



Switchboard Circuit Breakers and Resistance Units

March 1923

**GENERAL RAILWAY SIGNAL COMPANY**

**Switchboards**

**Circuit Breakers and Resistance Units**

Drawing references are shown for convenience in checking shipping lists and invoices.

Fig. No.	Name	Drawing Reference
<b>Order by plate, figure number and name</b>		
<b>A</b>	Cross-protection Circuit Breaker, 2 Pole, Complete as shown, without Cover, for mounting on 1½" Slate. Includes Armature Complete, Holder, Cross Bars, Shafts, Blades, Arms, Stops, Handle, Contacts, Springs, Bearing Brackets, Shield, Coils, Yoke, Nuts, Screws, etc. (1-1, 1-2, 22-3, 1-4, 6-5, 2-6, 1-7, 2-8, 2-9, 14-10, 2-11, 4-12, 1-13, 2-14, 1-15, 1-16, 2-17, 2-18, 2-19, 2-20, 1-21, 2-22, 2-23, 2-24, 1-25, 1-26, 2-27, 1-28, 4-29, 2-30, 7-31, 8-32, 2-33, 18-34, 4-35).....	
<b>A1</b>	as above, except for mounting on 1 inch Slate.....	
<b>B</b>	Cover Complete, for Cross-protection Circuit Breaker Fig. A for mounting on 1½" Slate. Includes Glass, Screws, Bolts, Nuts and Washers. (1-36, 1-37, 1-38, 1-39, 1-40, 4-41, 4-42, 1-43, 2-44, 2-45, 2-46).....	
<b>B1</b>	as above, except with bolts for mounting on 1 inch Slate.....	
<b>C</b>	Resistance Unit, 300 ohms, Complete with Mounting Brackets, Screws, etc., for mounting on 1½" Slate. For use with Model 2A Signals where only one side of Circuit is broken through Circuit Breaker.....	30208
<b>C1</b>	as above, except Resistance in 150 ohms. For use with Mod. 2A Signals where both sides of Circuit are broken through Circuit Breaker.....	38080
<b>C2</b>	Same as Fig. C, except Resistance is 60 ohms. For use with Mod. 3 Signals where only one side of Circuit is broken through Circuit Breaker.....	0368
<b>C3</b>	same as Fig. C, except Resistance is 30 ohms. For use with Mod. 3 Signals where both sides of Circuit are broken through Circuit Breaker.....	

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Fig. No.	Name	Drawing Reference
<b>Order by plate, figure number and name</b>		
<b>D</b>	Reverse Current Circuit Breaker Complete with Coils for a 10 Ampere Charging Current. Includes Cores, Armature, Contact, Arm, Handle, Coils, Yoke, Springs, Screws, Nuts, Washers, for mounting on 1½" Slate. (1-49, 1-17, 1-50, 1-51, 1-52, 1-53, 1-54, 1-55, 1-18, 4-56, 1-57, 2-24, 2-23, 1-58, 1-3, 6-31, 2-32, 1-30).....	2070
<b>D1</b>	as above, except equipped with Coils for a 15 Ampere Charging Current. (For mounting on 1½" Slate).....	2070
<b>D2</b>	same as Fig. D, except equipped with Coils for a 20 Ampere Charging Current. (For mounting on 1½" Slate).....	2070
<b>D3</b>	same as Fig. D, except equipped with Coils for a 30 Ampere Charging Current. (For mounting on 1½" Slate).....	2070
<b>D4</b>	same as Fig. D, except Coils and Cores are arranged for operation as an underload Circuit Breaker. For mounting on 1½" Slate.....	2070
<b>D5</b>	Reverse Current Circuit Breaker Complete with Coils for a 10 Ampere Charging Current arranged for mounting on 1 inch Slate. Includes Cores, Armature, Contact, Arm, Handle, Coils, Yoke, Springs, Screws, Nuts, Washers, etc. (1-49a, 1-17, 1-50, 1-51, 1-52a, 1-53, 1-54, 1-55, 1-18, 4-56, 1-57, 2-24, 2-23, 1-58a, 1-3, 6-31a, 2-32, 1-30).....	2070
<b>D6</b>	same as Fig. D5, except equipped with Coils, 54a, for a 15 Ampere Charging Current. (For mounting on 1 inch Slate).....	2070
<b>D7</b>	same as Fig. D5, except equipped with Coils, 54b, for a 20 Ampere Charging Current. (For mounting on 1 inch Slate).....	2070
<b>D8</b>	same as Fig. D5, except equipped with Coils, 54c, for a 30 Ampere Charging Current. (For mounting on 1 inch Slate).....	2070

