UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT SAFETY COMMISSION

TO: The Commission
Through: Sadye E. Dunn, Secretary
Through: Martin Howard Katz, General Counsel
FROM: Through: Stephen Lemberg, Assistant General Counsel
Alan Shakin, OGC

DATE: August 20, 1982

SUBJECT: Final crib amendments -- VOTE SHEET

This vote sheet is for the briefing package on final crib amendments that was forwarded to the Commission on August 10, 1982. Please indicate your vote:

1. Issue the Federal Register document at Tab G as drafted.

_____ _____
Signature Date

2. Issue the Federal Register document at Tab G with changes (please specify).

_____ _____
Signature Date

3. Do not issue final crib amendments at this time.

_____ _____
Signature Date

4. Other (please specify).

_____ _____
Signature Date

cc: Terri Rogers, OPM

6(b) CLEARED: 10/24/91
___ No Mfrs Identified
___ Excepted
___ Mfrs Notified
___ Comments Processed

UNITED STATES GOVERNMENT

Memorandum

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

JUL 2 7 1982

TO : The Commission
THROUGH: Sadye Dunn, Secretary
THROUGH: Martin Howard Katz, General Counsel
THROUGH: Bert G. Simson, Acting Executive Director
THROUGH: Harry I. Cohen, Acting Director, OPM

FROM : John F. Liskey, Acting Program Manager
Terri Rogers, Project Manager
Children's & Recreational Products, Office of Program Management

SUBJECT: Final Amendments to the Full-Size and Non-Full-Size Crib Regulations

Attached for your consideration is a staff briefing package on final amendments to the full-size and non-full-size crib regulations.

The Directorates for Compliance and Administrative Litigation; Economics; Engineering Sciences; Hazard Identification and Analysis; Health Sciences; and the Offices of Budget, Program Planning and Evaluation; and Outreach Coordination have all reviewed the package and concurred in forwarding it for your consideration.

Attachment

BRIEFING PAPER
ON
FINAL AMENDMENTS TO THE FULL-SIZE
AND NON-FULL SIZE CRIB REGULATIONS

Children's and Recreational Products Team

D. T. Van Houten, Human Factors
G. Rutherford, Epidemiology
J. Preston, Engineering Sciences
G. Nichols, Economic Analysis
C. Nelson, Compliance
A. F. Esch, M.D., Health Sciences
D. Gordon, Outreach Coordination
J. Sutherland, Budget, Program Planning & Evaluation

For Information, contact:
John Liskey
Terri Rogers
Children's & Recreational Products
Office of Program Management
(301)492-6554

ISSUE

The Commission is considering whether to issue final amendments to the Full-Size and Non-Full-Size Crib Regulations to address head entrapment.

BACKGROUND

A. Existing Crib Regulations:

The Commission currently enforces two baby crib regulations. The safety requirements in each regulation are comparable, but one applies to full-size cribs and the other applies to non-full-size cribs.

Full-size cribs (16 CFR Part 1508) have interior dimensions of 133 cm by 71 cm, a standardized size. Non-full-size cribs (16 CFR Part 1509) are most other rigid-sided cribs, including portable, oversized, undersized, and specialty cribs. Cribs with mesh, net or screen sides, car beds, baby baskets, and bassinets are not covered in either regulation. Both categories of cribs must comply with a test procedure for the spacing of crib slats and spindles. This addresses the risk of strangulation when an infant's body, but not its head, slips through the slats.

Both regulations contain requirements to address the risk of suffocation due to an infant becoming entrapped between the crib frame and mattress. The regulations also have requirements for minimum effective rail height; locking or latching devices for drop or folding sides; construction and finishing, including provisions to eliminate "toe-holds" that might help babies climb out; assembly instructions; cautionary labeling; manufacturer identification; and recordkeeping. Neither of the crib regulations addresses the neck and head entrapment hazard that would be addressed by these amendments.

B. Proposed Amendments:

On December 16, 1980, the Commission proposed for public comment amendments to the Requirements for Full-Size and Non-Full-Size Baby Cribs. The proposed amendments were intended to address certain entrapment hazards associated with cutout designs in crib end or side panels. The amendments would add to the Commission's mandatory requirements for baby cribs a performance test which simulates the head and neck entrapment hazard pattern. The test incorporated use of a headform probe developed by the staff based on relevant anthropometric data which correspond to the ages of the children at risk. A copy of the proposed amendments is attached at Tab A.

Four comments in response to the proposed entrapment amendments were received from two individual manufacturers, the Juvenile Products Manufacturers Association (JPMA), and a consumer group, Action for Child Product Safety (ACPS). The major issues raised in the comments were:

- Rationale for the development of the recommended headform probe;
- Clarifications of the proposed test procedure; and
- Effective date of the amendments.

After considering the comments and reviewing the proposed amendments, the staff suggested several revisions to the test procedures. The Commission approved an additional 30-day comment period on the revised test procedures that began on August 28, 1981 (Tab A). Three comments were received during the comment period and staff met with industry representatives to discuss the proposed test procedure in October, 1981 (Tab D).

DISCUSSION

A. Injury Information:

In late 1977, the Commission learned of a child whose neck and head had become entrapped in the cutout headboard design of a crib. As was the case with later victims, the child had strangled to death in the cutout. The Commission staff immediately opened an investigation into the hazard.

The manufacturer of the crib notified retailers of the hazard and made available a modification kit which contained a shaped piece of board to close off the opening. In February, 1978, the CPSC and manufacturer issued a joint press release that alerted consumers and announced a number of corrective actions. At the urging of the Commission, the manufacturer undertook additional actions, including new letters to dealers and the distribution of warning posters to the public. A different crib model, produced by the same manufacturer, was later identified as being involved in other strangulations due to neck and head entrapment. That model also became the subject of a staff investigation and subsequent voluntary corrective actions by the manufacturer.

The staff, in proposing amendments to the crib regulations in 1980, documented 14 entrapment incidents in which cutout designs in crib headboards or footboards were involved. Eight children under two years of age died, while the other six escaped death and permanent injury ("near misses"). The staff has analyzed these case histories to attempt to establish common aspects of the incident sequences and to determine the critical physical characteristics of the children at risk.

The 14 incidents involved necks and heads that became entrapped while the children were inside the cribs. The Human Factors staff concluded that the victims were able to stand at or climb up to the top of the end panel (headboard or footboard), and then became entrapped in a cutout opening.

According to the Division of Human Factors, three factors are necessary for this type of neck/head entrapment to occur: (a) The neck is smaller (or compresses to a dimension smaller) than the entrance to the opening, (b) the head is larger than the minimum dimensions of the open area of the cutout, and (c) the child's feet, because of panic, short stature, or loss of footing, fail to provide effective support.

In an effort to obtain as much injury information as possible, Health Sciences staff contacted medical examiners and health care professionals and reviewed available medical literature. Staff did not receive any additional information related to entrapment in crib cutouts.

The Division of Hazard Analysis (EPHA) was asked to update injury information for crib headboards. EPHA has indicated no additional incidents related to entrapment in crib headboards have occurred since August, 1981. However, in May, 1981, a fatal entrapment case occurred that involved the side rail configuration (rather than headboard) on a non-full-size crib. The crib was constructed in a manner such that when the side rail was in the folded down position, the upper end of the space between the slats was open. This created a series of narrow very deep cutouts in the side rail. The nine-month-old child's neck was caught in one of these spaces (Tab B). The staff believes that the amendments in the draft Federal Register notice at Tab G would apply to such a cutout because crib sides can reasonably be expected to be lowered during normal use.

B. Test Procedure and Requirements

The test requirements proposed in December, 1980, were designed to prohibit, from full-size and non-full-size crib end and side panels, any cutouts (partially-bounded openings) that can entrap the necks and heads of children using the cribs. By using a "headform probe," the test simulates the way that a child's head and neck can become entrapped. When the probe is placed in the cutout, it must be free to swing through a vertical arc without interference from any portion of the crib end or side panels.

The proposed amendments describe the probe and the way it is positioned at all times during the test procedure. The probe is placed with its "neck" resting within the cutout area. The "head" of the probe is pivoted upward and backward. The cutout fails the test if the head portion of the probe does not freely attain a full upright position.

The proposed test procedure was based on the staff's reconstruction of the injury incident scenarios from the investigation reports. In each of the cases, the victim was found suspended by the head because the effective opening of the cutout was too small to allow free passage of the head back into the crib. The test procedure is based on the premise that gravity alone should be sufficient to free an entrapped child.

From the injury incident investigation reports, the staff learned that most of the children were between one and two years of age and they were found with their heads entrapped in cutouts on the upper portions of the headboards. While the reports did not include information on the head sizes of the victims, none of the victims was of unusual height or weight.

The size of the probe is derived from the sizes of the heads and necks of children who fall within the age range of one to two years. The staff considered anthropometric data from a 1977 University of Michigan study and other sources. Since complete data were not available for children younger than two years of age, data for children between two and 3.5 years of age were used. (This is the youngest age grouping of complete, statistically representative data available.) The staff used head length, head width, and head height dimensions at the 95th percentile level. This level means that 95 percent of the children in that age group have head dimensions less than the size used in the proposed probe. The location of the widest point on the probe (with respect to the vertical plane) was designed as a band

starting two inches from the rear of the probe and extending all the way forward. The band is two inches wide to account for the variable location of the widest point on a child's head.

To obtain the appropriate neck dimension for the probe, the staff first used the 5th percentile dimension for children between two and 3.5 years of age. The staff then extrapolated this dimension to about one year of age because this was the age of the youngest victim for whom relevant information was available. The staff further reduced this dimension by 25 percent to account for the pliability of the neck.

In general, the probe incorporates dimensions for the smallest neck sizes and the largest head sizes. This is a "worst case" approach because a small neck would be most likely to fit into an opening and a large head would be most likely to become entrapped. Using these dimensions in the test probe provides a margin of safety for children who will not combine these two extremes of neck and head sizes. (For a more detailed discussion of how the dimensions of the probe were obtained, please see Tab F - EPHF Memorandum, May 15, 1981.)

C. Revisions to Proposed Amendments

As originally worded, the proposed requirements identified as failure contact with any surfaces or edges of the headform probe other than those surfaces labeled A or B[1/] or the edges of those surfaces when the headform probe is rotated in a vertical arc after being placed in a cutout along the upper edge of a crib end or side panel. Crib manufacturers objected to the wording of the requirement as overly restrictive, in that it would prohibit many designs which could not be considered entrapment hazards.

It was clearly not the intention of the proposed requirement and test procedure to prohibit those designs where contact is made with only one side of the headform probe. For example, a horizontal top rail with no cutouts but having a cornerpost extending vertically more than 2½ inches would have failed the proposed requirement. (Please see Example A, page 9.) A child's head or neck is not likely to become entrapped by such a configuration. The staff has clarified the language of the requirement so that contact with only one side of the probe does not constitute failure. However, single point contact with those surfaces coinciding with the back of a child's head will still be considered a failure. During the test, the probe should be moved sideways if contact is made on only one side, so that the probe can be swung to a vertical position. Any simultaneous contact at two or more points on opposite sides of the probe would be considered a failure.

JPMA suggested expanding the identification of the planes or surfaces of the probe and then specifying those combinations of surfaces which, when contacted by the probe during the test procedure, would constitute a failure to meet the requirements. Several sets of surfaces were cited by JPMA as potential failing combinations.

1/ See Tab A, Figure 2 (p. 82663) of the December 18, 1980, FR Notice for the identifying surfaces of the headform probe.

The staff agreed with the basic suggestion for additional labeling of surfaces in order to clarify the procedure and requirements. We believe, however, to identify all possible "failing" combinations would result in a cumbersome requirement with a lengthy and possibly confusing list of failures. In addition, the commenter's suggestions omitted consideration of possible panel contact with the edges of adjacent surfaces of the probe which could present an entrapment hazard. The proposed amendments were revised in August, 1981, by labeling additional surfaces, identifying edges of the probe, and incorporating a simplified version of the commenter's suggested definition of what constitutes failure to comply. 2/

In comments submitted during the extended comment period, JPMA suggested that the lower sufrace "D" on the probe be subdivided into two new surfaces "C" and one surface "D". This suggested change would prevent a failure due to single-point contact on either of the new triangular-shaped surfaces "C". For example, contact with a knob on a finial or cornerpost is unlikely to present an entrapment hazard as long as there is no simultaneous contact with any portion of the crib across from the knob. The staff agrees with this suggestion, and the change has been incorporated in Figure 2 of the draft Federal Register notice at Tab G.

Discussion of "Vee" Shaped Openings (Division of Mechanical and Textile Engineering and Division of Human Factors Memoranda - Tab C)

When the comment period was reopened, another consideration was introduced. Many crib headboard designs contain "vee" shaped openings. Generally, the staff believes that if a "vee" shaped cutout is too narrow, i.e., if the included angle is too small, the entrapment hazard is present. There are two types of "vee" shaped openings that concern the staff: those that are symmetrical about a verticle axis, and those that are "tilted" or asymmetrical about a vertical axis.

As proposed in December, 1980, the amendments would have permitted symmetrical "vee" shaped cutout designs in which the angle was less than the included angle (75½ degrees) formed by surfaces "B" of the headform probe. (See example B, page 9.) These cutouts would technically have passed the proposed requirements if, during the swing of the probe to the upright position, the probe were allowed to "ride upwards" on the back edges of the "B" surfaces. Permitting the probe to ride upwards would be contrary to the stated objective of assuring that gravity alone should be sufficient to allow a child to fall free without becoming entrapped. Therefore, the language of the proposed amendments was revised so that simultaneous contact between both surfaces "B" and the panel will not be permitted. (See sec. 1508.11 and 1509.13 (b)(1) of the draft notice, Tab G.)

Revising the requirements to allow one-sided contact necessitated the incorporation of an additional provision to the test procedure. Simply swinging the headform probe in a vertical arc might not fail potentially hazardous "vee" notches which are asymmetrical to a vertical axis because only a single side of the probe would contact the boundary of the "vee"

2/ See Tab A, Figure 2 (p. 43455) of the August 28, 1981, FR Notice for the revised designations.

cutout which is closest to the vertical orientation. (Please see Example C, page 9.) The staff determined that rocking the probe sideways will identify those "vee" notches which cause the cutout in the panel of the crib to come into simultaneous contact with opposing surfaces and/or edges of the probe. The rocking test is described in secs. 1508.11 and 1509.13 (b)(2) of the draft notice at Tab G. As with symmetrical "vee" shaped openings, openings that would fail the rocking test have included angles less than 75½ degrees. The staff believes such openings constitute an entrapment hazard and should be considered a failure to comply with the requirement.

Because injury data on "vee" shaped cutouts in cribs is limited, we have also evaluated the available data on such configurations in other children's products. Specifically, the staff knows of ten child head entrapment incidents involving "vee" shaped openings. Nine involved "vee" shapes along the top edge of wooden folding corrals and baby gates (see Tab B). The included angle of those symmetrical "vee" shaped openings was from about 33 to 70 degrees. All of these were symmetrical openings with included angles of less than 75½ degrees. Such openings would be prohibited on cribs by the crib cutout test procedure. The prohibition of cutouts with included angles less than 75½ degrees provides a margin of safety beyond the maximum size (about 70 degrees) identified in the data. The staff believes this margin of safety is reasonable to prevent hazardous cutouts in crib panels.

The tenth head entrapment injury incident involved an asymmetrical "vee" shaped cutout located in the footboard of a crib formed by the junction of a vertical canopy support and a scalloped top edge in the footboard. Its included angle was about 50 degrees. Since the Commission's test procedure would also prohibit asymmetrical "vee" shapes with included angles of less than about 75½ degrees (because of the rocking test), cutouts such as the one involved in this incident will be prohibited in the future.

During the extended comment period, JPMA submitted illustrations of currently marketed cribs which they believe do not pose a strangulation hazard but would fail the test procedure because they have asymmetrical "vee" shapes with included angles of less than 75½ degrees. In October, 1981, the staff met with some of the manufacturers to discuss the proposed amendments and test procedure (Tab D). Additionally, the manufacturers volunteered to submit a test procedure that could be substituted for the rocking test. The substitute test involves placing a 4½ inch straight edge on the neck portion of the headform probe. Its effect would be to decrease from 75½ to about 70 degrees the included angle of asymmetrical "vee"shapes that would fail the test procedure.

As stated above, the staff believes the rocking test with its included angle requirement of 75½ degrees is necessary to protect children from head and neck entrapment in cribs. An example of a potentially hazardous asymmetric "vee" shape (angle less than 75½ degrees) is shown in Figure 3 of the ESMT memorandum (Tab C).

D. Economic Assessment of Crib Amendments - Tab E

The Directorate for Economic Analysis estimates that as many as 20,000,000 cribs produced during the last 15-20 years may be in the hands of consumers at the present time. Although about 100,000 of these cribs would

probably fail the test procedure as proposed by the amendments, with the exception of those models that have been the subject of Section 15 actions, none of these cribs have been involved in any entrapment accidents. As long as the Commission applies the proposed amendments prospectively, there would be no need for manufacturers to modify these cribs.

The staff estimates that a little over 1,000,000 full-size and non-full-size cribs are produced yearly in the United States by some 30 manufacturers. Based on information received by Economic Analysis staff from manufacturers through JPMA, some 17 crib models, each roughly involving 1,000 cribs (total 17,000), might have to be redesigned to bring them into compliance with the proposed amendments. This means that fewer than two percent of the total number of cribs currently being produced would be affected by the amendments.

Staff has received correspondence from some of these manufacturers expressing concern about possibly having to modify cribs that would be produced prior to the effective date of the amendments but unsold when the amendments become effective. The manufacturers expressed concern about the costs of making modifications to the cribs. However, manufacturers will not have to make these modifications as long as the amendments will be applied prospectively.

Economic Analysis adds that the impact of these amendments on costs, such as tooling and engineering costs, administrative costs, and advertising costs, is considered to be minimal and part of the usual production/distribution cycle.

In December, 1980, the Commission did not propose a firm effective date; however, a date two to eight months after promulgation was suggested. Later, in August, 1981, the Commission suggested that an effective date six months after issuance would provide manufacturers with sufficient time to comply. At that time staff was anticipating promulgation of the amendments early in 1982. Since promulgation is now somewhat later, many manufacturers will be well into the prototype development and tooling stage of production and a six-month effective date could create minor problems. Economic Analysis believes a one year effective date will eliminate almost any burden on manufacturers.

SUMMARY/CONCLUSION

Based on information available to the staff and the public comments received on the proposals,[3/] the staff believes that the strangulation hazard associated with certain cutouts on crib end or side panels is severe. It is a hazard from which children cannot protect themselves; and it is a hazard that parents would not expect to be presented by a product in which children spend a great deal of their early lives. The staff knows of 15 injury incidents that the amendments would address, including nine deaths. However, all but three of these were associated with the two crib models that contained the "deepest" cutouts identified by the staff. Based on this factor and on the high

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3/ A complete analysis of the public comments by ESMT and EPHF appears at Tab F.

potential cost of notification and retrofit activities, the staff recommends that the amendments apply only to cribs manufactured after the effective date and that the effective date be one year after the amendments are published in the Federal Register.

The staff expects the amendments to impose very small costs on the crib industry. Redesigning and retooling will be necessary for a small percentage of available crib models, at most, and the one year of lead time will permit such changes to be made as part of the normal production cycle. Any testing, advertising, administrative, or other costs will also be minimal or nonexistent.

These conclusions are based on the staff's review of available information and public comments in response to the December, 1980, and August, 1981, proposals. However, the program team representative from Health Sciences continues to be concerned that this approach does not totally address the risk of strangulation associated with cribs since the amendments do not address entanglement with crib finials and cornerposts.

Options:

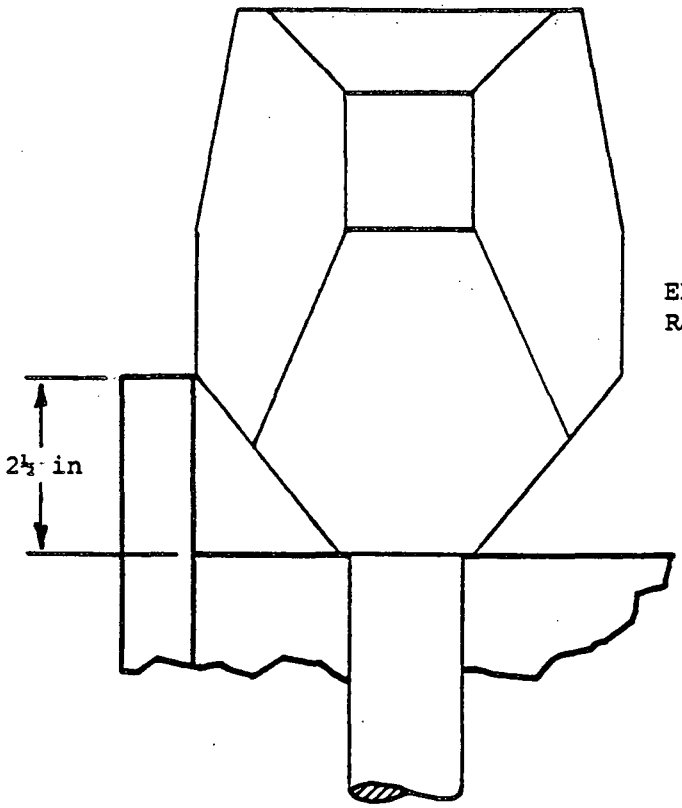
1. Approve the amendments as drafted in the draft Federal Register notice at Tab G.

2. Approve the amendments with changes.

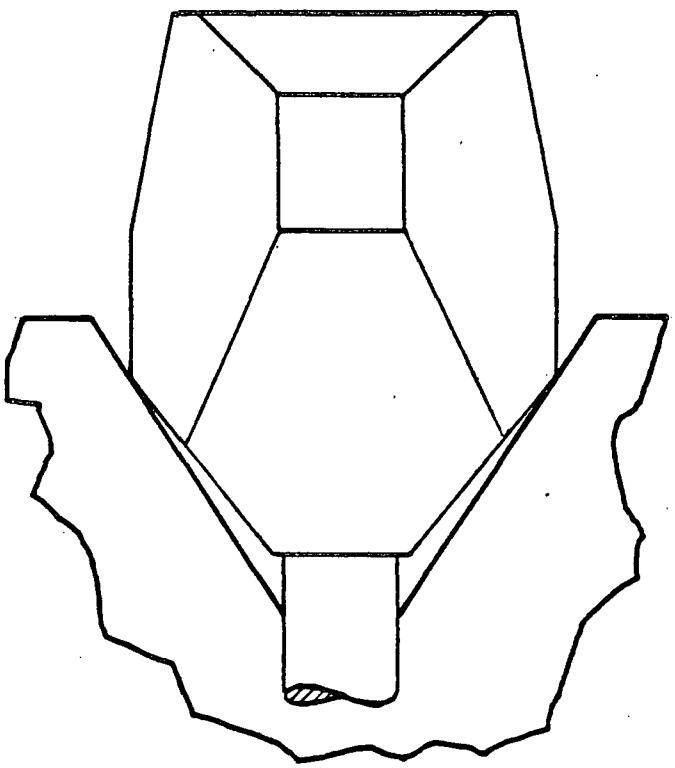
3. Direct the staff to develop a different test method for asymmetrical "vee" shaped cutouts or for all cutouts.

RECOMMENDATION

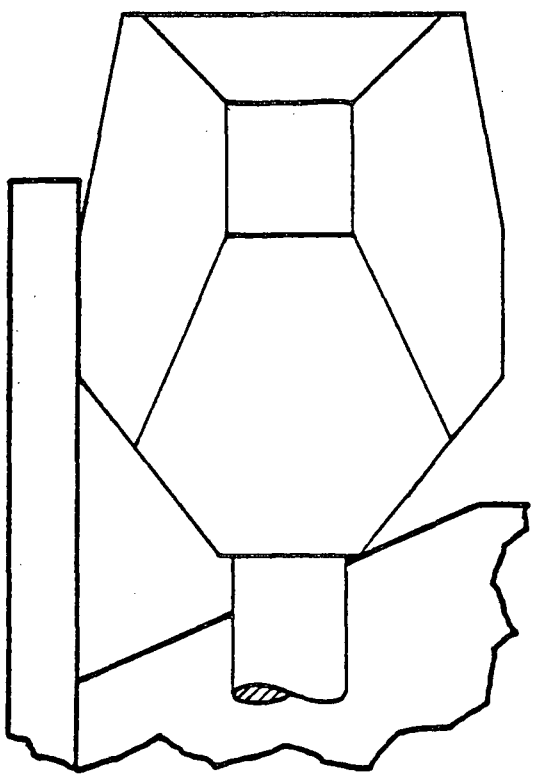
The staff recommends the Commission approve the final amendments to the crib regulations contained in the draft Federal Register notice at Tab G. The staff believes these amendments will reduce or eliminate the strangulation risk to children resulting from entrapment in cutouts in crib end or side panels for products manufactured after the effective date of the amendments.



EXAMPLE 'A' - Horizontal Top Rail With 2½ inch Finial.



EXAMPLE 'B' - Symmetrical 'Vee' Cutout.



EXAMPLE 'C' - Assymetrical 'Vee' Cutout.

LIST OF ATTACHMENTS

Tab A - Federal Register Notice, December 16, 1980, Proposed Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs.

Federal Register Notice, August 28, 1981, Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs, Extension of Comment Period.

Tab B - EPHA Memorandum, "Update of Injury Data Related to Entrapment in Crib Headboards," July 9, 1982.

EPHA Memorandum, "Head Entrapment Incidents Involving Baby Gates and Wooden Enclosures," July 15, 1982.

Tab C - ESMT Memorandum, "Rationale for the Rocking Test in the Amendment to the Crib Regulations," May 10, 1982.

EPHF Memorandum, "Cribs-Addendum," May 18, 1982.

Tab D - Log of Meeting between Representatives of JPMA and CPSC Staff, October 21, 1981.

Tab E - ECCP Memorandum, "Transmittal of Economic Assessment of the Crib Amendment," May 4, 1982.

Tab F - ESMT Memorandum, "Response to Comments to Proposal to Amend the Crib Regulations," December 24, 1981.

EPHF Memorandum, "Crib Comments," December 30, 1981.

Tab G - Draft Federal Register Notice, "Final Amendments to Requirements for Full-Size and Non Full-Size Baby Cribs."

Tab H - Summary Information Sheet

Paragraphs Nine and *Ten* hereof, respondents issued NAC credit cards without responding to a "request or application" for such credit cards, as required by the Truth in Lending Act. Further, such cards were not issued in renewal of or in substitution for an accepted credit card, as "accepted credit card" is defined in Regulation Z, in violation of Section 132 of the Truth in Lending Act and Section 226.13(b) of Regulation Z. 111 *Paragraph Twelve:* Pursuant to Section 103(q) of the Truth in Lending Act, respondents' aforesaid failures to comply with that Act and Section 226.13 of Regulation Z constitute violations of that Act and, pursuant to Section 108 thereof, respondents have violated the Federal Trade Commission Act. 111 *Wherefore, the premises considered,* the Federal Trade Commission on this 18th day of April, 1973 A.D. issues its complaint against said respondents.

By the Commission.

Charles A. Tobin,

Secretary.

Analysis of Proposed Consent Order To Aid Public Comment

The Federal Trade Commission has accepted an agreement to a proposed consent order from Citicorp Financial, Inc., of Towson, Maryland.

The proposed consent order has been placed on the public record for sixty (60) days for reception of comments by interested persons. Comments received during this period will become part of the public record. After sixty (60) days, the Commission will again review the agreement and the comments received and will decide whether it should withdraw from the agreement or make final the agreement's proposed order.

On April 18, 1973, the Commission issued its order in Docket No. C-2383 against Arlen Realty & Development Corp. (Arlen), also doing business as Korvettes, and NAC Credit Corporation (NAC). NAC is a wholly-owned subsidiary of Arlen and it issued credit cards. Respondents were charged with violating the Truth in Lending Act by issuing unsolicited credit cards.

The above order applies to "successors and assigns" of the said respondents. In August, 1980, Citicorp Financial, Inc., succeeded to a substantial part of the assets of NAC and to the management and operation of the NAC Charge Plan, formerly managed and operated by NAC. Thus, the proposed order is against Citicorp Financial, Inc., as a successor of NAC Credit Corporation.

The proposed order contains all of the provisions contained in the order in Docket C-2383. Additionally, certain other provisions have been added to insure that the public is adequately protected in all matters relating to the solicitation of credit cards.

The order prohibits respondent from issuing any credit card, other than one issued in renewal of or in substitution for an accepted credit card, unless the recipient specifically requests the card, either orally or in writing. The order sets forth certain safeguards which must be employed whenever an oral solicitation is involved. To that end, the person making the oral solicitation must, at the very outset of the conversation, inform the person being solicited of the purpose of the solicitation. In addition, a detailed log of all oral solicitations must be maintained for a period of at least two years. Furthermore, respondent is required to maintain for a period of five years, (1) records of all oral and written complaints it receives concerning its solicitation programs, and (2) copies of each contract between it and any other party pursuant to which that party will solicit new credit card holders. Copies of the complaints and contracts shall be provided to the staff of the Federal Trade Commission upon request. Copies of the order must be furnished to all persons engaged in the solicitation or issuance of respondent's credit cards, whether or not employed by respondent.

The purpose of this analysis is to facilitate public comment on the proposed order, and it is not intended to constitute an official interpretation of the agreement and proposed order or to modify in any way their terms.

Carol M. Thomas,

Secretary.

[FR Doc. 80-39036 Filed 12-15-80; 8:45 am]

BILLING CODE 6750-01-M

CONSUMER PRODUCT SAFETY COMMISSION

16 CFR Parts 1508 and 1509

Proposed Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs

AGENCY: Consumer Product Safety Commission.

ACTION: Proposed amendments to regulations.

SUMMARY: The Commission is proposing amendments to the requirements for full-size and non-full-size baby cribs. The amendments would address neck and head entrapment hazards associated with certain design configurations on crib panels. The amendments would prohibit the hazardous configurations by adding to the crib requirements a performance test that simulates the neck and head entrapment hazard pattern.

DATES: Comments on the proposed amendments are due by February 17, 1981. The Commission has not proposed a firm effective date; rather, the amendments are proposed to become effective within the period of two to eight months after their publication in final form in the Federal Register.

ADDRESSES: Comments should be mailed (preferably with five copies) to the Office of the Secretary, Consumer Product Safety Commission, Washington, D.C. 20207. Received copies may be seen in the Office of the Secretary, Third Floor, 1111 18th Street, NW., Washington, D.C.

FOR FURTHER INFORMATION CONTACT: Elaine H. Besson, Office of Program Management, Consumer Product Safety Commission, Washington, D.C. 20207; telephone (301)492-6453.

SUPPLEMENTARY INFORMATION:

I. Introduction

In late 1977 the Commission learned of a child whose neck and head had become entrapped in the cutout headboard design of a crib. As was the case with later victims (discussed in *Risk of injury,* section IIB below), the child had strangled to death in the cutout. The Commission staff immediately opened an investigation into the hazard.

The manufacturer of the crib notified retailers of the hazard and made available a modification kit which contained a shaped piece of board to close off the opening. In February 1978 the CPSC and manufacturer issued a joint press release that alerted consumers and announced a number of corrective actions. At the urging of the Commission, the manufacturer undertook additional actions, including new letters to dealers and the distribution of warning posters to the public.

A different crib model, produced by the same manufacturer, was later identified as being involved in other strangulations due to neck and head entrapment. That model also became the subject of a staff investigation and subsequent voluntary corrective actions by the manufacturers. Posters were distributed to pediatricians' offices to warn owners of the cribs. In addition, a consent agreement later required the manufacturer to place paid warning messages in magazines and to send letters to parents of small children who might be sleeping in the hazardous cribs.

Based on the information obtained in connection with the investigations, the

Commission directed its staff to prepare proposed amendments to the regulations for baby cribs. These amendments would address the entrapment hazard presented by the panels on certain cribs.

II. Discussion

The documents that support the proposed amendments are listed at the end of this Federal Register notice. All citations in the following discussion refer to those documents by number, and copies of them are available from the Office of the Secretary (address provided above).

A. *Existing crib regulations.*

The Commission currently enforces two baby crib regulations. The safety requirements in each regulation are comparable, but one applies to full-size cribs and the other applies to non-full-size cribs.

Full-size cribs (16 CFR Part 1508) have interior dimensions of 133 cm. by 71 cm., a standardized size. Non-full-size cribs (16 CFR Part 1509) are most other rigid-sided cribs, including portable, oversized, undersized, and specialty cribs.[1] Both categories of cribs must comply with a test procedure for the spacing of crib slats and spindles. This addresses the risk that an infant will strangle when its body, but not its head, slips through the slats.

