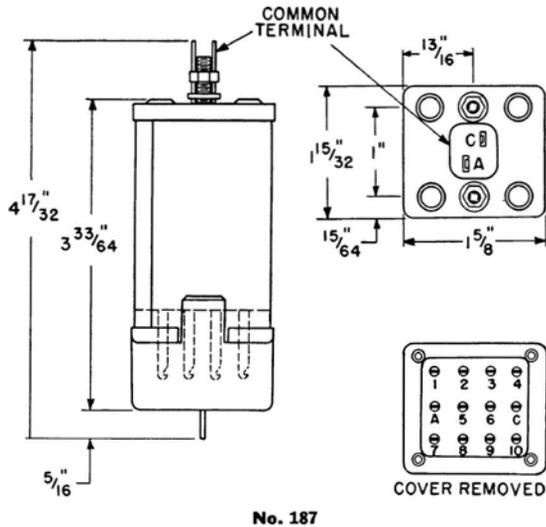


Capacitors

Western Electric



No. 187

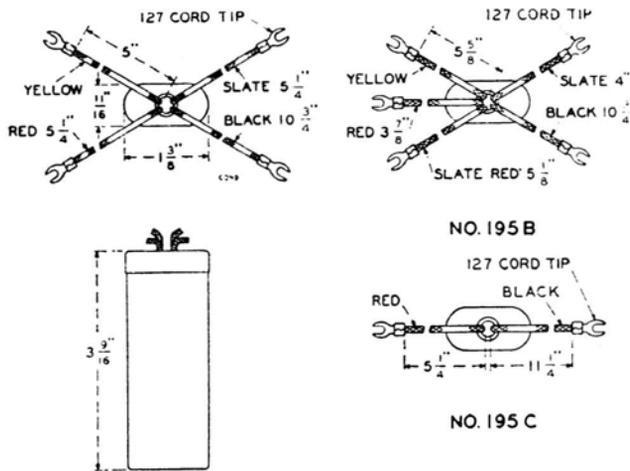
Consists of ten small paper units potted in metal can having metal cover. One side of each unit connected to common terminal; other side connected to one of ten terminals.

Mount on $1\frac{3}{4}$ -in. horizontal, $1\frac{1}{2}$ -in. vertical centers; furnished with two nuts and washers for mounting. Tested on 1,000 volts a-c. Suitable for use on continuously applied potentials not exceeding 300 volts d-c or a-c (60 cycles or less) and at operating temperatures not exceeding 120 degrees F.

No.	Capacitance Obtainable
*187A	0 to .346 UF to within .00133 UF
187B	0 to .069 UF to within .00066 UF
†187C	0 to .00584 UF to within .000084 UF

*Together with No. 25A bracket replaces Nos. 57AK and 57E on equipments arranged for lug mounting.

†Together with No. 25B bracket replaces No. 134A on equipments arranged for lug mounting.



NO. 195A ALSO GENERAL DESIGN AND DIMENSIONS OF NO. 195 TYPE

No. 195B

No. 195C

A paper capacitor; potted in wax in lead cans; used in combined telephone sets.

No.	Capacitance (U.F.)		Test Voltage (DC) Between Leads
	Max.	Min.	
195A	*2.50	2.0	300 Red and Black
†195B	**0.63	0.5	500 Yellow and Slate
	*2.50	2.0	300 Red and Black
	**0.63	0.5	500 Yellow and Slate
195C	*2.50	2.0	300 Red and Black

*Suitable for use on continuously applied potentials not exceeding 130 volts d-c or 100 volts a-c (60 cycles or less) and at operating temperatures not exceeding 120 degrees F.

**Suitable for use on continuously applied potentials not exceeding 200 volts d-c or 180 volts a-c (60 cycles or less) and at operating temperatures not exceeding 120 degrees F.

†The can on the 195B capacitor is provided with an insulating coating and the slate red lead is connected to the can

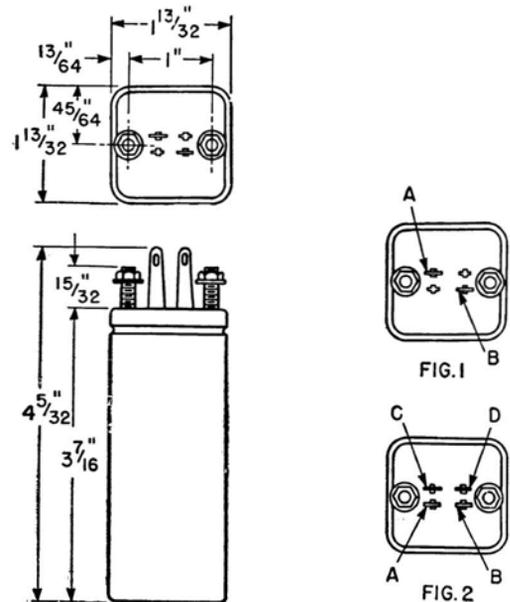
No. 198

Plastic film wax impregnated capacitors; black tape wrapping; tested on 600 volts d-c. Suitable for use on continuously applied potentials not exceeding 200 volts d-c or 180 volts a-c (60 cycles or less) and at operating temperatures not exceeding 150 degrees F.

No.	Capacitance (U.F.)	Used In
	Max. Min.	
198A	.625 .5	No. 592AW Subscriber Set
198B	.625 .5	No. 531 Subscriber Set

No. 361C

Plastic film wax impregnated capacitor; gray finish; tested on 600 volts d-c. Suitable for use on continuously applied potentials not exceeding 200 volts d-c or 180 volts a-c (60 cycles or less) at operating temperatures not exceeding 120 degrees F. Used on No. 1011 hand set.



