each wagon is shown on the panel on the side. The guard must ensure that no wagon in the train has a rating, *taking account of its load* (H, M, L or E), which is higher than the 'route availability' (RA) code

Vehicle RA	Routes over which vehicle may travel									
1	1	2	3	4	5	6	7	8	9	10
2		2	3	4	5	6	7	8	9	10
3			3	4	5	6	7	8	9	10
4				4	5	6	7	8	9	10
5					5	6	7	8	9	10
6						6	7	8	9	10
7							7	8	9	10
8								8	9	10
9									9	10
10										10

number shown on the Train Preparation Form. For example, if the RA code is 3, an 'H'-labelled wagon rated H=4 *must be excluded.* The only authority for vehicles to travel over a route with a lower RA code number than that on the wagon panel is Form BR 29973/3 which will be issued to train crews as necessary under the Exceptional Loads procedure. The locomotive rating must also conform to the route availability.

(d) *Speed*

The maximum speed of the train is governed by:

(i) the lowest maximum speed shown on the panel on any vehicle in the train.

(ii) the speed endorsed on any "Exceptional load" label.

(e) *Length*

The guard must ensure that the train does not exceed the length limit specified for each particular route. In assessing the length of the train, the locomotive and brakevan should not be counted, as they are allowed for automatically in fixing the limit.* Four-wheeled and six-wheeled wagons are to be counted as one standard length unit (21 ft) and all bogie wagons as two standard length units.

Wagons longer than the standard have their excess length shown in tenths of a unit, on the panel on the side. Entries for "excess length" on the panels must be totalled for the train, the total divided by ten, and the result, to the next higher whole number, added to the number of standard length units.

* When the train is worked by two locomotives, the second locomotive should be counted in as 3 standard wagon length units (30 tenths). The train brakevan is the van in which the guard is actually working.

B6. A completed Train Preparation Form, BR 20896/–, must accompany the train throughout, and be handed in at the terminating point of the train. Before departure the guard must hand to the driver a completed Driver's Slip, BR 20896/138.

B7. When vehicles are detached and/or attached en route, the train particulars must be adjusted. Where a minor detachment and/or attachment is made, it will be possible to alter the Train Preparation Form. Where, however, a train is considerably remarshalled, a fresh Train Preparation Form must be prepared. The guard must then tell the driver and confirm by handing him a Driver's Slip with the revised particulars.

Duties of the Driver

B8. The driver must not start the train until he has received Form BR 20896/138 (Driver's Slip) and has checked that it is within the permitted load of the locomotive and that the brake force is adequate in accordance with Section E, or otherwise as specified in the loads tables. He must take care not to exceed the authorised speed shown on the Driver's Slip or any permanent or temporary speed restriction which may be in force on the route taken.

B9. If because of adverse weather conditions he considers that the train cannot be worked satisfactorily, he should inform the guard of the reduction in load or increase in brake-power he considers necessary, and the guard should ask the person in charge of the yard or station to adjust the train accordingly. The driver should report the circumstances at the end of his turn of duty, and the guard should make an appropriate entry in his journal.

Examination of trains

B10. Booked services must be examined as scheduled in the Working Timetable, Special Notice etc. Special freight trains must not run more than 160 miles without examination by C & W staff.

Assisted train loads: diesel traction

B11. Except where specific loads are laid down for trains assisted in front or rear, the following instructions will apply:

In front (*including* tonnage of assisting locomotive)

(a) The total basic load for two locomotives of the same class working in multiple or tandem to be twice the basic load of the single locomotive, provided that this does not exceed the highest basic load for any single locomotive on the route.

(b) The total basic load for two locomotives of different classes working in multiple or tandem to be the basic load of the train locomotive plus half the basic load of the assisting locomotive, provided that this does not exceed the highest basic load for any single locomotive on the route.

In rear (*excluding* tonnage of assisting locomotive)

(a) For two locomotives of the same class, the total basic load to be the basic load of the leading locomotive plus two-thirds of the basic load of the assisting locomotive.

(b) For two locomotives of different classes, the total basic load to be the basic load of the leading locomotive plus half the basic load of the assisting locomotive.

Assisted train loads: electric traction

B12. Loads for electrically-hauled trains with assisting locomotives are laid down under Regional arrangements as necessary.

