



switchboard instruments type 25 line

rectangular • a-c and d-c
flush or projection mounting

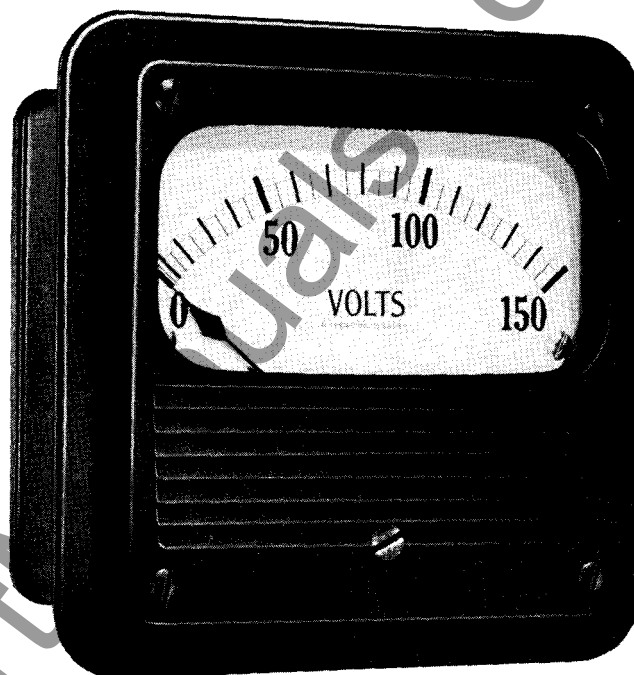
renewal
parts data

43-250A1

page 1

ordering information

- Give style number and name of part.
- Give the complete nameplate reading.
- State method of shipment desired.
- Send all orders or correspondence to nearest sales office of the company.



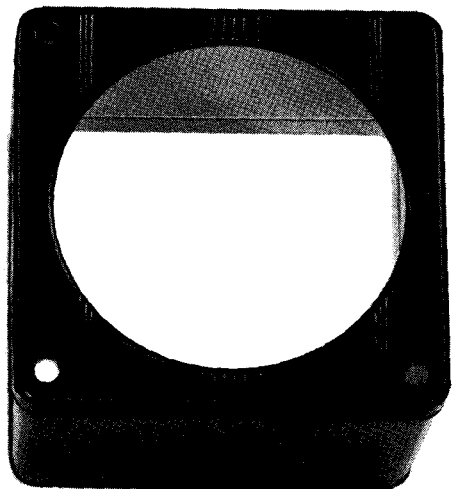
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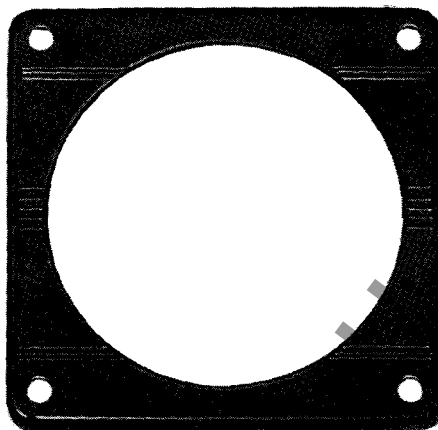
March, 1961

supersedes rpd 43-250 dated December, 1957
mailed to: E/724; D65-6C

type 25 instrument common parts



1



2



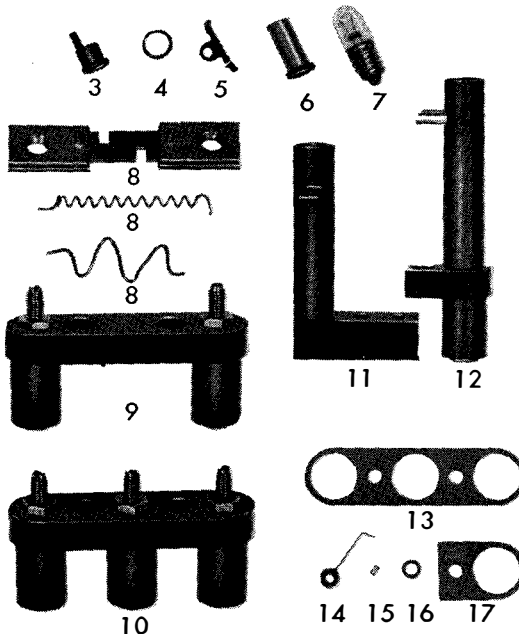
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2



