

WOSS 562/ 2

British Railways Board

Director of Mechanical and Electrical Engineering

Sockets and Plugs

Weatherproof, Flanged and
Portable Guard Ring types

WORKSHOP OVERHAUL STANDARD SPECIFICATION



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.

If you consider that an amendment is necessary, complete BR Form 14298 and pass it to the local BRB Resident Engineer or Area Quality Engineer. Submission of a form does not authorise the proposed amendments.

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 British Railways Board
 The Railway Technical Centre
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 DE2 8UP

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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

03		73	X
08	X	81	X
09	X	85	X
20	X	86	X
26	X	87	X
31	X	88	
33	X	89	
37	X	90	X
43	X	91	X
47	X	92	
50	X		
56	X		
58	X		
60	X		

DMU's

101	X
104	X
107	X
108	X
110	X
111	X
114	X
115	X
116	X
117	X
118	X
119	X
120	X
121	X
122	X
127	X
128	X
140	
141	
142	
143	
144	
150	
151	
154	
155	
156	

EMU's

302		411	X
303		412	X
304		413	
305		414	
307		415	
308		416	
309		419	
310		421	X
311		422	X
312		423	
313		432	X
314	X	438	
315	X		
317		442	
318	X		
319		455	
320			
321		485	
		486	
		487	
		488	
		489	

COACHING STOCK

Mk 1	
Mk 1 Catering	
Mk 2z, 2a-c	
Mk 2d-e	
Mk 2f	
Mk 2 DBSO	
Mk 3a	X
Mk 3b	X
Mk 3 Catering	X
Mk 3(HST)	X
Mk 3(HST)Catering	X
Mk 3 SLE and SLEP	X
Mk 4	
DVT IC225	X
DVT IC125	X
Non Passenger	

DEMU's

204	X
205	X
207	X
210	

WAGONS

PRIVATE OWNER VEHICLES

DEPARTMENTAL VEHICLES

COMPONENTS

WORKSHOP OVERHAUL STANDARD SPECIFICATION 562/2

SOCKETS AND PLUGS

Weatherproof, Flanged and Portable Ring Guard Types

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TOOLS AND MATERIALS

BR Cat. No.

