1. SCOPE

1.1 Content

This specification covers the performance , tests and quality requirements for the Tyco Fuse Box Frame P/N 444308-1 with all the connectors that can be assembled on this frame :

- 444309-1 = Power/Ground Connector
- 444311-(dashes acc. required color) = Hsg. 12 posn. Fuse contact (For 6 Diodes)
- 444312-(dashes acc. required color) = Hsg. 12 posn. Fuse contact (For 6 Blade Fuses)
- 444313-(dashes acc. required color) = Hsg. 9posn. JPT/SPT/Pos.Lock(For 1 Std.Relay)
- 444314-(dashes acc. required color) = Hsg. 9posn. JPT/SPT/Pos.Lock(For 1 Std.Relay)
- 444442-1 = Relay Adaptor, 6 Posn
- 444510-1 = Hsg. 10 posn. JPT/SPT/Pos.Lock (Holder for 2 Mini Relays)
- 493688-1 = Hsg. 12 posn. Fuse contact (For 4 Automatic Fuses and 2 Blade Fuses)
- 493814-1 = Cover, 12 Posn (For Automatic Fuses protection)

1.2 Qualification

When tests are performed on the subject product line, the procedures specified in Tyco 109 Series Specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 Tyco Documents

a)	109-1	General Requirements for Test Specifications
b)	109 Series	Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202 , Rev 01 Apr 80, MIL-STD-1344 Rev 31 Oct 73 and EIA RS-364 Rev 17 Aug71).
c)	108-37011	Fuse Contact Specification.
d)	108-18013-1	Jr. Power Timer Specification
e)	108-18025-1	Std Power Timer Specification
f)	108-18120-1	Positive Lock Specification

2.2 Commercial Documents

a) EIA 364-20B & IEC 60512-4-1
b) EIA 364-21C & IEC 60512-3-1
c) EIA 364-28D & IEC 60512-6-4
d) EIA 364-98
e) EIA 364-13B & IEC 60512-13-1
f) EIA 364-32C & IEC 60512-11-4
g) EIA 364-17B & IEC 60512-11-9

3. REQUIREMENTS

3.1 Design and Construction

Products shall be of the design, construction and physical dimensions specified on the applicable drawings.

3.2 Materials

• Fuse Box Frame	444308-1	P.A. 6.6 + 33% G.F.
• Power/Ground Connector	444309-1	P.A. 6.6 + 15%G.F.
• Diode Holder	444311	P.A. 6.6 + 15%G.F
• Blade Fuse Holder	444312	P.A. 6.6 + 15%G.F.
• Std. Relay Holder	444313	P.A. 6.6 + 15%G.F.
• Std. Relay Holder	444314	P.A. 6.6 + 15%G.F.
• Relay Adaptor	444442-1	P.A. 6.6 + 33% G.F.
• Mini Relay Holder	444510-1	P.A. 6.6 + 15%G.F.
• Automatic Fuse Holder	493688-1	P.A. 6.6 + 15%G.F
• Automatic Fuse Cover	493814-1	P.A. 6.6 + 15%G.F

3.3 Ratings

- Temperature: -40°C to 90°C

  This rating includes ambient temperature and rise in temperature due to current loading.

3.4 Performance and Test Description

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Table 1. All tests are performed at ambient environmental conditions per Tyco Specification 109-1 unless otherwise specified.

