

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 1548

PRECISION FUSE-LINKS FOR AIRCRAFT
(TYPE A)

1st EDITION

May 1971

COPYRIGHT RESERVED

The copyright of ISO Recommendations and ISO Standards belongs to ISO Member Bodies. Reproduction of these documents, in any country, may be authorized therefore only by the national standards organization of that country, being a member of ISO.

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 1548, *Precision fuse-links for aircraft (Type A)*, 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. 1548, 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.

PRECISION FUSE-LINKS FOR AIRCRAFT

(TYPE A)

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*, *Voltagages for aircraft electrical systems*, at any ambient temperature from -65°C to $+85^{\circ}\text{C}$, 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

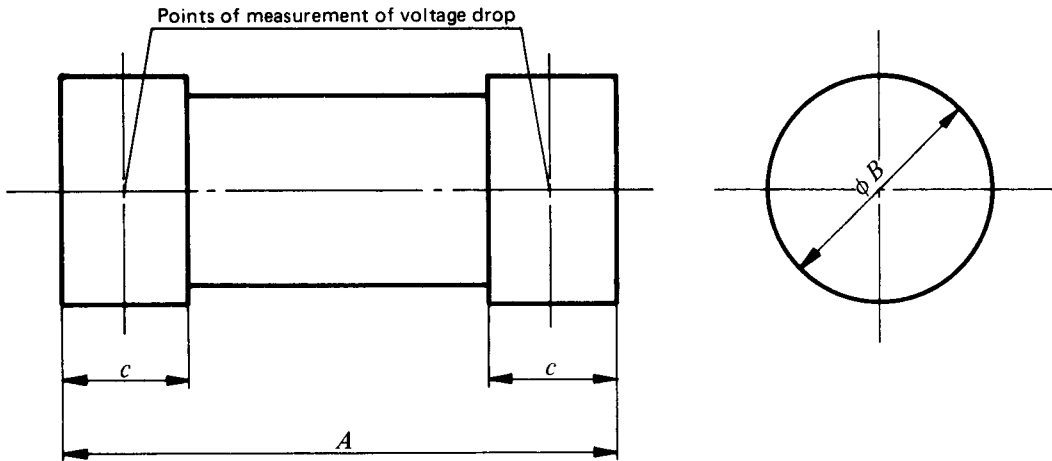
The pre-arcing time/current characteristics of the fuse-links should be within the appropriate envelope curves shown in the Annex.

7. TESTS

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

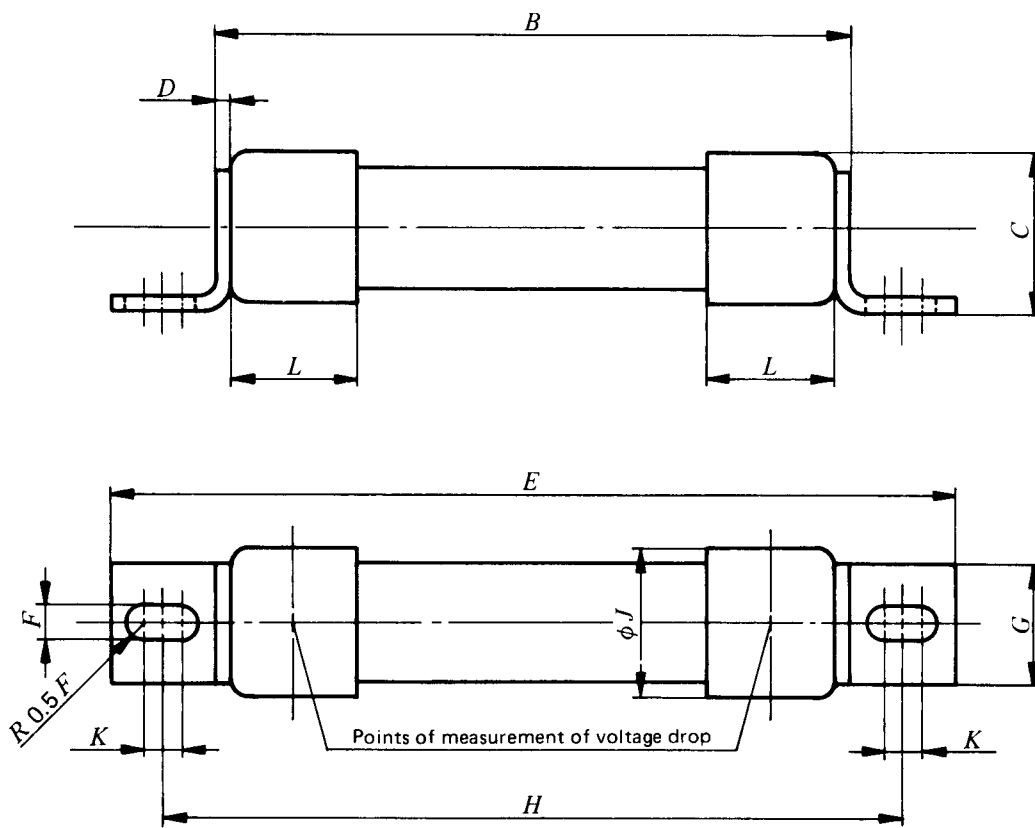
* See also ISO Recommendation R 1540, *Characteristics of aircraft electrical systems*. (In course of preparation.)

