

WOSS 590/2

British Railways Board

Director of Mechanical and Electrical Engineering

Lighting Controllers

BRC and 45

WORKSHOP OVERHAUL STANDARD SPECIFICATION



WOSS 590/2

REVISION RECORD

This Specification will be updated when necessary by the issue of amended pages accompanied by revision letters. The amended or additional part of re-issued pages will be marked with a vertical black line.

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This Specification applies to equipment fitted to the vehicles indicated 'X' below, but it is only to be implemented when authorised by an appropriate maintenance/overhaul document.

LOCOMOTIVES

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DMU's

101	X
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108	X
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115	X
116	X
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EMU's

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DEMU's

204
205
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210

COACHING STOCK

Mk 1	X
Mk 2, 2a-c	X
Mk 2d-e	X
Mk 2f	X
Mk 2 DBSO	X
Mk 3a	
Mk 3b	
Mk 3 (HST)	
Mk 3 SLE and SLEP	
Non Passenger	X

WORKSHOP OVERHAUL STANDARD SPECIFICATION 590/2

LIGHTING CONTROLLERS

BRC & 45

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REFERENCE DOCUMENTS

WOSS 501/1 Hot Water/ Detergent Cleaning
WOSS 560/4 Crimped Joints for Cables

TOOLS AND MATERIALS

BR Cat. No.

Resin cored solder 10SWG	22/26320
Carriage combination key	11/34040 or
Square parallel key with recess	11/34042

SECTION 1 REPAIR PROCEDURE

NOTE:

Where an item is first mentioned in the text it is followed by a number in brackets. The first part of the number, before the full stop, refers to the figure on which the item is identified. The second part of the number, after the full stop, is the number of the item as it appears on the figure. Items lists associated with figures use the full number. If an item is identified on more than one figure then the items list for each figure will give the alternative number.

1 Dismantling

- 1.1 BRC2 and 45: remove the screw and thackray washer (2.17, 3.12) and operating lever (2.2, 3.11).
- 1.2 Remove the four screws (1.11) and the cover (220, 3.21).
- 1.3 45: remove the two screws, washers and thackray washers (3.6).
BRC1 & 2: remove the three screws and thackray washers.
- 1.4 Remove the interior from the box (1.6, 3.1).
- 1.6 Remove the three screws (2.22, 3.15) and the bush (1.12, 3.10) complete with spindle (2.18, 3.13) and cam (1.14, 3.16). Remove the screw and thackray washer, cam and cam protection plate (1.14, 3.16) and slide the spindle out of the bush.

2 Cleaning, Examination and Repair

- 2.1 Clean all components in accordance with WOSS 501/1.
- 2.2 Renew the base (2.24, 3.17), box or cover if fractured.
- 2.3 Reface or renew any contact terminal (1.7, 1.9, 1.10, 3.14, 3.20, 3.22) which is burnt.
- 2.4 Renew the spindle if distorted.
- 2.5 Reface or renew any burnt contacts (1.5, 2.4, 3.5) or spark contacts (1.4, 2.3, 3.2).
- 2.6 Renew the cam or cam protection plate if worn or fractured.
- 2.7 BRC1: renew the ward plate (1.12) if distorted.
- 2.8 BRC1 & 2: renew any chipped or fractured push base (2.6).
- 2.9 45:
 - 2.9.1 renew the connector sleeve (3.3) if damaged.
 - 2.9.2 resolder the connector (3.3) if either joint is defective.

