



**For Compound Lens Signals**

- E—For 4 Volt Operation
- F—For 7.5-8 Volt Operation
- G—For 10 Volt Operation
- H—For 12 Volt Operation

**For Stepped Lens Signals**

- A—For 4 Volt Operation
- B—For 7.5-8 Volt Operation
- C—For 10 Volt Operation
- D—For 12 Volt Operation

Type SA Direct-Current Signal Mechanism

## Type SA Direct-Current Signal Mechanism With Stepped or Compound Lenses and Slide Arrangement

**Note:** Mechanisms shown on this plate may be used in either high or dwarf signals.

If other color combinations than those listed are desired or if signals are to operate on voltages other than those listed, same will be furnished when specified.

Lamps, Fig. 31, are not included with mechanisms complete and must be ordered separately.

For other direct-current mechanisms see Plate H2651 to H2655.

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>		
A	Type SA Direct-Current Signal Mechanism Complete, as shown, equipped with cover glass Fig. 40, for use with stepped lens signals. For 4 volt operation, arranged to give three indications, namely: green, red and yellow. . . . .	53052-25 Gr. 43
A1	as above, except with one ohm resistance unit Fig. P. . . . .	53052-34 Gr. 43
A2	same as Fig. A except with five ohm resistance unit Fig. P1. . . . .	53052-35 Gr. 43
B	Type SA Direct-Current Signal Mechanism Complete, equipped with cover glass Fig. 40, for use with stepped lens signals. For 7.5-8 volt operation, arranged to give three indications namely: green, red and yellow. . . . .	53052-25 Gr. 1
B1	as above, except with one ohm resistance unit Fig. P. . . . .	53052-34 Gr. 1
B2	same as Fig. B except with five ohm resistance unit Fig. P1. . . . .	53052-35 Gr. 1
C	Type SA Direct-Current Signal Mechanism Complete, equipped with cover glass Fig. 40, for use with stepped lens signals. For 10 volt operation, arranged to give three indications namely: green, red and yellow. . . . .	53052-25 Gr. 29
C1	as above, except with one ohm resistance unit Fig. P. . . . .	53052-34 Gr. 29
C2	same as Fig. C, except with five ohm resistance unit Fig. P1. . . . .	53052-35 Gr. 29
D	Type SA Direct-Current Signal Mechanism Complete, equipped with cover glass Fig. 40, for use with stepped lens signals. For 12 volt operation, arranged to give three indications, namely: green, red and yellow. . . . .	53052-25 Gr. 15
D1	as above, except with one ohm resistance unit Fig. P. . . . .	53052-34 Gr. 15
D2	same as Fig. D except with five ohm resistance unit Fig. P1. . . . .	53052-35 Gr. 15

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# Type SA Direct-Current Signal Mechanism

## With Stepped or Compound Lenses and Slide Arrangement

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Fig. No.	Name	Drawing Reference
<b>Order by plate, figure number and name</b>		
E	Type SA Direct-Current Signal Mechanism Complete, equipped with lens Fig. 60, for use with compound lens signals. For 4 volt operation, arranged to give three indications, namely: green, red and yellow.....	53052-26 Gr. 43
E1	as above, except with one ohm resistance unit Fig. P.....	53052-36 Gr. 43
E2	same as Fig. E, except with five ohm resistance unit Fig. P1....	53052-37 Gr. 43
F	Type SA Direct-Current Signal Mechanism Complete, equipped with lens Fig. 60, for use with compound lens signals. For 7.5-8 volt operation, arranged to give three indications, namely: green, red and yellow.....	53052-26 Gr. 1
F1	as above, except with one ohm resistance unit Fig. P.....	53052-36 Gr. 1
F2	same as Fig. F, except with five ohm resistance unit Fig. P1....	53052-37 Gr. 1
G	Type SA Direct-Current Signal Mechanism Complete, equipped with lens Fig. 60, for use with compound lens signals. For 10 volt operation, arranged to give three indications, namely: green, red and yellow.....	53052-26 Gr. 29
G1	as above, except with one ohm resistance unit Fig. P.....	53052-36 Gr. 29
G2	same as Fig. G, except with five ohm resistance unit Fig. P1....	53052-37 Gr. 29
H	Type SA Direct-Current Signal Mechanism Complete, equipped with lens Fig. 60, for use with compound lens signals. For 12 volt operation, arranged to give three indications, namely: green, red and yellow.....	53052-26 Gr. 15
H1	as above, except with one ohm resistance unit Fig. P.....	53052-36 Gr. 15
H2	same as Fig. H except with five ohm resistance unit Fig. P1....	53052-37 Gr. 15
K	Reflector Unit Complete, comprises parts Fig. 8, 17 to 23, and 32 to 34 inclusive. Does not include lamp, Fig. 31 which must be ordered separately.....	53056-1 Gr. 1
L	Terminal Block Complete, as shown. Comprises parts Figs. 7, 8, 9, 10, 12, 14, 15, 16, 26, 27, and 29.....	53053 Gr. 8

