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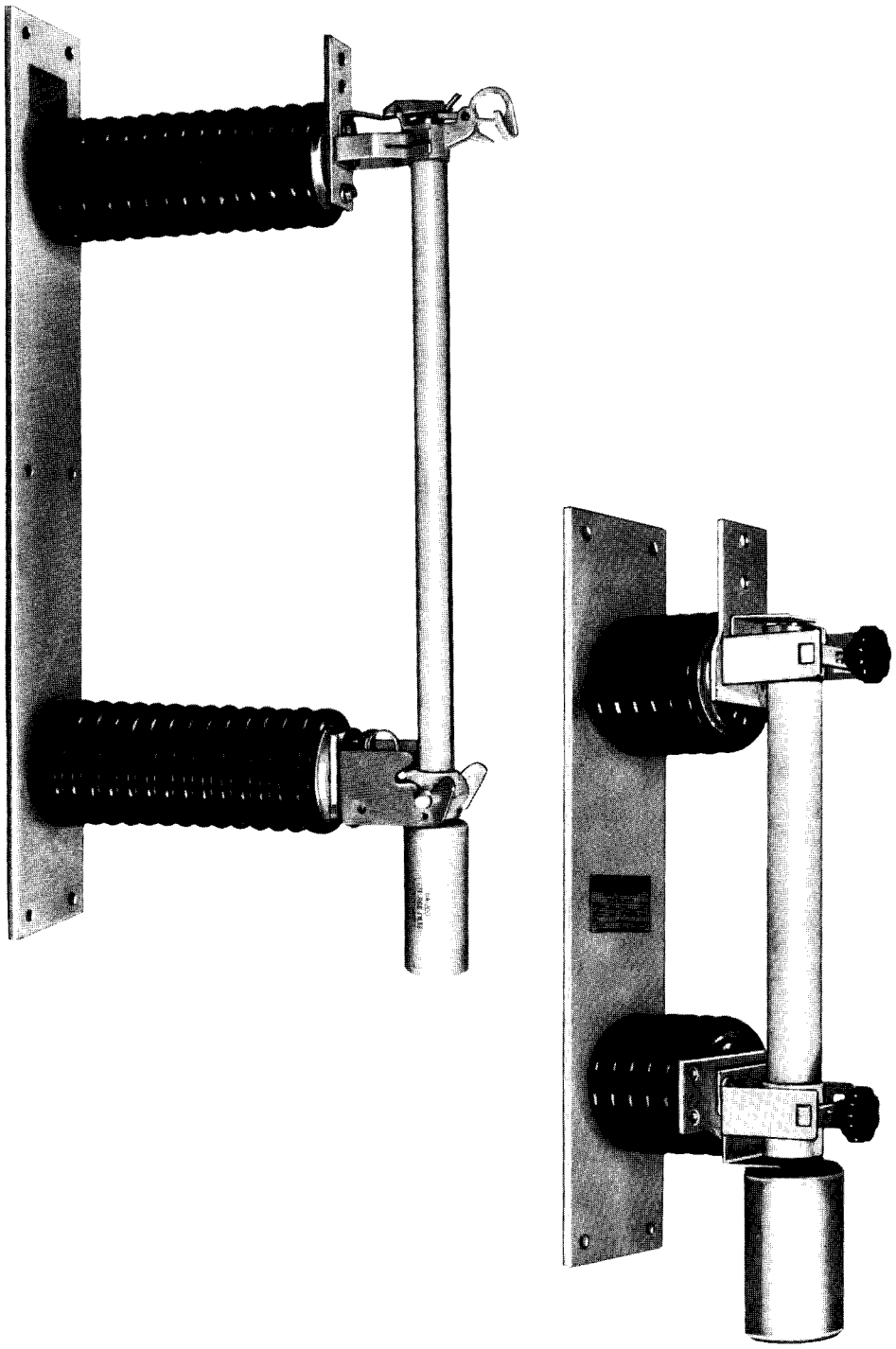
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Westinghouse Electric Corporation
Distribution and Control Business Unit
Pittsburgh, Pennsylvania, U.S.A. 15220

October 1990
Supersedes Descriptive Bulletin 36-634, pages 1-4, dated September 1981
Mailed to: E, D, C/36-600B