If a crib mattress is too small, an infant could suffocate by becoming entrapped between the crib frame and the mattress, with its face wedged against the mattress. Therefore, labels specifying the correct mattress size are required for full-size cribs, which are generally not sold with a mattress as part of their original set. Since most non-full-size cribs are sold with a mattress, they must meet mattress size requirements that specify the allowable space between the unit and the mattress. In addition, permanent labeling requirements for non-full-size cribs assure that consumers have adequate information about the correct size for a replacement mattress.

Both crib regulations also have requirements for: Minimum effective rail height; locking or latching devices for drop or folding sides; construction and finishing, including provisions to eliminate "toe-holds" that might help babies climb out; assembly instructions; cautionary labeling; manufacturer identification; and recordkeeping.

Neither of the crib regulations addresses the neck and head entrapment hazard that the staff has investigated.

[1] Cribs with mesh, net, or screen sides, car beds, baby baskets, and bassinets are not covered by either regulation.

B. *Risk of injury.*

Including the strangulations discussed in *Introduction*, the Commission has learned of fourteen incidents [2] in which cutout designs in crib headboards or footboards were involved (3). Eight children under two years of age died, while the other six escaped death and permanent injury ("near misses"). The Commission staff analyzed all of these case histories to attempt to establish common aspects of the incident sequences and to determine the critical physical characteristics of the children at risk (2).

In contrast to the risk addressed by the existing slat spacing requirements, the fourteen incidents involved necks and heads that became entrapped while the children were completely inside the cribs. The staff analysis concludes that the victims were able to stand at or climb up to the top of the end panel (headboard or footboard), and then become entrapped in a cutout opening (2).

According to the analysis, three factors are necessary for this type of neck/head entrapment to occur: (a) The neck is smaller (or compresses to a dimension smaller) than the entrance to the opening, (b) the head is larger than the minimum dimensions of the open area of the cutout, and (c) the child's feet, because of panic, short stature, or loss of footing, fail to provide effective support.

It is possible and even likely that "near-miss" incidents have occurred without being reported. Like the six reported "near-misses", these would be situations in which a parent or other adult found a child entrapped, but was able to extricate the child before any injury resulted. There may also have been instances in which children were temporarily entrapped, but were then able to extricate themselves.

The Commission has preliminarily determined that the neck and head entrapment hazard presents an unreasonable risk of injury to children (see *Conclusion* below). The Commission staff is continuing to evaluate any new injury information that becomes available because it might indicate that some refinement in the proposed performance test is appropriate. In its effort to collect new injury information, the Commission has contacted medical examiners and health care professionals, as well as reviewed available medical literature.

C. *Proposed test requirement.*

[2] In one of these fourteen incidents, involving a death, the crib had been damaged and then modified by the parent. However the entrapment and strangulation followed the same pattern as in the other thirteen incidents (3).

The Commission has preliminarily determined that the identified risk of injury can be substantially reduced by amendments that prohibit from crib end and side panels any cutout (partially-bounded opening) that can entrap the necks and heads of the children using the cribs.[3] The Commission intends to add identical amendments to the full-size and non-full-size crib regulations.

As proposed below, the amendments prohibit cutouts that fail to comply with a performance test. By using a "head-form probe," the test simulates the way that a child's head and neck can become entrapped. When the probe is placed in the cutout, it must be free to swing through a vertical arc without interference from any portion of the crib end or side panels.

The proposed amendments describe the probe and the way it is positioned at all times during the test procedure. The probe is placed with its "neck" resting within the cutout area. The head of the probe is pivoted upward and backward. The cutout fails the test of the head portion of the probe does not freely attain a full upright position. Proposed Figure 3 schematically describes this procedure.

The proposed test procedure is based on the staff's reconstruction of the injury incident scenarios from the investigation reports (2, 5). In each of the cases, the victim was found suspended by the head because the effective opening of the cutout was too small to allow free passage of the head back into the crib. The test procedure is based on the proposition that gravity alone should be sufficient to free an entrapped child.

The development of the proposed head-form probe is fully described in staff documents (2), and proposed Figure 2 shows its dimensions. From the same injury incident investigation reports (35), the staff learned that most of the children were between one and two years of age and they were found with their heads entrapped in cutouts on the upper portions of the headboards. While it was impossible to determine the head sizes from the reports, none of the victims was of unusual height or weight.

The size of the probe is derived from the sizes of heads and necks of children who fall within the age range of one to two years (2). The staff considered anthropometric data from a 1977

[3] A fully-bounded opening could present a different entrapment risk of injury. This potential risk would require a different test procedure than the one for partially-bounded openings. The Commission has no injury data on any risk associated with fully-bounded openings (unless of course they are slats within the existing regulations), and the proposed amendments do not address any such risk.

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University of Michigan study (27) and other sources (21–26; 28–30). Since complete data were not available for children younger than 2 years of age, data for children between 2 and 3.5 years of age were used. (This is the youngest age grouping of complete, statistically representative data available.) The staff used head length, head width, and head height dimensions at the 95th percentile level. This level means that 95 percent of the children in that age group have head dimensions less than the size used in the proposed probe. The location of the widest point on the probe (with respect to the vertical plane) was designed as a band starting two inches from the rear of the probe and extending all the way forward. The band is two inches wide to account for the variable location of the widest point on a child's head.

To obtain the appropriate neck dimension for the probe, the staff first used the 5th percentile dimension for children between 2 and 3.5 years of age. The staff then extrapolated this dimension to about one year of age because this was the age of the youngest victim for whom relevant information was available. The staff further reduced this dimension by 25 percent to account for the pliability of the neck, a factor that was not considered in the University of Michigan anthropometric study.

In general, the probe incorporates dimensions for the smallest neck sizes and the largest head sizes. This is a "worst case" approach because a small neck would be most likely to fit into an opening and a large head would be most likely to become entrapped. Using these dimensions in the test probe provides a margin of safety for children who will not combine these two extremes of neck and head sizes.

D. *Economic considerations.*

The cribs already investigated by the Commission are no longer being manufactured and they have been the subject of numerous corrective activities (see *Introduction*). Those cribs were associated with nearly all of the deaths and other incidents discussed in *Risk of injury*, and their cutouts present a severe entrapment hazard to children.

The Commission has estimated that about 65,000 additional cribs shipped by manufacturers, representing eleven different models, may fail to comply with the proposed test procedure (6). The location and retrofitting of these cribs could cost more than $2 million (6). However, none of these cribs contains cutouts that are as "deep" or otherwise appear as hazardous as those contained in the cribs described in *Introduction*, and none has been associated with any death or injury incidents. As a result, the Commission has preliminarily concluded that the proposed amendments should not apply to these 65,000 cribs that have already been manufactured. The amendments incorporate various margins of safety (see *Proposed test requirement*) and should appropriately be applied only to those cribs manufactured in the future.

The Commission's economics staff has surveyed the crib manufacturers' 1980 catalogs and received additional information directly from the manufacturers (6). Based on these data, the Commission has estimated that only four or fewer models that may fail the proposed test procedure are still being produced in 1980 (6). In addition, manufacturers have indicated that these models are being phased out due to lack of consumer demand and the adverse publicity associated with the entrapment hazard (6). The staff has not yet surveyed manufacturers about the 1981 model cribs, but it will do so soon. Based on preliminary staff observations, the Commission anticipates that none of the 1981 models will fail the proposed test procedure.

Therefore, the Commission has preliminarily found that the economic impact on crib manufacturers of the proposed amendments will be slight. Certain minimal costs will be incurred by a manufacturer who performs compliance tests on prototype models (6). These costs would be limited to fabrication of the head-form probe and time spent on the testing.

Any current model lines that fail the test can be discontinued or redesigned without imposing a significant economic burden on any manufacturer (6). Each year, manufacturers routinely discontinue and redesign cribs in response to consumer demand and in anticipation of that demand (6). Dicontinuation of a model would not result in economic losses as long as the cribs already manufactured could continue to be sold (6). Redesign of a crib model may only involve slight adjustment of the machinery that cuts the headboard and footboard patterns (6). Retooling is not expected to be necessary for such slight changes in the sizes and shapes of any noncomplying cutouts (6). Any redesign costs would therefore be minimal.

In any case, only the four or fewer 1980 models of cribs and probably fewer 1981 models would need to be discontinued or redesigned. The Commission is especially seeking comments from crib manufacturers providing information on the impact of the proposed amendments on the 1981 model cribs.

The Commission has issued environmental review procedures (16 CFR Part 1021; 45 FR 69433; October 21, 1980) concerning agency compliance with the National Environmental Policy Act, as amended. These procedures provide that safety regulations for products normally have little or no potential for affecting the human environment and that preparation of environmental documents is generally not required (§ 1021.5(c)(1)). If a particular safety regulation for products may produce environmental effects, the Commission would prepare appropriate environmental documents.

The Commission has reviewed the proposed crib amendments and concludes that they have little or no potential for significantly affecting the human environment. At most, they will require alteration of certain crib designs manufactured in the future. Therefore, the Commission has prepared no environmental documents in considering this proposal.

E. *Effective date.*

Cribs are generally marketed according to an annual design and production cycle (6). New designs are completed by the summer, and they are manufactured beginning in the fall and continuing throughout most of the following calendar year. Retailer orders are also placed beginning in the fall. The orders are then filled by shipments that continue through the following fall, and sometimes until the end of the following calendar year.

The Commission anticipates that, if it decides to issue the crib amendments in final form, they can be issued by the summer of 1981 or earlier. As discussed in *Economic considerations*, they will apply to cribs introduced into interstate commerce after a future effective date.

At this time the Commission does not know whether all 1981 model cribs will pass the proposed test procedure. These 1981 cribs in most cases have already been designed and introduced, and some have already been produced. Therefore, an effective date that is 4–6 months after the issuance date would be appropriate to allow them to be sold until the end of 1981 (see *Economic considerations* and *Conclusion*). This 4–6 month period would also allow sufficient time for a noncomplying model line to be discontinued, or for the machinery that cuts out the crib panels to be adjusted, prior to production of the 1982 models (6).

If the amendments are issued later than the summer of 1981, lead time of more than six months may be necessary because the amendments would be impacting the industry after the 1982 cribs have been designed. However, less

lead time may be appropriate if the staff survey reveals, as anticipated, that the 1981 model cribs largely comply with the proposed amendments.

Therefore, the Commission is not proposing a firm effective date. Instead, based on currently-available information, the Commission is proposing that the effective date will be between two months and eight months after amendments are issued in final form. The final effective date will depend on the information and arguments contained in the public comments, the date of issuance of the amendments, and the degree of conformance with the amendments of the 1981 cribs.

F. *Entanglement hazard.*

The Commission is aware of a hazard pattern associated with cribs that neither the existing crib regulations nor the proposed amendments address. Twenty-one children are known to have strangled by catching such things as clothing, loops of ribbons, necklaces, and pacifier cords on corner posts of cribs. Two of the children strangled after becoming entangled in cords used to suspend toys from corner posts.

The Commission is investigating these various "entanglement" hazard patterns. For now, its efforts with respect to the cribs are focused on the collection of injury information that will enable an informed analysis of the risk presented. Therefore, the Commission is requesting that it be informed of any entanglement incidents about which members of the public have knowledge. Reports of such incidents will supplement information that the Commission now has and expects to obtain from already-initiated contacts with medical examiners and health care professionals.

The Commission will evaluate all available injury information that links any entanglement-type hazard with cribs. If this evaluation justifies additional effort, the Commission would preliminarily consider its regulatory alternatives. Before cribs could be regulated to address an entanglement hazard, the Commission must of course determine that an unreasonable risk exists and that appropriate requirements could address the risk. The Commission cannot now rule out the possibility that such requirements might apply to the same crib end and side panels that are the subject of the amendments proposed below.

The Commission cannot now offer any specific technical guidance that would address the entanglement hazard pattern. Many parts of cribs can provide "catch-points" for clothing, loops of ribbons, necklaces, and pacifier cords. However, the twenty-one known entanglement deaths have been associated with the corner posts of cribs. Therefore, a crib manufacturer who wants to minimize the risk could certainly eliminate corner posts.

III. Conclusion

Based on the discussion above and the information contained in the record of this proceeding, the Commission has preliminarily found that cribs with certain cutouts on their end or side panels present a "mechanical hazard" within the meaning of section 2(s) of the FHSA (15 U.S.C. 1261(s)). In normal use, the design of cribs containing such cutouts presents an unreasonable risk of personal injury to children.

The risk presented to children, strangulation, is the most severe risk possible. It is a risk that children cannot protect themselves against; it is a risk that parents would not expect to be presented by a product in which children spend a great deal of their early lives. The frequency of the risk is more difficult to evaluate. The Commission knows of thirteen injury incidents that the proposed amendments would address (see footnote 2), including seven deaths. However, all of these were associated with the two models that contained the "deepest" cutouts encountered by the Commission. Based on this factor and on the high potential cost of notification and retrofit activities, the Commission has proposed the amendments to apply only to cribs that have not yet been introduced into interstate commerce.

The Commission expects the crib industry's compliance costs to be quite low. Aside from testing costs, the proposed amendments would affect no more than a few crib models, and perhaps no models at all. If any models would require redesign or discontinuation, the costs will still be low. Many models of cribs are redesigned or discontinued yearly, in the normal course of business, and the effective date of the amendments is proposed to conform smoothly with the normal design and production cycle of cribs.

The Commission has carefully considered the severity and, to the extent possible, the frequency of the risk that the amendments would address, as well as the costs that would be associated with the amendments. The Commission's preliminary conclusion is that the risk presented by cribs not yet manufactured is an "unreasonable" one, under the applicable statutory criteria, if the cribs contain cutouts that fail the test procedure.

If such cribs present a mechanical hazard and are intended for use by children, they are "hazardous substances" under section 2(f)(1)(D) of the FHSA and "banned hazardous substances" under section 2(q)(1)(A) of the FHSA (15 U.S.C. 1261 (f)(1)(D) and (q)(1)(A)). Accordingly, pursuant to provisions of the Federal Hazardous Substances Act (secs. 2 (f)(1)(D), (q)(1)(A), (s); 3(e)(1), 74 Stat. 1304–05, 83 Stat. 187–89; 15 U.S.C. 1261, 1262) and under authority vested in the Commission by the Consumer Product Safety Act (Pub. L. 92–573, sec. 30(a), 86 Stat. 1231; 15 U.S.C. 2079(a)), the Commission proposes to amend Parts 1508 and 1509 by adding the identical new §§ 1508.11 and 1509.13 and new Figures 2 and 3 which would appear at the end of each part as follows:

§ 1508.11/1509.13 Requirements for cutouts.

Full-size/Non-full-size baby cribs shall comply with the following test requirement:

(a) Place the neck of the head-form probe shown in Figure 2 into any cutout (partially-bounded opening) located along the upper edges of an end or side panel. The axis of the neck shall be horizontal and at right angles to the plane of the panel at the point of contact. The head portion of the probe shall be on the outer side of the panel. With the neck resting on the panel at any point within the cutout area (for compliance purposes, the Commission may test at all points that could result in a failure), and the front of the probe pointing downwards, draw the head of the probe towards the panel until surface A makes contact with the outer side of the panel (see Figure 3).

(b) Press down on the neck to cause the head to swing upwards through the cutout in the panel. The probe shall not be rotated about the neck axis during this procedure. The arc through which the head is swung shall be in a vertical plane and shall terminate when the neck axis attains an upright positioni or is prevented from attaining an upright position by an obstruction. During the test, contact shall be maintained between surface A and/or surface(s) B of the head-form probe (either alone or in any combination) and the panel.

(c) Before the probe reaches an upright position, no portion of the panel may contact any portion of the probe other than surfaces A or B (or the edges of these surfaces).

(Secs. 2(f)(1)(D), (q)(1)(A), (s); 3(e)(1), 74 Stat. 1304–05, 83 Stat. 187–89; (15 U.S.C. 1261, 1262))

Dated: December 8, 1980.

Sadye E. Dunn,

Secretary, Consumer Product Safety Commission.

BILLING CODE 6355-01-M

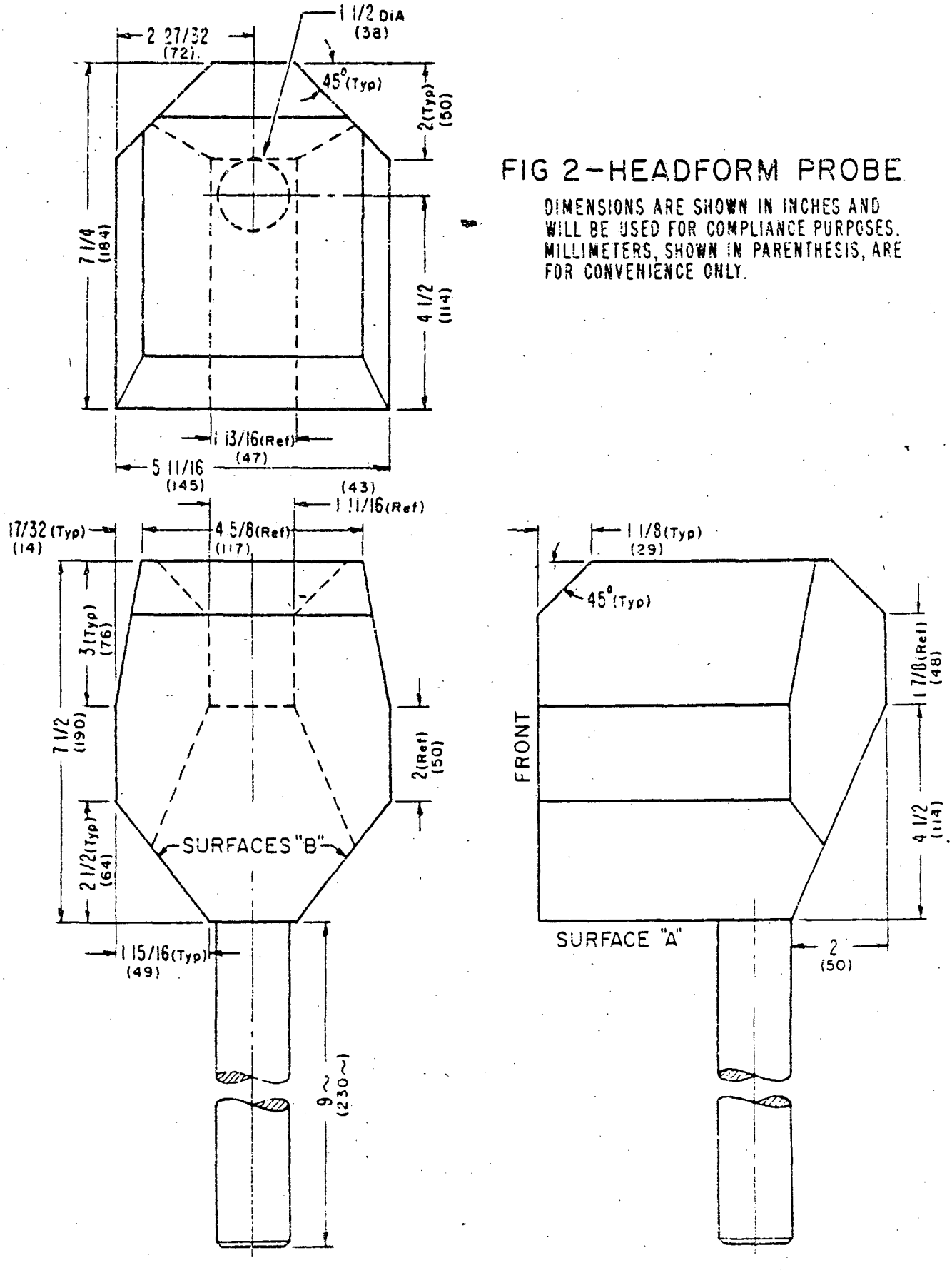

FIG 2—HEADFORM PROBE

DIMENSIONS ARE SHOWN IN INCHES AND WILL BE USED FOR COMPLIANCE PURPOSES. MILLIMETERS, SHOWN IN PARENTHESIS, ARE FOR CONVENIENCE ONLY.

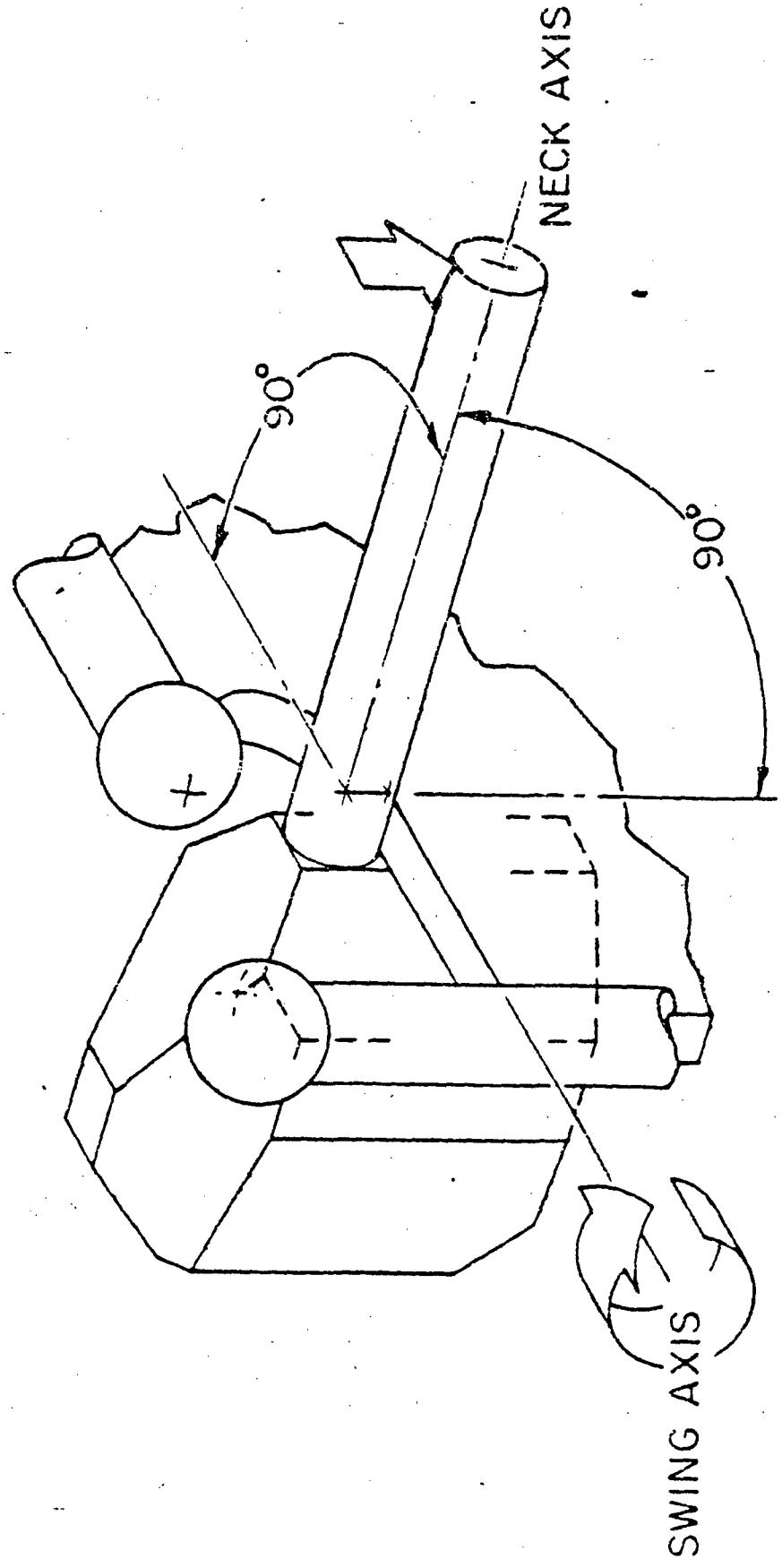

FIG 3

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List of Documents Supporting the Proposed Amendments

1. Staff briefing package, including restricted cover memorandum and briefing paper. November 12, 1980. (The Tabs are listed separately as documents below):

2. Tab A HIEH Memorandum "Data for Crib Amendment," with attachments; December 14, 1979; 14 pages.

HIEH Memorandum "Crib Amendment—Additional Comments," March 28, 1980; 3 pages.

3. Tab B HIEH Memorandum "Update of Data Related to Crib Amendment," October 15, 1980; 2 pages.

HIEH Memorandum "Analysis of Injury Data Associated with Crib Finials and Cornerposts," June 12, 1980; 2 pages.

HIEH Memorandum "Injury Data Update for Crib Headboard Configurations Amendment," January 22, 1980; 1 page.

4. Tab C Albert F. Esch, "Fatal Entrapment of Infants in Crib Headboards II," with attachment; March 12, 1980; 4 pages.

"Health Sciences Review & Recommendations Regarding the Proposed Crib Amendment," February 14, 1980; 7 pages.

5. Tab D ESEM Memorandum "Proposed Amendments to the Crib Regulations," with attachment; March 13, 1980; 4 pages.

6. Tab E HICP Memorandum "Preliminary Economic Assessment of Crib Amendment," February 1, 1980; 7 pages.

HICP Memorandum, "Crib Amendment," March 10, 1980; 2 pages.

HICP Memorandum, "Crib Amendment," April 2, 1980; 1 page.

HICP Memorandum, "Design-Production Cycle for Cribs," October 24, 1980; 2 pages.

7. Tab F CERM Memorandum, "Amendments to the Crib Regulation," January 15, 1980; 1 page.

8. Tab G Draft *Federal Register* Notice "Proposed Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs; 21 pages.

9. ESEM Memorandum, "ESEM Comments on Headform Probe for Amendment to Crib Regulations," with attachments; January 29, 1980; 6 pages.

10. Memorandum from Jim Hill, "Response to Crib Amendment FR Notice", April 2, 1980; 1 page.

11. Letter from Gulf & Western Industries, Inc.; March 14, 1980; 4 pages (Restricted in part).

12. Notes of telephone conversations between Jacob Handelsman and Joel Cunard; January 15, 1980; 4 pages.

13. Notes of telephone conversations between Jacob Handelsman and officials of Questor; January 1980; 2 pages.

14. Notes taken by Jacob Handelsman concerning staff investigations of hazardous cribs; January 1980; 7 pages. (Restricted).

15. Notes of conversation between Jacob Handelsman and a Juvenile Product Manufacturers Association official; January 21, 1980; 1 page.

16. Notes of conversation between Jacob Handelsman and an official of Simmons; January 17, 1980; 1 page.

17. Notes of conversation between Jacob Handelsman and an official of Okla Homer Smith; 1 page.

18. Memo of conversation between Jacob Handelsman and an official of Connor Forest Industries; January 11, 1980; 2 pages.

19. Memo of conversation among Jacob Handelsman and two officials of Child Craft; January 18, 1980; 3 pages.

20. Letter from Connor Forest Industries; January 22, 1980; 1 page.

21. Barber, C. R., et al, "Growth of the Skull in Young Children II—Changes in Head Shape," *Journal of Neurology, Neurosurgery and Psychiatry*, 10. pp. 54–58, 1956.

22. Boyd, J. D., "Clinical Appraisal of Infant Head Size," *American Journal of Diseases of Children*, 69, pp. 71–82, 1945.

23. Goldstein, M., "Development of the Head in the Same Individuals," *Human Biology*, 4, pp. 197–219, 1939.

24. Goldstein, M., "Changes in Dimensions and Form of the Face and Head with Age," *American Journal of Physical Anthropology*, 22, No. 1, pp. 37–98, 1939.

25. Goodenough, F. L., *Development Psychology*, Appleton-Century-Crafts Inc., N.Y., 1962.

26. Meredith, H. V., "Changes in the form of the Head and Face during Childhood," *Growth*, 24, pp. 215–265, 1960.

27. Snyder, R. G., et al. "Anthropometry of Infants, Children and Youths to Age 18 for Product Safety Design, Final Report," Contract CPSC C–75–0068, May 1977.

28. Snyder, R. G., et al. "Physical Characterisitics of Children as Related to Death and Injury for Consumer Product Safety, Final Report," Contract FDA 72–70, May 1975.

29. Snyder, R. G., et al, "Source Data of Infant and Child Measurements, Interim Data 1972," Contract FDA 72–70, interim Report, Reprinted 1975.

30. Young, J. W., "Selected Facial Measurements of Children for Oxygen Mask Design," Federal Aviation Agency, Office of Aviation Medicine, Oklahoma City, Oklahoma, 1966.

31. Brazelton, T. B., *Infants and Mothers Differences In Development*, New York; Delta Book, Dell Publication, 1969; portions.

32. Caplan, F. (ed.), *The First Twelve Months of Life*. The Princeton Center for Infancy and Early Childhood. New York; Grosset and Duniap, 1973; portions.

33. McGraw, M. B., *The Neuromuscular Maturation of the Human Infant*. New York: Hafner, 1969; portions.

34. L. Joseph Stone and Joseph Church, *Childhood and Adolescence*, New York, Randon House, 1975; page 82.

35. Eleven in-depth investigation reports on incidents involving crib strangulation; various dates; 162 pages. (Restricted in part.)

36. HS Memorandum, "Additional Data on Crib Headboards," September 19, 1980; 12 pages.

37. HIEA Memorandum, "In-depth Investigations of Crib Related Accidents," with attachments; August 29, 1980; 206 pages. (Restricted in part.)

38. HS Memorandum, "Additional Information for Crib Amendment Project," August 8, 1980; 8 pages.

39. OPM Memorandum, "Additional Information on the Crib Amendment Project," with restricted vote sheet; July 3, 1980; 16 pages.

40. Staff briefing package including cover memorandum, June 17, 1980; 28 pages.

41. Various restricted enforcement documents.

42. Tapes of Commission briefings and meetings.

43. Feldman, K. W. and Simms, Roy J., "Strangulation in Childhood: Epidemiology and Clinical Course," *Pediatrics*, Vol. 5, No. 6, June, 1980; pages 1079–1085.

44. "Infant Strangulation," *Pediatrics*, Neonatology Supplement 39, 1977; pages 1043–1045.

[FR Doc. 80-38943 Filed 12-15-80; 8:45 am]

BILLING CODE 6355-01-M

DEPARTMENT OF THE TREASURY

Customs Service

19 CFR Part 101

General Provisions; Proposed Change in Field Organization of the Customs Service

AGENCY: U.S. Customs Service, Treasury.

ACTION: Proposed rule.

SUMMARY: This notice proposes to change the field organization of the Customs Service by consolidating the Customs districts of Houston, Galveston, and Port Arthur, Texas, under the Houston District and by consolidating the Galveston and Houston ports of entry in the new Houston District. The proposed consolidation of the Customs districts would significantly reduce administrative salaries and expenses without impairing services to area businesses or the general public. The proposed consolidation of the ports of entry would result in simplified vessel entry and clearance procedures, fewer penalties for vessels failing to comply with these procedures, reduced overtime expenses, and reduced paperwork for all parties involved. The proposed change is part of Customs continuing program to obtain more efficient use of its personnel, facilities, and resources, and to provide better service to carriers, importers, and the public.

DATES: Comments must be received on or before February 17, 1981.

ADDRESS: Comments (preferably in triplicate) may be addressed to the Commissioner of Customs, Attention: Regulations and Information Division, U.S. Customs Service, 1301 Constitution Avenue, NW., Washington, D.C. 20229.

§ 308.91 Application for exemption.

Any interested person may file a written application for an exemption under this subpart with the Executive Secretary, Federal Deposit Insurance Corporation, 550 17th Street, NW., Washington, D.C. 20429. The application shall specify the exemption sought and the reason therefor, and shall include a statement indicating why the exemption would be consistent with the public interest or the protection of investors.

§ 308.92 Newspaper notice.

If the Board of Directors decides to further consider the application for exemption, it shall serve upon the applicant instructions to publish one notice in a newspaper of general circulation in the community where the main office of the issuer is located. The applicant shall furnish proof of such publication to the Executive Secretary. The notice shall contain (a) the name and address of the issuer and the name and title of the applicant, (b) the exemption sought, (c) a statement that a hearing will be held, and (d) a statement that within 30 days of publication of the newspaper notice, interested persons may submit to the FDIC written comments on the application for exemption and a written request for an opportunity to be heard. The address of the FDIC must appear in the notice.

§ 308.93 Notice of hearing.

Within 10 days after expiration of the period for receipt of comments pursuant to § 308.92, the Executive Secretary shall serve upon the applicant and any person who has requested an opportunity to be heard, a notice indicating the place and time of the hearing, to be held not later than 30 days after service of the notice of hearing. The notice shall contain the name and address of the presiding officer designated by the Board of Directors and a statement of the matters to be considered.

§ 308.94 Hearing.

Parties to the hearing may appear personally, through counsel, or personally with counsel. Parties shall have the right to introduce relevant and material documents and to make an oral statement. The formal rules of evidence, the adjudicative procedures of the Administrative Procedure Act (5 U.S.C. 554–557), and subpart B shall not apply. The Board of Directors or the presiding officer shall have discretion to permit presentation of witnesses within specified time limits, provided that a list of witnesses is furnished to the presiding officer prior to the hearing. Witnesses shall not be sworn. The presiding officer may ask questions of any witness and each party may cross-examine any witness presented by an opposing party.

