LG trip curves

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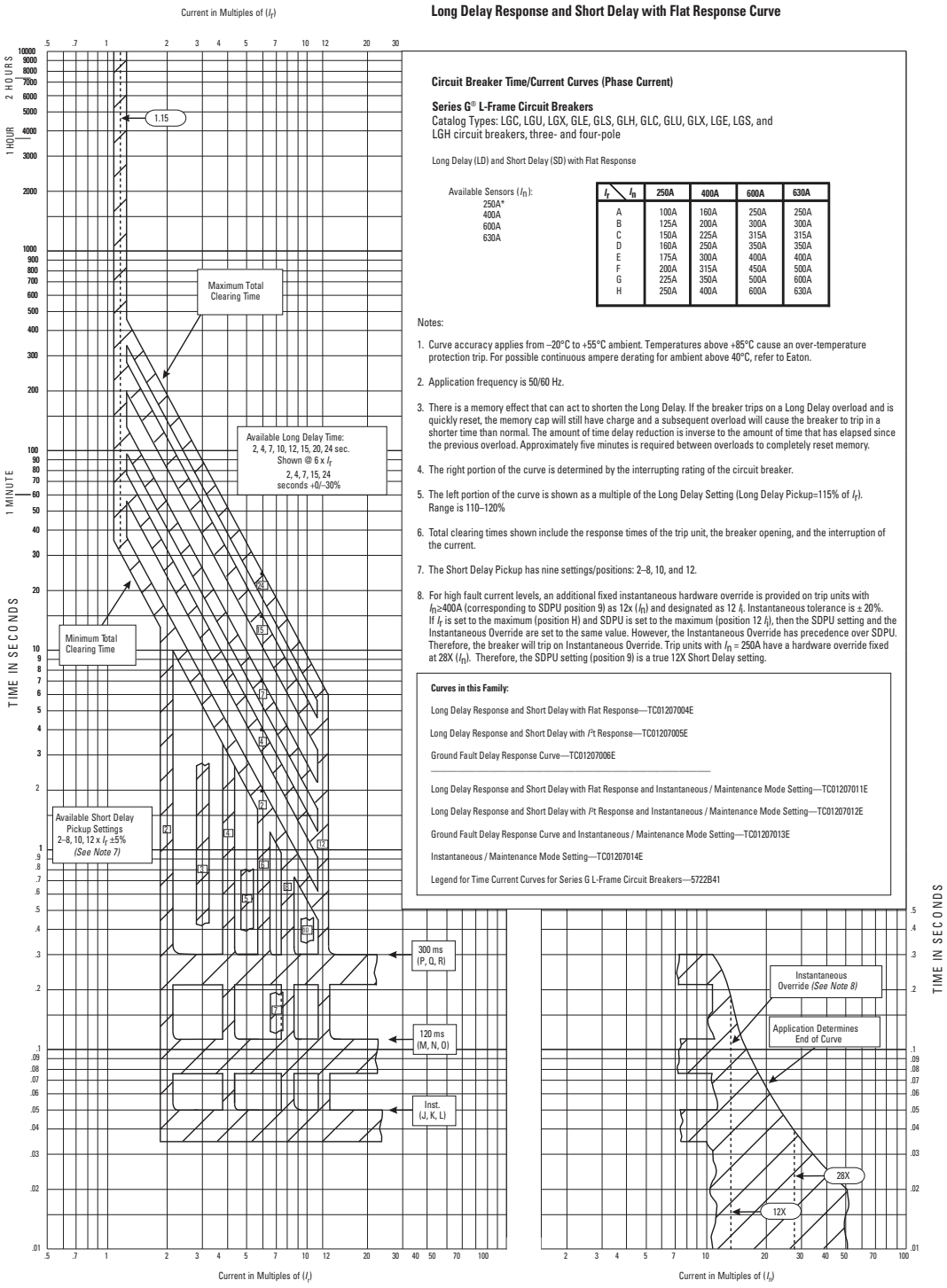