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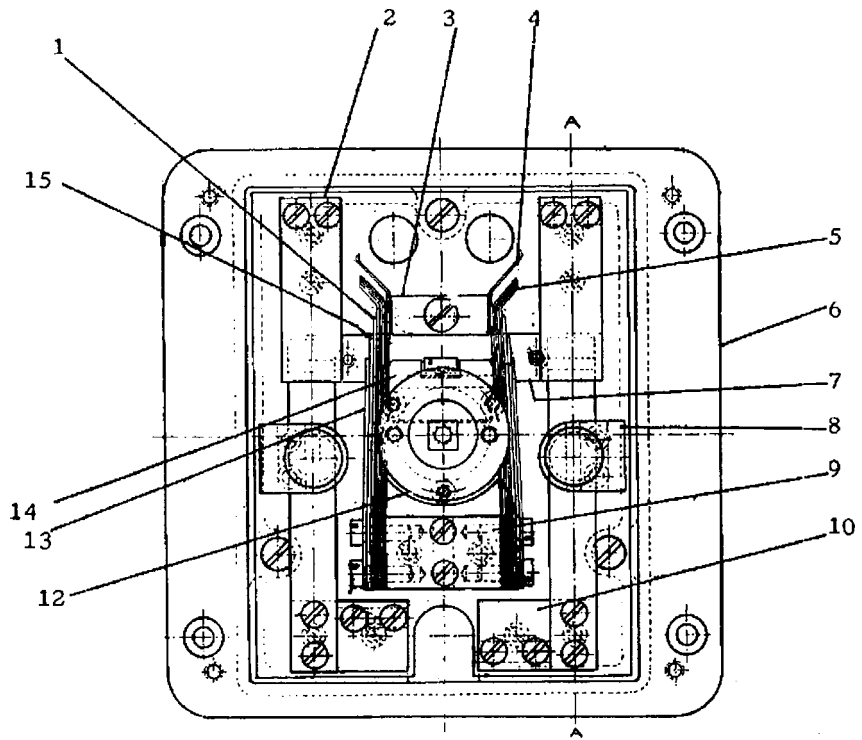
3 Reassembly

- 3.1 Renew any spring washers, tab washers, or split pins which have been disturbed.
- 3.2 Tighten any loose screws/ nuts.
- 3.3 Lightly grease the spindle and fit it into the bush. Fit the cam protection plate and cam.
- 3.4 Fit the bush assembly to the base.
- 3.5 Operate the switch and ensure that each contact makes with its contact terminal across at least 75% of its width. On BRC1 & 2 spindle/cam operated contacts, check that the contacts return fully under spring pressure. Adjust if defective.
- 3.6 Fit the interior to the box.
- 3.7 Fit the cover.
- 3.8 BRC1 & 2: check that the two push-buttons can be operated and that the contacts return freely. Adjust the push guide (1.8) or file the cover if defective.
- 3.9 BRC2 and 45: fit the operating lever and check that it can be operated freely. File the cover if defective.
- 3.10 BRC1: operate the spindle using a carriage key and check that it can be operated freely. File the cover if defective.

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Items List for Figure 1

Item	Description	BR Drg. No.	BR Cat. No.
1.1	Contact spring, main	SC/DE/73940-10	52/3056
1.2	Contact terminal, main (2.1)	SC/DE/63267	52/36531
1.3	Stop Screw 2BA x 1.1/2" ch	SC/DE/73939-3	52/763
1.4	Spark contact, main	SC/DE/73940-4	52/14041
1.5	Contact, main	SC/DE/73940-2	52/13741
1.6	Box	SC/DE/63266	52/4661
1.7	+ve terminal, local (2.16)	SC/DE/63267-4	52/39682
1.8	Push guide (2.14)	SC/DE/63267-1	52/19452
1.9	Positive terminal, main	SC/DE/63267-2	52/36689
1.10	Contact terminal, local	SC/DE/63267-5	52/36521
1.11	Screw 2BA x 1/2" rsd csk brass		
1.12	Spindle bush	SC/DE/63267-6	52/6811
	Ward plate [BRC1]	SC/DE/73991-2	52/29531
	Screw 3BA x 1/4" ch		
1.13	Contact spring, main	SC/DE/73940-8	52/3036
1.14	Cam protection plate	SC/DE/73940-6	52/27781
	Operating cam	SC/DE/73939-2	52/7501
	Screw 2BA x 3/4" ch		
1.15	Contact spring, main	SC/DE/73940-9	52/3046



Front View (Cover Removed)