§ 308.95 Decision of the Board of Directors.

Following submission of the hearing transcript to the Board of Directors, the Board may grant the exemption where it determines by reason of the number of public investors, the amount of trading interest in the securities, the nature and extent of the issuer's activities, the issuer's income or assets, or otherwise, that the exemption is consistent with the public interest or the protection of investors. An exemption shall be granted by an order specifying the terms of the exemption, the person to whom it is granted, and the period for which it is granted. A copy of the order shall be served upon each party to the proceeding.

By order of the Board of Directors, August 24, 1981.

Federal Deposit Insurance Corporation.

Hoyle L. Robinson,

Executive Secretary.

[FR Doc. 81-25207 Filed 8-27-81; 8:45 am]

BILLING CODE 6714-01-M

CONSUMER PRODUCT SAFETY COMMISSION

16 CFR Parts 1508 and 1509

Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs; Extension of Comment Period

AGENCY: Consumer Product Safety Commission.

ACTION: Notice of extension of comment period.

SUMMARY: The Commission recently proposed amendments to its requirements for full-size and non-full-size baby cribs to address head and neck entrapment hazards associated with certain design configurations on crib end or side panels. The Commission had specified that comments should be submitted by February 17, 1981. After considering the comments received, the Commission staff concluded that the proposed amendments would need certain technical revisions. The Commission agrees that the technical revisions recommended by the staff are appropriate and has therefore decided to extend the period for receipt of written comments on the revisions until September 28, 1981.

DATE: Written comments limited to the staff recommended revisions to the proposed amendments must be received in the Office of the Secretary no later than September 28, 1981.

ADDRESS: Comments should be mailed (preferably with five copies) to the Office of the Secretary, Consumer Product Safety Commission, Washington, D.C. 20207. Received copies may be seen in the Office of the Secretary, Third Floor, 1111 18th Street, N.W., Washington, D.C. 20207. All material which the Commission has that is relevant to this issue, including any comments that may be received on this issue, may be seen in, or copies obtained from, the Office of the Secretary, Third Floor, 1111 18th Street, N.W., Washington, D.C. 20207 (202) 634–7700.

FOR FURTHER INFORMATION CONTACT: Elaine H. Besson, Office of Program Management, Consumer Product Safety Commission, Washington, D.C. 20207; telephone (301) 492–6453.

SUPPLEMENTARY INFORMATION:

Proposed Amendments.

On December 16, 1980, the Commission proposed for public comment amendments to the requirements for full-size and non-full-size baby cribs to address entrapment hazards presented by certain configurations on the end and side panels of baby cribs (45 FR 82660). The amendments would add to the Commission's mandatory requirements for baby cribs a performance test which simulates the head and neck entrapment hazard pattern associated with certain designs of cribs. The test incorporates use of a headform probe developed by Commission staff based on relevant anthropometric data which correspond to the ages of the children at risk. A more detailed explanation of the background of the development of the headform probe as proposed is provided in the original proposed notice, cited above.

As proposed, the amendments would prohibit cutout designs on crib end or side panels that failed to comply with a performance test. By using a "headform probe" the test simulates the way that a child's head and neck can become entrapped. When the probe is placed in the cutout, it must be free to swing through a vertical arc without interference from any portion of the crib end or side panels.

The proposed amendments described the probe and the way it should be positioned at all times during the test procedure. The probe should be placed with its "neck" resting within the cutout area. The head of the probe should then be pivoted upward and backward, in a

vertical arc. The cutout would fail the proposed test if the head portion of the probe could not freely attain a full upright position. Figure 3 of the proposed amendments schematically described this procedure.

Suggested Changes to Proposed Test Procedure

As originally worded, the proposed requirements identified as a failure contact with any surfaces or edges other than those surfaces labeled "A" or "B" or the edges of those surfaces when the headform probe is rotated in a vertical arc after being placed in a cutout along the upper edge of a crib end or side panel. Some of the commentors objected to the wording of the requirement as overly restrictive in that it would prohibit may designs which could not be considered as entrapment hazards.

It was clearly not the intention of the proposed requirement and test procedure to prohibit such designs where contact is made with only one side of the headform probe. For example, a horizontal top rail with no cutouts but having a cornerpost extending vertically more than 2½ inches would fail the proposed requirements. A child's head or neck would not become entrapped by such a configuration. The Commission proposes to clarify the language of the requirements so that contact with only one side of the probe does not constitute failure. Single point contact with those surfaces coinciding with the back of a child's head will still be considered a failure. During the test the probe may be moved sideways so that the probe can be rotated to a full vertical position. Any simultaneous contact at 2 or more points on opposite sides of the probe would be considered a failure.

One commentor suggested expanding the identification of the surfaces of the probe and then specifying those combinations of surfaces which, when contacted by the probe during the test procedure, would constitute a failure to meet the requirements. Several sets of surfaces were cited by the commentor as potentially failing combinations.

The Commission has accepted the basic suggestion for additional labeling of surfaces in order to clarify the procedure and requirements. However, to identify all possible "failing" combinations would result in a cumbersome requirement with a lengthy and possibly confusing list of failures. In addition, the commentor's suggestion omitted consideration of possible panel contact with the edges formed by adjacent surfaces of the probe. The Commission proposes to revise the test procedure by identifying additional surfaces and edges of the probe (see revised figure 2 below) and simplifying the commentor's suggested definition of what constitutes failure to comply.

The Commission staff has also noted that, although not specifically addressed in the public comments, the proposed test procedure and requirements need to be revised to prevent the use of certain "vee"-shaped cutouts that could entrap an infant's head and present a risk of strangulation. These cutouts would have been permitted by the language of the proposed amendments.

The proposed amendments would have permitted symmetrical "vee"-shaped cutouts if the angle between the legs of the "vee" were less than the included angle between surfaces of the headform probe designated "B" in proposed figure 2. Such cutouts would allow passage of the probe, but only if the probe were permitted to ride upward on the edges of surfaces "B" as the probe is swung through a vertical arc. This action, however, is not consistent with the premise that gravity alone should be sufficient to allow a child to fall free without becoming entrapped.

The Commission, therefore, plans to revise the requirements in the final rule so that simultaneous contact between *both* surfaces "B" and the panel will not be permitted. Only contact with one surface "B" in addition to surface "A", or at least one of its edges, and the neck will be permitted.

There could also be "vee"-shaped cutouts that are asymmetric with respect to the vertical. Such a configuration would exist on a crib panel with a convex (semicircular) shape on its top edge and a finial, cornerpost or canopy support. Similar designs have been used for crib head and footboards. Depending on the angle formed, these designs could present the entrapment hazard, but would not fail the test if the probe is swung only through a *vertical* arc.

To prevent hazardous asymmetrical "vee"-shaped cutouts, the Commission plans to revise the test procedure to require that upon completion of the swing to the upright position, the probe be rocked sideways in a plane parallel to the plane of the crib panel. If the rocking motion causes simultaneous contact by both surfaces "B" or its edges (in any combination) and the panel, the cutout fails the test. The rocking motion would not affect the results of a test of a rectangular-shaped cutout that permits passage of the probe when it is swung through a vertical arc.

Economic Impact of Revisions to Proposed Amendments

The Commission staff has reviewed the changes in the test procedure to assure that their preliminary assessment of potential economic impact of the crib amendments is still valid. A review of 1980 and 1981 manufacturers' catalogs identified several models which contain an asymmetrical "vee" shape formed by the corner post or canopy support and a convex-shaped end panel. No identified crib models had dimensions that would definitely fail the revised procedure but would have passed the proposed test procedure and requirements. In any case, manufacturers are not precluded from using a "vee"-shaped cutout design as long as it passes the test requirements.

The Commission staff does not believe that the revisions to the proposed amendments explained above will place added burden on crib manufacturers. Rather, the revisions serve to clarify the test procedure and to assure that only potentially hazardous crib cutout designs are prohibited.

It is the opinion of the Commission staff that unless there is some as yet unidentified impact which could cause a major disruption in the design-production process, an effective date six months after the amendments are issued will provide the manufacturers with sufficient time to comply with the requirements.

Request for Comments

Because the issues discussed above resulted from information developed since the original proposal, the public has not had an opportunity to comment on this part of the proposed test procedure. Accordingly, the Commission is providing an additional opportunity for comment on the issues raised by the above discussed revisions. Since information currently available indicates that the economic impact of the revised test procedure will be minimal, the Commission believes that a period of 30 days is sufficient for the public to submit comments on the revisions. If no comments are received, or no substantive issues are raised with respect to the revisions, the Commission intends to publish final amendments to the requirements in accordance with the staff recommended revisions. If the Commission receives substantive technical comments on the revised test procedure, it will analyze the comments and publish a notice in the Federal Register explaining any revisions made in response to the comments received. The Commission is particularly interested in receiving comments on the technical changes from persons or groups having special knowledge or expertise as to the subject matter. For

21

convenience, the language of the revised proposed test procedure follows:

PART 1508—REQUIREMENTS FOR FULL SIZE BABY CRIBS

PART 1509—REQUIREMENTS FOR NON-FULL SIZE BABY CRIBS

§ 1508.11/1509.13 Requirements for cutouts.

Full-size/Non-full-size baby cribs shall comply with the following test requirement.

(a) Place the neck of head-form probe shown in Figure 2 into any cutout (partially-bounded opening) located along the upper edges of an end or side panel. The axis of the neck shall be horizontal and at right angles to the plane of the panel at the point of contact. The head portion of the probe shall be on the outer side of the panel. With the neck resting on the panel at any point within the cutout area (for compliance purposes, the Commission may test at all points that could result in a failure), and the front of the probe pointing downwards, draw the head of the probe towards the panel until surface "A" makes contact with the outer side of the panel (see Figure 3).

(b)(1) Press down on the neck to cause the head to swing upwards through the cutout in the panel. The probe shall not be rotated about the major axis of the neck during this procedure. The arc through which the head is swung shall be in a vertical plane and shall terminate when the major axis of the neck attains an upright position or is prevented from attaining an upright position by an obstruction. During the test, contact shall be maintained between surface "A" (or at least one of edges "AB"), the neck of the headform probe and the panel. If, during the swing to the upright position, a surface, other than surface "D", or edge adjacent to surface "D" is contacted, sideways motion of the headform shall not be restrained.

(2) Upon completion of the swing to the upright position, the headform may be rocked from side to side parallel to the plane of the panel while maintaining contact between surface "A" or an edge "AB" and the panel. The maximum angle through which the headform is rocked shall be determined by contact with the panel by a surface or edge other than "A" or "AB" or until one of the surfaces "B" is in a vertical plane.

(c) During the test described in paragraph (b) of this section, no portion of the panel shall contact:

(1) Simultaneously, more than one of surfaces "B", "C" or edges "BC", "CC", "CD" or "BD", in any combination if they are on opposing sides of the headform.

(2) Any of surfaces "D".

Note.—Edges are identified by the letter designations for surfaces that lie on either side of the edge.

(Secs. 2(f)(1)(D), (q)(1)(A), (s); 3(e)(1), 74 Stat. 372, 374, 375, 80 Stat. 1304–05, 83 Stat. 187–89; 15 U.S.C. 1261, 1262)

Dated: August 20, 1981.

Sadye E. Dunn,

Secretary, Consumer Product Safety Commission.

BILLING CODE 6355-01-M

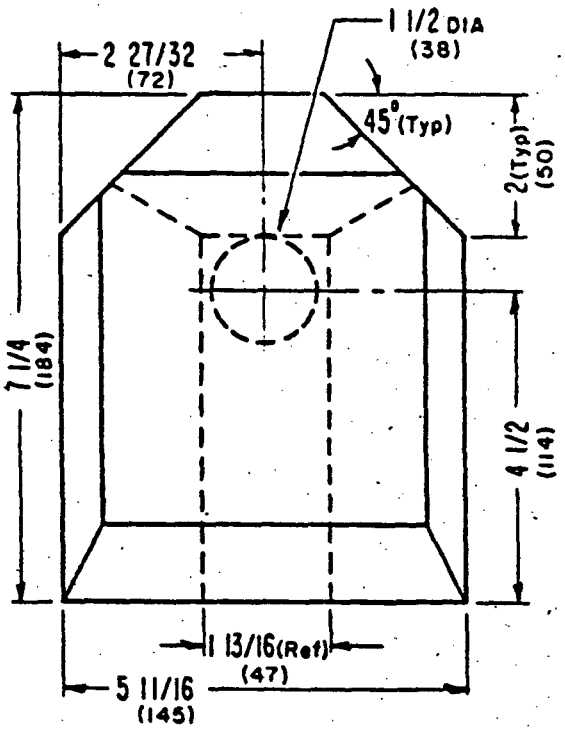
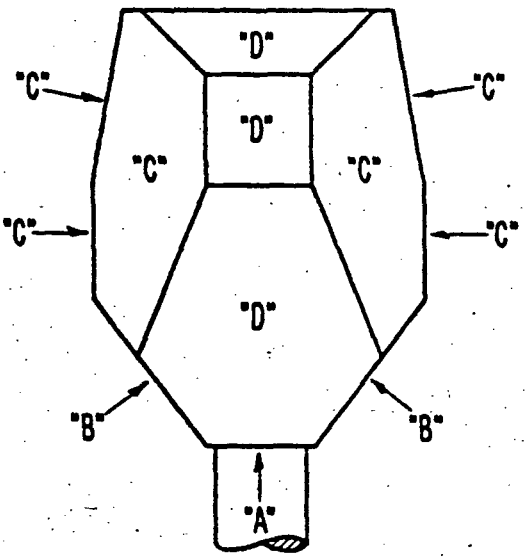
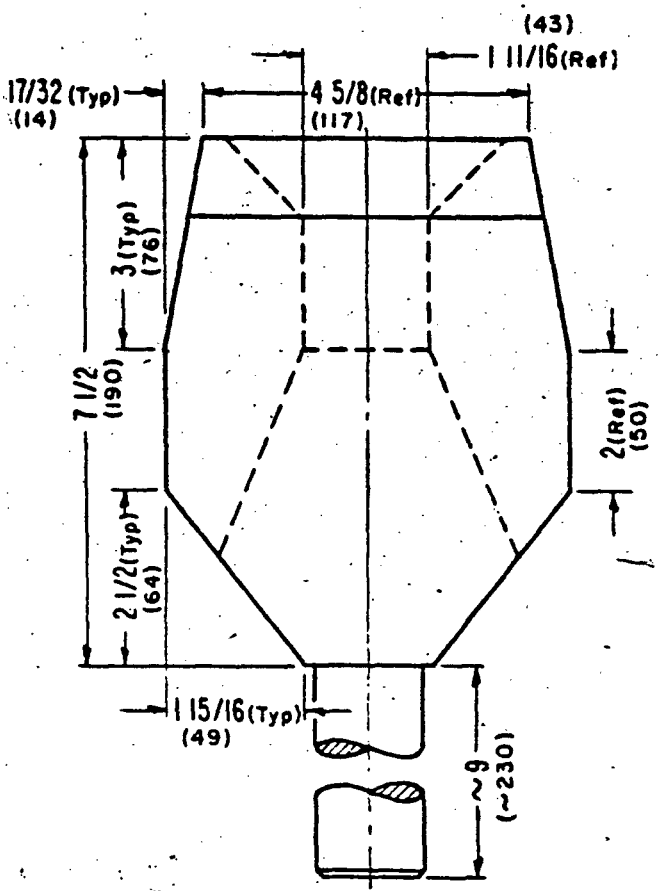


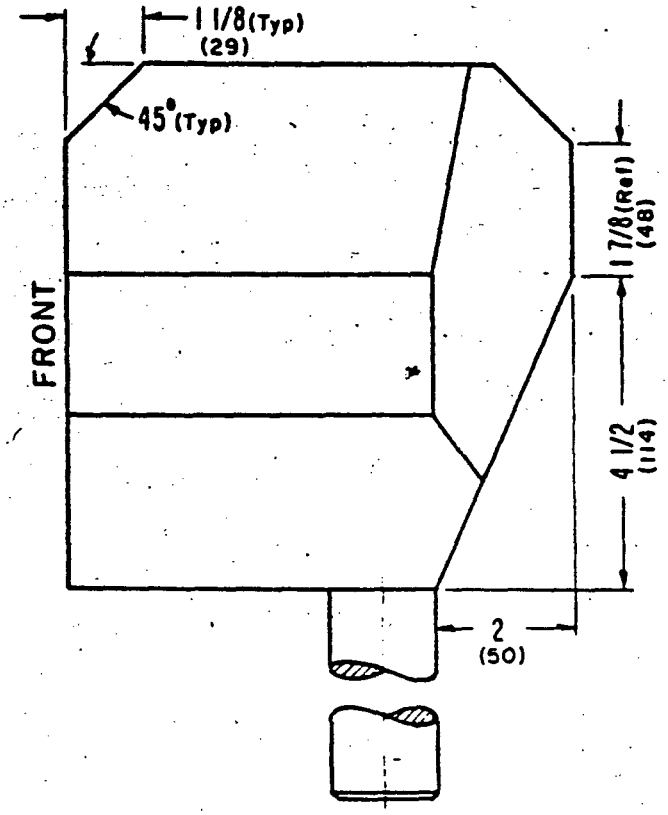
FIG 2—HEADFORM PROBE

DIMENSIONS ARE SHOWN IN INCHES AND WILL BE USED FOR COMPLIANCE PURPOSES. MILLIMETERS, SHOWN IN PARENTHESIS, ARE FOR CONVENIENCE ONLY.



REAR VIEW—
IDENTIFYING SURFACES





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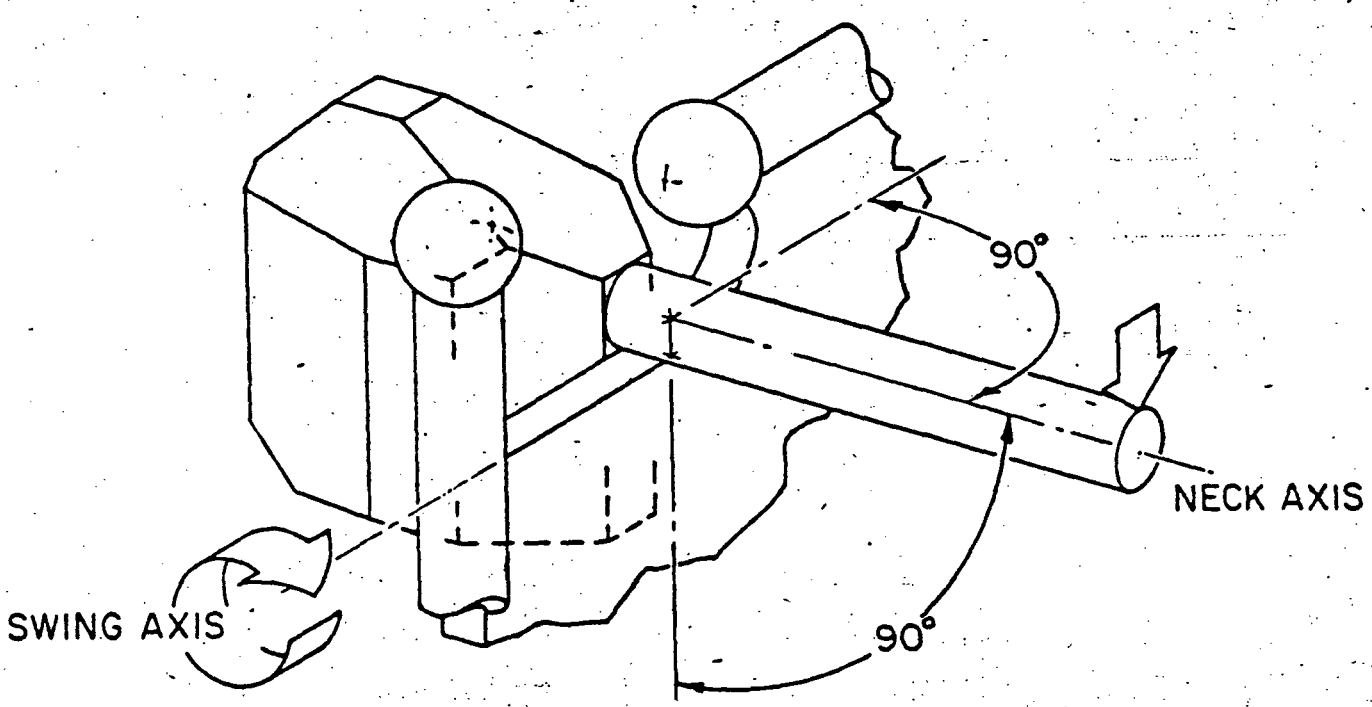

FIG 3

[FR Doc. 81-24890 Filed 8-27-81; 8:45 am]
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UNITED STATES GOVERNMENT

Memorandum

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

TO : Terri Rogers, Project Manager, Children's and Recreational Products, EX-P

DATE: 9 JUL 1982

Through: Dr. Robert D. Verhalen, AED for Epidemiology

FROM : George Rutherford, EPHA GWR

SUBJECT: Update of Data on Crib Headboard Entrapment Hazard.

In response to your request for an update of injury data related to crib headboard configurations, EPHA conducted a review of all available data. We found no additional incidents related to entrapment in crib headboards. The total number of incidents documented by CPSC is fourteen as of June 1982.

In May 1981 a fatal entrapment case which involved the side rail configuration (rather than headboard) on a non full size crib occurred. The crib was constructed in a manner such that when the side rail was in the folded down position, the upper end of the space between the slats was open. This created a series of narrow, very deep cutouts in the side rail. The nine-months-old child's neck was caught in one of these spaces.

UNITED STATES GOVERNMENT

Memorandum

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

TO : Terri Rogers, OPM
Through: Dr. Robert D. Verhalen, AED for Epidemiology

DATE: 15 JUL 1982

FROM : George Rutherford, EPHA DWR

SUBJECT: Head Entrapment Incidents Involving Baby Gates and Wooden Enclosures

As you requested, this memo provides a summary of the head entrapment data involving baby gates and corrals. These data demonstrate the hazard of a "V" shaped opening along the top of a product, thus indicating the potential for danger if such openings became more common on cribs.

CPSC has received reports of 22 incidents of head entrapment on baby gates or enclosures. Nine of these cases involved "V" openings at the top of gates or enclosures; seven involved the diamond shaped openings in the body of the product; six reports did not specify what part of the product was involved.

Five out of the nine incidents involving "V" openings at the top of the gate or enclosure were fatal. In two of the cases the victims had to be taken to the hospital for treatment. The remaining cases indicated that the victim was able to escape with little or no injury.

All of the reviewed data, a) consumer complaints, b) indepth investigations, and c) death certificates, are available in the Clearinghouse and may be requested at any time.

UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT SAFETY COMMISSION

DATE: MAY 10 1982

TO : Terri Rogers, Project Manager, EX-P
THROUGH: James I. Price, Director, ESMT

FROM : John Preston, ESMT

SUBJECT: Rationale for the Rocking Test in the Amendment to the Crib Regulations

In our memo (John Preston, ESMT to Elaine Besson, EX-P) of December 24, 1981, we provided responses to comments received as a result of the August 28, 1981 FR Notice regarding head entrapment in crib end and side panels. Among these comments was one from JPMA (CH1-81-2) that stated that the rocking test would ban cribs which pose no risk of strangulation caused by entrapment. In our response it appears that we understated the hazard presented by some Vee shaped cutouts that are asymmetric to a vertical axis. This memo provides further discussion on such cutouts.

As it was originally proposed (FR Notice of December 16, 1980), the test procedure that uses a headform probe terminated when the probe reached an upright position after being swung in a vertical arc through the cutout area in a panel. The rocking test and some other changes were incorporated later and transmitted to EX-P with a memo dated May 7, 1981. The following explains why the rocking test is necessary to eliminate potentially hazardous asymmetric Vee shaped cutouts. All references to "the test procedure" are to the procedure that is attached to this memo as Attachment 1 and have been slightly changed from the version attached to our May 7, 1981 memo.

Consider first a Vee that is symmetrical about a vertical axis. Figure 1 shows such a Vee shaped cutout that would not comply with the requirements of the amendment to the regulation and is believed to present a hazard of head entrapment. The included angle at the base of the Vee is less than 75 1/2,° which is the angle subtended between the two surfaces designated "B" on the headform probe. When the probe is placed in this Vee (with the axis of the neck horizontal) and is swung to an upright position through a vertical arc, contact occurs between edges "BC" (on opposing sides of the headform) and the two legs of the Vee. Such contact is specifically described as a failure to comply with the requirements, and since it occurs during the swing to the upright position, it is not necessary to conduct the rocking portion of the test procedure to determine that it does not comply with the requirements of this amendment to the regulation.

Figure 2 shows a Vee shaped cutout with the same included angle as the one in Figure 1 but the axis of the Vee (line bisecting the angle at the base of the Vee) has been inclined about 5° from the vertical. We do not believe such a small inclination from the vertical reduces the hazard from that presented by the symmetrical Vee; but unless the rocking portion of the test is performed, this asymmetric Vee will not fail the requirements. For example, when the probe is placed in the asymmetric Vee and swung through a vertical arc to the upright postion, contact with the legs of the Vee occurs on edges "BC" and "AB" of the probe. Such contact is not a failure of the requirements. Only when the probe is rocked sideways after reaching an upright position, does contact occur between two edges "BC" (on opposing sides of the probe) and the legs of the Vee which, as specified in paragraph (c)(i) of the amendment, is not permitted.

The rocking portion of the test procedure is therefore necessary to eliminate any hazardous (included angle less than 75 1/2°) Vee shaped cutout that is not perfectly symmetrical about a vertical axis. Any inclination from this vertical symmetry (even 1/2°) results in compliance with the requirements until the rocking test is performed. It should be noted that the rocking test is not intended to simulate the behavior of a child.

The concern expressed by commenter CH1-81-2, JPMA, in regard to the rocking test lies with the test's inability to acknowledge that there may be some reduction in hazard associated with Vees that have an included angle just slightly less than that between surfaces "B" on the headform probe (75 1/2°) and are also inclined <u>substantially</u> from a vertical (symmetrical) orientation. Such a Vee would typically be one located between a vertical post (finial or canopy support) and sloped head or footboard. We are unable to accept the commenter's statement that these Vee shapes are not hazardous. Deletion of the rocking portion of the test procedure would, in our opinion, permit many asymmetric Vee shapes on crib panels that could be extremely hazardous. An example of such a potentially hazardous asymmetric Vee shape is shown in attached Figure 3. We are aware of a head entrapment incident in a crib footboard in which an asymmetric Vee was formed between a vertical corner post and a scallop shaped top edge of the footboard. We therefore suggest that the amendment be finalized with the rocking test included to ensure that there is some factor of safety in the test and requirement that eliminates cutouts that present a head entrapment hazard.

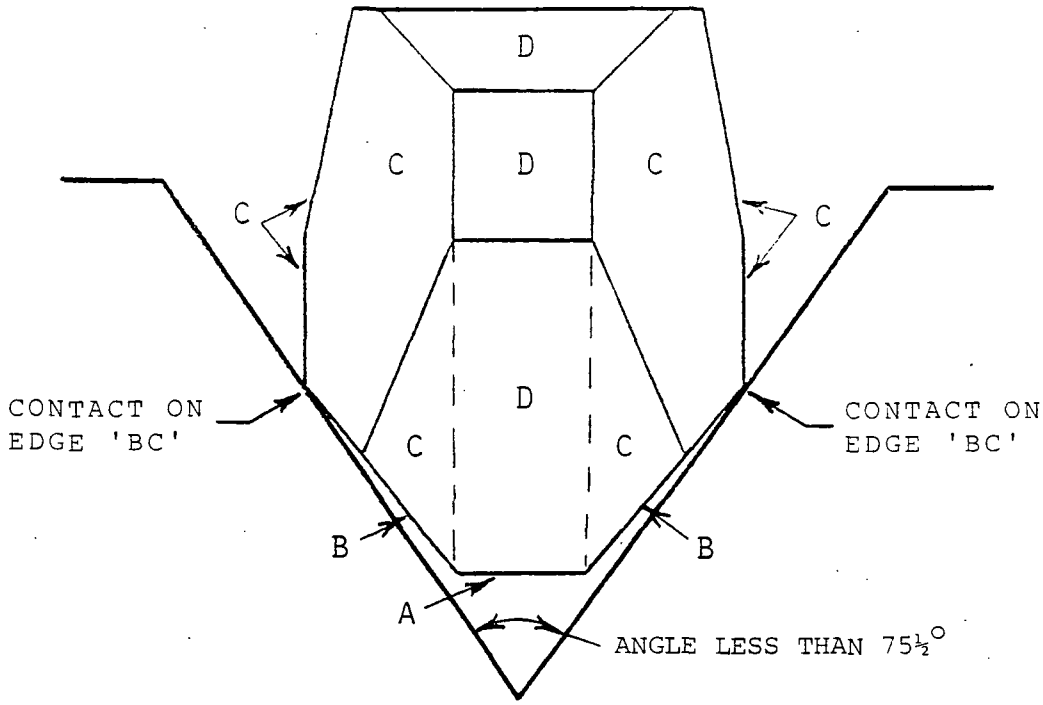


FIGURE 1 - VEE SHAPED CUTOUT SYMMETRICAL ABOUT VERTICAL AXIS FAILS TO COMPLY BEFORE PERFORMING ROCKING TEST

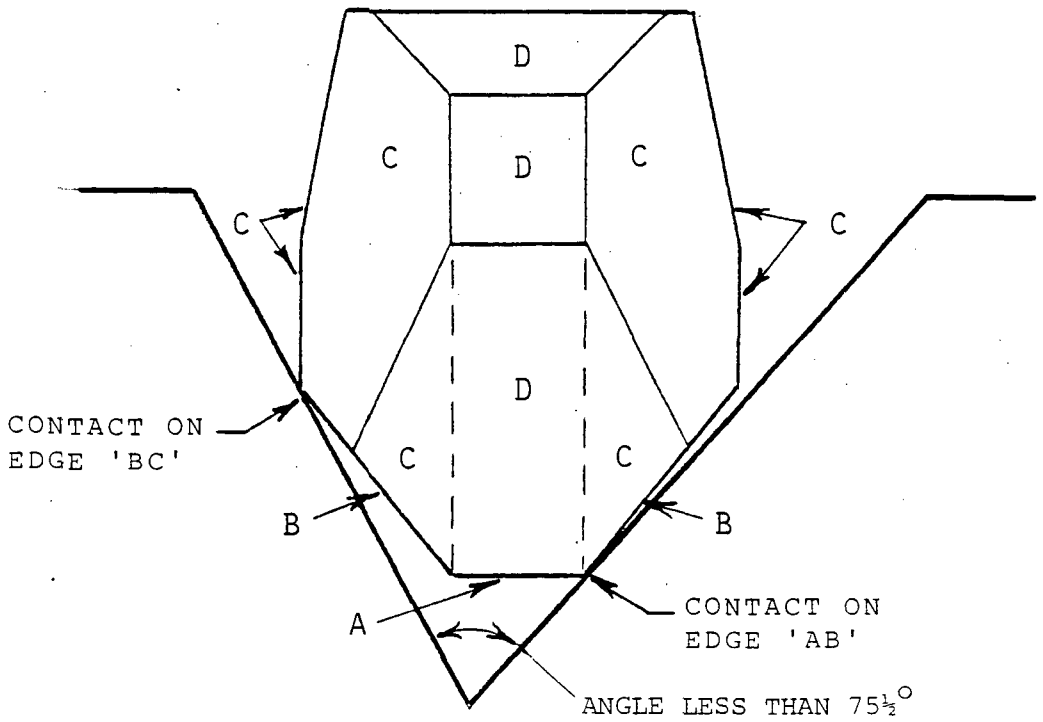


FIGURE 2 - VEE SHAPED CUTOUT NOT SYMMETRICAL ABOUT VERTICAL AXIS *COMPLIES WITH REQUIREMENTS UNLESS ROCKING TEST IS* PERFORMED

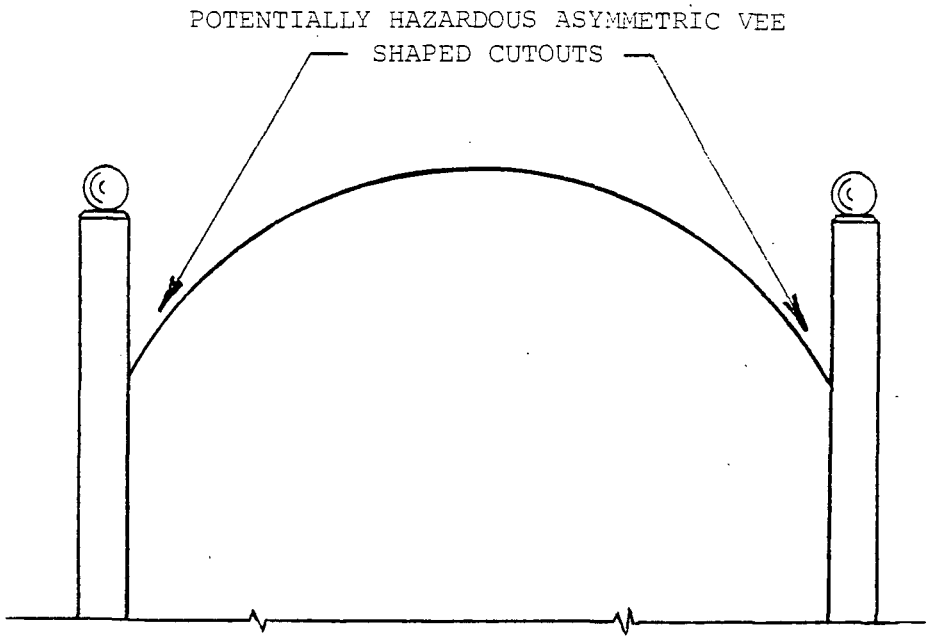


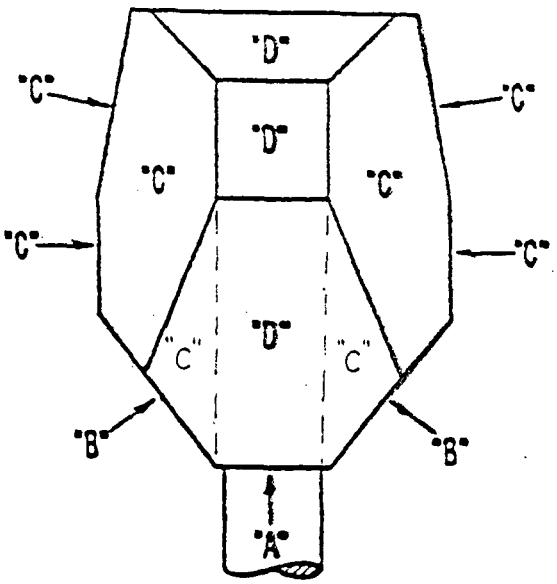
Figure 3 - CRIB END PANEL WITH ASYMMETRIC VEE SHAPES THAT PRESENT A POTENTIAL HAZARD OF HEAD ENTRAPMENT

ATTACHMENT 1 - REVISED TEST AND REQUIREMENT FOR CRIB REGULATION AMENDMENT TO ADDRESS ENTRAPMENT IN CUTOUTS

§ 1508.11/1509.13 Requirements for cutouts.