C. Notes on Special Circumstances

1. Absence of Information

C1/1. Certain wagons may not be fitted with the standard information panels. They must, nevertheless, be accounted for in every train. Basic panels giving full details for all standard types of wagon are therefore shown, for the assistance of staff, in Section **C3.**

C1/2. Where particular items of information are not known, the details should be calculated as shown below.

(i) *Load category*

C1/3. If for any reason a loaded wagon has not been labelled H, M or L and it is not possible to determine by inspection how heavy the load is, the wagon is to be treated as H in load calculations, but as L for brake force if it is a fitted wagon and is to be included in the total brake force of the train.

(ii) *Tonnage*

C1/4. "Dead" locomotives, coaching vehicles and vehicles not bearing the standard panel should be included in the tonnage according to their gross weight.

(iii) *Length*

C1/5. Where it is not possible to establish the length of such vehicles they should be assessed as follows:

Bogie coaching vehicles	3 standard length units
Bogie wagons	2 standard length units
Four- and six-wheeled vehicles	1 standard length unit
Cartics (set of 4)	10 standard length units

(iv) *Brake force*

C1/6. The brake force of fitted vehicles should be assessed as one-half of the tare, rounded down to the next whole number of tons.

(v) *Route availability*

C1/7. For coaching stock the Route Availability should be regarded as RA2.

C1/8. Where the Route Availability of any other vehicle is not known, it should be assessed as follows. The tare plus the plated capacity of a loaded vehicle, or the tare only in the case of an empty vehicle, should be divided by the number of axles. The resulting weight per axle gives an RA code number according to the table overleaf.

Weight per axle (*tons*)	RA
13 or less	1
Over 13–15	2
Over 15–16	3
Over 16–17	4
Over 17–18	5
Over 18–20	6
Over 20–21	7
Over 21–22½	8
Over 22½–23	9
Over 23–25	10

(vi) *Maximum speed*

C1/9. Where the maximum speed of a vehicle is not known it should be regarded as 45 mph.

2. Miscellaneous

C2/1. British and Continental ferry wagons have a special label which incorporates the information shown on BR stock.

C2/2. Empty wagons with a tare weight of 8 tons or less must not be marshalled in the front half of trains conveying more than the basic load.

C2/3. Empty wagons used as under-runners should be classified as "empty" for load-calculating purposes.

C2/4. When a Conflat is used as an under-runner to an overhanging load, the load must not be included in a fully-fitted train nor in the fitted portion of a train which is not fully fitted.

C. Notes on Special Circumstances

3. Basic Wagon Panels

C3/1. The basic panels reproduced in this section should be used to calculate particulars for the wagon types shown in the case of wagons without panels.

16-ton Minerals (unfitted)

	H	M	L	E
Tons	22	16	12	8
V.B.	Unfitted			
R.A.	1	1	1	1
Max. speed	45	45	45	45

16-ton Minerals (fitted)

	H	M	L	E
Tons	23	17	13	9
V.B.	4	4	4	4
R.A.	1	1	1	1
Max. speed	45	45	45	45

Vanfits, Hyfits, Shocks, Palbricks, Conflats

	H	M	L	E
Tons	19	16	11	8
V.B.	3	3	3	3
R.A.	1	1	1	1
Max. speed	45	45	45	45

Ironstone Hoppers, Ironstone Wagons, Tipplers, Grains (unfitted)

	H	M	L	E
Tons	36	26	16	9
V.B.	Unfitted			
R.A.	5	2	1	1
Max. speed	45	45	45	45

Ironstone Hoppers, Ironstone Wagons, Tipplers, Grains, Presflos (fitted)

	H	M	L	E
Tons	42	31	19	12
V.B.	11	11	6	6
R.A.	7	3	1	1
Max. speed	45	45	45	45

21-ton Minerals and Coal Hoppers (unfitted)

Excess length 2	H	M	L	E
Tons	28	22	15	10
V.B.	Unfitted			
R.A.	3	1	1	1
Max. speed	50	50	50	50

21-ton Minerals and Coal Hoppers (fitted)

Excess length 2	H	M	L	E
Tons	29	22	16	10
V.B.	6	6	6	6
R.A.	3	1	1	1
Max. speed	50	50	50	50

Tubes, Pipes, Plates, Double Bolsters (unfitted)

Excess length 6	H	M	L	E
Tons	30	25	16	11
V.B.	Unfitted			
R.A.	3	1	1	1
Max. speed	50	50	50	50

