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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

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ISO RECOMMENDATION

R 1549

PRECISION FUSE-LINKS FOR AIRCRAFT

(TYPE B)

1st EDITION

May 1971

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BRIEF HISTORY

The ISO Recommendation R 1549, *Precision fuse-links for aircraft (Type B)*, was drawn up by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1549, which was circulated to all the ISO Member Bodies for enquiry in June 1968. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Italy	Thailand
Belgium	New Zealand	Turkey
Canada	Peru	U.A.R.
Czechoslovakia	South Africa, Rep. of	United Kingdom
Greece	Spain	
Israel	Switzerland	

The following Member Bodies opposed the approval of the Draft :

Germany
Netherlands
U.S.S.R.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

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ISO Recommendation R 1549 May 1971

PRECISION FUSE-LINKS FOR AIRCRAFT

(TYPE B)

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1. SCOPE

This ISO Recommendation gives the dimensions and performance requirements for a range of precision fuse-links suitable for use in aircraft electrical systems having voltage and frequency characteristics conforming to ISO Recommendation R 222*, *Voltages for aircraft electrical systems*, at any ambient temperature from −65 °C to +85 °C, and all altitudes from 0 to 24 400 m.

2. TERMINOLOGY

The terminology used in this ISO Recommendation is in conformity with the International Electrotechnical Commission (IEC) Publication 269, *Low voltage fuses with high breaking capacity for industrial and similar purposes – Part 1 : General requirements*, as far as practicable.

3. GENERAL REQUIREMENTS

The fuse-links should comply with the requirements of ISO Recommendation R 1547, *Precision fuse-links for aircraft – General requirements.*

4. DIMENSIONS

The dimensions of the fuse-links should comply with Table 1 for the ferrule type or Table 2 for the tag type.

5. CURRENT, VOLTAGE AND BREAKING-CAPACITY RATINGS

The current ratings, the voltage ratings and breaking-capacity ratings of the fuse-links should be in accordance with those listed in Table 3.

6. TIME/CURRENT CHARACTERISTICS

The pre-arcing time/current characteristics of the fuse-links should be within the appropriate envelope curves shown in the Annex.

7. TESTS

The fuse-links should be tested in accordance with ISO Recommendation R 1547.

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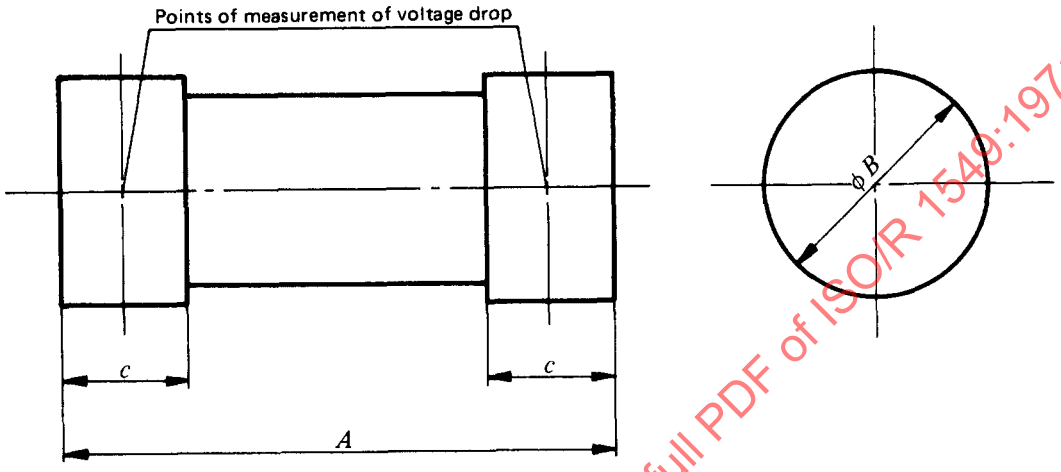
* See also ISO Recommendation R 1540, *Characteristics of aircraft electrical systems*. (In course of preparation.)

TABLE 1 – **Dimensions of ferrule-type fuse-links**



Fuse type		A		B		C	
		max.	min.	max.	min.	max.	min.
B.1	mm	25.4	24.6	8.0	7.5	9.1	8.3
	in	1	0.969	0.313	0.297	0.360	0.328

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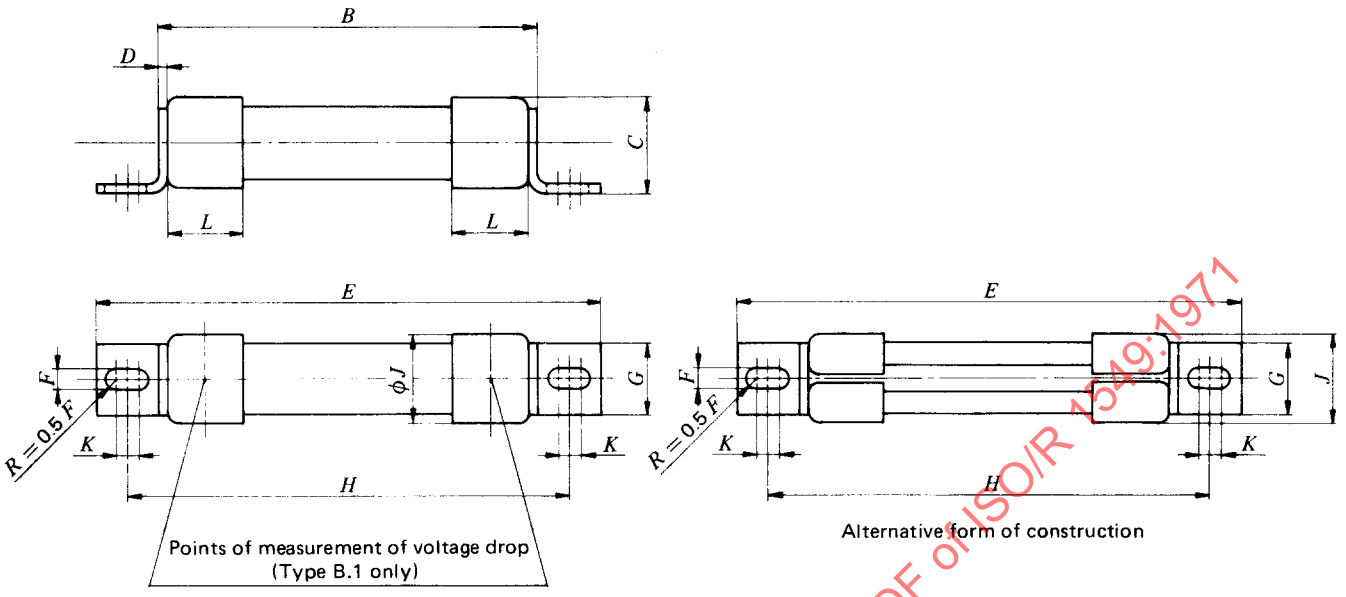
TABLE 2 – **Dimensions of tag-type fuse-links**