1



style number of common parts

reference number	description of part	style number of part used			
		case with rectangular opening		case with round opening	
		projection	flush	projection	flush
1	case	1727 884	1102 034	1003 321	1102 034
2	cover (standard)	1732 290	1732 290	1003 323	1003 323
2	cover (nonglare glass)	1875 950	1875 950		
Δ	glass (standard)	836 118	836 118	836 650	836 650
Δ	glass (nonglare)	1001 364	1001 364	1336 012	1336 012
3	zero adjuster button	1268 155	1268 155		
4	zero adjuster collar	1543 199	1543 199		
5	glass clip	1731 292	1731 292	1096 185	1096 185
Δ	4 x 3/16 slotted head steel self tapping screw	std. hdwr.	std. hdwr.	std. hdwr.	std. hdwr.
Δ	.086-56 hex brass machine screw nut *				
6	gasket (for cover)	1732 135	1732 135		
7	cover screw	721 485	721 485	721 485	721 485
8	lamp for illumination	1001 663	1001 663	1001 663	1001 663
9	shunt (d-c only)	see table below	see table below		
10	terminal block assembly (2 terminal)	291B166G02	291B166G02	291B166G02	291B166G02
11	terminal block assembly (3 terminal)	291B166G01	291B166G01	291B166G01	291B166G01
11	lamp terminal and gasket (top right hand)			1002 887	1002 887
11	lamp terminal and gasket (top left hand)			1002 886	1002 886
12	lamp terminal (bottom)	409C346G01	409C346G01	409C346G01	409C346G01
13	gasket for terminal block	721 487	721 487	721 487	721 487
14	pointer stop	818 118	818 118		
15	insulation for pointer stop	1098 941	1098 941		
16	washer for dial screw	818 631	818 631	818 631	818 631
Δ	.138-32 x 3/16 binding head brass machine screw to mount dial *	std. hdwr.	std. hdwr.	std. hdwr.	std. hdwr.
Δ	dial				
17	gasket bottom lamp terminal	1097 285	1097 285	1097 285	1097 285
Δ	bag of hardware for illumination—terminal only	1102 185	1102 292	1102 185	1102 292
Δ	.164-32 x 7/16 fillister head brass machine screw to mount terminal block *	std. hdwr.	std. hdwr.	std. hdwr.	std. hdwr.
Δ	.164-32 hex brass machine screw nut to mount terminal block *	std. hdwr.	std. hdwr.	std. hdwr.	std. hdwr.

parts indented are included in the part under which they are indented

Δ not illustrated

* finish 22AA00

■ when ordering, old dial must be returned for marking of calibration points

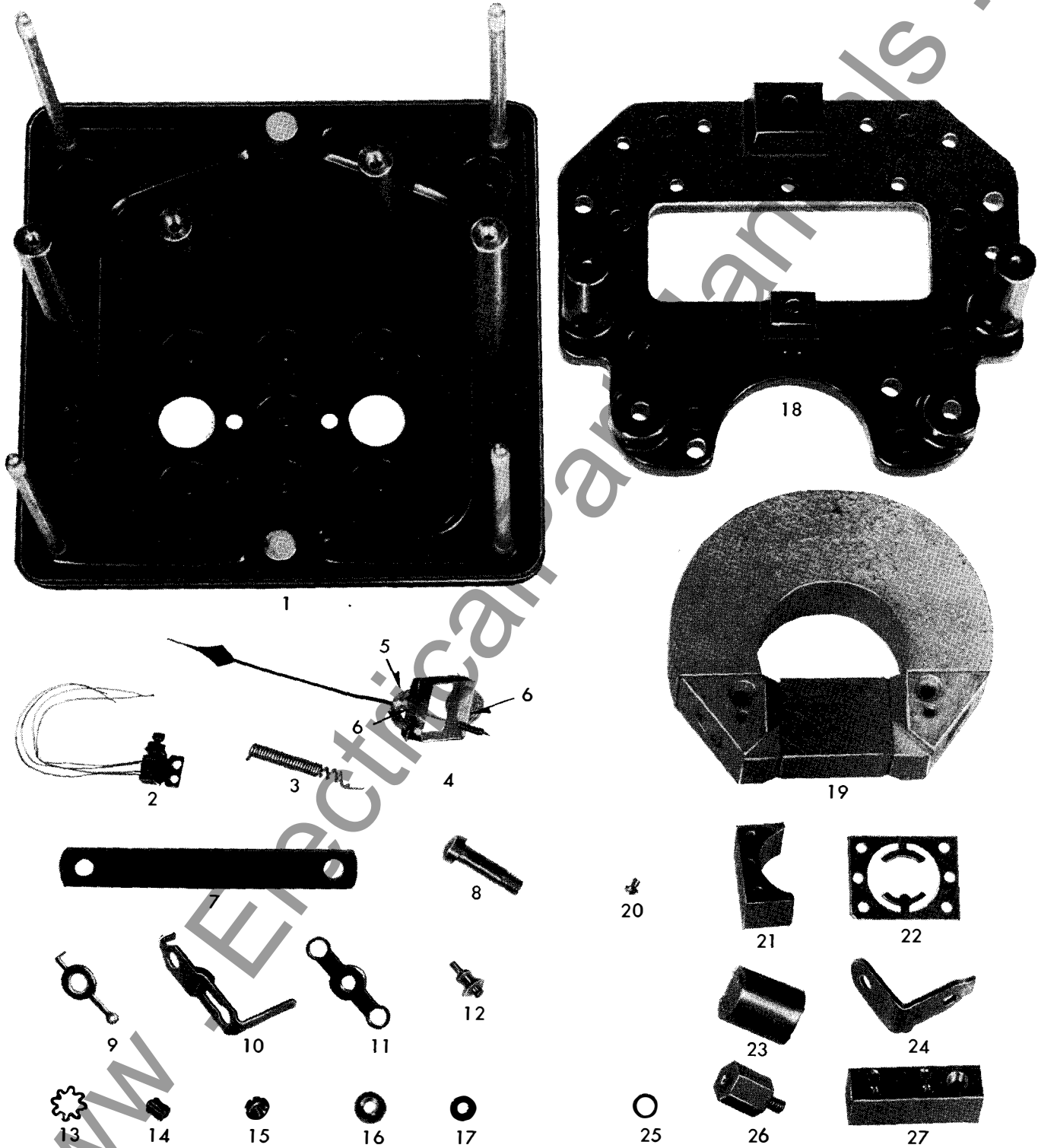
style numbers of d-c shunt

type of instrument	rating	style number of shunt
ammeter	1 ampere	635 601
ammeter	1.5 ampere	625 602
ammeter	2 ampere	797 852
ammeter	3 ampere	797 854
ammeter	5 ampere	797 856
ammeter	8 ampere	797 858
ammeter	10 ampere	797 859
ammeter	15 ampere	797 860
ammeter	20 ampere	797 861
ammeter	30 ampere	1000 300
ammeter	50 ampere	1000 302
milliammeter	50 milliampere	561 586
milliammeter	100 milliampere	564 594
milliammeter	200 milliampere	626 834
milliammeter	500 milliampere	424 091