Indoor
4.8 to 34.5 KV

RB A Power Fuse
Refillable
Boric Acid



- High Interrupting Capacity
- Excellent Low Current Interrupting Capabilities
- Wide Variety of E-Ampere Fuse Ratings Available
- Attachments are Available for Fuse Operation in Totally Enclosed Cabinets, Limited Space or Indoor Installations.
- Fuse Refills Installed.with Ease
- Shunt Assembly Within Fuse Holder not Damaged by Fuse Operation
- Main Operational Parts can be Separately Purchased
- Fuse Refills Same as in ROB Outdoor Fuse

Application

Type RBA power fuses provide effective protection for circuits and equipment which operate on voltages from 2400 to 34,500 volts inclusive. They are applicable in utility and industrial power plants for indoor use. The fuses are designated for use on:

- Power Transformers
- Feeder Circuit Sectionalizing
- High Voltage Capacitors
- Pad Mounted Transformers

These fuses can also be used in combination with various types of load break switches to provide a non-auto matic load interrupter with high short circuit protection, or can be placed in fuse cabinets for indoor or outdoor use.

Comparison of Expulsion Fuse Interrupting Ratings

kV	Westinghouse	S&C
	RBA-200	SM-4
4.16	19000	17200
7.2	16600	17200
14.4	14400	12500
25.0	10500	9400
34.5	6900	6250
	RBA-400	SM-5
4.16	37500	37500
7.2	29400	28000
13.8	36000	34000
14.4	29400	25000
25.0	21000	20000
34.5	16800	17500

Above values are symmetrical amps.

Description

The indoor RBA fuse is available in the hookstick operated disconnect, or non-d isconnect type. The complete fuse consists of the following components (a) mounting, (b) fuse holder, (c) refill, (d) discharge filter or condenser.

- The RBA-200 series fuse refills are available in current ratings of 10E to 200E amperes (standard speed) and 20E to 200E (time lag)
- The RBA-400 series fuse refills are available in current ratings of 'hE to 400E amperes (standard speed) and 34.5 KV the maximum 'hE to 300E at 23.0 and 34.5 KV.
- The RBA-800 series parallels two RBA-400 fuse holders making available continuous current ratings of 450, 540, and 720 amperes. At 25.5 and 34.5 KV the available current ratings are 450 and 540 amperes. These ratings are obtained by using two 250E, 300E, or 400E ampere fuses in parallel and applying the derating factor 10% of the total.

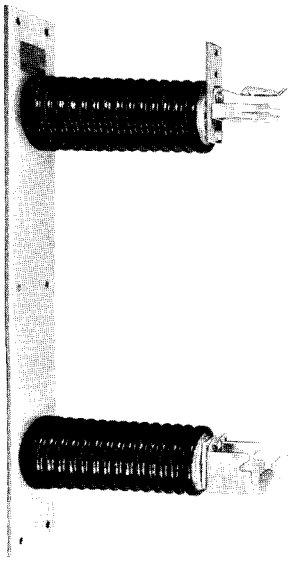
Mountings

Disconnect and Non-di sconnect are both available for the RBA indoor fuse.

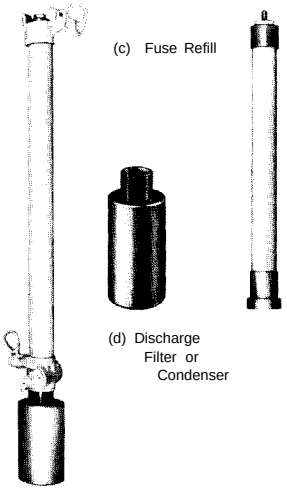
The RBA disconnect mounting is hookstick operable and allows ease of fuse replacement. Special disconnect mountings are available for use with a load break tool. Positive electrical connections are maintained at both ends of the mounting by the use of cadmium chromium copper spring fingers at the hinge end and clip type contacts on the break end. The spring fingers are compressed on closing of the fuse holder, the current path made directly from the terminal pad to the fingers and fuse holder. The upper end of the fuse holder is locked into position by a stainless steel latch.

A latch and gate assembly and a silicon bronze screw with a bakelite head assure stability and proper contact on the non-disconnect mounting.

The RBA-800 non-disconnect piggyback mounting utilizes a bolted connection between the terminal pad and fuse holder.