Fuse type	Current rating		B	C	D	E		F	
	A		max.	max.	nom.	max.	min.	max.	min.
B.1	0.25 to 20	mm	27.0	8.7	0.8	44.9	44.0	4.1	4.0
		in	1.063	0.344	0.031	1.767	1.734	0.161	0.156
B.6	30, 40 and 50	mm	22.6	13.9	0.8	48.0	47.2	6.7	6.5
		in	0.891	0.547	0.031	1.891	1.859	0.262	0.257
B.7	80 and 100	mm	24.2	19.1	1.2	57.6	56.7	6.7	6.5
		in	0.953	0.750	0.047	2.266	2.234	0.262	0.257
B.8	160	mm	24.6	19.1	1.6	73.4	72.6	8.5	8.3
		in	0.969	0.750	0.063	2.891	2.859	0.333	0.328
B.9	200 and 300	mm	27.8	36.9	2.0	73.4	72.6	9.7	9.6
		in	1.094	1.453	0.073	2.891	2.859	0.382	0.377

Fuse type	Current rating		G	H		J	K		L
	A		nom.	max.	min.	max.	max.	min.	max.
B.1	0.25 to 20	mm	6.4	36.9	35.3	8.0	1.3	1.0	9.1
		in	0.250	1.453	1.390	0.313	0.050	0.040	0.360
B.6	30, 40 and 50	mm	11.1	36.9	35.3	12.7	1.4	1.1	7.9
		in	0.438	1.453	1.390	0.500	0.055	0.045	0.310
B.7	80 and 100	mm	15.1	43.6	41.3	17.5	1.8	1.5	8.6
		in	0.594	1.718	1.625	0.683	0.070	0.060	0.340
B.8	160	mm	31.8	52.4	49.8	35.7	1.8	1.5	8.6
		in	1.25	2.063	1.960	1.406	0.070	0.060	0.340
B.9	200 and 300	mm	25.4	55.1	51.2	34.7	2.5	2.3	9.3
		in	1.00	2.171	2.015	1.391	0.100	0.090	0.365

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TABLE 3 – Ratings of fuse-links

1	2	3	4	5	6	7	8	9	10	11	12	2
Fuse type	Rated current (– 65 °C to + 35 °C ambient temperature*)	Type of end cap	Voltage rating and breaking capacity				Voltage drop**		Duration of test for minimum fusing current	Copper core cable to be used during tests (in accordance with ISO Recommendations R 469 and R 474)		Rated current (– 65 °C to + 35 °C ambient temperature)
			Voltage	Prospective current of test circuit	Power factor (lagging) of test circuit (max.)	Time constant of test circuit (min.)	Upper limit of mean value	Percentage tolerance on actual mean value		Nominal cross-sectional area of conductor	Cable size number	
	A		V	A		s	mV	± %	h	mm^2		A
B.1	0.25	Ferrule or tag	250 a.c. 120 d.c.	16 500 16 500	0.3 –	– 0.010 0	3 050	15	1.5	0.347	22	0.25
	0.5						2 890	12.5				0.5
	1.0						620	10				1.0
	2.5						296	7.5				2.5
	5.0						167	7.5		0.556	20	5.0
	7.5						110	7.5				7.5
	10.0						106	7.5		0.966	18	10.0
	12.5						99	7.5		1.17	16	12.5
	15.0						74	7.5		2.05	14	15.0
	20.0						62	7.5				20.0
B.6	30	Tag only	250 a.c. 120 d.c.	16 500 16 500	0.3 –	– 0.010 0	–	–	1.5	5.33	10	30
	40						–	–				40
	50						–	–		8.76	8	50
B.7	80	Tag only	250 a.c. 120 d.c.	16 500 16 500	0.3 –	– 0.010 0	–	–	2.0	13.3	6	80
	100						–	–		21.5	4	100
B.8	160	Tag only	250 a.c. 120 d.c.	16 500 16 500	0.3 –	– 0.010 0	–	–	2.5	40.7	1	160
B.9	200	Tag only	250 a.c. 120 d.c.	16 500 16 500	0.3 –	– 0.010 0	–	–	2.5	68.3	00	200
	300						–	–		109.0	0000	300

* See ISO Recommendation R 1547, *Precision fuse-links for aircraft – General requirements.*

** As determined by the method described in the Annex to ISO Recommendation R 1547. For fuse-links of ratings of 35 A and above, the voltage drop values are so low as to have no significant effect on the impedance of a circuit.