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Fig. No.	Name	Drawing Reference
<b>Order by plate, figure number and name</b>		
M	Terminal Block Complete, as shown. Comprises parts Figs. 6 and 62 to 68 inclusive. . . . .	53060 Gr. 4
N	Case Complete, includes all parts for housing mechanism. Does not include reflector unit, terminal block, glass Fig. 40 or glass case Fig. 49. . . . .	53270-1 Gr. 3
P	Resistance Unit Complete, one ohm, 2.5 amps., with mounting screws. . . . .	55945-1 Gr. 3
P1	as above, except five ohms, 1 amp. . . . .	55945-1 Gr. 1
1	Screw, No. 14-40 x $\frac{5}{8}$ " lg., headless, used as stop for counterweight	5100-10
2	Screw, No. 14-40 x $\frac{7}{8}$ " lg., headless, used as stop for armature. . .	5100-6
3	Pin, .125" dia. x $\frac{1}{8}$ " lg. for counterweight. . . . .	2644-5
4	Counterweight Complete, for mechanism. . . . .	53703-1 Gr. 1
5	Nut, No. 14-40 x $\frac{1}{8}$ " th. hex., for screws Figs. 1 and 2. . . . .	53084-1
6	Screw, No. 10-32 x $\frac{3}{4}$ " fl. hd. for fastening contact block to bracket. . . . .	12563-5
7	Screw, No. 10-32 x $1\frac{1}{2}$ " rd. hd., terminal post for contact block. .	2438-24
8	Nut, No. 10-32 x $\frac{1}{8}$ " hex., for terminal posts and contacts, also for stud Fig. 53. . . . .	40796
9	Washer, for terminal posts. . . . .	40791
10	Terminal Block, only. . . . .	47508-49
11	Armature Complete, with miniature roundels, for three indication unit, giving green, red and yellow indications. Includes spectacles, fly wheel, vane and all riveted parts mounted on shaft. .	53055-8 Gr. 1
11a	as above, except for two indication unit giving purple and yellow indications. . . . .	53055-8 Gr. 2
11b	same as Fig. 11, except for two indication unit giving red and yellow indications. . . . .	53055-8 Gr. 3
12	Nut, No. 8-32 x $\frac{1}{8}$ " th. hex., for fastening fingers to counterweight, also for terminal posts Fig. 29. . . . .	3891-1

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# Type SA Direct-Current Signal Mechanism