Loctite 270

7/ 60352

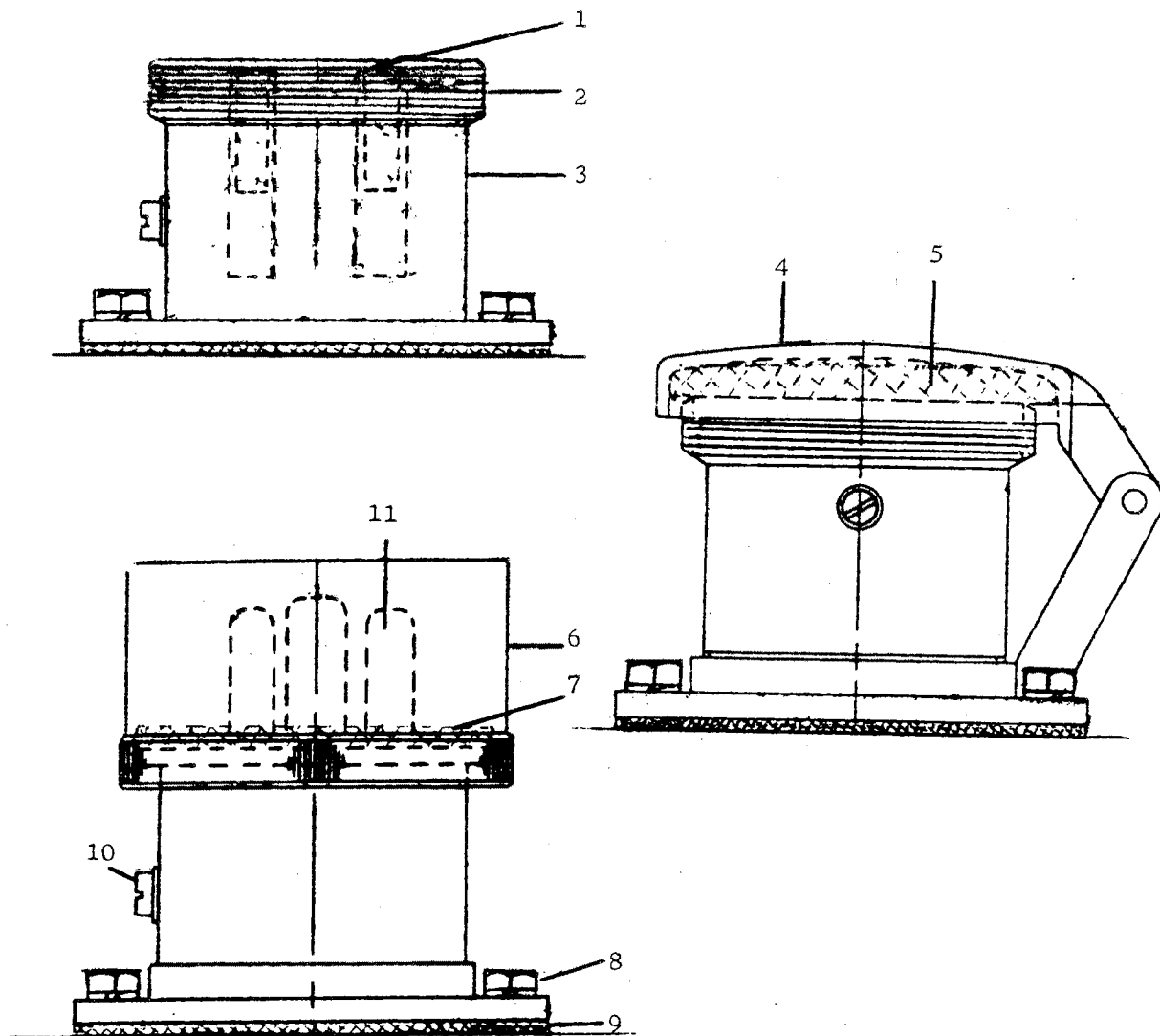
SECTION 1 REPAIR PROCEDURE

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.

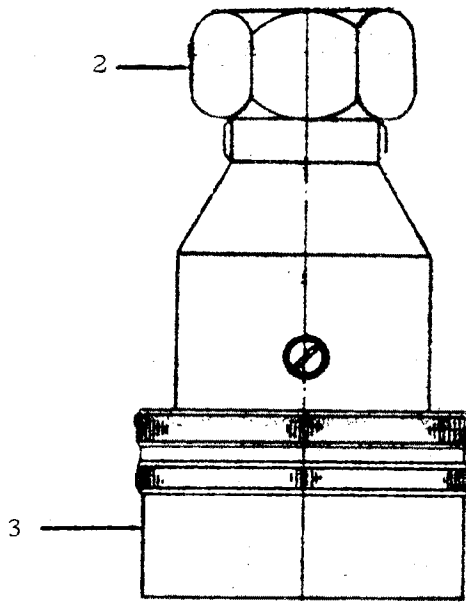
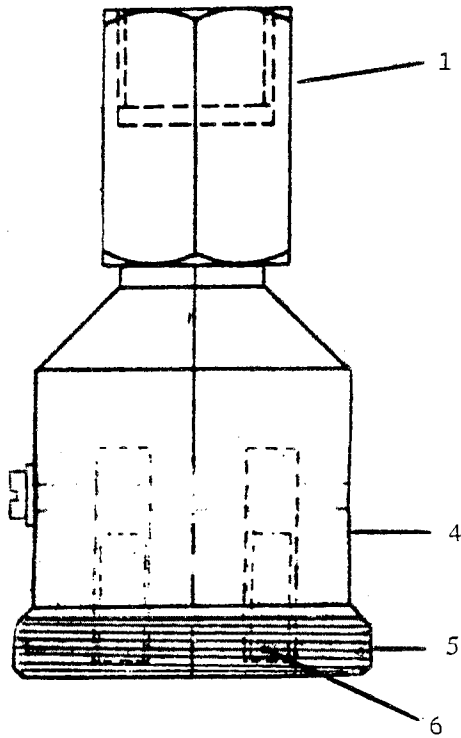
- 1 Clean all plugs and sockets externally with an approved solvent.
- 2 Check that:
 - 2.1 that there is no damage to the body (1.3, 2.4), body thread (1.2, 2.5), guard ring (1.6, 2.3) or guard ring internal thread.
 - 2.2 the spring lid (1.4) is not damaged and returns under spring pressure and that the lid gasket (1.5) is not missing, damaged or perished.
 - 2.3 the cable gland (2.2) is tight and grips the cable.
 - 2.4 the pins (1.11, 2.8) or tubes (1.1, 2.6) are not corroded, damaged or burnt and that the interior is not fractured, distorted or shows signs of tracking.
 - 2.5 the gasket (1.7, 2.7) is not missing, damaged or perished.
 - 2.6 the interior retaining screws (1.10, 2.9) and the fixing screws (1.8) are tight and the base gasket (1.9) is not damaged or perished.

