



# TRI-PAC\* circuit breakers

## current limiting protectors for lighting, distribution and power circuits

15 to 600 amperes • 600 V a-c, 250 V d-c  
interrupting capacity 100,000 sym rms amperes

application data

29-161

page 1

### general information

The increase in demand for electrical power in modern commercial and industrial buildings has resulted in electrical services becoming substantially larger. In many low voltage distribution systems, available short circuit currents as high as 100,000 symmetrical rms amperes are common. Obviously, fault currents of this intensity exceed the interrupting ratings of even the largest molded case breakers. As a result, larger expensive circuit interrupting devices which could withstand the thermal and magnetic stresses associated with currents of this value have had to be used.

Short circuit current limitation can be achieved by adding impedance to the circuit, such as high impedance transformers or current limiting reactors. However, this means often has the disadvantages of constant power loss, unsatisfactory regulation, and greater overall cost.

Now, high interrupting capacity current limiting devices have been developed which will restrict short circuit current. If applied correctly, they may be used in conjunction with the molded case circuit breakers to provide adequate and economical protection. Because of this fact, Westinghouse developed the TRI-PAC breaker, so named because it affords TRiple-PACkage protection with (1) time delay thermal trip, (2) instantaneous magnetic trip, and (3) current limiting protection, combined and coordinated in a compact and economical device. These protective actions are so coordinated that overcurrents and low magnitude faults are cleared by the thermal action; normal short circuits are cleared by the magnetic action; and abnormal short circuits, above an established value, are cleared by the current limiting device. Thus, it can be seen that unless a severe short circuit occurs, the current limiter is unaffected and its replacement is held to a minimum.

Tripped status of the breaker is shown by the center handle "trip" position. In addition the cause of tripping is also indicated in the following ways:

- (1) If after tripping the breaker cannot be reset immediately, thermal tripping due to an overload or a high resistance fault is indicated.
- (2) If the breaker can be immediately reset a "normal" fault current has been interrupted by instantaneous magnetic action.
- (3) If the TRI-PAC cannot be reset, then high fault current interruption by the current limiter has taken place.

In the latter case, one or more new limiters must be installed. Since these devices are especially designed for use with TRI-PAC breakers, they can be purchased only from Westinghouse.

TRI-PAC breakers are built to the same exacting design standards and methods as used with standard molded case breakers. They are available in the F, K, KL and L frame sizes (100, 225, 400 and 600 amperes respectively) which provide continuous current ratings from 15 through 600 amperes. TRI-PAC breakers are designed for operation on a-c systems up to 600 volts and d-c systems up to 250 volts. All have an interrupting rating of 100,000 symmetrical rms amperes a-c or 100,000 amperes d-c. The above ratings have been proven by thorough testing at the Westinghouse High Power Laboratories at East Pittsburgh, Pennsylvania.

Basically, the circuit breaker portion of the TRI-PAC breaker is of the same design as a standard molded case breaker of comparative ampere rating, with a special housing added for the current limiting device. Specially designed current limiters located within this housing are provided with plug-in stabs which engage in "tulip" type contacts in the breaker base. These devices are held in the housing in such a way that all the limiters are pulled out simultaneously when the cover is removed. Removing this cover also provides a visible disconnecting means. An interlock is provided which insures the opening of the breaker contacts before the limiter housing can be removed. Each current limiting device is constructed with a spring loaded plunger which is ejected during the operation, initiating simultaneous opening of all poles of the breaker. Therefore, the possibility of single phasing is eliminated.

The TRI-PAC breaker has many advantages over other means of high current fault protection. To mention a few, the TRI-PAC breaker . . .

- (1) Provides complete protection in one compact device.
- (2) Prevents the use of improper fuses.
- (3) Averts single phasing.
- (4) Provides visible disconnecting means.
- (5) Saves space.
- (6) Installed cost is generally lower.
- (7) Gives an indication of the magnitude of the overcurrent.
- (8) Is thoroughly tested.