TABLE 1 - Dimensions of ferrule-type fuse-links



Body size	A		B		C		
	max.	min.	max.	min.	max.	min.	
00	mm	16.7	15.5	4.9	4.6	4.9	3.2
	in	0.656	0.609	0.192	0.182	0.192	0.125
0	mm	32.5	31.2	6.5	6.2	6.4	4.7
	in	1.281	1.234	0.255	0.245	0.250	0.187
1	mm	34.3	32.8	12.0	11.8	7.9	6.4
	in	1.354	1.291	0.474	0.463	0.312	0.250
2	mm	38.1	36.8	16.8	16.6	9.5	7.9
	in	1.509	1.454	0.663	0.656	0.374	0.312
3	mm	48.5	47.0	33.3	33.0	12.7	11.1
	in	1.919	1.858	1.319	1.306	0.499	0.437

TABLE 2 - Dimensions of tag-type fuse-links



Body size	B		C		D	E		F		
	max.	min.	max.	min.	nom.	max.	min.	max.	min.	
0	mm	34.0	32.8	7.3	7.0	0.8	53.1	50.0	3.9	3.7
	in	1.349	1.294	0.289	0.275	0.032	2.097	1.974	0.152	0.147
1	mm	34.3	33.0	12.7	12.1	0.8	56.6	54.9	5.2	4.9
	in	1.354	1.300	0.500	0.475	0.032	2.234	2.160	0.204	0.194
2	mm	37.8	36.8	18.3	17.9	1.2	71.4	69.9	6.9	6.5
	in	1.490	1.450	0.720	0.704	0.048	2.818	2.754	0.270	0.256
3	mm	48.0	47.0	35.1	34.5	1.6	89.4	87.9	8.9	8.1
	in	1.890	1.850	1.382	1.360	0.063	3.522	3.462	0.334	0.318

Body size	G		H	J		K		L	
	max.	min.	nom.	max.	min.	max.	min.	max.	
0	mm	6.5	6.2	43.4	6.5	6.2	0.81	0.71	0.64
	in	0.255	0.245	1.71	0.255	0.245	0.032	0.028	0.25
1	mm	10.3	9.5	44.5	12.0	11.8	1.40	0.51	7.9
	in	0.406	0.375	1.75	0.474	0.463	0.055	0.020	0.312
2	mm	16.0	15.2	55.4	16.8	16.7	1.40	0.51	9.5
	in	0.630	0.600	2.187	0.663	0.656	0.055	0.020	0.375
3	mm	26.2	25.4	69.9	33.3	33.0	1.40	0.51	12.7
	in	1.030	1.000	2.75	1.319	1.306	0.055	0.020	0.5