Renew faulty items and rectify defects. Renew any spring washers which have been disturbed.
- 3 Refit any loose conduit adaptors (2.1) using Loctite 270.
- 4 Refit any loose earthing coupling (2.10) using Loctite 270.



Item	Description
1.1	Tubes
1.2	Body thread
1.3	Body
1.4	Spring lid
1.5	Lid gasket
1.6	Guard ring
1.7	Sealing gasket
1.8	Fixing screws
1.9	Base Gasket
1.10	Interior retaining screw
1.11	Pins

Figure 1 Typical Arrangement of Flanged Plugs and Sockets



Item	Description
2.1	Earthing coupling
2.2	Cable gland
2.3	Guard ring
2.4	Body
2.5	Body thread
2.6	Tubes
2.7	Sealing gasket
2.8	Pins
2.9	Interior retaining screw
2.10	Conduit adaptor

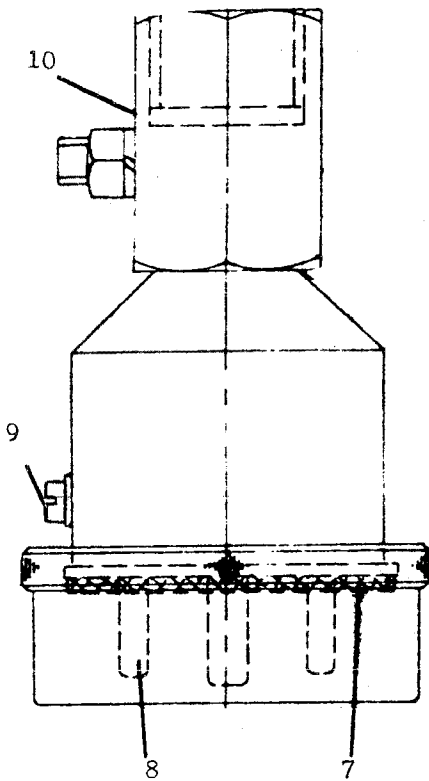


Figure 2 Typical Arrangement of Portable Plugs and Sockets

SECTION 3 TECHNICAL DATA

Table 1 Vehicle Classes and Plug & Socket Types

Class	Plugs (ref. Table 2)	Sockets (ref. Table 3)
08-09	12 21	51 70
20	38	54 56 57 61 63 84
31	28 38	53 61 74 84
33	9 11 16 20 25	49 53 59 65 71
37	1 4 5 6 7 23 38	42 43 44 45 56 68 84
43	2 14 17 30 32 36 38	40 43 48 58 62 77 79 82 84
47	21 38	43 48 56 61 84
50	9 38	48 54 55 56 57 61 63 84
56	33 34 38	42 43 56 62 79 84
58	32 33 38	42 43 56 62 79 84
60		43 58 64
73	9	47 52 59
81	9	43 50
85	9	43 50
86	9 38	43 50 75 84
87	1 9 22 38	43 46 49 68 84
89		62
90	38	73 84
91		73
101-28	37	83
201-07		42 65
314 315	18	
318	18	
411-32	24	69
Mk 2 DBSO	38	84
Mk 3 (LH)	1 8 10 15 19 26 31 35	39 41 60 62 66 72 78 80 81
Mk 3 (HST)	1 8 10 19 26 29 31	39 41 62 67 72 76 78 80
Depot Eqpt	3 13 16 27	
DVT (HST)	2 14 17 30 32 36 38	40 43 48 58 62 77 79 82 84
DVT 125		62
DVT 225		62