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ANNEX

ENVELOPE CURVES OF TIME/CURRENT CHARACTERISTICS OF FUSE-LINKS

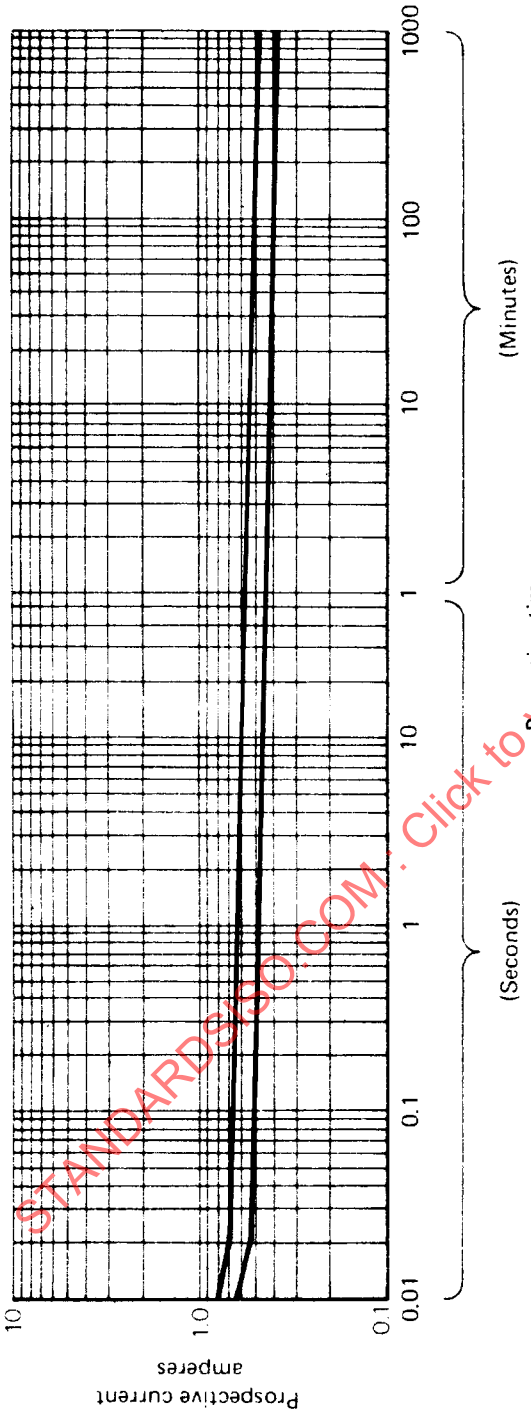

FIG. 1 – Type B.1, 0.25 A

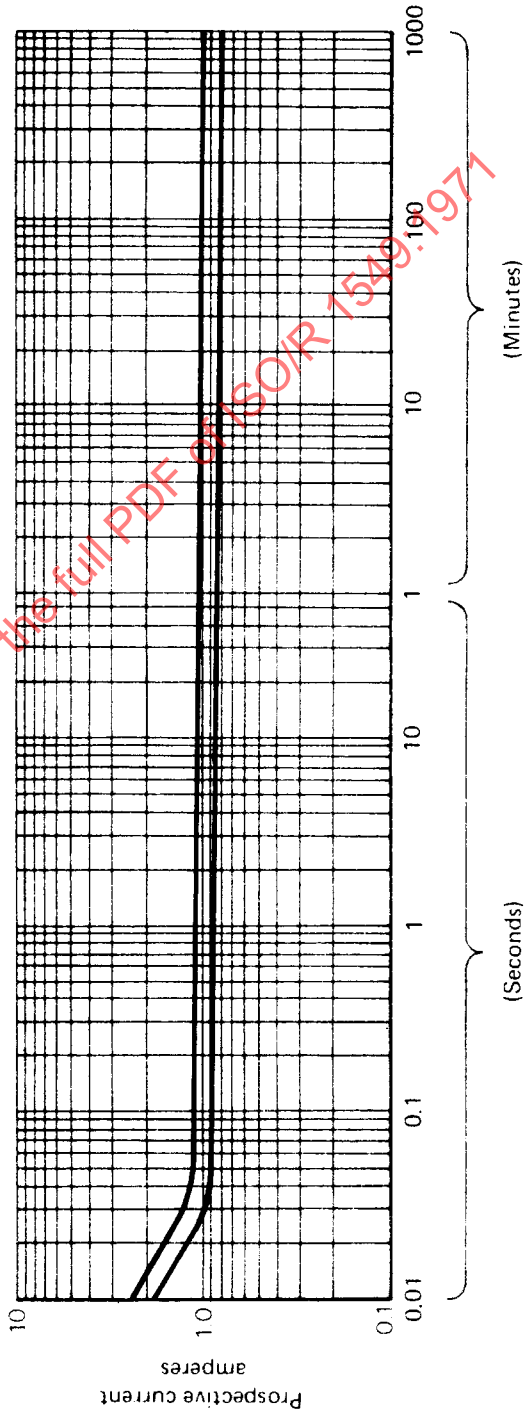

FIG. 2 – Type B.1, 0.5 A

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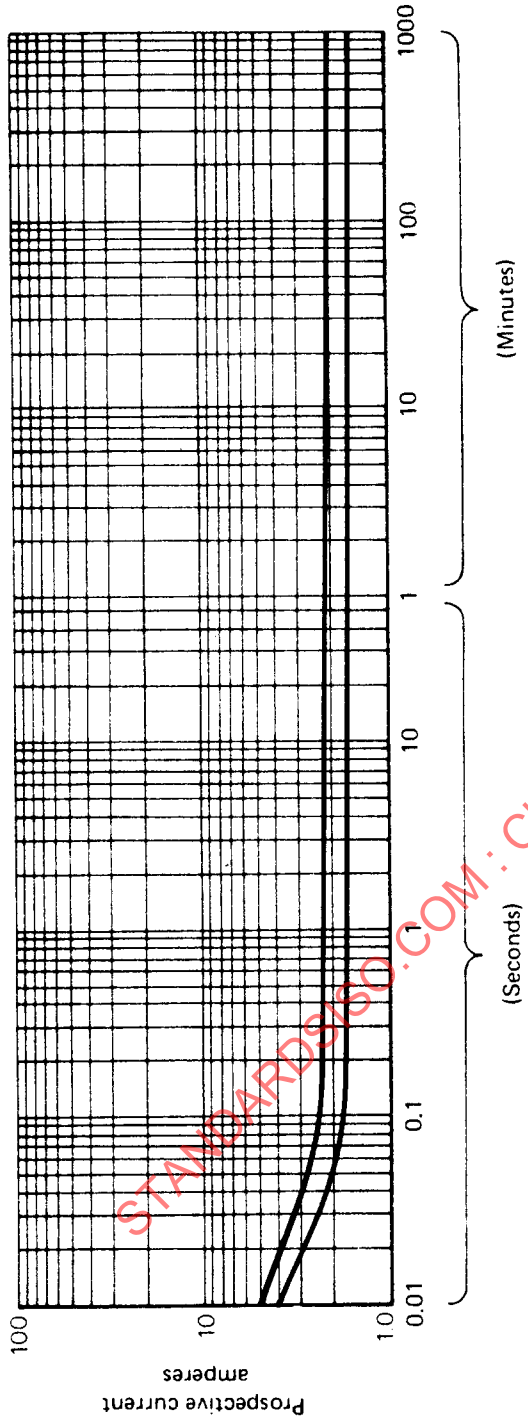

