



Westinghouse Electric Corporation
Distribution and Control Business Unit
Greentree, PA 15220

Application Data
36-693

July, 1986
Supersedes AD 36-693
dated January, 1986
Mailed to: E/36-600C

Motor Starter Fuse
Performance Curves

Type CLS High Voltage Power Fuses

This envelope contains time-current characteristic curves and style number curve data guide of current limiting fuses as listed below.

Fuse Type	Amperes "R" Designation	Voltage Range kV	Curve Numbers		
			Melting	Total Clearing	Let- Thru
CLS-1, CLS-2, CLS-22	70● to 480 Amps 2R to 26R	2.8 to 5.08 kV●	1	2	9
CLS-1, CLS-2, CLS-15, CLS-25 CLS-13, HCLS-15●, HCLS-25●	25 to 450 Amps 2R to 24R	2.54 kV●	3	4	9
CLS-12①, CLS-14①, CLS-22①, CLS-24① CLS-700, HCLS-12, HCLS-22	30 to 800 Amps● 2R to 44R●	2.0 to 5.08 kV	5	6	9
CLS-18, CLS-28 14" Inch Clip Centers	15 to 225 Amps	8.3 kV	7	8	10
CLSS-18, CLSS-28	70 to 390● Amps	7.2 to 8.3 kV	13	14	None
Emergency Overload Limits	All	All	15		
CLS-650-3	650 Amps 36R	7.2 kV	16	16	..
CLS-800	800 Amps 44R	7.2 kV	17	18	10

"R" Designation - NEMA SG.2-46-10

The numerical and "R" signifies that the fuse will melt in a range of 15 to 35 seconds at a current value equal to 100 x "R" number.

Note: Check Price List for proper curve number assigned to style numbered fuse.

① These fuses are UL Rated.

● Changed or added since previous issue.

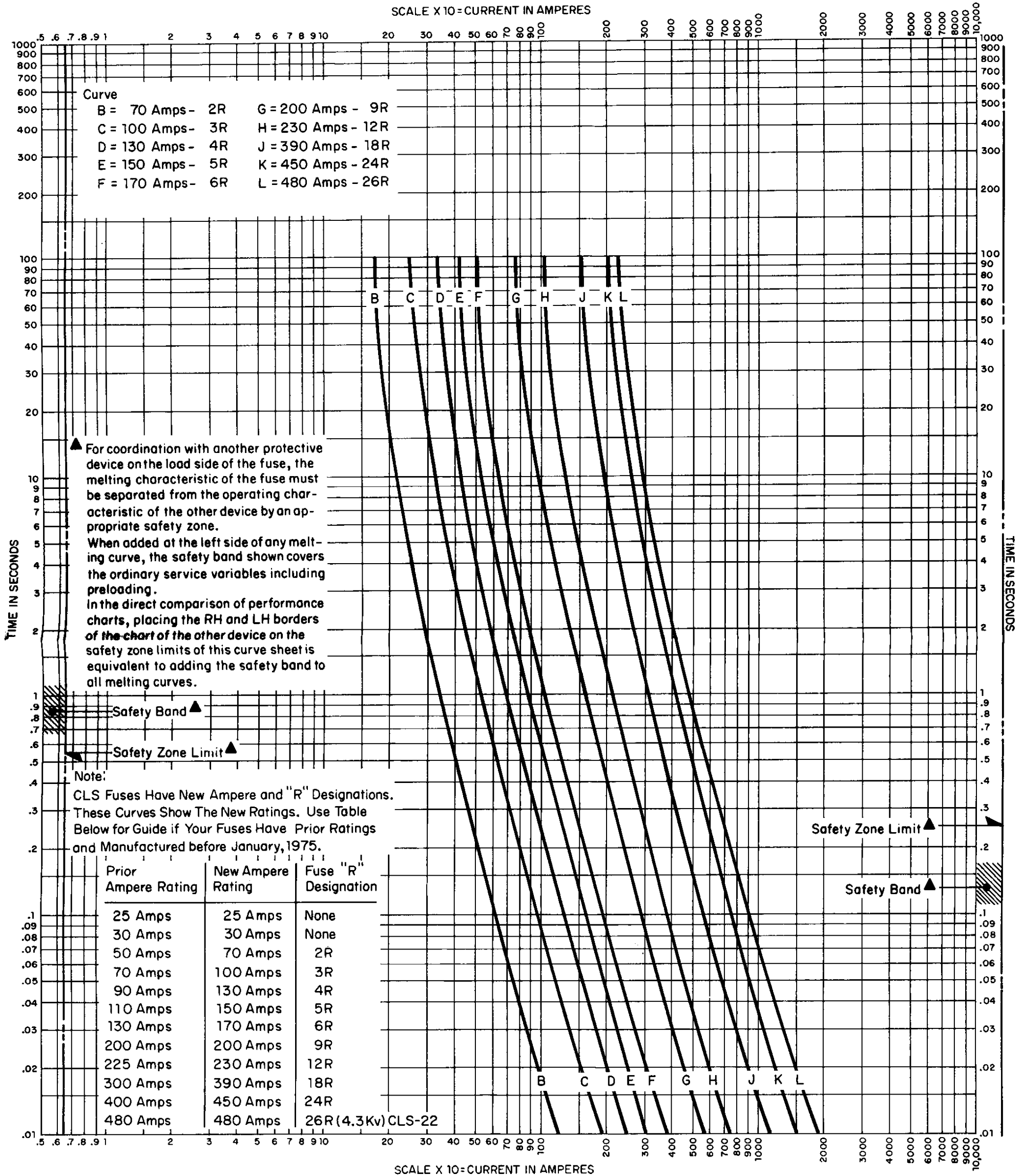


Style Number Index Curve Data Guide

Style Number Series	Curve Number
140D045●	5, 6, 9
151D207	1, 2, 9
151D240	5, 6, 9
151D241	5, 6, 9
151D256	7, 8, 10
151D257	5, 6, 9
151D933	5, 6, 9
151D961	5, 6, 9
151D962	5, 6, 9
151D963	13, 14
151D979	AD 36-711
304C463	1, 2, 9
449D597	5, 6, 9
591C142	3, 4, 9
591C143	3, 4, 9
591C155	3, 4, 9
591C157	3, 4, 9
591C812	3, 4, 9
591C813	3, 4, 9
676C546	1, 2, 9

INCLUDE THIS PAGE
WITH THE TOTAL FILE
WHICH INCLUDES
THE ENVELOPE COVER

BUT NOT AS A
SEPARATE FILE



Type CLS-1, CLS-2, CLS-22 Motor Starter Current Limiting Fuses

Melting Time-Current Characteristics, 2.8@ to 5.08@ kV

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be positive.

● Changed since previous issue.

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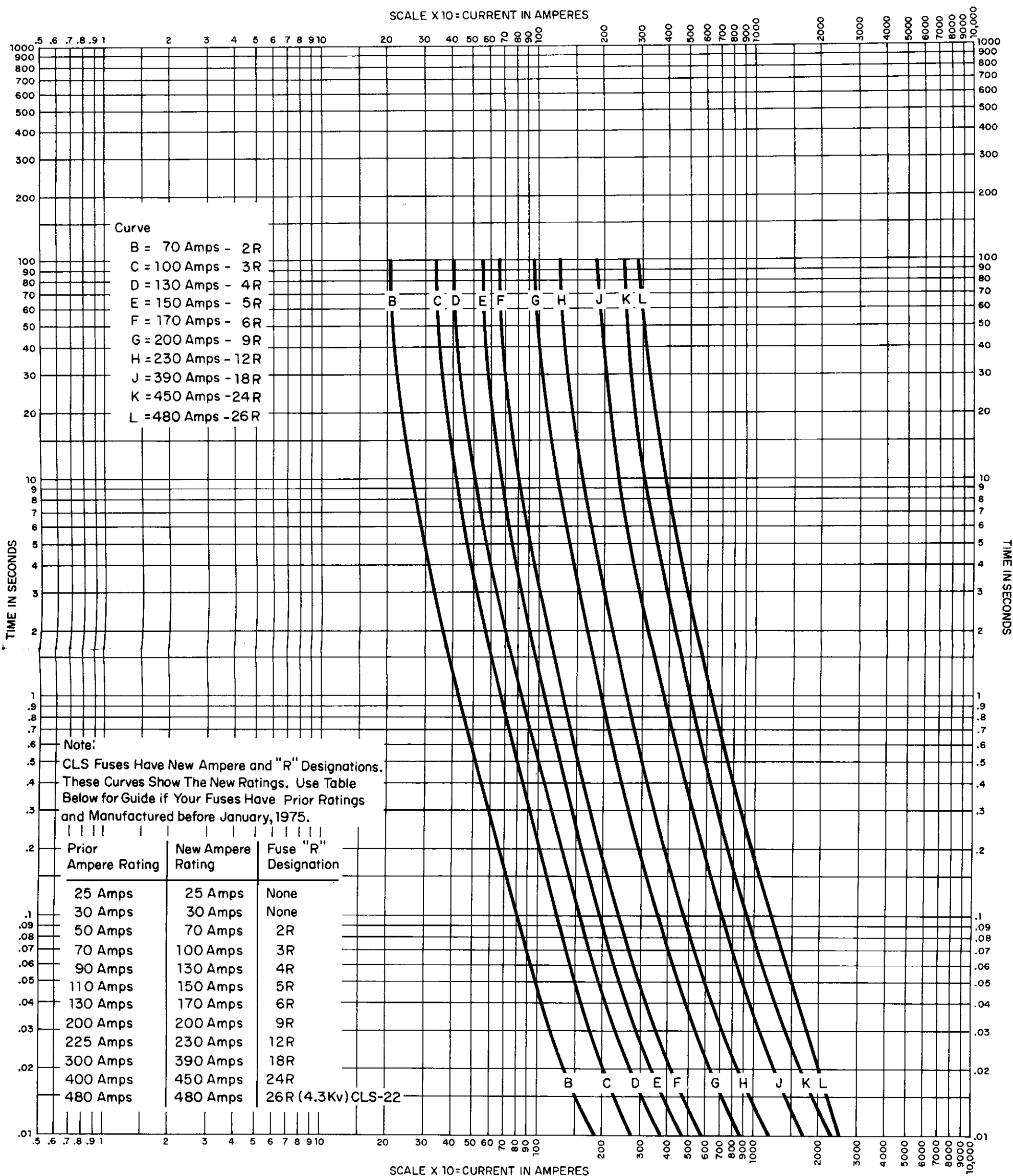
Supersedes Curve No. 1
dated January, 1986