Table 2 Plug Types, Applications and Spares

NOTES

- 1 "B" prefix denotes solder terminals. This is the preferred type for brake and battery charging applications and should be used if cable lengths permit.
- 2 Fitted with nylon interior retaining screw (2.9) to insulate large pin from case.

	Description	LPA Part No.	BR Cat. No.(54/)	Class	Application
2 Pole Plugs					
1	5A 250V with guard ring & solder terminations.	B12S/BR	83219	37 87 Mk 3	Route Inds. Body lighting Brake module
	Interior	B11128/BR	81905		
2	5A 250V flanged with guard ring.	12R/NO/BR	83218	43	Fire detector
	Interior	11128/BR	81901		
3	5A 250V with guard ring. AIB gland.	12S/BR	83281	Depot	Loco. Inspection Lamp.
	Interior	11128/BR	81901		
4	5A 250V. 1 large pin & 1 small pin with guard ring.	12S/ODD/BR	83298	37	Speedometer
	Interior	1299/BR	81904		
5	5A 250V square end with cap and chain.	12S/Y/BR	83286	37	Boiler roof
	Interior	11128/BR	81901		
6	5A 250V. 1 large pin & 1 small pin with guard ring.	12S/ODD/BR	83298	37	Speedometer
	Interior	1299/BR	81904		
7	5A 250V square end with cap and chain.	12S/Y/BR	83286	37	Boiler roof
	Interior	11128/BR	81901		

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
2	Pole Plugs (contd)				
8	5A 250V with guard ring & solder terminations.	B12S/24698/BR	83221	Mk3	Brake module
	Interior	B11128/BR	81905		
3	Pole Plugs				
9	5A 250V with guard ring. All poles live.	13S/INS/BR	83842	33/1 33/3 50	ETH Indicator ETH Indicator Route Ind.
	Interior	1300/INS/BR	82011	73/1 73/1 73/1 81-6 87	Speedometer Sander Route Ind Route Ind Bulkhead
10	5A 250V with guard ring & 20mm earth coupling & solder terminations.	B13S/24699/BR	83855	Mk 3	Brake module
	Interior	B1300/BR	82016		
11	5A 250V AIB gland & guard ring.	13S/BR	83849	33	Lighting
	Interior	1300/BR	82012		
12	5A 250V 3/4" female entry with guard ring.	13S/CIC/ INS/BR	83849	08-09	Instrument lamp.
	Interior	1300/INS/BR	82011		
13	15A 250V AIB gland & guard ring.	23S/BR	84086	Depot	Loco. shore lighting supply.
	Interior	2911/BR	82071		
14	15A 500V flanged with cap & chain.	73R/BR	84092	43	Depot supply
	Interior	1371/BR	82076		

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
3 Pole Plugs (contd)					
15	25A 415V flanged with guard ring. No cover. All poles live. Solder terminations.	B33R/21903/BR	84291	Mk 3 (LH)	Air cond. module.
	Interior	B1371/INS/BR	82017		
16	50A 250V with guard ring.	43S/BR	84377	Depot	Loco. battery charger. (not cl. 91)
	Interior	2882/BR	82146		
17	50A 250V with guard ring. Plug fused at 5A.	43S/24834/BR	83760	43	Handlamp
	Interior	24844/BR			
18	50A 250V flanged guard ring plug with cover & solder terminals.	B43R/BR	84379	314 318	Shore lights Shore lights
	Interior	B2882/SPL/BR			
19	100A 250V with guard ring & A36 saddle clamp.	B53S/23032/BR	84407	Mk 3	Battery module
	Interior	B24979/ins/BR	82018		
4 Pole Plugs					
20	3A 50V with guard ring. All poles live.	X4S/INS/BR	84459	33/2	ETH indicator
	Interior	8640/INS/BR	82188		
21	5A 250V with guard ring. 3/4" female thread.	14S/21131/BR	84474	08-09	Speedo/ Ammeter (see note 2).
	Interior	1333/BR	82193	47	Slow speed.
22	5A 250V with guard ring. All poles live.	14S/INS/BR	84478	87	Intercomm
	Interior	1333/INS/BR	82191		