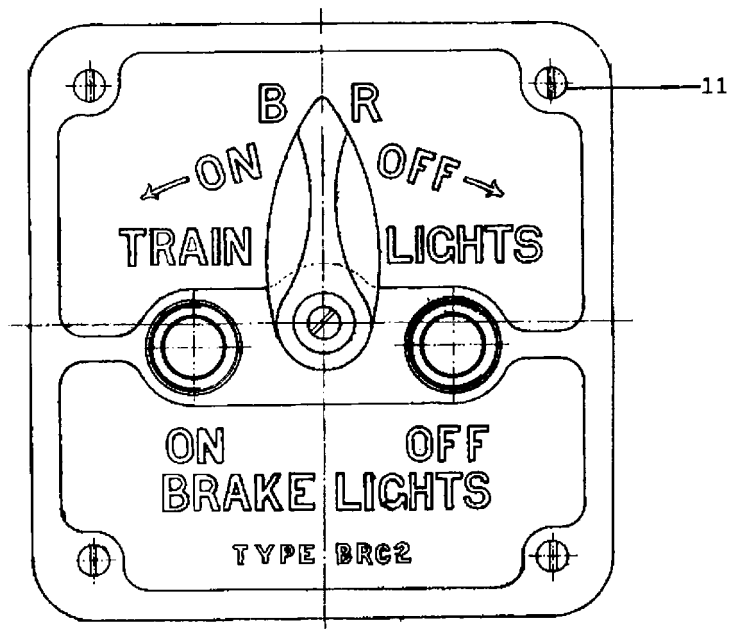


Figure 1 Front Views of BRC

Items List for Figure 2

Item	Description	BR Drg. No.	BR Cat. No.
2.1	Contact terminal, main (1.2)	SC/DE/63267	52/36531
2.2	Operating lever [BRC2]	SC/DE/73993	52/23206
2.3	Spark contact, local	SC/DE/73940-3	52/14031
2.4	Contact, local	SC/DE/73940-1	52/13591
2.5	Push	SC/DE/63267-7	52/30371
2.6	Push base	SC/DE/73941	52/685
2.7	Suppression network	SK-TDP-27243-12	
	Capacitor 0.68 μ F		26/111572
2.8	Resistor 47R 1W		26/152737
2.9	Clip		
2.10	Crimp terminal	AMP 130008	54/119387
2.11	Connector	SC/DE/73940-7	52/12381
2.12	Washer 3BA brass		
2.13	Contact spring, local	SC/DE/73940-5	52/3121
2.14	Push guide (1.8)	SC/DE/63267-1	52/19452
2.15	Screw 3BA x 9/16" ch		
2.16	+ve terminal, local (1.7)	SC/DE/63267-4	52/39682
2.17	Screw 2BA x 1.3/8" [BRC2] Thackray washer 3/16" [BRC2]		
2.18	Operating spindle [BRC1]	SC/DE/73991-1	52/33951
	Operating spindle [BRC2]	SC/DE/73992	52/33956
2.19	Screw 3BA x 7/16" ch		
2.20	Cover [BRC1]	SC/DE/63264	52/15091
	Cover [BRC2]	SC/DE/63265	52/15096
2.21	Screw 3BA x 5/8" ch		
2.22	Screw 3BA x 9/16" ch		
2.23	Nut 2BA brass Washer 2BA brass Thackray washer 3/16"		
2.24	Base	SC/DE/73939-1	52/2291
2.25	Screw 2BA x 5/8" ch		