Circuit Breaker Time/Current Curves (Phase Current)

Series G® L-Frame Circuit Breakers
Catalog Types: LGC, LGU, LGX, GLE, GLS, GLH, GLC, GLU, GLX, LGE, LGS, and LGH circuit breakers, three- and four-pole

Long Delay (LD) and Short Delay (SD) with Flat Response

Available Sensors (I_n):
250A*
400A
600A
630A

I_r \ I_n	250A	400A	600A	630A
A	100A	160A	250A	250A
B	125A	200A	300A	300A
C	150A	225A	315A	315A
D	160A	250A	350A	350A
E	175A	300A	400A	400A
F	200A	315A	450A	500A
G	225A	350A	500A	600A
H	250A	400A	600A	630A

Notes:

1. Curve accuracy applies from –20°C to +55°C ambient. Temperatures above +85°C cause an over-temperature protection trip. For possible continuous ampere derating for ambient above 40°C, refer to Eaton.
2. Application frequency is 50/60 Hz.
3. There is a memory effect that can act to shorten the Long Delay. If the breaker trips on a Long Delay overload and is quickly reset, the memory cap will still have charge and a subsequent overload will cause the breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset memory.
4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting (Long Delay Pickup=115% of I_r). Range is 110–120%
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The Short Delay Pickup has nine settings/positions: 2–8, 10, and 12.
8. For high fault current levels, an additional fixed instantaneous hardware override is provided on trip units with I_n≥400A (corresponding to SDPU position 9) as 12x (I_n) and designated as 12 I_i. Instantaneous tolerance is ± 20%. If I_r is set to the maximum (position H) and SDPU is set to the maximum (position 12 I_i), then the SDPU setting and the Instantaneous Override are set to the same value. However, the Instantaneous Override has precedence over SDPU. Therefore, the breaker will trip on Instantaneous Override. Trip units with I_n = 250A have a hardware override fixed at 28X (I_n). Therefore, the SDPU setting (position 9) is a true 12X Short Delay setting.

Curves in this Family:

Long Delay Response and Short Delay with Flat Response—TC01207004E

Long Delay Response and Short Delay with I^2t Response—TC01207005E

Ground Fault Delay Response Curve—TC01207006E

Long Delay Response and Short Delay with Flat Response and Instantaneous / Maintenance Mode Setting—TC01207011E