Thus, in the TRI-PAC breaker all the advantages of the economical molded case breaker and the current limiter are retained, while the disadvantages of separately mounted devices are eliminated.

### In this application data:

| subject   | page |
|---|------|
| selection guide . . . . .                           | 2    |
| characteristic tripping curves . . . . .            | 2    |
| type F TRI-PAC breakers . . . . .                   | 3    |
| type K and KL TRI-PAC breakers . . . . .            | 4    |
| type L TRI-PAC breakers . . . . .                   | 5    |
| basic application in distribution systems . . . . . | 6    |
| in panelboards . . . . .                            | 7    |
| in switchboards or substations . . . . .            |      |
| in control centers . . . . .                        |      |
| in bus duct distribution systems . . . . .          | 7    |
| protection of connected apparatus . . . . .         | 7    |
| calculation of fault currents . . . . .             | 7    |
| tables . . . . .                                    | 8-12 |



**basic application in distribution systems**

There are three basic applications for TRI-PAC circuit breakers. Certain procedures outlined in the following paragraphs **must** be followed in these applications to insure safe, well coordinated, and soundly engineered systems.

figure 1

**(I) individual TRI-PAC breakers in distribution systems:**



**table I range of adjustable magnetic trip for type K, KL and L TRI-PAC circuit breakers**

**types K and KL**

**type L**

| trip unit rating<br>amperes | low magnetic<br>range $\pm 25\%$ | high magnetic<br>range $\pm 10\%$ | trip unit rating<br>amperes | low magnetic<br>range $\pm 25\%$ | high magnetic<br>range $\pm 10\%$ |
|-----------------------------|----------------------------------|-----------------------------------|-----------------------------|----------------------------------|-----------------------------------|
| 125                         | 400                              | 1250                              | 125                         | 450                              | 1250                              |
| 150                         | 500                              | 1500                              | 150                         | 500                              | 1500                              |
| 175                         | 500                              | 1750                              | 175                         | 550                              | 1750                              |
| 200                         | 600                              | 2000                              | 200                         | 600                              | 2000                              |
| 225                         | 600                              | 2250                              | 225                         | 650                              | 2250                              |
| 250                         | 700                              | 2500                              | 250                         | 700                              | 2500                              |
| 300                         | 800                              | 3000                              | 300                         | 800                              | 3000                              |



