Relays

Western Electric
Flat Type Relays

Advantages of Flat Type Relays

Efficiency of Operation: Each relay requires minimum current consistent with conditions under which operated. Conditions cover contact pressures necessary during operation and in non-operative position; speed or time of operation; requirements as to high or low impedance which position in circuit makes necessary. High efficiency attained through careful choice of materials and correct proportioning of parts.

Permanent and Easy Adjustments: Spring contacts and armature air gaps are at front end of relay; clearly visible while being adjusted when in place on mountings. Adjustments are permanent over long periods of service, being maintained under widely varied conditions of heat, cold and humidity.

Insulation of Contact Springs: "Phenol Fiber" used has high dielectric strength of hard rubber; not affected by heat, moisture or deterioration like rubber.

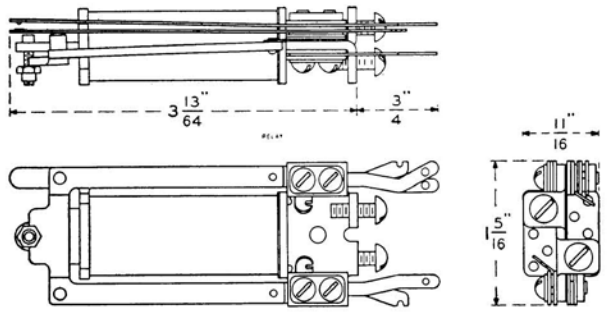
Self-Cleaning Contacts: Mounted so that surfaces in vertical plane and dust does not settle on contacts. Maintenance reduced. Difficulties due to poor contacts avoided.

Armature Suspension: Flat, reed type spring used secures continuous and unvarying magnetic path between armature and core. By selection of suitable springs, extremely sensitive relays are obtained with this type construction.

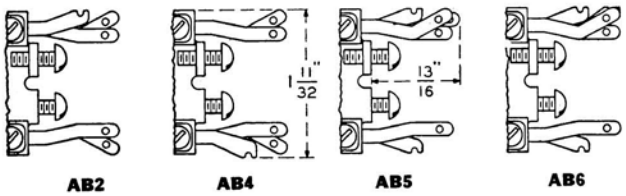
Durability of Parts: Magnetic parts are chromium plated. Special alloys used are best material electrically for parts in which utilized; mechanically strong materials from which small parts having great strength may be made. Spoolheads of Phenol Fiber. Windings highly insulated. Windings will carry continuously without injury currents greater than required for operation.

Small Size and Ease of Mounting: Compact in design; light in weight; occupy small amount of space. Terminals are all at one end, conveniently arranged for making soldered connections. Insulated from their mountings. Fastened in place with two screws. Stability and ruggedness when mounted reduces maintenance costs.

"AB" Type



Nos. AB1 and AB3



AB2 AB4 AB5 AB6

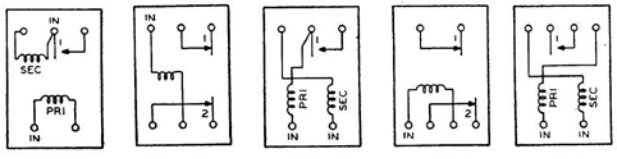


Fig. 1 Fig. 2 Fig. 3 Fig. 4 Fig. 5

Used as line and cut-off relays only. Will mount on ¾-in. horizontal and 1¾-in. vertical centers. Mounts on mounting plates provided with dust-proof metal covers.

Code No.	Fig. No.	Windings	Rated Res. (Ohms)	Operate (Amp.)	Release (Amp.)	Replaces
(d)AB-**1**	1	Primary / Secondary	1000 / 1000	(t)	(t)	A1
(c)(n)AB-**2**	2	Single	34	.060	..	A2
(d)(p)AB-**3**	3	Primary / Secondary	1000 / 1000	(t)	(t)	..
(c)(n)AB-**4**	4	Single	34	.047	..	A26
(d)(m)AB-**5**	5	Primary / Secondary	1000 / 1000	(t)	(t)	A55
(d)(m)(p)AB-**6**	5	Primary / Secondary	1000 / 1000	(t)	(t)	..

(c) Has no armature stop pins.

(d) Has .010 in. armature stop pins.

(m) The difference between the AB-5 and AB-6 is in the shape of the terminals.

(n) Contacts are tensioned to minimum 15 grams.

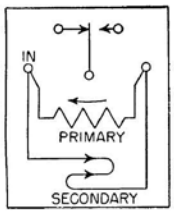
(p) Equipped with No. 2 metal contacts.

(t) After a soak of .015 amp. d-c through both windings in series aiding will release on .0024 amp. with current in same direction and will operate on .0058 amp. with current in opposite direction to soak current.