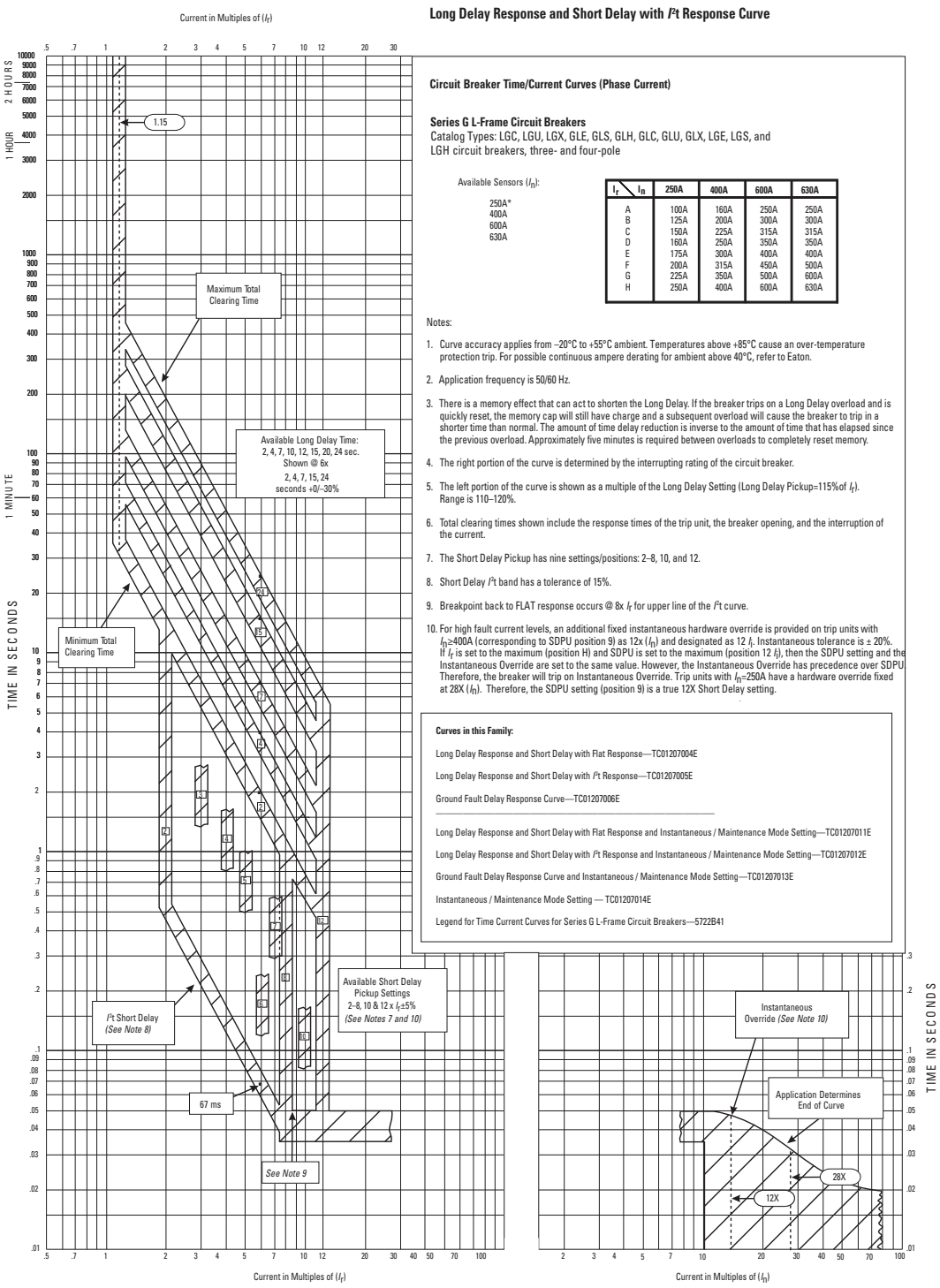
Long Delay Response and Short Delay with I^2t Response and Instantaneous / Maintenance Mode Setting—TC01207012E

Ground Fault Delay Response Curve and Instantaneous / Maintenance Mode Setting—TC01207013E

Instantaneous / Maintenance Mode Setting—TC01207014E

Legend for Time Current Curves for Series G L-Frame Circuit Breakers—5722B41

Figure 1. Long Delay Response and Short Delay with Flat Response Curve



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Available Sensors (I_n):

250A*
400A
600A
630A

I_r \ I_n	250A	400A	600A	630A
A	100A	160A	250A	250A
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C	150A	225A	315A	315A
D	160A	250A	350A	350A
E	175A	300A	400A	400A
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Notes:

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4. The right portion of the curve is determined by the interrupting rating of the circuit breaker.
5. The left portion of the curve is shown as a multiple of the Long Delay Setting (Long Delay Pickup=115%of I_r). Range is 110–120%.
6. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
7. The Short Delay Pickup has nine settings/positions: 2–8, 10, and 12.
8. Short Delay I^2t band has a tolerance of 15%.
9. Breakpoint back to FLAT response occurs @ 8x I_r for upper line of the I^2t curve.
10. For high fault current levels, an additional fixed instantaneous hardware override is provided on trip units with I_n≥400A (corresponding to SDPU position 9) as 12x (I_n) and designated as 12 I_i. Instantaneous tolerance is ± 20%. If I_r is set to the maximum (position H) and SDPU is set to the maximum (position 12 I_i), then the SDPU setting and the Instantaneous Override are set to the same value. However, the Instantaneous Override has precedence over SDPU. Therefore, the breaker will trip on Instantaneous Override. Trip units with I_n=250A have a hardware override fixed at 28X (I_n). Therefore, the SDPU setting (position 9) is a true 12X Short Delay setting.

