



power  
circuit  
breakers

**outdoor oil circuit breakers**  
small • large: all ratings

price  
modifications

including standard reclosing equipment

**33-240**

page 1

**price modifications**

**all outdoor oil breakers**

prices apply only when sold with complete breaker

rule number	modification																	
1	For adding a 2-pole high-speed auxiliary switch to outdoor breaker..... <b>\$150</b>																	
2	For floodproof operating mechanism for outdoor breakers..... <b>add \$1100</b> per breaker																	
3	Galvanizing for outdoor frame-mounted breakers: of framework, conduit and mechanism housing only..... <b>add 10%</b> of breaker schedule of framework only..... ..... <b>add 5%</b> of breaker schedule																	
4	For oil tank heaters and control for outdoor breakers <b>add \$1800</b> for 3-pole frame or floor-mounted breaker																	
5	Single-pole and two-pole breakers. Add Rectox and accessories after applying percentage.																	
	<table><tr><th rowspan="2">description</th><th colspan="2">percent of 3-pole price</th></tr><tr><th>single pole</th><th>two pole</th></tr><tr><td>Types 144GC250, 144GC500 and 230GC500.....</td><td>100%</td><td>100%</td></tr><tr><td>Large outdoor breakers, 14.4-kv to 46-kv.....</td><td>65%</td><td>100%</td></tr><tr><td>Outdoor breakers, 69-kv.....</td><td>50%</td><td>90%</td></tr><tr><td>Outdoor breakers, 115-kv and larger.....</td><td>50%</td><td>80%</td></tr></table>	description	percent of 3-pole price		single pole	two pole	Types 144GC250, 144GC500 and 230GC500.....	100%	100%	Large outdoor breakers, 14.4-kv to 46-kv.....	65%	100%	Outdoor breakers, 69-kv.....	50%	90%	Outdoor breakers, 115-kv and larger.....	50%	80%
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6	extra creepage bushings To obtain the price of outdoor oil breakers with bushings having greater than standard creepage, add from table below to complete 3-pole breaker price.																	

breaker rating		standard creepage in.—min	creepage to be changed to in.—min	net price increase per 3-pole breaker
kv	bil			
14.4 (below 1000 mva)	125	11	17	\$ 150
14.4 (1000 mva and up)	170	17	23	350
23	170	17	23	350
34.5	200	26.5	35	390
46	250	35	48.5	940
69	350	48.5	66+	940
115	590	79	92	940
138	650	92	114	940
161	750	114	135	1125
230	900	135	200+	2250
345	1300	205	■	2250

+ maximum creepage 72 inches for special cases  
+ maximum creepage 200 inches for special cases  
■ refer to Westinghouse.

rule number	modification										
7	high altitude bushings For breakers 69 kv and below no extra charge for bushings suitable for use up to 10,000 feet. For breakers 115 kv and above price increase is as follows: <table><tr><th>kv</th><th>add</th></tr><tr><td>115</td><td>\$1575</td></tr><tr><td>138</td><td>1875</td></tr><tr><td>161</td><td>4125</td></tr><tr><td>230 and up</td><td>6900</td></tr></table> <b>note:</b> High altitude bushings will have a flashover at sea level no greater than standard bushings (this may mean being equipped with gaps).	kv	add	115	\$1575	138	1875	161	4125	230 and up	6900
kv	add										
115	\$1575										
138	1875										
161	4125										
230 and up	6900										
8	Interlocks Corey or Kirk interlock at. .... <b>\$225</b>										
9	terminals: clamp type, all ratings. .... <b>add \$ 75</b> per breaker expansion, 2000 amp and below. .... <b>add \$225</b> per breaker expansion, above 2000 amp. .... <b>add \$450</b> per breaker										
10	omission of oil— When quoting breakers without oil, omit at <b>\$0.27</b> per gallon.										
11	Auxiliary reservoir for pneumatic mechanism for oil breakers, reservoir on wheels. .... <b>\$500</b>										
12	Portable compressor and reservoir for pneumatic tank lifter. .... <b>\$850</b>										
13	single-pole reclosing Price three single-pole breakers from rule 5										
14	©Special finishes—outdoor breakers a. 144GC250, 144GC500, and 230GC500. .... <b>\$125</b> per breaker b. Other 14.4-kv to 69-kv (incl.)... <b>250</b> per breaker c. GM, 115-kv to 161-kv (incl.)... <b>375</b> per breaker d. 230-kv. .... <b>500</b> per breaker e. 345-kv. .... <b>750</b> per breaker ©Refer to Trafford before quoting.										
15	Extra heater with thermostat for solenoid mechanism housing. .... <b>\$100</b>										