Full-size/Non-full-size baby cribs shall comply with the following test requirement.

(a) Place the neck of head-form probe shown in Figure 2 into any cutout (partially-bounded opening) located along the upper edges of an end or side panel. The axis of the neck shall be horizontal and at right angles to the plane of the panel at the point of contact. The head portion of the probe shall be on the outer side of the panel. With the neck resting on the panel at any point within the cutout area (for compliance purposes, the Commission may test at all points that could result in a failure), and the front of the probe pointing downwards, draw the head of the probe towards the panel until surface "A" makes contact with the outer side of the panel (see Figure 3).



(b)(1) Press down on the neck to cause the head to swing upwards through the cutout in the panel. The probe shall not be rotated about the major axis of the neck during this procedure. The arc through which the head is swung shall be in a vertical plane and shall terminate when the major axis of the neck attains an upright position or is prevented from attaining an upright position by an obstruction. During the test, contact shall be maintained between surface "A" (or at least one of edges "AB"), the neck of the headform probe and the panel. If, during the swing to the upright position, an edge or surface other than surface "D" is contacted, sideways motion of the headform shall not be restrained, but the arc through which the headform is swinging shall remain vertical.

(2) If a cutout is V-shaped (the side boundaries of the V or the tangents to the side boundaries are nowhere parallel), an additional test shall be performed on the cutout. Upon completion of the swing to the upright position, rock the headform sideways, parallel to the plane of the panel, in a direction that will result in the probe sliding toward the bottom of the cutout. During this rocking motion, contact shall be maintained between surface "A" or an edge "AB" on the probe and the panel. The maximum angle through which the headform is rocked shall be determined by contact with the panel by a surface or edge other than "A" or "AB" or until one of the surfaces "B" is in a vertical plane.

(c) During the test described in paragraph (b) of this section, no portion of the panel shall contact:

(1) Simultaneously, more than one of surfaces "B", "C" or edges "BC", "CC" or "CD", in any combination if they are on opposing sides of the headform.

(2) Any of surfaces "D".

UNITED STATES GOVERNMENT

Memorandum

RECEIVED
MAY 24 3 55 PM '82
OFFICE OF PROGRAM MANAGEMENT

U.S. CONSUMER PRODUCT SAFETY COMMISSION

TO : Terri Rogers, OPM
Through: Dr. Robert D. Verhalen, AED, Epidemiology

DATE: May 18, 1982

FROM : D.T. Van Houten, EPHF DT Van Houten

SUBJECT: Cribs - Addendum

In response to your request we are providing the following discussion on the hazard associated with V-type openings in crib side panels and the origin of the rocking test.

Subsequent to the development of the headform, the Children's Product Hazard Team concluded that certain contours which generally formed 'V' type openings could present an entrapment hazard. These 'V' openings are best characterized by the presence of a sharp or acute angle at the bottom of the cutout.

Confirmation of the hazard potential presented by these 'V' openings was primarily obtained from the in-depth investigation reports on accidents associated with baby gates and corrals. One incident in the files did involve a crib. The actual accident mechanism appears to be somewhat different than the original entrapment problem.

That mechanism appears to be a sideways compression of the soft tissue of the neck, as the head and neck travel towards the bottom of the 'V'. Subsequent entrapment occurs as a result of the lower back of the jaw catching on the edges of the 'V'. Of the incidents involving baby gates and corrals, only a few have sufficient information to derive the included angle at the time of the accident. That data indicates the included angles have ranged from approximately 33 to 69 degrees with the majority occurring between 40 and 50 degrees. The single crib case that has been reported thus far has been examined by the Directorate for Engineering and they estimate the angle to be between 45 and 55 degrees depending on where one establishes the vertex of the angle. From the above brief discussion it may be concluded that the bulk of the fatalities have occurred at included angles between 40 and 50 degrees and with the hazard decreasing as one encounters broader or more obtuse angles.

The geometry of the headform will only fail angles of about 76 degrees or below and which are perfectly upright and symmetrical. Since none of the 'V's anticipated to exist in cribs will likely be symmetrical and upright, the testing protocol was modified to fail those angles of 76° and below which are inclined away from the vertical and which are not symmetrical. This test modification has been termed the 'rocking test'. The actual limits contained in that test were derived from the accident data as discussed above and on the best professional judgments of the staff.

Since this test relies on incidents occurring with baby gates and corrals, a comment needs to be made on the hazard potential associated with 'V's on cribs.

Both cribs and the product class of baby gates and corrals are intended for children of approximately the same age range, i.e., 0-2 years with a gradual decline in usage after 2 years. The hazard has a geometrical origin and that geometry occurs in similar circumstances in the two product classes. Therefore, EPHF concludes that it is logical to apply the observations found in the accidents associated with baby gates and corrals, to cribs.

Finally, it needs to be pointed out that neither section of the test procedure is intended to simulate the actual behavior of an infant. The test is only a method for discriminating between hazardous and non-hazardous angles.

LOG OF MEETING

SUBJECT: Crib Amendment

DATE OF MEETING: October 21, 1981 PLACE: ROOM 456
Westwood Towers Building

LOG ENTRY SOURCE: Elaine H. Besson

COMMISSION REPRESENTATIVES:

Terry Van Houten, HIA
John Preston, ESMT
Jacob Handelsman, EC
Terri Rogers, OPM
Chris Nelson, CARM
George Rutherford, HIEA
Elaine H. Besson, OPM

NON-COMMISSION REPRESENTATIVES:

Bill Suvak, Child Craft
Bill Felknor, Hedstrom
Sue Lindstrom, Connor Forest Inc.
Michael J. Schaffer, Simmons Juvenile Products
Aaron Locker, JPMA Counsel

BACKGROUND:

On December 16, 1980, the Commission published a notice of proposed rulemaking to amend the Full-Size and non-Full-Size crib standard to address entrapment hazards associated with certain cutout designs on headboards and footboards. The staff analyzed the comments received in response to that proposal and subsequently recommended certain revisions to the proposed test procedure. On the advice of General Counsel the staff recommended to the Commission that the amendment and proposed test procedures be re-opened for public comment.

On August 28, 1981, the Commission published in the Federal Register an announcement reopening the comment period for an additional 30 days. The Notice described the revisions to the proposed test procedures and sought additional public comments. In their comments the Juvenile Products Manufacturers Association (JPMA) requested a meeting with the staff to discuss their concerns with the proposed requirements.

DISCUSSION:

JPMA's Counsel, Aaron Locker, stated at the outset of the meeting that it was not JPMA's intention for this to be an adversarial confrontation - that the manufacturers had deep concerns with the requirements and had requested the meeting with the staff to make sure that they understood the test procedures as proposed. In addition they wanted to relay their their concerns about potential adverse economic impact which they believe the staff had underestimated.

John Preston, Engineering Sciences, demonstrated the proposed test procedures for the manufacturers and explained the rationale behind both tests. In the course of the discussions the manufacturers asked questions to clarify certain aspects. CPSC staff and the manufacturers discussed certain language revisions which avoid some confusion about the procedures.

The manufacturers main concerns lie with the "rocking test." Essentially, the use of the headform for the "rocking test" to identify potentially hazardous assymmetric "V" shapes will require modifications to some existing designs which they do not believe are hazardous and have not previously been identified in any accident or injury reports.

The headform will identify as potentially hazardous, any "V" shaped cutout which has an included angle of 75-1/2% or less. The manufacturers agree that for purposes of the amendment that angle is probably appropriate for an angle which is symmetric about a vertical center line. However as the inclination of that angle changes so that as one boundary becomes vertical, subjectively, the risk of entrapment appears to decrease. The "rocking test" requirement will necessitate changing some designs which have been in their lines for many years and the manufacturers do not think this is fair.

The manufacturers raised no issues other than those raised in their written comments. However, based on discussions with the staff they have agreed to supply additional economic information as appropriate and any suggestions for a replacement for the "rocking test" which they claim is too severe.

CPSC staff agreed to consider any additional submissions the manufacturers want to make. However, we did note that the current schedule calls for use to forward to the Commission a briefing package on the final amendment by early December. They have agreed to submit additional information within 1 or 2 weeks.

UNITED STATES GOVERNMENT

Memorandum

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

TO Terri Rogers, EX-P

THRU: Walter R. Hobby, Acting AED, Directorate for Economics WRH

DATE: May 4, 1982

FROM George C. Nichols, ECCP G.C.N.

SUBJECT: Transmittal of Economic Assessment of the Crib Amendment

We are hereby transmitting to you our Economic Assessment of the Crib Amendment. Please contact me if you have any questions.

Attachment

4 of 3

Economic Assessment of the Crib Amendment

Dr. George Nichols
Directorate for Economics
Economic Program Analysis
April 1982

Background

In February, 1980, Economic Analysis produced a preliminary assessment of the potential economic impact of a proposed amendment to the full-size and non-full-size crib regulations. This report discussed industry characteristics and the economic effects on the industry of either prohibiting certain design configurations in side or end panels which may entrap the head of an infant, or using a designated test procedure to determine the presence or absence of a hazard, i.e., a performance standard. The report concluded that the proposed crib amendments would have virtually no effect on the production and use of non-full-size cribs because decorative cutouts are not ordinarily used in the construction of these cribs. The effect on full-size cribs was stated to be minimal for a prospective regulation.

On October 21, 1981, the Commission staff met with JPMA and several crib manufacturers to discuss two specific issues that were of primary concern to the manufacturers, namely, the "rocking test" which JPMA claimed was overly stringent and would fail cribs that posed no risk of strangulation caused by entrapment, and the purported substantial adverse economic impact that the rocking test would have upon crib manufacturers. JPMA estimated that as many as 50 percent of the cribs currently being manufacturered would have to be modified if the "rocking test" were mandated. JPMA suggested an alternative test requirement. The JPMA approach suggests the use of a template with a 4½" straight edge in conjunction with the neck portion of the probe. Engineering Sciences and Human Factors do not view the JPMA alternative to be a viable approach to the entrapment hazard and have rejected it as an alternative to the "rocking test."

The Commission staff requested that JPMA obtain some pertinent information from the crib manufacturers to document the claimed economic impact. The information requested includes the number of crib designs that would require modification, the number of crib units affected based on current inventory levels and percentage of total unit sales, the types of redesigns that would be required and the associated costs, and a clear statement regarding any potential impact of acceptance of the JPMA suggested alternative test requirement.

The Commission staff received six responses from crib manufacturers. Two of the manufacturers reported that the amendment would have no effect whatever on either their crib designs or the number of crib units in production or in inventory. A third manufacturer reported that eleven (11) crib designs representing 12 percent of sales and inventory would require modification. He estimated the total cost of bringing these into compliance to be around $100,000. A fourth manufacturer reported that five crib designs, 5,100 units representing approximately 8 percent of sales, would require modification. He estimated the redesign and other costs to be around $50-$60,000. The fifth manufacturer said that complying with the amendment would cost around $630,000, of which $500,000 would be from lost sales revenues, $25,000 for a new catalog and advertising materials, and $105,000 for several types of manufacturing costs. This manufacturer provided no information on the models or number of cribs that would

be affected by the amendments. The sixth manufacturer reported that one model would be affected by the amendment and that a total of 1040 cribs would have to be retrofitted. He indicated he could not determine the exact redesign costs.

Economic Analysis contacted by phone three of the manufacturers who reported that the amendment would affect their companies adversely. They repeated what they had submitted in writing and said that in calculating the economic impact of the proposal, they had taken into account a lead time of no less than six months, during which essential changes and disposition of cribs in inventory would be effected. They pointed out that the features of most of their crib models remain the same from year to year and that only a couple of models are changed each year. They also expressed some concern that cribs in retailers' inventories that do not pass the test would not sell because of consumer and retailer resistance. However, Economic Analysis' discussions with several retailers lead us to believe this concern to be unfounded. Retailers claim that the inventory of cribs turns over in about 30-40 days. With a six month to one year lag from promulgation to effective date, inventories should be of little concern. Retailers also thought that consumers would not be likely to be aware of the difference between pre-and post-amendment cribs.

Economic Analysis believes that JPMA's claim that 50 percent of the current crib production will be adversely affected by the amendment is high. As mentioned earlier, one manufacturer claims that some 12 percent of that firm's cribs will be affected by the amendment. Another manufacturer reported that some 8 percent of the sales will be affected. For most manufacturers the percentage is expected to be lower, and in many instances nil.

Industry Impacts

Economic Analysis estimates that as many as 20,000,000 cribs produced during the last 15-20 years may be in the hands of consumers at the present time. Although about 100,000 of those cribs would probably fail the test procedure as proposed by the amendments, with the exception of those models that have been the subject of Section 15 actions, none of these cribs has been involved in any accidents. The Commission's decision to apply the rule prospectively eliminates the need for manufacturers to test or in any way to modify these cribs.

Economic Analysis also estimates that a little over 1,000,000 full-size and non-full-size cribs are produced yearly in the United States by some thirty manufacturers. Based on recent information received from manufacturers through JPMA, some 17 crib models, each roughly involving 1,000 cribs for a total of 17,000 cribs, might have to be modified to bring them into compliance with the proposed rule. This means that fewer than 2% of the total number of cribs currently being produced will be affected by the rule. A few of the manufacturers were concerned about possibly having to modify cribs that were produced prior to the effective date of the rule but unsold when the rule becomes effective, though the rule will be applied prospectively and the manufacturers would be under no obligation to modify any of these cribs. Almost all of the costs mentioned in correspondence to the Commission were for this type of modification. Modification of the cribs during a lead period of from six months to a year before the rule goes into effect would eliminate the possibility of lost sales.

In the unlikely event that firms would have to make these modifications, the cost would vary depending on the nature and extent of the modification required. Based on data supplied by crib manufacturers, if brass caps are used to replace finials that must be removed, the cost may be up to $1 per crib. If the modification involves the use of hardware and screws, the cost may vary from $3-$5 per crib. Finally, if an entire headboard must be removed, the cost may be as high as $50 per crib. The average cost of modification per crib is likely to be considerably lower than $50 but higher than $5. However, Economic Analysis estimates that, if each manufacturer spreads the overall cost of modifying his cribs over the entire crib production, the per unit cost is likely to be quite low, less than $1 per crib.

In addition to the aforementioned costs associated with the modification of the affected cribs, manufacturers will incur other costs, such as tooling and engineering costs, administration costs, and advertising costs. Economic Analysis, however, considers these costs to be minimal and part of the usual production/distribution cycle.

Impact on Prices

If, as a worst case, the types of costs mentioned above are incurred and the costs are spread over the entire crib production of each of the affected firms, the per unit cost is likely to be very low, less than $1 per crib. This is a small percentage of the $70-$200+ retail price of cribs and, as a result, there may be no perceptible change in prices. Since the worst case will probably not occur, costs will be even less and may approach zero.

Impact on Competition

Competition among crib manufacturers is unlikely to be affected by the proposed amendments to the crib regulations. Three factors lead to this conclusion. First, a large portion of the overall cost will be borne by a few of the larger crib manufacturers, since they produce the largest number of models and cribs. By spreading the cost over a large number of cribs and models over a number of years, they can avoid a significant rise in the price per crib. Second, the crib manufacturers have been aware for quite some time of the requirements of the crib amendment. Many have already taken appropriate steps to mitigate its impact through redesign of models or by dropping certain models from production. Third, the crib amendment, if approved by the Commission, will probably give manufacturers ample lead time to effect necessary modifications and dispose of inventories without seriously disrupting any firm's normal design-production-distribution cycle.

Impact on Small Business

The crib manufacturing industry is dominated by a few large manufacturers producing several crib models and accounting for a substantial portion of the total crib production; there are several small manufacturers that display a great deal of diversity and keep a market share through the introduction of innovative styles and models of cribs. Economic Analysis believes that the economic impact on small

business will be virtually nil, since only a few, if any, of these companies may have to modify any of the cribs they produce.

Impact on Consumer Choice and Utility

Manufacturers expecting to be adversely affected by the crib amendment allege that the elimination or modification of certain designs will also have an adverse effect on consumer choice and utility. They claim that consumers will be deprived of the opportunity to choose from a larger and more appealing variety of crib styles and models.

Economic Analysis does not believe that the proposed requirements and consequent crib modifications will adversely affect consumer utility. Consumers would continue to enjoy a broad choice among a large variety of crib styles, models, and prices, all of which would remain virtually unaffected by the crib amendments. None of the retailers contacted by Economic Analysis felt that consumer choice or sales would be compromised by the rule.

Effective Date

For most of the firms producing cribs, design selection is usually made in the first calendar quarter, with prototype development and tooling continuing through July. From our understanding, minor changes in the production process can be made anytime during the year. The new crib models are introduced in November, when orders are taken for shipment.

The Commission did not in December, 1980, propose a firm effective date, saying that it would depend on the information and arguments contained in the public comments, the date of issuance of the amendments, and the degree of conformance with the amendments of cribs already on the market. A date 2 to 8 months after promulgation was suggested. Later, in August, 1981, the Commission proposed revisions to the December, 1980, proposal and suggested that an effective date six months after issuance would provide manufacturers with sufficient time to comply. At that time the staff was anticipating promulgation early in 1982. As of now it appears that promulgation may be in May or June of 1982. Since many manufacturers will be well into the prototype development and tooling stage of production at the time of promulgation that an effective date that falls in November or December could be a nuisance. An effective date coinciding with the end of the development process might be met with minimum adverse impact. We believe that, assuming a promulgation date during the second calendar quarter this year, a one year period to the effective date will eliminate almost any burden on manufacturers.

Summary of Costs and Benefits

Economic Analysis sees the crib amendment, if promulgated with a one year effective date, as resulting in very small costs. The designs that resulted in fatal entrapments have for the most part, already been eliminated from production. The amendment will eliminate any remaining hazard, but we have no quantified estimate of injuries or deaths. Therefore, we cannot predict benefits of reduced deaths or

injuries. Although we have no quantified benefits to point to, we can say that the cost of eliminating the marginal hazard that may exist is extremely small. The main virtue of the amendment appears to be gauranteeing that future crib designs will not result in any head entrapment hazard.

UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT SAFETY COMMISSION

TO : Elaine Besson, EX-P

DATE: DEC 24 1981

THROUGH: James I. Price, Director, ESMT RLM for JP

FROM : John D. Preston, ESMT JDP

SUBJECT: Response to Comments to Proposal to Amend the Crib Regulations

This memo is our response to the comments that were received by the Commission as a result of the proposed amendment to the crib regulations that appeared in the Federal Register of August 28, 1981. This amendment would add to the regulations for full-size and non-full-size cribs a requirement and test procedure to identify cutouts in end or side panels that have a configuration that could trap a child's head and, as a result, cause death by strangulation.

Three comments to the subject proposal have been reviewed and our responses which follow refer to the comments by their number assigned by the Office of the Secretary.

CH1-81-1

The commenter addresses the failure criteria of the rocking portion of the test procedure that is applied to Vee shaped cutouts. It appears that the commenter misunderstands these criteria since he has stated that simultaneous contact with a crib end panel and surface "B" and edge "AB" of the probe would constitute a failure to comply with the requirements. He further states that a Vee with an included angle of 89° would fail the test. Neither of these situations would result in a failure. Our response to comment CH1-81-2 addresses Vee shaped cutouts in detail.

CH1-81-2

This comment addresses seven independent issues. Since only the first four of these issues address the test and requirements in the proposal our response is confined to these four issues.

1. The commenter alleges that the proposed amendment is overly-inclusive because it would ban a crib which may have a headboard with a horizontal upper edge terminating in corner posts on which are mounted spherical knobs that, in some cases, may contact the lowest of the surfaces marked 'D' at a single point near the edge of this surface.

We agree with the commenter that a crib with such a configuration may not be permitted by the amendment as proposed. We also believe that the amendment may well be overly inclusive in its current form. This issue is one which concerns "overhangs" that are present because of the design of certain headboards. The overhang may be caused by knob on a corner post that has a diameter greater than the corner post itself or could be an overhanging 'blanket roll' that is a feature of some cribs. As the amount of the overhang increases, the possibility of a child's head becoming trapped underneath it also increases. The exact amount of overhang that could be permitted before a hazard of entrapment is presented would be difficult to determine. Subjectively we would anticipate that any overhang that approaches a dimension that is half the width of a child's head would present a potential entrapment hazard.

The commenter's suggestion to decrease the width of the lowest surface marked 'D' on the headform probe would still limit an overhang to a maximum dimension of about 1-1/4 inches. If HIEH concurs, we suggest that the commenter's recommendation to decrease the width of the lowest surface 'D' of the probe be accepted. A revised Figure 2 that shows this change to the designated surfaces of the headform probe is attached to this memo.

2. The commenter states that the "rocking test" is vague and would ban cribs which pose no risk of strangulation caused by entrapment.

It appears that the commenters' allegation that the test procedure is "vague" stems mostly from the statement that the headform probe MAY be rocked from side to side after completion of the swing to the upright position. The use of the word "may" rather than "shall" was intended to indicate that the rocking test would not be performed routinely on all cutouts. The intent of the rocking test was to prevent the design of crib panels that might have Vee shapes that were not symmetrical about a vertical axis but had an acute included angle that could present a head entrapment risk to young children. Such cutout shapes do not fail to comply with the requirements of the test during the process of swinging the headform probe through a vertical arc to an upright position. Only when the probe is tilted sideways (rocked so that its vertical axis is aligned with the bisector of the angle of the Vee shaped cutout) does contact occur between the panel and both sides of the probe (opposing surfaces "B", "C" or edge "BC") which constitutes failure to comply with the requirements.

The following language is suggested to clarify when the rocking portion of the test procedure would be performed.

> (2) If a cutout is Vee shaped (the side boundaries or the tangents to the side boundaries are nowhere parallel), upon completion of the swing to the upright position, the headform shall be rocked. . . . . .

At the time of its development, the headform probe and its associated test procedure was intended to address cutout shapes in crib end panels that had distinct abutments that were too close to each other to prevent free passage of the head of a maximum user of a crib. A Vee shaped cutout has

no such distinct abutments but has been implicated in four head entrapment incidents that were the subject of IDI reports. In three of these incidents the Vee shaped cutouts were located along the top edge of wooden folding corrals and baby gates. Such cutouts are symmetrical about a vertical axis and, if the included angle at the base of the Vee is 75-1/2° or less, will fail to comply with the requirements of the proposal because opposing named surfaces on the probe will contact the sides of the Vee during the swing to the upright position. In one of these cases it appears that the included angle at the base of the Vee was about 39° and in another it was between 60 and 70°. In the third case the report contained insufficient information to compute the angle.

A fourth case of entrapment occurred when a child's head became wedged in a Vee shape in the footboard of a crib that was formed by the junction of a vertical canopy support and a scalloped top edge in the footboard. Such a shape is not symmetrical about a vertical axis and would comply with the requirements of the proposal if the rocking portion of the test is not performed. The included angle of the Vee in this case was about 50°. As currently worded, the proposal would prohibit any Vee shaped cutout (both symmetrical and non-symmetrical about a vertical axis) that has an included angle of 75-1/2° or less.

According to the commenter, there are a number of currently marketed cribs that have end panels that would not comply with the requirements of the proposal because they contain assymmetric Vee shapes that have an included angle of less than 75-1/2°. The commenter believes that such headboards pose no threat of entrapment for children. Illustrations of such end panels included with the comment show Vee shapes formed at the intersections of canopy supports and/or finials and the top edge of end panels that appear to be only slightly less than 75-1/2°. Cutouts of this configuration and angle subjectively appear to present less risk of head entrapment than cutouts which have the same included angle but are symmetrical about a vertical axis. Figure 1 is attached to illustrate the differing appearance of symmetrical and non-symmetrical cutouts with 75-1/2° included angles.

Subsequent to the receipt of the comments to the proposal, some crib manufacturers who are members of the JPMA requested a meeting with the Commission staff to discuss the impact of the proposal on the industry. At this meeting the manufacturers displayed crib headboard designs that would be eliminated if the rocking portion of the test procedure is included in a final rule. The manufacturers claimed that these headboards did not appear to present the risk of head entrapment and had not been implicated in any head entrapment incident. They volunteered to submit to the staff suggestions for a replacement for the rocking test that, in their opinion, would be more appropriate to address the head entrapment hazard presented by Vee shaped cutouts. Such a replacement procedure was submitted and has been reviewed by ESMT. The submitted procedure, based on a test using a 4-1/2 inch straight edge in conjunction with the neck portion of the headform probe, would decrease from 75-1/2° to about 70° the included angle of Vee shapes that would fail to comply with the requirements.

To the best of our knowledge, there is no anthropometric data available that would enable us to determine whether a 70° Vee shaped cutout would be capable of entrapping a child's head. Nor do we know the relationship between the orientation of a Vee and the risk of head entrapment that it presents. The greatest included angle of a Vee that has been implicated in a case of head entrapment is about 68° (see IDI report #800423CEP0801). The precise value of the Vee in this incident is in some doubt. Using the dimensions supplied by the investigator, the included angle may be computed to be either 63° or 68° depending on how the dimensions are interpreted. Based on the information in this case we have reservations about establishing a requirement that would permit angles in Vee shaped cutouts as shallow as 70°. In the absence of specific data that would enable us to quantify the head entrapment hazard of Vee shapes to their included angle and orientation, we cannot at this time recommend any alternative to the rocking portion of the test in the proposal.

3. The commenter states that in the proposal it is not clear whether a single contact of an edge adjacent to surface "D" constitutes a failure.

We agree that there is some ambiguity in the current language of the proposal. The revised wording of the paragraph submitted by the commenter appears to be appropriate to describe the intended procedure and we suggest that it be used in lieu of the wording of the proposal.

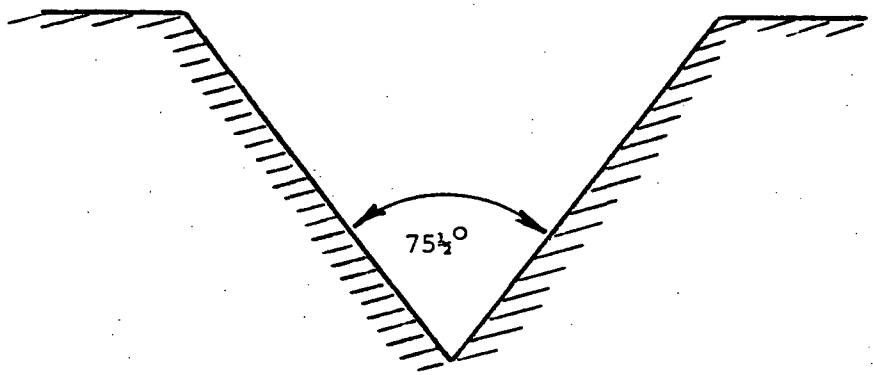
4. The commenter states that the regulations should state that the headform is to remain in a vertical plane while the headform is allowed to move sideways.

Paragraph (b)(1) of the proposal contains the statement regarding the sideways movement of the headform probe. Since this paragraph begins with instructions that specifically state that the arc through which the headform shall be swung shall be in a vertical plane, further instruction appears to be unnecessary. However, we have no objection to repeating this statement if others on the staff believe that it is desirable.

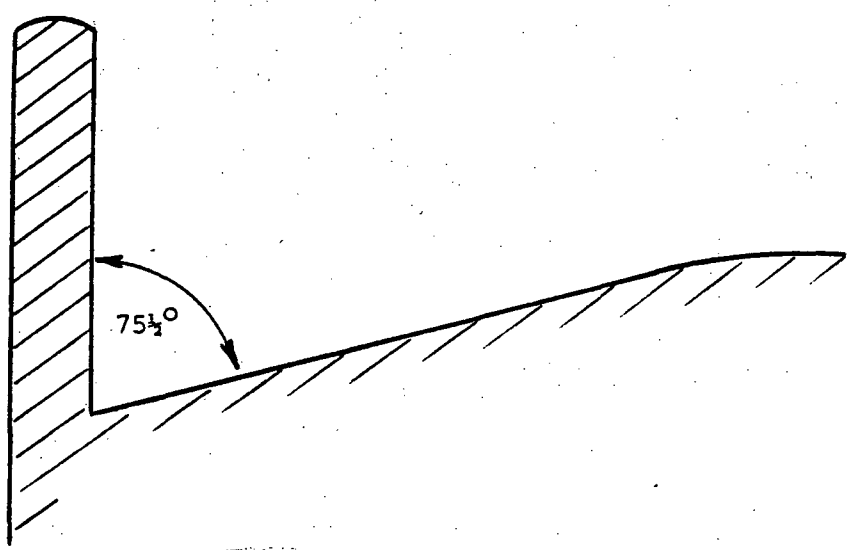
CH1-81-3

The commenter states that use of the word "panel" may be confusing to those not knowledgeable in the construction of cribs. Currently the proposal refers to cutouts (partially bounded openings) located along the upper edges of an end or side panel. If we delete the word panel and merely describe the location of the subject cutouts as being in the top edges of the ends or sides of cribs the intent of the test and requirement is not altered. We would therefore have no objection to the deletion of the word panel if other staff believes this improves the clarity of the amendment.

The commenter also addresses the rocking portion of the test procedure and believes it does not offer any useful purpose and may eliminate some designs that have canopy supports extending from a horizontal top edge of a crib end or side (panel). Such a situation is not correct and, as previously discussed, the rocking portion of the test procedure is necessary if Vee shaped cutouts that are assymmetrical to a vertical axis are to be prevented from appearing on cribs.