FIG. 3 – Type B.1, 1 A

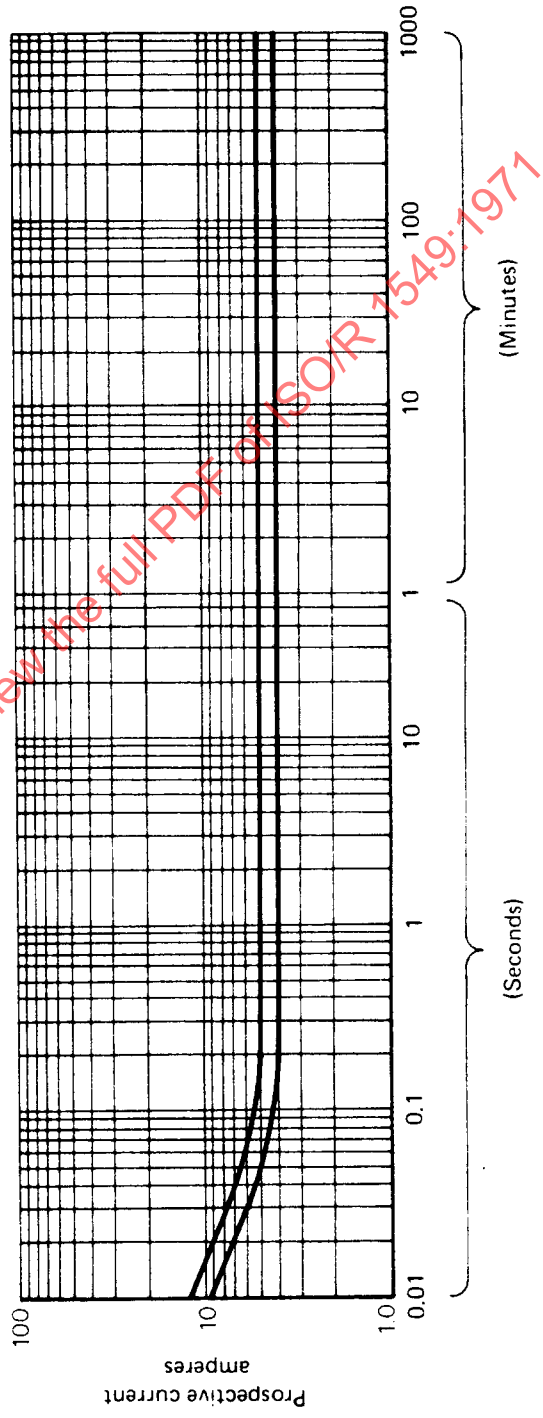

FIG. 4 – Type B.1, 2.5 A

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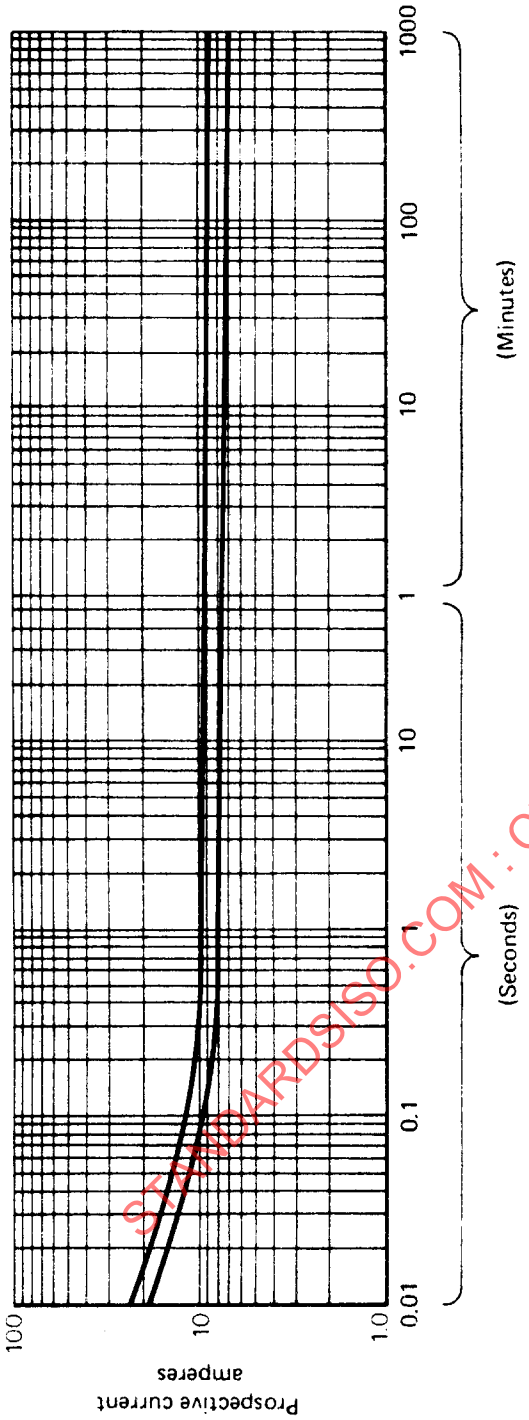