type X-25 d-c instrument parts

for ammeter • voltmeter • milliammeter • wattmeter

rectifier • and frequency meter with transducer



type X-25 d-c instrument parts

ref. no.	description	style no. of part	
		wattmeter	all others
1	base	see table below	
Δ	rectox (voltmeters 1000 ohm per volt and 0-.5 to 0-1 milliammeter)	none	1098 768
2	rectox (voltmeters 200 ohm per volt and milliammeter above 1 ma)	none	1269 512
3	swamp resistor	none	see table
4	moving element	see table at right	
5	spring	see table at right	
6	pivot	321 404	321 404
7	grounding strap	1204 937	1204 937
8	screw to mount magnet	1336 613	1336 613
9	rear spring adjuster	321 417	321 417
10	front spring adjuster	1732 796	1732 796
11	bridge	321 408	321 408
Δ	.086-56 x 3/8 binding head brass machine screw to mount bridge (finish 22AA00)	std. hdwr.	std. hdwr.
12	rear post to mount bridge	423 789	423 789
12	front post to mount bridge	423 788	423 788
13	spring washer	321 406	321 406
14	jewel screw	532 039	532 039
15	nut to hold jewel screw	321 405	321 405
16	washer on bridge	1267 450	1267 450
17	insulation bushing for bridge	321 413	321 413
18	sub base	1209 456	1202 610
19	permanent magnet	none	see table
Δ	electromagnet	see table	none
20	core support screw	423 790	423 790
21	pole piece (1 pair)	1098 043	423 786
22	core support	423 785	423 785
23	core	1098 044	423 787
24	bracket to mount magnet	1209 458	1158 846
25	dial washer	818 631	818 631
26	post to mount dial	1209 455	none
Δ	spacer to mount electromagnet	1097 297	none
Δ	resistor spool	⊙	⊙
Δ	bag of terminal and mounting hardware (flush mounting)	1102 180	1102 177
Δ	bag of terminal and mounting hardware (projection mounting)	796 960	796 957
Δ	transducer for frequency meter	1875 925	1875 925
Δ	terminal block and shunt assembly	none	see table

parts indented are included in the part under which they are indented

Δ not illustrated

⊙ when ordering specify style that appears on spool to be replaced

■ must be calibrated with instrument with which it is used

base • magnets • swamping resistor wire

type of instrument	style number of part used
base (reference 1)	
d-c wattmeter	1204 690
ground detector voltmeter	1723 065
temperature indicator 20 volt s.c.	1338 341
all other d-c instruments	1102 297
permanent magnet (reference 19)	
shunt type ammeters with 3.4 to 12.0 ohm lead resistance	1732 734
microammeters 0 to 100 microampere s.c.	1732 734
all other d-c instruments	1202 625
electromagnet	
d-c wattmeter only, 120 volt	1545 824
d-c wattmeter only, 240 volt	1545 824
d-c wattmeter only, 480 volt	1545 826
d-c wattmeter only, 600 volt	1545 827

swamping resistor wire

ammeters center zero	625 039
ammeters left zero lead resistance .0 to .015 ohms	625 035
ammeters left zero lead resistance .016 to 3.4 ohms	628 419
ammeters left zero lead resistance 3.45 to 12.0 ohms	821 112
milliammeters above 30 ma	625 035
millivoltmeters 0 to 50 mv	625 035
millivoltmeters 0 to 100 mv	625 040
millivoltmeters { 0 to 200 mv	836 120
{ 0 to 500mv	

moving elements and springs

rating of instrument	style no. of part	
	moving element	spring
ammeters		
1 to 50 ampere	1338 834	491 821
milliammeters		
1 milliampere	1338 836	491 824
2 milliampere	1338 838	491 824
5 milliampere	1338 850	491 824
10 milliampere	1338 853	491 824
20 milliampere	1338 857	491 824
50 milliampere	1338 834	491 821
rectox milliammeters		
1 milliampere	1338 880	491 845
2 milliampere	1338 885	491 823
5 milliampere	1338 899	491 823
10 milliampere	1338 902	491 823
microammeters		
0 to 100 microamperes	1728 632	491 821
0 to 200 microamperes	1728 633	491 821
0 to 500 microamperes	1338 835	819 861
ammeters for use with external shunt		
50 mv (0 to .015 ohm lead res.)	1338 834	491 821
100 mv (0 to .015 ohm lead res.)	1338 834	491 821
50 mv (.016 to 3.4 ohm lead res.)	1338 904	491 845
50 mv (3.45 to 12.0 ohm lead res.)	1338 897	930 703

voltmeter (self contained)

1000 ohm per volt	1338 836	491 824
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rectox voltmeter