July, 1986

1

Reference Data

Curve:	A	B, C, D, E, F, G, H	J, K	L
Ref. Curve No.	666647	512853	536863	639472
Date:	1-29-74	8-60	10-19-61	7-27-72



Type CLS-1, CLS-2, CLS-22 Motor Starter Current Limiting Fuses

Total Clearing Time-Current Characteristics, 2.8@ to 5.08@ kV

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be negative.

● Changed or added since previous issue.

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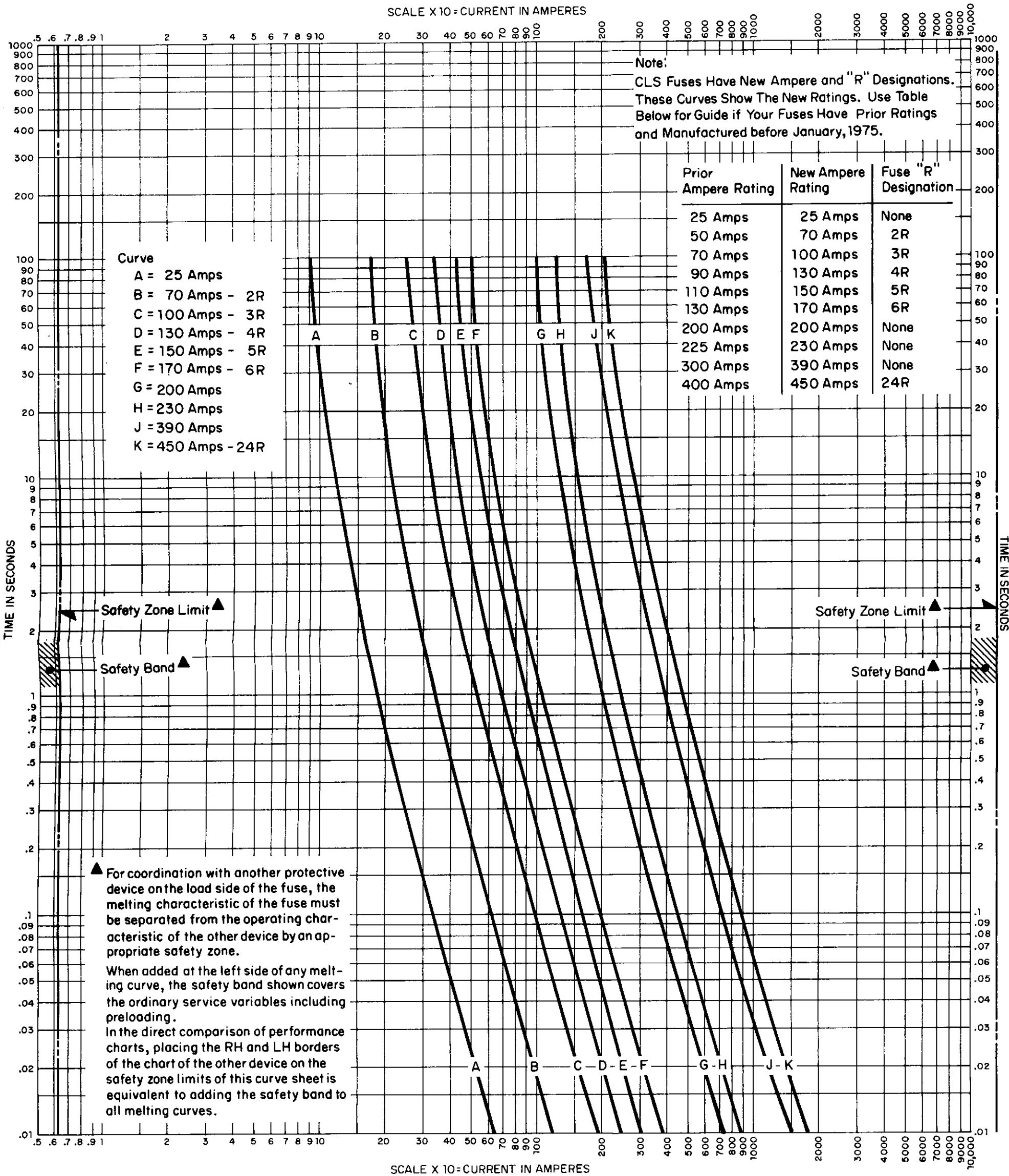
Supersedes Curve No. 2
 dated January, 1986

July, 1986

2

Reference Data

Curve:	A	B, C, D, E, F, G, H	J, K	L
Ref. Curve No.	666647	512854	536864	639472
Date:	1-29-74	8-60	10-19-61	7-27-72



Type CLS-1, CLS-2, CLS-15, CLS-25, HCLS-15, HCLS-25 and CLS-13
Motor Starter Current Limiting Fuses
Melting Time-Current Characteristics, 2.54 kV

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be positive.

● Changed since previous issue.

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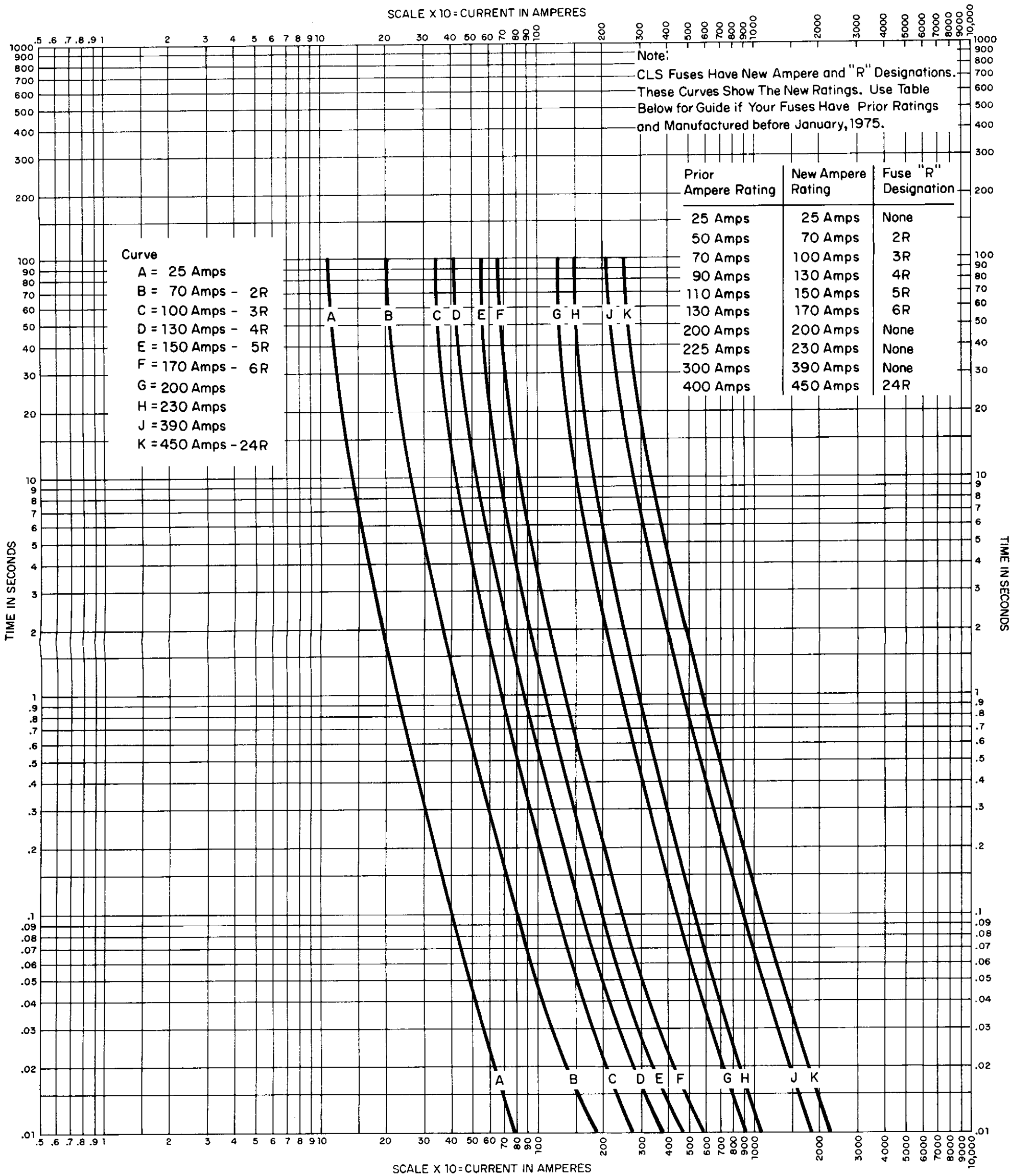
Supersedes Curve No. 3
dated January, 1986