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
4	Pole Plugs (contd.)				
23	5A 250V 1" male entry with guard ring, cap & chain. All poles live.	14S/Y/INS/BR	84464	37	Lighting
	Interior	1333/INS/BR	82191		
24	5A 250V with guard ring.	14S/BR	84469	4xx	Route ind.
	Interior	1333/BR	82193	4xx	Speedometer
25	15A 500V with guard ring.	74S/BR	84532	33	Roof plug
	Interior	1370/BR	82218		
26	20A 110V flanged & guard ring. No cover. All poles live. Solder terminals.	B64R/21916/BR	84537	Mk3	Refrig. modle
	Interior	B24977/INS/BR	82230		
27	50A 500V gland & guard ring. 1 pole earthed. Solder terminals.	B44S/29117	54092	Depot	Cl. 91 Battery charger.
	Interior	11850			
5	Pole Plugs				
28	5A 250V with guard ring & 1" entry. All poles live.	65S/DIC/INS/BR	84748	31	Roof circuit
	Interior	2058/INS/BR	82195		
29	3 pole @ 50A, 2 @ 5A 415V flanged & guard ring. No cover. All poles live. Solder terminations.	B25R/21914/BR	84627	Mk 3 HST	Air cond. module.
	Interior	B24981/ins/BR	82235		

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
30	6 Pole Plugs 5 A 415V flanged & guard ring. No cover. All poles live. Solder terminations.	B66R/21922/BR	85616	43	Air cond.
	Interior	B2328/ins/spl/BR	82239		
31	7 Pole Plugs 3A 250V with guard ring & 20mm earth coupling. All poles live. Solder terminations.	BX7S/21539/BR	83619	MK 3 (HST & LH)	Thermostat to module.
	Interior	B13919/ins/BR	82254		
32	3A 250V flanged with guard ring & 20mm & earth coupling. All poles live. Solder terminations.	BX7R/21927/BR	85621	43	Air cond
	Interior	B13929/ins/BR	82254		
33	5A 250V portable with guard ring & 20mm earth coupling. All poles live. Solder terminations.	B67S/25480/BR	85746	56	Air cond.
	Interior	25323/BR			
34	5A 250V flanged with guard ring. No cover. Solder terminations.	B67R/25321/BR	85689	56	Air cond.
	Interior	25323/BR			
35	5 @ 5A 2 @ 20A 110V flanged with guard ring. No cover. All poles live. Solder terminations.	B17Q/21906/BR	85623	Mk 3 (LH)	Air cond. module.
	Interior	B21931/ins/BR	82265		

Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
9 Pole Plugs				
36 5A 415V flanged with guard ring. No cover. All poles live. Solder terminations.	B19R/21919/BR	85624	43	Air cond.
Interior	B21935/BR	82278		
10 Pole Plugs				
37 5A 250V with guard ring. All poles live.	17151/BR	84722	101-128	Engine control
Interior	B20620/BR	82249		
38 2-3A 250v with standard ring & 25mm earth coupling. All poles live. Solder terminations.	EX10P/ 21536/BR	85626	20,31, 37,43, 47,50, 56,58, 86,87 90, DBSO	DSD/vigilance control box
Interior	B21541/ins/BR	82284		