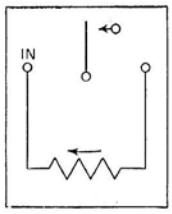
Relays

Western Electric

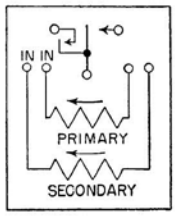
Flat Type Relays — "B" Type



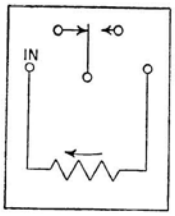
B3



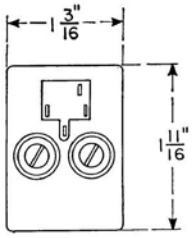
B10,B15,B17'B36

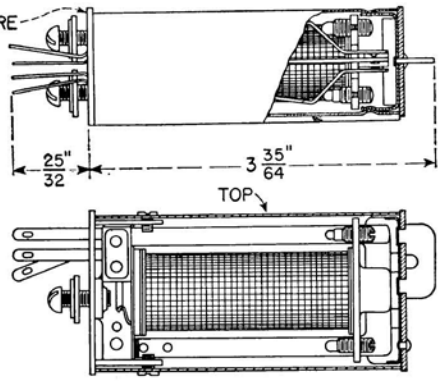


B11

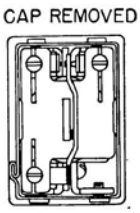


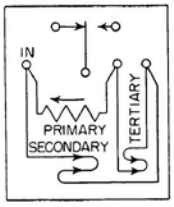
B22,B46



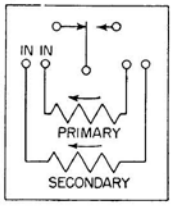


No. B1

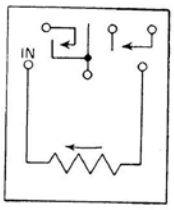




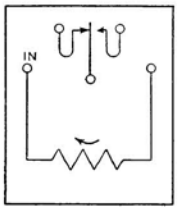
B42



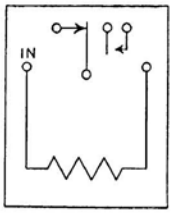
B55



B400



B440



B1150

"B" type relays differ from "E" and "H" types in that they are provided with micrometer screw adjustment feature which permits extremely accurate adjustments to be made. Used as supervising relays in switchboard cord circuits, other places where sensitive, highly efficient, reliable relay required. When used as a series supervisory relay, transmission loss is very low. Superior "flashing" ability; will operate in line having as high as 1,000 ohms resistance. Individual covers; each has removable cap which may be placed in position without affecting the adjustment of relay; dust and cross-talk proof. When cross-talk shielding not required, dust-proof covers are supplied. Mount on 1¼-in. horizontal and 1¾-in. vertical centers. Use of a supervisory relay of the "B" type secures operating advantages which are obtained through sensitive adjustment, small operating current, low transmission loss and reduced maintenance.

Relay Code No.	Windings	Rated Resistance (Ohms)	Operate (Ampere)	Release (Ampere)
B-**3**	Primary	16.4	(v).015	(v).005
	Secondary-Non. Ind.	31		
	Combined	10.7		
B-**10**	Single	(e)1.7	(v).022	(v).002
(p)B-**11**	Primary	250	.004	.001
	Secondary	3800	.0025	—
(g)(p)B-**15**	Single	5	(v).023	(v).008
B-**17**	Single	500	.0018	.0006
B-**22**	Single	96	.016	(aa)
B-**36**	Single	5	(v)(xx).017	(v)(xx).005
B-**42**	Primary	16.4	—	—
	Secondary-Non. Ind.	36	(t)(v).012	(†)(v).004
	Tertiary	14	—	—
B-**46**	Single	220	.0028	.0009
B-**55**	Primary	200	.0046	.0014
	Secondary	200	(*).0026	—
(p)B-**400**	Single	(e)1.7	.049	.009
(p)B-**440**	Single	34	.009	—
(af)(aj)B-**1130**	Primary	54	(*)(s).0029	(*)(s).0015
	Secondary	645		
B-**1150**	Single	500	(t).0023	(t).0012

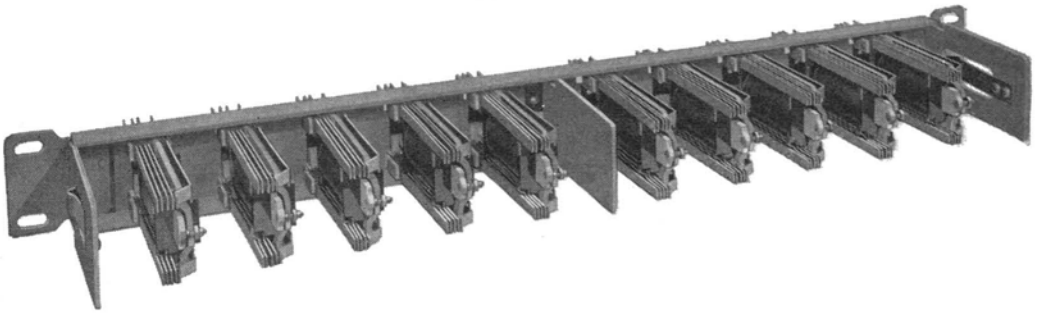
(e) Plus or minus 10%.
(g) Equipped with crosstalk-proof cover.
(p) Equipped with No. 2 metal contacts.
(s) After a soak of .019 ampere d-c.
(t) After a soak.
(v) After a soak of .150 ampere.
(aa) Non-operating current .012 ampere.
(af) Equipped with flexible front contact spring and rigid front stop spring.
(aj) Equipped with heavy contacts.
(xx) When adjusted as a supervisory relay per flashing requirement "A" of specification X-70056.
(*) Through both windings in series aiding.
(†) Through inner winding shunted by secondary and tertiary windings in series. Also operates on .020 amp. through inner winding shunted by tertiary only and terminals of secondary short circuited.