TABLE 3 - Rating of fuse links

1	2	3	4	5			7	8		9	10	11		12	2
				Voltage rating and breaking capacity	Prospective current of circuit	Power factor (lagging) of test circuit (max.)		Time constant of test circuit (min.)	Voltage drop**			Duration of test for minimum fusing current	Nominal cross-sectional area of conductor		
Type of end cap	Voltage	A	s				Upper limit of mean value		Percentage tolerance on actual mean value	h	mm ²			Cable size number	
				Rated current (-65 °C to +35 °C ambient temperature*)	A	V		A				mV	±%		h
00	0.025	Ferrule only	250 a.c. 230 d.c.				4 000 4 000		0.4 -	- 0.0040	540** 4 300 3 000 1 850 2 100 385 275			30*** 20 20 20 15 15 15	
	0.05														
	0.1														
	0.25														
	0.5														
	1.0														
	2.0														
0	0.06	Ferrule or tag Tag only	250 a.c. 230 d.c.	4 000 4 000	0.4 -	- 0.0040	3 100 3 100 3 800 3 960 2 500 2 700 370 340 300 190 170 185 250	20 20 20 15 12.5 10 10 7.5 7.5 7.5 7.5 7.5 7.5	1.5	0.347	22	A	0.06 0.1 0.15 0.25 0.5 1.0 2 3 5 7 10 15 20		
	0.1														
	0.15														
	0.25														
	0.5														
	1.0														
	2														
	3														
	5														
	7														
10															
15															
20															

TABLE 3 - Rating of fuse links (continued)

1	2	3	4	5	6	7	8	9	10	11	12	2
1	0.5 1.0 2 3 5 7 10 15 20 30	Ferrule or tag Tag only	440 a.c. 230 d.c.	33 000 33 000	0.3 —	— 0.0150	3 420 2 350 450 550 615 345 190 155 175 145	12.5 10 10 7.5 7.5 7.5 7.5 7.5 7.5 7.5	1.5	0.347 0.556 0.966 2.05 5.33	22 20 18 14 10	0.5 1.0 2 3 5 7 10 15 20 30
2	10 15 20 30 40 50 60	Ferrule or tag Tag only	440 a.c. 230 d.c.	33 000 33 000	0.3 —	— 0.0150	175 155 170 125 150 150 145	7.5 7.5 7.5 7.5 7.5 7.5 7.5	2.0	0.966 2.05 5.33 13.3	18 14 10 6	10 15 20 30 40 50 60
3	40 60 80 100 125 150 200	Ferrule or tag Tag only	440 a.c. 230 d.c.	33 000 33 000	0.3 —	— 0.0150	150 140 115 104 98 73 81***	7.5 7.5 7.5 7.5 7.5 7.5 7.5****	2.0	5.33 13.3 21.5 33.3 40.7 68.3	10 6 14 2 1 00	40 60 80 100 125 150 200

* 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.
 *** These values have been obtained from one source only.