Tubes, Pipes, Plates (fitted)
B.R. Continental Ferry Wagons (fitted)

Excess length 6	H	M	L	E
Tons	30	24	16	10
V.B.	6	6	6	6
R.A.	3	1	1	1
Max. speed	50	60	60	60

Bogie Bolster D, Boplate E (unfitted)

Excess length 7	H	M	L	E
Tons	59	49	33	22
V.B.	Unfitted			
R.A.	4	2	1	1
Max. speed	50	50	50	50

Bogie Bolster D, Boplate E (fitted)

Excess length 7	H	M	L	E
Tons	60	49	33	23
V.B.	12	12	12	12
R.A.	4	2	1	1
Max. speed	55	55	55	55

Bogie Bolster E (fitted)

	H	M	L	E
Tons	44	36	24	16
V.B.	9	9	9	9
R.A.	1	1	1	1
Max. speed	55	55	55	55

Bogie Bolster C (unfitted)

Excess length 3	H	M	L	E
Tons	44	36	25	17
V.B.	Unfitted			
R.A.	1	1	1	1
Max. speed	50	50	50	50

Bogie Bolster C (fitted)

Excess length 4	H	M	L	E
Tons	45	37	26	18
V.B.	9	9	9	9
R.A.	1	1	1	1
Max. speed	55	55	55	55

D. Method of Calculating Permitted Train Loads

D1. Large heavily-loaded wagons when in motion generate little more wind-resistance and friction than small lightly-loaded ones. A locomotive is therefore capable of hauling a heavier train than the basic if its load is concentrated. Table D shows how much heavier than the basic a train is allowed to be in these conditions.

D2. The basic load may be conveyed in the number of wagons shown, or more (subject to the length limit not being exceeded). The maximum load may be conveyed in the number of wagons shown, or fewer.

TABLE D

250/550

Basic load (tons)	250	300	350	400	450	500	550
Maximum load	**280**	**360**	**422**	**484**	**546**	**608**	**670**
Total number of wagons*							
10	**280**	360					
11	274	354					
12	268	348					
13	262	342	422				
14	256	336	416				
15	**250**	**330**	**410**				
16		324	404	484			
17		318	398	478			
18		312	392	472			
19		306	386	466	546		
20		**300**	**380**	**460**	**540**		
21			374	454	534		
22			368	448	528	608	
23			362	442	522	602	
24			356	436	516	596	
25			**350**	**430**	**510**	**590**	**670**
26				424	504	584	664
27				418	498	578	658
28				412	492	572	652
29				406	486	566	646
30				**400**	**480**	**560**	**640**
31					474	554	634
32					468	548	628
33					462	542	622
34					456	536	616
35					**450**	**530**	**610**
36						524	604
37						518	598
38						512	592
39						506	586
40						**500**	**580**
41							574
42							568
43							562
44							556
45							**550**

*See note at end of table.

TABLE D
(*continued*)

600/850

The basic load may be conveyed in the number of wagons shown, or more (subject to the length limit not being exceeded). The maximum load may be conveyed in the number of wagons shown, or fewer.

Basic load (tons)	**600**	**650**	**700**	**750**	**800**	**850**
Maximum load	**732**	**794**	**856**	**918**	**980**	**1042**
Total number of wagons*						
28	732					
29	726					
30	**720**					
31	714	794				
32	708	788				
33	702	782				
34	696	776	856			
35	**690**	**770**	**850**			
36	684	764	844			
37	678	758	838	918		
38	672	752	832	912		
39	666	746	826	906		
40	**660**	**740**	**820**	**900**	**980**	
41	654	734	814	894	974	
42	648	728	808	888	968	
43	642	722	802	882	962	1042
44	636	716	796	876	956	1036
45	**630**	**710**	**790**	**870**	**950**	**1030**
46	624	704	784	864	944	1024
47	618	698	778	858	938	1018
48	612	692	772	852	932	1012
49	606	686	766	846	926	1006
50	**600**	**680**	**760**	**840**	**920**	**1000**
51		674	754	834	914	994
52		668	748	828	908	988
53		662	742	822	902	982
54		656	736	816	896	976
55		**650**	**730**	**810**	**890**	**970**
56			724	804	884	964
57			718	798	878	958
58			712	792	872	952
59			706	786	866	946
60			**700**	**780**	**860**	**940**
61				774	854	934
62				768	848	928
63				762	842	922
64				756	836	916
65				**750**	**830**	**910**
66					824	904
67					818	898
68					812	892
69					806	886
70					**800**	**880**
71						874
72						868
73						862
74						856
75						**850**

*See note at end of table.