1000 ohm per volt	1338 880	491 845
2000 ohm per volt	1338 881	491 821

ground detector

1 milliampere movement	1338 836	491 824
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frequency meter

all cycles	1338 836	491 824
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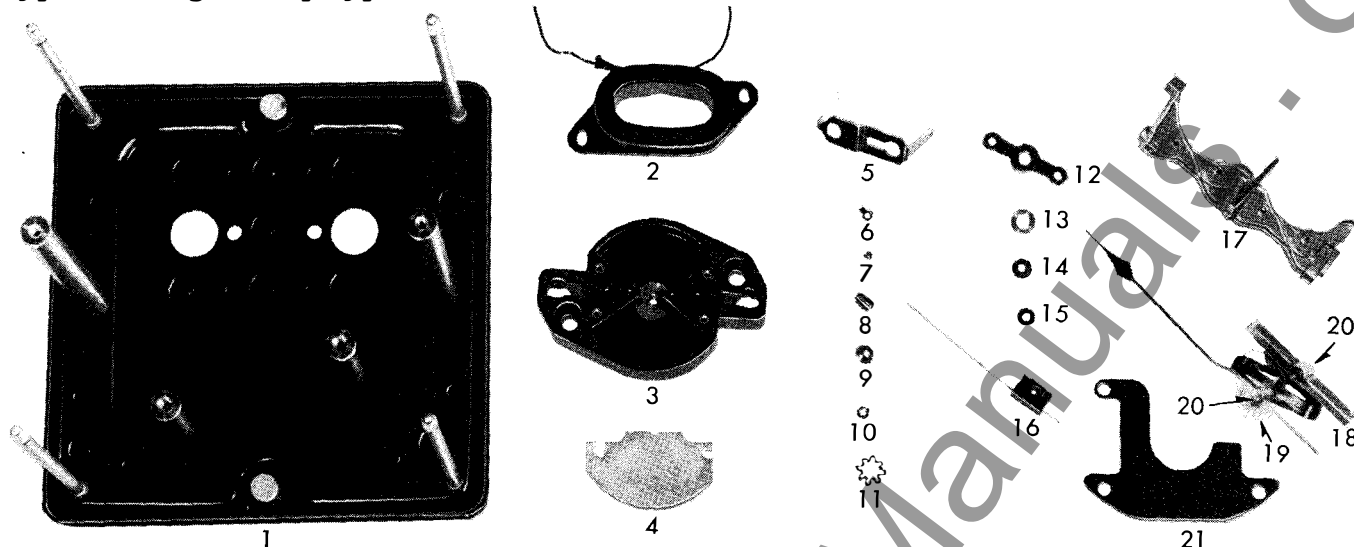
wattmeter

all ratings	1338 903	558 473
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temperature indicator

20 volt control	1338 905	558 473
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type Y-25 single and polyphase wattmeter



reference number	description of part	style number of part	
		single phase	polyphase
1	base and post assembly	1102 299	1102 302
2	stationary coil	1338 833	1338 833
3	damping chamber	438 084	438 084
4	cover for damping chamber	1732 795	1732 795
5	spring adjuster	1207 137	1207 137
6	clamp to hold spring to adjuster	1156 078	1156 078
7	screw to hold clamp to adjuster		
8	jewel screw (upper)	532 039	532 039
9	jewel screw (lower)	532 040	532 040
10	nut to hold upper jewel screw	321 405	321 405
11	nut to hold lower jewel screw	333 306	333 306
12	spring washer	321 406	321 406
13	bridge	321 407	321 407
14	.086-56 x 3/4 binding head brass machine screw to mount bridge	std. hdwr.	std. hdwr.
15	spacer (between bracket and damping chamber)	1001 673	1001 673
16	insulation bushing for shield	1201 844	1201 844
17	insulation washer for shield	1201 843	1201 843
18	connector	1201 153	1201 153
19	bracket	1201 836	1201 841
20	.112-40 x 3/4 binding head brass machine screw to mount stationary coil to bracket	std. hdwr.	std. hdwr.
21	moving element (120 volt)	1728 623	1727 928
22	moving element (240-480-600 volt)	1728 622	1727 930
23	spring	723 148	1732 791
24	pivot	321 404	321 404
25	shield	1096 021	1096 021
26	bag of terminal and mounting hardware (flush mounting)	1102 180	
27	bag of terminal and mounting hardware (projection mounting)	796 960	
28	bag of terminal and mounting hardware 2 C.C. (flush mounting)		1102 184
29	bag of terminal and mounting hardware 2 C.C. (projection mounting)		796 963
30	bag of terminal and mounting hardware 3 C.C. (flush mounting)		1102 183
31	bag of terminal and mounting hardware 3 C.C. (projection mounting)		796 964
32	resistor card		
33	spacer for resistor cards (long)	1723 338	1723 338
34	spacer for resistor cards (short)	492 014	492 014

parts indented are included in the part under which they are indented

^A not illustrated ^A finish Z2AA00

^B for instruments built prior to September, 1956, order moving element plus conversion kit style no. 1728 515. Kit consists of two spacers and two bridge mounting screws, to replace existing spacers and screws. ^B when ordering specify style that appears on card to be replaced

style numbers of stationary coils

ampere rating	style number			ampere rating	style number		
	single phase	2 current coil	3 current coil		single phase	2 current coil	3 current coil
0.1	1267 021	1267 020	1267 021	2.0	1201 191	1201 189	1201 188
0.15	1267 020	1267 018		2.5		1201 188	1201 187
0.2	1267 018	1267 017	1267 018	3.0	1201 189	1201 187	
0.25	1267 017			4.0	1201 188	1158 831	1158 831
0.3	1267 016	1201 193		5.0	1158 831	1201 183	1201 185
0.4	1267 016	1267 017	1267 016	6.0		1201 186	
0.5	1267 017	1201 193	1201 193	7.5	1201 184		1201 183
0.6	1267 016			8			
0.75	1201 193			10	1201 186	1201 183	1201 186
0.8			1201 192	12			
1.0	1201 190	1201 192	1201 191	15	1201 184	1201 186	
1.5	1201 192	1201 190	1201 189	20	1544 595		