Relays

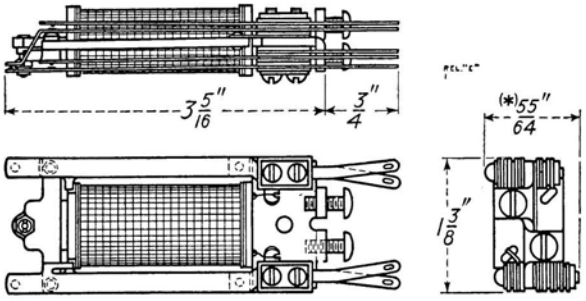
Western Electric

Flat Type Relays

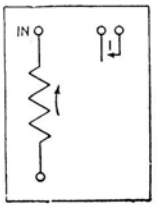
Type "E"



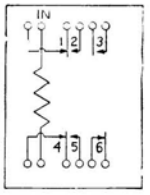
"E" Type Relays on No. 737B Mounting Plate



*This dimension varies according to the number of contact springs and winding terminals on the individual relays.

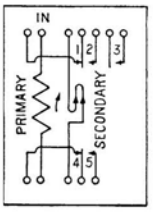


E5, E12

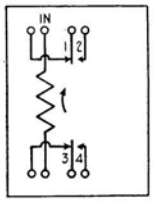


E82

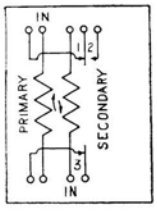
No. E7



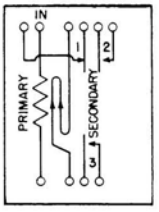
E130



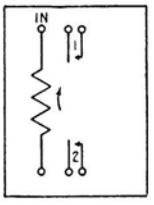
E148



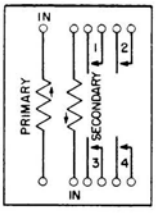
E282



E402



E931



E1009

Heavy duty, all-around purpose telephone relays. Designed for two sets of contact springs - may be duplicates or differ in contact arrangement. Makes it possible in many cases to use one where two or more of another style would be required.

May be mounted in groups on punched type mounting plates provided with common dust-proof metal covers on 1¾-in. vertical, ¾ or 1-in. horizontal centers (depends upon number of contact springs). When individual dust-proof cover for each relay is desired, E1 Relay Cover should be specified. Relay will then mount on 1¼-in. horizontal, 1¾-in. vertical centers.

	Windings Rated Res. (Ohms)					
No	Pri.	Sec.	Sec. Non. Ind.	Single	Operate (Amp.)	Release (Amp.)
E-**5**	—	—	—	1000	.008	.003
E-**12**	—	—	—	20	.055	—
E-**82***	—	—	—	34	.070	—
E-**130**	87	—	—	—	.066	—
	—	—	1000	—	—	—
E-**148**	—	—	—	350	.018	—
E-**282**	32	—	—	—	.044	—
	—	400	—	—	.030	—
E-**402**	250	—	—	—	.025	—
	—	—	120	—	—	—
E-**931**	—	—	—	750	.012	—
E-**1009****	500	500	—	—	.018†	.0049†

*Has no armature stop pins.
**Has .010-in. armature stop pins.
†Through both windings in series aiding.

Type "F" Relays

The "F" type relays are similar to "E" type except they are slow releasing due to a winding of bare copper wire over the core and are equipped with adjustable armature stop pin to regulate time of release. Mount on either channel or flat type mounting plates with common or individual dust-proof covers as required.

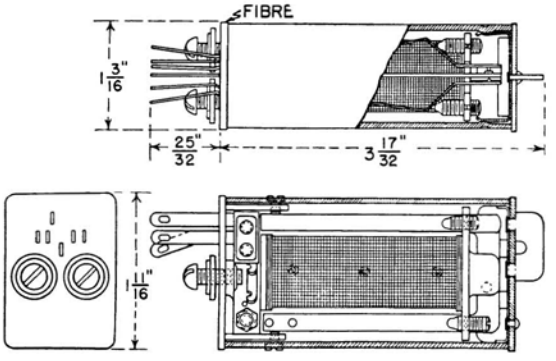
When not equipped with individual covers, will mount on 1¾-in. vertical centers, ¾-in. or 1-in. horizontal centers.

Relays

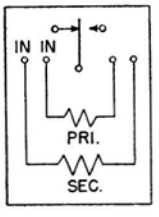
Western Electric

Flat Type Relays

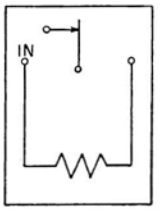
"G" Type



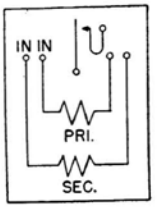
No. G3



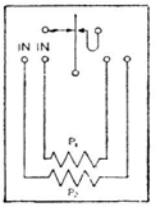
G1



G28



G29



G90

"G" type relays are similar to the "B" type except they have higher impedance at talking frequencies due to laminated construction of cores. Each relay equipped with cross-talk proof shell with removable cap. Mounts on 1¼-in. horizontal, 1¾-in. vertical centers.

No.	Windings Rated Res. (Ohms) Pri.	Sec.	Single	Parallel	Operate (Amp.)	Release (Amp.)
G-**1**	75	75	—	—	.010*	.005*
G-**28**	—	—	365**	—	.0037	.001
G-**29**†	500	—	—	—	.0022≠	.0003≠
	—	3500	—	—	.0025≠	—
G-**90**†	—	—	—	11.5 ea.**	.021‡*	.0122‡*

*Through both windings in series aiding.

**Plus or minus 10%.

†Equipped with a flexible front contact spring.

≠After a soak of .038 amp. through primary winding.