No. 437 Type Capacitor

Capacitors

Western Electric

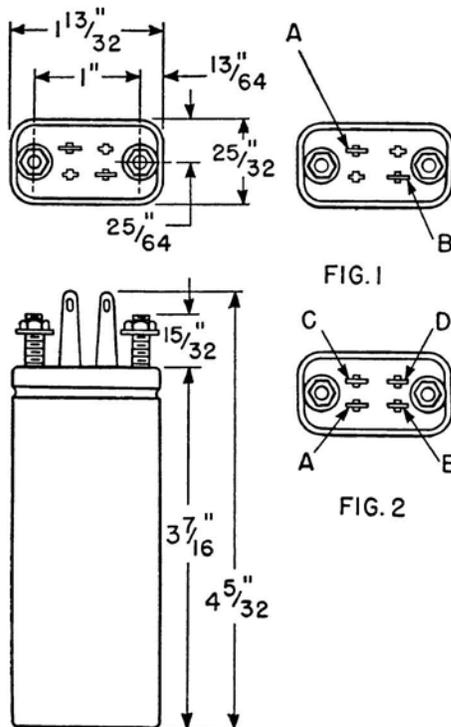
Paper capacitors; potted in wax in aluminum cans; tested on 500 volts DC. Suitable for use on continuously applied potentials not exceeding 200 volts DC or 180 volts AC (60 cycles or less) and at operating temperatures not exceeding 120 degrees F. Minimum capacitance values stamped on end of can; terminal letters stamped on end of cans of four terminal capacitors. No. 24 Brackets required when mounted in place of No. 57 or similar type capacitors. One mounting stud connected electrically to can.

No. 437 type Capacitors replace No. 137 type of corresponding letter.

No.	Fig. No.	Capacitance (UF) Between Terminals			
		(A-B)		(C-D)	
		Max.	Min.	Max.	Min.
437A	1	5.00	4.00		
*437B	2	5.00	4.00	0.3	.02
*437C	2	2.50	2.00	2.50	2.00
*437D	2	5.00	4.00	.06	.05
†*437E	2	2.50	2.00	2.50	2.00
437QA	1	4.36	4.28		
*437QB	2	4.36	4.28	.03	.02

*Consists of two separate capacitors insulated but not shielded from each other. These capacitors should not be used bridged off or across two separate transmission circuits; should not be used in the same circuit where effect of capacitance between the separate units will be detrimental to transmission.

†Same as No. 437C except the two units are matched so they do not differ by more than 0.11 U.F.



No. 439

Paper capacitors; potted in wax in aluminum cans; tested on 500 volts DC. Closest recommended mounting centers are 7/8-in. x 1 1/2-in. Suitable for use on continuously applied potentials not exceeding 200 volts DC or 180 volts AC (60 cycles or less) and at operating temperatures not exceeding 120 degrees F. Require No. 24 Brackets when mounted in place of No. 57 or similar type capacitors. One mounting stud connected electrically to can.

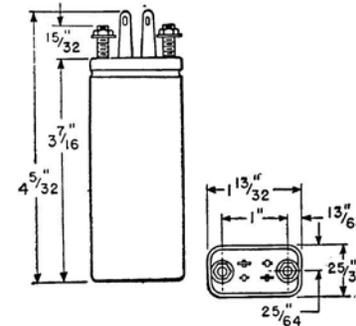
Minimum capacitance values, unless otherwise noted, are stamped on end of can.

No. 439 type Capacitors replace No. 139 type of corresponding letter.

No.	Fig. No.	Capacitance (MF) Between Terminals			
		(A-B)		(C-D)	
		Max.	Min.	Max.	Min.
439A	1	2.50	2.00		
*439B	2	2.50	2.00	.03	.02
*439C	2	1.25	1.00	1.25	1.00
*439D	2	2.50	2.00	.06	.05
*439E	2	1.50	1.20	1.50	1.20
†*439H	2	1.25	1.00	1.25	1.00
439QA	1	2.18	2.14		
439QB	1	2.16	2.10		
439QC	1	2.22	2.16		
439QD	1	2.24	2.08		
439QE	1	2.16	2.04		
439QF	1	2.28	2.16		
*439QG	2	2.28	2.16	.03	.02
*439QH	2	1.08	1.05	1.25	1.00

*Consists of two separate capacitors insulated but not shielded from each other. These capacitors should not be used bridged off or across two separate transmission circuits; should not be used in the same circuit where effect of capacitance between the separate units will be detrimental to transmission.

†Same as No. 439C except the two units are matched so they do not differ by more than .055 U.F.



No. 440

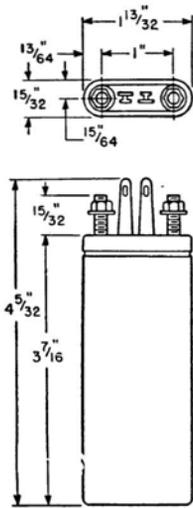
Paper capacitors; potted in wax in aluminum cans; tested on 1,400 volts DC between terminals. Closest recommended mounting centers are 7/8-in. x 1 1/2-in. Suitable for use on continuously applied potentials not exceeding 300 volts DC or 300 volts AC (60 cycles or less) and at operating temperatures not exceeding 120 degrees F.

Require No. 24 Brackets when mounted in place of No. 57 or similar type capacitors. One mounting stud connected electrically to can.

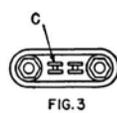
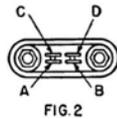
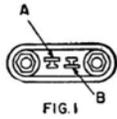
No.	Capacitance (UF)	
	Max.	Min.
440A	1.25	1.00
*440C	.62	.50
440F	1.57	1.25
440QA	1.09	1.07
440QB	1.12	1.04

*For use as plate blocking capacitor in repeater circuits where high insulation resistance required.