TABLE D
(*continued*)

The basic load may be conveyed in the number of wagons shown, or more (subject to the length limit not being exceeded). The maximum load may be conveyed in the number of wagons shown, or fewer.

900/1200

Basic load (tons)	900	950	1000	1050	1100	1150	1200
Maximum load	**1104**	**1166**	**1228**	**1290**	**1352**	**1414**	**1476**
Total number of wagons*							
46	1104						
47	1098						
48	1092						
49	1086	1166					
50	**1080**	**1160**					
51	1074	1154					
52	1068	1148	1228				
53	1062	1142	1222				
54	1056	1136	1216				
55	**1050**	**1130**	**1210**	**1290**			
56	1044	1124	1204	1284			
57	1038	1118	1198	1278			
58	1032	1112	1192	1272	1352		
59	1026	1106	1186	1266	1346		
60	**1020**	**1100**	**1180**	**1260**	**1340**		
61	1014	1094	1174	1254	1334	1414	
62	1008	1088	1168	1248	1328	1408	
63	1002	1082	1162	1242	1322	1402	
64	996	1076	1156	1236	1316	1396	1476
65	**990**	**1070**	**1150**	**1230**	**1310**	**1390**	**1470**
66	984	1064	1144	1224	1304	1384	1464
67	978	1058	1138	1218	1298	1378	1458
68	972	1052	1132	1212	1292	1372	1452
69	966	1046	1126	1206	1286	1366	1446
70	**960**	**1040**	**1120**	**1200**	**1280**	**1360**	**1440**
71	954	1034	1114	1194	1274	1354	1434
72	948	1028	1108	1188	1268	1348	1428
73	942	1022	1102	1182	1262	1342	1422
74	936	1016	1096	1176	1256	1336	1416
75	**930**	**1010**	**1090**	**1170**	**1250**	**1330**	**1410**
76	924	1004	1084	1164	1244	1324	1404
77	918	998	1078	1158	1238	1318	1398
78	912	992	1072	1152	1232	1312	1392
79	906	986	1066	1146	1226	1306	1386
80	**900**	**980**	**1060**	**1140**	**1220**	**1300**	**1380**
81		974	1054	1134	1214	1294	1374
82		968	1048	1128	1208	1288	1368
83		962	1042	1122	1202	1282	1362
84		956	1036	1116	1196	1276	1356
85		**950**	**1030**	**1110**	**1190**	**1270**	**1350**
86			1024	1104	1184	1264	1344
87			1018	1098	1178	1258	1338
88			1012	1092	1172	1252	1332
89			1006	1086	1166	1246	1326
90			**1000**	**1080**	**1160**	**1240**	**1320**

*See note at end of table.

TABLE D
(continued)

1250/1700

The basic load may be conveyed in the number of wagons shown, or more (subject to the length limit not being exceeded). The maximum load may be conveyed in the number of wagons shown, or fewer.

Basic load (tons)	**1250**	**1300**	**1350**	**1400**	**1450**	**1500**	**1550**
Maximum load	**1538**	**1600**	**1662**	**1724**	**1786**	**1848**	**1910**
Total number of wagons*							
67	1538						
68	1532						
69	1526						
70	**1520**	**1600**					
71	1514	1594					
72	1508	1588					
73	1502	1582	1662				
74	1496	1576	1656				
75	**1490**	**1570**	**1650**				
76	1484	1564	1644	1724			
77	1478	1558	1638	1718			
78	1472	1552	1632	1712			
79	1466	1546	1626	1706	1786		
80	**1460**	**1540**	**1620**	**1700**	**1780**		
81	1454	1534	1614	1694	1774		
82	1448	1528	1608	1688	1768	1848	
83	1442	1522	1602	1682	1762	1842	
84	1436	1516	1596	1676	1756	1836	
85	**1430**	**1510**	**1590**	**1670**	**1750**	**1830**	**1910**
86	1424	1504	1584	1664	1744	1824	1904
87	1418	1498	1578	1658	1738	1818	1898
88	1412	1492	1572	1652	1732	1812	1892
89	1406	1486	1566	1646	1726	1806	1886
90	**1400**	**1480**	**1560**	**1640**	**1720**	**1800**	**1880**

For basic loads in excess of 1550 tons, the maximum loads are:

Basic load	**1600**	**1650**	**1700**
88	1972		
89	1966		
90	**1960**	**2034**	**2100**

*In load calculations, all four- and six-wheeled wagons count as one wagon and all bogie wagons as two wagons. Excess lengths used in the length calculation are to be disregarded for load purposes.