SYMMETRICAL VEE CUTOUT

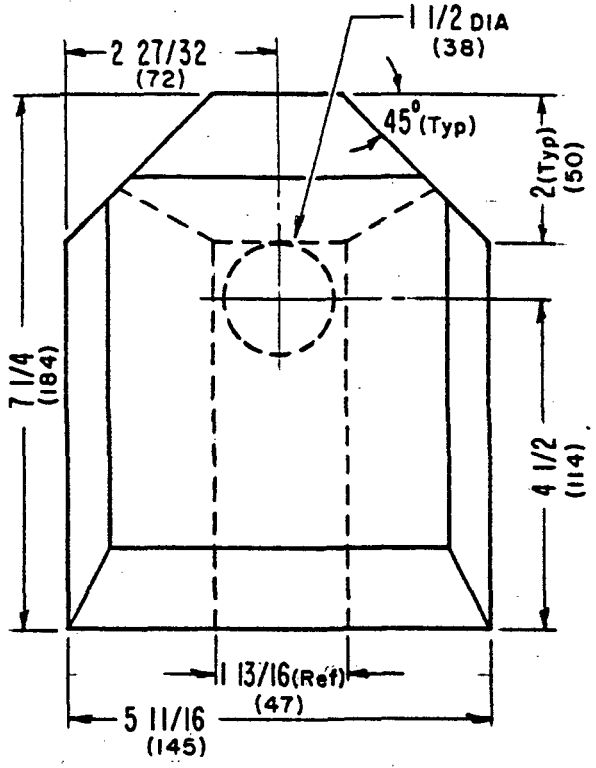


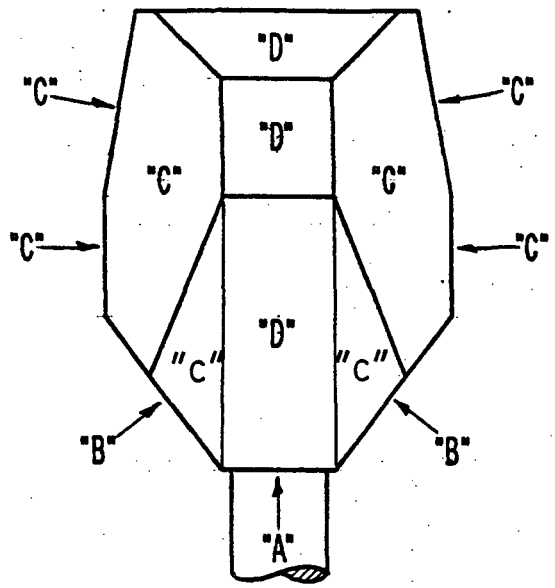
ASYMMETRICAL VEE CUTOUT

FIGURE 1 - COMPARISON OF SYMMETRICAL AND ASYMMETRICAL VEE SHAPED CUTOUTS WITH INCLUDED ANGLES OF 75½°.

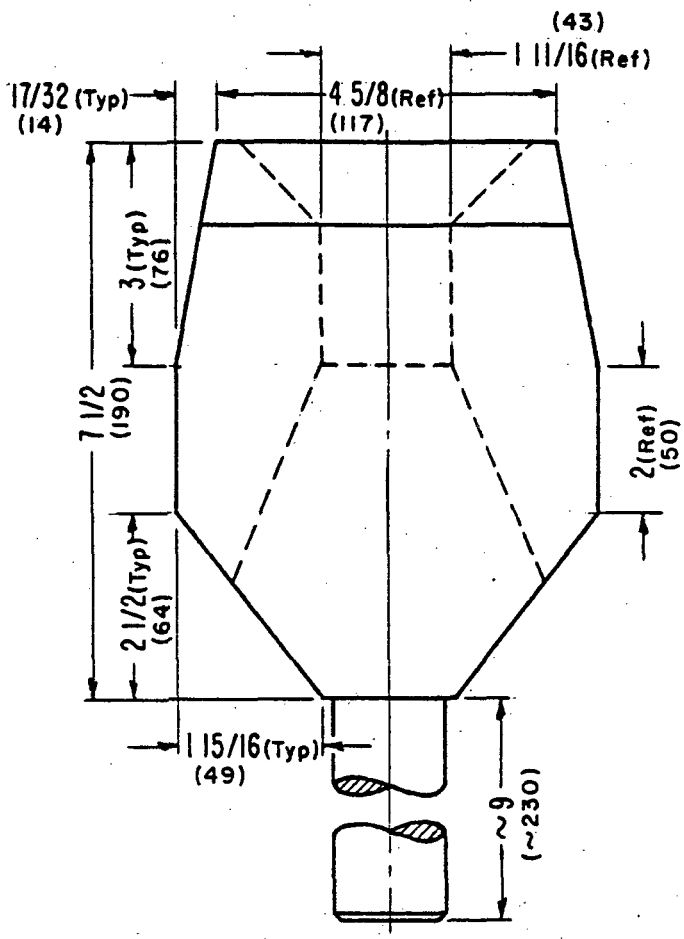
FIG 2–HEADFORM PROBE

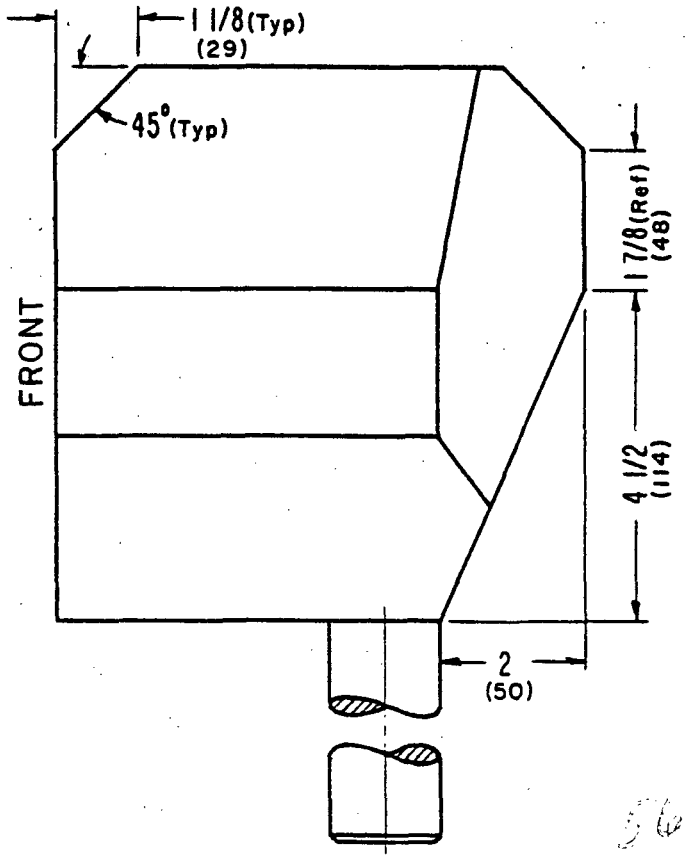
DIMENSIONS ARE SHOWN IN INCHES AND WILL BE USED FOR COMPLIANCE PURPOSES. MILLIMETERS, SHOWN IN PARENTHESIS, ARE FOR CONVENIENCE ONLY.





REAR VIEW—
IDENTIFYING SURFACES





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UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT SAFETY COMMISSION

RECEIVED
DEC 30 1 18 PM '81
PROGRAM

TO : Elaine Besson, P.M.; Childrens and Recreational Products
Through: Dr. Robert D. Verhalen, AED, Epidemiology
James E. Bradley, Director, EPHF

DATE: 30 DEC 1981

FROM : D.T. Van Houten, EPHF

SUBJECT: Crib Comments

The purpose of this memo is to provide a human factors response to the comments received to the August 1981 Federal Register notice. Of the three comments received, only one discusses issues pertaining to Human Factors. While this comment brings up several issues which we will respond to later in this paper, we feel some general background discussion will shorten the overall response.

The original purpose for developing the head form probe was to identify head board configurations which had proven to be hazardous as well as similar configurations which had not been directly implicated, but nevertheless similar. These configurations essentially consisted of two opposing projections within a relatively large opening in the crib headboards. The accident mechanism generally is entrapment by contact with the back of the head by these two opposing projections as well as at the base of the chin or throat which ultimately prevents any movement. Subsequent to the headform development it was believed by team members that certain V-shaped notches in other than the vertical orientation could also present an entrapment hazard. Any of these angles (or 'Vees') will fail the headform probe test as long as the central axis of the 'Vee' is straight up and the included angle is less than about 76 degrees. If, however, the axis of the 'Vee' is not upright, then the 'Vee' will pass because of the requirement that the headform must remain upright, throughout the rotation.

If a 'Vee' is only one degree away from the vertical, it of course, does not become safe or hazardous in that short rotation. It is in fact a 'technical transition' point which comes about as a result of the required position of the headform. To solve this curiosity, the so-called rocking test was developed.

The rocking test fails 'Vees' that have an included angle of less than 76 degrees and an axis inclined up to 38 degrees from the vertical. But as brought out in the public comment, the test also eliminates seemingly non-hazardous configurations. Both Engineering and Human Factors have examined this situation at great length in an effort to minimize any adverse effects on safe designs. Thus far we have been unable to develop a more precise alternative, which could be substantiated by evidence. We did review one proposal which embodied dimensions taken from the headform and which at first did appear to make the requirement more precise. However, after extensive discussions it has been determined that there is no factual basis on which the suggestion can rely and therefore we have elected to proceed with the original proposal. It should be made clear that the adverse impact claimed by industry has not been demonstrated nor has any viable alternative which relies on compelling arguement been suggested. Specific responses to the comments follow.

Comment: "The proposed regulations, as modified, are still over-inclusive, and would ban cribs which pose no risk of strangulation caused by entrapment."

The commentor presents several specific examples supporting the above statement. However, no information or data was included to evaluate the extent of this situation. The commentor also presented a suggested modification to the headform to alleviate the perceived impact.

Response: As indicated in our general remarks, we have attempted to make the regulation as specific to the hazard as possible. Also, there does not appear to be any further viable options towards this objective. Because of the complex shape of the head and the limitless combinations of shapes throughout the population, a single (or even multiple) precise solution appears to be unlikely. This coupled with the infinite contours with which headboards could be constructed simply makes the solution that more difficult. Again, we believe that we have narrowed the objectiveness of the amendment as far as possible with the exception of the following.

A trade association has suggested that the lower surface 'D' on the headform be subdivided into two new surfaces 'C' and a remaining surface 'D'. These two triangular surfaces 'C' would be adjacent to the new rectangular shaped surface 'D'. The purpose of this modification is to prevent failure resulting from a single point contact on either of these new surfaces 'C'. However, failure would still be the result if any other opposing surface were contacted in combination with that surface 'C'.

EPHF has no objection to this change and believes it helps to further narrow the identified hazard.

The same trade association also suggests that the dimensions of the headform be altered to exempt certain headboards possessing small indentations which currently fail and which 'pose no risk of injury'. No specific suggestions were made.

Human Factors must reject the suggestion. There are instances were the headform will reject seemingly non-hazardous configurations. We have attempted to minimize this result as much as possible, but to alter the headform in an unspecified manner, we believe, is not appropriate, since safety factors could be compromised.

Comment: "Under the proposed regulations, it is unclear whether a single contact of an edge adjacent to surface 'D' constitutes a failure".

Response: The commentor has indicated a conflict in language between subparagraphs (b)(1) (" . . . surface D or edge adjacent to surface 'D' . . .") and (b)(2) (" . . . any of surfaces D"). The commentor also suggests the following language to correct the conflict: "If, during the swing to an upright position an edge or surface, other than surface "D", is contacted, sideways motion of the headform shall not be restrained."

We have no objections to the language and suggest it be adopted.

Comment: The dimensions of the proposed head form probe are not in any way representative of the heads of children which the regulations seek to protect".

Response: This comment is identical to the one received in response to the original Federal Register notice. HIEH (now EPHF) responded to the comment by our memo of April 2, 1981 (revised May 5, 1981) (attached).

Attachment

UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT SAFETY COMMISSION

TO :Elaine Besson, Program Manager, CRP, OPM

THRU :Dr. Robert D. Verhalen, DAED, HIE

DATE: April 2, 1981
Revised May 5, 1981

FROM :D. T. Van Houten, HIEH Robert D. Verhalen, Dr.PH (Signed)

SUBJECT: HIEH Response to Crib Comments

The purpose of this memo is to provide a Human Factors (HIEH) response to three of the four comments received in response to the Federal Register Notice on cribs.

Those comments generated three issues:

1. "The Dimensions of the Proposed Headform Probe are not in any way representative of the children which the regulations seek to protect."

2. "The headform probe is inaccurate in that it only measures head dimensions at the widest portion of the head."

3. Hypothetical crib designs which would technically fail the headform probe test, but which in the views of the commentors would not pose a risk of injury.

We respond to these comments in their order and will address specific issues under each comment.

Issue

1. "The Dimensions of the proposed headform probe are not in any way representative of the children which the regulations seek to protect."

Response

Human Factors strongly disagrees. The intent of the amendment is to protect the population which commonly uses cribs from a life threatening accident mechanism. Because of the severity, safety factors are utilized in a manner similar to virtually any other situation where a manufactured article can cause death in the event of failure. In the case at hand, we do not have a specific product failure, but, instead, a family of design configurations which may result in head entrapment.

The general user population for both full-sized and non-full-sized cribs is generally accepted to be approximately two years of age and under. However, there are sufficient injuries involving children over the age of two to clearly indicate that these products are used by older children,

although it must be recognized that use is decreasing after this age. Therefore, we see no reason for ignoring this age segment of the crib user population.

The commentor also alleges that the neck of the headform was derived in a manner that was not scientifically explained. While HIEH disagrees with this comment, we are providing a more detailed commentary on the derivation of the neck dimension.

As we indicated in our paper of December 14, 1979, the hazard pattern consists of essentially two phases: 1) the neck drops downward through the cutout opening, and 2) the victim attempts to escape from the cutout by pulling horizontally or downward. In this discussion we are concerned with phase one. There are two ways a child can place the neck in the cutout: 1) inadvertently by resting or looking for something on the floor, or 2) by climbing up the headboard and falling. The latter scenario involves considerably more physical force than the former. Such force would tend to compress the neck of the victim. Since infants do not have a completely calcified bone structure, and the muscular system is not well developed, there is considerably more pliability in the neck than one would expect.

In our review of the literature, we were unable to find any data pertaining to the neck of an infant. From our experience in this field, we suspect the total absence of data may be attributed to several causes: 1) the data has not been needed until now, 2) because of tissue flexibility there would be considerable difficulty in obtaining data sufficiently precise to be acceptable to the scientific community, 3) the anatomical landmarks which might be measured are ill-defined in infants which would tend to make the data vary, and 4) given the situation that part of the accident scenario involves a certain, but unknown, amount of force, how much force should be applied to obtain the data and how much force is safe?

Since we still need to arrive at a figure, we adopted the following rationale: We do have neck breadth for children ages 2-10 years in approximately yearly intervals. Referring to the figure (Figure 3 in our original paper), we can see that the age interval 2-10 years generally forms a straight line for each of the percentile classes. The straight line, however, cannot be extrapolated back to zero and remain logical. Therefore, some curvature in the growth rate must be present. As indicated before, there are no data on neck breadth for the infant population and, therefore, we have no benchmarks between 0 and 2. We have, therefore, elected to use the end of the first trimester of life as a beginning point and have connected this point with known data using a smooth curve. This curve has been established on the basis of best professional judgment. Recognizing that the judgments of individuals may differ, we need to examine how much latitude exists in this particular dimension.

If in Figure 3 we continue the straight lines formed by the existing data back through the one year line, we arrive at a dimension of about 6 cm (2-3/8 inches). If we reduce this number by 25 percent to account for pliability, we have 4.5 cm (1.77 inches = 1-3/4 inches) or about a quarter of an inch above our current proposal. To obtain an estimate on the other side we need to reduce the 5th percentile curve with a steeper slope which implies that growth is delayed, but more intense when it does occur. In doing this, the major problem we encounter is that the slope of the growth curve becomes so steep that it approaches a vertical line which is not impossible, but highly unlikely given that the lines must describe the average of 3 million infants. If we draw a curve which barely avoids a vertical slope, that curve crosses the one-year line at about 4.6 cm (1.8 inches) which turns out to be 1.35 inches (1-3/8 inches) when reduced by 25 percent. Therefore, the range in variation that we have in the neck breadth (at the 5th percentile level) is 1-11/16 to 2-3/8 inches or 1-3/8 to 1-3/4 inches when the 25 percent reduction factor is considered. Therefore, we are approximately in the middle of this range with our current proposal.

With regard to the dimensional reduction factor we need to briefly discuss the manner in which the data we are relying on was obtained.

In the 1977 anthropometry study (sponsored by CPSC), it was decided for a number of technical reasons, to use a stress of 0.1 pound per square inch for measuring soft tissues. Therefore, the data reflects measurements obtained when tissue is subjected to light pressure. The data, therefore, does not consider situations where the tissue may be compressed by a somewhat greater force such as the weight of a child's head. It should also be apparent that data specific to the situation at hand cannot be obtained and, therefore, we must make adjustments in the existing data.

tend

We have previously observed that, in general, infants do not have a completely rigid bone structure, and, hence, to be pliable. To consider this pliability and the above comments, we have introduced a compression factor of 25 percent.

We believe this responds to the concerns of the comment.

Issue

2. "The headform probe is inaccurate in that it only measures head dimensions at the widest portion of the head." "Our investigation of the child's head size determined that the maximum width of the head was toward the upper three quarters of the head and that the bitragion and bizgomatic areas of the head are in the middle 20 percent of the head. The headform probe appears to have a widest portion of the head in the middle portion of the head. The present headform probe, therefore, could create a distorted view of the propensity of children to become entrapped in certain cribs."

C 2

Response

Since no data or report were included with the comment we are hard pressed to accept or refute the commentor's contention. Further, the comment appears to be a bit unclear with respect to its objective. However, we believe our interpretation is correct and are responding to that interpretation.

The headform is intended to represent a range in a population and, therefore, will be only an approximation of any one individual. Further, we have elected to use the worst case for each dimension which for the headform probe involves the simultaneous use of 5th and 95th percentiles depending on the measurement. It is highly unlikely that any individual will possess these extremes, but when incorporated into a test device, the result tends to depart from the typical appearance of individual.

We have used the maximum width of the head since this is the dimension that is intimately involved with the accident scenario. As we indicated in our earlier paper (12/14/79), the precise location of this dimension is undocumented and, therefore, we have incorporated a 2-inch high band to allow for the variation in location as well as the range in the population.

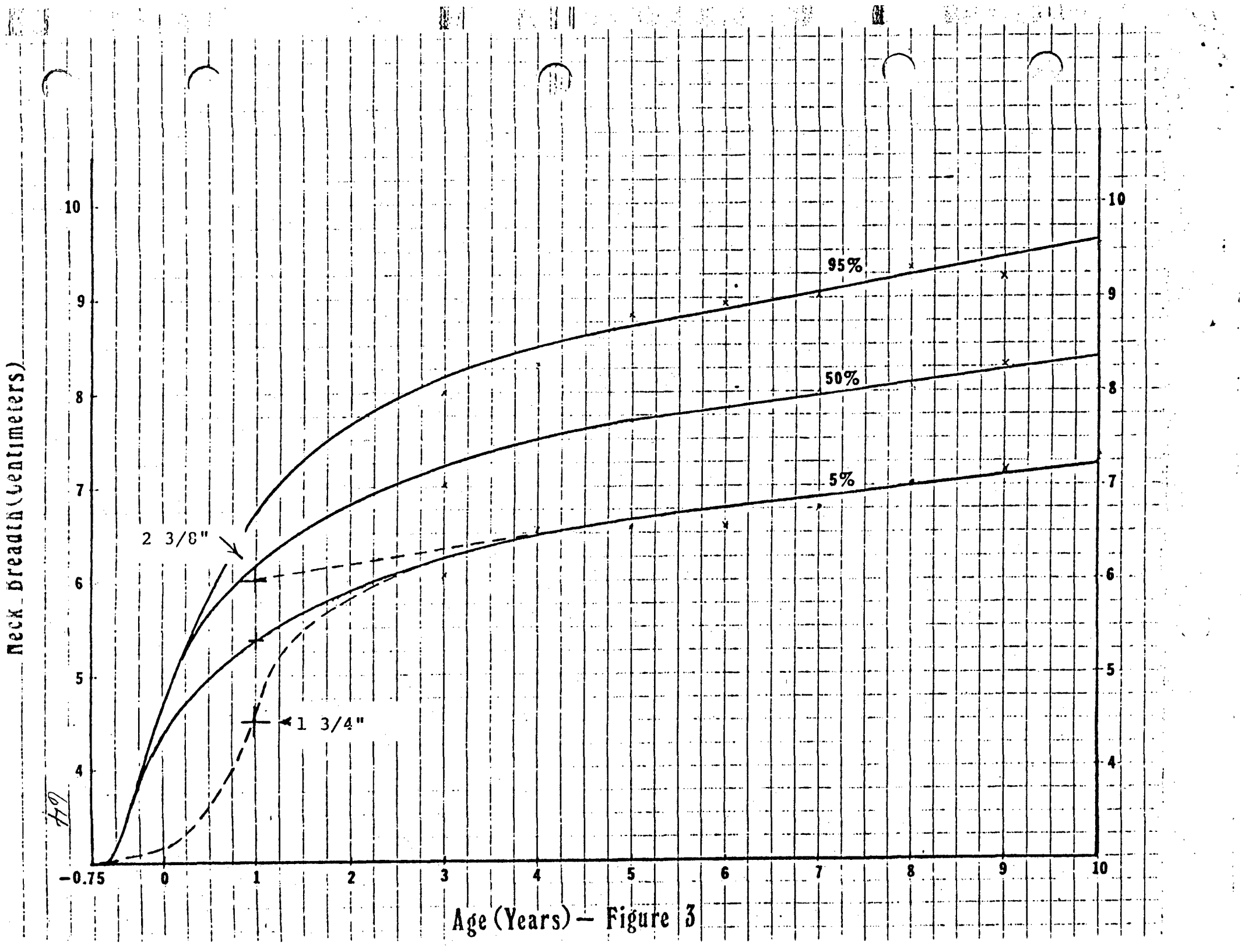
Issue

3. Certain crib designs fail the headform probe test but, in the views of the commentors, do not pose a risk of injury.

HIEH agrees that certain design cribs which 'technically' would have failed the proposed test criteria would not pose a risk of entrapment. Engineering, in consultation with Human Factors has modified paragraphs (b) and (c) of the proposal to eliminate ambiguities in the test procedure to assure that only truly hazardous designs will be identified as failing to comply. We believe these modifications are appropriate and maintain the original level of hazard identification.

bcc: Chron
Central Files
Reading Files
Dr. Verhalen
Mr. Bradley
Mr. VanHouten ✓
Mr. Frye
Mr. Rutherford

HIEH:DTVanHouten: 5/15/81


Neck Breadth (Centimeters)
95%
50%
5%
2 3/8"
1 3/4"
10
9
8
7
6
5
4
-0.75
0
1
2
3
4
5
6
7
8
9
10
Age (Years) — Figure 3

CONSUMER PRODUCT SAFETY COMMISSION
16 CFR Parts 1508 and 1509
Amendments to Requirements for
Full-Size and Non-Full-Size Baby Cribs

AGENCY: Consumer Product Safety Commission.

ACTION: Final amendments.

SUMMARY: The Commission is amending its requirements for full-size and non-full-size baby cribs. The amendments address a neck and head entrapment hazard associated with certain design configurations on crib panels by prohibiting cribs with those configurations.

DATE: The amendments become effective on [insert date that is one year after publication of this document in the Federal Register], and apply only to cribs manufactured after that date.

FOR FURTHER INFORMATION CONTACT: Ms. Christine Nelson, Directorate for Compliance and Administrative Litigation, Consumer Product Safety Commission, Washington, D.C. 20207; telephone (301) 492-6400.

SUPPLEMENTARY INFORMATION:

I. INTRODUCTION

In late 1977 the Commission learned of a child whose neck and head had become entrapped in the cutout headboard design of a crib. As was the case with later victims, the child had strangled to death in the cutout. The Commission staff immediately opened an investigation into the hazard.

The manufacturer of the crib notified retailers of the hazard and made available a modification kit which contained a shaped piece of board to close off the opening. In February 1978 the Commission and manufacturer issued a joint press

release that alerted consumers and announced a number of corrective actions. At the urging of the Commission, the manufacturer undertook additional actions, including new letters to dealers and the distribution of warning posters to the public.

A different crib model, produced by the same manufacturer, was later identified as being involved in other strangulations due to neck and head entrapment. That model also became the subject of a staff investigation and subsequent voluntary corrective actions by the manufacturers. Posters were distributed to pediatricians' offices to warn owners of the cribs. In addition, a consent agreement later required the manufacturer to place paid warning messages in magazines and to send letters to parents of small children who might be sleeping in the hazardous cribs.

Based on the information obtained in connection with the investigations, the Commission prepared and proposed for public comment amendments to its existing requirements for baby cribs. The proposed amendments addressed the entrapment hazard by prohibiting certain crib panel configurations.

II. PROPOSED AMENDMENTS

The Commission proposed the amendments in December 1980 (45 FR 82659-65, December 16, 1980). A list of 44 documents was included in the FEDERAL REGISTER notice proposing the amendments, and a list is again included at the end of this FEDERAL REGISTER notice. The original list has been expanded to include documents that have been placed into the record since December 1980. The expanded list of [#] documents

therefore includes all of the documents in the record of this proceeding. Those documents are cited, by number, throughout this FEDERAL REGISTER notice.

The discussion in sections A-E below describes the December 1980 proposed amendments:

A. Existing crib regulations.

The Commission currently enforces two baby crib regulations. The safety requirements in each regulation are comparable, but one applies to full-size cribs and the other applies to non-full-size cribs.

Full-size cribs (16 CFR Part 1508) have interior dimensions of 133 cm. by 71 cm., a standardized size. Non-full-size cribs (16 CFR Part 1509) are most other rigid-sided cribs, including portable, oversized, undersized, and specialty cribs. 1/ Both categories of cribs must comply with a test procedure for the spacing of crib slats and spindles. This addresses the risk that an infant will strangle when its body, but not its head, slips through the slats.

If a crib mattress is too small, an infant could suffocate by becoming entrapped between the crib frame and the mattress, with its face wedged against the mattress. Therefore, labels specifying the correct mattress size are required for full-size cribs, which are generally not sold with a mattress as part of their original set. Since most non-full-size cribs are sold with a mattress, they must meet mattress

1/ Cribs with mesh, net or screen sides, car beds, baby baskets, and bassinets are not covered by either regulation.

size requirements that specify the allowable space between the unit and the mattress. In addition, permanent labeling requirements for non-full-size cribs assure that consumers have adequate information about the correct size for a replacement mattress.

Both crib regulations also have requirements for: minimum effective rail height; locking or latching devices for drop or folding sides; construction and finishing, including provisions to eliminate "toe-holds" that might help babies climb out; assembly instructions; cautionary labeling; manufacturer identification; and recordkeeping.

Neither of the crib regulations addresses the neck and head entrapment hazard that the proposed final amendments address.

B. Risk of injury.

Including the strangulations discussed in Introduction, the Commission learned of fourteen incidents 2/ in which cutout designs in crib headboards or footboards were involved (3). Eight children under two years of age died, while the other six escaped death and permanent injury ("near misses"). The Commission staff analyzed all of these case histories to attempt to establish common aspects of the incident sequences and to determine the critical physical characteristics of the children at risk (2).

2/ In one of these fourteen incidents, involving a death, the crib had been damaged and then modified by the parent. However, the entrapment and strangulation followed the same pattern as in the other thirteen incidents (3).

In contrast to the risk addressed by the existing slat spacing requirements, the fourteen incidents involved necks and heads that became entrapped while the children were completely inside the cribs. The staff analysis concluded that the victims were able to stand at or climb up to the top of the end panel (headboard or footboard), and then become entrapped in a cutout opening (2).

According to the analysis, three factors are necessary for this type of neck/head entrapment to occur: (a) The neck is smaller (or compresses to a dimension smaller) than the entrance to the opening, (b) the head is larger than the minimum dimensions of the open area of the cutout, and (c) the child's feet, because of panic, short stature, or loss of footing, fail to provide effective support.

It is possible and even likely that "near miss" incidents have occurred without being reported. Like the six reported "near misses", these would be situations in which a parent or other adult found a child entrapped, but was able to extricate the child before any injury resulted. There may also have been instances in which children were temporarily entrapped, but were then able to extricate themselves.

In an effort to obtain as much injury information as possible, the Commission contacted medical examiners and health care professionals and reviewed available medical literature. No additional incidents were discovered from those efforts.

[to p. 5A]

However, the Commission learned after the amendments were proposed in December 1980 of another death associated with a crib cutout (72). In that incident, the hinged side of a portable crib was left folded down, exposing an opening that meets the cutout definition. The Commission stresses that the amendments are sufficiently broad to apply to such a cutout because the sides of portable cribs are often left down in normal usage, just as the side rails of full-size cribs are often left down. (When the side of the portable crib involved in the incident is up, it forms an enclosed opening that is covered by the slat spacing requirements of the non-full-size crib regulation. Most portable cribs form such enclosed openings in both the "up" and "down" positions because of horizontal bars that run through the hinges.)

[to p. 6]

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C. Proposed test requirements

The test requirements proposed in December 1980 were designed to prohibit, from full-size and nonfull-size cribs, end and side panels, any cutouts (partially-bounded openings) that can entrap the necks and heads of children using the cribs. 3/ By using a "headform probe," the test simulates the way that a child's head and neck can become entrapped. When the probe is placed in the cutout, it must be free to swing through a vertical arc without interference from any portion of the crib end or side panels.

The proposed amendments described the probe and the way it is positioned at all times during the test procedure. The probe is placed with its "neck" resting horizontally within the cutout area. The "head" of the probe is pivoted upward and backward. The cutout fails the test if the head portion of the probe does not freely attain a full upright position.

The proposed test procedure was based on the staff's reconstruction of the injury incident scenarios from the investigation reports (2, 5). In each of the cases, the victim was found suspended by the head because the effective opening of the cutout was too small to allow free passage of the head back into the crib. The test procedure is based on the premise that gravity alone should be sufficient to free an entrapped child.

3/ A fully-bounded opening could present a different entrapment risk of injury. This potential risk would require a different test procedure than the one for partially-bounded openings. The Commission has no injury data on any risk associated with fully-bounded openings (unless of course they are slats within the existing regulations), and the proposed amendments do not address any such risk.

The development of the proposed headform probe, including its dimensions, is fully described in staff documents (2). From the same injury incident investigation reports (35), the staff learned that most of the children were between one and two years of age and they were found with their heads entrapped in cutouts on the upper portions of the headboards. While it was impossible to determine the head sizes from the reports, none of the victims was of unusual height or weight.

The size of the probe is related to the sizes of heads and necks of children who fall within the age range of one to two years (2). The staff considered anthropometric data from a 1977 University of Michigan study (27) and other sources (21$\bar{2}$6; 28$\bar{3}$0). Since complete data were not available for children younger than two years of age, data for children between two and 3.5 years of age were used. (This is the youngest age grouping of complete, statistically representative data available.) The staff used head length, head width, and head height dimensions at the 95th percentile level. This level means that 95 percent of the children in that age group have head dimensions less than the size used in the proposed probe. The location of the widest point on the probe (with respect to the vertical plane) was designed as a band starting two inches from the rear of the probe and extending all the way forward. The band is two inches high to account for the variable location of the widest point on a child's head.

To obtain the appropriate neck dimension for the probe, the staff first used the 5th percentile dimension for children between two and 3.5 years of age. The staff then extrapolated

this dimension to about one year of age because this was the age of the youngest victim for whom relevant information was available. The staff further reduced this dimension by 25 percent to account for the pliability of the neck.

In general, the probe incorporates dimensions for the smallest neck sizes and the largest head sizes. This is a "worst case" approach because a small neck would be most likely to fit into an opening and a large head would be most likely to become entrapped. Using these dimensions in the test probe provides a margin of safety for children who will not combine these two extremes of neck and head sizes.

D. Economic considerations.

The cribs already investigated by the Commission are no longer being manufactured and they have been the subject of numerous corrective activities (see Introduction). The Commission estimated that about 65,000 additional cribs shipped by manufacturers, representing eleven different models, may fail to comply with the proposed test procedure (6). The cost of the corrective action, including the cost of locating the cribs, was estimated to be nearly $2.5 million (6). However, none of these cribs contains cutouts that are as "deep" or otherwise appear as hazardous as those contained in the cribs described in Introduction, and none are known to have been associated with any death or injury incidents. As a result, the Commission preliminarily concluded that the proposed amendments should not apply to these 65,000 cribs that have already been manufactured. The proposed amendments incorporated various margins of safety

and the Commission preliminarily decided that the amendments should appropriately be applied only to those cribs manufactured in the future.

The Commission's economics staff surveyed the crib manufacturers' 1980 catalogs and received additional information directly from the manufacturers (6). Based on these data, the Commission estimated that only four or fewer models that may fail the proposed test procedure were still being produced in 1980 (6). In addition, manufacturers indicated that these models were being phased out due to lack of consumer demand and the adverse publicity associated with the entrapment hazard (6). Based on preliminary staff observations, the Commission anticipated that none of the 1981 models would fail the proposed test procedure.

Therefore, the Commission preliminarily found that the economic impact on crib manufacturers of the proposed amendments would be slight. It believed that certain minimal costs would be incurred by a manufacturer who performs compliance tests on prototype models (6). These costs would be limited to fabrication of the headform probe and time spent on the testing.