Capacitors Western Electric



No. 441



Paper capacitors; potted in wax in aluminum cans; tested on 500 volts DC. Minimum capacitance values stamped on end of can unless otherwise noted. Terminal letters stamped on end of cans of four terminal capacitors. Suitable for use on continuously applied potentials not exceeding 200 volts DC or 180 volts AC (60 cycles or less) and at operating temperatures not exceeding 120 degrees F. Closest recommended mounting centers are 1/2-in. x 1 1/2-in. Require No. 24 Brackets when mounted in place of No. 57 or similar type

capacitors. One mounting stud connected electrically to can.

No.	Fig. No.	Capacitance (UF) Between Terminals			
		Max. (A-B)	Min. (A-B)	Max. (C-D)	Min. (C-D)
441A	1	1.250	1.000		
441B	1	.625	.500		
*441C	2	.625	.500	.625	.500
441D	1	.320	.250		
*441E	2	.320	.250	.320	.250
*441F	2	.320	.250	.625	.500
*441G	2	.085	** .065	.160	.125
*441H	2	.030	.020	.030	.020
441J	1	.160	.125		
441K	1	.135	.100		
441L	1	.085	** .065		
441M	1	.060	† .404		
441N	1	.030	.020		
441P	1	.006	‡ .004		
*441R	2	.013	.010	.013	.010
441S	1	1.600	1.300		
*441T	2	.135	.100	.135	.100
441U	1	.040	.030		
441QA	1	1.090	1.070		
441QB	1	1.080	1.050		
441QC	1	1.110	1.080		
441QD	1	1.120	1.040		
441QE	1	1.080	1.020		
441QF	1	1.140	1.080		
441QG	1	.545	.535		
441QH	1	.540	.525		
441QJ	1	.555	.540		
441QK	1	.560	.520		
441QL	1	.540	.510		
441QM	1	.570	.540		
441QN	1	.275	.265		
441QP	1	.280	.260		
441QR	1	.270	.250		
441QS	1	.290	.270		
441QT	1	.115	.105		
441QU	1	.110	.100		
441QW	1	.120	.110		

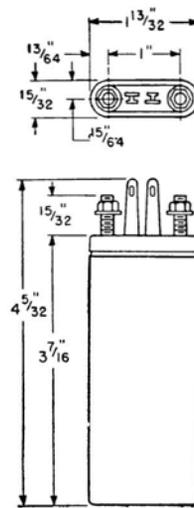
*Consists of two separate capacitors insulated but not shielded from each other. These capacitors should not be used bridged off or across two separate transmission circuits; should not be used in same circuit where effect of capacitance between separate units will be detrimental to transmission.

**Stamped .075 U.F. on end of can.

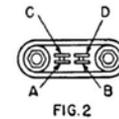
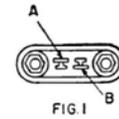
†Stamped .05 U.F. on end of can.

‡Stamped .005 U.F. on end of can.

Capacitors Western Electric



Type 442



Paper capacitors; potted in wax in aluminum cans; tested on 1,400 volts DC between terminals. Minimum capacitance values stamped on end of can. Suitable for use on continuously applied potentials not exceeding 300 volts DC or 300 volts AC (60 cycles or less) and at operating temperatures not exceeding 120 degrees F. Closest recommended mounting

centers are 1/2-in. x 1 1/2-in. Require No. 24 type Brackets when mounted in place of No. 57 or similar capacitors. One mounting stud is connected electrically to the can.

No.	Fig. No.	Capacitance (UF) Between Terminals			
		Max. (A-B)	Min. (A-B)	Max. (C-D)	Min. (C-D)
442A	1	.6200	.500		
442B	1	.3200	.250		
442C	1	.1250	.100		
442D	1	.0600	.050		
*442E	2	.0300	.020	.0300	.020
*442F	2	.0065	.005	.0065	.005

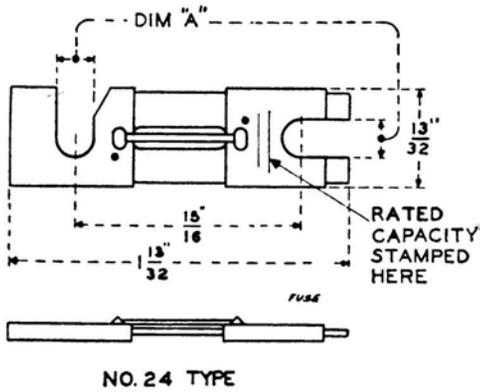
*Consists of two separate capacitors insulated but not shielded from each other. Should not be used bridged off or across two separate transmission circuits; should not be used in same circuit where effect of capacitance between separate units will be detrimental to transmission.

Fuses

Western Electric

No. 24 Type

Non-Alarm Type Fuses



These fuses will mount on 1-in. centers by means of fuse posts or individual porcelain mounting as in the No. 62D Protector. The over-all dimensions are: length $1\frac{13}{32}$ in., width $\frac{13}{32}$ in. The current carrying capacities and operating current values are given in the table below.

In ordering it is necessary that both the code number and rated capacity be given.

Fuse Code No.	Rated Capacities (Amperes)	Operates in Less Than One Minute On (Amperes)	Finish	Terminals Size of Screw Slotted For	Dim. "A" (Inch)
24C	2	3	Tinned	No. 10	$\frac{13}{64}$
24D	$\frac{3}{4}$	$1\frac{1}{4}$	Copper	No. 6	$\frac{5}{32}$
24E	$\frac{1}{2}$	1	Tinned	No. 10	$\frac{13}{64}$
24F	5	$6\frac{1}{2}$	Copper	No. 6	$\frac{5}{32}$
24G	$1\frac{1}{3}$	2	Tinned	No. 10	$\frac{13}{64}$