3.5 Test Requirements and Procedures Summary

Test Description	Requirements	Procedure
Electrical		
Examination of Product	Meets requirements of applicable drawings	Visual, dimensional and functional per applicable quality inspection plan.
Dielectric Withstanding Voltage	No breakdown or flash-over when 1KVAC is applied for one minute.	Test between adjacent contacts of mated connector assembly; EIA 364-20B & IEC 60512-4-1
Insulation Resistance	200 megohms minimum.	Test between adjacent contacts of mated connector assembly ; EIA 364-21C & IEC 60512-3-1
Mechanical		
Vibration Sinusoidal High Frequency	No discontinuities greater than 1 microsecond. See note (a).	Subject Fuse box assembled with all components (Including fuses and relays) to 10G's, between 10 to 500 Hz traversed in 15 min., 8hours in each of 3 mutually perpendicular planes. EIA 364-28D & IEC 60512-6-4. See Figure 3 for more details
Housings Retention Force (Internal cavities)	300 N minimum	Measure forces necessary to dislodge Blade Fuse Holder, Diode Holder and Automatic Fuse Holder, Std. And Mini Relay Holder from Fuse Box Frame at a rate of 25mm/min. EIA 364-98. See Figure 4
Housings Retention Force (External cavities)	100 N minimum	Measure force necessary to dislodge Relay Holder and Power-Ground connector at a rate of 25mm/min. EIA 364-98. See Figure 4
Relay insertion force	70 N maximum (Std. relay) 55 N maximum (Mini relay)	Measure force necessary to insert the relay into the housing; EIA 364-13B & IEC 60512-13-1
Relay extraction force	30 N minimum (Std. relay) 20 N minimum (Mini relay)	Measure force necessary to remove the relay from the housing; Tyco Specification 109-30
Contact insertion force	17 N maximum (SPT, JPT. Posit. lock, Fuse contact) 40 N maximum-.375 Fastin-on	Measure force necessary to insert the terminal into the housing ; Tyco Specification 109-41
Contact retention force	100 N minimum(SPT) 80 N minimum (JPT, Positive Lock, Fuse contact) 150 N (.375 Fastin-on)	Measure force necessary to remove the terminal from the housing; Tyco Specification 109-30 - Use #18 AWG wire or larger.
Blade Fuse, Automatic Fuse and Diode Insertion Force	40 N maximum	Measure force necessary to insert the blade fuse/diode into the housing; Tyco Specification 109-41
Blade Fuse, Automatic Fuse and Diode Retention force.	10 N minimum	Measure force necessary to remove the blade fuse/diode from the housing; Tyco Specification 109-30.
Environmental		
Thermal Shock	See note (a).	Subject Fuse Box Frame assembled with all components to: 5 cycles each consisting of: - 4 hours at 85 ± 2°C - 4 hours at - 40 ± 2°C EIA 364-32C & IEC 60512-11-4
Temperature Life	See note (a).	Subject mated connectors to temperature life at 90°C for 200 hours duration; EIA 364-17B & IEC 60512-11-9
Flammability	Burn rate < 100mm/min.	Subject Polymeric materials bars to flame acc. Tyco Specification 109-10.

Table 1

Note (a) : *Shall meet visual requirements , show no physical damage , and shall meet requirements of additional tests as specified in Test Sequence in Figure 2.*

4. TEST SEQUENCE

All the tests shall be performed in the sequence specified in Figure 2.

Note : *Numbers indicate sequence in which tests shall be performed.*

Test Description	Groups and Sequence							
	A	B	C	D	E	F*	G	H
Examination of Product	1, 4	1, 3	1	1, 5	1, 5	1	1	1, 6
Dielectric Withstanding Voltage	2							
Insulation Resistance	3							
Vibration		2						
Housing Retention Force (Internal Cavities)			2	4	4			
Housing Retention Force (External Cavities)			3	3	3			
Relay insertion force								2
Relay extraction force								3
Contact insertion force							2	
Contact extraction force							3	
Blade fuse / diode Insertion force								4
Blade fuse / diode extraction force								5
Thermal Shock				2				
Temperature Life					2			
Flammability						2		

Figure 2

(*) Group "F" refers to all polymeric materials bars for flammability test.

5. QUALITY ASSURANCE PROVISIONS

5.1 Qualification Testing

Connector housings and contacts shall be selected at random from current production. Each group, from "A" to "E" shall consist of 1 Fuse Box Frame prepared with all components and Group "F" shall consist of 5 bars (min.) of each polymeric material.

5.2 Re-qualification Testing

If changes significantly affecting form, fit or function are made to the product or to the manufacturing process, product assurance shall coordinate re qualification testing consisting of all or part of the original testing sequence as determined by Product Engineering.

5.3 Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 2. Failures attributed to equipment, test set-up or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

5.4 Quality Conformance Inspection

The applicable Quality Inspection Plans will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