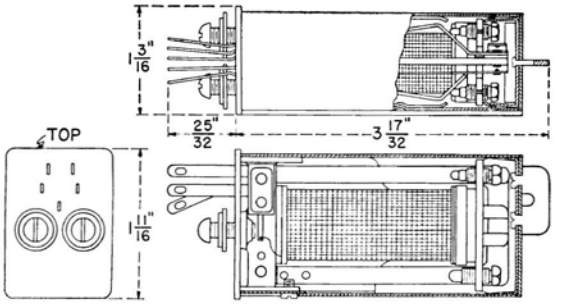
‡After a soak of .150 amp.

"H" Type

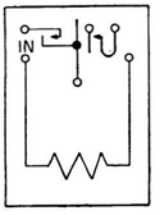
"H" type relays are similar to "E" type except they have increased impedance at talking frequencies due to laminated core. Equipped with E-2 (cross-talk proof) relay covers. Mount on 1¾-in. vertical, 1¼-in. horizontal centers.

Flat Type Relays

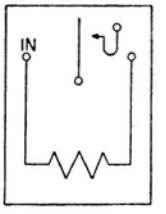
"J" Type



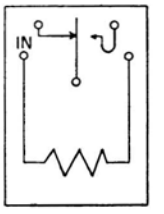
No. J1



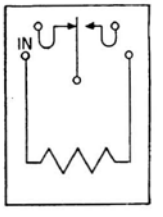
J2



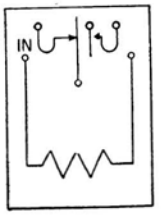
J3, J20, J31



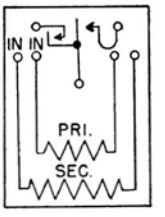
J7



J36



J39]



J54

Used with 16 to 20 cycle alternating current. Otherwise similar to "B" type relays but have different core, spoolhead and adjusting plate characteristics. Each relay has metal dust-proof cover, removable cap. Mounts on 1¼-in. horizontal, 1¾-in. vertical centers.

No.	Windings Rated Res. (Ohms) Pri.	Sec.	Single	Operate (Amp.) A-C*	D-C	Non-Operate (Amp.) D-C
J-**2****	—	—	1090	.0079	—	—
J-**3**†**	—	—	1090	.006	—	—
J-**7****	—	—	1090	.006	—	—
J-**20****#	—	—	1600	.004	—	—
J-**31****‡	—	—	125(a)	.013	—	—
J-**36**#(b)	—	—	1090	.0042	—	—
J-**39**‡(b)	—	—	1600	.0052	—	—
J-**54**(c)(d)	420	—	—	—	.0147	—
	—	3120	—	.0041	.0042	.0034

*Operating and non-operating values apply at ringing frequencies of from 16 to 20 cycles.

**Equipped with a flexible front contact spring.

†Equipped with heavy contacts.

≠Equipped with heavy No. 2 metal contacts.

‡Equipped with No. 2 metal contacts.

(a) Plus or minus 10%.

(b) Equipped with flexible front and back contact springs.

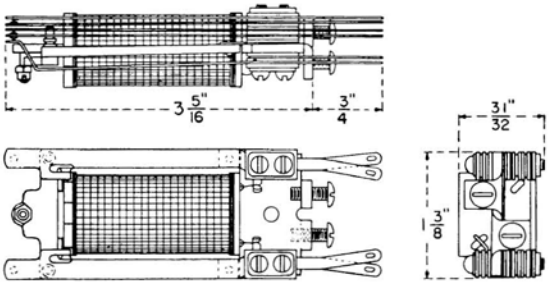
(c) Equipped with heavy front contacts.

(d) Equipped with a pendulum type (weighted) flexible front contact spring.

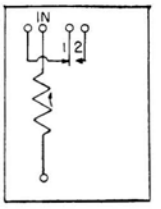
Relays
Western Electric
Flat Type Relays

"R" Type

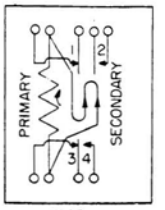
"R" type relays are similar to "E" type except core, although having same cross-sectional area, is elliptical shape. Greater winding space, shorter length of turn then on "E" type. Mount on drilled mounting plates on 1¾-in. vertical, 1-in. horizontal centers unless provided with individual dust-proof covers in which case mount on 1¼-in. horizontal centers. Mount also on punched mounting plates.