Fuses

Western Electric

No. 35 Type—Indicator Alarm Type Fuses

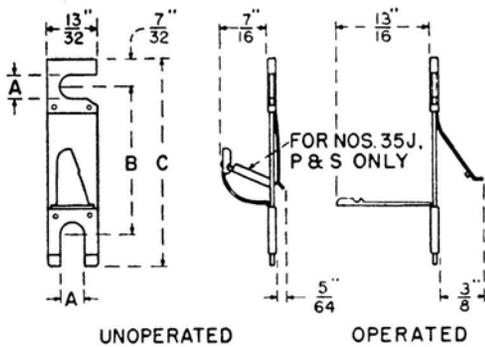


FIG. 1

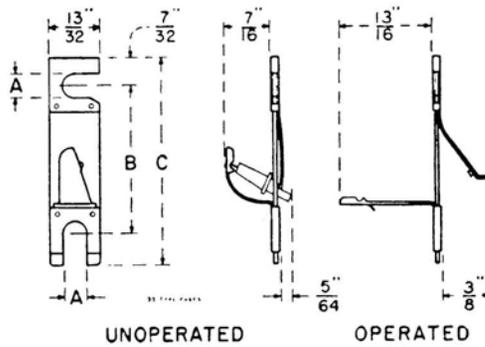


FIG. 2

Fuse wire mounted so one end fastened to flat indicator spring, other to flat spring. Terminal ends have copper tinned finish.

Mounting of fuse may be so arranged as to cause flat spring to make contact with alarm circuit when fuse wire broken.

When ordering specify code number and rated capacity.

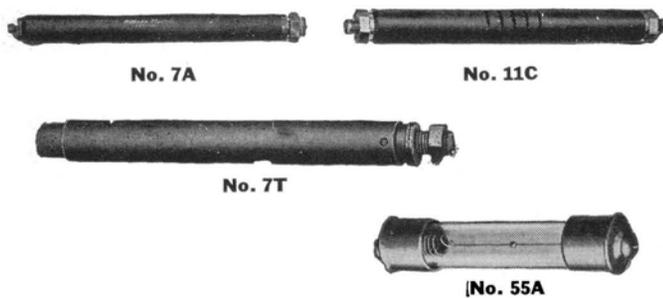
Code No.	Rated Capacities (Ampere)	Amps.	Operates On In Less Than	Color of Insulating Strip	Size of Screws Slotted For	Fig. No.	Dimensions (Inches)	Mounting Centers (Inches)
							A B C	
(a) 35A	$1\frac{1}{3}$	2	$1\frac{1}{2}$ Min.	White	No. 10	1	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(a) 35B	$1\frac{1}{3}$	2	$1\frac{1}{2}$ Min.	White	No. 6	1	$\frac{5}{32}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
	2	3	3 Min.	Orange	No. 6			
(a) 35C	2	3	3 Min.	Orange	No. 10	1	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(a) 35D	$1\frac{1}{3}$	2	$1\frac{1}{2}$ Min.	White	No. 6	1	$\frac{5}{32}$ $1\frac{1}{8}$ $1\frac{5}{8}$	$1\frac{1}{4}$
(a) 35E	3	4	5 Min.	White	No. 6	1	$\frac{5}{32}$ $1\frac{1}{2}$ $1\frac{63}{64}$	$1\frac{9}{16}$
(a) 35F	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$ Min.	Red	No. 10	1	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(a) 35G	3	$4\frac{1}{2}$	5 Min.	Blue	No. 6	1	$\frac{5}{32}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(a) 35H	5	$6\frac{1}{2}$	5 Min.	Green	No. 6	1	$\frac{5}{32}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(d) 35J	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$ Min.	Red	No. 10	1	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(e) 35K	$1\frac{1}{3}$	2	3 Min.	White	No. 10	2	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(e) 35L	2	3	3 Min.	Orange	No. 10	2	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(e) 35M	3	$4\frac{1}{2}$	5 Min.	Blue	No. 6	2	$\frac{5}{32}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(e) 35N	5	$6\frac{1}{2}$	5 Min.	Green	No. 6	2	$\frac{5}{32}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(d) 35P	$\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{1}{2}$ Min.	Tan	No. 10	1	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(a) 35R	.180	.270	$1\frac{1}{2}$ Min.	Yellow	No. 10	1	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(g) 35S	$\frac{1}{4}$	$\frac{3}{8}$	$1\frac{1}{2}$ Min.	Pink	No. 10	1	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$
(a) 35T	.65	1.1	3 Min.	Tan	No. 10	1	$\frac{13}{64}$ $\frac{13}{16}$ $1\frac{43}{64}$	$1\frac{1}{4}$

Terminals have tinned finish.

- (a) For use in circuits operating on voltages up to 90 volts.
- (b) Replaces No. 35B (3 ampere).
- (c) Replaces No. 35B (5 ampere).
- (d) For use in circuits operating on 90-160 volts. Fuse wire enclosed in glass tube to prevent side flash.
- (e) For use in circuits operating on 90-150 volts. Fuse wire enclosed in porcelain tube to prevent side flash.

- (f) Also satisfactory for use in circuits operating up to 160 volts if current is limited as covered in the standard equipment information on fuse boards.
- (g) For use in circuits operating on voltages up to 160 volts. Fuse wire enclosed in glass tube to prevent side flash.
- (h) Replaces D-176228.

Tubular Fuses



No. 7: Will operate in less than 5 minutes on 50% increase over rated capacity.

No. 11: Fuse wire enclosed in asbestos sleeving. Will operate in less than 5 minutes on 50% increase over rated capacity.

No. 55A: Consists of glass tube equipped at both ends with tinned caps to which fuse element attached.

No. 60: Fuse element enclosed in sleeve of insulating material.

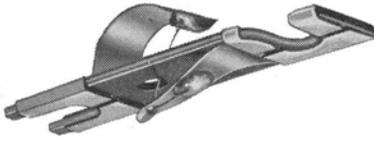
Dummy Fuses

No. 63A: Composed of black insulating material. Used on fuse panels in positions arranged for, but not equipped with Nos. 35A, B, C, F fuses.