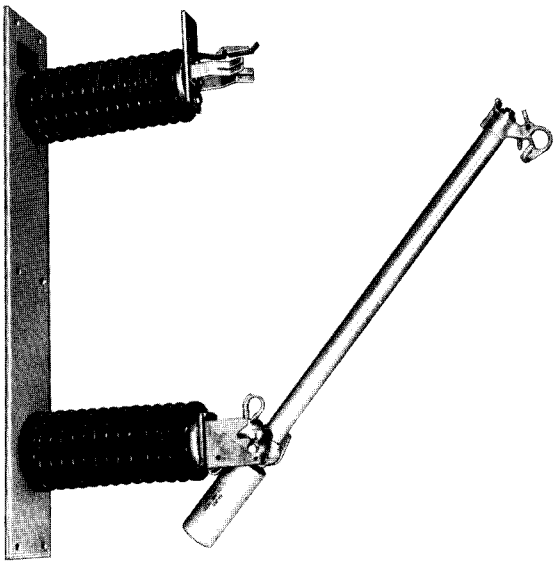
(a) Mounting



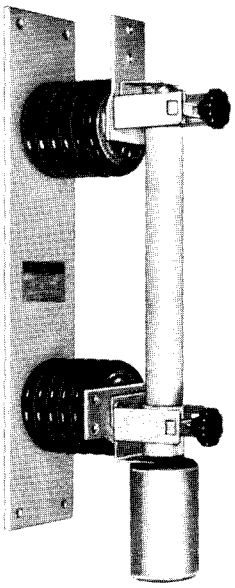
(b) Fuse Holder

(c) Fuse Refill

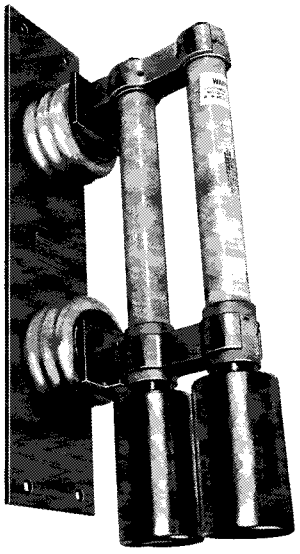
(d) Discharge Filter or Condenser



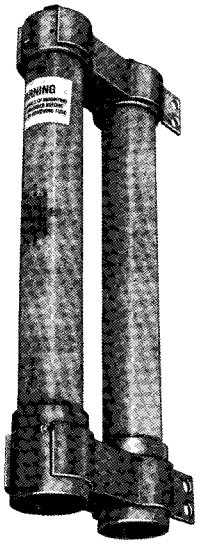
Disconnect Mounting



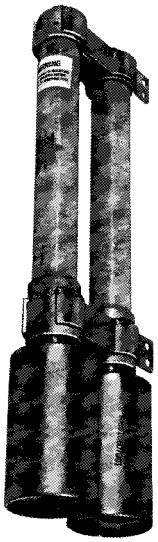
Non-Disconnect Mounting



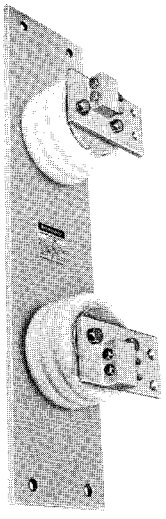
RBA-800
Non-Disconnect Mounting
Piggyback Mounting
with Fuse Holder,
Discharge Filters.



RBA-800
Non-Disconnect Fuse Holder



RBA-800
Non-Disconnect Fuse Holder
with Discharge Filters
(Piggyback)



RBA-800
Non-Disconnect Mounting
(Piggyback)

RBA Fuse Refills

The boric acid refill is designed to interrupt currents of short circuit magnitude within 'h cycle and through its two de-ionizing chambers in parallel, have selective operation and interruption for both low current and high current faults. Under fault conditions, the fuse element melts, the helical spring pulls the arcing rod and arc through the cylinder. Intense heat from the arc, as it strikes decomposes the dry boric acid. On decomposition, the boric acid forms water vapor and inert boric anhydride, which blasting through the arc, de-ionizes it. This prevents the arc from re-striking after a current zero. When a low current fault occurs, the main fuse and strain elements blow. The auxiliary fuse wire shorts out the main fuse and the arc is extinguished in the small bore. The arcing rod, drawing no arc moves to the open position by the spring action. A high fault current blows the main fuse and strain elements and transfers to the auxiliary fuse wire. In the small bore the arc creates a high voltage so it restrikes in the main bore. The arcing rod then draws the arc through the main bore where it is quickly extinguished. RBA fuse refills are ANSI 'E' rated having curves equivalent or interchangeable to competition.