The Commission also found that any current model lines that fail the test could be discontinued or redesigned without imposing a significant economic burden on any manufacturer (6). Each year, manufacturers routinely discontinue and redesign cribs in response to consumer demand and in anticipation of that demand (6). Discontinuation of a model would not result in economic losses as long as the cribs already manufactured could continue to be sold (6). Redesign of a

crib model may only involve slight adjustment of the machinery that cuts the headboard and footboard patterns (6). Retooling was not expected to be necessary for such slight changes in the sizes and shapes of any noncomplying cutouts (6). Any redesign costs were therefore expected to be minimal.

E. Effective date.

Cribs are generally marketed according to an annual design and production cycle (6). New designs are completed by the summer, and they are manufactured beginning in the fall and continuing throughout most of the following calendar year. Retailer orders are also placed beginning in the fall. The orders are then filled by shipments that continue through the following fall, and sometimes until the end of the following calendar year.

Depending on the time of year that the amendments would be issued, the Commission proposed that they become effective between two and eight months after the issuance date.

III. PUBLIC COMMENTS ON PROPOSED AMENDMENTS AND COMMISSION REVISIONS

In response to its December 1980 proposal (45), the Commission received four public comments (46, 47, 48, 49). Based on those comments 4/ and based on some additional work by its staff, the Commission in August 1981 suggested some changes in the proposed test procedure and extended the comment period so that the public could comment on them (46 FR 43452-56, August 28, 1981) (56). (The public comments received during the extended comment period are discussed in section IV below.)

4/ All of the issues raised in these comments are discussed in this section or, where the same issues were raised during the extended comment period, in section IV below.

A. Contacts constituting failure.

As originally worded, the proposed test procedure identified as a failure contact by the probe with any surfaces or edges other than those surfaces labeled "A" or "B" or the edges of those surfaces (See Fig. 3), when the headform probe is rotated in a vertical arc after being placed in a cutout along the upper edge of a crib end or side panel. Some of the commenters objected to the wording of the requirement as overly restrictive in that it would prohibit many designs which could not be considered as entrapment hazards.

It was clearly not the intention of the proposed test procedure to prohibit ~~such~~ designs where contact is made with only one side of the headform probe (52). For example, a horizontal top rail with no cutouts but having a cornerpost extending vertically more than 2 1/2 inches would fail the proposed test. A child's head or neck would not become entrapped by such a configuration. The Commission therefore suggested clarifying the language of the test procedure so that contact with only one side of the probe would not constitute failure. (Single point contact with those surfaces representing the back of a child's head would still be considered a failure.) According to the clarified language of the test, simultaneous contact at two or more points on opposite sides of the probe would be a failure.

In addition, the Commission added language to clarify that if an edge or surface on one side of the probe is contacted during the vertical arc, "sideways motion of the

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(52).
headform shall not be restrained" (subsection (b)(1)). In other words, a test failure shall not result merely because the probe slides horizontally along the panel, as long as the probe maintains a vertical arc. (This point is further discussed in section IV D (3) below.)

B. Labeling of probe's surfaces.

One commenter suggested expanding the identification of the surfaces of the probe and then specifying those combinations of surfaces which, when contacted by the probe during the test procedure, would constitute a failure. Several sets of surfaces were cited by the commenter as potentially failing combinations.

The Commission accepted the basic suggestion for additional labeling of surfaces in order to clarify the test procedure (52). However, to identify all possible failing combinations would be cumbersome and possibly confusing. In addition, the commenter's suggestion did not account for possible panel contact with the edges formed by adjacent surfaces of the probe. The Commission revised the test procedure by identifying additional surfaces and edges of the probe and simplifying the commenter's suggested definition of what constitutes a failure.

C. V-shaped cutouts.

After reviewing the proposed test procedure, the Commission staff suggested that it needed to be revised to prohibit certain V-shaped cutouts that present the entrapment hazard (52). Those cutouts were permitted by the language of the proposal.

The proposed test would have permitted V-shaped cutouts symmetrical about a vertical axis (upright) if the angle between the legs of the "V" was less than the included angle between surfaces of the headform probe designated "B". Such cutouts would allow passage of the probe as long as it is permitted to "ride upward" on the edges of surfaces "B" (and cause the neck of the probe to lose contact with the crib panel), while being swung through a vertical arc. This riding upward action, however, is not consistent with the premise of the test procedure that gravity alone should be sufficient to allow a child to fall free without becoming entrapped.

The Commission therefore revised the test procedure so that simultaneous contact of the panel with both surfaces "B" would not be permitted (52). The following combinations of contacts with the panel are permitted: surface "B" and surface "A"; two edges "AB;" and surface "B" and an opposing edge "AB."

There could also be V-shaped cutouts that are asymmetric with respect to the vertical (tilted sideways) (52). Such a configuration would exist on a crib panel where a convex (semicircular) shape meets a cornerpost or canopy support. Similar configurations have been used on crib head and footboards. Depending on the size of the angle formed, these configurations could present the entrapment hazard, but would not fail the test if the probe is swung only through a vertical arc.

To prohibit hazardous asymmetrical V-shaped cutouts, the Commission revised the test procedure to require that, upon completion of the swing to the upright position, the probe be "rocked sideways" in a plane parallel to the plane of the crib panel (52). If the rocking motion results in prohibited contact between the probe and the panel, the cutout fails the test. The rocking motion would not affect the results of tests on cutouts that are not V-shaped.

D. Economic considerations.

After revising the test procedure, the Commission staff reviewed the preliminary economic assessment that accompanied the December 1980 proposal (53, 54). A review of 1980 and 1981 manufacturers' catalogs identified several models containing an asymmetrical V-shape cutout formed by the cornerpost or canopy support and a convex-shaped end panel. However, none of those cutouts would clearly fail the revised August 1981 test procedure (54). The Commission stated that it did not believe the August 1981 revisions would place an added burden on crib manufacturers, and suggested that the final amendments could become effective six months after their issuance.

IV. PUBLIC COMMENTS ON REVISIONS. ~~[Need cites]~~

Following the August 1981 notice, the Commission received public comments from two crib manufacturers and a trade association. Specifically they came from Child Craft (57), the Juvenile Products Manufacturers Association, Inc. (JPMA) (58), and Questor Juvenile Products Company (59).

The public comments and the Commission's responses will be discussed by topic:

A. "Rocking test"

1. JPMA has commented that the "rocking test," described in section IIIC above, is vague (58). This comment stems, in part, from the statement in section (b)(2) of the August 1981 revised test procedure that "the headform may be rocked from side to side" (emphasis added) upon completion of the upward swing portion of the procedure.

The word "may" was used to indicate that it is unnecessary to perform the rocking test on every cutout subject to the amendments (68). Instead, it should be performed only when the cutout is a V-shape. Because of the nature of the test procedure, such cutouts may not fail during the process of swinging the headform probe through a vertical arc to an upright position. As discussed in section IIIC, the rocking test is necessary to identify any asymmetrical V-shape cutouts that present the unreasonable strangulation risk to children.

To eliminate any possible vagueness or confusion, the Commission has decided to clarify the language of the rocking test procedure (68). Accordingly, subsection (b)(2) in the final amendments reads as follows (in pertinent part): "If a cutout is V-shaped (the side boundaries or the tangents to the side boundaries are nowhere parallel), an additional test shall be performed on the cutout. Upon completion of the swing to the upright position, rock the headform ~~from side to side~~ sideways ..."

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JPMA's comment concerning vagueness also stems from its uncertainty about whether the probe is permitted to slide along the panel during the rocking test. The Commission's response is that the ~~sliding must occur~~ probe must slide for the rocking test to be performed properly (73). Therefore, subsection (b)(2) of the final amendments below now contains a new sentence that specifically describes the sliding motion: "This will result in the probe sliding toward the bottom of the cutout."

2. All three commenters have made substantive objections to the rocking test. Child Craft has stated that a crib "with a very large convex radius (nearly a straight line) on the top rail and a moderate post extention" would fail the test procedure (57). Similarly, Child Craft has stated that a cutout that is an asymmetrical V-shape with an included angle of 89 degrees would fail the test (57). The Commission believes that both of these described cutouts would pass the test. Since the commenter has stated incorrectly that simultaneous contact with a crib end panel and surface "B" and edge "AB" of the probe would constitute a failure, the comment may be based on a misconception about the proper test procedure (68). If not, the Commission's full discussion of asymmetrical V-shapes, below, will likely respond to Child Craft's concerns about the rocking test.

Questor has stated that the rocking test offers no useful purpose and may eliminate some crib designs that have canopy supports extending from a horizontal top edge of a crib end or side panel (59). The Commission's response is that such designs would not fail the test procedure (68). 82

JPMA has stated broadly that the rocking test would ban cribs that pose no risk of strangulation caused by entrapment (5A). To respond to this comment, the Commission must discuss the test procedure in some detail (6F, 7I, 73, 74).

The headform probe and test procedure were designed to identify crib panel cutouts that had proved hazardous and cutouts that were similar enough to present the same hazard. Such cutouts essentially were those consisting of two distinct projections that were too close together to permit the passage of the head.

The hazard scenario generally involved entrapment of the back of the child's head by the two projections. After the test procedure was first developed, however, the Commission realized that certain V-shaped cutouts could also present an entrapment hazard. The original test procedure, as proposed in December 1980, did not fully address that additional hazard.

If a V-shaped cutout is too narrow, i.e., if it has an included angle that is too small, the entrapment hazard is presented. With the child's neck at the base of the V, its head would be unlikely to fall free from the narrow V-shaped cutout. Symmetrical V-shaped cutouts will fail the test if the included angle is less than about 75 1/2 degrees. However, if an asymmetrical V-shape is the same size, it would pass the test procedure without necessarily being any less of a risk. The reason for this is that the probe must remain upright during the test. The rocking test is intended to remedy this situation, and assure that cutouts will not pass the test only because they happen to be asymmetrical instead of symmetrical.

Since the Commission has limited injury data on V-shaped cutouts in cribs, it has also evaluated the available data on such cutouts in all children's products (68, 72). Specifically, the Commission knows of ten child head entrapment incidents involving V-shaped cutouts. Nine involved V-shapes along the top edge of wooden folding corrals and baby gates. The included angle of those symmetrical V-shaped cutouts, where known, ranged from 33 to 70 degrees. These incidents all involved symmetrical openings with included angles of less than 75 1/2 degrees. Similar openings on crib panels would not be permitted by the Commission's crib cutout test procedure. The Commission has no injury data for symmetrical V-shaped cutouts with included angles of more than 70 degrees. However, the prohibition of cutouts with included angles between 70 and 75 1/2 degrees provides a margin of safety that is justified by the Commission technical staff's belief that head entrapment could occur in such cutouts.

The tenth head entrapment injury incident involves an asymmetrical V-shape cutout located in the footboard of a crib that was formed by the junction of a vertical canopy support and a scalloped top edge in the footboard. Its included angle was about 50 degrees. Since the Commission's test procedure would also prohibit asymmetrical V-shapes with included angles of less than 75 1/2 degrees (because of the rocking test), the cutout involved in this incident would be banned by the crib amendments below.

According to JPMA, a number of currently-marketed cribs would fail the test procedure because they have asymmetrical V-shapes with included angles of less than 75 1/2 degrees (58).

JPMA has submitted ~~examples~~ illustrations of such cribs and asserted that they do not pose a strangulation risk.

After the close of the public comment period, on October 21, 1981, the Commission staff met with some crib manufacturers who are members of JPMA (60). The manufacturers ~~displayed~~ discussed some cribs that they believed failed the test procedure but were not hazardous. They also volunteered to submit a test procedure that could be substituted for the rocking test. Their test was submitted, and it involves ~~the~~ placing ~~of~~ a 4 1/2 inch straight edge on the neck portion of the headform probe. Its effect would be to decrease from 75 1/2 to about 70 degrees the included angle of asymmetrical V-shapes that would fail the test procedure.

The Commission ~~concedes~~ acknowledges that no known injury incidents have involved V-shaped cutouts with included angles between 70 and 75 1/2 degrees. The Commission also ~~concedes~~ recognizes that asymmetrical V-shapes may be less hazardous than symmetrical V-shapes, depending on the amount of tilt. Nevertheless, the Commission believes that the rocking test is a reasonable and necessary provision for protecting children from head and neck entrapment in cribs.

The Commission has no injury or other data that supports the substitution of the industry's suggestion, except that its economic burden might be less because certain crib designs currently on the market would presumably be allowed to remain on the market. In addition, the nature of the hazard precludes

a single solution that will apply perfectly to every possible crib cutout. There are limitless combinations of head shapes and sizes throughout the population of crib users. The shapes and sizes of crib cutouts are similarly limitless. The Commission believes that its test procedure, including the rocking test, distinguishes between hazardous and non-hazardous cutouts in the most practical and appropriate way possible.

B. Economic impact.

JPMA's comments asserted that the rocking test would cause economic harm to the industry (58). At the October 21, 1981 meeting with the JPMA-member crib manufacturers, the staff asked for any data that would support this assertion (60). Specifically, the staff requested the number of crib designs that would require modification, the number of crib units affected, the types of redesigns that would be required and the associated costs, and information on the expected impact from implementation of the JPMA's alternative test requirements.

Six manufacturers 5/ responded to this request by providing information (62, 63, 64, 65, 69, 70). Two of the manufacturers reported that the crib amendments, including the rocking test, would require no changes in their cribs (62, 70). A third manufacturer reported that 11 crib designs, representing 12 percent of sales and inventory, would require modification costing approximately $100,000 (64). A fourth manufacturer reported that modification would be necessary for five crib designs, accounting for

5/ A seventh manufacturer responded with information based on a provision (not the rocking test) that was changed in August 1981 (66). Since the final amendments (at section (b)(1)) incorporates an additional change that addresses this manufacturer's concerns about economic impact, consideration of this follow-up economic submission is unnecessary.

5,100 units and approximately eight percent of sales. That manufacturer estimated that its costs would be $50-60,000 (63). The fifth manufacturer did not specify the number of models or cribs that would be affected, but estimated its costs at $630,000, with $500,000 due to lost sales revenues, $25,000 for a new catalog and advertising materials, and $105,000 for several types of manufacturing costs (65). The sixth manufacturer reported that one model would be affected by the amendments, and that 1040 cribs would therefore require modification (69).

The Commission can neither verify nor disprove the estimated cost data submitted by the crib manufacturers. Nevertheless, the Commission will assume its accuracy, for purposes of discussion, because other data and factors support the Commission's belief that the economic impact on the crib industry will be minimal (75):

1. The cost ~~data~~ information submitted by the manufacturers is ~~apparently~~ based on the assumption that cribs that fail to comply with the amendments will have to be retrofitted before being sold. This will not be the case because the amendments will apply only to cribs introduced into interstate commerce after a date in the future. Now that the amendments have been issued, in this document, the manufacturers can undertake any necessary redesigning or retooling to assure that no noncomplying cribs will be introduced into interstate commerce after that date. (The effective date is discussed in section V below. While it was proposed to be between

publication of the amendments.

two and eight months following issuance, it has now been set as one year from ~~them~~. This will provide ample time for any necessary redesign or retooling of noncomplying cutouts.)

The Commission believes that any costs of redesign, retooling, administration, or advertising will be minimal and can be incorporated into the manufacturers' usual production and distribution cycle. No large or disruptive costs will prevent manufacturers from assuring that all of their crib models introduced into commerce in a year will comply with the amendments. Therefore, no costs will be incurred from the retrofitting of already-manufactured cribs.

2. Some manufacturers ~~apparently~~ believe that the noncomplying crib models will not sell after the final amendments have been issued, even though the amendments do not apply to those cribs then in inventory. In follow-up telephone conversations with the staff, three crib manufacturers made this point and spoke of consumer and retailer resistance to such cribs [redacted] (7P). However, the staff discussed this point by telephone with several retailers, and were told that consumers would be unlikely to be aware of any difference between complying and noncomplying cribs [redacted] (7P). In addition, the retailers were not concerned because inventories of cribs turn over in 30-40 days.

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3. Using the manufacturers' estimates of numbers of crib models that will be affected by the amendments 6/ and the manufacturers' cost data for retrofitting, the Commission has concluded that the per unit cost attributable to the amendments would still average out to less than $1 per crib. Since this is a very small percentage of the $70-200+ retail price of cribs, there would not necessarily be any perceptible change in the retail price of cribs.

In summary, the Commission believes that the costs imposed by the crib amendments on the industry, if any, will be minimal redesign and retooling costs for a few crib models. Consumers will continue to enjoy a broad choice among a large variety of crib styles and models, and the utility of cribs will be unaffected by the amendments. Similarly, the minimal costs are unlikely to result in any impact on the competition among crib manufacturers in general or on the viability of small businesses in particular.

C. Headform probe.

1. JPMA has suggested that the lower surface "D" on the headform probe be subdivided into two new surfaces "C" and a remaining surface "D" (58). The two new triangular surfaces "C" would then be adjacent to the new rectangular-shaped surface "D".

The purpose of this change would be to prevent a failure resulting from a single point contact on either of these new surfaces "C". Such a single point contact, for

6/ The information from the responding manufacturers shows that 17 crib models, involving roughly 1,000 cribs each, might have to be modified. Since more than 1 million cribs are manufactured in the United States yearly, the percentage of noncomplying cribs would be below two percent (75). (This contrasts sharply with JPMA's claim that the amendments would affect 50 percent of the current crib production.) In any case, the Commission believes that the responding manufacturers misunderstood the need to retrofit cribs, as discussed above.

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example from a spherical knob on a corner post, is unlikely to present the entrapment hazard. This would be the case as long as the head would not simultaneously contact any portion of the crib across from the knob. If any opposing surface were contacted in combination with surface "C", failure would still result.

The Commission agrees with JPMA's suggestion (71). It helps to focus the test procedure on the cutouts that present the entrapment hazard, without reducing the protection to children. The change has been adopted in the final amendments below.

2. JPMA has also suggested that the dimensions of the headform be changed to exempt certain headboards possessing small indentations that "pose no risk of injury," (5F). JPMA has provided no specific suggestion for such an exemption and the Commission cannot determine from the picture of the one example submitted whether the small cutout would comply with or fail the test procedure. In any case, the Commission knows of no such cutouts that do not present the same hazard addressed by the amendments, and has not changed the probe in response to this comment.

3. In a broader comment, JPMA has stated that "[t]he dimensions of the probe are not in any way representative of the heads of children which the regulations seek to protect," (5F). (71, 51).

The Commission disagrees with this comment. As explained above, the probe is intended to represent a range in the population and will only be an approximation of any one individual. The "worst case" is used for each dimension to provide a margin of safety, so it is highly unlikely that

any individual would possess these extremes. The maximum width of the head is used because this is the dimension involved with the hazard pattern. Since the precise location of that dimension is undocumented, a two-inch band is used to allow for variation in location throughout the range of the population.

Most children who use cribs are approximately two years of age or under. However, children over two years of age do use cribs and they were not ignored in the statistical formulation of the probe.

One of the hazard patterns involves children falling onto the crib panel. Since this involves force that compresses the victim's neck, a 25 percent compression factor was used in conjunction with the neck size approximation. This is particularly appropriate because infants do not have a completely calcified bone structure and their muscular system is not well developed. As a result, there is considerable pliability in the neck.

The Commission still believes that its headform probe is based on the best available anthropometric data, human factor professional judgment. Except for the change involving surfaces "C and D", discussed above, the probe remains unchanged from the one proposed in December 1980.

D. Miscellaneous.

1. JPMA has stated that the proposed regulations do not clearly state whether a single contact of an edge adjacent to surface "D" constitutes a failure (58). More specifically, this comment cites to a conflict in language between subsections

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(b)(1) and (b)(2) of the proposed amendments, and suggests a language change.

The Commission agrees with JPMA that the suggested language is preferable (48). Therefore, the final amendments below adopt the following language for subsection (b)(1) as a clarifying change: "If, during the swing to an upright position, an edge or surface other than surface "D", is contacted, sideways motion of the headform shall not be restrained."

2. Questor has stated that the use of the word "panel" may be confusing to those who are not knowledgeable about the construction of cribs (59). The word is used in the regulation to refer to the location of the cutouts as being along the upper edges of an end or side panel.

The use of a substitute word (the commenter proposed "board" or "rail") could make the regulation ~~even~~ more confusing, especially if the substitution were made after so much attention has already been focused on the existing language. Since only one commenter has expressed any problem with the word "panel," and since that commenter apparently understands the amendments, the Commission has decided not to adopt the suggestion.

3. JPMA has suggested a different clarification in the wording of the amendments (58). The last sentence of subsection (b)(1) permits sideways movement of the headform if it makes a nonfailing contact during its swing. JPMA notes that the sentence does not specify how the sideways motion is to be executed, and suggests that it state that the neck is not to be rotated nor the probe moved from a vertical plane.

The second sentence of subsection (b)(1) specifies that "[t]he probe shall not be rotated about the major axis of the neck during [the test] procedure," and the Commission sees no need to repeat this instruction in the last sentence of the same subsection (6F). The next sentence states that "[t]he arc through which the head is swung shall be in a vertical plane." While this instruction similarly does not need repeating, it does require clarification for the situation in which a non-failing, single-point contact occurs (6P). Therefore, the Commission has added to the last sentence of subsection (b)(1) the instruction that "the arc through which the headform is swung shall remain vertical." This clarifies that the probe must continue in a new vertical plane after it is moved sideways along the panel.

V. EFFECTIVE DATE

The comments received on an appropriate effective date have generally indicated that six months of lead time would be acceptable, if the amendments are not issued in the middle of the model year. Specifically, JPMA's most recent comments were that the amendments should not become effective before January 1, 1983 (5F). ~~or before the 1983 model year.~~

In accordance with the discussion in section IV B above, the Commission believes that a lead time of at least one year will best assure that the amendments will have no more than a minimal impact on the industry (7S). At the same time, the Commission does not believe that the amendments need to be made effective in less than a year because it knows

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of no models currently on the market that present a very grave risk of injury to children. After balancing the risk of injury presented by any noncomplying cribs on the market and the need to minimize the economic impact on the industry as much as possible, the Commission has decided on an effective date that is one year from ~~today~~ NOW.

VI. ENVIRONMENTAL REVIEW

The Commission has issued environmental review procedures (16 CFR Part 1021; 45 FR 69433; October 21, 1980) concerning agency compliance with the National Environmental Policy Act, as amended. These procedures provide that safety regulations for products normally have little or no potential for affecting the human environment and that preparation of environmental documents is generally not required (§ 1021.5(c)(1)). If a particular safety regulation for products may produce environmental effects, the Commission would prepare appropriate environmental documents.

The Commission reviewed the proposed crib amendments and concluded that they have little or no potential for significantly affecting the human environment (45). At most, they will require alteration of certain crib designs manufactured in the future. Therefore, the Commission prepared no environmental documents in considering that proposal.

The Commission's opinion of the final crib amendments is that they would also have little or no potential for significantly affecting the human environment.

VII. CONCLUSION

Based on the public comments, the discussion above, and the information contained in the record of this proceeding, the Commission has found that cribs with certain cutouts on their end or side panels present a "mechanical hazard" within the meaning of section 2(s) of the Federal Hazardous Substances Act (FHSA) (15 U.S.C. 1261(s)). In normal use, the design of cribs containing such cutouts presents an unreasonable risk of personal injury to children.

The risk presented to children, strangulation, is the most severe risk possible. It is a risk that children cannot protect themselves against; it is a risk that parents would not expect to be presented by a product in which children spend a great deal of their early lives. The frequency of the risk is more difficult to evaluate. The Commission knows of thirteen injury incidents that the amendments would address (see footnote 2), including seven deaths. However, all of these were associated with the two models that contained the "deepest" cutouts encountered by the Commission. Based on this factor and on the high potential cost of notification and retrofit activities, the amendments apply only to cribs that have not yet been introduced into interstate commerce.

The Commission expects the amendments to impose very small costs on the crib industry. Redesigning and retooling will be necessary for a small percentage of available crib models, at most, and the one year of lead time will permit such changes to be made as part of the normal business cycle. Any testing, advertising, administrative, or other costs will also be minimal or nonexistent.

The Commission has carefully considered the severity and, to the extent possible, the frequency of the risk that the amendments would address, as well as the costs that would be associated with the amendments. The Commission's conclusion is that the risk presented by cribs not yet manufactured is an "unreasonable" one, under the applicable statutory criteria, if the cribs contain cutouts that fail the test procedure.

The Commission further concludes that the benefits bear a reasonable relationship to the costs. Even though neither benefits nor costs can be fully quantified in this case, the costs will be minimal and the benefits would be measured in terms of saved lives.

If such cribs present a mechanical hazard and are intended for use by children, they are "hazardous substances" under section 2(f)(1)(D) of the FHSA and "banned hazardous substances" under section 2(q)(1)(A) of the FHSA (15 U.S.C. 1261 (f)(1)(D) and (q)(1)(A)). Accordingly, pursuant to provisions of the Federal Hazardous Substances Act (secs. 2(f)(1)(D), (q)(1)(A), (s); 3(e)(1), 74 Stat. 1304-05, 83 Stat. 187-89; 15 U.S.C. 1261, 1262) and under authority vested in the Commission by the Consumer Product Safety Act (Pub. L. 92-573, sec. 30(a), 86 Stat. 1231; 15 U.S.C.2079(a)), the Commission amends Parts 1508 and 1509 by adding the identical new §§ 1508.11 and 1509.13 and new Figures 2 and 3 which would appear at the end of each part as follows:

PART 1508 - REQUIREMENTS FOR FULL-SIZE BABY CRIBS

PART 1509 - REQUIREMENTS FOR NON-FULL-SIZE BABY CRIBS

§ 1508.11/1509.13 Requirements for cutouts.

Full-size/Non-full-size baby cribs shall comply with the following test requirement.

(a) Place the neck of the headform probe shown in Figure 2 into any cutout (partially-bounded opening) located along the upper edges of an end or side panel. The axis of the neck shall be horizontal and at right angles to the plane of the panel at the point of contact. The head portion of the probe shall be on the outer side of the panel. With the neck resting on the panel at any point within the cutout area (for compliance purposes, the Commission may test at all points that could result in a failure), and the front of the probe pointing downwards, draw the head of the probe towards the panel until surface "A" makes contact with the outer side of the panel (see Figure 3).

(b)(1) Press down on the neck to cause the head to swing upwards through the cutout in the panel. The probe shall not be rotated about the major axis of the neck during this procedure. The arc through which the head is swung shall be in a vertical plane and shall terminate when the major axis of the neck attains an upright position or is prevented from attaining an upright position by an obstruction. During the test, contact shall be maintained between surface "A" (or at least one of edges "AB"), the neck of the headform probe and the panel. If, during the swing to the upright position, an edge or surface other than surface "D" is contacted, sideways motion of the headform shall not be restrained, but the arc through which the headform is swung shall remain vertical.

(2) If a cutout is V-shaped (the side boundaries or the tangents to the side boundaries are nowhere parallel),

an additional test shall be performed on the cutout. Upon completion of the swing to the upright position, rock the headform sideways parallel to the plane of the panel while maintaining contact between surface "A" or an edge "AB" and the panel. This will result in the probe sliding toward the bottom of the cutout. The maximum angle through which the headform is rocked shall be determined by contact with the panel by a surface or edge other than "A" or "AB" or until one of the surfaces "B" is in a vertical plane.

(c) During the test described in paragraph (b) of this section, no portion of the panel shall contact:

(1) Simultaneously, more than one of surfaces "B", "C" or edges "BC," "CC," or "CD," in any combination if they are on opposing sides of the headform.

(2) Any of surfaces "D".

Note. -- Edges are identified by the letter designations for surfaces that lie on either side of the edge.

Effective date: The amendments apply to all cribs manufactured after [insert date that is one year following publication of this document in the Federal Register].

Authority: Secs. 2(f)(1)(D), (q)(1)(A), (s); 3(e)(1), 74 Stat. 372, 374, 375, 80 Stat. 1304-05, 83 Stat. 187-89, 15 U.S.C. 1261, 1262.

Dated:

SADYE E. DUNN, Secretary
Consumer Product Safety Commission

List of subjects in 16 CFR Parts 1508 and 1509

Consumer protection
Cribs
Infants and children

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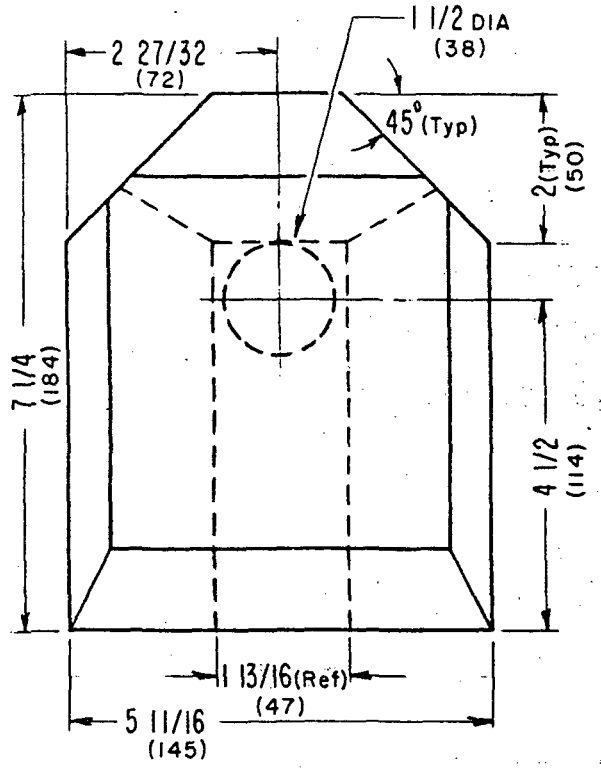
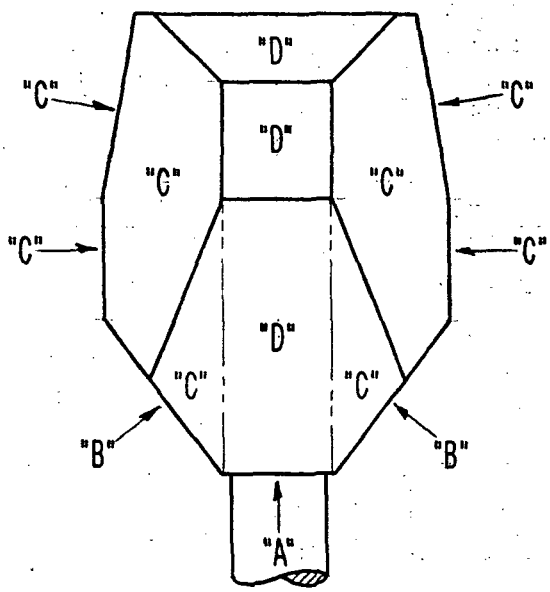
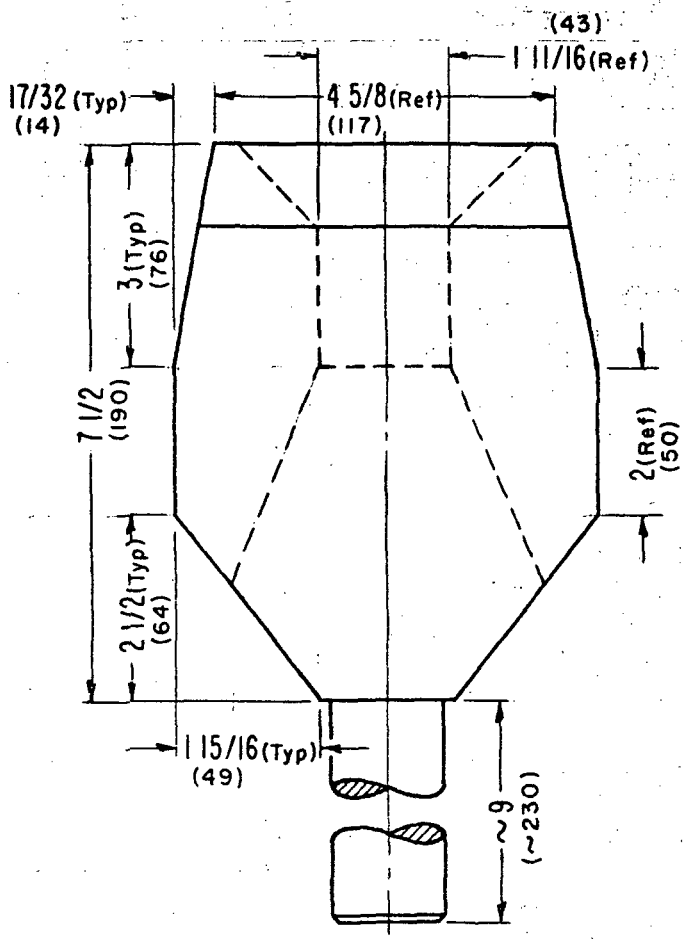
FIG 2–HEADFORM PROBE

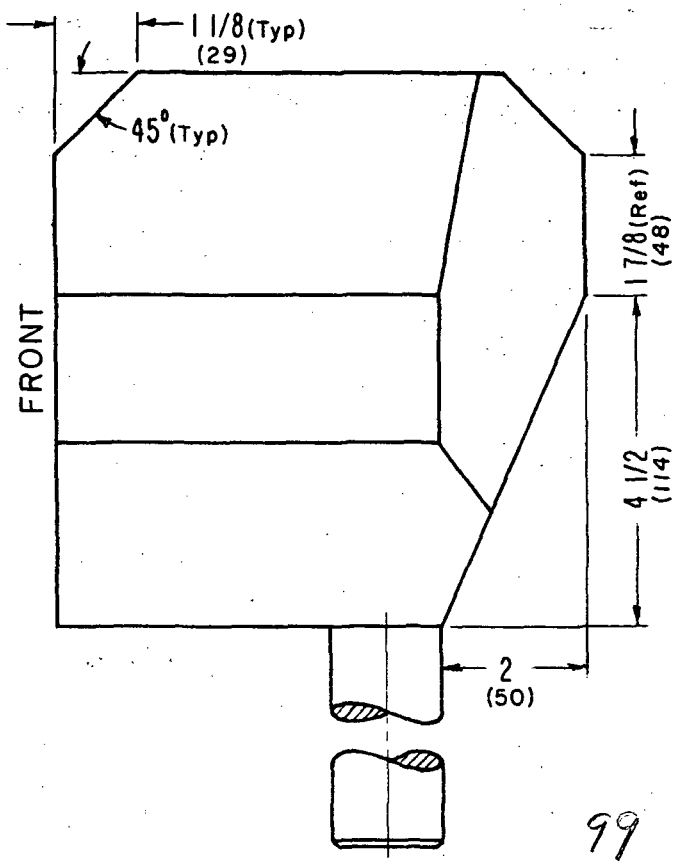
DIMENSIONS ARE SHOWN IN INCHES AND WILL BE USED FOR COMPLIANCE PURPOSES. MILLIMETERS, SHOWN IN PARENTHESIS, ARE FOR CONVENIENCE ONLY.