No.	Rated Capacity (Amp.)	Operate Value Less Than (Sec.)	Current (Amp.)	Used With
7A	1, 2, 3, 4, 5, 7 as specified			77, 98A, 98B, 1074A, 1075A, 1078A, 1093A Protectors
7T	7			"B" Cable Terminals, Fuse Chambers
11C	7			2 No. 16, Nos. 16 and 29B, 52 or 79A and 80 Mountings Protector
55A	0.4			No. 9A Fuse Post 58AP Protector, 16 Protector Mounting; 98A Protector, 94A Protector Mounting; 1079 AP Protector, 80A Protector Mounting
60A	.350	210	.500	LA and LB Fuse Chambers
60D	.350	210	.500	Battery Feeder Cir. in connection with LA and LB Cable Terminals
60E	1.25	210	1.80	Exposed Charging Leads to Small P.B.X. and Wiring Plan Batteries
60G	.500	210	.750	

Fuses, Indicator Alarm Type

Cook (Grasshopper Fuses)



These fuses can be used to set off an alarm when fuse wire has separated causing the bottom spring to contact an alarm circuit.

This type fuse normally used on circuits operating up to 90 volts, but are also made for circuits up to 160 volts limited current, with fuse wire enclosed in glass or porcelain tube to prevent side flash.

When ordering, specify catalog number and rated capacity.

Indicator Alarm Type Fuses Grasshopper Fuses

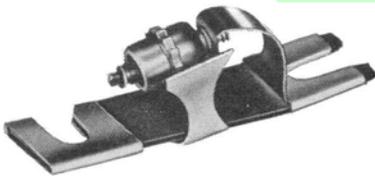
No.	Ref.	Known As	Rated Capacity, Amp.	Amp.	Operates on In Less Than	Insulating Strip Color	Slotted for Screws No.	Slot Width	Dimensions, Inches Mounting Centers	Length Overall
170-10	(a)	35A	1 1/3	2	1 1/2 Min.	White	10	13/64	1 3/16	1 43/64
170-11	(a)	35B	1 1/3	2	1 1/2 Min.	White	6	5/32	1 3/16	1 43/64
170-12	(a)	35B	2	3	3 Min.	Orange	6	5/32	1 3/16	1 43/64
170-13	(a)	35C	2	3	3 Min.	Orange	10	13/64	1 3/16	1 43/64
170-14	(a)	35D	1 1/3	2	1 1/2 Min.	White	6	5/32	1 1/8	1 5/8
170-15	(a)	35E	3	4	5 Min.	White	6	5/32	1 1/2	1 63/64
170-16	(a)	35F	1/2	3/4	1 1/2 Min.	Red	10	13/64	1 3/16	1 43/64
170-17	(a)(b)	35G	3	4 1/2	5 Min.	Blue	6	5/32	1 3/16	1 43/64
170-18	(a)(c)	35H	5	6 1/2	5 Min.	Green	6	5/32	1 3/16	1 43/64
170-19	(d)	35J	1/2	3/4	1 1/2 Min.	Red	10	13/64	1 3/16	1 43/64
170-20	(e)	35K	1 1/3	2	3 Min.	White	10	13/64	1 3/16	1 43/64
170-21	(e)	35L	2	3	3 Min.	Orange	10	13/64	1 3/16	1 43/64
170-22	(e)	35M	3	4 1/2	5 Min.	Blue	6	5/32	1 3/16	1 43/64
170-23	(e)	35N	5	6 1/2	5 Min.	Green	6	5/32	1 3/16	1 43/64
170-24	(d)	35P	3/4	1 1/3	1 1/2 Min.	Tan	10	13/64	1 3/16	1 43/64
170-25	(a)(f)	35R	.180	.270	1 1/2 Min.	Yellow	10	13/64	1 3/16	1 43/64
170-26	(g)	35S	1/4	3/8	1 1/2 Min.	Pink	10	13/64	1 3/16	1 43/64
170-27	(a)	35T	.65	1.1	3 Min.	Tan	10	13/64	1 3/16	1 43/64

References:

- (a) For circuits operating on voltages up to 90 volts.
- (b) Replaces 35B, 3-ampere fuse.
- (c) Replaces 35B, 5-ampere fuse.
- (d) For circuits operating on voltages 90 to 160 volts. Fuse wire enclosed in glass tube.
- (e) For circuits operating on voltages 90 to 150 volts. Fuse wire enclosed if porcelain tube to prevent side flash.
- (f) Satisfactory for circuits operating on voltages up to 160 volts if current is limited as covered in standard equipment information on fuse boards.
- (g) For circuits operating on voltages up to 160 volts. Fuse wire enclosed in glass tube to prevent side flash.

Fuses, Resettable, Grasshopper

Cook



Combination of grasshopper fuse and heat coil provides a new economical and positive acting fuse, arc free, with accurate operation time. Is now available to wire communications and electronic equipment. Resettable by re-engaging heat coil ratchet. Parts easily replaceable.

Heat coil operation simple and positive. When subject to more than rated current, the ratchet releases the ground and alarm spring. After trouble has been cleared, and current flow is normal, fuse can be reset manually by ratchet which is again locked into position.