Table 3 Socket Types, Applications and Spares

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
2 Pole Sockets					
39	5A 250V flanged with BESA base. One large + 1 small pin. Interior	12B/ODD/BR 1317/BR	85211 82264	Mk 3	Lighting
40	5A 250V portable with 20mm internal adaptor. Interior	12J/LIC/BR 11127/BR	85584 82263	43	Roof (fire)
41	5A 250V flanged with cap, chain & solder terminals. Interior-	B12A/BR B11127/BR	85628 82267	Mk 3	Brake module
42	5A 250V flanged with cap & chain. Interior	12A/BR 11127/BR	85241 82263	37 37 37 56 201-7	Route inds. Eng. compt. Fuel tanks Inspection Inspection
43	5A 250V flanged with spring lid. Interior	12A/SL/BR 11127/BR	85256 82263	37 43 47 47 56 60 81-7	Boiler compt. Inspection. Eng. compt. Inspection. Inspection. Inspection. Inspection
44	5A 250V through angled flanged with cap & chain. 3/4" entry. 1 large & 1 small tube. Interior	12H/ODD/BR 1317/BR	85281 82264	37	Speedometer

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
2 Pole Sockets (contd)					
45	5A 250V square end with cap & chain. Interior	12Y/BR 11127/BR	85272 82263	37	Eng compt.
46	5A 250V flanged. Interior	12A/1218/BR 11127/BR	85293 82263	87	Body lighting
47	25A 250V on terminal box with cover. Interior	32C/ODD/BR 2052/BR	85442 82291	73/1, 73/2	Shed supply.
3 Pole Sockets					
48	5A 250V flanged with spring lid. Interior	13A/SL/BR 1316/BR	85638 82359	43 47 50	Shed lighting Inspection Inspection
49	5A 250V flanged. All poles live. Interior	13A/INS/BR 1316/INS/BR	85665 82358	33/1 33/3 87	ETH indicator ETH indicator Bulkhead
50	5A 250V flanged with spring lid. All poles live. Interior	13A/SL/INS/BR 1316/INS/BR	85636 82358	81-86	Route Inds
51	5A 250V flanged angle with cap & chain. Interior	13G/BR 1316/BR	85646 82359	08-09	Instrument lamp.
52	5A 250V with cover on terminal base. All poles live. Interior	13C/INS/BR 1316/INS/BR	85637 82358	73/1 73/1	Speedometers Sanding

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
3	Pole Sockets (contd)				
53	5A 250V flanged with cap and chain. Interior	13A/BR 1316/BR	85645 82359	31 33	Inspection. Lighting.
54	5A 250V through angled flanged with cover. All poles live. Interior	13H/INS/BR 1316/INS/BR	85640 82358	50	Inspection
55	5A 250V square end. All poles live. Interior	13Y/INS/BR 1316/INS/BR	85647 82358	50	Route Inds.
56	15A 250V flanged with cap & chain. Interior	23A/BR 2912/BR	85716 82426	37 20 47 50 56	Shed supply Shed supply Shed supply Shed supply Shed lighting
57	15A 250V flanged through angle 3/4" entry with cap & chain. Interior	23H/BR 2912/BR	85736 82426	20 50	Shed supply Shed supply
58	15A 250V flanged with spring lid. Interior	23A/SL/BR 2912/BR	85745 82426	43 60	Shore lighting Shore lighting
59	25A 250V flanged with spring lid. Interior	33A/SL/BR 1710/BR	85811 82431	73/1 73/2	Batt charge Batt charge
60	25A 415V portable with 25mm earth coupling. All poles live. Solder terminations. Interior	B33J/21902/BR B1710/ins/spl/BR	85836 82433	Mk 3 (LH)	Air cond.