REAR VIEW—
IDENTIFYING SURFACES





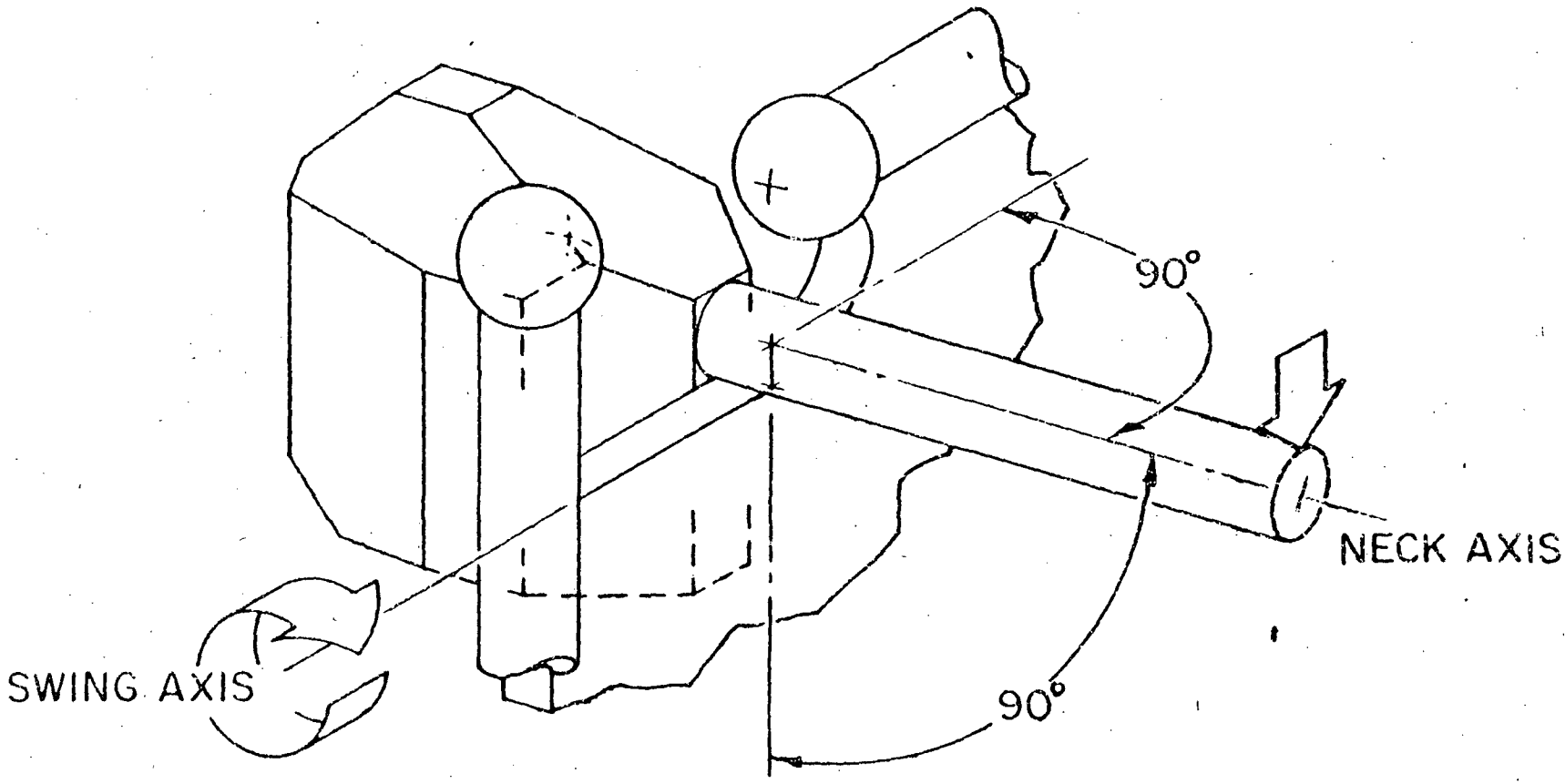


FIG 3

BILLING CODE 6355-01-C

LIST OF DOCUMENTS SUPPORTING THE REGULATION

1. Staff briefing package, including restricted cover memorandum and briefing paper, November 12, 1980. (The Tabs are listed separately as documents below):

2. Tab A HIEH Memorandum "Data for Crib Amendment," with attachments; December 14, 1979; 14 pages.

HIEH Memorandum "Crib Amendment -- Additional Comments," March 26, 1980; 3 pages.

3. Tab B HIEA Memorandum "Update of Data Related to Crib Amendment," October 15, 1980; 2 pages.

HIEA Memorandum "Analysis of Injury Data Associated with Crib Finials and Cornerposts," June 12, 1980; 2 pages.

HIEA Memorandum "Injury Data Update for Crib Headboard Configurations Amendment," January 2, 1980; 1 page.

4. Tab C Albert F. Esch, "Fatal Entrapment of Infants in Crib Headboards II," with attachment; March 12, 1980; 4 pages.

"Health Sciences Review & Recommendations Regarding the Proposed Crib Amendment," February 14, 1980; 7 pages.

5. Tab D ESEM Memorandum "Proposed Amendments to the Crib Regulations," with attachment; March 13, 1980; 4 pages.

6. Tab E HICP Memorandum "Preliminary Economic Assessment of Crib Amendment," February 1, 1980; 7 pages.

HICP Memorandum, "Crib Amendment," March 10, 1980; 2 pages.

HICP Memorandum, "Crib Amendment," April 2, 1980; 1 page.

HICP Memorandum, "Design-Production Cycle for Cribs," october 24, 1980; 2 pages.

7. Tab F CERM Memorandum, "Amendments to the Crib Regulation," January 15, 1980; 1 page.

8. Tab G Draft FEDERAL REGISTER Notice "Proposed Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs; 21 pages.

9. ESEM Memorandum, "ESEM Comments on Headform Probe for Amendment to Crib Regulations," with attachments; January 29, 1980; 8 pages.

10. Memorandum from Jim Hill, "Response to Crib Amendment FR Notice," April 2, 1980; 1 page.

11. Letter from Gulf & Western Industries, Inc.; March 14, 1980; 4 pages (Restricted in part).

12. Notes of telephone conversations between Jacob Handelsman and Joel Cunard; January 15, 1980; 4 pages.

13. Notes of tepehone conversations between Jacob Handelsman and officials of Questor; January 1980; 2 pages.

14. Notes taken by Jacob Handelsman concerning staff investigations of hazardous cribs; January 1980; 7 pages. (Restricted).

15. Notes of conversation between Jacob Handelsman and a Juvenile Product Manufacturers Association official; January 21, 1980; 1 page.

16. Notes of conversation between Jacob Handelsman and an official of Simmons; January 17, 1980; 1 page.

17. Notes of conversation between Jacob Handelsman and an official of Okla Homer Smith; 1 page.

18. Memo of conversation between Jacob Handelsman and an official of Connor Forest Industries; January 11, 1980; 2 pages.

19. Memo of conversation among Jacob Handelsman and two officials of Child Craft; January 18, 1980; 3 pages.

20. Letter from Connor Forest Industries; January 22, 1980; 1 page.

21. Barber, C. R., et al,"Growth of the Skull in Young Children II -- Changes in Head Shape," Journal of Neurology, Neurosurgery and Psychiatry, 10, pp. 54-56, 1956.

22. Boyd, J. D., "Clinical Appraisal of Infant Head Size," American Journal of Diseases of Children, 69, pp. 71-82, 1945.

23. Goldstein, M., "Development of the Head in the Same Individuals," Human Biology, 4, pp. 197-219, 1939.

24. Goldstein, M., "Changes in Dimensions and Form of the Face and Head with Age," American Journal of Physical Anthropology, 22, No. 1, pp. 37-98, 1939.

25. Goodenough, F. L., Development Psychology, Appleton-Century-Crafts, Inc., N.Y., 1962.

26. Meredith, H.V., "Changes in the form of the Head and Face during Childhood," Growth, 24, pp. 215-265, 1960.

27. Snyder, G. R., et al, "Anthropometry of Infants, Children and Youths to Age 18 for Product Safety Design, Final Report," Contract CPSC C-75-0068, May 1977.

28. Snyder, R.G., et al, "Physical Characteristics of Children as Related to Death and Injury for Consumer Product Safety, Final Report," Contract FDA 72-70, May 1975.

29. Snyder, R.G., et al, "Source Data of Infant and Child Measurements, Interim Data 1972," Contract FDA 72-70, Interim Report, Reprinted 1975.

30. Young, J.W., "Selected Facial Measurements of Children for Oxygen Mask Design," Federal Aviation Agency, Office of Aviation Medicine, Oklahoma City, Oklahoma, 1966.

31. Brazelton, T. B., Infants and Mothers Differences in Development, New York; Delta Book, Dell Publication, 1969; portions.

32. Caplan, F. (ed.), The First Twelve Months of Life, The Princeton Center for Infancy and Early Childhood. New York; Grosset and Dunlap, 1973; portions.

33. McGraw, M. B., The Neruomuscular Maturation of the Human Infant, New York; Hafner, 1969; portions.

34. L. Joseph Stone and Joseph Church, Childhood and Adolescence, New York, Random House, 1975; page 82.

35. Eleven in-depth investigation reports on incidents involving crib strangulation; various dates; 162 pages. (Restricted in part.)

36. HS Memorandum, "Additional Data on Crib Headboards," September 19, 1980; 12 pages.

37. HIEA Memorandum, "In-depth Investigations of Crib Related Accidents," with attachments; August 29, 1980; 206 pages. (Restricted in part.)

38. HS Memorandum, "Additional Information for Crib Amendment Project," August 8, 1980; 9 pages.

39. OPM Memorandum, "Additional Information on the Crib Amendment Project," with restricted vote sheet; July 3, 1980; 16 pages.

40. Staff briefing package including cover memorandum, June 17, 1980; 28 pages.

41. Various restricted enforcement documents.

42. Tapes of Commission briefings and meetings.

43. Feldman, K.W., and Simms, Roy J., "Strangulation in Childhood: Epidemiology and Clinical Course," Pediatrics, Vol. 5, No. 6, June, 1980; pages 1079-1085.

44. "Infant Strangulation," Pediatrics, Neonatology Supplement 59, 1977; pages 1043-1045.

45. Dec. 1980 FR notice.

46. Child Craft comment, 1/23/81.

47. JPMA comment, 2/17/81.

48. Okla Homer Smith comment, 2/26/81.

49. Action for Child Product Safety comment, 2/18/81.

50. Cover memo and briefing paper, 7/20/81.

51. April 2, 1981 ~~AED~~ Van Houten memo.

52. May 7, 1981 Preston memo.

53. March 30, 1981 Handelsman memo.

54. May 28, 1981 Handelsman memo.

55. July 27, 1981 ballot vote [no OGC restricted memo?]

56. August 28, 1981 FR notice extending comment period.

[ADD letter soliciting comments from crib mfgr.]

57. Child Craft comment, 9/18/81.

58. JPMA comment, 9/29/81.

59. Questor comment, 9/30/81.

60. October 21, 1981 meeting log.

61. October 29, 1981 letter from Locker.

62. December 7, 1981 letter from Welch to Locker.

63. December 8, 1981 letter from Okla Homer Smith to Locker.

64. December 11, 1981 letter from Child Craft to Locker.

65. December 18, 1981 letter from Simmons to Locker.

66. December 21, 1981 letter from Questor (California) to Locker.

67. October 26, 1981 Miles memo.

68. December 24, 1981 Preston memo. 104

69. Feb. 9, 1982 letter from Pat Higdon Industries to Locker

70. December 14, 1981 letter from Questor [illegible]

71. December 30, 1981 Van Houten memo.

72. February 2, 1982 Miles memo. [use updated memo instead]

73. May 10, 1982 Preston memo.

74. May 18, 1982 Van Houten memo.

75. May 4, 1982 transmittal memo with attached April 1982 Econ. Assessment.

76. June 1982 Esch memo.

77. Briefing paper - July 1982.

78. George Nichols telephone logs

79. Canada's regulation.

80. OGC cover memo (Restricted) - July 1982

81. Vote Sheet

82. Tape of Commission briefing - August 1982

83. Tape of Commission meeting - August 1982

84. Signed vote sheets.

85. Final FR document.

SUMMARY INFORMATION SHEET

Title of Briefing Package:

Final Amendments to the Full-Size and Non-Full-Size Crib Regulations

Issue:

The Commission is considering whether to issue final amendments to the Full-Size and Non-Full Size Crib Regulations to address head entrapment.

Summary:

The Commission currently enforces two baby crib regulations. The safety requirements in each regulation are comparable, but one applies to full-size cribs and the other applies to non-full-size cribs.

On December 16, 1980, the Commission proposed for pubic comment amendments to the regulations. The proposed amendments were intended to address certain entrapment hazards associated with cutout designs in crib end or side panels. The amendments would add to the Commission's mandatory requirements for baby cribs a performance test which simulates the head and neck entrapment hazard pattern. The test incorporated use of a headform probe developed by the staff based on relevant anthropometric data which correspond to the ages of the children at risk.

After considering the comments and reviewing the proposed amendments, the staff suggested several revisions to the test procedures. The Commission approved an additional 30-day comment period on the revised test procedures that began on August 28, 1981. After considering available information and the comments received on the proposals and meeting with industry representatives, the staff believes these amendments will reduce or eliminate the strangulation risk to children resulting from entrapment in cutouts in crib end or side panels for products manufactured after the effective date of the amendments.

Recommendation:

The staff is recommending that the Commission approve the final amendments to the crib regulations.

(WESTWOOD TOWERS)

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Mr. Podar
Office of Information and
Regulatory Affairs
Room 3228
New Executive Office Building
Washington, D.C. 20503

Todd

UNITED STATES GOVERNMENT

Memorandum

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

TO : The Commission
THROUGH: Sadye Dunn, Secretary — ORIGINAL SIGNED BY SADYE DUNN
THROUGH: Martin Howard Katz, General Counsel
THROUGH: Bert G. Simson, Acting Executive Director
THROUGH: Harry I. Cohen, Acting Director, OPM
THROUGH: John F. Liskey, Program Manager, OPM

SEP 01 1982
ORIGINAL SIGNED BY D. STEPHEN LEMBERG

FROM : Terri Rogers, Project Manager, Children's & Recreational Products, Office of Program Management TR

SUBJECT: Follow-up to Commission Briefing on Final Amendments to Crib Regulations

Attached, as requested during this morning's briefing, is a copy of the staff's letter to the Juvenile Products Manufacturers Association concerning crib finials and cornerposts.

Attachment

101

AUG 17 1982

Mr. William L. MacMillan III
Executive Director
Juvenile Products Manufacturers
Association
66 East Main Street
Moorestown, NJ 08057

Dear Mr. MacMillan:

As you are aware, the Commission staff have been concerned for quite some time about reports of infant strangulations due to entanglement with crib finials or cornerposts. As of this date, we are aware of 31 such incidents, 26 of which were fatalities.

Our concern is heightened by the fact that a crib, unlike most other juvenile products, is accepted and marketed as a product in which children can safely be left unattended. Because of this, crib manufacturers have an increased responsibility and obligation to assure that safety is given primary consideration in the design of these products.

For your information, I am enclosing a copy of the staff briefing package on infant strangulations that was discussed with the Commission on May 20, 1982. The package contains a special report on accidental ligature strangulation that includes a discussion of 21 entanglement incidents involving crib cornerposts or finials. As noted earlier, we are now aware of 31 such incidents.

Based on the available injury data, and particularly because these accidents have continued, the Commission staff recommends that crib manufacturers consider discontinuing the use of decorative finials on cribs and limiting the height of cornerposts, excluding canopy models. Although we have not been able to determine exact dimensions of the cribs involved in all of the reported incidents, in those cases for which the information is available, the height of the cornerpost or finial ranged from one inch to six inches. Three other countries that we know of have included height limitations for cornerposts in their requirements for cribs; Canada and Sweden to 1.0 cm and Japan to 1.5 cm.

Our experience has been that JPMA, as well as individual crib manufacturers, share our interest in eliminating potential hazards whenever possible. I am, therefore, requesting your assistance in arranging a meeting between crib manufacturers and members of the Children's and Recreational Products Team in the Commission's Bethesda, Maryland, offices to discuss how to address the entanglement hazard and prevent such deaths in the future.

I look forward to hearing from you concerning our suggestion for a meeting and hope that our cooperative efforts to address this hazard will be as successful as past efforts have been. Either Tuesday, August 31, or Thursday, September 14, 1982, would be convenient for our staff.

Sincerely,

Terri Rogers, Project Manager
Children's and Recreational Products
Office of Program Management

cc: Aaron Locker, Esq.
LOCKER, GREENBERG & BRAININ

bcc: OPM file/chron/reading/central
OPM:TRogers:brn:8/4/82

FR NOTICE- 8-28-81
COMMENTS DUE- 9-28-81

UNITED STATES GOVERNMENT

Memorandum

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

TO : OFFICE OF PROGRAM MANAGEMENT
OFFICE OF THE GENERAL COUNSEL

DATE: 9-28-81

FROM: CATHY RASBERRY, OFFICE OF THE SECRETARY

16 CFR Parts 1508 & 1509

SUBJECT: REFERRAL OF OFFICIAL COMMENTS

Amendments to Requirements for Full-Size & Non-Full Size Baby Cribs; Extension of Comment Period

ATTACHED ARE COMMENTS ON THE CH1-81

PLEASE LOG AND HANDLE AS APPROPRIATE.

Comments By Date Of Receipt

COMMENT	DATE	CORRESPONDENT	SIGNED BY
CH1-81-1	9-18-81	Child Craft Salem, Ind.	W. S. Suvak P.E.
CH1-81-2 2a	9-29-81	Locker, Greenberg & Brainin Attorneys for Juvenile Products Mfg., Assoc.,Inc. New York, N.Y.	Aaron Locker
CH1-81-3	9-30-81	Questor Juvenile Products Co. Ravenna, Ohio	J. P. Koziatek, P.E.

CH1-81-1

child craft

the grown up furniture for children

September 14, 1981

SALEM, INDIANA 47167
Tel. 812/883-3111

Office of the Secretary
U.S. Consumer Product Safety Commission
Washington, D.C. 20207

Re: Proposed revision of Federal Regulation on Baby Cribs.

Gentlemen:

After reviewing the proposed revisions to 16 CFR parts 1508 and 1509, I am very concerned relative to the course being pursued with respect to "Vee" shaped cutouts that are asymmetric with respect to the vertical. This asymmetric "Vee" shape exists on all cribs with posts extending above the top edge of the panel at the point of inter - section of the panel and post extensions.

The revised test procedure as proposed requires that "upon completion of the swing to the upright position, the probe be rocked sideways in a plane parallel to the plane of the crib panel. If the rocking motion causes simultaneous contact by both surfaces "B" or it's edges (in any combination) and the panel, the cutout fails the test."

Applying the defined test probe to a crib end with a very large convex radius (nearly a straight line) on the top rail and a moderate post extension, contact was made on the test probe surface "B", and the edge created by the intersection of surface "B" and "A" as the headform is rocked as proposed. Therefore, this crib would not pass the test.

First, to assume that a child's head, neck and body could assume a position similar to that required for failure of the headform probe does not take into consideration the relationship of the infants body and the crib side which obviously forms an inside corner with the crib end at the post, greatly limiting the position and movement of the child at this location.

You will also note that if the top shape on the crib panel has a concave radius or is a straight horizontal line, rocking the test probe can still result in contact of opposing surfaces and/or edges as described to be necessary for failure. Since the following sentence is included in the proposal - "The rocking motion would not affect the results of a test on a rectangular - shaped cutout that permits passage of the probe when it is swung through a vertical arc" - I assume that it is not

the intent of the Commission to eliminate cribs with a straight horizontal top shape on the end panel with posts extending above the panel as the intersection of the top edge of the panel and the post extension create a right angle as in the "rectangular shaped cut out" referred to. If this assumption is correct, then the commission is saying that a crib with a straight horizontal top panel shape as the panel intersects the post extension is fine (within limits controlled by the vertical arc swing of the probe). Since a straight line can be defined as a curve having infinite radius, as soon as this shape varies from an infinite radius to say a finite redius of 1000 feet, the crib would fail the test even though for no more length of arc then is being considered here we would be hard pressed to distinguish between an arc of infinite radius (or a straight line) and an arc of 1000 foot radius.

The point is that the commission is trying to define a "Vee" shape that is "hazardous" and in so doing the commission is saying that an asymmetric "Vee" with an included angle of 90° is okay, but one with an included angle of 89° is not. Also, no consideration relative to anthropometric parameters has been given with respect to the assembled relationship of the crib end, crib side and the head, neck and body of the child.

It appears to me that much more work needs to be done in this area before a reasonable, workable standard can be published. I question that the headform manipulated in any form will alone be sufficient to define this area.

I feel very strongly that, as proposed, this particular revision would be unnecessarily restrictive and will reduce individual design and eliminate many popular cribs from the market far beyond what may be necessary to eliminate the entrapment hazard.

Sincerely,

W.S. Suvak cd

W.S. Suvak P.E.
Director of Engineering

WSS:cd

5 copies to CPSC
CC to L.Smith, D. Branaman, JPMA, Locker and Greenburg

CH1-81-2Q

LOCKER GREENBERG & BRAININ
ATTORNEYS AT LAW

AARON LOCKER
THEODORE M. GREENBERG
DAVID N. BRAININ
CHRISTOPHER J. CORBETT
FREDERICK B. LOCKER

ONE PENN PLAZA, NEW YORK, N.Y. 10001
(212) 594-7000
TWX 710-581-2884
TELCOPIER (212) 594-7356

October 29, 1981

Secretary
Consumer Product Safety Commission
Washington, D.C. 20207

Re: Proposed Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs; 46 F.R. 43452; 16 C.F.R. 1508.11/ 1509.13

Commissioners:

We represent the Juvenile Product Manufacturers Association, Inc. ("JPMA"). JPMA is a trade association whose members manufacture juvenile products sold and distributed within the United States. A substantial portion of cribs sold in the United States are manufactured by JPMA members. JPMA has taken an active part in this proceeding and filed comments to the Commission's proposals of December 1980 and August 1981. JPMA also initiated a meeting between the Commission's staff and members of the juvenile product industry to discuss problems of interpretation in the most recent proposal. That meeting was held on October 21, 1981. In response to the issues and questions raised at that meeting, JPMA wishes to make these additional comments and recommendations.

1. The proposed rocking test should be withdrawn and replaced with a test utilizing the template for the testing of horizontal or nearly horizontal Vs with angles of less than 65°. JPMA's comments of September 28, 1981, at pages 4 through 7, stated that the proposed rocking test would ban cribs which pose no risk of strangulation caused by entrapment. The comments indicated that if the headform was allowed to slide upon the top rail of the crib while the rocking action was taking place, this could result in the banning of many cribs currently produced which pose no hazard. A review by JPMA of current crib designs indicates that as many as 50% of all cribs currently manufactured could be banned by the application of the proposed rocking test. JPMA attached to its comments examples of five different designs, which clearly pose no risk of entrapment but which would be banned by the operation of the rocking test in this manner.

The rocking test was designed to test for potential entrapment hazards in the V-shaped spaces formed where the headboard intersects with a finial or corner post. Such an intersection forms a V in which one of its sides is horizontal or nearly horizontal. Because the headform remains in a vertical plane during its 90° swing to an upright position, it is alleged that these cutouts are not detected during the initial test with the headform. While JPMA understands the concern of the staff, its review of the entrapment data indicates that horizontal or nearly horizontal Vs present a hazard potential only when they contain a relatively small angle when compared to a more vertical V. JPMA believes that no real hazard exists when the open angle of a horizontal or a nearly horizontal cutout exceeds 65°.

Because angles of more than 65° present no entrapment potential, JPMA requests that the rocking test in sub-paragraph (b)(2) be withdrawn (16 C.F.R. 1508.11/1509.13(b)(2)). Instead of the rocking test, after the application of the test provided by sub-paragraph (b)(1), the headform should be tested utilizing a template which tests for any angles less than 65°. For the purposes of this test the depth of the template would be unimportant.

The use of such template is well supported by the record in this proceeding as well as the factual background from which this proceeding arose. First, as has been noted, cutouts with horizontal or near-horizontal sides pose a lesser threat of entrapment than more traditional cutouts with sides than are more nearly vertical. Vertical cutouts are able to entrap a child by catching both sides of the child's jaw bone. The child's head is more likely to simply roll out of a horizontal cutout, especially where it has an open angle of more than 65°. Also, it is much more difficult for a child to maneuver his head and neck into a horizontal cutout. Horizontal cutouts are often formed by the intersection of the crib's top rail and the crib's cornerpost. The crib's side-rail and wall prevent a child from maneuvering himself so as to somehow jam his head into the corner created by the cornerpost and top rail. To tilt a child's head away from the post would require a child to extend his shoulders and body into the side-wall. This is virtually impossible to do. Finally, a horizontal angle of 65° or more has never been involved with a fatal entrapment incident. The only entrapment incident that JPMA has knowledge of involved a <u>vertical</u> V cutout where the angle of the cutout

was approximately 55°. The 65° test permits an additional 10° of safety margin beyond the intrinsic safety factors present in the horizontal V itself.

The 65° template test, as opposed to the rocking test, would not be over inclusive. A review of cribs currently manufactured, which pose no threat of entrapment to children and have never been involved in an entrapment incident, indicates that such non-hazardous cribs would not fail testing with the 65° template.

For these reasons, the rocking test should be withdrawn and horizontal or nearly horizontal cutouts should be tested with a template which probes for spaces with included angles of less than 65°.

2. The rocking test, as currently proposed, will have a substantial adverse economic impact upon crib manufacturers and, if it is retained, the Commission must re-evaluate the economic impact of the proposal. As was noted in JPMA's comments of September 28, 1981, the Commission's original economic impact study in this matter indicated that the proposed regulations would have little impact upon crib manufacturers (45 F.R. 82660). From the staff's review of industry catalogues, the Commission estimated that only four cribs, industry-wide, would be required to be redesigned (45 F.R. 82660). This view was restated in the latest proposal (46 F.R. 43453).

JPMA testing and review of current crib designs shows that the rocking test, as currently interpreted, would ban a substantial portion of the cribs currently being manufactured although they pose no entrapment hazard. A careful review has indicated that as many as 50% of currently manufactured cribs would be banned by the rocking test in the current proposal.

Obviously, the Commission's economic impact statement is seriously flawed, and does not properly indicate or assess the severe economic consequences of the rule upon crib manufacturers. It should be noted that the Commission's economic impact analysis was arrived at by visually inspecting the various catalogues of crib manufacturers. JPMA's analysis was reached by actually testing currently marketed cribs under the testing procedures of the Commission's newest proposals. Examples of the styles of non-hazardous cribs which would be banned by the Commission's current proposal were attached to JPMA's comments of September 28, 1981.

Court decisions interpreting the FHSA have indicated that the Commission must balance the impact of any regulation upon an industry against the potential for injury that it is designed to alleviate (Forrester v. CPSC, 559 F.2d 774 (CA DC 1977)). The courts have also mandated that the Commission make available during the normal comment period the evidence upon which it bases its economic impact decisions (Agua Slide 'N' Dive v. CPSC, 569 F. 2d 831 (5th Cir. 1978). It is submitted that the flawed and incomplete economic impact observations of the staff cannot form a sound legal basis for supporting a ban of such a large portion of crib manufacturers' current designs. In addition, if the Commission is basing its economic impact analysis upon information not in the record or if it wishes to reanalyize the economic impact based on new information, it must publish such information and allow an appropriate period of time for industry to comment upon it.

JPMA believes that unless the proposed rocking test is withdrawn, the Commission must reanalyze the economic impact of the proposal in light of the massive adverse economic impact the proposal would have upon crib manufacturers, and publish for comment the factual support and conclusions of that analysis.

Very truly yours,

Aaron Locker

AL/mk

CH1-81-2

LOCKER & GREENBERG
ATTORNEYS AT LAW

AARON LOCKER
THEODORE M. GREENBERG
GERTRUDE BERELSON
CHRISTOPHER J. CORBETT

ONE PENN PLAZA, NEW YORK, N. Y. 10001
(212) 594-7000
TWX 710-581-2884

September 28, 1981

Office of the Secretary
Consumer Product Safety Commission
Washington, D.C. 20207

Re: Requirements for Full-Size and Non-Full Size Baby Cribs
46 F.R. 43452; 16 C.F.R. 1508.11/1509.13

Dear Sir or Madam:

Enclosed are an original and five copies of our comments in this matter.

Please note that these comments were sent to the Commission via telecopier on September 28, 1981.

Very truly yours,

Aaron Locker

AL:lg

Enclosures

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CH1-81-2

UNITED STATES OF AMERICA

BEFORE THE

CONSUMER PRODUCT SAFETY COMMISSION

In the Matter of
Requirements for Full-Size and Non-Full-Size Baby Cribs
46 F.R. 43452; 16 C.F.R. 1508.11/1509.13

COMMENTS

by

JUVENILE PRODUCTS MANUFACTURERS ASSOCIATION, INC.

SEPTEMBER 28, 1981

We represent the Juvenile Products Manufacturers Association, Inc. ("JPMA"). JPMA is a trade association whose members manufacture juvenile products sold and distributed within the United States. The Association is acknowledged to be a spokesman for juvenile products manufacturers before federal, state and local governmental agencies. JPMA members account for a substantial portion of the full-size and non-full-size baby cribs manufactured within the United States.

JPMA submits the following comments in response to the proposed amendments to requirements for full-size and non-full-size baby cribs:

1. The proposed regulations, as modified, are still over-inclusive, and would ban cribs which pose no risk of strangulation caused by entrapment. As originally proposed, the regulations would have banned headboards which only contacted one point on the headform during the form's swing through a 90° arc. JPMA noted in its comments to the original proposal that such requirements would ban any crib with a simple straight horizontal top rail and a post over 2 1/2 inches in length which extends vertically at a 90° angle. In the Supplementary Information which accompanies the new proposal, the Commission indicated that it was not i t s intention to prohibit such design and that a child's head or neck would not become entrapped by such a configuration (46 F.R. 43453).

To rectify this problem, the amended proposal requires

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simultaneous contact with more than one side surface or side edge on opposing sides of the headform (Section 1508.11[c][1]). However, a single contact with any of the rear surfaces "D" results in a failure. (As is noted more fully in No.3 below, the regulation seems to prohibit a single contact with any edge adjacent to surface "D" in addition to a single contact with surface "D" (1508.11[b][1]).