**table VII fault current available (symmetrical rms amperes) 240 volts a-c<sup>(1)</sup>**

| kva<br>rating of<br>transformer | conductor<br>size<br>per phase | distance from transformer to point of fault—feet |        |        |        |        |        |        |       |       |
|---------------------------------|--------------------------------|--|--------|--------|--------|--------|--------|--------|-------|-------|
|                                 |                                | 0  | 5      | 10     | 20     | 50     | 100    | 200    | 500   | 1,000 |
| 150                             | # 4                            | 9,980  | 9,520  | 9,000  | 8,000  | 5,580  | 3,440  | 1,900  | 800   | 400   |
|                                 | # 0                            | 9,980  | 9,700  | 9,450  | 9,000  | 7,600  | 5,850  | 3,900  | 1,800 | 950   |
|                                 | 250 MCM                        | 9,980  | 9,820  | 9,660  | 9,350  | 8,500  | 7,220  | 5,550  | 3,200 | 1,900 |
|                                 | 2—250 MCM                      | 9,980  | 9,900  | 9,800  | 9,650  | 9,200  | 8,400  | 7,200  | 4,900 | 3,200 |
| 225                             | # 4                            | 14,940   | 13,800 | 12,800 | 10,600 | 6,500  | 3,800  | 2,000  | 800   | 450   |
|                                 | # 0                            | 14,940   | 14,500 | 14,000 | 12,900 | 10,100 | 7,100  | 4,300  | 2,000 | 1,000 |
|                                 | 250 MCM                        | 14,940   | 14,600 | 14,300 | 13,600 | 11,800 | 9,500  | 6,800  | 3,500 | 1,800 |
|                                 | 2—250 MCM                      | 14,940   | 14,700 | 14,500 | 14,300 | 13,200 | 11,700 | 9,400  | 6,000 | 3,500 |
| 300                             | 2—500 MCM                      | 14,940   | 14,800 | 14,700 | 14,500 | 13,600 | 12,500 | 10,600 | 7,500 | 5,000 |
|                                 | # 4                            | 19,970   | 18,000 | 16,000 | 12,700 | 7,000  | 4,000  | 2,000  | 800   | 400   |
|                                 | # 0                            | 19,970   | 19,100 | 18,100 | 16,200 | 11,800 | 7,800  | 4,500  | 2,000 | 1,000 |
|                                 | 250 MCM                        | 19,970   | 19,300 | 18,700 | 17,500 | 14,500 | 11,200 | 7,500  | 3,600 | 2,000 |
| 500                             | 2—250 MCM                      | 19,970   | 19,500 | 19,300 | 18,700 | 17,000 | 14,500 | 11,200 | 6,400 | 3,600 |
|                                 | 2—500 MCM                      | 19,970   | 19,600 | 19,400 | 19,000 | 17,600 | 15,600 | 13,000 | 8,200 | 5,200 |
|                                 | # 4                            | 33,100   | 28,000 | 22,900 | 15,900 | 7,800  | 4,200  | 2,200  | 900   | 500   |
|                                 | # 0                            | 33,100   | 30,800 | 28,000 | 23,100 | 14,800 | 9,000  | 4,900  | 2,000 | 1,000 |
| 500                             | 250 MCM                        | 33,100   | 31,500 | 30,000 | 27,000 | 20,300 | 14,200 | 8,800  | 4,000 | 2,000 |
|                                 | 2—250 MCM                      | 33,100   | 32,300 | 31,400 | 29,800 | 25,300 | 20,100 | 14,000 | 7,000 | 3,900 |
|                                 | 2—500 MCM                      | 33,100   | 32,600 | 32,000 | 30,700 | 22,200 | 22,500 | 17,000 | 9,600 | 5,500 |