May 15, 1964

supersedes price modifications 33-240 dated December 6, 1963  
mailed to: E/1139/PL; D/811/PL

prices effective May 6, 1964; subject to change without notice



**price modifications . all outdoor oil breakers**

rule number	modification
<b>16</b>	440-volt control for pneumatic mechanism— Single-phase auto-transformer.....\$100 3-phase autotransformer with 3-phase motor .....\$200
<b>17</b>	3-phase motor for pneumatic mechanism 230/115-volt.....\$125
<b>18</b>	Time meter for compressor of pneumatic mechanism.....\$100
<b>19</b>	capacitor switching Only breakers listed in TD 33-063, page 4, are suitable for capacitor switching as indicated. reinforced grids..... <b>no charge</b> resistor grids.....\$1490

rule number	modification
<b>20</b>	<p><b>bushing current transformers and linear couplers</b></p> <p>All breakers 14.4 kv, 1000 mva and above, and all ratings 23 kv and up, except 230GC500 include six relaying transformers in the base price.</p> <p><b>omission:</b> If a smaller number is required, refer to Headquarters for approval. If approved, omission will be shown at the price shown in the table.</p> <p><b>addition:</b> If more than six transformers per breaker are required, on Headquarters approval additional units will be supplied at the prices listed in the table. Not more than a total of twelve transformers of any type and/or linear couplers may be mounted in any one breaker.</p> <p><b>substitution:</b> Linear couplers or metering transformers may be substituted for relaying transformers. Omit relaying transformers at full price shown in the table and add linear couplers or metering transformers at full price in equal quantities only.</p> <p>♦ 345 kv may have 18 total.</p>

breaker ratings		relay type set of 3	metering type◇		linear coupler set of 3
kv	amps		set of 2+	set of 3+	
list price per set					

**bushing current transformer and linear coupler**

14.4 (500 mva & below)	1200/5 4000/5	\$ 360 700	\$ 470 470	\$ 700 700	\$ 360 700
14.4-46	2000/5	405	540	810	405
14.4	4000/5	1215	1000	1500	1215
34.5	3000/5	810	810	1215	810
69	2000/5	810	1080	1620	810
115-138	all	1620	1360	2040	1620
161	all	2040	1620	2430	2040
230	all	2850	2700	4050	2850
345	all	3000	4000	6000	3000

**note 1:** For prices of current transformers for obsolete breakers, refer to Headquarters.

**note 2:** For prices for linear couplers for competitive bushings, refer to Headquarters, giving diameter of bushing and case and height of case.

◇ Price based on breaker current rating.

+ Prices are for **standard** metering accuracy bushing current transformers, which shall be considered to be those which are single ratio, having minimum ratio of 300-5 and having accuracy classification as outlined in NEMA standards SG4-1954 and in descriptive bulletin 33-356.

For prices of **special metering bushing current transformers** (higher accuracy, or double ratio, or ratios below 300-5) refer to Trafford headquarters

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page 3

rule number	modification	rule number	modification		
21	special tests—These tests are of a development nature and are to be discouraged on customer's orders.				
type of test		up to and including 69 kv	115 kv 138 kv 161 kv	230 kv	345 kv
a. 60 cycle high potential test, dry only (witness or report) . . . . .		\$ 180	\$ 240	\$ 350	\$ 320
b. Wet and dry high potential test . . . . .		495	665	1150	1175
c. Wet test, one bushing . . . . .		165	295	400	490
△ d. Impulse test on 1-pole unit of a breaker, 1½ x 40 positive wave . . . . .		1590	3540	4000	4700
e. Impulse test on one bushing . . . . .		575	1150	920	1175
f. Power factor test on a breaker . . . . .		265	265	265	320
g. Millivolt drop witness or report test . . . . .		120	120	120	130
h. Heat run—single-pole . . . . . 1200 amps		900	1150	2125	1925
2000 & 3000 amps		1150	1350	2300	
4000 & 5000 amps		1150			
◆ Heat-run—three-pole . . . . . 600 & 1200 amps		1150	1800	4250	4500
2000 & 3000 amps		1475	1800	4675	
4000 & 5000 amps		1800			
i. Timing tests, witness or report—Cycle counter or travel recorder . . . . .		270	400	840	2350
Oscillograph . . . . .		840	1000	1475	1925
j. Interrupting capacity (single-pole except for common tank breakers) . . . . .		12375	13775	18000	15800
▲ k. Momentary or 4-second test, one pole . . . . .		1800	2625	3475	3475
l. Bushing-type current transformer saturation . . . . .		170	170	170	160
m. Ratio and phase angle curves per transformer, one ratio, one burden . . . . .		200	200	200	175
n. Overcurrent ratio and phase angle curves—one multiratio CT . . . . .		1475	1475	1475	1575
o. Life test on a breaker up to 500 mechanism operations . . . . .		750	1000	1350	1575
△ Except for single tank breakers only, this will be a three-pole test.					
◆ For single-tank breakers, use 3-pole heat run prices only.					
▲ Prices under (k) assume that the purchaser is also having an interrupting test made on the breaker. If there is no combination test, add \$2500 to the prices given in (k).					