E. Loads Permitted with Specific Brake Forces

(i) Classes 4 and 6(a) trains

TABLE E1. MAXIMUM LOADS WITH SPECIFIC BRAKE FORCES: CLASSES 4 AND 6(a)

Actual brake force available (tons)	*Maximum speed (mph)*						
	45	**50**	**55**	**60**	**65**	**70**	**75**
	Load (tons)						
30	140	130	115	100	90	80	75
40	190	170	150	135	120	110	100
50	**240**	**210**	**190**	**170**	**150**	**135**	**125**
60	285	255	230	200	180	165	150
70	330	295	270	235	215	190	175
80	380	340	305	270	245	220	200
90	430	385	345	305	275	245	225
100	**475**	**425**	**385**	**340**	**305**	**275**	**250**
110	525	470	420	370	335	300	275
120	570	510	460	405	365	330	300
130	620	550	500	440	395	355	325
140	670	595	535	475	425	385	350
150	**715**	**640**	**575**	**510**	**455**	**410**	**375**
160	765	680	615	540	485	435	400
170	810	720	650	575	515	465	425
180	860	765	690	610	545	495	450
190	905	805	730	645	575	520	475
200	**955**	**850**	**765**	**680**	**605**	**550**	**500**
210	1000	890	805	710	635	575	525
220	1045	935	840	745	665	600	550
230	1095	975	880	780	695	630	575
240	1140	1020	920	810	725	655	600
250	**1190**	**1060**	**955**	**845**	**755**	**685**	**625**
260	1235	1105	995	880	790	710	650
270	1285	1145	1035	915	820	740	675
280	1335	1190	1070	945	850	765	700
290	1380	1230	1110	980	880	795	725
300	**1430**	**1275**	**1150**	**1015**	**910**	**820**	**750**

(*continued*)

TABLE E1 *(continued)*

Actual brake force available (tons)	*Maximum speed (mph)*						
	45	**50**	**55**	**60**	**65**	**70**	**75**
	Load (tons)						
310	1475	1315	1185	1050	940	850	775
320	1525	1360	1225	1080	970	875	800
330	1575	1400	1265	1115	1000	905	825
340	1620	1445	1300	1150	1030	930	850
350	**1670**	**1490**	**1345**	**1185**	**1060**	**955**	**875**
360	1720	1530	1380	1220	1090	985	900
370	1765	1575	1420	1250	1120	1015	925
380	1810	1615	1460	1285	1150	1040	950
390	1860	1660	1500	1320	1180	1070	975
400	**1905**	**1700**	**1540**	**1355**	**1210**	**1095**	**1000**

E. Loads Permitted with Specific Brake Forces

(ii) Classes 6(b), 7 and 8 trains

Routes have been classified **A, B, C,** and **D** for brake force purposes, and this classification will be shown in the appropriate column of the loads tables.

TABLE E2. MAXIMUM LOADS WITH SPECIFIC BRAKE FORCES. CLASSES 6(b), 7 AND 8.

Actual brake force available (tons)	*Classification*			
	A	**B**	**C**	**D**
	Load (tons)			
30	**450**	330	220	180
35	**520**	380	250	210
40	**600**	440	280	230
45	**660**	490	310	250
50	**720**	**550**	**340**	**280**
55	**780**	600	370	305
60	**860**	650	400	330
65	**910**	700	430	355
70	**970**	740	470	380
75	**1030**	**790**	**500**	**405**
80	1100	830	530	430
85	1170	870	560	455
90	1230	910	600	480
95	1290	960	630	500
100	**1350**	**1010**	**660**	**525**
105	1410	1050	690	550
110	1460	1090	710	575
115	1520	1130	740	595
120	1580	1170	770	620
125	**1630**	**1210**	**800**	**640**
130	1680	1250	820	660
135	1730	1290	850	685
140	1780	1330	880	705
145	1820	1360	910	725
150	**1870**	**1400**	**930**	**750**
155	1910	1440	960	770
160	1960	1480	990	790
165	2000	1510	1010	810
170	2030	1550	1040	830
175	**2060**	**1580**	**1060**	**850**