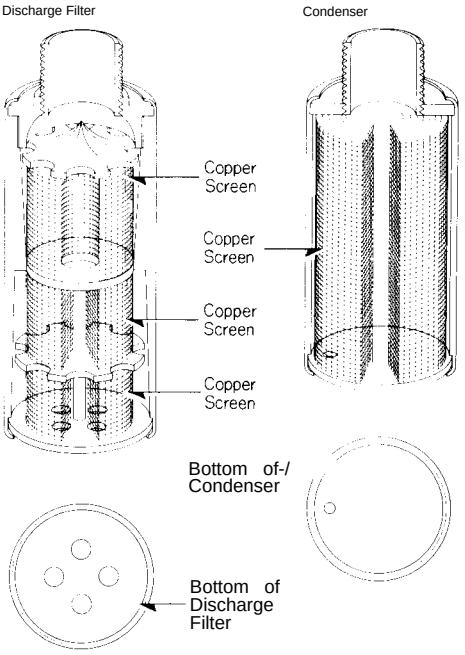
Discharge Filter-Condenser

In cases where installations clearances are small, the attachment of a discharge filter or condenser will minimize the noise and contain the arc within the fuse. The discharge filter and condenser are metallic containers with copper screen to absorb and dissipate arc heat and to condense the steam to water.

Although the inner and outer metals of the discharge filter and condenser are similar, the internal design and method of venting give the discharge filter a higher interrupting rating than the condenser. The condenser in its design fully restricts the discharge of steam lowering the interrupting rating.

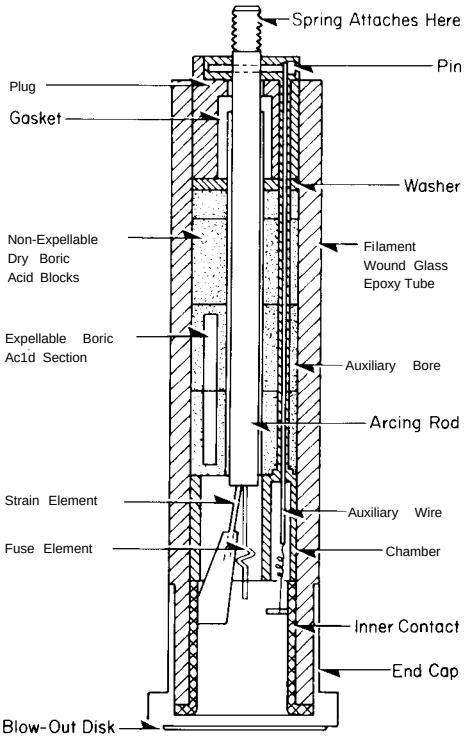
Fuse Holders

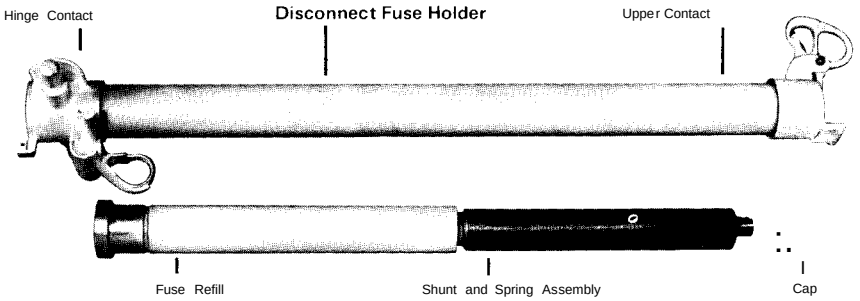
The RBA fuse holders are filament wound glass epoxy tubes which enclose the fuse and operating spring and shunt assembly. Non-disconnect RBA fuse holders are similar in design to the disconnect except for the main upper and lower contacts of the fuse holder tube.