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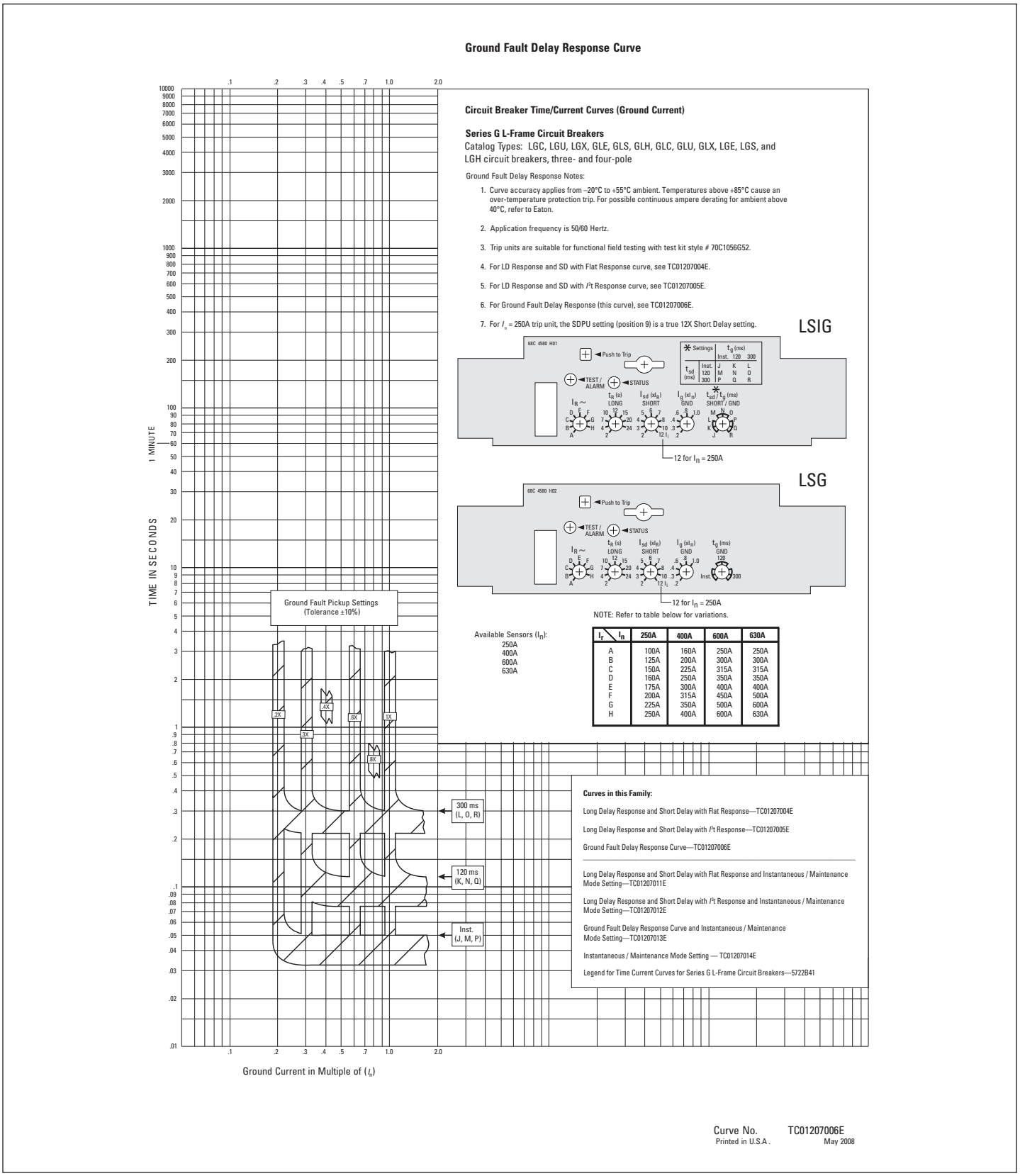
Instantaneous / Maintenance Mode Setting — TC01207014E