(continued)

TABLE E2 *(continued)*

Actual brake force available (tons)	*Classification*			
	A	B	C	D
	Load (tons)			
180	2100	1610	1090	870
185	2120	1650	1110	890
190	2150	1680	1140	910
195	—	1710	1160	930
200	—	**1750**	**1190**	**950**
205	—	1780	1210	970
210	—	1810	1240	990
215	—	1850	1260	1010
220	—	1880	1290	1030
225	—	**1910**	**1310**	**1050**
230	—	1940	1330	1070
235	—	1970	1360	1090
240	—	2000	1380	1110
245	—	—	1400	1130
250	—	—	**1420**	**1150**
255	—	—	1440	1170
260	—	—	1460	1190
265	—	—	1480	1210
270	—	—	1500	1230
275	—	—	**1520**	**1250**
280	—	—	1540	1270
285	—	—	1560	1290
290	—	—	1580	1310
295	—	—	1600	1330
300	—	—	**1620**	**1350**
305	—	—	1640	1370
310	—	—	1660	1390
315	—	—	1680	1410
320	—	—	1700	1430
325	—	—	**1720**	**1450**
330	—	—	1740	1470
335	—	—	1760	1490
340	—	—	1780	1510
345	—	—	1800	1530
350	—	—	**1820**	**1550**

For every additional **20** tons—
5 tons additional brake force is required

F. Markings on Freight Stock

Marking	Significance
Diagonal white stripe on side of mineral wagon	Position of end door
Two short white lines in the form 'V' at bottom centre of wagon side	Bottom doors
Vertical white stripes, 3 on each side and ends	Equipped with shock-absorbing gear
Large solid yellow triangle pointing upwards on side of 24½-ton mineral wagon	To distinguish from 21-ton mineral wagon
Solid blue circle on side of fish van	Fitted with roller-bearing axle-boxes
Axle-boxes painted yellow, with or without red stripes	Fitted with roller bearings
Solid yellow circle on side	Circuit-working vehicle
White star or stars on underframe	Position of vacuum-brake release cord
Solid white or black triangle pointing downwards on solebar or wagon side	Fitted with two vacuum brake cylinders and manual changeover gear to adjust brake for empty or loaded running
Letter 'P' over 'WB' on wagon side. Letters 'S' or 'SS' on side of Continental ferry wagon	Suitable for running on passenger trains according to wheelbase shown
The sign '℄' on side of bogie bolster wagon	Indicates position of centre line
Letters 'RIV' enclosed in rectangle on side of vehicle	Conforms to the requirements for running over Continental railways
Anchor surrounded by a rectangle on side of Continental ferry wagon	Conforms to the loading gauge agreed by the International Union of Railways
Top half of circle, with a cross at either end, on side of wagon used for international traffic	Must not be allowed to pass over a shunting hump
Red triangle on side of WR china-clay wagon	Interior lined with zinc
Letter 'L' on side of WR china-clay wagon	Longitudinal floorboards
White letter X on black background on wagon side	Internal use only
Letter X in circle or letters 'COND' in white on wagon side	Condemned vehicle
Length measurement between arrows on side of Continental ferry wagon, e.g. →14' 9"←	Indicates wheelbase or distance between bogie pivots

Markings on tank wagons

Colour markings on the barrels and solebars of tank wagons are to identify the contents in case of emergency, and have no other operating significance. The meaning of the various markings is set out in Part **3,** Section **C2,** of the Working Manual (pink pages)—formerly BR 22206, *Instructions for Handling and Conveyance of Dangerous Goods.*