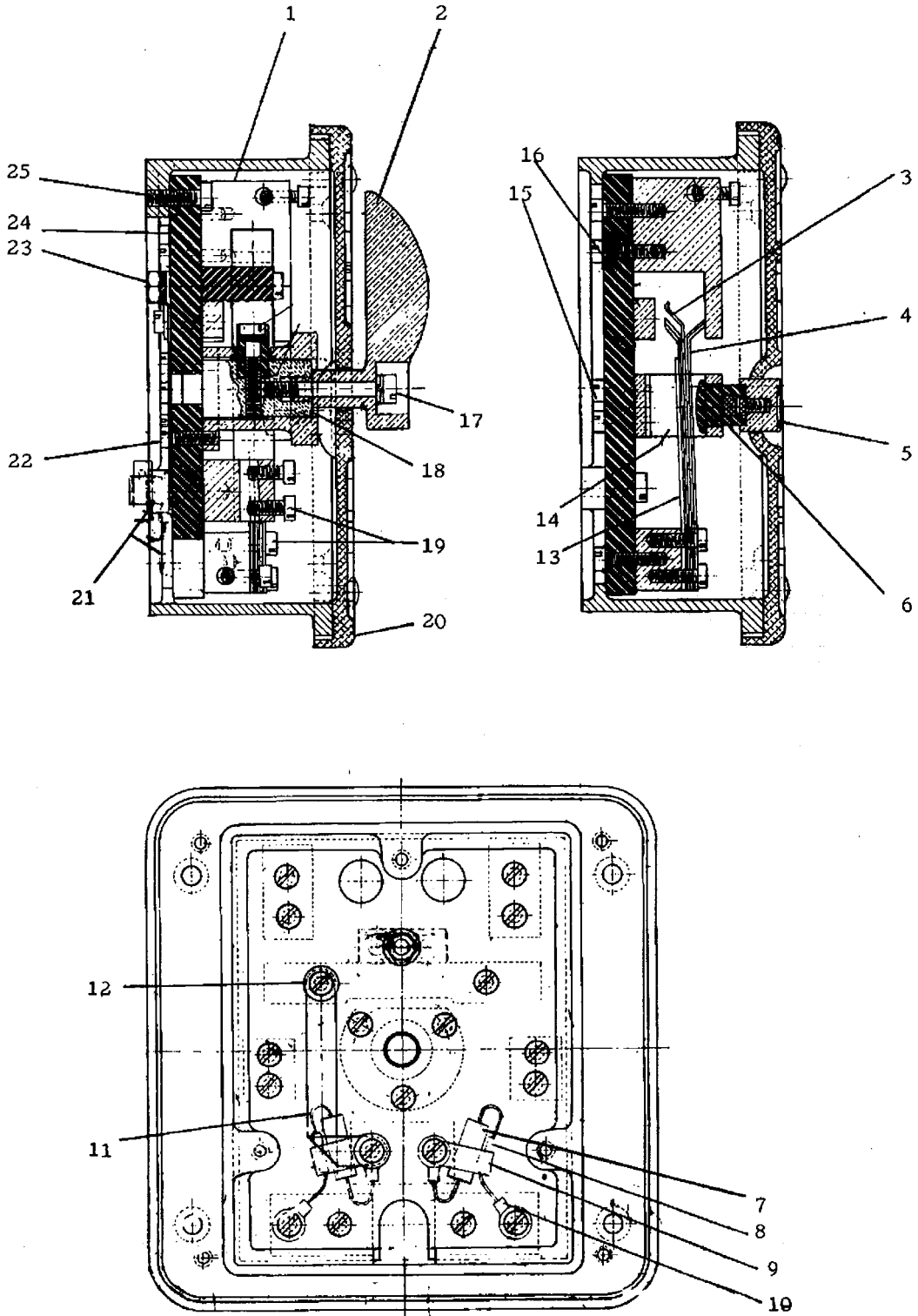
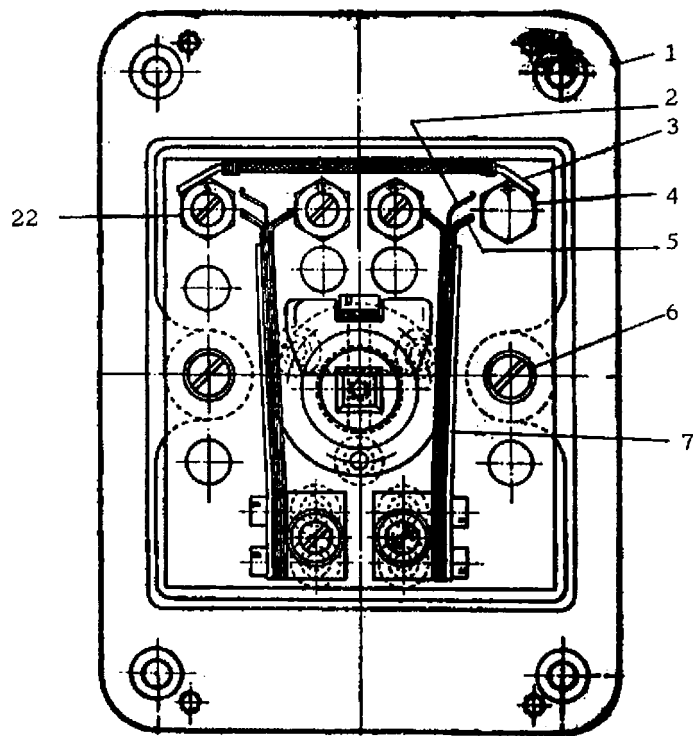