## With Stepped or Compound Lenses and Slide Arrangement

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>		
13	Contact Finger Complete, as shown, two required.....	53059-3 Gr. 1
14	Back Contact Complete, includes silver contact, as shown, two required.....	13061-52 Gr. 2
15	Contact Complete, as shown, two required.....	42799-7 Gr. 8
16	Terminal, for contact Fig. 15.....	51559-11
17	Holder, for reflector unit Fig. K, includes studs for mounting receptacle riveted in place.....	53068-2 441-120
18	Washer, for use between pad and holder for reflector.....	590-25
19	Spring, for receptacle.....	586-32
20	Lamp Receptacle Complete, for details and order references see Plate H2669.....	53058-5 Gr. 2
21	Nut, No. 10-32 hex., for stud on holder.....	46277-1
22	Nut, No. 10-32, cup shape for spring.....	20673-2
23	Washer, for use behind reflector.....	1533-32
24	Bearing Bracket, as shown, for supporting one end of armature shaft.....	53063-6
25	Name Plate, with screws, for mechanism.....	401-223 54392-13
26	Insulation, for contact block.....	53109
27	Washer, for screw Fig. 29.....	2534-1
28	Name Plate, with screws, for mechanism.....	401-220 54392-13
29	Screw, No. 8-32 x 3/4" rd. hd., used as terminal post on contact block.....	2553-19
30	Bracket, as shown, for supporting counterweights and contact block.....	53063-7
31	Incandescent Lamp, 2 pin, candelabra single contact bayonet base S-8 bulb, single filament, 1000 hour rating, 11.3 volts, 13.3 watts, recommended for operation on 10 volts.....	34866-32

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## Type SA Direct-Current Signal Mechanism With Stepped or Compound Lenses and Slide Arrangement

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>		
31a	as above, except S-11 bulb, single filament, 1000 hour rating, 8 volts, 10 watts, recommended for operation on 7.2 volts. . . . .	34866-48
31b	same as Fig. 31 except S-11 bulb, major and minor filaments in multiple, 1000 hour rating, 8 volts, 13+3.5 watts, recommended for operation on 7.2 volts. . . . .	34866-37
31c	same as Fig. 31, except S-11 bulb, single filament, 1000 hour rating, 9 volts, 15.3 watts, recommended for operation on 8 volts. . . . .	34866-34
31d	same as Fig. 31, except S-11 bulb, major and minor filaments in multiple, 1000 hour rating, 10 volts, 13+3.5 watts, recommended for operation on 9 volts. . . . .	34866-60
31e	same as Fig. 31, except S-11 bulb, single filament, 1000 hour rating, 10 volts, 25 watts, recommended for operation on 9 volts. . . . .	34866-47
31f	same as Fig. 31, except S-11 bulb, single filament, 2000 hour rating, 13.5 volts, 17 watts, recommended for operation on 12 volts. . . . .	34866-25
31g	same as Fig. 31, except G-16½ bulb, single filament, 1000 hour rating, 115 volts, 25 watts, recommended for operation on 110 volts. . . . .	34866-45
31h	same as Fig. 31, except S-11 bulb, single filament, 1000 hour rating, 4 volts, 3 watts, recommended for compound lens signals only, for operation on 4 volts. . . . .	34866-35
31j	same as Fig. 31, except S-11 bulb, single filament, 1000 hour rating, 8 volts, 5 watts, recommended for compound lens signals only, for operation on 8 volts. . . . .	34866-55
31k	Same as Fig. 31, except S-11 bulb, major and minor filaments in multiple, 1000 hour rating, 8 volts, 5+3.5 watts, recommended for compound lens signals only, for operation on 8 volts. . . . .	34866-58
31m	same as Fig. 31, except S-11 bulb, single filament, 1000 hour rating, 10 volts, 5 watts, recommended for compound lens signals only, for operation on 10 volts. . . . .	34866-38