ANNEX

ENVELOPE CURVES OF TIME/CURRENT CHARACTERISTICS OF FUSE-LINKS

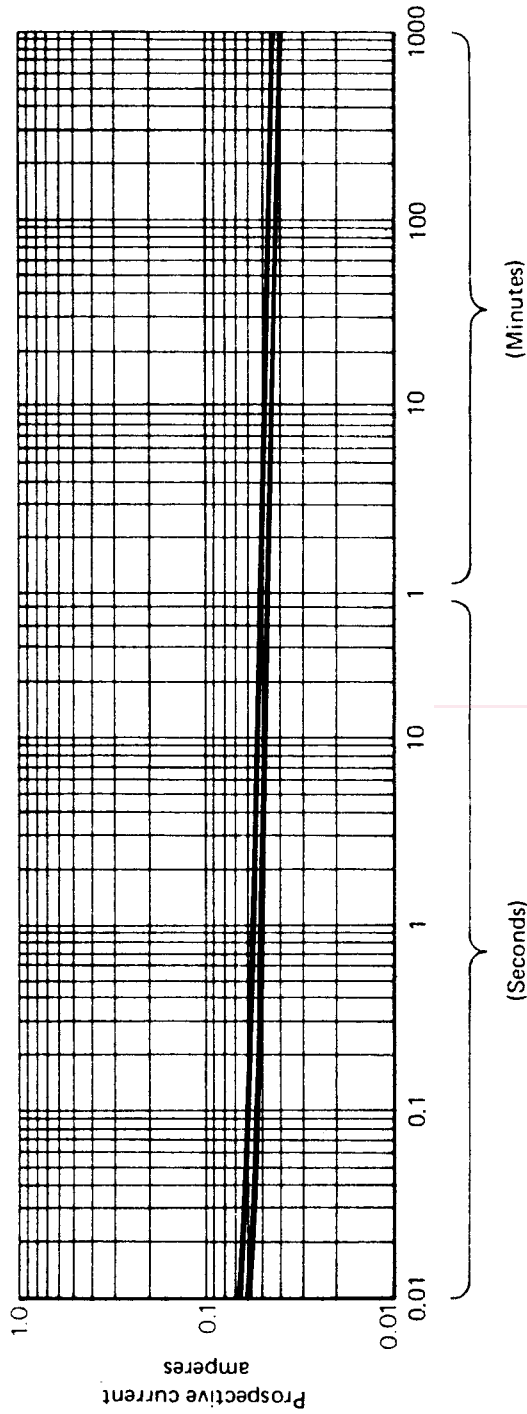


FIG. 1 - Size 00, 0.025 A

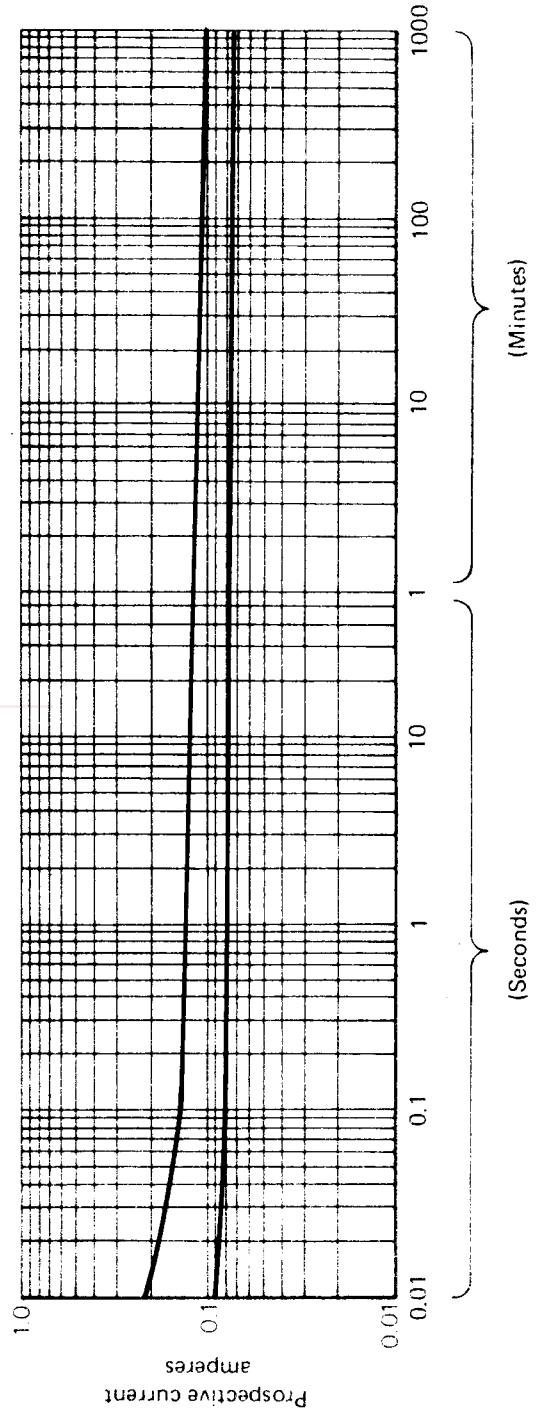