FIG. 5 – Type B.1, 5 A

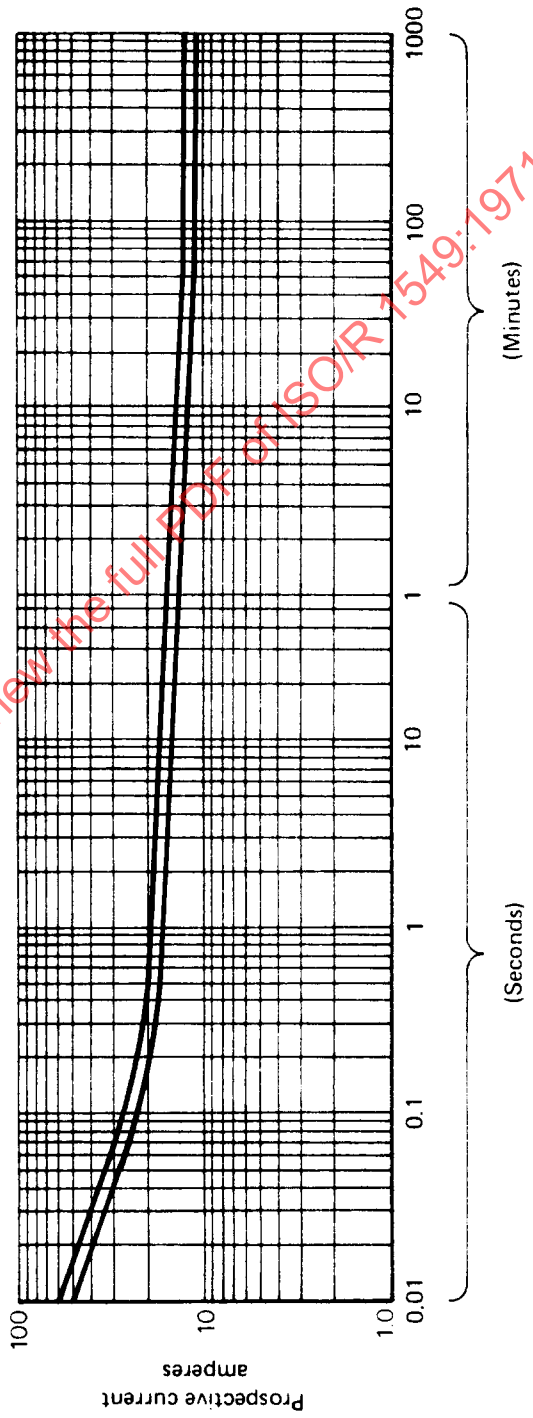

FIG. 6 – Type B.1, 7.5 A

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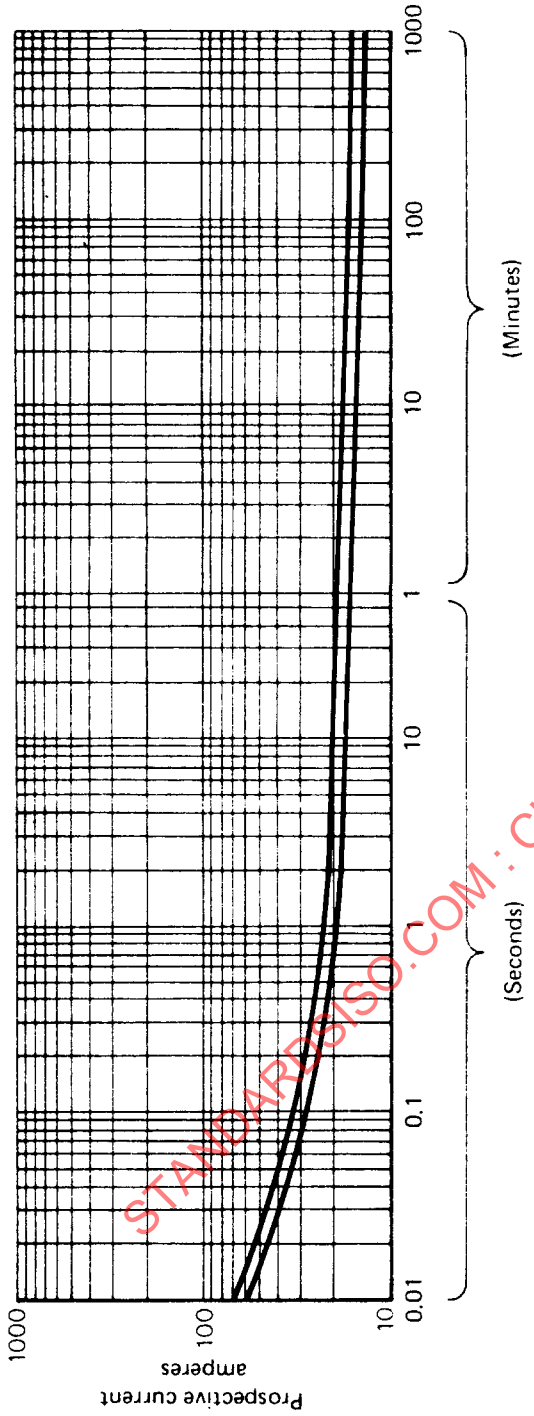

FIG. 7 – Type B.1, 10 A

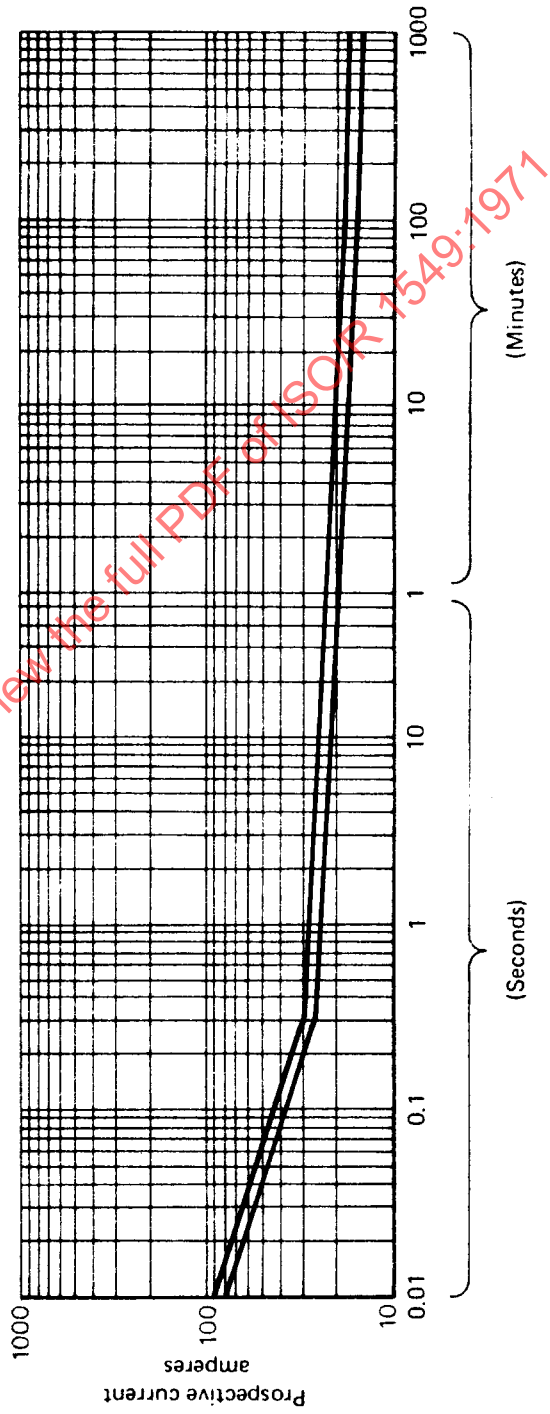

FIG. 8 – Type B.1, 12.5 A

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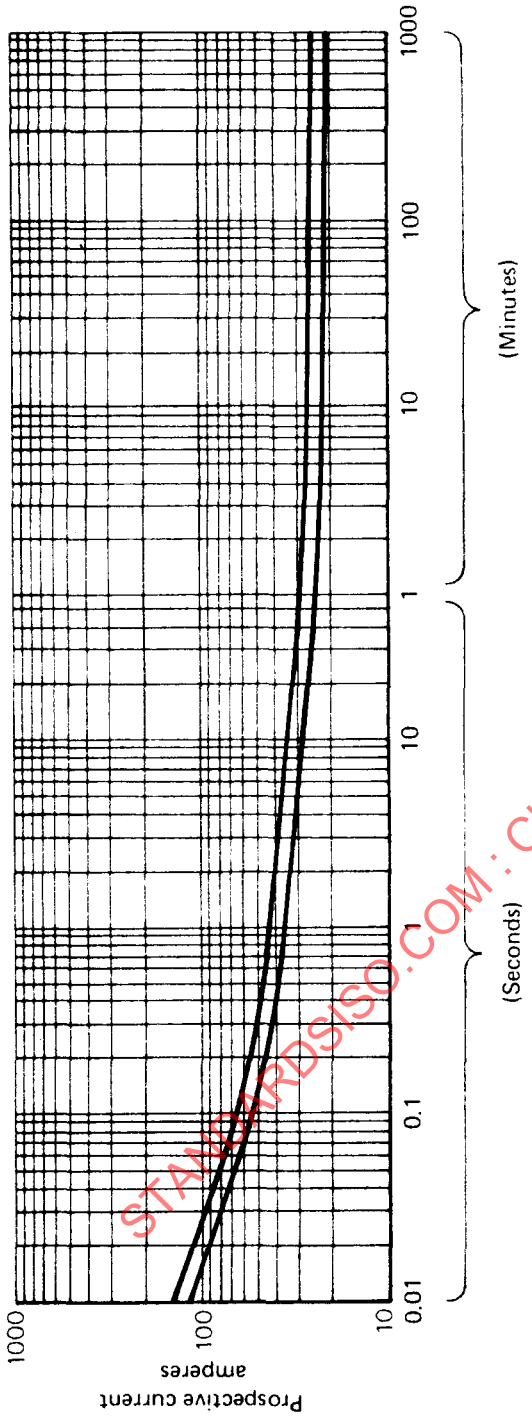