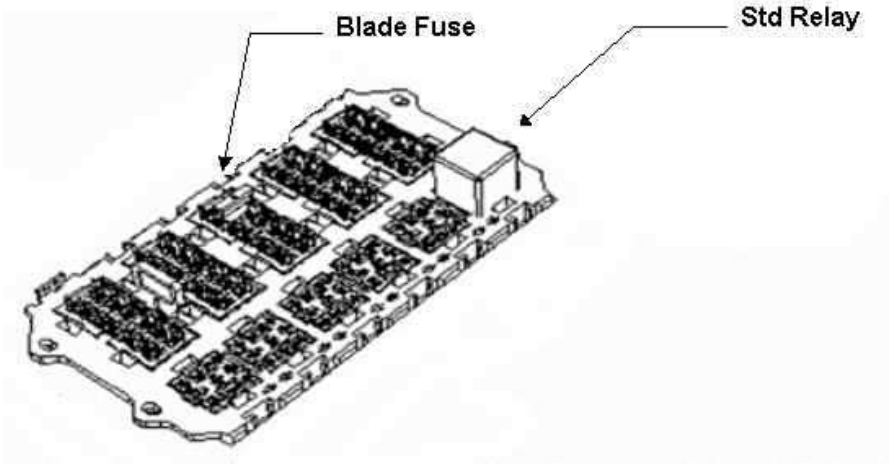

Figure 3
Vibration Scheme

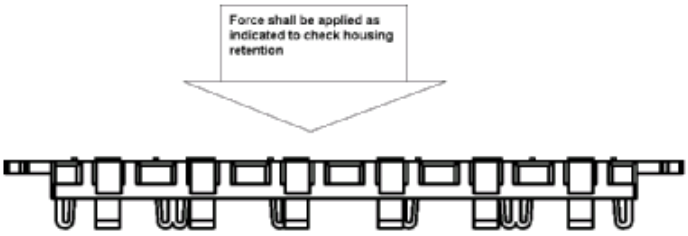

Figure 4
Fuse Box Frame and Components
Housing Retention Force-Test scheme

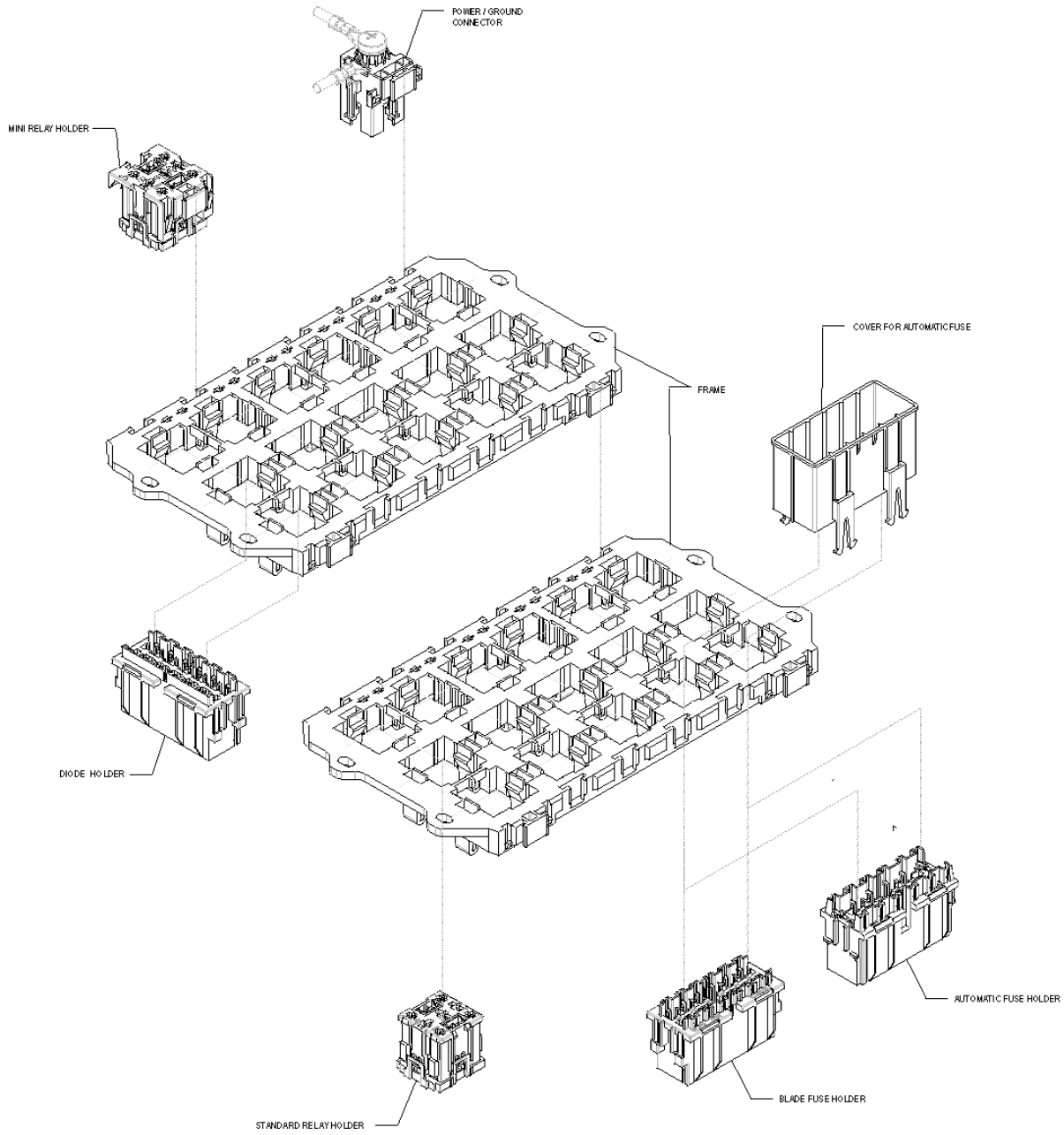