G. Classification of Locomotives

TABLE G1. DIESEL MAIN-LINE LOCOMOTIVES

Class	*Description*	*Hp*	*Weight (tons)*	*Brake force (tons)*	*Route availability*	*Maximum speed (mph)*
15	BTH/AEI/Paxman	800	68	31	4	60
17	Clayton/Paxman/GEC	900	68	35	4	60
20	EE	1,000	73	35	5	75
22	NBL/MAN/Voith	1,100	68	29	4	75
23	EE/Napier	1,100	74	36	5	75
24	BR/Sulzer/AEI	1,160	80	38	6	75
25	BR/Sulzer/AEI	1,250	74	38	5	90
26	BRCW/Sulzer/CP	1,160	78	35	6	75
27	BRCW/Sulzer/GEC	1,250	73	35	5	90
29	NBL/Paxman/GEC	1,350	73	36	5	80
30	Brush/Mirrlees 5500–5519	1,250	104	49	5	75
	Brush/Mirrlees 5520–5534	1,250	104	49	5	80
31	Brush/EE	1,470	107	49	5	90
33	BRCW/Sulzer/CP	1,550	76	35	6	85
35	Beyer P/Maybach/Mekydro	1,700	75	33	6	90
37	EE	1,750	105	50	5	90
40	EE	2,000	133	51	6	90
42	BR/Maybach/Mekydro	2,200	79	35	6	90
	BR/Paxman/Mekydro 830	2,400	79	35	6	90
43	NBL/MAN/Voith	2,200	79	35	6	90
44	BR/Sulzer/CP	2,300	133	63	7	90
45	Brush/Sulzer/CP	2,500	136	63	7	90
46	BR/Sulzer/Brush	2,500	139	63	7	90
47	Brush/Sulzer BR Sulzer	2,750	117	60	6	95
48	Brush/Sulzer "V"	2,650	112	60	6	95
50	EE	2,700	117	59	6	100
52	BR/Maybach/Voith	2,700	108	50	6	90
55	EE/Napier	3,300	100	51	5	100

(*continued*)

TABLE G2. SHUNTING LOCOMOTIVES

Class	*Description*	*Hp*	*Weight (tons)*	*Brake force (tons)*	*Route availability*	*Maximum speed (mph)*
2	Yorkshire Eng/BR	170	28	13	2	20
3	BR/Gardner	204	30	13	1	28
4	Drewry/Gardner 2200—2214	204	30	12	1	26
	2215—2340	204	32	13	2	28
5	Barclay/Gardner	204	32	13	2	16
6	Barclay/Gardner	204	37	15	5	23
7	Ruston & Hornsby/Paxman	275	42	21	6	20
8	BR/EE	350	49	19	5	20
9	BR/EE	350	49	19	5	27
10	BR/Blackstone/GEC	350	49	19	5	20
11	LMS/EE	350	47	19	5	20
12	SR/EE	350	48	16	5	27
13	BR/EE	700	120	38	8	20

TABLE G3. ELECTRIC LOCOMOTIVES

Class	*Description*	*HP*	*Weight (tons)*	*Brake force (tons)*	*Route availability*	*Maximum speed (mph)*
71	BR/EE	2,500	77	41	6	90
73	BR/EE (electro-diesel)					
	E6001–E6006	1,600/600	75	31	6	80
	E6007–E6049	1,600/600	75	31	6	90
74	BR/EE (electro-diesel)	2,500/650	85	41	7	90
76	BR/Metro-Vic	1,868	89	43	8	65
81	BRCW/AEI	3,300	80	40	6	100
82	Beyer P/AEI	3,300	77	38	6	100
83	EE	3,300	76	38	6	100
84	NBL/GEC	3,300	77	38	6	100
85	BR/AEI	3,300	80	41	6	100
86	BR/EE/AEI	3,300	80	40	6	100

J. Freight Train Guard's Journal

Notes on Compilation

J1. A guard is required to complete a separate journal (BR 30745/4) for each turn of duty during which he works freight trains.

J2. The journal is used to calculate bonus and mileage payments, and for compiling operating statistics. It must therefore be fully and properly completed.

J3. The journal is the guard's personal record, therefore he should not hand it over to a relieving guard (who will obtain his own before joining the train) but hand it in when booking off at the end of each turn of duty, or as arranged locally.

J4. The following notes are provided to help guards fill in their journals correctly. The 24-hour time system should be used throughout.

Front of Journal

Date

The date of the Journal is the date you start your turn of duty.

Bonus Turn

If your turn is a Bonus one, put *x* in the box provided.

Weather

Give a brief description of the weather if it affected the running of the train.

Remarks

Enter here:

(a) the class of any dangerous goods conveyed

(b) particulars of any exceptional loads

(c) particulars of any special-consignment wagons

(d) the reason for instances where a train ran at a different class from that booked

(e) details of cases where the load was reduced or brake power increased because of bad weather

(f) particulars of any unusual incident which occurred.

Details of drivers, etc.

Enter details of all drivers, secondmen, assistant guards and travelling shunters who work with you during the turn of duty.