July, 1986

3

Reference Data

Curve:	A	B, C, D, E, F	G, H, J, K
Ref. Curve No.	666647	512853	639405
Date:	1-29-74	8-60	8-30-71



Type CLS-1, CLS-2, CLS-15, CLS-25, HCLS-15, HCLS-25 and CLS-13
Motor Starter Current Limiting Fuses
Total Clearing Time-Current Characteristics, 2.54 kV

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be negative.

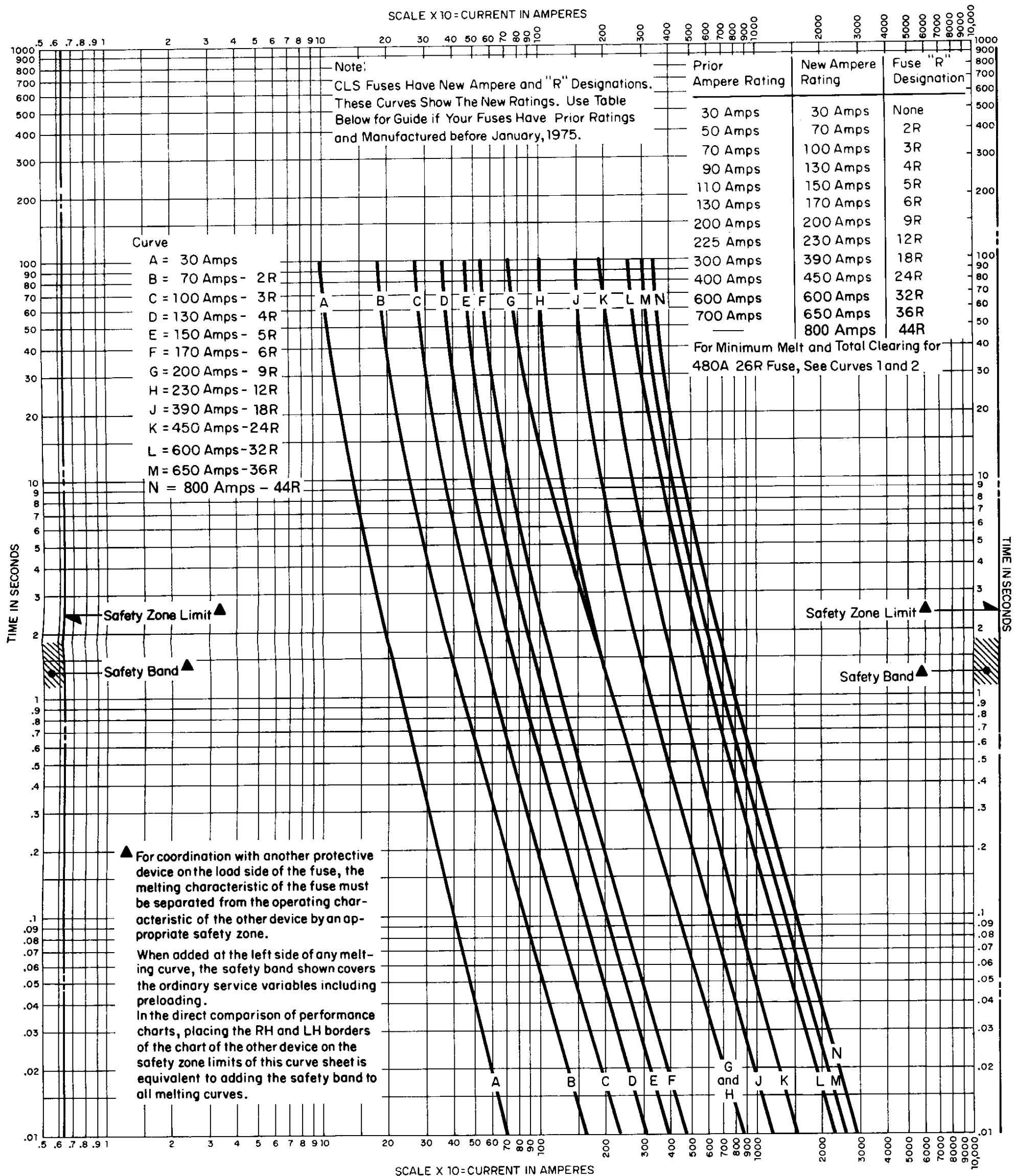
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Supersedes Curve No. 4
dated January, 1986
July, 1986

4

Reference Data			
Curve:	A	B, C, D, E, F	G, H, J, K
Ref. Curve No.	666647	512854	639406
Date:	1-29-74	8-60	8-30-71



Type CLS-12, CLS-14, CLS-22, CLS-24, CLS-700, HCLS-12 and HCLS-22 Motor Starter Current Limiting Fuses
Melting Time-Current Characteristics, 5.08 kV@

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be positive.

● Changed since previous issue.

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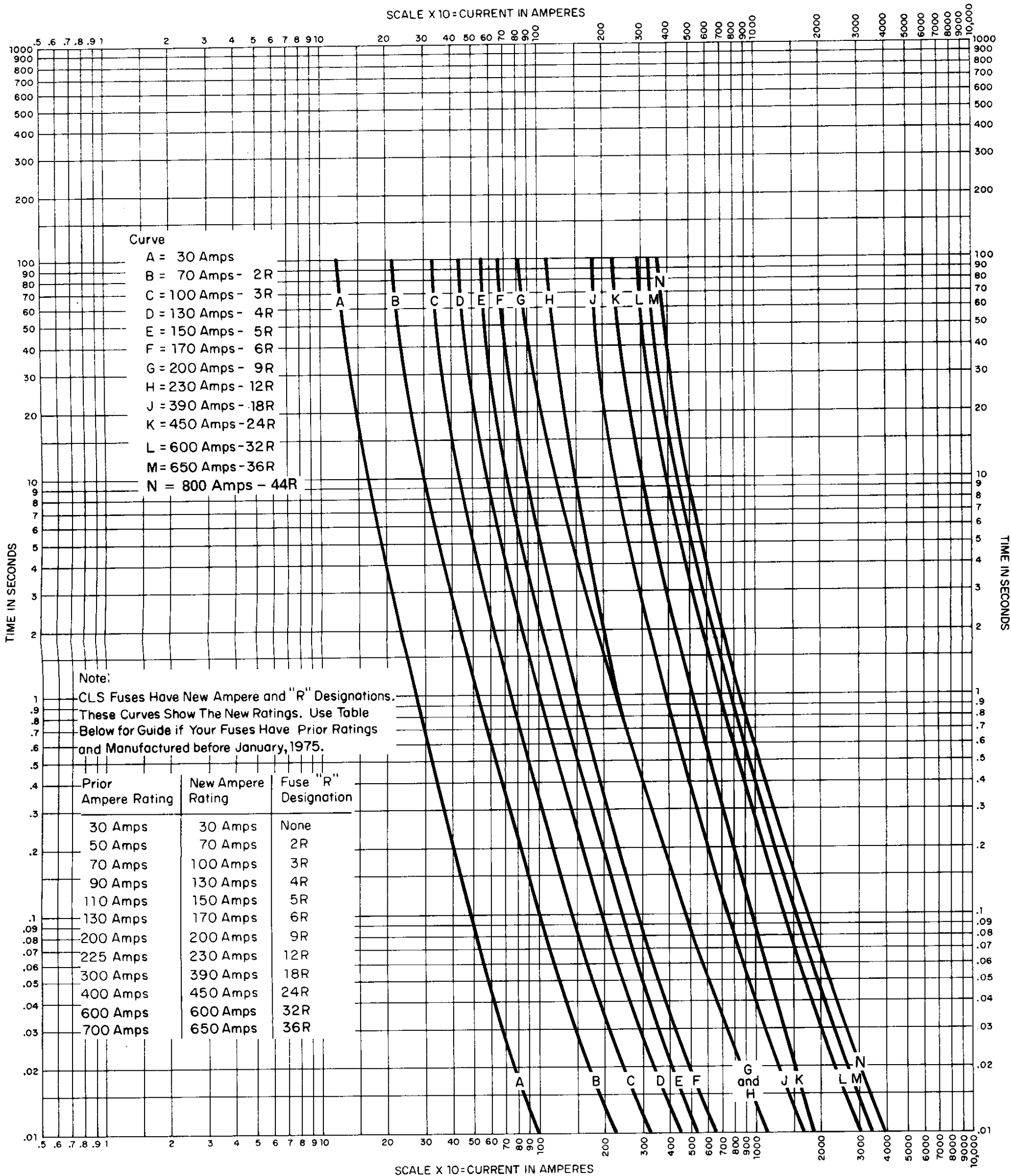
Supersedes Curve No. 5
 dated January, 1986