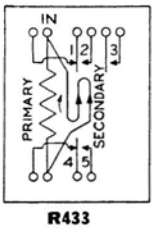
No. R7



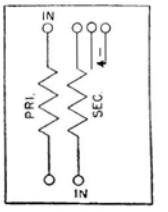
R132



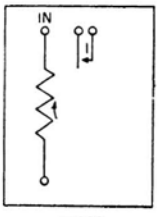
R206



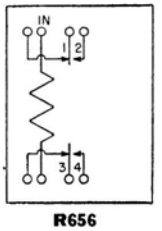
R433



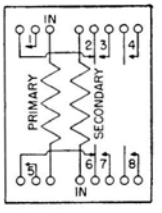
R512



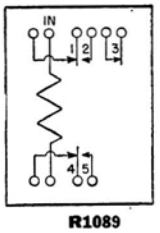
R603



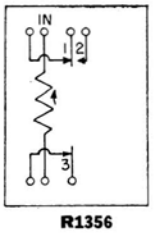
R656



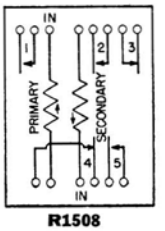
R857



R1089



R1356



R1508

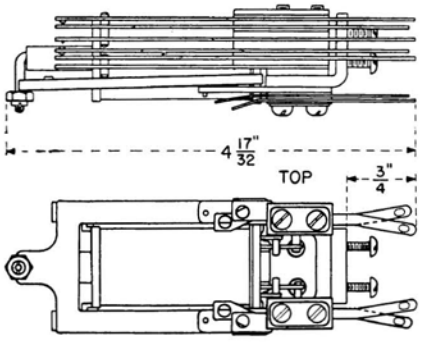
"R" Type

No.	Windings Rated Resistance (Ohms) Pri.	Sec.	Sec. Non. Ind.	Single	Combined	Operate (Amp.)	Non-Operate (Amp.)
R-**132***	—	—	—	650	—	.017	.011
R-**206**	430	—	1000	—	301	.028†	
R-**433**	250	—	1000	—	200	.040#	
R-**512****	.33‡	—	—	—	—	.500	
	—	325	—	—	—	.017	
R-**603***	—	—	—	1650	—	.0074	.0027
R-**656**	—	—	—	900	—	.011	
R-**857****	175	—	—	—	—	.095	
	—	700	—	—	—	.059	
R-**1089**	—	—	—	435	—	.0185	.012
R-**1356**	—	—	—	1200	—	.0087	
R-**1508**♦	500	—	—	—	—	.020	
	—	600	—	—	—	.0305	

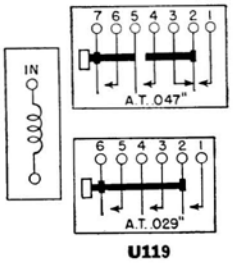
*Has .010-in. armature stop pins.
**Has no armature stop pins.
†Through both windings in multiple.
#Through primary and secondary windings in multiple.
‡Plus or minus 15%.
♦Equipped with No. 2 metal contacts.

"U" Type

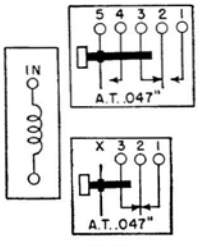
Winding Arrangements and Spring Combinations Viewed from Terminal End



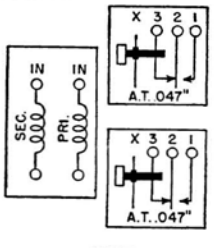
(*) This dimension varies according to the number of contact springs and winding terminals on the individual relays.



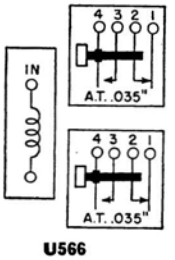
U119



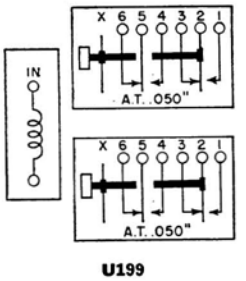
U162



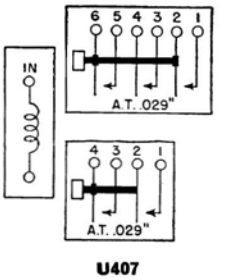
U507



U566



U199



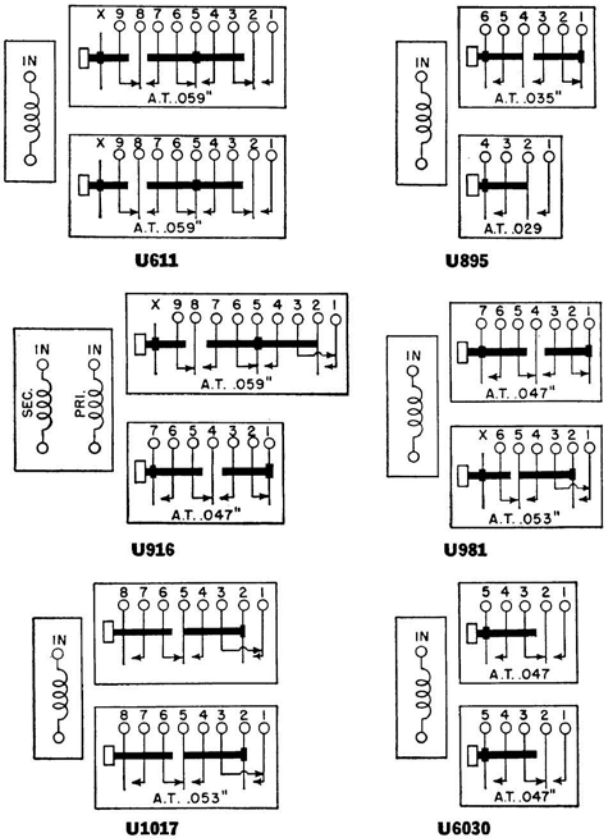
U407

Relays

Western Electric

Flat Type Relay "U" Type

Winding Arrangements and Spring Combinations Viewed From Terminal End



"U" type relays are round core, twin contact, general purpose relays. Operate large spring combinations. Armature stop pins .005-in. high unless otherwise indicated. Mount on drilled or punched type mounting plates. 1¾-in. vertical centers with or without individual or common cover. Insulated from mounting plate.