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page 11

**table VIII** fault current available (symmetrical rms amperes) 480 volts a-c<sup>ⓐ</sup>

| kva<br>rating of<br>transformer | conductor<br>size<br>per phase | distance from transformer to point of fault—feet |        |        |        |        |        |        |        |        |
|---------------------------------|--------------------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|
|                                 |                                | 0  | 5      | 10     | 20     | 50     | 100    | 200    | 500    | 1,000  |
| 150                             | # 4                            | 4,990  | 4,930  | 4,880  | 4,770  | 4,420  | 3,800  | 2,800  | 1,480  | 790    |
|                                 | # 0                            | 4,990  | 4,940  | 4,920  | 4,880  | 4,700  | 4,400  | 3,850  | 2,650  | 1,680  |
|                                 | 250 MCM                        | 4,990  | 4,960  | 4,930  | 4,910  | 4,800  | 4,600  | 4,250  | 3,350  | 2,500  |
|                                 | 2—250 MCM                      | 4,990  | 4,970  | 4,940  | 4,920  | 4,900  | 4,800  | 4,600  | 4,050  | 3,350  |
| 225                             | # 4                            | 7,470  | 7,380  | 7,240  | 7,000  | 6,140  | 4,880  | 3,300  | 1,600  | 840    |
|                                 | # 0                            | 7,470  | 7,400  | 7,320  | 7,200  | 6,800  | 6,200  | 5,100  | 3,180  | 1,860  |
|                                 | 250 MCM                        | 7,470  | 7,420  | 7,360  | 7,300  | 7,040  | 6,640  | 5,900  | 4,400  | 3,000  |
|                                 | 2—250 MCM                      | 7,470  | 7,440  | 7,400  | 7,350  | 7,220  | 7,000  | 6,600  | 5,580  | 4,300  |
|                                 | 2—500 MCM                      | 7,470  | 7,460  | 7,450  | 7,400  | 7,300  | 7,100  | 6,800  | 6,000  | 5,000  |
| 300                             | # 4                            | 9,985  | 9,800  | 9,600  | 9,100  | 7,600  | 5,600  | 3,560  | 1,620  | 840    |
|                                 | # 0                            | 9,985  | 9,840  | 9,750  | 9,520  | 8,800  | 7,650  | 5,900  | 3,400  | 1,920  |
|                                 | 250 MCM                        | 9,985  | 9,880  | 9,800  | 9,660  | 9,240  | 8,500  | 7,300  | 5,000  | 3,240  |
|                                 | 2—250 MCM                      | 9,985  | 9,920  | 9,825  | 9,790  | 9,580  | 9,200  | 8,450  | 6,800  | 5,020  |
|                                 | 2—500 MCM                      | 9,985  | 9,950  | 9,850  | 9,800  | 9,660  | 9,400  | 8,820  | 7,500  | 5,880  |
| 500                             | # 4                            | 16,550   | 16,000 | 15,400 | 14,000 | 10,250 | 6,800  | 3,800  | 1,600  | 800    |
|                                 | # 0                            | 16,550   | 16,200 | 15,950 | 15,250 | 13,250 | 10,500 | 7,400  | 3,500  | 1,900  |
|                                 | 250 MCM                        | 16,550   | 16,300 | 16,050 | 15,700 | 14,500 | 12,700 | 10,000 | 5,900  | 3,500  |
|                                 | 2—250 MCM                      | 16,550   | 16,350 | 16,250 | 16,100 | 15,450 | 14,400 | 12,500 | 9,000  | 6,000  |