July, 1986

5

Reference Data

Curve:	A, B, C, D, E, F, G, J	G, H	K	L, M
Ref. Curve No.	666906	667003	666910	667000
Date:	2-8-77	6-16-78	9-8-77	6-15-78



Type CLS-12, CLS-14, CLS-22, CLS-24, CLS-700, HCLS-12 and HCLS-22 Motor Starter Current Limiting Fuses

Total Clearing Time-Current Characteristics, 5.08 kV

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to maximum test points so variations should be negative.

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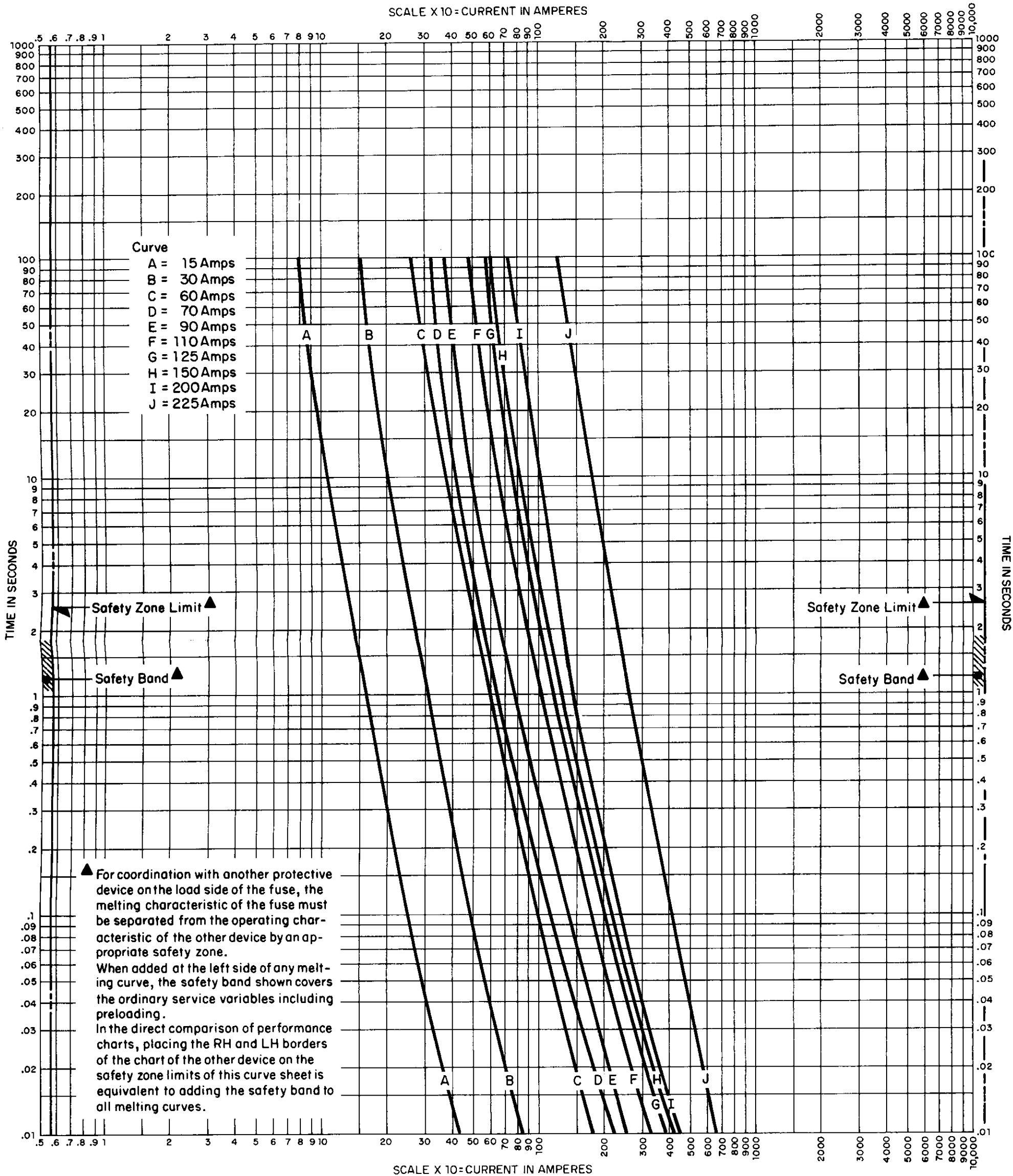
Supersedes Curve No. 6
dated January, 1986

July, 1986

6

Reference Data

Curve:	A, B, C, D, E, F, J	G, H	K	L, M
Ref. Curve No.	666907	667004	666910	667001
Date:	2-8-77	6-16-78	9-8-77	6-16-78



Type CLS-18 and CLS-28 Motor Starter Current Limiting Fuses
Melting Time-Current Characteristics, 8.3 Kv

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be positive.

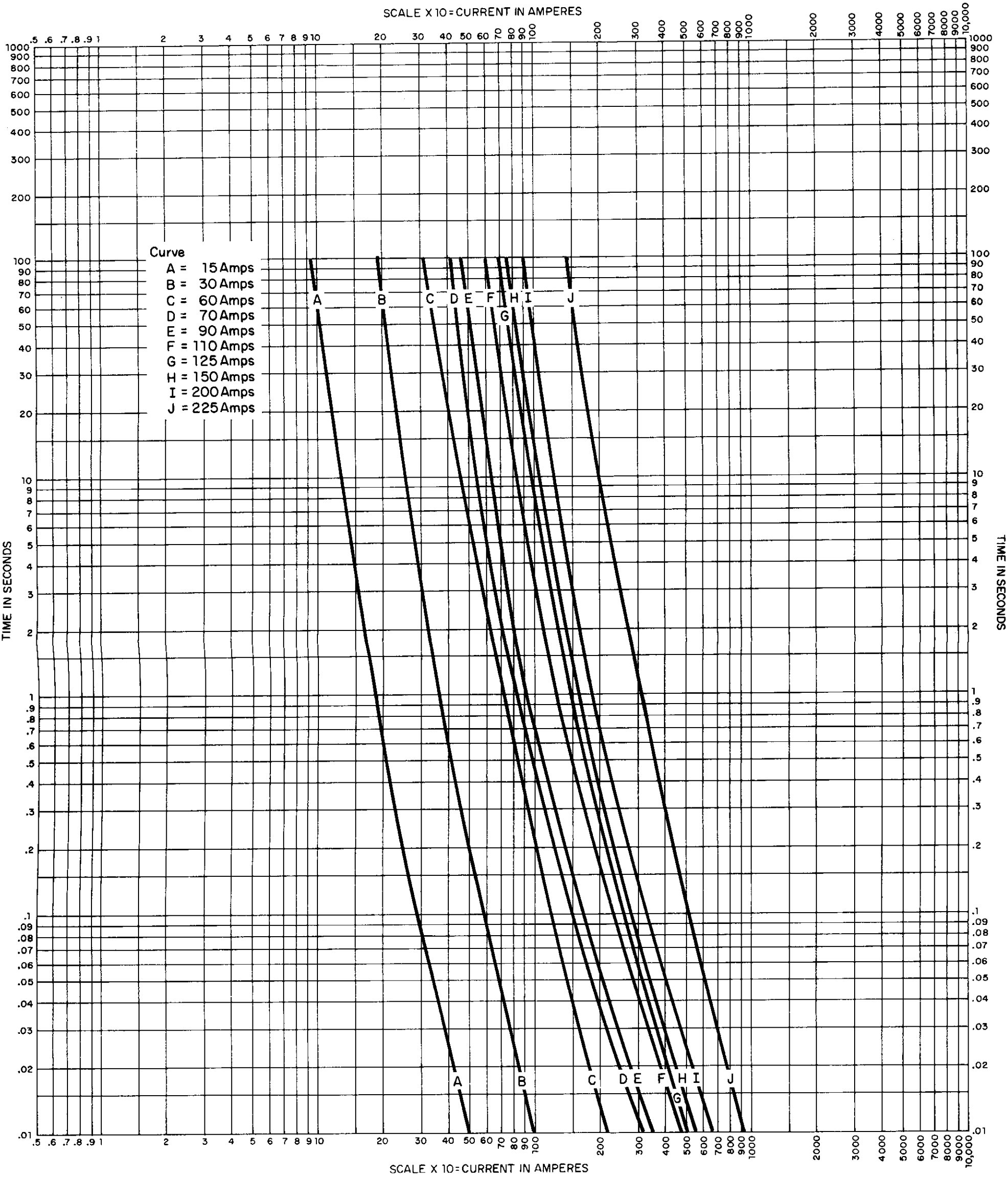
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Supersedes Curve No. 7
dated December, 1979