Non-Disconnect Fuse Holder





RBA Interrupting Ratings

Voltage KV		With Discharge Fi lter			With Condenser		
Normal	Max	SymAmps	Asym Amps	3-Phase Sym MVA	SymAmps	AsymAmps	Sym-MVA 3-Phase
RBA-200	Design						
2.4	2.75	19000	30000	80	10000	16000	42
4.16	4.8	19000	30000	137	10000	16000	72
4.8	5.5	19000	30000	158	10000	16000	83
7.2	8.25	16600	26500	205	10000	16000	125
13.8	14.4	14400	23000	345	8000	12800	191
14.4	15.5	14400	23000	360	8000	12800	200
23.0	25.5	10500	16800	420 6300		10100	250
34.5	38.0	6900	11100	410	5000	8000	300
RBA-400 and RBA-800							
2.4	2.75	37500	60000	150	20000	32000	
			60000	270	20000	32000	144
4.16	4.8	37500	60000	310 20000		32000	166
7.2	8.25	29400	47000	365	16000	25600	200
13.8	14.4	29400	47000	700	12500	20000	
	15.5	29400	47000	730	12500	20000	300
14.4	25.5	21000	33500	840	10000	16000	302
34.5	38.0	16800	26800	1000	10000	16000	600

Table A, Continued: Standard RBA-RDB-200 Fuse Refill Minimum Order Quantity (3) (No Returns)

kV Rat1ng	Amps	Style Number	Ramad
34.5	25E	4230814A68	
			15302
Continued	30E	4230814A69	
			15303
	40E	4230814A70	
			15305
	50E	4230814A71	15311
	125E	4230814A75	15308
	65E	4230814A72	15313
	150E	4230814A76	15309 15318
	BOE	4230814A73	15317
	200E	4230814A78	15310
	100E	4230814A74	

Standard RBA-RDB-400 Fuse Refill Minimum Order Quantity (3) (No Returns)

kV Rat1ng	Amps	Style Number	Ramad
34.5	25E		15417
	30E	[illegible]	73793
Contmued	40E		73794
		4230815A85	73795
	50E		15418
		4230815A86	15419
	65E		15422
		4230815A87	15424
	80E	4230815A91	15426
	200E	[illegible]	15427
	[illegible]		15429
		[illegible]	15430+
	[illegible]	None	
	150E	4230815A90	

Table B: Time-Lag RBA-RDB-200 Fuse Refills (Min. Order Qty. 3) (No Return)

kV Rat1ng	Amps	Style Number	Ramad
J 7.2	20E	4490671A07	58544
	25E	4490671A08	58546
	30E	4490671A09	59098
	40E	4490671A10	59102
	50E	4490671A11	59104
	65E	4490671A12	15432
	80E	4490671 A 13	15433
	100E	4490671A14	59105
	125E	4490671A15	59108
	150E	4490671A16	59109
	200E	4490671 A 18	15434
14.4		4490671A27	15438
	20E	4490671A28	59110
	25E	4490671A29	15439
	30E	4490671A30	15442
	40E	4490671A31	15444
	50E	4490671A32	15446
	65E	4490671 A33	59112
	80E	4490671A34	15447
	100E	4490671A35	59113
	125E	4490671A36	59114
	150E	4490671A38	15449
	200E		
23.0	20E	4490671A47	59116
	25E	4490671A48	59118
	30E	4490671A49	59119
	40E	4490671A50	59120
	50E	4490671A51	59121
	65E	4490671A52	59122
	80E	4490671A53	59123
	100E	4490671A54	59125
	125E	4490671A55	59128
	150E	4490671A56	59129
	200E	4490671A58	59130
34.5	20E	4490671A67	
	25E		59131
	30E	4490671A68	
	40E		59133
	50E	4490671A69	
	65E		59134
	80E	4490671A70	
	100E		59137
	125E	4490671A75	59150
	150E	4490671A76	59151
	200E	4490671A78	59153
		4490671 A73	59140
		4490671A74	59144

Time-Lag RBA-RDB-400 Fuse Refills (Min. Order Qty. - 3) (No Return)