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Fig. No.	Name	Drawing Reference
<b>Order by plate, figure number and name</b>		
32	Reflector, glass, as shown. . . . .	53122
33	Retaining Ring, for reflector. . . . .	45647-5
34	Screw, No. 4-36 x 1/4" fl. hd. for fastening retainer to holder. . . . .	35699-2
35	Spring, with sleeve, for fastening glass Fig. 37 in case. . . . .	51107-3 15284-17
36	Gasket, rubber, for use between glass and case. . . . .	52983-1
37	Glass, for reflector unit compartment. . . . .	924-11
38	Gasket, rubber, for use with glass Fig. 40 or lens Fig. 60. . . . .	52983-3
39	Spring, with sleeve, for fastening glass in case. . . . .	51107-6 15284-17
40	Outer cover glass, for use in position shown. . . . .	924-17
41	Line Coil, 105 ohms resistance, for 4 volt operation. Includes bakelite shell. . . . .	53121-1 Gr. 6
41a	as above, except 250 ohms resistance, for 7.5-8 volt operation. . . . .	53121-1 Gr. 2
41b	same as Fig. 41 except 380 ohms resistance, for 10 volt operation. . . . .	53121-1 Gr. 3
41c	same as Fig. 41 except 500 ohms resistance, for 12 volt operation. . . . .	53121-1 Gr. 5
42	Bearing, upper half, for armature shaft. . . . .	53828
43	Ball, for use at ends of armature shaft. . . . .	36126-4
44	Gasket, for use between glass case and mechanism case. . . . .	13014-126
45	Shim, .005" th. for use between upper and lower halves of armature shaft bearings. . . . .	53879
45a	as above except .003" th. . . . .	53879-1
46	Bearing, knife edge, for armature shaft. . . . .	53828-1
47	Bearing Bracket, for supporting one end of armature shaft. . . . .	53064-2
48	Washer, for use between bearing bracket and poles. . . . .	53097
49	Glass Case, for housing lower half of mechanism. . . . .	37380-8
50	Color Disc Complete, red, A.A.R. Standard, assembled in retaining cup. . . . .	53073 Gr. 2
50a	as above, except yellow with one side depolished, A.A.R. Standard	53073 Gr. 12

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Fig. No.	Name	Drawing Reference
<b>Order by plate, figure number and name</b>		
50b	same as Fig. 50, except green, pre-cracked, A.A.R. Standard. . . .	53073 Gr. 3
50c	same as Fig. 50 except purple, A.A.R. Standard. . . . .	53073 Gr. 7
51	Screw, $\frac{1}{4}$ "-20 x $\frac{7}{8}$ " lg. for fastening brackets Fig. 24 and 47 to case, four required. . . . .	45048-8
52	Screw, No. 8-32 x $1\frac{3}{32}$ " collar hd., for fastening bearing to brackets	53829-2
53	Stud, as shown, for fastening poles to brackets, four required. . . .	441-117
54	Stud, $\frac{7}{16}$ " dia. x $5\frac{3}{8}$ " lg., for fastening magnet to poles. . . . .	879-31
55	Nut, $\frac{7}{16}$ "-14, hex., for stud, Fig. 54. . . . .	54247
56	Leather Washer, for use between glass case and stirrup on mechanism case. . . . .	4553
57	Pole, right hand, used in position shown. . . . .	53087-1
58	Magnet Complete, as shown, includes spacers and holders. . . . .	54419 Gr. 1
59	Pole, left hand, used in position shown. . . . .	53087-2
60	Lens, $4\frac{1}{2}$ " dia., $6\frac{1}{2}$ " focus, for use with compound lens signals. . .	54249-3
61	Sleeve, for springs Figs. 35 and 39. . . . .	15284-17
62	Block, only, for terminal block. . . . .	47508-27
63	Carborundum Plate, used as lightning protection. . . . .	41786-2
64	Connector, for carborundum plate. . . . .	4906-40
65	Screw No. 14-24 x $1\frac{1}{2}$ " sq. hd. used as terminal post. . . . .	350-3
66	Nut, No. 14-24 hex. for terminal posts. . . . .	42843-1
67	Washer for terminal posts. . . . .	1225-2
68	Nut, No. 14-24 x $\frac{3}{16}$ " hex., for terminal posts. . . . .	42839-1
69	Screw, No. 8-32 x $\frac{5}{16}$ " rd. hd., with lock washer, for fastening resistance units Fig. P to holder Fig. 17. . . . .	2553-9 53029-4