FIG. 9 – Type B.1, 15 A

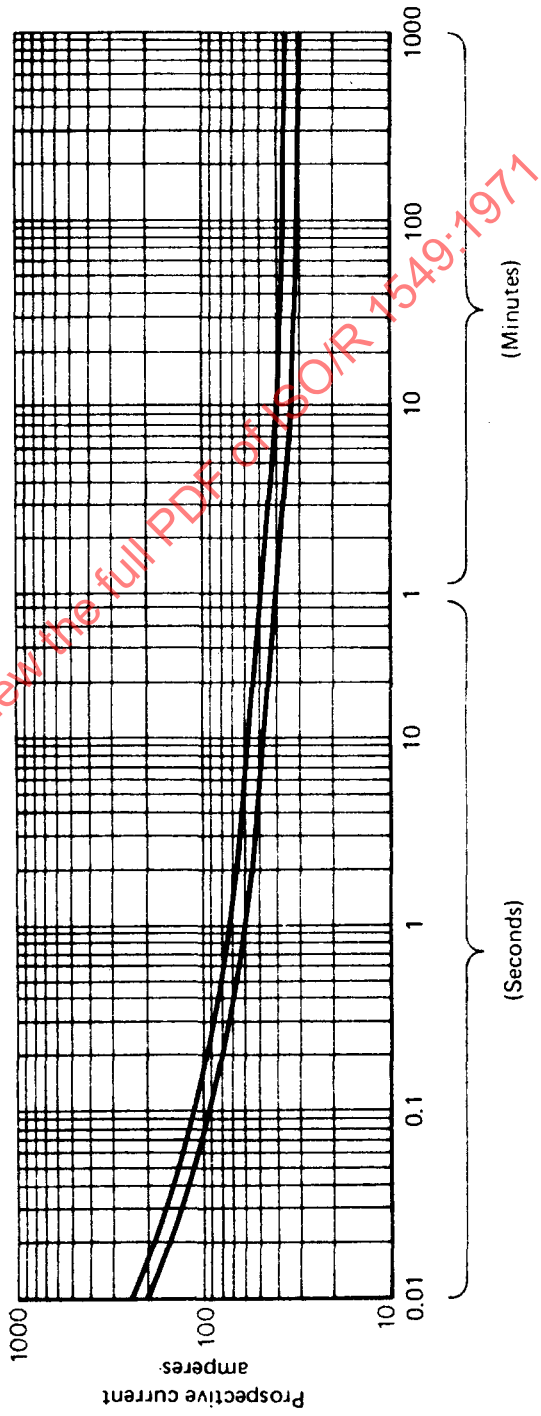

FIG. 10 – Type B.1, 20 A

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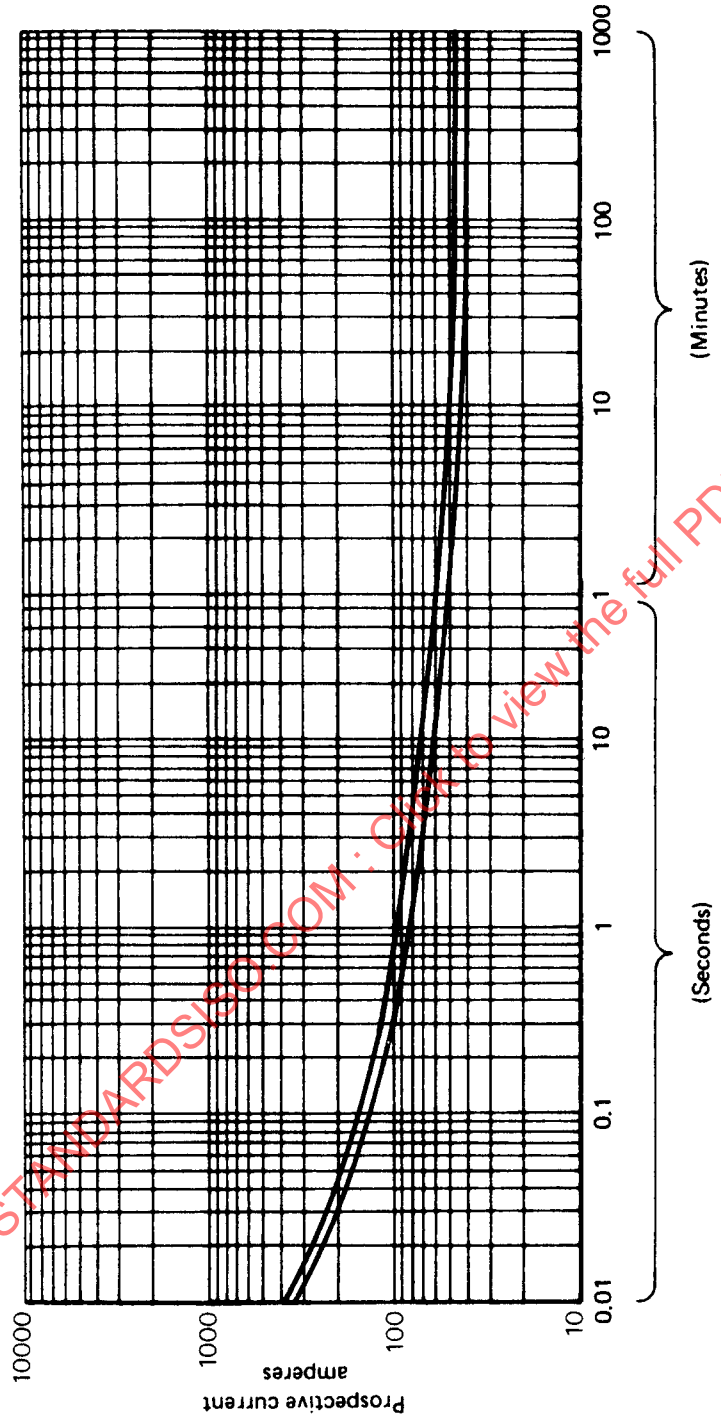