kV Rat1ng	Amps	Style Number	Ramad
J 7.2	20E		59154
		4490672A07	59156
	25E		59157
		4490672A08	59158
	30E		59159
		4490672A09	59160
	40E		59161
		4490672A 10	59162
	50E		59163
		4490672A11	15450
	65E		15451
		4490672A12	42307
	80E		42308
		4490672A13	42309
	100E		
14.4	20E	4490672A14	59164
	125E	4490672A32	59165
	25E	4490672A15	59166
	150E	4490672A33	59167
	30E	4490672A16	59170
	200E	4490672A34	59174
	40E	4490672A18	59178
	250E	[illegible]	59179
	[illegible]	4490672A19	59182
	300E	4490672A40	
	150E	4490672A36	59709
	65E	4490672A20	59711
	[illegible]	[illegible]	
	250E	4490672A37	42310
	80E	4490672A44	42312
	300E	[illegible]	42314
	100E	4490672A45	
23.0	20E	449D672A57	
			59713
	25E	4490672A58	
			59716
	80E	[illegible]	
			[illegible]
	65E	[illegible]	
		4490672A64	59718
	[illegible]	[illegible]	
			59720
	200E	4490672A66	59726
	250E	4490672A69	
		4490672A70	[illegible]
	300E		
34.5	20E	4490672A82	59727
	25E	4490672A83	59728
	30E	4490672A84	59729
	40E	4490672A85	59731
	50E	4490672A86	59732
	65E	4490672A87	
		4490672A88	59734
	100E	4490672A89	59735
	125E	4490672A90	59736
	150E	4490672A91	59738
	200E	4490672A93	59739
	250E	4490672A94	42319
	300E	4490672A95	42320

Use these refills for 2.5 and 4.8 kV.

Note: When refills are used in conjunction with RBA-RDB-800 fuse holders the E-ampere rat1ng must be derated by 10°o.

Westinghouse Electric Corporation
Distribution and Control Business Unit
Pittsburgh, Pennsylvania, U.S.A. 15220

Pnnted in U.S.A.

October 1990

Instructions for Replacing ABA Refills

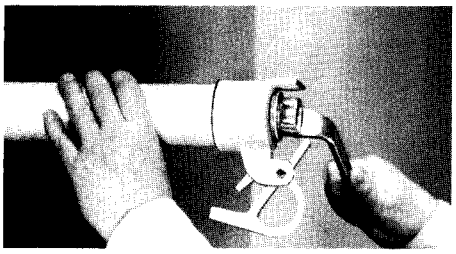


Figure 1

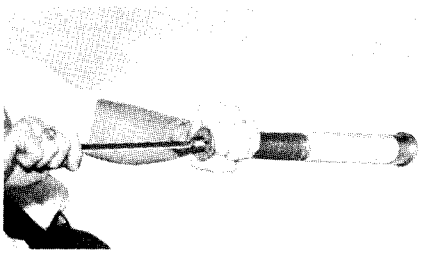


Figure4

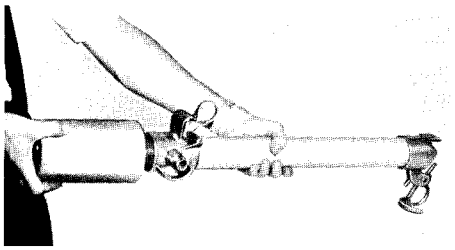


Figure 2

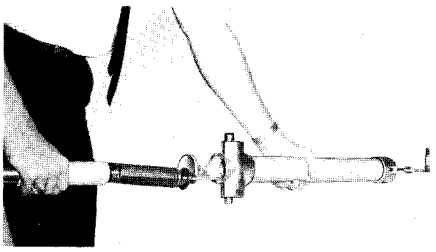


Figure 5

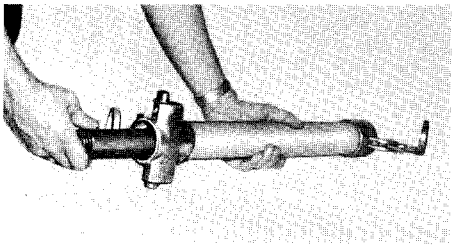


Figure3

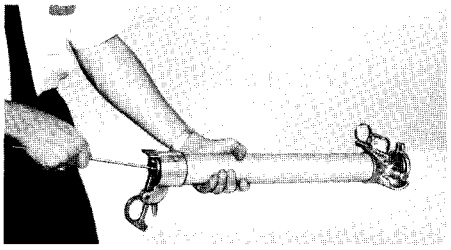


Figure 6

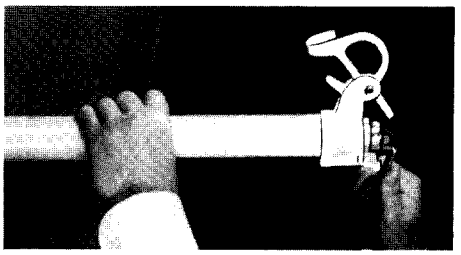


Figure 7

Step 1: Loosen cap nut with wrench and remove from top of fuse holder. (Fig. 1.)