|                                 | 2—500 MCM                      | 16,550   | 16,400 | 16,350 | 16,300 | 15,700 | 14,800 | 13,400 | 10,500 | 7,500  |
| 750                             | # 4                            | 20,450   | 19,700 | 18,700 | 16,800 | 11,700 | 7,500  | 4,000  | 1,600  | 800    |
|                                 | # 0                            | 20,450   | 20,000 | 19,500 | 18,700 | 16,000 | 12,400 | 8,100  | 3,800  | 2,000  |
|                                 | 250 MCM                        | 20,450   | 20,200 | 19,800 | 19,250 | 17,500 | 15,000 | 11,500 | 6,600  | 3,800  |
|                                 | 2—250 MCM                      | 20,450   | 20,250 | 20,200 | 19,700 | 19,000 | 17,500 | 15,000 | 10,500 | 6,600  |
|                                 | 2—500 MCM                      | 20,450   | 20,400 | 20,250 | 19,900 | 19,300 | 18,200 | 16,300 | 12,000 | 8,400  |
| 1,000                           | # 4                            | 27,200   | 26,000 | 24,200 | 21,000 | 13,400 | 7,900  | 4,400  | 1,800  | 800    |
|                                 | # 0                            | 27,200   | 26,700 | 25,900 | 24,300 | 20,000 | 14,400 | 9,000  | 4,100  | 2,200  |
|                                 | 250 MCM                        | 27,200   | 26,900 | 26,400 | 25,300 | 22,400 | 18,600 | 13,600 | 7,200  | 4,000  |
|                                 | 2—250 MCM                      | 27,200   | 27,000 | 26,700 | 26,200 | 24,500 | 22,200 | 18,500 | 12,100 | 7,200  |
|                                 | 2—500 MCM                      | 27,200   | 27,100 | 26,800 | 26,500 | 25,300 | 23,300 | 20,300 | 14,500 | 9,500  |
| 1,500                           | # 4                            | 40,050   | 37,000 | 33,100 | 26,000 | 14,400 | 8,200  | 4,000  | 1,400  | 600    |
|                                 | # 0                            | 40,050   | 38,800 | 36,800 | 33,200 | 24,500 | 16,000 | 9,200  | 4,000  | 2,000  |
|                                 | 250 MCM                        | 40,050   | 39,100 | 37,800 | 35,600 | 29,900 | 23,000 | 15,200 | 7,500  | 4,000  |
|                                 | 2—250 MCM                      | 40,050   | 39,600 | 39,000 | 37,900 | 34,100 | 29,000 | 22,500 | 13,000 | 7,400  |
|                                 | 2—500 MCM                      | 40,050   | 39,700 | 39,200 | 38,200 | 35,500 | 31,600 | 25,900 | 16,400 | 10,100 |
| 2,000                           | # 4                            | 52,800   | 47,400 | 40,700 | 30,000 | 15,100 | 8,200  | 4,200  | 1,900  | 1,000  |
|                                 | # 0                            | 52,800   | 50,200 | 47,000 | 41,200 | 28,000 | 17,000 | 9,700  | 4,200  | 2,400  |
|                                 | 250 MCM                        | 52,800   | 51,000 | 49,000 | 45,400 | 36,200 | 26,500 | 16,500 | 8,000  | 4,200  |
|                                 | 2—250 MCM                      | 52,800   | 51,800 | 50,900 | 48,900 | 43,100 | 36,000 | 26,700 | 14,000 | 8,000  |
|                                 | 2—500 MCM                      | 52,800   | 52,100 | 51,300 | 49,900 | 45,100 | 39,200 | 30,800 | 18,500 | 11,000 |