FIG. 11 – Type B.6, 30 A

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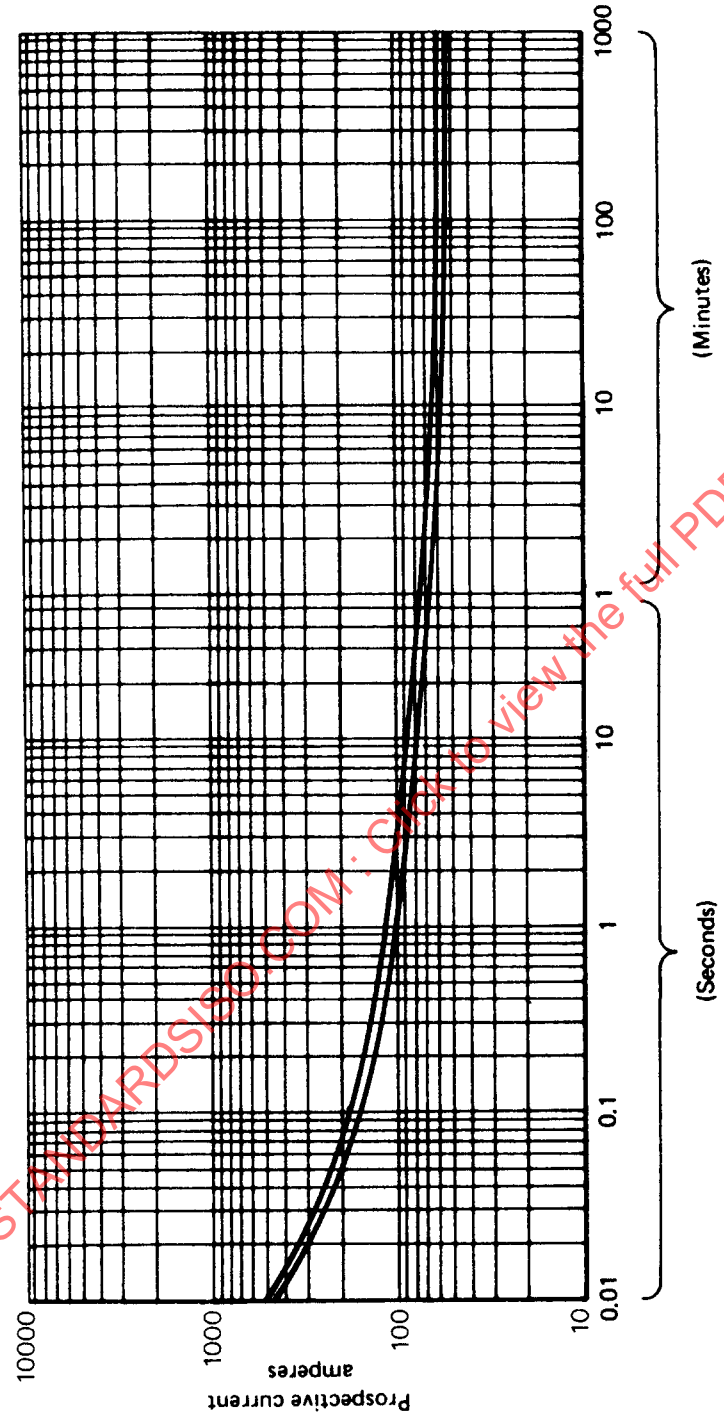

FIG. 12 – Type B.6, 40 A

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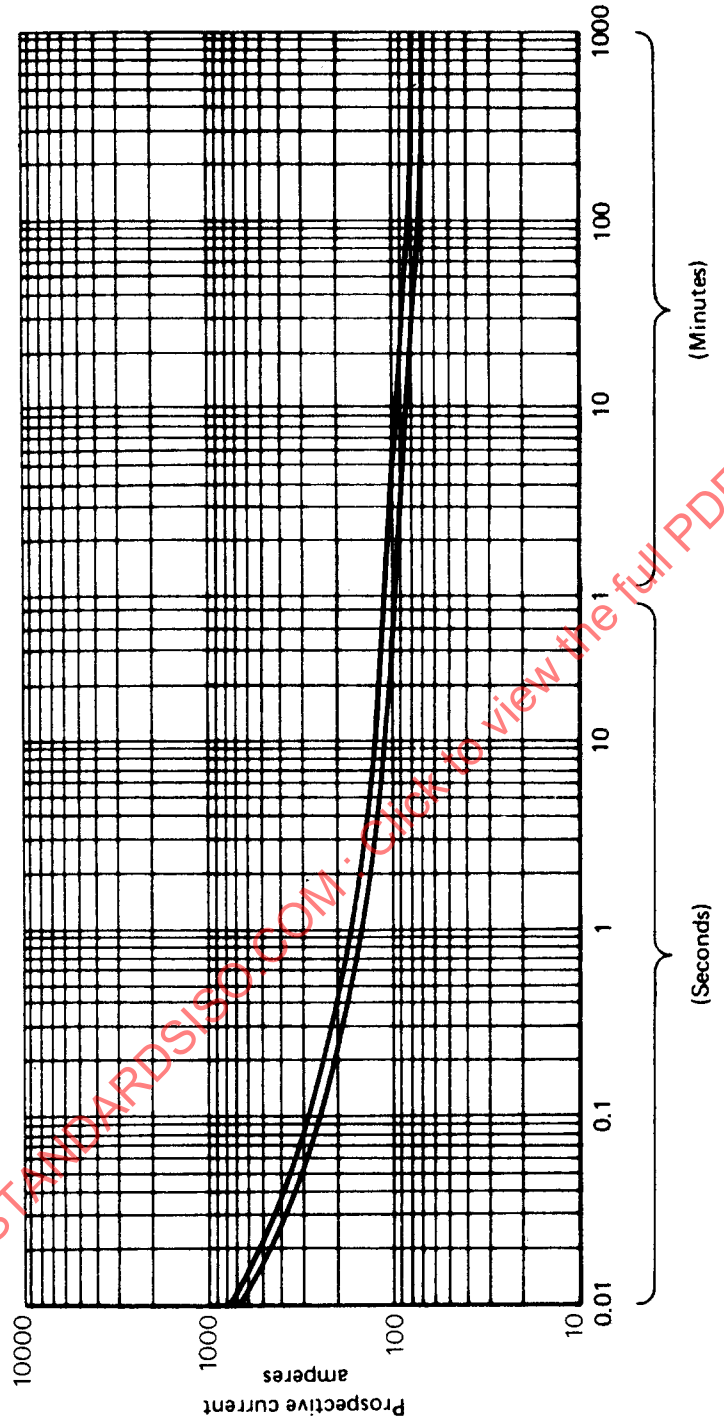