January, 1986

Reference Data

Curve: A, B, C, D, E, F, G, H, I, J
Ref. Curve No. 666642
Date: 10-29-73



Type CLS-18, CLS-28 Motor Starter Current Limiting Fuses
Total Clearing Time-Current Characteristics, 8.3 Kv

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be negative.

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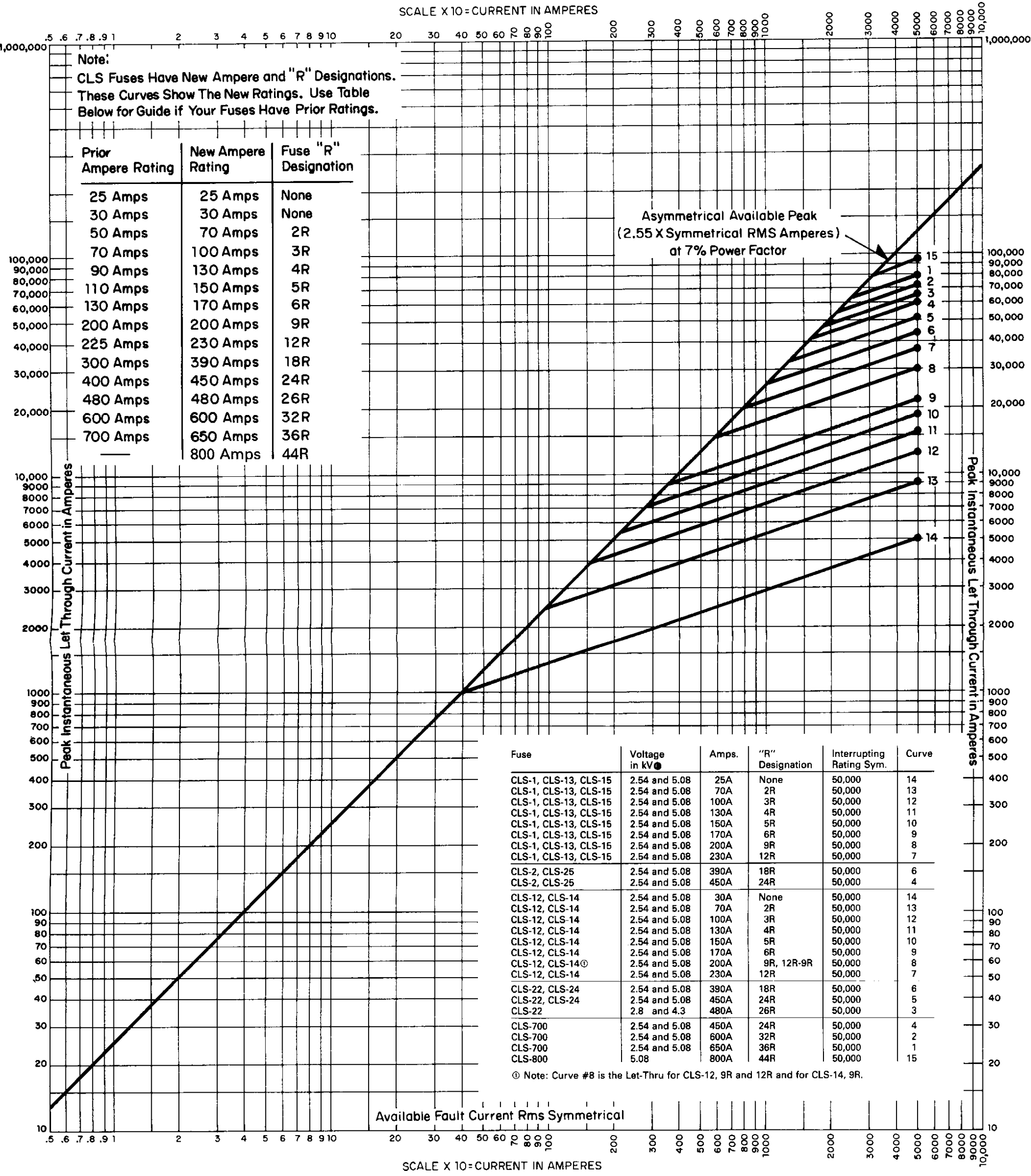
Supersedes Curve No. 8
dated December, 1979

January, 1986

Reference Data

Curve: A, B, C, D, E, F, G, H, I, J
Ref. Curve No. 666643
Date: 10-29-73

SCALE X 10 = CURRENT IN AMPERES



Type CLS Motor Starter Current Limiting Fuses
Let-Thru Current Curves, 2.54 to 5.08 kV

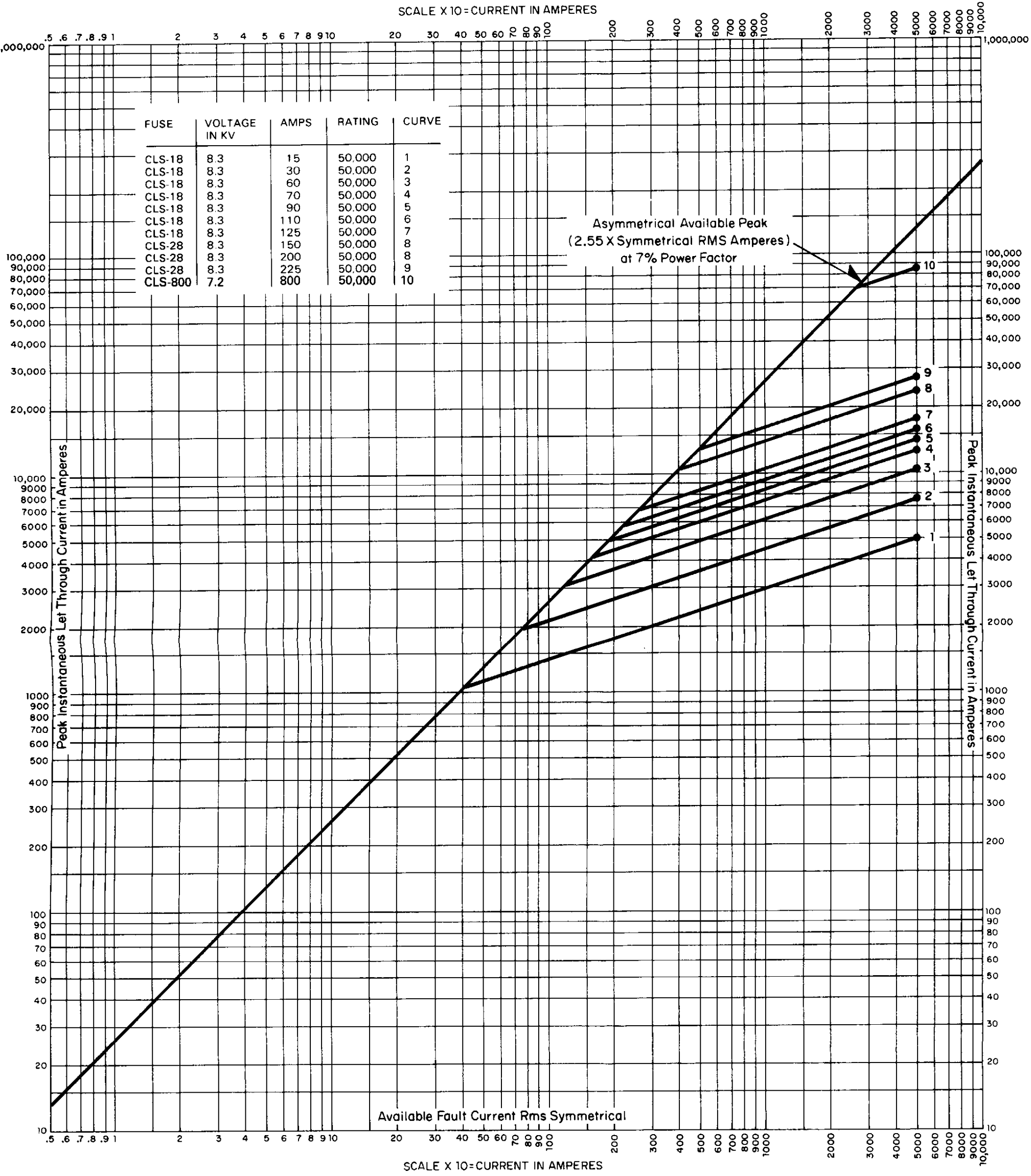
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Supersedes Curve No. 9
dated January, 1986