No.	Windings Rated Res. (Ohms) Pri.	Sec.	Single	Operate (Amp.)	Non-Operate (Amp.)
U119	—	—	700	.0143	
U162	—	—	950	.017	
U199	—	—	2500	.0116	
U407	—	—	2500	.0059	
U507	1100‡	—	—	.018	
	—	1100‡	—	.019	
U566	—	—	2500	.0061	
U611	—	—	700	.0285	
U895**#	—	—	1300	.0245	.018
U916	1100‡	—	—	.028	
	—	1100‡	—	.0295	
U981#	—	—	2000	.017	
U1017	—	—	450	.026	
U6030†	—	—	700	.018	

‡Plus or minus 5%.
**Has .015-in. armature stop pins.
#Slow acting relay having short circuited sleeve over core.
†Has .010-in. armature stop pins.

Horizontal Mounting Centers

Relay Cover No.	With Individual Covers	Without Individual Covers
U3	1½-in.	1¼-in.
U4	1¾-in.	1½-in.*
U5	2⅛-in.	1¾-in.

*Relay No. U895 mounts on 1¼-in. center.

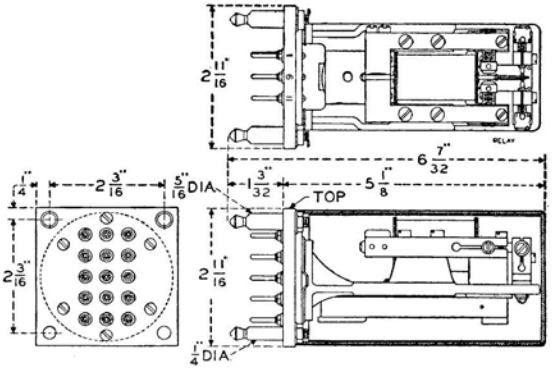
Flat Type Relays

"Y" Type

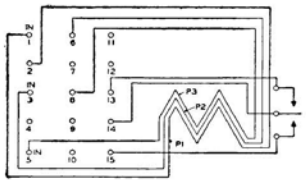
"Y" type relays are round core, twin contact relays. Operate large spring combinations. Essentially of same construction as "U" type except they are especially designed for slow release operation.

Polarized Type Relays

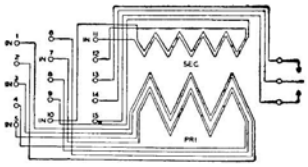
No. 209 Type



No. 209



No. 209FD



No. 209FG

Equipped with reed type armatures and dust-proof covers. Used in telegraph circuits. Mount on Nos. 823, 884, similar mounting plates through medium of No. 18A Connecting Blocks. Insulated from mounting plates. Mount mechanically on 2¾-in. vertical, and horizontal centers but due to sensitiveness to magnetic interference mounting centers with respect to other relays or any other magnetic apparatus should be given special consideration in each case.

No.	Winding Resistance (Ohms) Primary Each	Primary No. of Windings	Secondary Each	Secondary No. of Windings	Operate (Amp.) Minimum
209FD	675(±15%)	3	—	—	.00175*
209FG**	185 Approx.	4	115(±10%)	2	.001†

*Through each one of the three parallel windings.

**Equipped with extra heavy contacts of tungsten on contact screws and extra heavy contacts of No. 4 metal on armature.

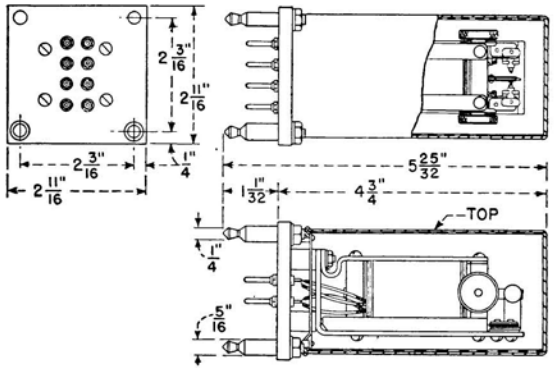
†Through 4 primary windings in serious aiding.

Note: Current values shown are for reliable operation in telegraph circuits. Equipped with No. 4 metal contacts unless otherwise indicated.

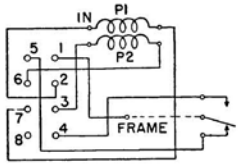
Relays

Western Electric

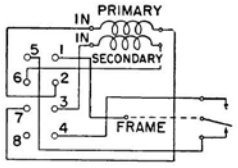
Polarized Type Relays
No. 255 Type



No. .55



No. 255A



No. 255B

Equipped with reed type permalloy armature, anti-chatter contacts, dust-proof covers. Armatures equipped with extra heavy No. 4 metal contacts; contact screws, extra heavy tungsten contacts. Mount on Nos. 823, 884 or similar mounting plates through medium of No. 18B Connecting Blocks. The 18B Connecting Block is not furnished and must be ordered separately.

Used in telegraph circuits. Insulated from mounting plates. Mount mechanically on 2¾-in. vertical and horizontal centers but due to sensitiveness to magnetic interference mounting centers with respect to other relays or magnetic apparatus should be given special consideration in each case.

No.	Windings Resistance (Ohms) Primary	Secondary	Parallel	Operate (Amp.)
255A	—	—	136 ea. (±10%)	*
255B	200 (±1%)	—	—	.0025**
	—	1000 (±1%)	—	.0005**

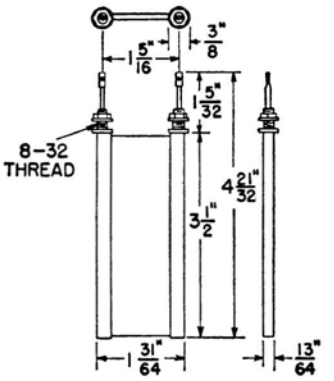
*For reliable operation in teletypewriter circuits, should receive not less than .005 d-c through the windings connected in series aiding.