Legend for Time Current Curves for Series G L-Frame Circuit Breakers—5722B41

Figure 2. Long Delay Response and Short Delay with I²t Response Curve



Ir \ In	250A	400A	600A	630A
A	100A	160A	250A	250A
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D	160A	250A	350A	350A
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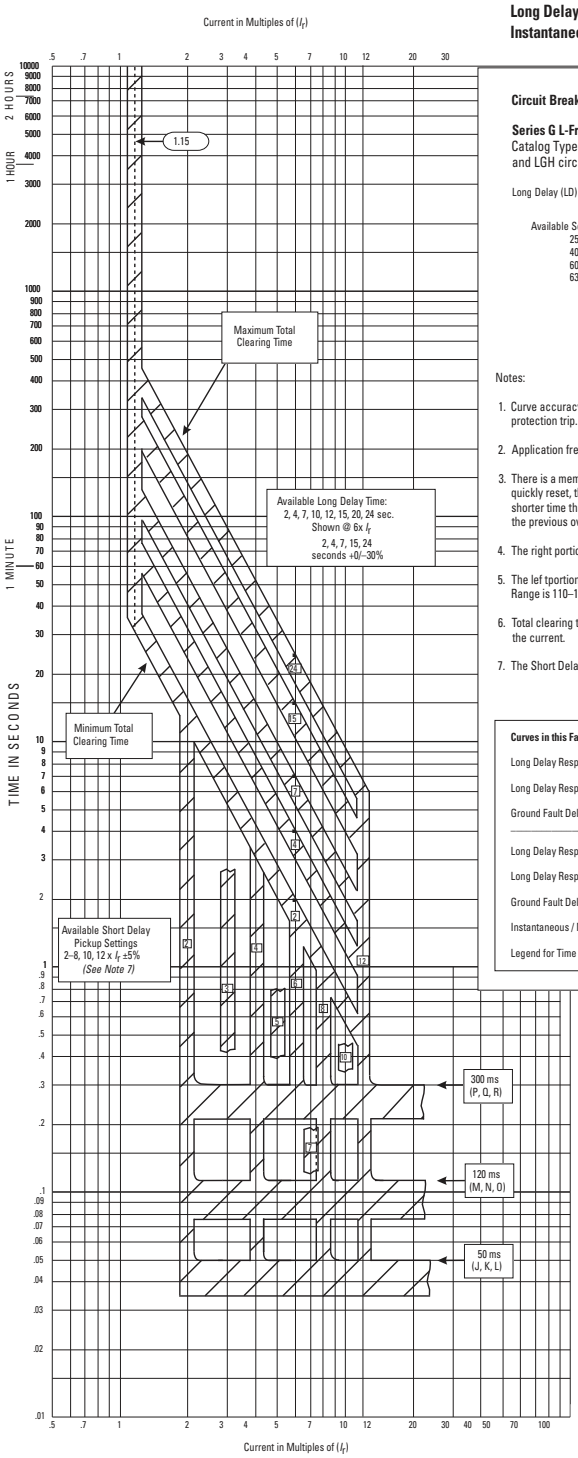
F	200A	315A	450A	500A
G	225A	350A	500A	600A
H	250A	400A	600A	630A

Figure 3. Ground Fault Delay Response Curve

Long Delay Response and Short Delay with Flat Response Curve and Instantaneous/Maintenance Mode Setting



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Instantaneous / Maintenance Mode Setting—TC01207014E