Table Showing Interchangeability of Heat Coil Type GRASSHOPPER FUSES

No. Note 1	Code No. Note 2	Rated Resistance (Ohms) Max.	Rated Resistance (Ohms) Min.	Will Carry for 3 Hr. Current of (Ampere)	Will Operate in 210 Seconds on Current of (Ampere)	Size Screw Slotted for No.	Mounting Centers
170-509	74-A	21.0	19.0	.10	.18	6	1 1/2
170-510	74-B	4.1	3.7	.24	.40	10	1 3/16
170-511	74-C	8.0	6.5	.185	.265	10	1 1/2
170-512	74-E	8.0	6.5	.185	.265	10	1 3/16
170-513	74-F	57	53	.055	.110	10	1 1/2
170-514	74-G	57	53	.055	.110	10	1 3/16

Note 1: Cook Electric Company Reuseable Fuse

Note 2: Western Electric Heat Coil Replaceable Fuse

Table Showing Interchangeability of GRASSHOPPER FUSES* & RESETTABLE GRASSHOPPER FUSES

Cook Part No.	Known As	Rated Capacities (Amp.)	Operates On Less Than Amp.	Color Insulating Strip	Size Screw Slotted for No.	Slot Width, In.	Mounting Centers
170-550	35A	1 1/3	2	1 1/2	White	10	13/64
170-551	35B	1 1/3	2	1 1/2	White	6	5/32
170-552	35B	2	3	3	Orange	6	5/32
170-553	35C	2	3	3	Orange	10	13/64
170-554	35D	1 1/3	2	1 1/2	White	6	5/32
170-555	35E	3	4	5	White	6	5/32
170-556	35F	1/2	3/4	1 1/2	Red	10	13/64
170-557	35G	3	4 1/2	5	Blue	6	5/32
170-558	35H	5	6 1/2	5	Green	6	5/32
170-559	35J	1/2	3/4	1 1/2	Red	10	13/64
170-560	35K	1 1/3	2	3	White	10	13/64
170-561	35L	2	3	3	Orange	10	13/64
170-562	35M	3	4 1/2	5	Blue	6	5/32
170-563	35N	5	6 1/2	5	Green	6	5/32
170-564	35P	3/4	1 1/3	1 1/2	Tan	10	13/64
170-565	35R	.180	.270	1 1/2	Yellow	10	13/64
170-566	35S	1/4	3/8	1 1/2	Pink	10	13/64
170-567	35T	.64	1.1	3	Tan	10	13/64

Overload Failure Warning Relay

Accessory item for operation with Grasshopper fuses. It energizes when Grasshopper fuse operates and shorts against the bus. The relay coil connected in series with bus then energizes and warning contacts close. Operates at 24 or 48 volts, d-c; or with external shunt removed 135 and 165 volts, d-c.

Fuses, Precision Rated

Cook



Telephone fuses designed for use in Cook protectors and terminals. Interchangeable with corresponding types of telephone fuses.

No.	Description	Used in
59-0700	A-7 Wood, 5 Amperes	S-6, H-29D, O-7, UA-20
146-0900	A-9 Lavite, 5 Amperes	B-7, O-9, RO
*146-217	A-9u Lavite, 7 Amperes	O-9u, RO-9u
498-6300	A-63 Fiber, 5 Amperes	M-16-F
424-5200	A-52 Fiber, 5 Amperes	O-52
149-1600	A-16 Wood, 5 Amperes	O-16
494-6200	A-62 Fiber, 5 Amperes	O-62
214-2200	A-22 Lavite, 5 Amperes	10-W, 105
499-6400	A-64 Wood, 5 Amperes	O-64
307-4600	A-46 Wood, 5 Amperes	H-36, O-46
306-4500	A-45 Lavite, 5 Amperes	H-36, O-45
91-1200	A-12 Lavite, 5 Amperes	H-51, O-12

Note: Part numbers on all fuses should be as shown above except last digit to be the same as amperage required.

*Listed as standard by Underwriters' Laboratories.

Fuses, Telephone and Telegraph

Bussmann



Symbol No.	Length, In.	Diameter, In.	Old No.	Amperes
54A	1 ¹⁵ / ₁₆	2 ³ / ₆₄	.....	5
57A	2 ⁵ / ₈	2 ³ / ₆₄	.....	1, 3 or 10
57C	2 ⁵ / ₈	2 ³ / ₆₄	.....	5/10
HVA	3	2 ³ / ₆₄	5538	1/2 to 2
54B	3 ³ / ₁₆	2 ³ / ₆₄	.....	2
HVB	4 ¹ / ₂	2 ³ / ₆₄	5568	1/2 to 2
HLA	4 ¹⁹ / ₃₂	2 ³ / ₆₄	5530	8/10
HLA	4 ¹⁹ / ₃₂	2 ³ / ₆₄	5530	3 or 10
HNA	5 ¹ / ₁₆	2 ³ / ₆₄	5534	1/4
HVC	5 ¹ / ₂	2 ³ / ₆₄	5558	1/2 to 2
52B	2 ¹¹ / ₁₆	2 ³ / ₆₄	.....	8/10
51B	4 ³ / ₃₂	2 ¹ / ₃₂	.....	14
1B	4 ¹ / ₃₂	9 ¹ / ₁₆	.....	10
1C	4 ¹ / ₃₂	9 ¹ / ₁₆	.....	10
Symbol No.	Center to Center, In.	Slot, In.	Amperes	
101A	1 ¹ / ₂	3 ¹ / ₁₆	7	

Fuses

Reliable

Mica



Provided with copper terminals, these fuses are stocked in 1/4 and 1/2 amperes. Enclosed type will be shipped unless otherwise specified. Order by catalog number and amperage desired. Std. Pkg. 50; shipping weight 1/2 Lb. per 100.

Western Union Type

No.	Length, In.	Width, In.
8	2 ¹ / ₈	3 ³ / ₈
19	2	3 ³ / ₈
22	2 ¹ / ₂	1 ¹ / ₂
235	2	1 ¹ / ₂
310	3	1 ¹ / ₂

Postal Type

No.	Length, In.	Width, In.
11	2 ¹ / ₈	3 ³ / ₈
21	2	3 ³ / ₈
25	2 ¹ / ₂	1 ¹ / ₂
137	1 ⁷ / ₈ or 2	1 ¹ / ₄

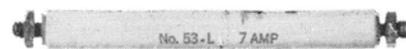
Terminal and Protector Fuses



Sizes and types for every telephone protector and cable terminal supplied in wood, fibre or ceramic. When ordering specify catalog number and amperage desired. Unless amperage is on order, seven ampere fuses will be supplied. Also available in one, three and five ampere capacities.