July, 1986

9

Reference Data			
Curve:	1 and 2	3	4 Thru 14
Ref. Curve No.	667002	667008	639315
Date:	6-16-78	9-13-79	2-22-71



Type CLS-18, CLS-28 and CLS-800® Motor Starter Current Limiting Fuses
Let-Thru Current Characteristics, 7.2-8.3 kV

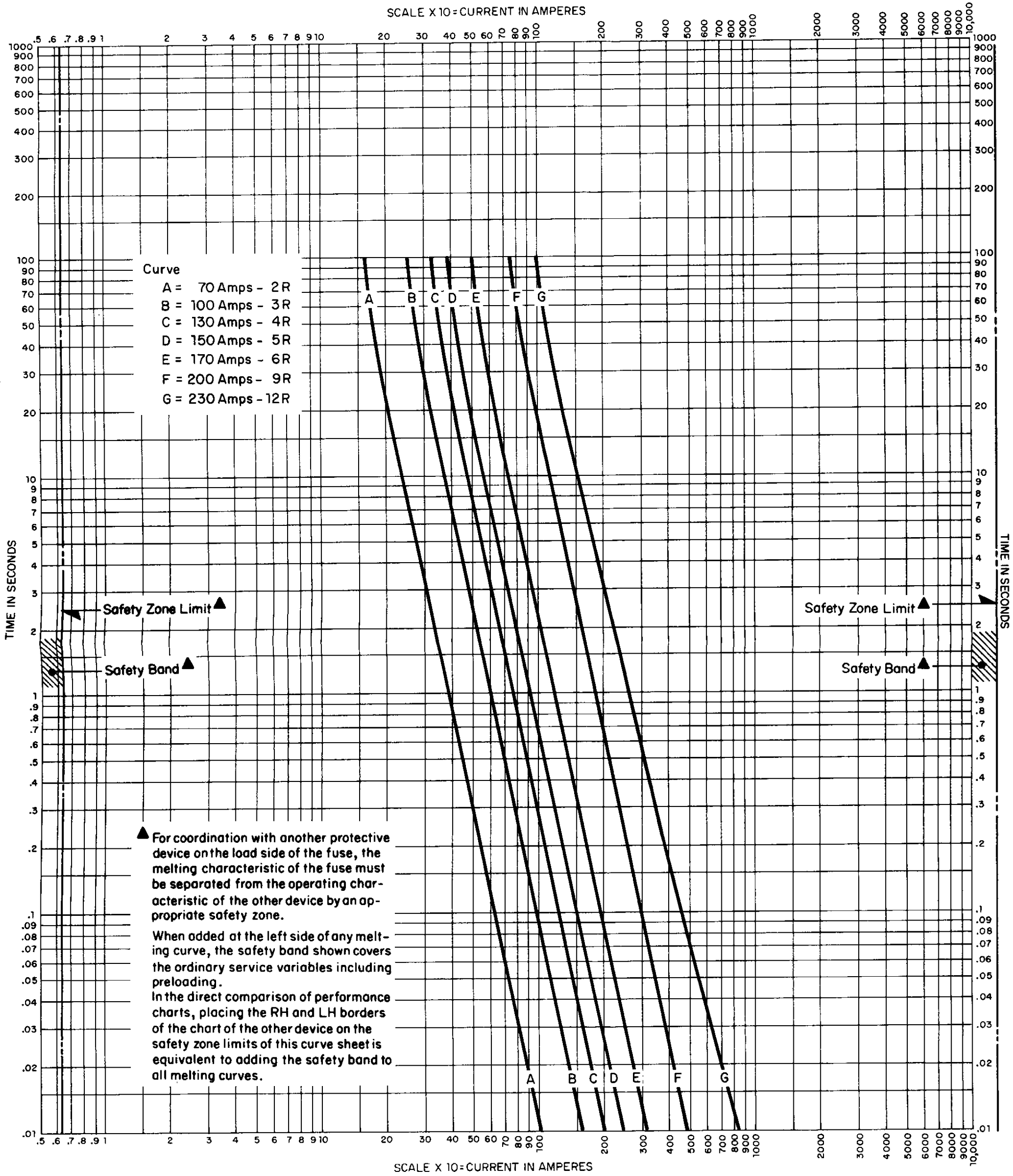
● Added since previous issue.

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Supersedes Curve No. 10
dated January, 1986

July, 1986

Reference Data
Curve: 1 Thru 9
Ref. Curve No. 666798
Date: 12-2-75



Type CLSS-18 and CLSS-28
Melting Time-Current Characteristics, 7.2 and 8.3 Kv

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be positive.

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Supersedes Curve No. 13
dated December, 1979

January, 1986

Reference Data
Curve: A, B, C, D, E, F, G
Ref. Curve No. 667006
Date: 1-5-79

Type CLSS-18 and CLSS-28

Total Clearing Time-Current Characteristics, 7.2 and 8.3 Kv

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be negative.