It is important that their time with you is properly entered so that their bonus may be calculated in those cases where they do not submit a separate worknote.

Back of Journal

For each train you work, fill in the following details:

Description of train

Col. 1 Enter the Working Timetable Number, Trip Number or Special Train

Number (where provided; otherwise write "Spl."). Under the number write FLR if the train is a Freightliner; COY for Company train and MC for Manned Conditional.

If the train runs at a different class from that booked, enter the reason in the "Remarks" box.

If you have a full trainload of departmental material—for example, engineering material (Civil Engineer's department) or condemned or crippled wagons (Mechanical & Electrical Engineer's department)—the department must be named in this column. Do not record, separately, individual wagons of departmental material.

Col. 2 When the train is scheduled, enter "S"; when it runs as unscheduled enter "U".

Col. 3 Enter the number of the train locomotive.

Col. 4 Enter the Train Title (Time, From, To and Date—as shown at the head of the Train Preparation Form).

Underneath, enter on the first line the location where you took charge of the train, then the names of the locations at which a call is made, or work is performed or at which delay occurs; also boundary points and other passing points as listed in local instructions, so as to indicate the route taken.

Details of work performed at locations named in Col. 4

Col. 5 Enter the actual time of takeover from another guard when you take over a train in traffic. Enter the actual arrival times of the train at the locations.

Col. 6 Enter against the locations the actual times of departure, passing or handing over to another guard. (When the locomotive is dismissed the time should also be entered in Col. 32.)

Col. 7 Enter the time from the start of shunting operations with your own train until the locomotive is back coupled to the train, ready to resume the journey.

When you carry out additional shunting (with wagons not detached from or attached to your own train) the minutes occupied must be entered on the next line. Brief details, including the number of wagons shunted, should be given in column 18 on the same line.

If, in order to allow another train to pass, the train is placed into a siding or onto another road without detaching or attaching any wagons, the time this takes should not be recorded as shunting, but as a delay (cols. 18 and 19).

Cols. 8 & 11 Enter the actual number of wagons detached and attached. Wagons taken into a yard to be marshalled and subsequently taken forward by the same train should be shown as "detached" and "attached". Wagons taken into a yard for convenience (e.g. to allow another train to pass) and taken forward by the same train should not be shown as "detached" or "attached" If a portion of a train is left outside a yard while detaching and attaching is

performed, the wagons left outside should not be shown as "detached" and "attached". The train brakevan should not be included as part of the train load, but additional brakevans should.

Cols. 9 & 12 Enter the number of wagons detached and attached, expressed in standard length units.

Cols. 10 & 13 Enter the tonnage of the wagons detached and attached.

Details of train on departure

Cols. 14 to 17 Against the location where you started the train or took over in traffic, enter the details direct from the Train Preparation Form. Whenever these are changed because of detaching/attaching (Cols. 8 to 13) the Train Preparation Form should be amended, or a new one prepared if necessary, and the new details entered against the location where the change occurred.

Col. 18 Enter details of delays, additional work and non-bonus periods on the same line as the locations where they occurred.

Col. 19 Enter the actual number of minutes involved in the above instances, on the same line.

Guard's duties, other than freight train working

Cols. 20 & 21 Enter the time of starting and finishing duties, other than working freight trains.

Cols. 22 & 23 Name the locations at, or between which, the duties are performed.

Col. 24 Insert the appropriate code letter (shown above Cols. 20-23) to indicate the duties performed. "Other" duties should be briefly described.

Light running of locomotives to and from depot/stabling point

Entries should only be made here when a light locomotive comes from a depot etc. to work the *first* train journey in the turn of duty (Cols. 26-31), and when one returns to a depot etc. after dismissal from the *last* train journey in the turn of duty (Cols. 26 and 32). No entries should be made here in respect of locomotives taken over or handed over in traffic during the turn of duty.

Col. 26 Enter the number of the locomotive.

Cols. 27 & 28 Enter the planned and the actual departure time of the locomotive from the depot/stabling point (when not taken over from another crew in traffic). These times should be obtained from the driver.

Col. 29 If the locomotive departed late from the depot/stabling point, obtain the reason from the driver and enter it here.

Cols. 30 & 31 Enter the planned and the actual time the locomotive arrived at the yard or other train departure point.

Col. 32 Enter the actual time you dismissed the last locomotive (if it was not handed over to another crew in traffic).