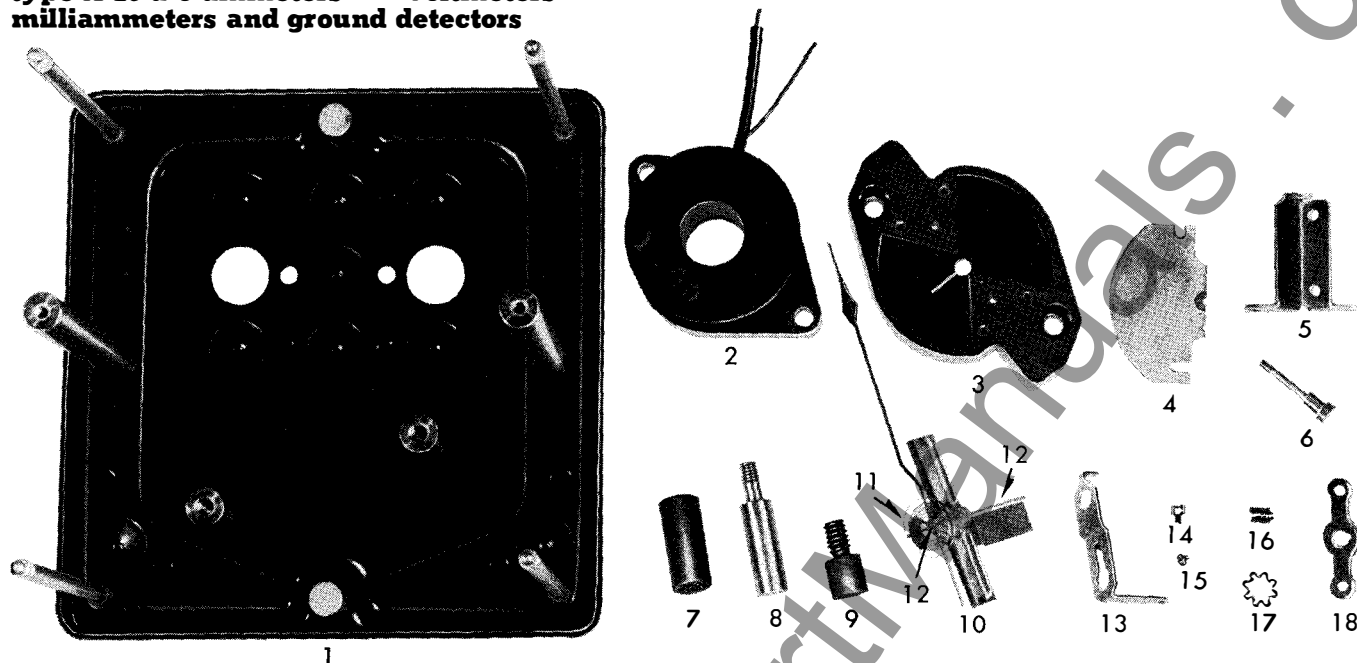
type S-25 position indicator



reference number	description of part	style number of part
1	motor	1335 330
2	pointer and hub assembly	1334 259
3	pointer	1335 398
4	nut	1335 329
5	spring washer	321 406
6	.112-40 x 1/8 cup point headless set screw socket type	std. hdwr.
7	terminal stud	1334 333
Δ	.190-32 hex. brass machine screw nut to mount terminal stud (finish 22AA00) ..	std. hdwr.
8	terminal marker "T1"	1334 321
8	terminal marker "T2"	1334 322
8	terminal marker "M1"	1334 323
8	terminal marker "M2"	1334 324
8	terminal marker "M3"	1334 325
Δ	base and stud assembly	1334 210

parts indented are included in the part under which they are indented

Δ not illustrated

**type A-25 a-c ammeters • voltmeters
milliammeters and ground detectors**

renewal parts

reference number	description of part	style number of part
1	base and post assembly for all except voltmeters.	1102 424
1	base and post assembly for voltmeters.	1102 425
2	stationary coil.	see table
3	damping chamber.	1338 832
4	cover for damping chamber.	1875 038
5	stationary iron.	838 077
6	post to mount bridge.	1732 792
7	insulation for mechanism mounting post.	719 637
8	post to mount mechanism.	628 761
9	insulation post to mount dial.	719 485
10	moving element (for all except 5, 6, 10, 40 and 50 amp).	1338 898
10	moving element (5, 6, 10 amp).	1338 906
10	moving element (40 and 50 amp).	1338 907
11	spring (for all except 5, 6, 10, 40 and 50 amp).	819 099
11	spring (5, 6, 10 amp).	680 220
11	spring (40 and 50 amp).	723 152
12	pivot.	321 404
13	spring adjuster.	1732 795
14	clamp to hold spring to adjuster.	1207 137
15	screw to hold clamp to adjuster.	1156 078
16	jewel screw (upper).	532 039
16	jewel screw (lower).	532 040
▲	nut to mount upper jewel screw.	321 405
▲	nut to mount lower jewel screw.	333 306
17	spring washer.	321 406
18	bridge.	321 407
▲	.086-56 x 3/4 binding head brass machine screw to mount bridge (finish 22AA00).	std. hdwr
▲	bag of terminal and mounting hardware (projection mounting).	796 957
▲	bag of terminal and mounting hardware (flush mounting).	1102 177
▲	resistor card.	■
▲	spacer for resistor card (long).	1723 338
▲	spacer for resistor card (short).	492 014