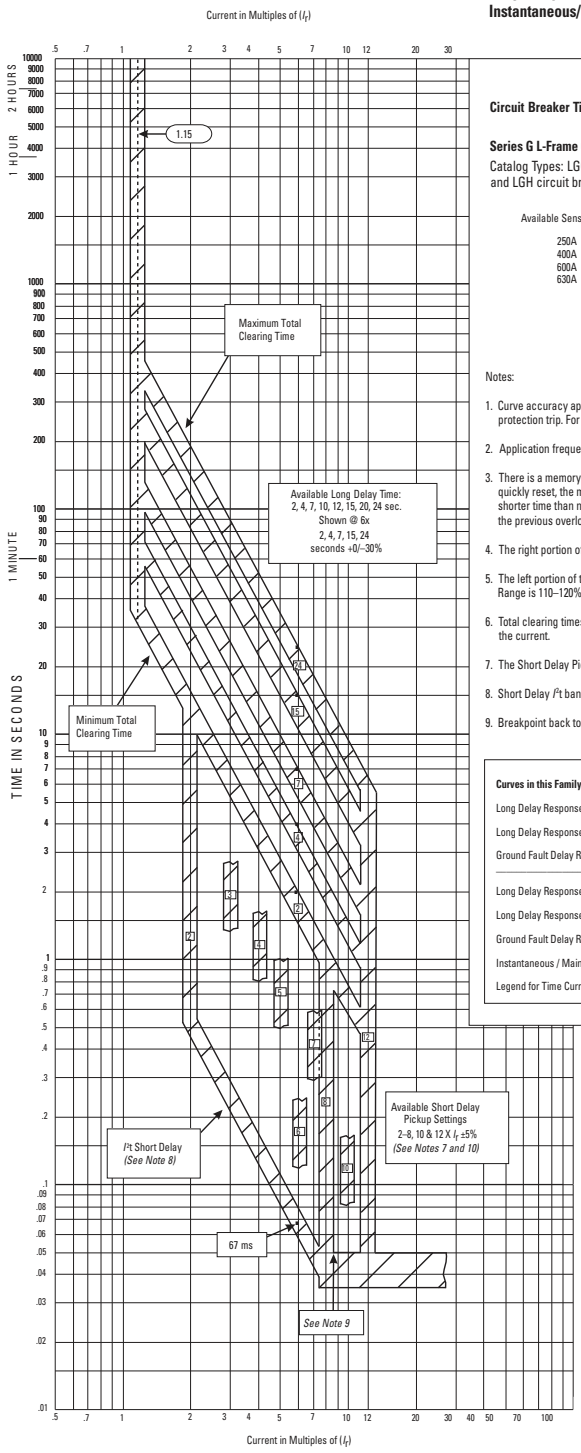
Legend for Time Current Curves for Series G L-Frame Circuit Breakers—5722B41

Adjustable Flat Trip Style

Curve Number: TC01207011E
Printed in U.S.A. May 2008

Figure 4. Long Delay Response and Short Delay with Flat Response Curve and Instantaneous/Maintenance Mode Setting

Long Delay Response and Short Delay with I^2t Response Curve and Instantaneous/Maintenance Mode Setting



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Instantaneous / Maintenance Mode Setting—TC01207014E

Legend for Time Current Curves for Series G L-Frame Circuit Breakers—5722B41

I^2t TripStyle

Curve Number: TC01207012E
Printed in U.S.A. May 2008

Figure 5. Long Delay Response and Short Delay with I²t Response Curve and Instantaneous/Maintenance Mode Setting