**For adjustment purposes only. Current for operating in service should be approximately 2½ times "operate" value shown. In either direction after soak of .0125 amp. d-c in opposite direction to operating current.

Resistors

Western Electric

No. 18 Type



One winding on a core of heat resisting material. Winding protected by covering of sheet mica. Ends of winding soldered to tinned terminal posts which are also used for mounting the unit. Each terminal post provided with two fibre washers and hexagonal nut. Mount on 7/16-in. horizontal, 1 3/4-in. vertical centers.

Dimensions: Length, 4 21/32-in.; width, 1 31/64-in.; thickness, 3/8-in.

Plates listed elsewhere under "Plates, Mounting" provide for assembling resistors in compact groups. When so mounted, terminals are conveniently located for making soldered connections.

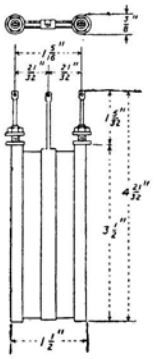
No.	Resistance (Ohms)	Value Varies (±)
18A	37	
18B	40	
18C	83	
18D	120	
18E	140	
18F	150	
18G	200	
18H	210	
18J	30	
18K	80	
18L	170	
18N	180	
18P	130	
18Q	110	
18R	10	
18S	20	
18T	50	
18U	100	
18Y	90	
18Z	67	
18AA	95	
18AB	45	
18AC	500	
18AD	240	
18AE	600	
18AF	300	
18AG	226	
18AJ	400	
18AK	60	
18AL	4	
18AM	250	
18AN	350	
18AP	500	1%
18AR	380	
18AT	1600	
18AY	2.4	3%
18BA	2000	
18BE	20	1%
18BF	284	
18BG	400	1%
18BH	1000	
18BJ	1200	
18BK	1300	1%
18BL	750	
18BM	1000	1%
18BT	200	1%
18BU	300	1%
18BW	100	1%
18CJ	5	
18CN	800	
18CR	2000	1%
18CU	.8	3%
18CW	1.6	3%
18DA	1510	1%
18DB	3000	
18DG	426	1%
18DH	700	
18DJ	15	1%
18DP	18.75	½%
18DS	1700	1%
18EA	9000	
18EC	6000	
18EE	128	1%
18EF	2500	
18EM	8600	
18ES	4800	
18EU	500	½%
18EW	5000	
18FB	900	
18FC	4000	
18FG	8080	
18FP	6350	
18FR	3200	1%
18FS	4250	1%
18GL	5545	2%
18GU	8	1%
18GW	5.4	1%
18HH	0.3	2%
18HJ	0.5	2%
18JC	600	.1 of 1%
18JG	220.4	.1 of 1%

Note: Resistance values do not vary more than plus or minus 5% from those rated in table. In cases noted, resistance is held to closer limits. Power rating is 5.1 watts at 40 degrees C (104 degrees F) ambient temperature.

Resistors

Western Electric

No. 19 Type



Similar in construction to No. 18 type. Mount on 7/16-in. horizontal, 1¾-in. vertical centers.

Differ from No. 18 type in that two windings are provided and end of each winding is soldered to center terminal. Two outside terminals used as mounting posts.

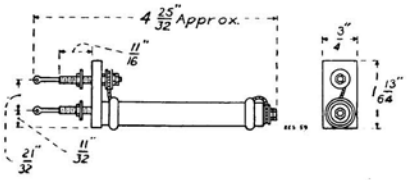
No.	Res. Value Varies (±)	Res. (Ohms)	Watts	Res. (Ohms)	Watts
19A		37	*	37	*
19B		40	*	40	*
19C		40	*	83	*
19D		83	*	83	*
19H		40	3.8†	120	1.3†
19K		100	*	100	*
19T		25	*	25	*
19Z		120	*	120	*
19AD		150	*	150	*
19AH		240	*	240	*
19AJ		200	*	200	*
19AM		50	*	50	*
19AN		260	*	260	*
19AP		180	*	180	*
19AW		2.5	*	2.5	*
19BB		300	*	2300	*
19BC		50	2.2†	300	2.9†
19BG		200	*	400	*
19BL		1	*	1	*
19CA	1%	185	3†	770	2.1†
19CN		100	*	200	*
19DG	1%	133	2.2†	770	2.9†
19DR		1	*	2	*
19DT		150	*	300	*
19DY		500	*	500	*
19EA	1%	115	*	115	*
19EB		20	.9†	330	4.2†
19GA	1%	400	*	600	*
19GH	1%	425	*	425	*
19GJ		300	*	500	*
19GL		300	*	300	*
19KN	2%	146	2.8†	651	2.3†
19PC	½%	102.6	.4†	3509	1.7†
19SR	1%	600	*	800	*

Note: Resistance values do not vary more than plus or minus 5% from those rated. In some cases, as noted, the variation is held to closer limits. Power ratings indicated apply at 40 degrees C (104 degrees F) ambient temperatures.

*5.1 watts maximum distributed over the two resistance sections in combination or 5 watts for either section provided the other section is used at not more than 1/10 watt.

†When the lower value resistance section is used at not more than 1/10 watt, the wattage dissipated by the higher value resistance section may be 5 watts maximum.

No. 59 Type



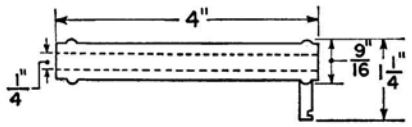
Enameled porcelain resistors capable of withstanding high temperatures. Mount on plates on 7/8-in. horizontal and 15/16-in. vertical centers.