FIG. 13 – Type B.6, 50 A

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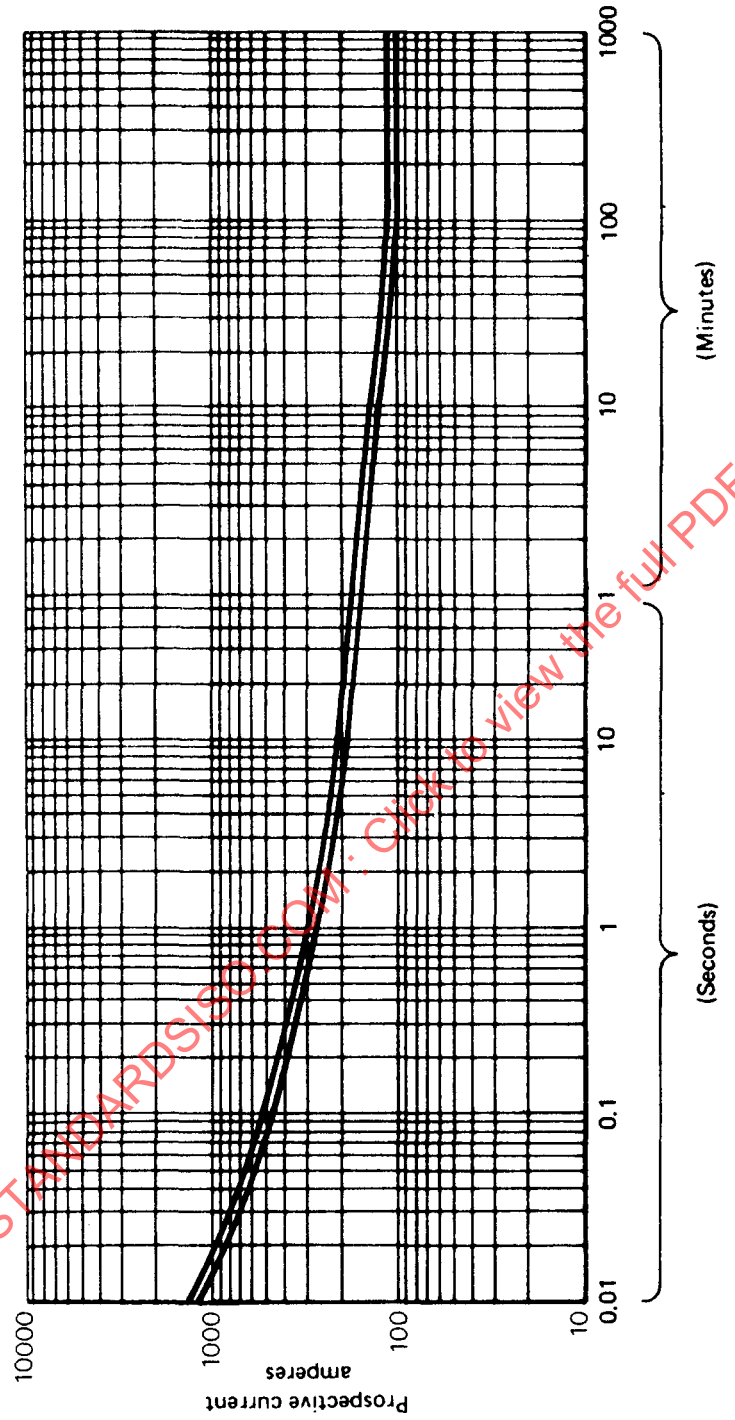

FIG. 14 – Type B.7, 80 A

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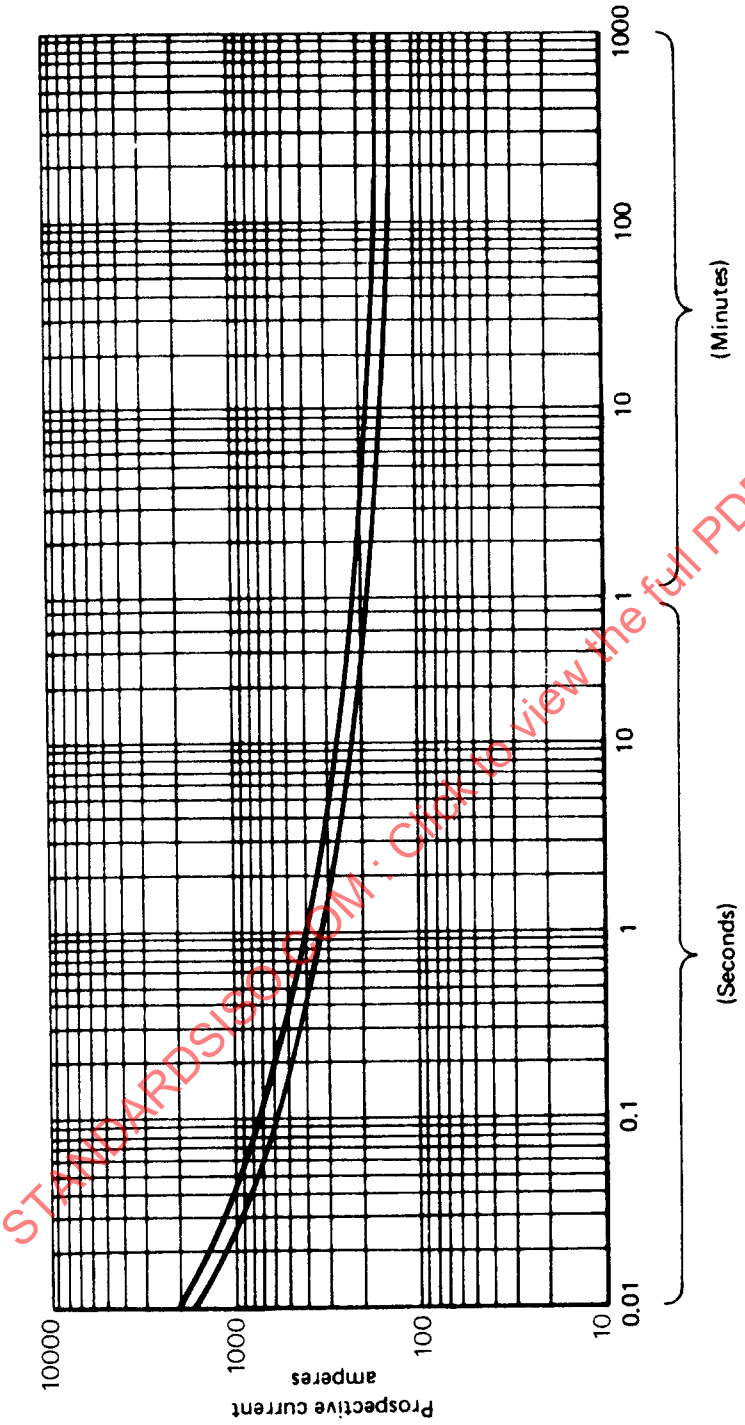

FIG. 15 – Type B.7, 100 A

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