Step 2: Unscrew discharge filter or condenser from bottom of fuse holder. (Fig. 2.)

Step 3: Remove shunt and spring assembly (Fig. 3), and unscrew used refill.

Step 4: Remove the thin plastic disc from the bottom of the fuse refill.
Screw new refill unit to the bottom of the spring and shunt assembly, hand tighten. (Fig. 4.) (Caution: Do not use any type of tool to tighten refill.) Screw refill tool into top of spring and shunt assembly, and slide complete unit into the fuse holder, (Fig. 5.)

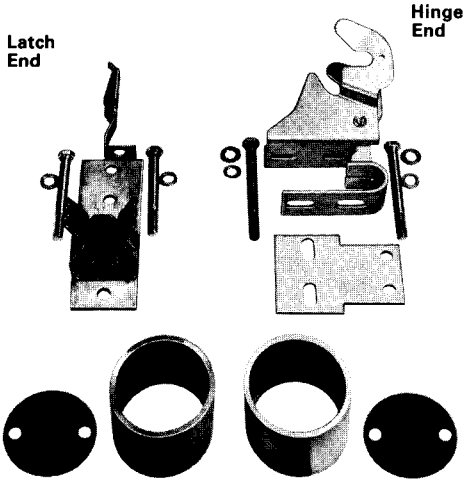
Step 5: Grasp refill tool, pull upward to stretch spring, turn assembly to right or left so that the pin at the top of the shunt assembly fits into slot provided at the top of the fuse holder (Fig. 6.) Remove tool, screw on cap nut and tighten with wrench (Fig. 7.)

Step 6: Screw discharge filter or condenser into bottom of fuse holder until it is tight, (Fig. 2) up against the fuse refill.

ABA Live Parts

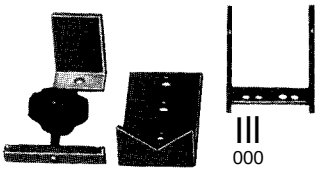
For existing mountings, the live parts above the insulators are available. This includes only hinge and break jaw assemblies, some of the available assemblies are shown.

ABA Disconnect Type

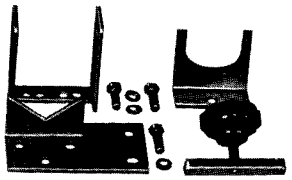


ABA Non-Disconnect Type

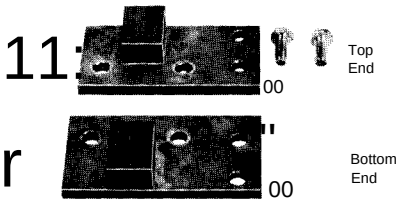
Top End



Bottom End



RBA-800 Non-Disconnect Type



RBA-800 Disconnect Type

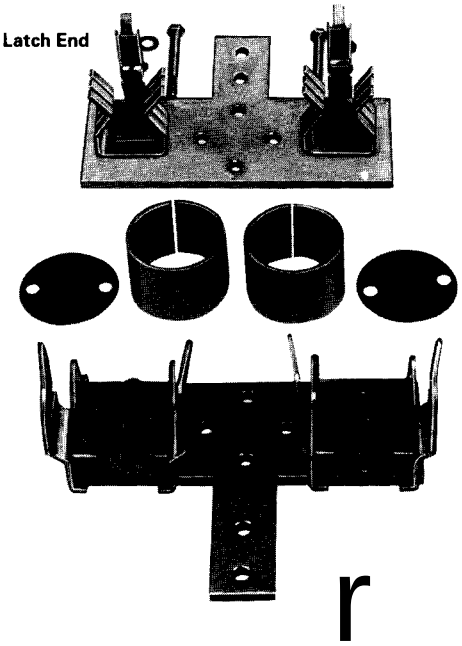


Table A: Standard RBA-RDB-200 Fuse Refill Minimum Order Quantity (3) (No Returns)