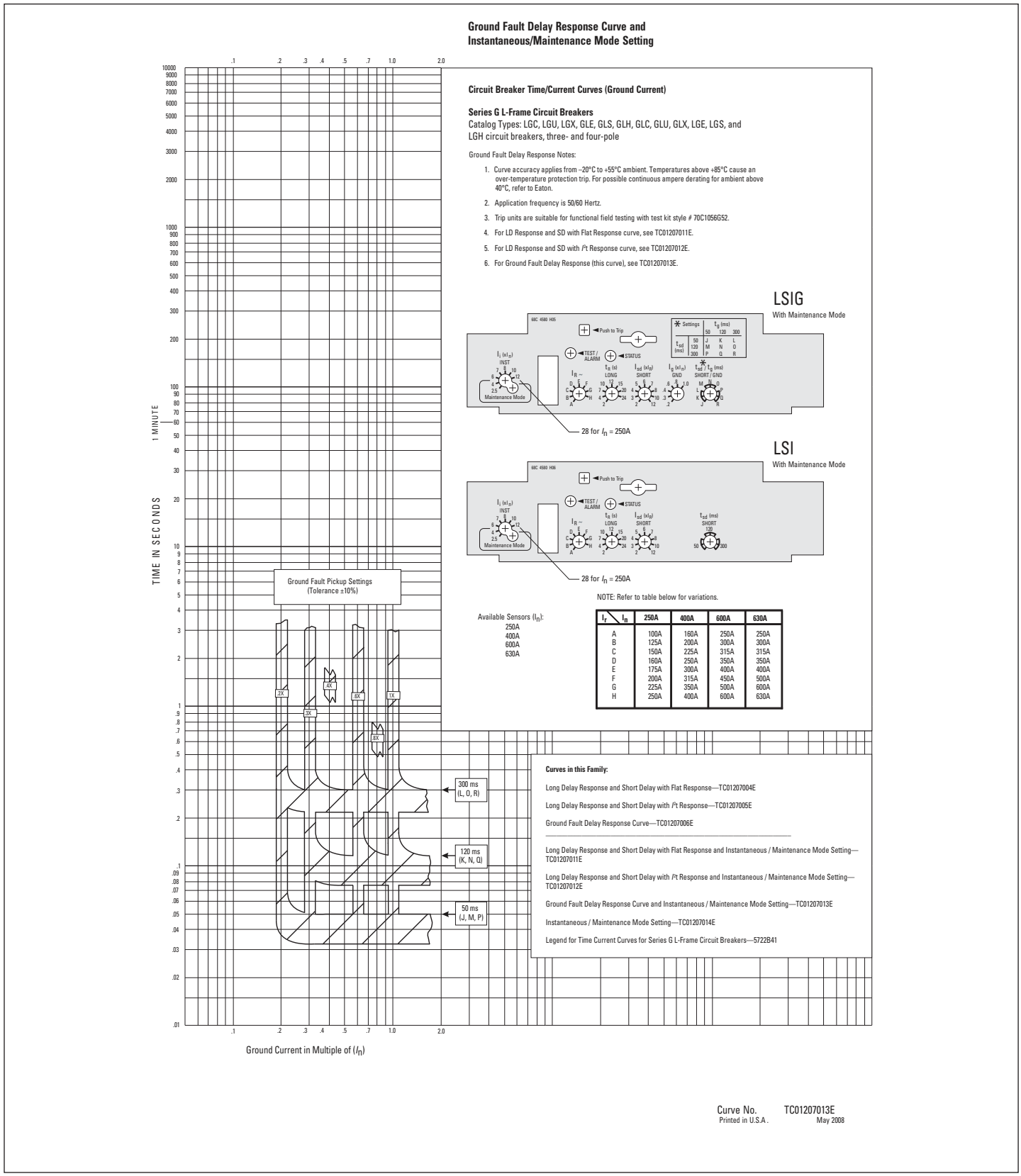


Figure 6. Ground Fault Delay Response Curve and Instantaneous/Maintenance Mode Setting

Instantaneous/Maintenance Mode Setting

Maintenance Mode Characteristic

Trip Unit — Series G L-Frame with Maintenance Mode and Instantaneous Mode Circuit Breakers

Response: Series G L-Frame Electronic Maintenance Mode Trip and Instantaneous Mode Trip

This curve is for 50 Hz and 60 Hz applications.