No.	Material	Tip Diam., In.	Lgth., Shoulder to Shoulder, In.	Std. Pkg.	Ship. Wt. Lbs. Per 100
27L	Ceramic	1 ³ / ₆₄	4 ³ / ₄	50	7
35L	Ceramic	1 ³ / ₆₄	3 ³ / ₈	50	5
*77L	Ceramic	1 ³ / ₆₄	4 ³ / ₄	50	6
95L	Ceramic	1 ³ / ₆₄	4	50	5
31L	Ceramic	1 ³ / ₆₄	3	50	4
106	Fibre	1 ¹ / ₆₄	3 ¹ / ₁₆	50	3

3/8-inch Nuted End Fuses



No.	Material	Fuse Diam., In.	Lgth., Shoulder to Shoulder, In.	Std. Pkg.	Ship. Wt. Lbs. Per 100
53L	Ceramic	7 ¹ / ₁₆	3 ³ / ₄	50	5
*55L	Ceramic	7 ¹ / ₁₆	4 ¹ / ₁₆	50	5

1/16-inch Nuted End Fuses

3/32 Threaded Tip



56	Fibre	7 ¹ / ₁₆	4 ¹ / ₁₆	50	5
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Flat Tipped Fibre Fuses



52	Fibre	7 ¹ / ₁₆	3 ¹ / ₂	50	3
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Heat Coil Fuses



No.	Used In	Fuse Diam., In.	Shoulder to Shoulder, In.	Std. Pkg.	Amp.
107H	303 Protector	3 ³ / ₈	3 ¹ / ₁₆	50	.35
115H	308 Protector	5 ¹ / ₁₆	3 ¹ / ₁₆	100	.35
52B	Telegraph Protector	3 ³ / ₈	O.A. Lgth., In. 2 ⁵ / ₈	100	.8

*Approved and listed by Underwriters' Lab. in 7 amp. capacity.

Lamps Western Electric



No. 2

Carbon Filament Lamps used with Nos. 12, 30, 34, 49, 50 or similar type lamp sockets.

No.	Voltage	Current Consumption	
		Min. Amp.	Max. Amp.
2C	15	.103	.120
2E	20	.090	.120
2F	12	.105	.120
2G	24	.075	.115
2J	24	.018	.033
2K	30	.090	.120
2R	18	.090	.120
2T	40	.034	.046
2U	24	.035	.048
2W	18	.035	.045
2Y	48	.030	.042

Tungsten Filament Lamps

Used with Nos. 12, 30, 34 or similar type Lamp Sockets.

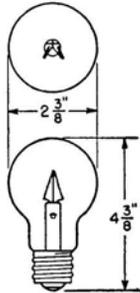
A1	24	.033	.045
A2	24	.075	.105
A3	24	.033	.045
B2	18	.036	.048
C2	36	.032	.044
E1	6	.033	.045
E2	6	.270	.310
E3	6	.120	.160
F1	4	.170	.210
F2	4	.270	.310

G1	8	.085	.100
G2	8	.035	.050
H1	16	.270	.310
J1	10	.230	.270
K1	30	.033	.045
K2	30	.032	.044

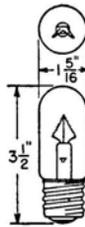
The No. 51A Lamp is a tungsten filament lamp intended for use in illuminated push-button telephone sets. The rated voltage of this lamp is 10 volts and at this voltage the current consumption is maximum .045 ampere and minimum .035 ampere and the minimum illumination is 200 end-foot candles.

Lamps, Ballast Western Electric

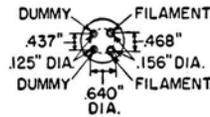
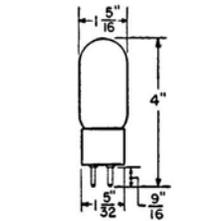
Current regulators designed to maintain approximately constant current within a rated voltage range.



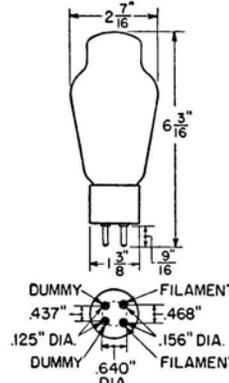
Nos. 5A and 5B



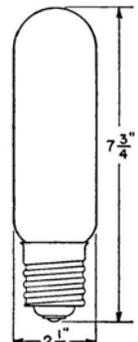
Nos. 7A and 7B



Nos. 120A, 121B, and 122A



No. 123A



No. 124A

Code No.	Voltage Range	Ballasted Current [Amperes]
4B	3 to 9.5	1.07 to 1.17 at 90
5A	3 to 9.5	.940 to 1.010 at 90
5B	3 to 9.5	1.07 to 1.16 at 90
7A	3 to 10	.490 to .530 at 90
8A	3 to 10	.485 to .525 at 90
120A	5.5 to 12	.430 at 70
121B	5.5 to 12	.870 at 70
122A	3.0 to 7.5	1.9 at 70
123A	4.0 to 12.0	3.0 at 70
124A	5.0 to 12.0	10.0 ± 17% at 70
126B	5.5 to 14.5	0.97 ± .03 at 70

Mounting

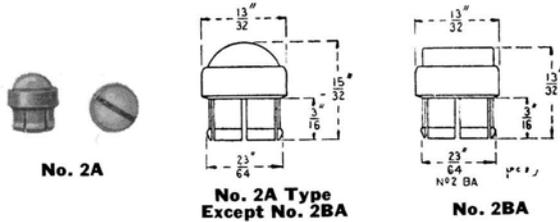
143B Electron Tube Socket
143B
143B
143B
Standard Mogul Screw Base
Medium Screw Base

Use

{ Carrier Current Equipment to maintain a constant current in the filament circuit of electron tubes.
Telephone Repeater Circuits.
C3 & C4 Carrier Telephone Systems.
Carrier Telephone System.
Carrier Telephone System.
17B Oscillator.
Battery charging equipment J-86207
Carrier Telephone and Telegraph Systems.