ⓐ The current values are maximum values attainable from liquid filled transformers with a nominal impedance of 4½ % up to and including 500 kva, and 5½ % impedance beyond 500 kva.

WWW



**TRI-PAC circuit breakers**  
current limiting protectors  
for lighting, distribution and power circuits

**table IX** fault current available (symmetrical rms amperes) 600 volts a-c<sup>①</sup>

| kva<br>rating of<br>transformer | conductor<br>size<br>per phase | distance from transformer to point of fault—feet |        |        |        |        |        |        |        |       |
|---------------------------------|--------------------------------|--|--------|--------|--------|--------|--------|--------|--------|-------|
|                                 |                                | 0  | 5      | 10     | 20     | 50     | 100    | 200    | 500    | 1,000 |
| 150                             | # 4                            | 3,990  | 3,950  | 3,910  | 3,850  | 3,670  | 3,340  | 2,710  | 1,640  | 960   |
|                                 | # 0                            | 3,990  | 3,960  | 3,930  | 3,880  | 3,820  | 3,670  | 3,360  | 2,600  | 1,850 |
|                                 | 250 MCM                        | 3,990  | 3,970  | 3,950  | 3,910  | 3,860  | 3,780  | 3,580  | 3,080  | 2,430 |
|                                 | 2—250 MCM                      | 3,990  | 3,980  | 3,970  | 3,940  | 3,910  | 3,860  | 3,760  | 3,480  | 3,100 |
| 225                             | # 4                            | 5,980  | 5,920  | 5,870  | 5,740  | 5,300  | 4,610  | 3,500  | 1,880  | 1,010 |
|                                 | # 0                            | 5,980  | 5,940  | 5,900  | 5,850  | 5,640  | 5,300  | 4,700  | 3,280  | 2,100 |
|                                 | 250 MCM                        | 5,980  | 5,950  | 5,920  | 5,890  | 5,760  | 5,550  | 5,150  | 4,180  | 3,090 |
|                                 | 2—250 MCM                      | 5,980  | 5,960  | 5,940  | 5,930  | 5,860  | 5,750  | 5,540  | 4,920  | 4,140 |
| 2—500 MCM                       | 5,980                          | 5,970  | 5,960  | 5,950  | 5,900  | 5,820  | 5,650  | 5,180  | 4,620  |       |
| 300                             | # 4                            | 7,990  | 7,880  | 7,800  | 7,560  | 6,800  | 5,560  | 3,900  | 2,000  | 1,050 |
|                                 | # 0                            | 7,990  | 7,920  | 7,880  | 7,740  | 7,380  | 6,800  | 5,800  | 3,740  | 2,300 |
|                                 | 250 MCM                        | 7,990  | 7,940  | 7,910  | 7,800  | 7,600  | 7,200  | 6,540  | 5,000  | 3,500 |
|                                 | 2—250 MCM                      | 7,990  | 7,960  | 7,940  | 7,850  | 7,760  | 7,580  | 7,200  | 6,200  | 5,000 |
| 2—500 MCM                       | 7,990                          | 7,980  | 7,960  | 7,900  | 7,840  | 7,700  | 7,400  | 6,600  | 5,600  |       |
| 500                             | # 4                            | 13,230   | 13,000 | 12,700 | 12,000 | 9,980  | 7,350  | 4,600  | 2,000  | 1,000 |
|                                 | # 0                            | 13,230   | 13,100 | 12,960 | 12,600 | 11,600 | 10,180 | 7,700  | 4,200  | 2,400 |
|                                 | 250 MCM                        | 13,230   | 13,130 | 13,100 | 12,920 | 12,300 | 11,300 | 9,650  | 6,400  | 4,200 |