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Fig. No	Name	Drawing Reference
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<b>D9</b>	same as Fig. D5, except equipped with Coils, 54d, arranged for operation as an Underload Circuit Breaker. (For mounting on 1 inch Slate).....	2070
<b>1</b>	Armature and Cores Complete with Holder and Pins, as shown, for mounting on 1½ inch Slate.....	
<b>1a</b>	as above, except for mounting on 1 inch Slate.....	
<b>2</b>	Holder Complete with Pin for attaching Cross Bar to Armature for holding Circuit Breaker in the closed position.....	
<b>3</b>	Washer, brass, for Screw Fig. 4, Terminal Posts, etc.....	1925
<b>4</b>	Screw ¼" - 24 x ⅞" rd. hd. brass, for fastening Holder Fig. 2 to Bar, Fig. 7.....	2450
<b>5</b>	Washer, brass, for Screws Figs. 6 and 12.....	3890
<b>6</b>	Screw, No. 10-32 x 1¼" rd. hd. brass, for fastening Bar Fig. 7 to Arms Fig. 14.....	27440
<b>7</b>	Bar for Arms Fig. 14, as shown.....	3273
<b>8</b>	Spring Washer for Shaft Fig. 9.....	35448
<b>9</b>	Shaft used as bearing for Arms Fig. 14.....	35407
<b>10</b>	Nut, No.10-32 x 1¼" hex. brass, for Shaft Fig. 9, Screws Figs. 6 and 12.....	577
<b>11</b>	Contact Blade, as shown.....	35409
<b>12</b>	Screw, No. 10-32 x ⅞" rd. hd. brass, for fastening Contact Blade Fig. 11 to Cross Bar Fig. 13.....	4697
<b>13</b>	Cross Bar, as shown.....	35410
<b>14</b>	Arm, as shown.....	35403
<b>15</b>	Nut, ⅝" - 18 x ⅝" hex. steel, for fastening Handle Fig. 16 to Cross Bar Fig. 13.....	
<b>16</b>	Handle Complete with Stud.....	35412
<b>17</b>	Carbon Contact Complete, as shown includes Holder.....	
<b>18</b>	Contact Spring, as shown.....	2781
<b>19</b>	Spring for Arms Fig. 14, as shown.....	3276

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Fig. No.	Name	Drawing Reference
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<b>20</b>	Bearing Bracket for Arms Fig. 14, as shown	35408
<b>21</b>	Shield for Handle Fig. 16	35411
<b>22</b>	Coil for Circuit Breaker Comp. Fig. A	3314
<b>23</b>	Screw for fastening Yoke Fig. 25 to Cores	2762
<b>24</b>	Washer, $\frac{1}{2}$ " , for Screws Fig. 23	1925
<b>25</b>	Yoke for Cores, as shown	3468
<b>26</b>	Stud for Armature, Fig. 1	41753
<b>27</b>	Contact Complete, as shown. Includes Stud Block and V Contacts	44718
<b>27a</b>	as above, except with Stud for mounting on 1 inch Slate	
<b>28</b>	Stop, as shown for Armature	3471
<b>29</b>	Screw, $\frac{1}{4}$ "-24 rd. hd. iron, as shown for mounting Bearing Bracket Fig. 20 to $1\frac{1}{2}$ " Slate	21746
<b>29a</b>	as above, except for mounting Bearing Bracket Fig. 20 to 1" Slate	
<b>30</b>	Stop, as shown for Arm Fig. 14	2083
<b>31</b>	Screw, No. 8-32 rd. hd. machine, as shown for mounting Con- tacts Figs. 17, 27, Clip Fig. 33 and Stop Fig. 30 to $1\frac{1}{2}$ inch Slate	2433
<b>31a</b>	as above, except for mounting to 1 inch Slate	
<b>32</b>	Washer, brass, for Screws Fig. 31	975
<b>33</b>	Contact Clip Complete with Rivet, as shown	35451
<b>34</b>	Nut, $\frac{1}{4}$ "-24 hex. brass, as shown for Terminal Posts	20098
<b>35</b>	Connector Complete, as shown with Stud for Terminal Post, for mounting on $1\frac{1}{2}$ inch Slate	44719
<b>35a</b>	as above, except with Stud for mounting on 1 inch Slate	
<b>36</b>	Bolt, $\frac{5}{16}$ "- 18 x 2" hex. hd. black oxidized, for fastening Cover to $1\frac{1}{2}$ inch Slate	
<b>36a</b>	as above, except $1\frac{1}{2}$ " long for fastening Cover to 1 inch Slate	36220
<b>37</b>	Nut, $\frac{5}{16}$ "-18 hex., black oxidized, for Bolt Fig. 36	1155
<b>38</b>	Washer, black oxidized, for Bolt Fig. 36	2548