parts indented are included in the part under which they are indented

▲ not illustrated

■ when ordering specify style that appears on card to be replaced

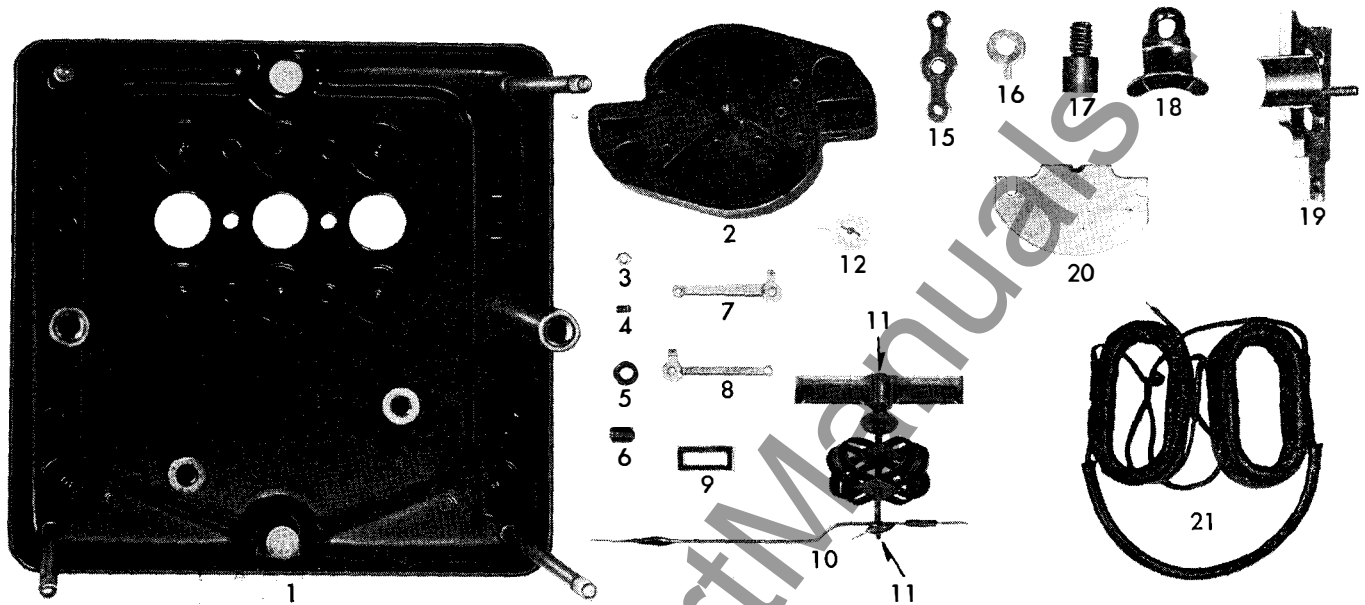
● for 5, 6 or 10 amp instruments ordered prior to May, 1957, use moving element style number 1338 898 and spring style number 819 099. If coil is to be replaced, spring on moving element will have to be replaced with spring style number 680 220.

**stationary coils
for a-c instruments**

rating of instrument	style number of coil
ammeters	
1.0 amperes	720 791
1.5 amperes	720 793
2 amperes	720 794
3 amperes	704 735
5 amperes	704 737
+5 amperes	720 778
8 amperes	838 969
10 amperes	704 740
15 amperes	704 741
20 amperes	839 026
30 amperes	839 028
50 amperes	839 030
voltmeters	
15 volts	720 787
30 volts	720 784
80 volts	720 780
150 volts	704 733
300 volts	704 732
600 volts	720 773
800 volts	720 773
milliammeters	
10 ma	720 773
20 ma	704 732
50 ma	720 778
100 ma	720 781
200 ma	720 784
500 ma	720 788