Caps, Lamp Western Electric

Thick, substantial lenses made from specially selected and treated glass unless otherwise noted. Lenses held firmly in place in cap cases by spinning the edges over the lenses. Slotted cases give spring fit for cap in socket.



No. 2 Lamp Cap: Used with Nos. 12, 49 and 50 Lamp Sockets. Diameter $1\frac{13}{32}$ -in.

No.	Symbol	Color
2A	⊖	White opalescent
2B	⊙	White opalescent
2C	⊕	White opalescent
2D	⊗	White opalescent
2E	⊖	White opalescent
2F	⊙	White opalescent
2G	⊕	White opalescent
2H	⊖	Red opalescent
2J	⊗	White opalescent
2K	⊕	White opalescent
2L	⊖	Green opalescent
2M	⊕	White opalescent
2N	⊗	Red opalescent
2P	⊙	Jeweled red
2R	⊙	Jeweled blue
2S	⊙	Jeweled green
2T	⊕	Red opalescent
2U	⊖	Amber
2W	⊖	Blue
2Y	⊙	Green opalescent
2Z	⊙	White opalescent
2AA	⊖	Red opalescent
2AB	⊙	White opalescent
2AC	⊙	Red opalescent
2AE	⊕	Red opalescent
2AF	⊖	White opalescent
2AG	⊕	White opalescent
2AH	⊙	White opalescent
2AJ	⊙	White opalescent
2AK	⊙	White opalescent
2AL	⊙	Green opalescent
2AM	⊙	White opalescent
2AN	⊙	White opalescent
2AP	⊙	White opalescent
2AS	⊕	White opalescent
2AT	⊕	White opalescent
2AU	⊕	White opalescent
2AW	⊕	White opalescent
2AY	⊖	White opalescent
2AZ	⊕	Red opalescent
2BA*	⊙	White opalescent
2BC	⊙	White opalescent

No.	Symbol	Color
2BD	⊙	White opalescent
2BE	⊕	Green opalescent
2BF	⊙	White opalescent
2BG	⊕	Green opalescent
2BH	⊖	Green opalescent
2BJ	⊙	White opalescent
2BN	⊖	Clear
2BP	⊙	Clear amber
2BR	⊖	White (Moulded Plastic Lens)
2BS	⊖	Red (Moulded Plastic Lens)
2BT	⊖	Green (Moulded Plastic Lens)

*Numbered as specified in order. Lens has flat top.



No. 4D

Nos. 4A to M Lamp Caps: Used with Nos. 34 and 53A lamp sockets.

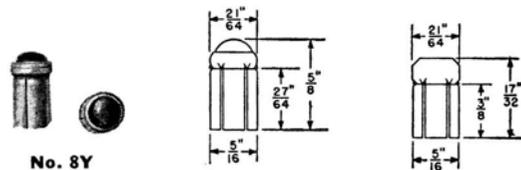
Nos. 4N to S Lamp Caps: Used with No. 20B or similar indicators.

Used for pilot signals, fire alarms, supervisor's signals' other classes of work in mounting large signal.

No.	Symbol	Color
4A	⊖	White opalescent
4B	⊙	*Red opalescent
4C	⊙	*Green opalescent
4D	⊖	Red opalescent
4F	⊖	Green opalescent
4G	⊕	White opalescent
4M	⊖	Clear amber
†4N	⊖	White opalescent
†4P	⊖	Red opalescent
†4R	⊖	Green opalescent
†4S	⊖	Clear amber

*Jeweled.

†Inside surface of lens is concave.



No. 8Y

**No. 8 Type,
Except No. 8BD**

No. 8BD

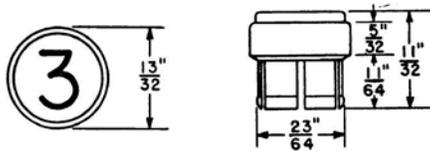
Caps, Lamp (Con't)
Western Electric

No. 8 Lamp Caps: Used with No. 30 Lamp Sockets.
Overall diameter $2\frac{1}{64}$ -in.

No.	Symbol	Color
8A	○	White opalescent
8B	○	Clear
8D	○	Red opalescent
8E	●	White opalescent
8F	⊙	White opalescent
8G	⊖	White opalescent
8H	⊕	White opalescent
8J	⊗	White opalescent
8K	⊘	White opalescent
8L	○	Green opalescent
8Y	●	Green opalescent
8AC	●	Red opalescent
8AH	Ⓟ	White opalescent
8AY	Ⓢ	White opalescent
*8BB	Ⓜ	White opalescent
8BC	Ⓢ	White opalescent
†8BD	Ⓢ	White opalescent

*Numbered with one or two black digits as specified in order.

†White opalescent painted black except for raised bar across the face.



No. 72 Type

No. 72 type (White Opalescent Numbers on Black Background except Nos. 72L, M and N, which have White, Red and Green Backgrounds with Black Characters). Used with Nos. 12 and 49A type Lamp Sockets.

Code No.	Symbol	Code No.	Symbol
72A	①	72G	⑥
72B	①	72H	⑦
72C	②	72I	⑧
72D	③	72K	⑨
72E	④	72L*	Ⓜ
72F	⑤	72M*	
		72N*	

*Characters as specified in order. One, two or three characters will be arranged on one line; four characters on two lines.