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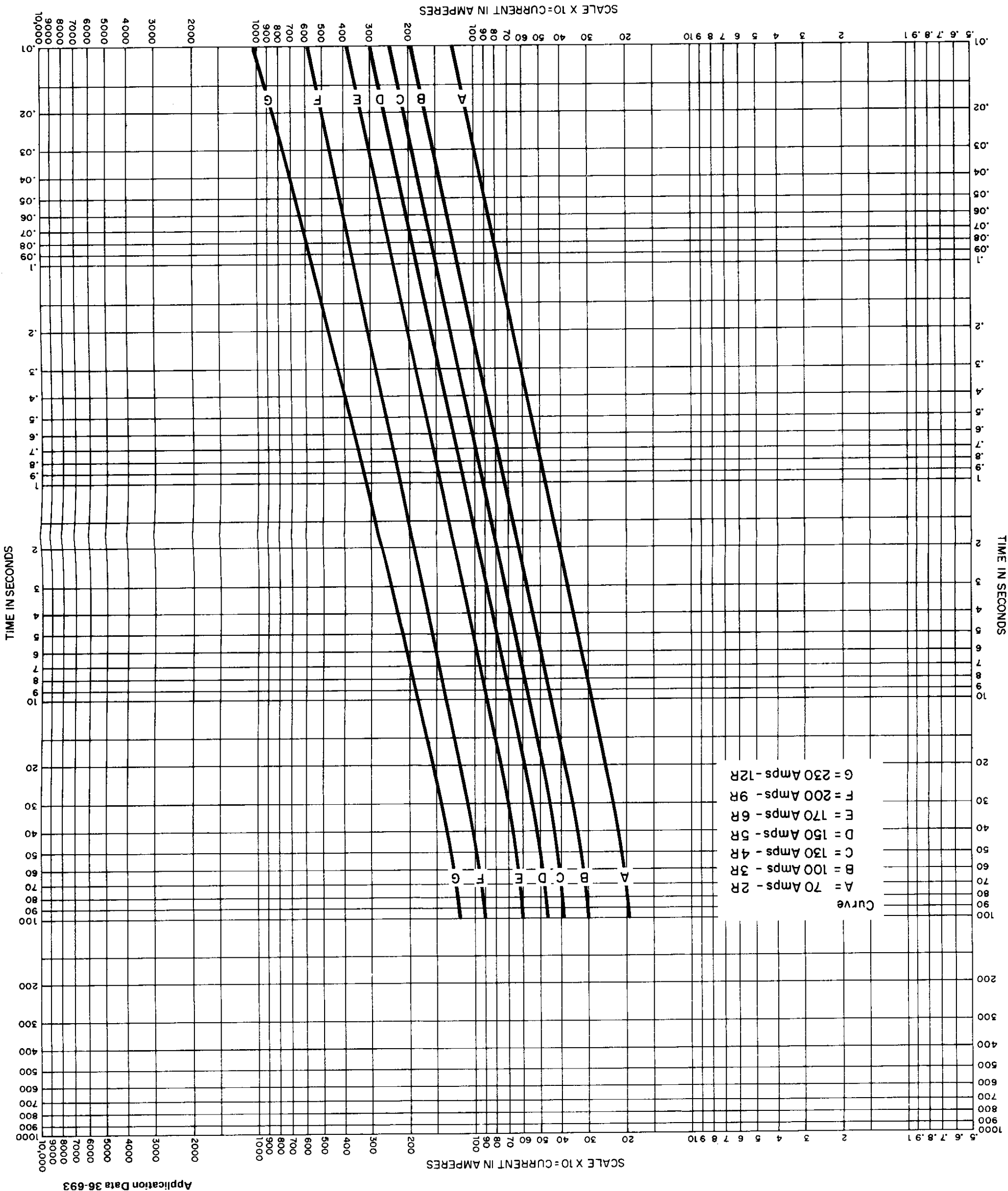
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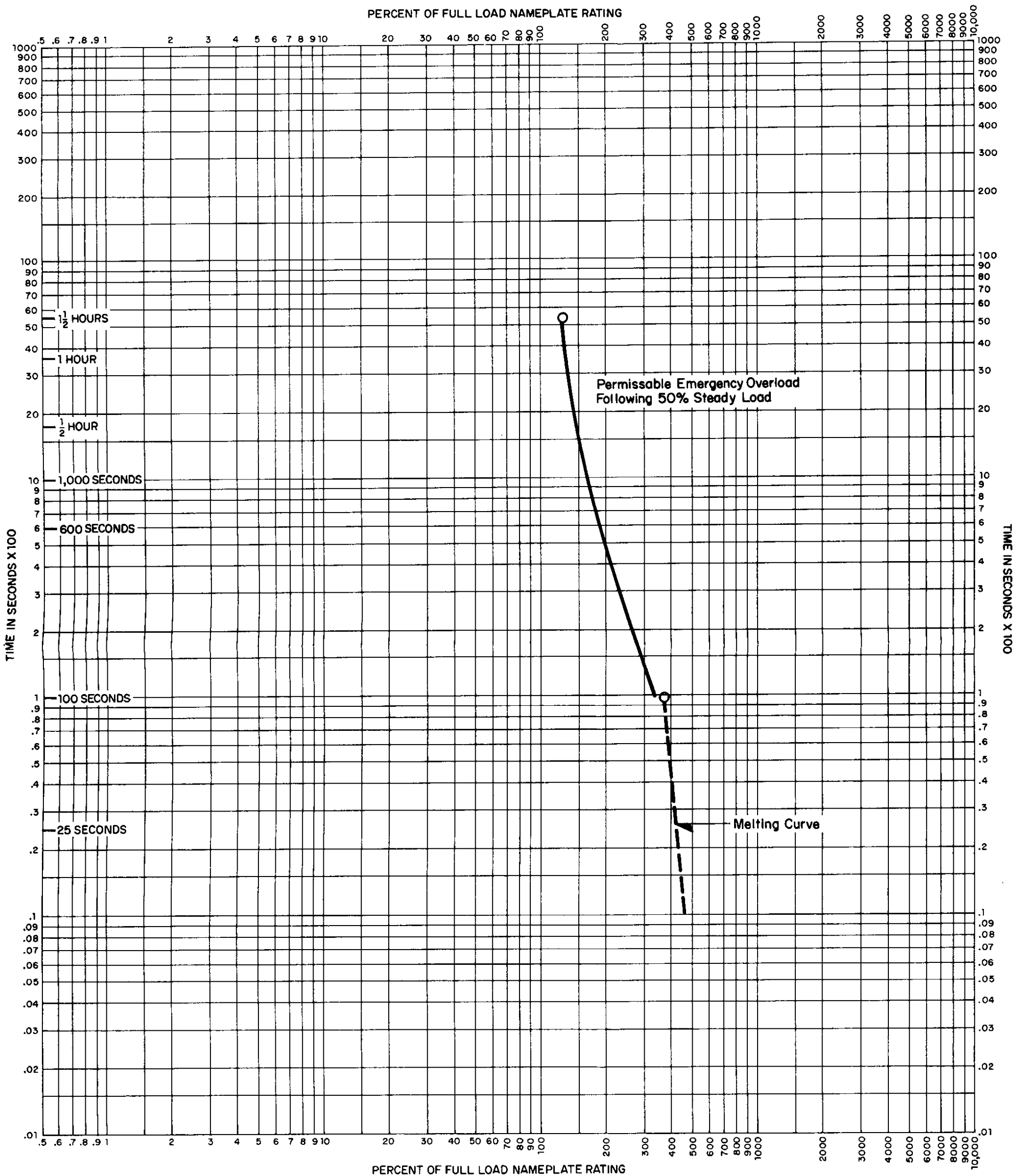
Curve: A, B, C, D, E, F, G
Ref. Curve No. 667007
Date: 1-5-79
666910
9-8-77

January, 1986

Supersedes Curve No. 14
dated December, 1979

14





Type CLS Motor Starter Current Limiting Power Fuses
Emergency Overload Time-Current Characteristics

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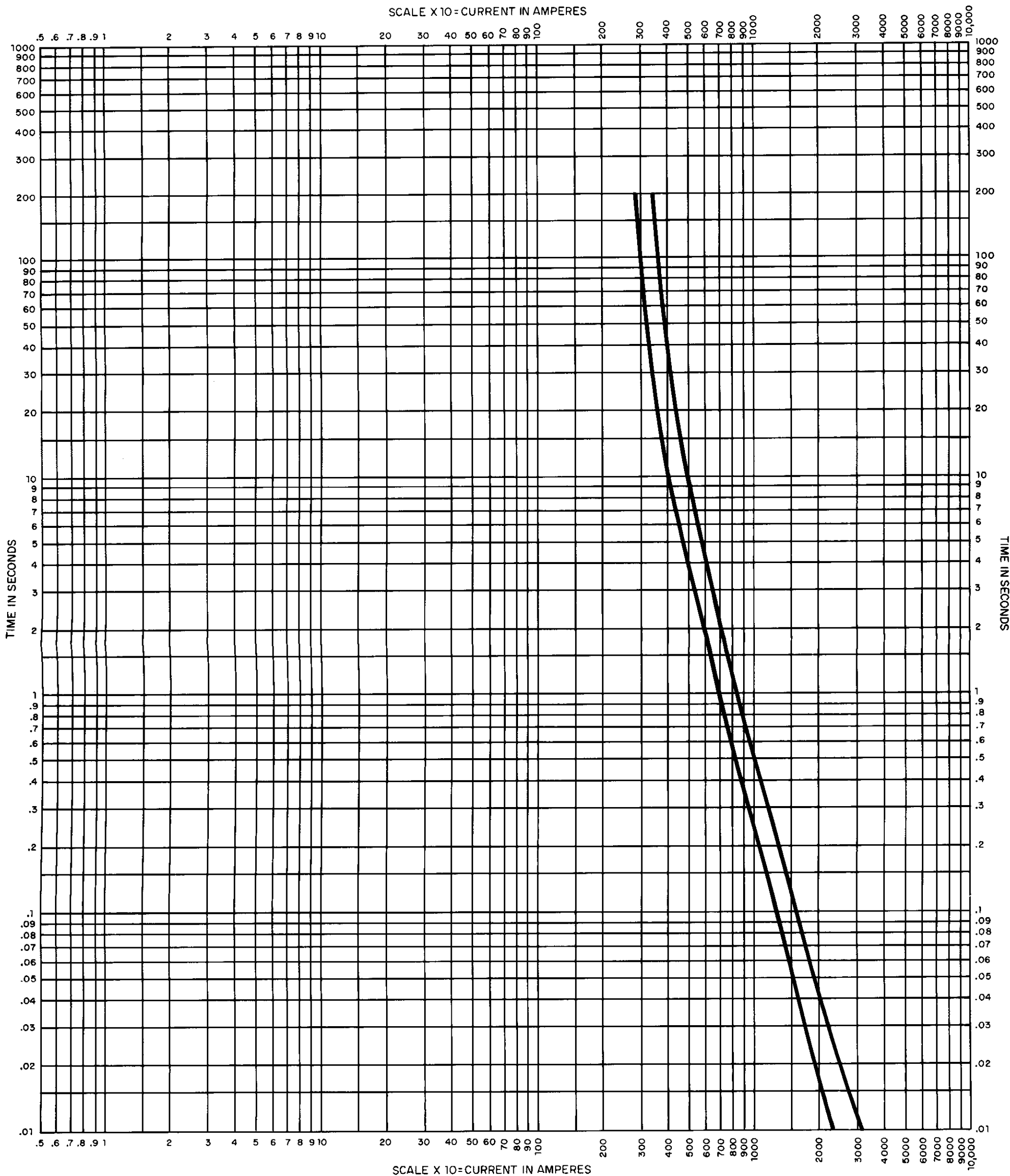
Supersedes Curve No. 15
dated December, 1979

January, 1986

Reference Data

Curve: 1
Ref. Curve No. 512853
Date: 8-60

15



Type CLS-650-3 Motor Starter Fuse
Minimum Melting and Total Clearing Time-Current Characteristics, 7.2 kV

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be positive.