+ ground detector

type Y-25 power factor instruments, 100 degree scale

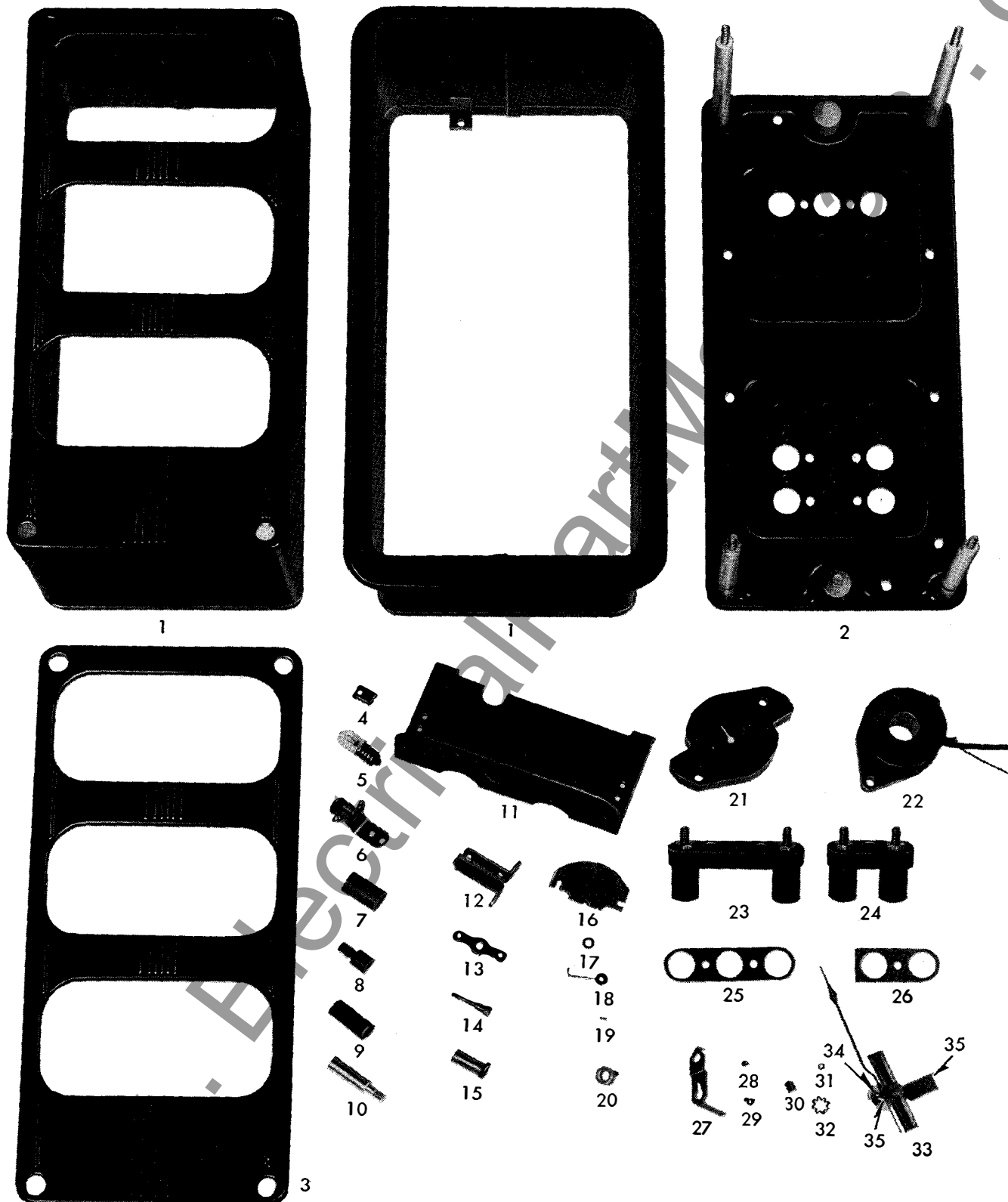


reference number	description of part	style number of part	
		single phase	polyphase
1	base and stud assembly	1102 348	1102 300
2	damping chamber	491 756	491 756
3	nut for lower jewel screw	333 306	333 306
4	lower jewel screw	532 040	532 040
5	nut for upper jewel screw	321 405	321 405
6	upper jewel screw	532 039	532 039
7	terminal for lead spring connection, right hand	333 321	333 321
8	terminal for lead spring connection, left hand	333 322	333 322
9	spacer between damping chamber and bracket	491 758	491 758
10	moving element	936 918	936 919
11	pivot	321 404	321 404
12	spring	491 834	491 834
13	spring washer	321 406	321 406
14	.086-56 x 3/4 binding head brass machine screw to mount bridge (finish 22AA00)	std. hdwr.	std. hdwr.
15	bridge	321 407	321 407
16	spring adjuster	324 094	324 094
17	dial insulation post	719 485	719 485
18	clamp to mount stationary coils	333 311	333 311
19	bracket to mount stationary coils	718 983	718 983
20	cover or damping chamber	1726 193	1726 193
21	stationary coils	797 121	797 121
Δ	bag of terminal and mounting hardware (flush mounting)	1102 181	1102 181
Δ	bag of terminal and mounting hardware (projection mounting)	797 961	796 961

parts indented are included in the part under which they are indented

Δ not illustrated

type A-25 a-c Triplex ammeter and voltmeter



renewal parts for type A-25 Triplex instruments

reference number	description of part	style number of part
1	case (flush mounting)	1725 144
1	case (projection mounting)	1098 611
2	base and post assembly for ammeters	1725 133
2	base and post assembly for voltmeters	1725 134
3	cover (flush)	1097 495
Δ	glass	1274 520
4	clip to hold glass	1096 185
Δ	.08656 brass machine screw nut to hold glass clip (finish 22AA00)	std. hdwr.
5	lamp	1001 663
6	lamp socket	1725 142
7	spacer to mount lamp socket	1725 143
8	dial insulation post	719 485
9	insulation for element post	719 637
10	post to mount elements	1725 127
11	bracket and mounting shield	1725 102
12	stationary iron and bracket	838 077
13	bridge	321 407
Δ	.08656 x 3/16 binding head brass machine screw to mount bridge (finish 22AA00)	std. hdwr.
14	post to mount bridge	1732 792
15	cover screw	1002 614
16	damping chamber cover	1875 038
Δ	.138-32 x 3/16 binding head brass machine screw to mount dial (finish 22AA00)	std. hdwr.
17	washer for dial screw	818 631
18	pointer stop	818 118
19	pointer stop insulation	1098 941
20	spacer for resistor cards (long)	1727 388
20	spacer for resistor cards (short)	492 014
21	damping chamber	1338 832
♦22	stationary coil	see table pg. 8
23	terminal block	291B166G02
24	lamp terminal	186A104G01
25	gasket for terminal block	721 487
26	gasket for lamp terminal block	1731 657
27	spring adjuster	1732 795
28	screw to hold spring to adjuster	156 078
29	clamp to hold spring to adjuster	207 137
30	jewel screw (upper)	532 039
30	jewel screw (lower)	532 040
31	nut to mount upper jewel screw	321 405
31	nut to mount lower jewel screw	333 306
32	spring washer	321 406
♦33	moving element (all except 5, 6, 10 ampere)	1728 609
♦33	moving element (5, 6, 10 ampere only)	1728 703
♦34	spring (all except 5, 6, 10 ampere)	732 152
♦34	spring (5, 6, 10 ampere only)	723 150
35	pivot	321 404
Δ	dial	□
Δ	resistor card	Δ
Δ	bag of terminal and mounting hardware (flush mounting without illumination)	1725 307
Δ	bag of lamp terminal hardware (flush mounting)	1102 292
Δ	bag of terminal and mounting hardware (projection mounting without illumination)	1725 306
Δ	bag of lamp terminal hardware (projection mounting)	1102 185