FIG. 2 - Size 00, 0.05 A

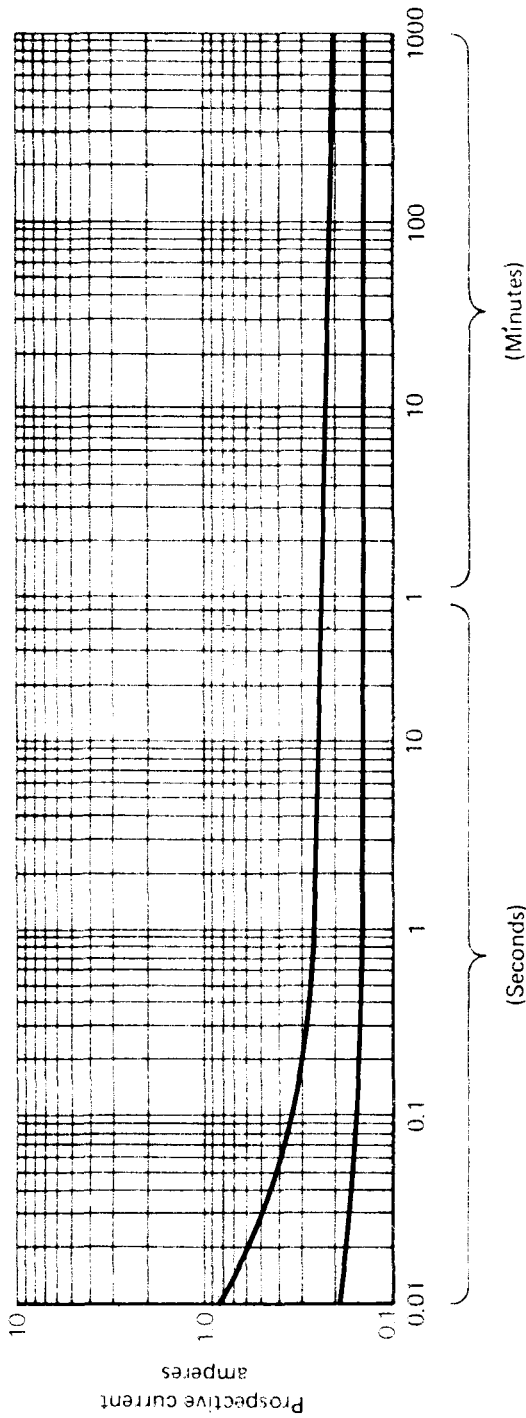


FIG. 3 - Size 00, 0.1 A

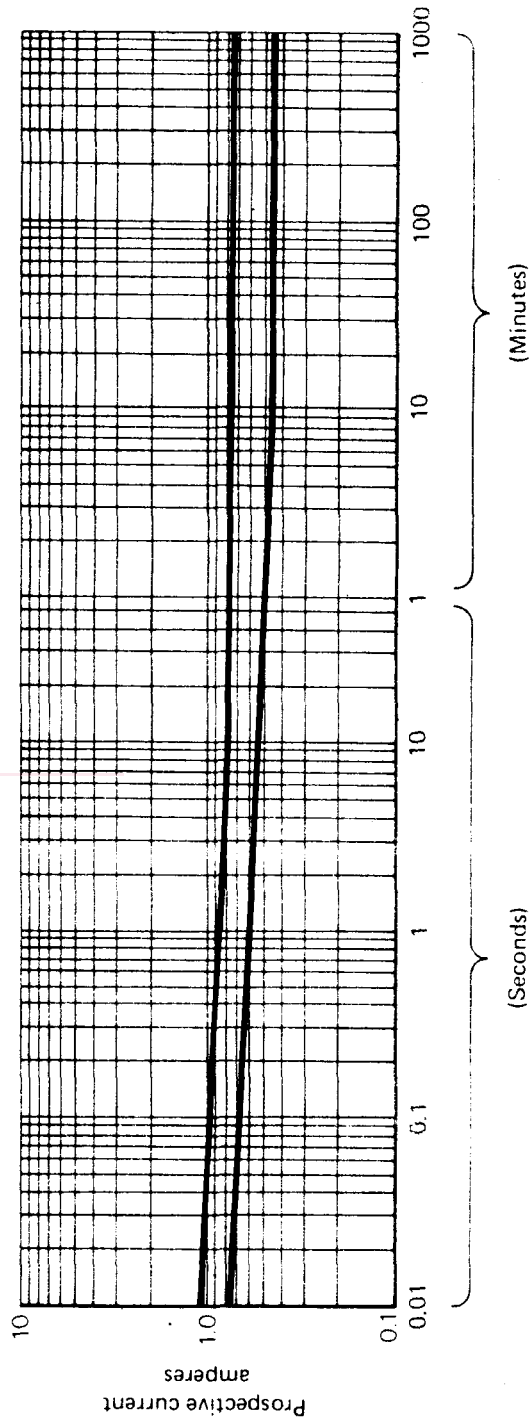
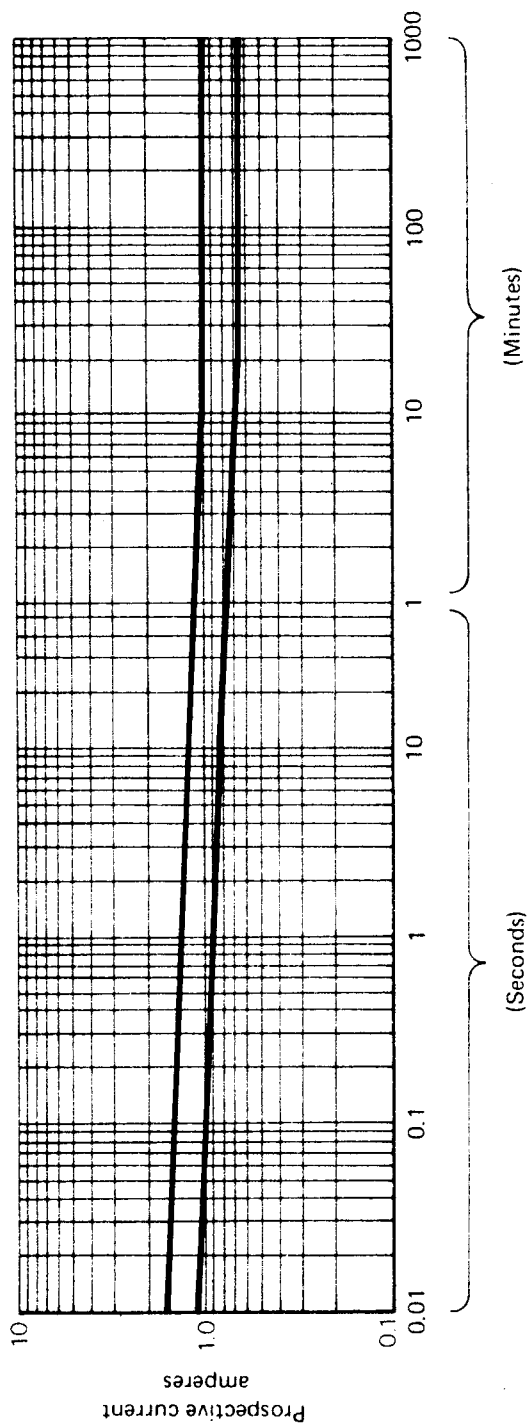