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Fig. No.	Name	Drawing Reference
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39	Washer for Bolt Fig. 36.....	19781
40	Cover only, as shown for Fig. B.....	38402
41	Washer, copper, for Screw Fig. 42.....	28998
42	Screw, No. 4-36 x $\frac{1}{4}$ " rd. hd. iron, for fastening Glass Fig. 43 to Cover Fig. 40.....	33588
43	Glass for Cover Fig. B.....	15683
44	Hook Bolt, $\frac{1}{4}$ " black oxidized, for fastening Cover to $1\frac{1}{2}$ inch Slate.....	
44a	as above, except for fastening Cover to 1 inch Slate.....	
45	Washer, $\frac{5}{16}$ " I. D., $\frac{3}{4}$ " O. D. for Hook Bolt Fig. 44.....	069
46	Nut, $\frac{1}{4}$ "-24 x $\frac{1}{4}$ " black oxidized, for Hook Bolt Fig. 44.....	424
47	Bracket Complete, as shown, for supporting Resistance Unit. Includes Screw, Nuts and Washers for mounting to $1\frac{1}{2}$ inch Slate.....	35836
47a	as above, except with Screws for mounting to 1 inch Slate...	35836
48	Resistance Unit as required or as specified.....	
49	Contact and Cores Complete, as shown, for mounting to $1\frac{1}{2}$ " Slate.....	
49a	as above, except for mounting to 1 inch Slate.....	
50	Armature, as shown.....	2072
51	Screw, $\frac{1}{4}$ "-24 rd. hd., for fastening Armature Fig. 50 to Arm and Base Comp. Fig. 52.....	2454
52	Arm and Base Complete, as shown with Pins, Spring and Stud for mounting on $1\frac{1}{2}$ inch Slate.....	
52a	as above, except for mounting to 1" Slate.....	
53	Handle Complete with Stud, as shown.....	2904-1
54	Coil for Circuit Breaker Complete Fig. D wound for a Charging Current of 10 Amperes.....	2078
54a	same as above, except wound for a Charging Current of 15 Amperes.....	2827

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Fig. No.	Name	Drawing Reference
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54b	same as Fig. 54, except wound for a Charging Current of 20	
	Amperes .....	4869
54c	same as Fig. 54, except wound for a Charging Current of 30	
	Amperes .....	4869
54d	same as Fig. 54, except Coil is arranged for an Underload	
	Circuit Breaker .....	4869
55	Coil for Circuit Breaker Complete, Fig. D wound for a Charging	
	Current from 10 to 30 Amperes .....	3211
55a	same as above, except Coil is arranged for an Underload	
	Circuit Breaker .....	4869
56	Nut, $\frac{1}{4}$ "-24 hex. brass, for Terminal Posts .....	528
57	Yoke for Cores, as shown .....	2088
58	Screw, $\frac{1}{4}$ "-24 rd. hd. iron for fastening Base Fig. 52 to $1\frac{1}{2}$ inch	
	Slate .....	
58a	as above, except for fastening Base Fig. 52 to 1 inch Slate...	