kV Rat1ng	Amps	Style Number	REJmc1d
y 7.2	',E	None	
	3E	None	
	5E	None	
	7E	None	
	10E	423D814A05	15239
	15E	423D814A06	15240
	20E	423D814A07	15242
	25E	423D814A08	15243
	30E	423D814A09	15244
	40E	423D814A10	15245
	50E	423D814A11	15246
	65E	423D814A 12	15247
	80E	423D814A13	15248
	1 OOE	423D814A 14	15250
	125E	423D814A15	15251
	150E	423D814A16	15252
	200E	423D814A18	15253
	. . . .	. . . .	
	. . . .	. . . .	
	. . . .	. . . .	
14.4	',E	None	
	3E	None	
	5E	None	
	7E	None	
	10E	423D814A25	15254
	15E	423D814A26	15255
	20E	423D814A27	15256
	25E	423D814A28	15259
	30E	423D814A29	15260
	40E	423D814A30	15261
	50E	423D814A31	15263
	65E	423D814A32	15264
	80E	423D814A33	15268
	1 OOE	423D814A34	15269
	125E	423D814A35	15271
	150E	423D814A36	15272
	200E	423D814A38	15276
	. . . .	. . . .	
	. . . .	. . . .	
	. . . .	. . . .	
23 0	',E	None	
	3E	None	
	5E		
		None None	
	10E	423D814A45	15277
	15E	423D814A46	15278
	20E	423D814A47	15279
	25E	423D814A48	15280
	30E	423D814A49	15284
	40E	423D814A50	15285
	50E	423D814A51	15286
	65E	423D814A52	15287
	BOE	423D814A53	15288
	100E	423D814A54	15292
	125E	423D814A55	15293
	150E	423D814A56	15294
	200E	423D814A58	15295
	. . . .	. . . .	
	. . . .	. . . .	
	. . . .	. . . .	
34 5	',E	None	
	3E		
		None	
	9E	None	
	10E	423D814A65	15296
	15E	423D814A66	73441
	20E	423D814A67	15297

Standard RBA-RDB-400 Fuse Refill Minimum Order Quantity (3) (No Returns)

kV Rating	Amps	Style Number	Ramad
7.2	,'2E	423D815A01	15319
	3E	423D815A02	15320
	5E	423D815A03	15324
	7E	423D815A04	15327
	10E	423D815A05	15332
	15E	423D815A06	15334
	20E	423D815A07	15335
	25E	423D815A08	15337
	30E	423D815A09	15340
	40E	423D81 5A 10	15341
	50E	423D815A11	15343
	65E	423D815A 12	15344
	80E	423D815A13	15348
	1 OOE	423D815A14	15351
	125E	423 D81 5A 15	15352
	150E	423D815A 16	15356
	200E	423D815A18	15358
	250E	423D815A19	15359
	300E	423D815A20	15360
	400E	423D815A22	15362
14 4	',E	423D815A26	15364
	3E	423D815A27	15367
	5E	423D815A28	15368
	7E	423D815A29	15369
	10E	423D815A30	15370
	15E	423D815A31	15371
	20E	423D815A32	15372
	25E	423D815A33	15375
	30E	423D815A34	15376
	40E	423D815A35	15377
	50E	423D815A36	15381
	65E	423D815A37	15383
	80E	423D815A38	15384
	IOOE	423D815A39	15385
	125E	423D815A40	15386
	150E	423D815A41	15388
	200E	423D815A43	15389
	250E	423D815A44	15391
	300E	423D815A45	15392
	400E	423D815A47	15394
23.0	',E	423D815A51	15396
	3E	423D815A52	73783
	5E	423D815A53	15397
	7E	423D815A54	46144
	10E	423D815A55	15398
	15E	423D815A56	73787
	20E	423D815A57	73788
	25E	423D815A58	15399
	30E	423D815A59	15400
	40E	423D815A60	15401
	50E	423D815A61	15402
	65E	423D815A62	15403
	80E	423D815A63	15404
	IOOE	423D815A64	15405
	125E	423D815A65	15406
	150E	423D815A66	15407
	200E	423D815A68	15408
	250E	423D815A69	15410
	300E	423D815A70	15412
	400E	None	
34.5	',E	423D815A76	15413
	3E	423D815A77	73789
	5E	423D815A78	15414
	7E	423D815A79	73790
	10E	423D815A80	73791
	15E	423D815A81	15416
	20E	423D815A82	73792

Use these refills for 2.4 and 4.9 kV.

Note: When refrlls are used rn conju nctton wtth RBA-RDB-800 fuse holders the E-ampere ratmg must be derated by 10"o

(Continued on Page 6)

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