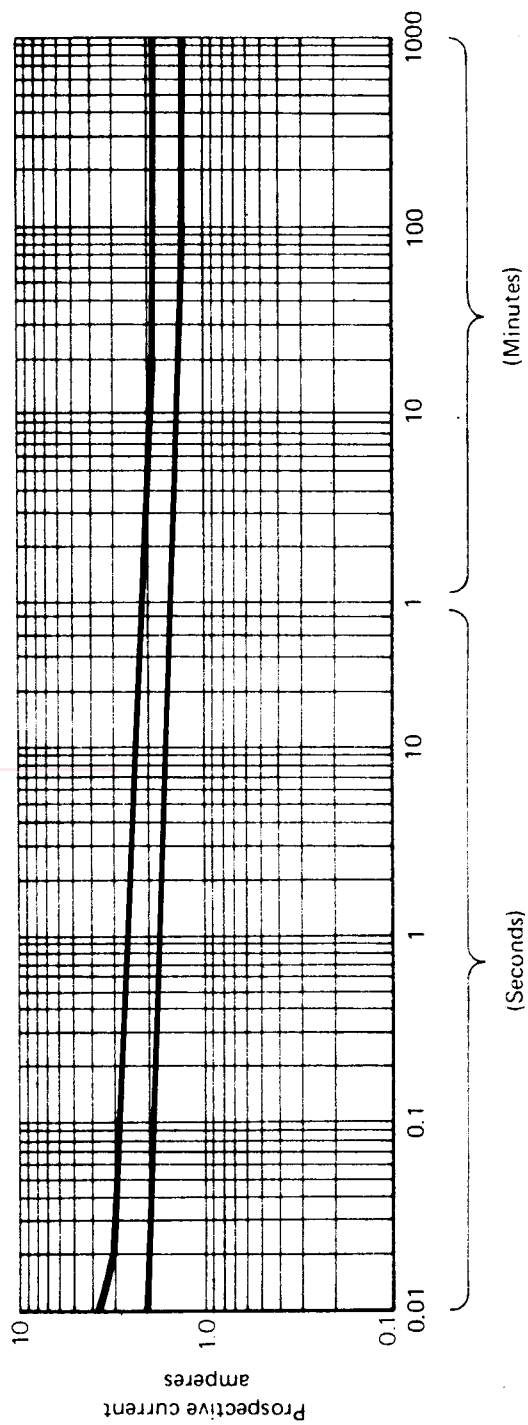


FIG. 4 - Size 00, 0.25 A



Pre-arcing time
FIG. 5 - Size 00, 0.5 A



Pre-arcing time
FIG. 6 - Size 00, 1 A