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
3 Pole Sockets (contd)					
61	50A 250V flanged with cap & chain.	43A/BR	85894	20,31 47,50	Batt charge. Batt charge. See Note 1.
	Interior	2883/BR	82538		
62	50A 250V flanged with cap & chain. Solder terminations.	B43A/BR	85908	43,56 58	Batt charge. Batt charge.
	Interior	B2883/SPL/BR	82460	Mk 3 DVT's	Batt charge. Batt charge.
63	50A 250V flanged through angled 1.1/4" with cap & chain.	43H/BR	85898	20,50	Batt charge
	Interior	2883/BR	82538		
64	50A 250V flanged through angled 1.1/4" with cap & chain.	B43H/BR		60	Batt charge
	Interior				
65	50A 250V flanged with spring lid.	43A/SL/BR	85899	33 204-7	Battery charge Battery charge
	Interior	2883/BR	82538		
66	100A 110V flanged. No cover. All poles live. Solder terminations.	B53A/23031/BR	85929	Mk 3 LH	Battery module
	Interior	B24980/INS/BR	82545		
67	100A 110V flanged angled socket. No cover. All poles live. Solder terminations.	B53G/23049/BR	85933	Mk 3 HST	Battery module
	Interior	B24980/INS/BR	82545		

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
4 Pole Sockets					
68	5A 250V flanged with cap & chain. All poles live. Interior	14A/INS/BR 1356/INS/BR	85966 82611	37 87	Boiler roof Intercomm
69	5A 250V flanged with cap & chain. Interior	14A/BR 1356/BR	85968 82596	4xx 4xx	Route Inds. Speedometer
70	5A 250V through angle flanged. Cap & chain. Interior	14H/BR 1356/BR	85973 82596	08	Speedo/ Ammeter (see note 2)
71	15A 500V flanged with cap & chain. Interior	74A/BR 1624/BR	86019 82665	33	Roof
72	20A 110V portable. 20mm earth coupling. All poles live. Solder terminations. Interior	B64J/21915/BR B24978/ins/BR	86051 82731	Mk 3	Refrigeration module
73	50A 500V flanged. Cap & chain. 1 pole earthed. Solder terminals. Interior	B44A/29116 A11849	63294	91	Battery charging.
5 Pole Sockets					
74	5A 250V portable. 1" internal. All poles live. Interior	65J/DIC/ INS/BR 2065/INS/BR	86112 82600	31	Eng compt

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
5 Pole Sockets (contd.)					
75	5A 250V flanged with cover	65A/BR	86113	86	Hasler
	Interior	2065/BR	82605		
76	3 @ 50A, 2 @ 5A 415V. Portable, 25mm coupling. All poles live. Solder terminations.	B25J/21913/BR	86134	Mk 3 (HST)	Air cond.
	Interior	B24982/INS/BR	82733		
6 Pole Sockets					
77	5A 415V portable, 20mm earthing coupling. All poles live. Solder terminations.	B66J/21921/BR	86135	43	Air cond.
	Interior	B24982/ins/BR	82734		
7 Pole Sockets					
78	2-3A 250V flanged. No cover. All poles live Solder terminations.	BX7A/ INS/NC/BR	86142	Mk 3 (LH & HST)	Air cond. module (thermostat)
	Interior	B13928/ins/BR	82740		
79	3A 250V portable. 20mm earthing coupling. All poles live. Solder terminations.	BX7J/21926/ER	86143	43 56	Air cond. Air cond.
	Interior	B13928/ins/BR	82740		
80	5 @ 5A, 2 @ 20A 110V. Portable. 20mm earth coupling. All poles live. Solder terminations.	B17J/ 21905/BR	86144	Mk 3	Air cond.
	Interior	B21930/ins/BR	82741		

	Description	LPA Part No.	BR Cat. No. (54/)	Class	Application
7 Pole Sockets (contd.)					
81	5A 250V flanged with spring lid. All poles live. Solder terminations.	B67A/SL/ 25479/BR	86138	SLEP	Test
	Interior	25324/BR	82741		
9 Pole Sockets					
82	5A 415V portable with 25mm earth coupling. All poles live. Solder terminations.	B19J/21918/BR	86156	43	Air cond.
	Interior	B21930/INS/BR	82756		
10 Pole Sockets					
83	5A 250V flanged angled. No cover.	X10G/17212/BR	86151	101- 128	Engine control
	Interior	17328/BR	82707		
84	2-3A 250V flanged. No cover. All poles live. Solder terminations.	BX10A/ 21535/BR	86159	20,31, 37,43, 47,50, 56,58,	DSD/vigilance control box
	Interior	B21542/ INS/BR	82763	86,87, 90, DBSO	