parts indented are included in the part under which they are indented

Δ not illustrated

□ when ordering new dial the old one must be returned as a sample for marking

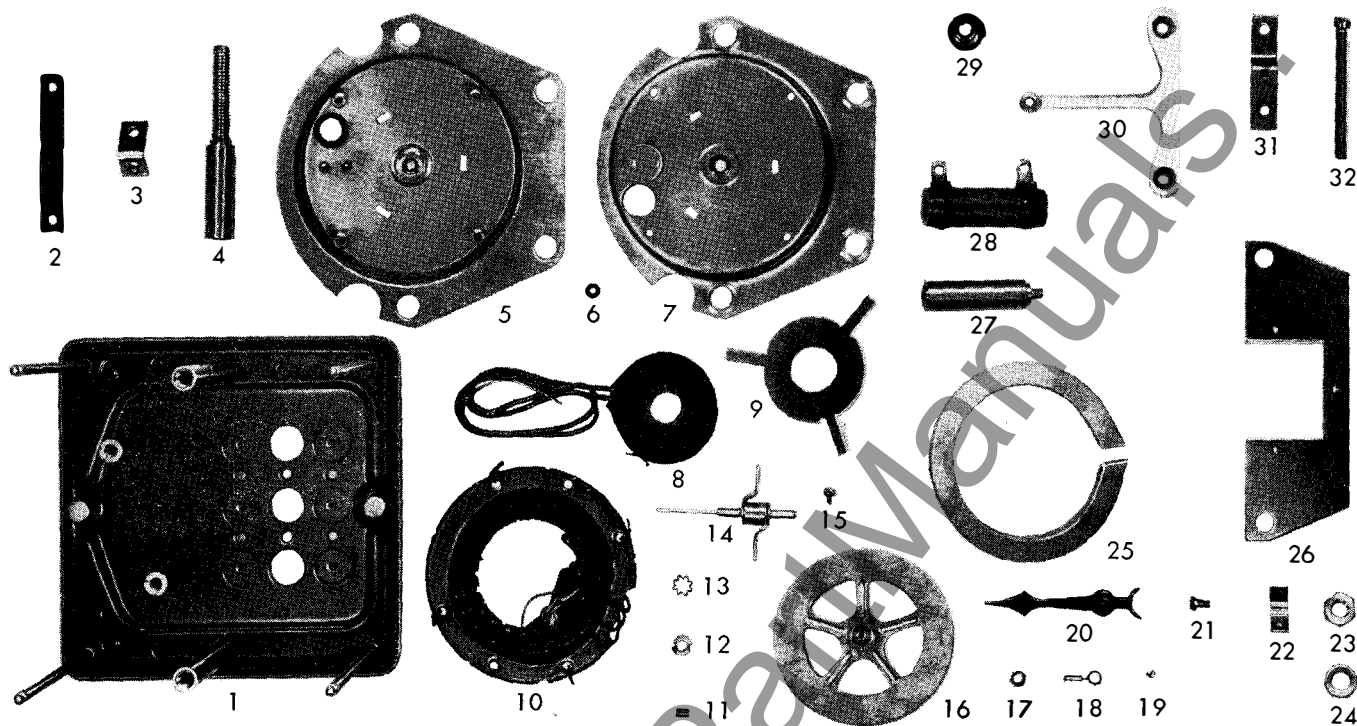
Δ when ordering specify style that appears on card that is to be replaced

● for instruments ordered prior to September, 1955, order by description and style of instrument

♦ for 5, 6 or 10 ampere instrument ordered between September, 1955, and May, 1957, use moving element style number 1728 609 and spring style number 723 152.

If coil is to be replaced spring on moving element will have to be replaced with spring style number 723 150.

single and polyphase power factor (360 degrees)
and synchroscope instruments



style numbers of renewal parts

reference number	description of part	style number of part
1	base.....	1102 426
2	nut plate.....	719 478
3	connectors used on top of terminal block.....	818 457
4	post to mounting box (coil).....	818 453
5	coil cover lower.....	818 483
6	insulating cup washer for mounting stator to lower coil cover.....	1002 082
7	coil cover upper.....	818 482
8	spool coils.....	see table
9	coil clamp.....	818 463
10	stator assembly.....	see table
11	jewel screw.....	1342 358
12	nut for jewel screw.....	363 428
13	spring washer.....	321 406
14	shaft and vane assembly.....	818 475
15	pivots.....	818 452
16	.190-32 x 3/8 binding head screw to connect coil lead to connector.....	std. hdwr.
17	disc and balance weight complete.....	818 459
18	nut to hold balance arm.....	818 627
19	balance arm.....	818 472
20	balance nut.....	820 367
21	pointer assembly and set screw.....	818 988
22	set screw.....	100 618
23	clamp to hold magnet to plate.....	818 466
24	nut to hold coil cover.....	818 630
25	washer for cover nut.....	820 316
26	magnet.....	174 512
27	plate to hold magnet.....	818 465
28	post for mounting bridge.....	820 355
29	resistor.....	1210 089
30	centering washer for resistor.....	1202 559
31	bridge.....	818 456
32	bracket to mount resistor.....	1340 943
32	.190-32 x 2 1/4 filister head brass machine screw.....	std. hdwr.
32	bag of terminal and mounting hardware (flush mounting).....	1102 181
32	bag of terminal and mounting hardware (projection mounting).....	796 961

stator and coil style numbers

type of instrument	style number of part	
	stator	coil
single phase power factor	821 927	821 930
polyphase power factor	821 928	821 930
synchroscope	821 927	821 929

parts indented are included in the part under which they are indented

Δ not illustrated

■ when ordering, specify finish 22AA00