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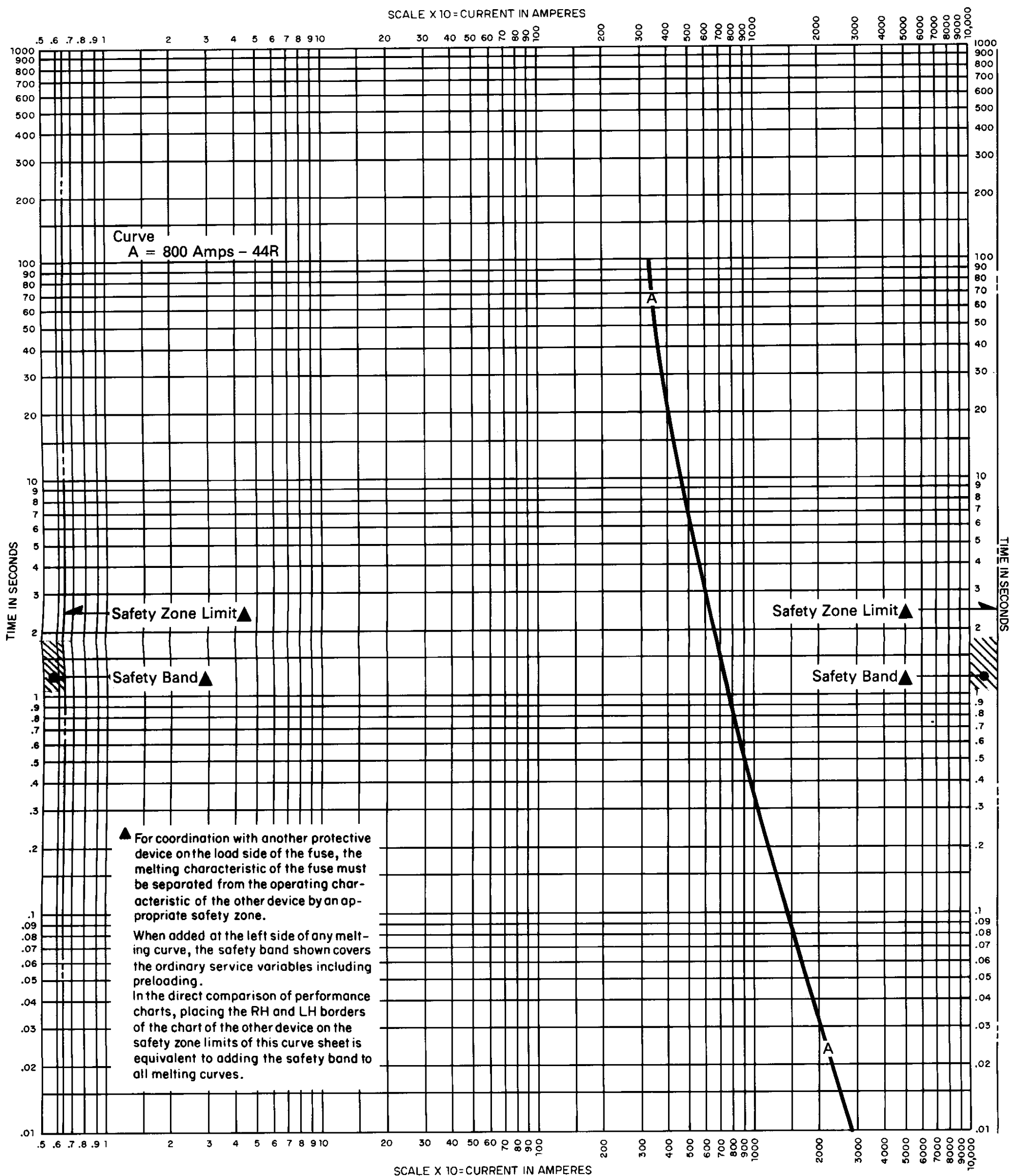
Curve No.
New Information

16

January, 1986

Reference Data

Ref. Curve No. 705456
Date: 9-1-83



Type CLS-800 Motor Starter Current Limiting Fuses

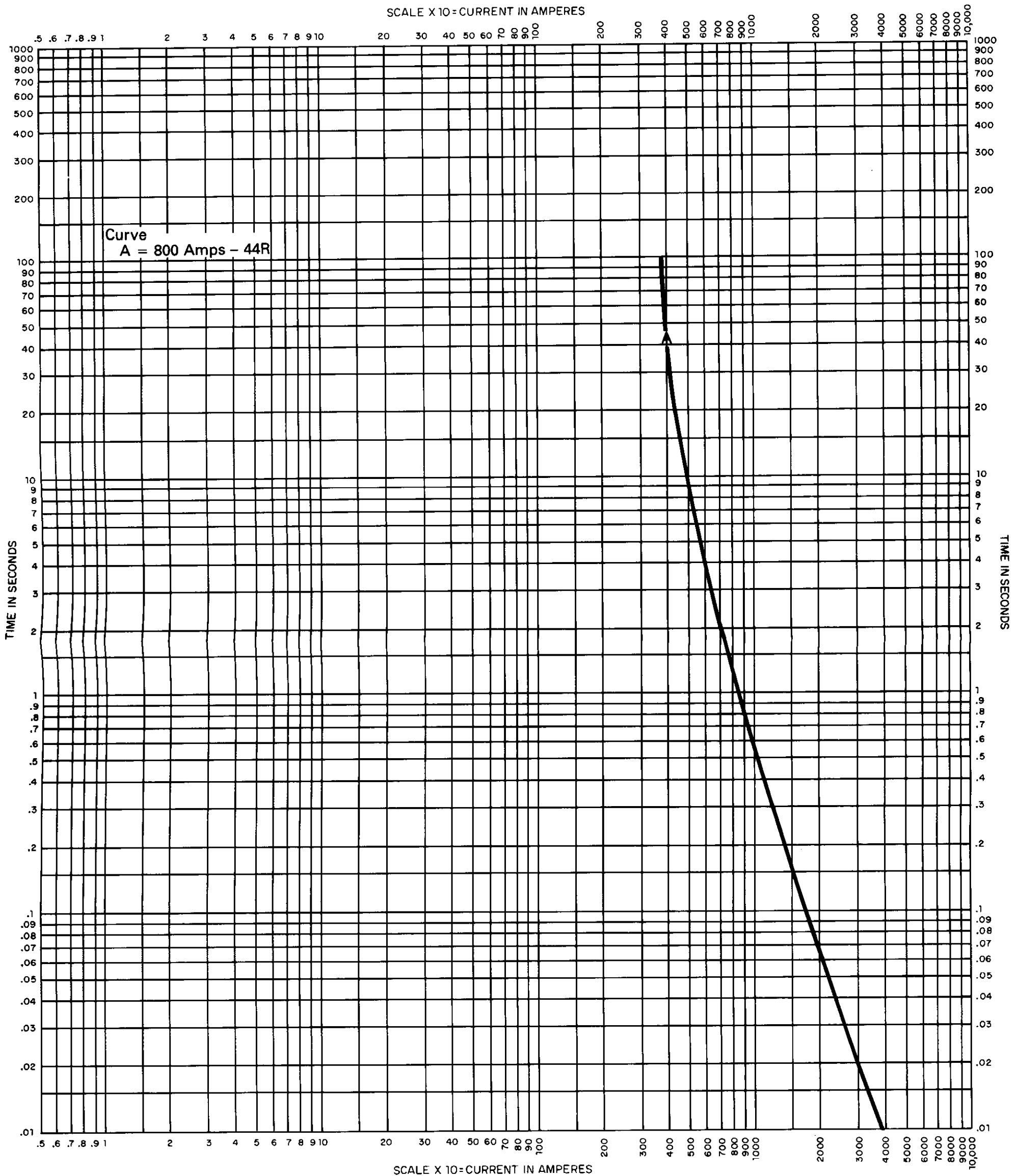
Melting Time-Current Characteristics, 7.2 kV

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to minimum test points so variations should be positive.

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New Information
January, 1986

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Type CLS-800 Motor Starter Current Limiting Fuses
Total Clearing Time-Current Characteristics, 7.2 kV

Curves are based on tests starting with fuse units at an ambient temperature of 25°C and without initial load. Curves are plotted to maximum test points so variations should be negative.

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Curve No.
 New Information
 January, 1986

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