

LOG OF MEETING
Directorate for Engineering Sciences


CPSC 6 (b)(1) Cleared
A 10/8/97
No Mfrs/PrvtLbrs or
Products Identified
Excepted by _____
Firms Notified,
Comments Processed.

Subject: ASTM F15.22 subcommittee meeting on battery-operated toys. Discussion of F963

Date of Meeting: 11 September 1997

Place of Meeting:

Toy Manufactures of America
200 Fifth Avenue
New York, NY

Log Entry Source: Aaron Banerjee, ESEE 

CPSC Attendees:

Aaron Banerjee, ESEE

Non-CPSC Attendees:

Tony Ferraro - Chairman
Associate Vice President, Product Safety & Quality Assurance
Hasbro Manufacturing Services, Northeast Division


Richard Van Landingham
Product Stewardship Manager
Educational and Productivity Products
Texas Instruments, Inc.

Mark Evanko, Director
Toy/Premium Division
ACTS Testing Labs

Robert Coughlin, Product Integrity Engineer
Fisher-Price, Inc.

Michael H. Babiak, Assistant Manager
Product Safety & Standards
Energizer

Elizabeth Borrelli
Toy Manufacturers of America



Summary of Meeting:

This was a meeting of the ASTM F15.22 subcommittee to discuss changes to ASTM F963 (toy safety standard). At the time of the meeting, the scope of the meeting was limited to discussing clarifications of existing standards. New proposals were not considered.

Note: CPSC and Fisher-Price (Mr. Coughlin) agreed to discuss CPSC's proposed amendments to F963 (attached) separately and report to the committee. The CPSC's proposed amendments are directed mainly towards high current electric toys, of which Fisher-Price was the only manufacturer present at the September 11th meeting.

Agenda: Attached

MEETING AGENDA
ASTM F15.22 WORK GROUP ON BATTERY-OPERATED TOYS

Thursday, September 11, 1997
 10:30 a.m. - 2:00 p.m.
 Toy Manufacturers of America
 200 Fifth Avenue, Suite 740, New York City

10:30 a.m.	Opening and introductions	Tony Ferraro, Chairman, ASTM F15.22 Work Group on Battery-Operated Toys
10:45 a.m.	Goals and limitations of Work Group Confidentiality of discussions and documents	Elizabeth Borrelli, Secretary, ASTM F15.22 Subcommittee on Toy Safety
11:00 a.m.	Discussion of existing U.S. hazard and injury data	Aaron Banerjee, Electrical Engineer, Engineering Sciences, U.S. Consumer Product Safety Commission
11:20 a.m.	Discussion of other existing data	
11:30 a.m.	Review of existing standard in Section 4.27 of ASTM F963-96a Review of any other relevant standards Discussion of comments received and issues raised concerning the existing standard Discussion of any additional comments or information submitted by Work Group and/or Subcommittee members	
12:15 p.m.	LUNCH	
12:45 p.m.	Continuation of 11:30 a.m. discussion	
1:30 p.m.	Discussion of Next Steps: <ul style="list-style-type: none"> ● Determine need for any additional data ● Develop a time line ● Schedule next meeting 	
2:00 p.m.	Adjournment	Tony Ferraro



U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207

David A. Miller, President
Toy Manufacturers of America
200 Fifth Avenue
New York, NY 10010

Proposals for Battery-Operated Toys for Inclusion within ASTM Safety Standard F 963, Toy Safety

Dear Mr. Miller:

The staff of the U.S. Consumer Product Safety Commission (CPSC) submits the attached proposals for inclusion within the ASTM Safety Standard F 963, Toy Safety.

We plan to present information on these proposals at a meeting of the ASTM F15.22 Work Group on Battery-Operated Toys when it meets on September 11, 1997. Aaron Banerjee of our electrical engineering group is planning on attending the meeting to discuss these proposals and answer questions from the Work Group.

The proposals contained herein represent the views of the technical staff of the CPSC and do not necessarily represent the official position of the Commission.

Thank you for your consideration in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "John Preston".

John Preston, P.E.
Chief Engineer, Children's Products
Directorate for Engineering Sciences

Enclosure

cc: Elizabeth Borrelli, F15.22 Secretary
Director of Standards and Regulatory Affairs
Toy Manufacturers of America, Inc.

9/3/97 cpsc staff

PROPOSED REVISIONS TO ASTM F 963 - 96, STANDARD CONSUMER SAFETY SPECIFICATION ON TOY SAFETY

(NEW DEFINITION)

3.1. high current battery-operated toy--a battery-operated toy with an operating current of 6 amperes or higher.

(NEW SAFETY REQUIREMENTS)

4.27.12 High current battery-operated toys shall incorporate an overcurrent protective device at the output of the battery. The rating of the overcurrent protective device shall not exceed the ampacity (current-carrying capacity) of the wiring in accordance with Table ____.

TABLE ____ Copper Wire and Overcurrent Protection Requirements For High Current Battery-Operated Toys

<u>Wire Size, American Wire Gage</u>	<u>Ampacity, amperes</u>	<u>Wire Type</u>
18	6	stranded only
16	8	stranded only
14	15	stranded or solid
12	20	stranded or solid
10	30	stranded or solid

4.27.13 High current battery-operated toys shall be equipped with automotive type circuit breakers or fuses. Fuseholders shall be clearly marked with maximum fuse size and shall be protected against shorting and physical damage by a cover or equivalent means.

4.27.14 Switches employed in high current battery-operated toys shall have a current rating not less than the connected load, marked on the switch housing. Switches shall have ratings for the current and voltage application for which they are intended. Switches for direct-current (dc) circuits shall have dc ratings; switches for alternating-current (ac) circuits shall have ac ratings. A single switch may have ratings for both types of circuit currents.

4.27.15 Electrical connections for all battery-operated toys that operate at 0.5 amperes or higher (including high current battery-operated toys) shall be constructed with resilient metal parts that maintain electrical contact pressure, except for mechanically-secured-and-soldered connections.

Rationale: Over 400 electrical mishaps (e.g., overheating, short circuits, and fires) involving high current battery-operated toys (in

particular, ride-on vehicles) have been reported within the last five years. A number of these incidents which resulted in fires have been analyzed and samples examined. The failure mechanisms appear to be related to components and specifications not addressed in the current edition of ASTM Standard F 963. Wires overheating, fuseholder connections failing, and switches overheating and distorting were incipient conditions noted in the engineering analyses.

Suspect switches were often either not marked with an electrical rating or were inadequately rated for the electrical load (typically a ride-on toy with a variable motor load as high as 28 amperes dc and more).

Regarding proposed paragraph 3.1., the 6 ampere limit is adapted from the National Electrical Code (NEC 551-10(e), relating to low voltage wiring in recreational vehicles). The currents in high current battery-operated toys are similar to those in low voltage circuits in recreational vehicles. Therefore, the requirements for wiring, switches, and overcurrent protection should be similar.

In reference to proposed paragraphs 4.27.12 and 4.27.13, the language is based on NEC 551-10(e) with "low voltage wiring" being replaced by "high current battery-operated toys."

Referring to proposed paragraph 4.27.14, the language is based on NEC 551-10(f). The distinction between direct and alternating current is made because direct currents, especially in the presence of an inductive load, tend to produce more arcing and cause the switch to fail faster. Typically, for switches with both a dc and an ac rating, the dc rating tends to be lower.

Addressing proposed paragraph 4.27.15, this is based upon British Standard BS EN 50088:1996 (Safety of Electric Toys). It is incorporated to reduce the risk of overheating on contacts that could lead to catastrophic failure and to generally harmonize with the British/European standard.