Figure 2 BRC: Section & Rear Views

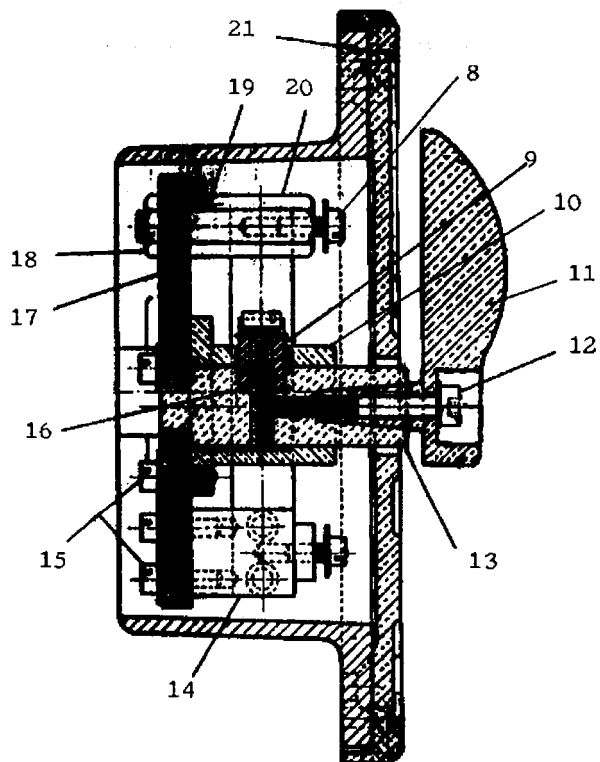
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Items List for Figure 3

Item	Description	BR Drg. No.	BR Cat. No.
3.1	Box	SC/DE/64088	52/4726
3.2	Spark contact	SC/DE/74901	52/14021
3.3	Connector 3.1/2" x 16 SWG Sleeve 2.1/2" cotton		
3.4	Terminal	SC/DE/63657-2	52/39360
3.5	Contact	SC/DE/73940-1	52/13591
3.6	Screw 2BA x 3/4" ch Thackray washer 3/16" Washer 2BA brass		
3.7	Contact spring	SC/DE/73840-5	52/3121
3.8	Screw 3BA x 3/8" ch		
3.9	Cam	C-A4-2735	52/916
3.10	Bush	SC/DE/63657-5	52/6731
3.11	Operating lever	SC/DE/63657-4	52/23196
3.12	Allen screw 2BA x 1.3/8" Shakeproof washer 3/16"		
3.13	Operating spindle	SC/DE/76294	52/33963
3.14	Terminal	SC/DE/63657-6	52/33963
3.15	Screw 3BA x 1/2" ch Washer 3BA brass		
3.16	Cam protection plate	SC/DE/73940-6	52/27781
3.17	Terminal base	SC/DE/74893	52/2446
3.18	Nut 1/4" BSW	SC/DE/63657-3	52/24836
3.19	Check peg 3/8" x 16SWG		
3.20	Terminal	SC/DE/63657-1	52/39352
3.21	Cover Screw 2BA x 1/2" csk	SC/DE/63656	52/15462
3.22	Terminal	SC/DE/63657-1	52/39352



Front View (Cover Removed)



Sectioned View

Figure 3 45 Controller

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SECTION 3 TECHNICAL DATA

Table 1 Vehicle Classes and Controller Types

Class	Type	BR Drg. No.	BR Cat. No.	Description
101-123 Mk 1, 2a-c, 2d bar those below, 2f, DBSO	BRC1	SC/DE/55318	52/14261	Basic model.
	BRC2	SC/DE/55319	52/14271	Operating lever, for guard's compt.
Mk2d: FO 3170-3188 TSO 5616-5652 BFK 14139-14161 BSO 9479-9495 FK 13585-13610	BRC1	B3-A1-9014865	52/871	Suppressed.*
	BRC2	C-A1-8281	52/770	Operating lever, for guard's compt. Suppressed.*
BG	45	SC/DE/64215	52/14361	Basic model.

Note

* The suppression fitted types are for use on vehicles fitted with Mk 1 motor/alternator sets.