**relay and meter equipments specifications**

<b>22</b>	<b>standard package</b>	
	relay cabinet	3—Miniature ammeters, type RA-351 (5-amp full scale), or 1 RA-351 ammeter and switch.
	1—Reclosing relay (3 reclosures), type RC.	1—Type W control switch and lamps.
	3—Relays, overcurrent S.P., drawout, induction type arranged for d-c trip, with instantaneous attachment, if necessary, type CO.	—Necessary small wiring.
		List selling price . . . . . \$1750
		Add 1—ground CO relay . . . . . 230
	note: This may be added to any outdoor power circuit breakers for total price of reclosing breaker equipment.	
	<b>special cabinets, relays, meters, and instruments</b>	
<b>23</b>	Special relay cabinet (to be added if equipment varies from standard package under rule 24). \$500	<b>26</b> Overcurrent relay, type CO, single-phase (device no. 51) . . . . . \$230
		Overcurrent ground relay, type CO, (device no. 51 N) . . . . . 230
<b>24</b>	Type F cabinet with panel . . . . . \$500	<b>27</b> Directional overcurrent relay equipment, 3-phase, consisting of 3 directional overcurrent relays, type CR or 3 overcurrent relays, type CO and a power directional relay, type H-3 (includes MG-6 relay) (device no. 67) . . . . . \$1250
<b>25</b>	Reclosing relay	<b>28</b> Directional overcurrent ground relay (device no. 67 N) including auxiliary potential transformer, three-phase . . . . . \$925
	Type RC three-shot adjustable relay (device no. 179) . . . . . \$690	
	Type SGR-1 recloser . . . . . 300	
	Type SGR-12 recloser . . . . . 450	



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rule number	modification	rule number	modification
<b>special cabinets, relays, meters and instruments</b>			
<b>29</b>	A-c trip capacitor, or current trip for use with circuit opening relays, or tripping transformers, or direct trip attachments.....\$480	<b>38</b>	Reactive volt-ampere meter, indicating.....\$475
<b>30</b>	Voltage relay, under or overvoltage (device no. 27 or 59) single phase (CV relay).....\$230	<b>39</b>	Thermal demand ammeter, single-phase miniature.....\$225
<b>31</b>	Differential relay equipment with standard relays (device 87) For two-winding transformers.....\$1750 For three-winding transformers.....2700 Auxiliary relay and autotransformers included when required.	<b>40</b>	Thermal demand ammeter, Triplex, Therm Co. type 3 AD.....\$430
<b>32</b>	Auxiliary relays Light-duty, instantaneous, self-reset.....\$100 Heavy-duty, instantaneous or time-delay, hand or self-reset.....300	<b>41</b>	Watt-hour meters and test blocks— Single-phase.....\$330 2 elements, for 3-phase, 3-wire circuits.....330 2½ or 3 elements, for 3-phase, 4-wire circuits 425
<b>33</b>	Control switch with or without indicating lamps (device no. 101).....\$90	<b>42</b>	Demand register for watt-hour meters.....\$100
<b>34</b>	Tripping battery and charger,* 24 volt d-c pasted plate \$1250+ 48 volt d-c pasted plate 1450+ 48 volt d-c plante type 1600+ *Includes separate weatherproof cabinet. *50 amp discharge rate to 1.75 volts/cell.	<b>43</b>	Time meter (miniature).....\$100
<b>35</b>	Miniature ammeters or voltmeters (single-phase).....\$70	<b>44</b>	Drill and wire for single-phase meter, relay or instrument.....\$50
<b>36</b>	Ammeter or voltmeter and transfer switch....\$210	<b>45</b>	Drill and wire for 3-phase, or 3-element meter, relay or instrument.....\$140
<b>37</b>	Indicating wattmeter.....\$375	<b>46</b>	Test blocks only (when supplied with drilling and wiring for relay) 6 points maximum each.....\$80
		<b>47</b>	S.P.S.T. knife switch.....\$40
		<b>48</b>	Special relays, instruments etc., not listed above, refer to price list 32-220.