|                                 | 2—250 MCM                      | 13,230   | 13,170 | 13,130 | 13,060 | 12,720 | 12,180 | 11,200 | 9,000  | 6,580 |
| 2—500 MCM                       | 13,230                         | 13,200   | 13,170 | 13,120 | 12,880 | 12,500 | 11,700 | 9,800  | 7,650  |       |
| 750                             | # 4                            | 16,360   | 16,100 | 15,750 | 14,800 | 11,800 | 8,200  | 5,000  | 2,200  | 1,050 |
|                                 | # 0                            | 16,360   | 16,200 | 16,000 | 15,550 | 14,200 | 12,000 | 8,700  | 4,800  | 2,550 |
|                                 | 250 MCM                        | 16,360   | 16,250 | 16,100 | 15,800 | 14,950 | 13,400 | 11,200 | 7,100  | 4,300 |
|                                 | 2—250 MCM                      | 16,360   | 16,350 | 16,150 | 16,000 | 15,600 | 14,800 | 13,300 | 10,200 | 7,300 |
| 2—500 MCM                       | 16,360                         | 16,350   | 16,200 | 16,050 | 15,800 | 15,200 | 14,000 | 11,400 | 8,700  |       |
| 1,000                           | # 4                            | 21,750   | 21,100 | 20,250 | 18,500 | 13,800 | 9,000  | 5,000  | 2,200  | 1,200 |
|                                 | # 0                            | 21,750   | 21,500 | 21,000 | 20,250 | 17,800 | 14,400 | 9,800  | 4,800  | 2,550 |
|                                 | 250 MCM                        | 21,750   | 21,570 | 21,200 | 20,750 | 19,300 | 16,900 | 13,400 | 8,000  | 4,700 |
|                                 | 2—250 MCM                      | 21,750   | 21,650 | 21,500 | 21,250 | 20,500 | 19,200 | 16,800 | 12,000 | 8,200 |
| 2—500 MCM                       | 21,750                         | 21,730   | 21,600 | 21,400 | 20,750 | 19,700 | 17,900 | 13,800 | 10,000 |       |
| 1,500                           | # 4                            | 32,050   | 30,550 | 28,700 | 25,250 | 16,300 | 9,600  | 5,300  | 2,300  | 1,200 |
|                                 | # 0                            | 32,050   | 31,250 | 30,500 | 28,800 | 23,800 | 17,500 | 10,800 | 4,800  | 2,500 |
|                                 | 250 MCM                        | 32,050   | 31,500 | 30,800 | 29,800 | 26,600 | 22,250 | 16,300 | 8,800  | 4,800 |
|                                 | 2—250 MCM                      | 32,050   | 31,800 | 31,500 | 31,000 | 29,200 | 26,600 | 22,800 | 14,300 | 8,800 |
| 2—500 MCM                       | 32,050                         | 31,900   | 31,600 | 31,200 | 29,800 | 27,600 | 29,000 | 17,200 | 11,500 |       |
| 2,000                           | # 4                            | 42,200   | 39,700 | 36,300 | 30,000 | 17,400 | 10,000 | 5,100  | 2,100  | 1,200 |
|                                 | # 0                            | 42,200   | 40,900 | 39,500 | 36,000 | 27,800 | 19,000 | 11,500 | 5,000  | 2,600 |
|                                 | 250 MCM                        | 42,200   | 41,300 | 40,050 | 38,100 | 32,900 | 26,000 | 18,000 | 9,100  | 5,000 |
|                                 | 2—250 MCM                      | 42,200   | 41,700 | 41,000 | 40,000 | 36,900 | 32,200 | 25,900 | 15,800 | 9,200 |
| 2—500 MCM                       | 42,200                         | 42,000   | 41,300 | 40,600 | 38,100 | 34,200 | 28,800 | 19,600 | 12,500 |       |