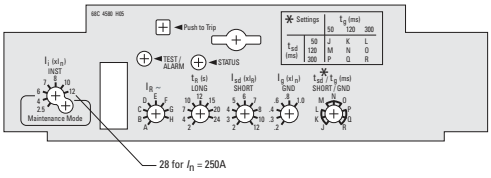
Notes:

1. The Maintenance Mode feature must be ENABLED via Maintenance Mode switch for these curves to apply. The window indicator is blue when in Maintenance Mode*.
2. The end of the curve is determined by the interrupting rating of the circuit breaker.
3. Total clearing times shown include the response times of the trip unit, the breaker opening, and the interruption of the current.
4. Nominal Values (Pickup) (Tolerance is ±15%) 2.5x I_n, 4x I_n, 6x I_n, 7x I_n, 8x I_n, 10x I_n, 12x I_n.
5. These curves are comprehensive for the complete family of Series G L-Frame electronic breakers, including all frame sizes, ratings, and constructions. The total clearing times shown are conservative and consider the maximum response times of the trip unit, the circuit breaker opening, and the interruption of the current in worst case conditions, such as maximum rated voltages, single-phase interruption, and minimum power factor. Faster clearing times are possible depending on the specific system conditions.

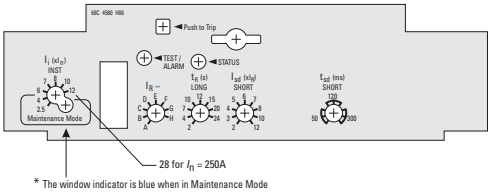
Contact Eaton for additional information.

Series G L-Frame Trip Unit Nameplates

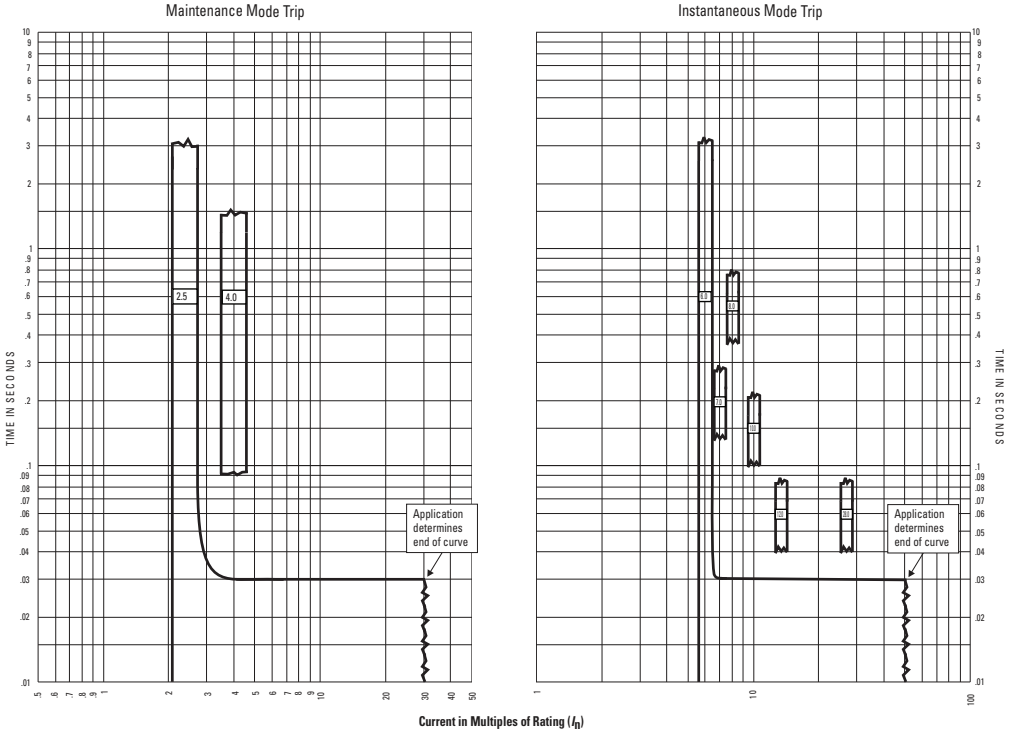
LSIG With Maintenance Mode



LSI With Maintenance Mode



* The window indicator is blue when in Maintenance Mode



Curve No. TC01207014E
Printed in U.S.A. May 2008

Figure 7. Instantaneous/Maintenance Mode Setting

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Publication No. TC01200003E / Z8887
November 2009

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