Figure 5
Fuse Box Frame and Components

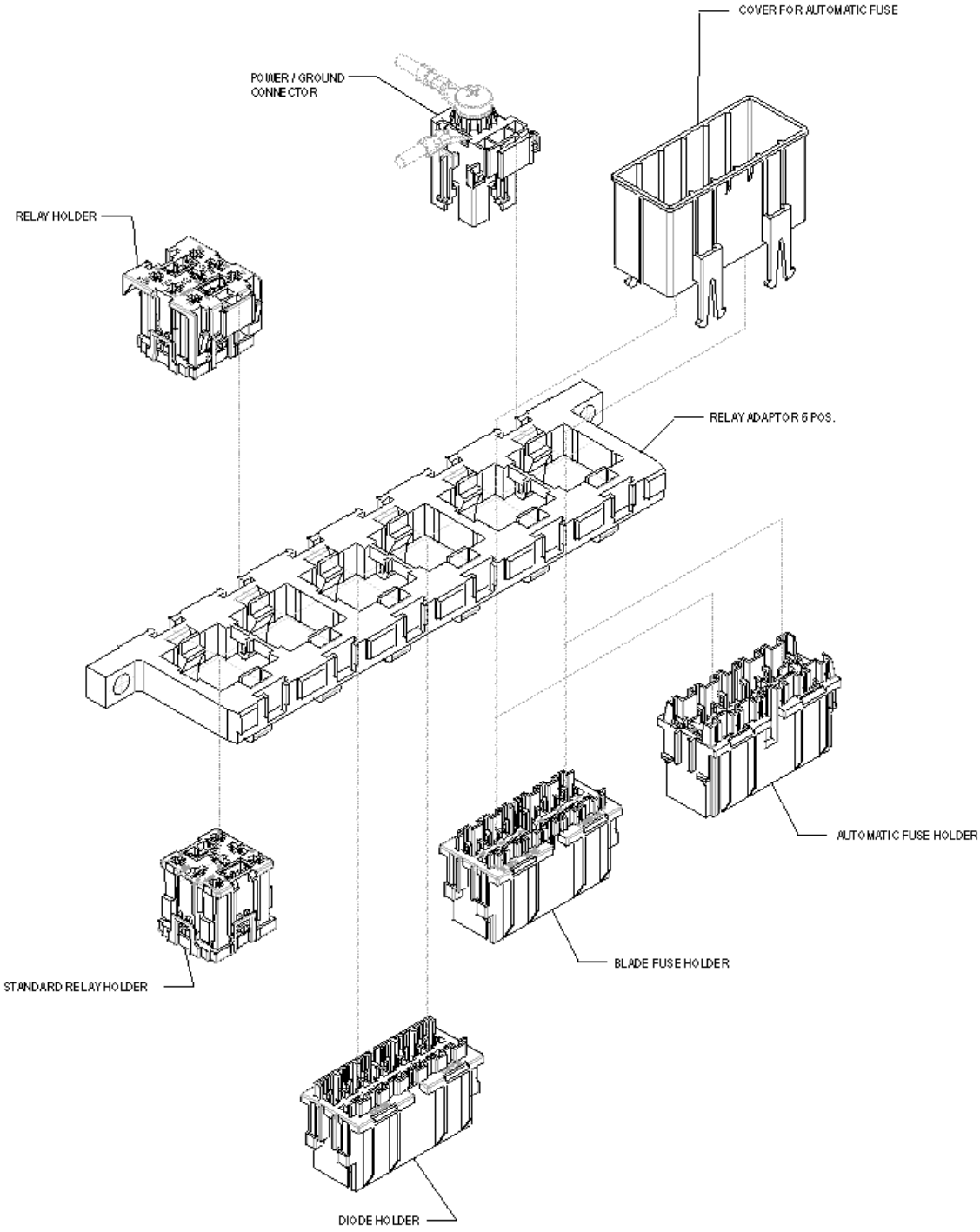

Figure 5 (cont.)
Fuse Box Frame and Components

Revision Record		
Revision	**Date**	**Description**
O	15-Oct-2003	Released