① The current values are maximum values attainable from liquid filled transformers with a nominal impedance of 4½ % up to and including 500 kva, and 5½ % impedance beyond 500 kva.

**further information:**

prices: price list 29-120

description: descriptive bulletin 29-151

dimensions: dimension sheets 29-170



June, 1980  
 Supersedes Application Data 29-161  
 page 1, dated November, 1977  
 Mailed to: E, D/1901/DB

Time/Current Characteristic Curves for  
 Standard, MARK 75® and SELTRONIC™  
 Circuit Breakers

# AB DE-ION® Circuit Breakers

| Breaker Description  | Curve No.   |
|--|-------------|
| Quicklag® Types HQP, QC, QPH, QBH, QCH; MARK 75® Types QHP, QHC; 1 Pole                  | SC 3500-77  |
| Quicklag Types HQP, HQNP, HQC, QC, QPH, QBH, QCH; MARK 75 Types QHP, QHC; 2 Poles        | SC 3501-77  |
| Quicklag Types HQNP, HQC, QPH, QBH, QCH; MARK 75 Types QHP, QHC; 3 Poles                 | SC 3502-77  |
| Type BAB; MARK 75 Type HBA; 1 Pole, 120/240 Volts Ac                                     | SC 3500-77  |
| Type BAB, BA; MARK 75 Type HBA; 2 Poles, 120/240 Volts Ac, 240 Volts Ac                  | SC 3501-77  |
| Type BA; MARK 75 Type HBA; 3 Poles, 240 Volts Ac   | SC 3502-77  |
| Type BA, 15-30 Amperes, 1 Pole, 277 Volts Ac   | SC 3503-77  |
| Types CA, CAH, 125-250 Amperes, 2 and 3 Poles  | SC 3504-77  |
| Type DA, 250-400 Amperes, 2 and 3 Poles  | SC 3505-77  |
| Types EB, EHB; MARK 75 Type HFB; 15-40 Amperes, 1 Pole                                   | SC 3506-77  |
| Types EB, EHB; MARK 75 Type HFB; 50-70 Amperes, 1 Pole                                   | SC 3507-77  |
| Types EB, EHB; MARK 75 Type HFB; 90-100 Amperes, 1 Pole                                  | SC 3508-77  |
| Types EB, EHB, FB; MARK 75 Type HFB; 15-40 Amperes, 2, 3 Poles                           | SC 3509-77  |
| Types EB, EHB, FB; MARK 75 Type HFB; 50-70 Amperes, 2, 3 Poles                           | SC 3510-77  |
| Types EB, EHB; 90-100 Amperes, 2, 3 Poles  | SC 3511-77  |
| Type FB; MARK 75 Type HFB; 90-150 Amperes, 2, 3 Poles                                    | SC 3511-77  |
| LFB Current Limiter for Type FB, 3 Pole, Thermal Magnetic Breakers                       | SC 3512-77  |
| Type FB Magnetic Only with Current Limiter   | SC 3513-77  |
| Types JA, KA; MARK 75 Types HKA; 70-225 Amperes, 2, 3 Poles                              | SC 3514-77  |
| Types JB, KB; MARK 75 Type HKB; 70-250 Amperes, 2, 3 Poles                               | SC 4009-77  |
| Types LAB, LA; MARK 75 Type HLA; 125-400 Amperes, 2, 3 Poles                             | SC 3515-77  |
| Types LBB, LB; MARK 75 Type HLB; 70-400 Amperes, 2, 3 Poles                              | SC 3516-77  |
| Type LA; MARK 75 Type HLA; 250-600 Amperes, 2, 3 Poles                                   | SC 3517-77  |
| ● Type LC, LCG; MARK 75 Type HLC, HLCG SELTRONIC, 75-150 Amperes, 2, 3 Poles             | SC 3518-77A |
| ● Type LC, LCG; MARK 75 Type HLC, HLCG SELTRONIC, 150-300 Amperes, 2, 3 Poles            | SC 3519-77A |
| ● Type LC, LCG; MARK 75 Type HLC, HLCG SELTRONIC; 300-600 Amperes, 2, 3 Poles            | SC 3520-77A |
| ● Ground Fault Pick-up Curves for Types LC, LCG, HLC, HLCG SELTRONIC Breakers            | SC 3504-80  |
| Type MA, MARK 75 Type HMA; 125-600 Amperes, 2, 3 Poles                                   | SC 3521-77  |
| Type MA, MARK 75 Type HMA; 700-800 Amperes, 2, 3 Poles                                   | SC 3522-77  |
| Types MC, MCG, MARK 75 Types HMC, HMCG SELTRONIC, 400-800 Amperes, 2, 3 Poles            | SC 3523-77  |
| Type NB, MARK 75 Type HNB; 800-1200 Amperes, 2, 3 Poles                                  | SC 3524-77  |
| Types NC, NCG, MARK 75 Types HNC, HNCG SELTRONIC, 800-1200 Amperes, 2, 3 Poles           | SC 3525-77  |
| Ground Fault Pick-up Curves for Types MCG, NCG SELTRONIC Breakers                        | SC 3526-77  |
| Type PB, 600-1600 Amperes, 2, 3 Poles  | SC 3527-77  |
| Type PB, 1800-3000 Amperes, 2, 3 Poles   | SC 3528-77  |
| Types PC, PCC, PCG, PCCG, PCF, PCCF, PCFG, PCCFG SELTRONIC 1000-2000 Amperes, 2, 3 Poles | SC 3529-77  |
| Types PC, PCC, PCG, PCCG, PCF, PCCF, PCFG, PCCFG SELTRONIC 1400-2500 Amperes, 2, 3 Poles | SC 3530-77  |
| Types PC, PCC, PCG, PCCG SELTRONIC Breakers, 1600-3000 Amperes, 2, 3 Poles               | SC 3531-77  |
| Ground Fault Pick-up Curves for Types PCG2000, PCG2500, PCG3000 SELTRONIC Breakers       | SC 3532-77  |

Additional sets of these curves may be ordered from the Westinghouse Printing Division, Trafford, Pa. 15085.

Individual copies of curves listed above are available from:  
 Westinghouse Electric Corporation  
 Marketing Communications Department  
 Beaver, Pa. 15009

Identify curve by number, i.e., SC 3500-77

● Changed or added since previous issue.

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