Resistance values are held within limits of plus or minus 5% unless otherwise indicated.

No.	Nominal Resistance (Ohms)	No.	Nominal Resistance (Ohms)
59A	3000	**59**M	850
59B	3500	**59**N	1000
59C	200	**59**P	90
59D	115	**59**R	107.5
59E	150	**59**S	28*
59F	240	**59**T	103.5*
59G	60	**59**U	24*
59H	190	**59**W	98*
59K	112	**59**Y	110.5*
59L	600		

*Plus or minus 1%.

No. 67 Type



Enameled porcelain type resistors capable of withstanding high temperatures. Mount on ¾-in. horizontal centers on No. 4 type resistor mounting. One soldering terminal; the other terminal made through No. 4 mounting.

F Resistance values held within limits of plus or minus 5% except where indicated. Normal power rating 22 watts at 40 degrees C.

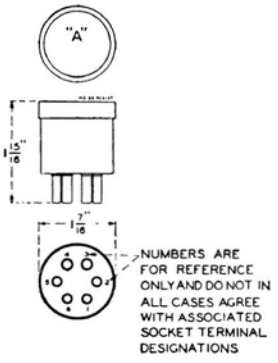
No.	Resistance (Ohms)
67A	2000
67B	120
67C	600
67D	1100
67E	1500
67F	300
67G	1000*
67H	3000
67J	800
67K	1300
67L	1750

*Plus or minus 1%.

Resistors

Western Electric

No. 89 Type



No. **89** type resistors excepting Nos. 89A and 89B consist of three resistors units potted in a base and connected by six metal prongs.

Nos. **89A** and **89B** have no windings. Mount in a No. 144 electron tube socket. Used in Nos. 1 and 2 type pads and No. 17 equalizers. These resistors contain no resistor units.

Nominal Resistance Values Between Terminals

No.	1 & 2 3 & 4	5 & 6	*Attenuation in db Stamped at "A"
89A	Zero†	Infinite#	Zero
89B	Infinite#	Zero†	Infinite
89C	17.9	10000	.5
89D	27.5	6540	.75
89E	36.5	4931	1
89F	46.6	3859	1.25
89G	56.5	3186	1.5
89H	67.2	2687	1.75
89J	77.75	2315	2
89K	89	2021	2.25
89L	100.3	1796	2.5
89M	111.9	1609	2.75
89N	123.8	1454	3
89P	136.5	1319	3.25
89R	149.1	1207	3.5
89S	162	1110	3.75
89T	174.8	1030	4
89U	189	952.1	4.25
89W	203.7	883.4	4.5
89Y	218.4	823.8	4.75
89AA	223.4	771.2	5
89AC	264.9	679.5	5.5
89AE	298.9	602.2	6
89AG	334.1	538.8	6.5
89AJ	371.1	484.3	7
89AL	411.4	437.5	7.5
89AN	453.5	396.9	8
89AR	498.3	361.2	8.5
89AT	545.5	330	9
89BA	649	277.3	10
89BB	703.5	255.7	10.5
89BC	764.4	235.4	11
89BD	827.5	217.5	11.5
89BE	895.3	201.2	12
89BF	965	186.5	12.5
89BG	1040	173.1	13
89BH	1119	160.8	13.5
89BJ	1203	149.6	14
89BK	1292	139.3	14.5
89BL	1387	129.8	15

*Obtained only when associated with other resistors in miscellaneous pads and equalizers in 600 ohm circuits.

†Strapped.

#Open.

No. 100 Type

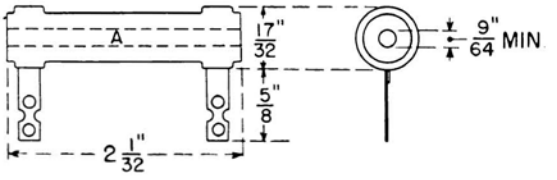


Fig. 1

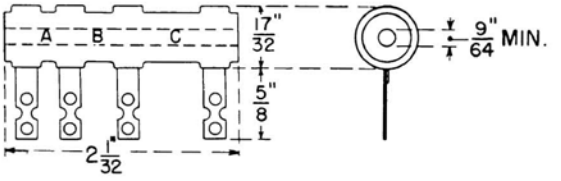


Fig. 2

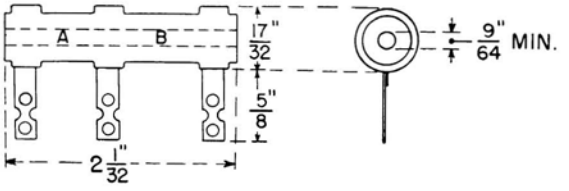


Fig. 3

Enameled porcelain type resistors capable of withstanding high temperatures. One or more windings as indicated. Windings connected in series; taps at winding junctions. Mount by means of No. 9A mounting. Closest recommended mounting centers are 1⅜-in. x 1-in.

Resistance values held within limits of plus or minus 5%.

No.	Fig. No.	Resistance (Ohms) Stamped at A	B	C	Normal Power* Rating (Watts) at 40° C
100A	1	1600	1600	—	10
100B	1	1075	220	—	10
100C	1	500	200	—	10
100D	2	10	20	40	8
100E	2	80	160	320	8
100F	1	100	800	—	10
100G	3	300	—	—	12

*Total wattage for all windings. Power rating for each winding is proportional to winding space.