Extensive testing of headboards utilizing the proposed procedures and conducted upon many different headboard designs shows that the proposal would ban many cribs which present no risk of strangulation caused by head entrapment. For example, a round knob on top, having a diameter greater than the corner-post itself, may come in contact with the headform on either the left or right sides of the lowest surface "D". This would cause the crib to be banned. Headboards with small cutouts, which pose no chance of entrapment, would similarly be banned. In addition, and as is more fully explained below in No.3, an edge adjacent to surface "D" will come into contact with the vertical post of a headboard with many designs that pose no risk of strangulation to children. The test procedures indicate that a single contact with an edge adjacent to surface "D" results in the headboard being banned (1508.11[b][1]).

The headboards that would be banned under the proposal because of one point contact with either side of the lowest surface "D" do not pose a risk of entrapment to children.

JPMA has conducted headform tests on many crib models currently marketed. Many of them failed because of a contact with a side of bottom surface "D" close to the edge of "D". Attached as Exhibits "A" and "B" are examples of the types of headboards that are subject to failure because of a single "D" contact. (The models of these cribs that were tested did not have a canopy, but instead had a corner-post with a small sphere or other shape in their designs which caused the posts to have varying diameters). As can be plainly seen, this type of headboard poses no risk of entrapment. A child coming into contact with such a cutout would simply fall out.

The proposed headform regulations were planned to deal with a scenario where a child places his neck within an opening through which his head cannot slide, and then, losing support, strangles while suspended within the headboard's cutout (45 F.R. 82659, 82660). Many headboards which present no risk of entrapment would be banned under the proposal because of a single surface "D" contact.

To eliminate the condition, JPMA recommends that Figure 2 - Headform Probe - be modified so as to further subdivide the bottom surface "D" and create two new surfaces "C" (see attached Figure). The two new surfaces "C" would be located on the left and right side of the present lower surface "D", near the edges of "D". Under this proposal, a single contact with either of these surfaces would not result in failure. Failure would

occur only upon contact with one of these "C" surfaces, and simultaneous contact with one of the other indicated surfaces or edges on an opposing side. A single contact with any remaining portion of surface "D" would still be a failure. Under the JPMA-proposed regulation, a single contact directly behind the head, but not on the far left or right portion of the back of the head, would result in a ban. Headboards contacting the left or right side of the back of the headform should not fail because a real child's head and neck contacting those portions of the headboard would simply slip out without any entrapment potential.

The proposed configuration of the headform poses an additional problem. Certain cribs with no finials or cut-outs in their head or footboards have small indentations where their side panels meet their headboards. The indentations are small and pose no risk of entrapment to children. Nevertheless, they may be subject to banning because of simultaneous contact with the very bottom of surfaces "B". Attached as Exhibit "F" is an example of such a crib. The headform's dimensions should be modified to allow for such non-hazardous designs.

2. <u>The proposal's "rocking test" is vague and would ban cribs which pose no risk of strangulation caused by entrapment.</u> Subparagraphs 1508.11/1509.13 (b)(2) provide for

a rocking test which is to be done after the headform has swung through its 90° arc into an upright position. As proposed, the rocking test is vague, and does not clearly set forth the method by which it is to be performed. Subparagraph (b)(2) states:

> "Upon completion of the swing to the upright position, the headform may be rocked from side to side parallel to the plane of the panel while maintaining contact between 'A' or an edge 'AB' and the panel. The maximum angle through which the headform is rocked shall be determined by contact with the panel by the surface or edge other than 'A' or 'AB' or until one of the surfaces 'B' is in a vertical plane."

The proposal states that the rocking test "may" be performed. This indicates that this particular test is optional and need not be performed by the individual testing the headboard. It is doubtful that making this procedure optional was the intent of the Commission.

The proposal does not indicate whether the headform should be allowed to slide upon the top rail of the crib while the rocking action is taking place. While rocking the headform away from a crib corner-post and keeping contact with an edge "AB" or surface "A", the headform will naturally tend to slide. If it is intended that the headform slide during this procedure, it is unclear in which direction the headform is to be rocked. The headform may either be rocked away from the crib's corner post or towards the crib's corner-post. If the headform is not intended to slide along the top rail, it is very difficult to insure the objectivity of the test. Because

the surface materials used on top rails are slippery, it would be very hard to insure that there would be no slippage between an edge "AB" while rocking the headform. Any such slippage would taint the objectivity of the test, and affect the result.

Moreover, if the headform is allowed to slide from side to side while undergoing a rocking test, many headboards will fail the test although they pose no risk of entrapment for children. If the headform were to be slid along the top rail and towards the corner-post while it was being rocked away from the post, a headboard with a very small concave curve meeting the corner-post as an asymmetrical "V" would cause the contact between the very bottom of side "B" and the top rail and also with the other side "B" and the post.

Tests have also shown that a crib headboard with a convex shape which forms an angle of 75 1/2° or less with the vertical corner-post (as measured from the tangent of the curve where it meets the corner-post) would fail after the rocking test is performed. Such a headboard would have a convex curve with a radius of up to 47.5 inches, and in such a headboard the top rail's highest point would be less than 2 inches higher than the point at which it intersects with the corner-post. This type of headboard poses no threat of entrapment for children. The top rail of the headboard would be nearly flat and a child coming into contact with such an angle would simply fall free. Other types of headboards posing no risk of entrapment would also be banned by the proposed rocking test. Exhibits "A", "B", "C", "D" and "E" contain examples of the types of cribs that would be banned under the proposed rocking test. In each case, a child would fall free if he came into contact with any of the surfaces on these cribs.

In addition, it is unlikely that a child could maneuver its head so as to tilt it away from the crib's corner-post and somehow jam it into the corner created by a vertical corner-post and a horizontal or near horizontal top rail. The crib's side rail and wall would prevent a child from maneuvering himself into such a position. To tilt a child's head away from the post would require a child to extend his shoulders and body into the side wall. This would be virtually impossible. Thus, by allowing the headform to slide during the rocking test, many cribs will be banned which pose no hazard to children.

To eliminate these problems, JPMA suggests that the Commission withdraw the proposed rocking test. In the alternative, the test should specify that the headform should not be allowed to slide along the crib's top rail while it is being rocked.

3. Under the proposed regulations, it is unclear whether a single contact of an edge adjacent to surface "D" constitutes a failure. Subparagraphs 1508.11/1509.13(b)(1) provide in part:

> "If, during the swing to the upright position, a surface, other than surface "D" or edge adjacent to the surface "D" is contacted, sideways motion of the headform should not be restrained."

This statement indicates that if either a surface "D" or edge adjacent to surface "D" is contacted, no further testing is necessary. This indicates that a single contact with an edge adjacent to surface "D" constitutes a failure and thus no further testing of the headboard is required. Subparagraph (b)(2) provides that the only single contact which is a failure is a

contact with "any of surfaces "D"". These two provisions appear to be in conflict, and it is unclear under the regulation whether or not a single contact with an edge adjacent to surface "D" constitutes a failure. This provision should be clarified to show clearly that one contact with an edge adjacent to surface "D" does not constitute a failure. JPMA suggests the following language be inserted in place of the last paragraph in subparagraph (b)(1):

> "If, during the swing to an upright position an edge or surface, other than surface "D", is contacted, sideways motion of the headform shall not be restrained."

Any single contact with an edge of the headform should not result in a failure, and testing should be continued with the sideways motion of the headform unrestrained.

4. <u>The regulations should state that the headform is to remain in a vertical plane while the headform is allowed to move sideways</u>. As was noted above, the last sentence of subparagraph (b)(1) provides for sideways movement of the headform if it makes a non-failing contact during its swing. The sentence does not clearly state how the sideways motion is to be executed. The sentence could be interpreted as allowing the axis of the neck to be rotated or moved out of its vertical plane during the sideways motion. This would cause many cribs which pose no risk of entanglement to be banned.

The sentence should specify that the neck is not to be rotated nor the probe moved from a vertical plane during the sideways motion of the headform.

5. The effective date of the proposed regulation should not be before January 1, 1983. The Commission noted in its original proposal that it was concerned that adequate lead time be given to industry so that they may redesign current model cribs. The Commission noted that the industry commonly designs its next-year models during the summer of the preceding year, and manufactures many of them during the fall of the preceding year. Most crib manufacturers have already completed the design of cribs for their 1982 model year, and have begun producing the same. It would be grossly unfair to promulgate a final regulation with an effective date of before the 1983 model year because the regulations would ban cribs already designed and manufactured. This problem is especially acute because of the problems in the current proposal that we have noted above. JPMA believes that the proposed regulation could be interpreted as to ban many products which are currently marketed by reputable crib manufacturers, and which pose no risk of entrapment to children.

To allow manufacturers to take appropriate steps to modify their designs to comply with any regulation which is finally promulgated, the effective date of the regulation should be January 1, 1983. This will allow manufacturers to complete the summer design process and fall manufacturing process after the final promulgation of the regulations and with full knowledge of their requirements.

6. The regulations, as currently proposed, will have a substantial adverse economic impact upon crib manufacturers. The Commission's original economic impact study indicated that the proposed regulations would have little impact upon crib manufacturers (45 F.R. 82660). From its review of industry catalogues, it estimated that only four cribs, industry-wide, would be required to be redesigned (45 F.R. 82660). This view was reconfirmed in the newest proposal (46 F.R. 43453).

JPMA's testing has shown that the regulations will ban a substantial portion of cribs currently being manufactured, even though they pose no entrapment hazard. Testing performed on one major manufacturer's product line showed that nearly 30% of its line would be banned by the Commission's revised proposal. Comments by other manufacturers indicate that a similar proportion of their products would also be banned.

As noted above, the products banned by the regulation pose no hazard of entrapment to children. Court decisions interpreting the FHSA have indicated that the Commission must balance the impact of any regulation upon industry versus the potential for injury which the regulation is designed to alleviate (Forester v. CPSC, 559 F.2d 774 (CA DC 1977). Considering this, it would be both arbitrary and capricious to promulgate the proposed all-inclusive ban which will have a significant adverse impact on the crib industry while not positively affecting the safety of cribs.

7. The dimensions of the proposed headform probe are not in any way representative of the heads of children which the regulations seek to protect. The Commission's original comments noted that the risk of injury present regarding headboards applies to children between the ages of one and two years. None of the children in question were over the age of two years (45 F.R. 82659 and 82660). However, the Commission's comments also noted that the staff used anthropometric data available for children between the ages of two and three and one-half years of age. The staff utilized the head length, head width and head height dimensions at the 95th percentile level. The memorandum from F. T. Van Houten, which was Exhibit "C" to the Commission's briefing package, noted that:

> "We have utilized 95th percentile data for the age group two-three and one-half years which, in reality, is likely to be the size of a larger three and one-half year old. . ."

In addition, for neck size, the staff utilized a fifth percentile dimension for children between two and three and one-half years, and then extrapolated this dimension, in some unexplained manner, to a one-year old child and further reduced the dimensions of it by 25% to account for the pliability of the neck. None of these extrapolations or reductions was scientifically explained.

The result of this extraordinary extrapolation and design is that the headform probe that is intended to be used has a much larger head size and smaller neck size than any child within the affected age group could have. A simple visual inspection combined with experience with children ages one to two years

indicates that the headform is much larger than an average or even an above average sized one to two-year old infant. To base a banning regulation upon a head size which is admitted to be that of a very large three and one-half year old with a neck size which is extrapolated from the 5th percentile dimension for children between two and three and one-half years old and then further reduced to 25% is unreasonable, arbitrary and capricious.

Many of JPMA's concerns and comments arise from the headform's extraordinary and distorted dimensions. Because the headform is much larger than the children it intends to represent, the tests utilizing it ban many cribs which present no risk of entrapment. In light of this, JPMA requests that the headform probe be redesigned after further study and that any final headform probe be based upon verifiable scientific evidence of reasonable sizes for the heads and necks of children the rule seeks to protect.

8. JPMA has brought to the Commission's attention several substantive defects in the proposed reguirements. In light of this, and to clarify these objections, JPMA requests a meeting with the CPSC's staff.

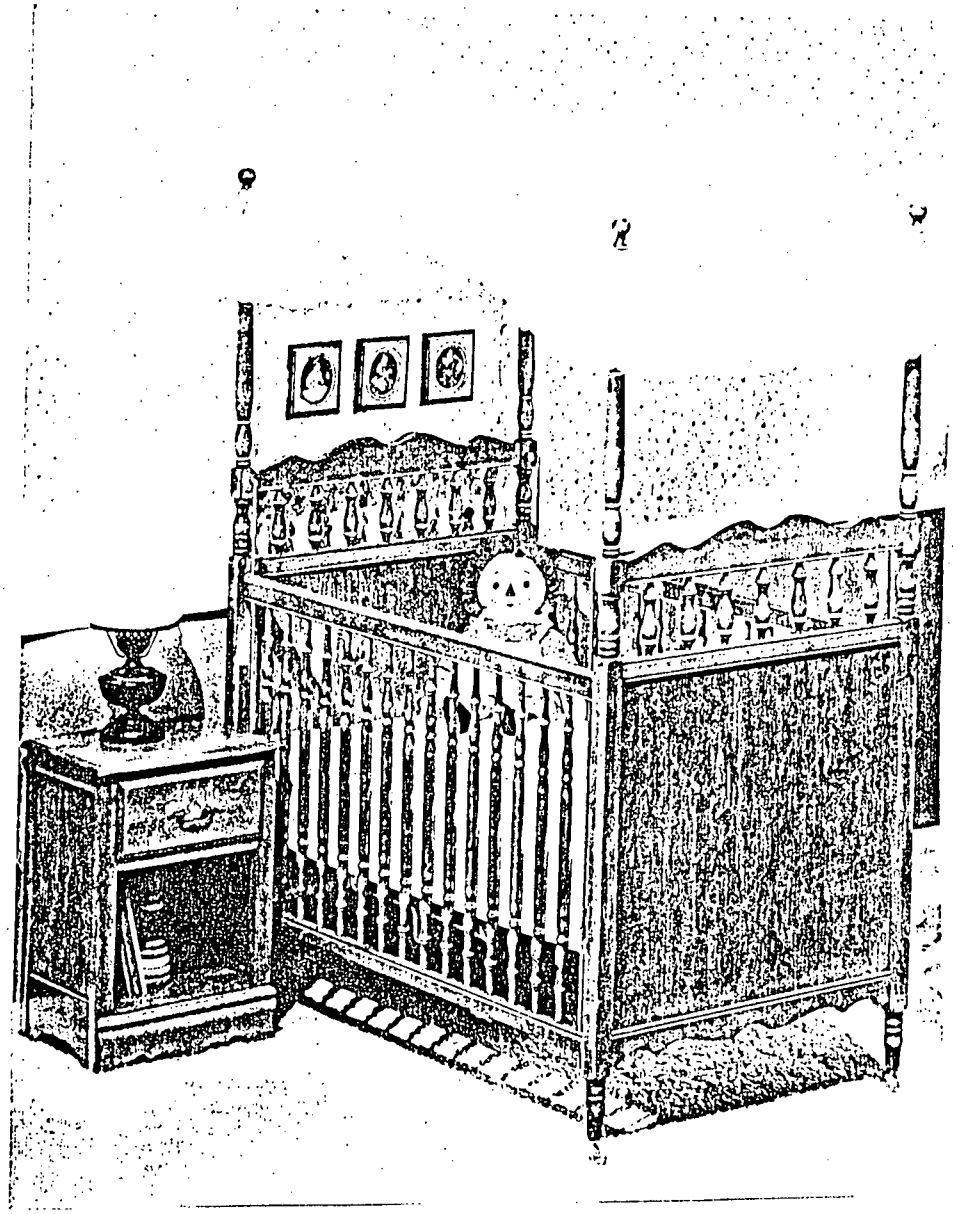
Respectfully submitted,

Dated: New York, New York
September 28, 1981

Aaron Locker
Locker, Greenberg & Brainin
Attorneys for Juvenile Products
Manufacturers Association, Inc.
One Penn Plaza
New York, New York 10001
Telephone: (212) 594-7000

EXHIBIT "A"

EXHIBIT "B"



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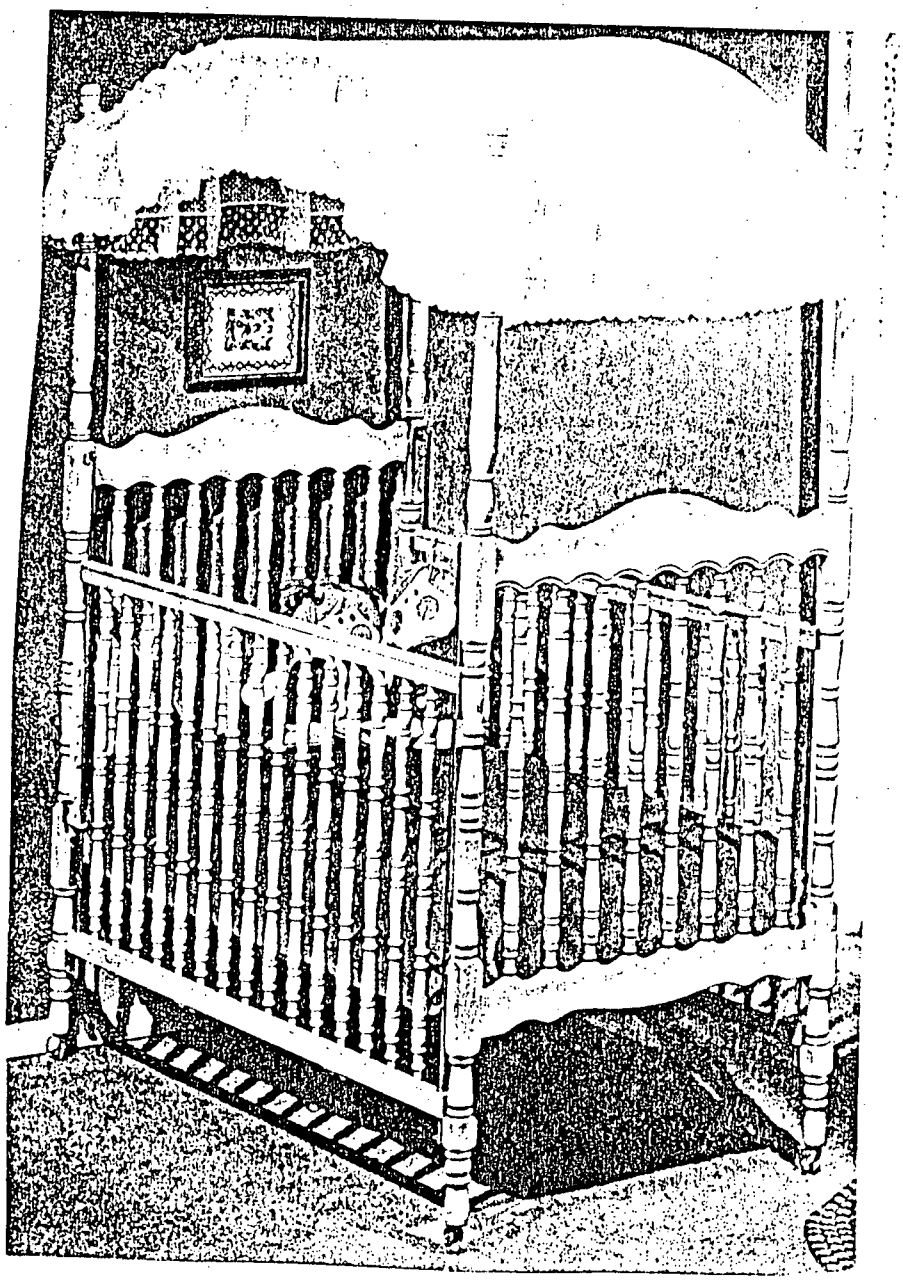

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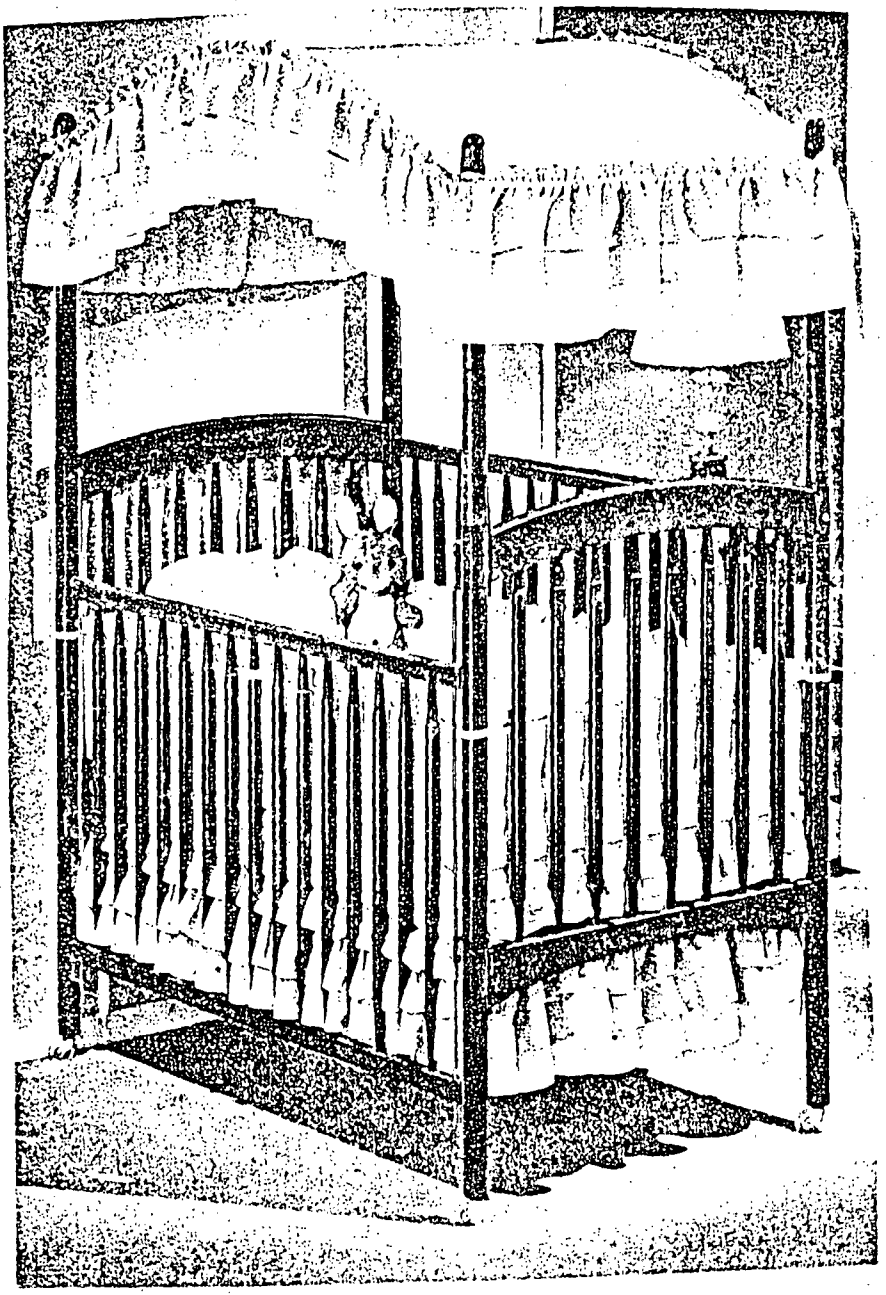

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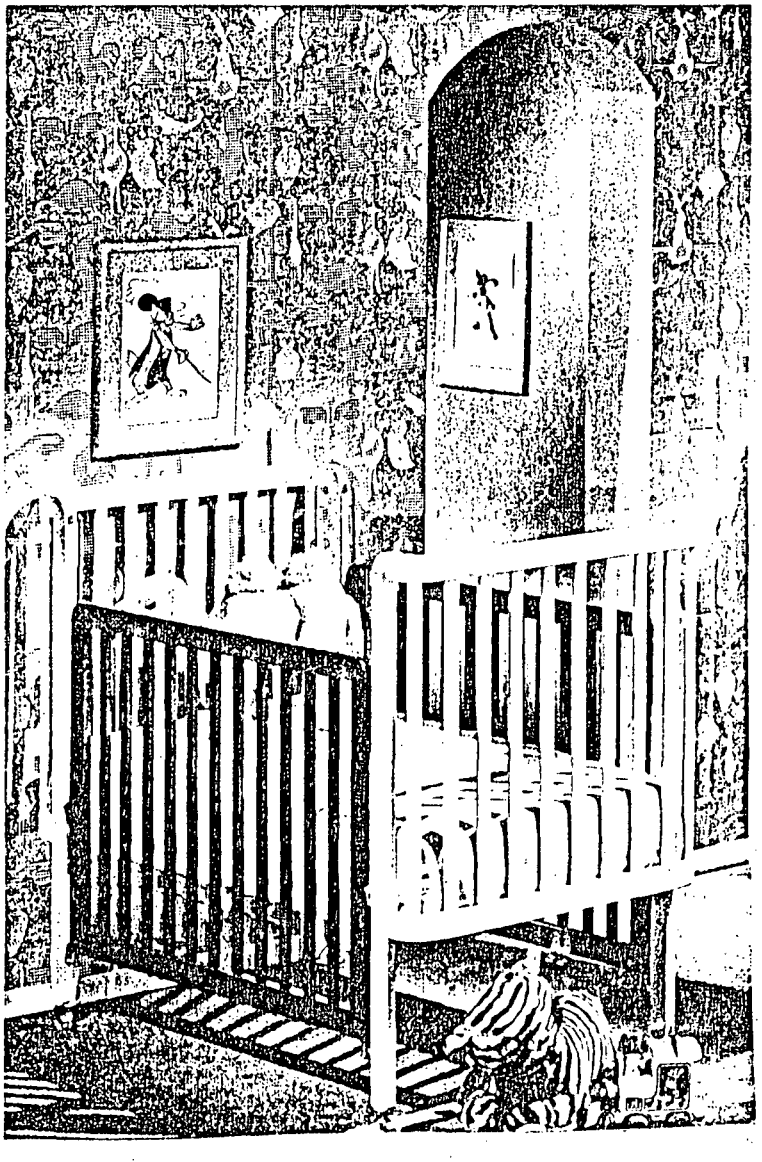
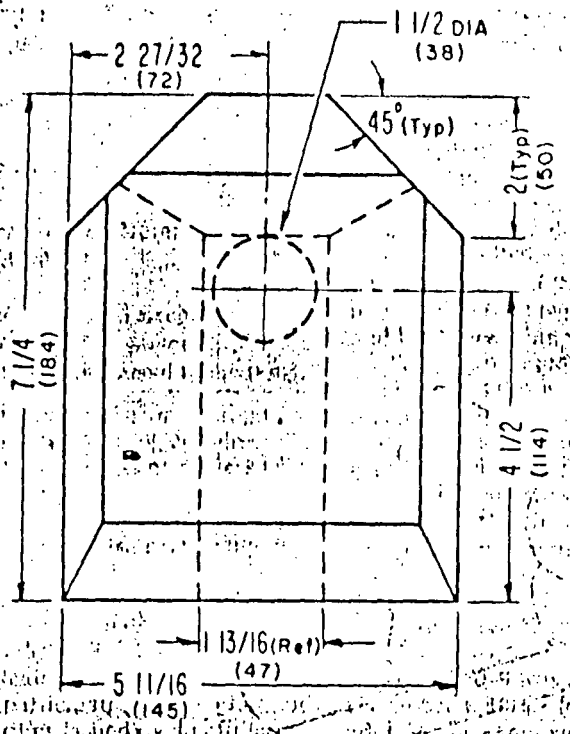
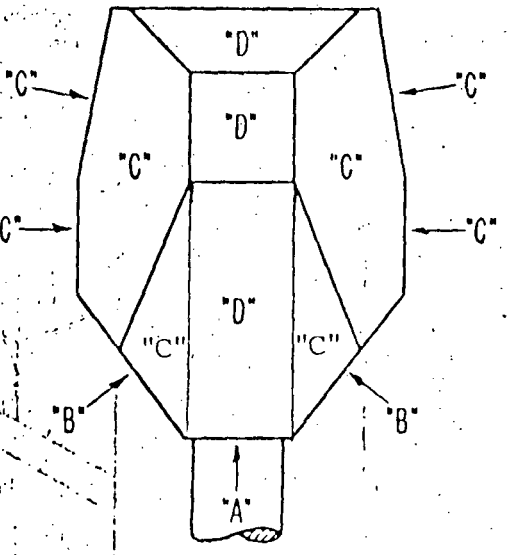


EXHIBIT "F"

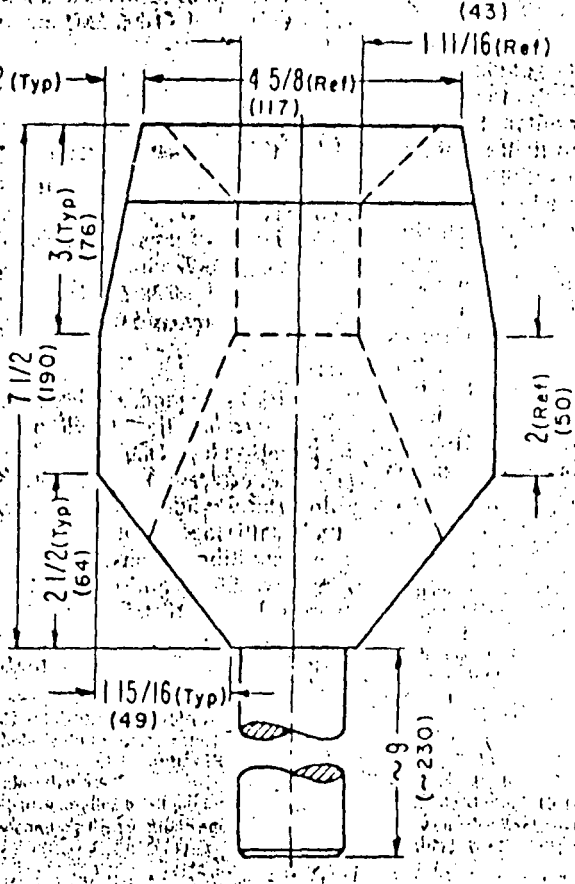
FIG 2—HEADFORM PROBE

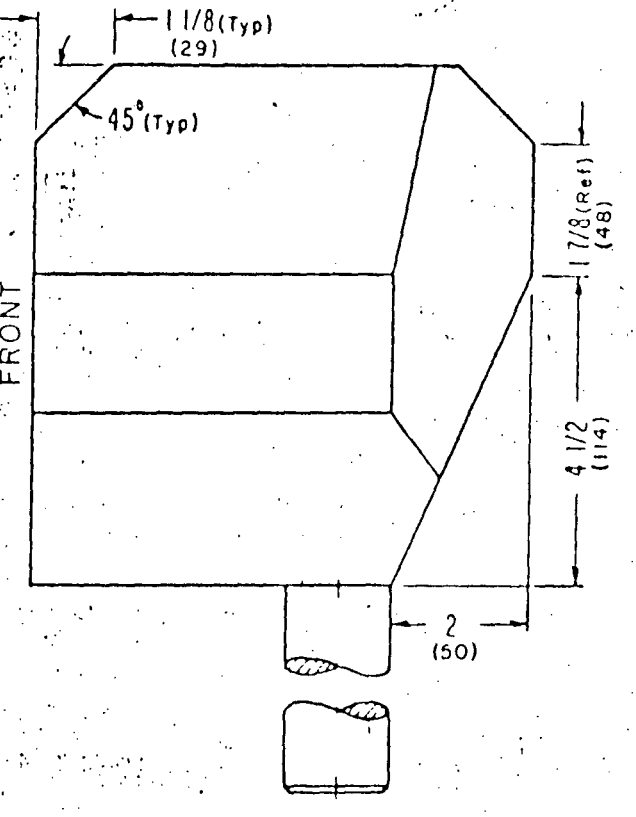
DIMENSIONS ARE SHOWN IN INCHES AND WILL BE USED FOR COMPLIANCE PURPOSES. MILLIMETERS, SHOWN IN PARENTHESIS, ARE FOR CONVENIENCE ONLY.





REAR VIEW—
IDENTIFYING SURFACES





Executive Offices
771 N. Freedom St.
Ravenna, Ohio 44266
216/296-3465

CH1-81-3

QUESTOR

Questor Juvenile Products Company

September 28, 1981

Office of the Secretary
CONSUMER PRODUCT SAFETY COMMISSION
Washington, D.C. 20207

Dear Sir:

Subject: Amendments to Requirements
for Full-Size and Non-Full-Size Baby Cribs

Comments are offered relative to the subject as they appeared in the Federal Register, Vol. 46, No. 167, on Friday, August 28, 1981.

1. Reference is made to description of the partially bounded opening that is located along the upper edges of an end or side of a crib. Location is described as being along the upper edges of an end or side panel. It is suggested that the term "panel" be eliminated as I believe the Commission is concerned with the upper portions of the crib, and this may not be a "panel" as such. Generally speaking, baby cribs are designed such that a top end rail or top end board and top side rail serve as the upper extremity of a crib. Panels, per se, are never left as the upper portions of any crib. It is suggested that the use of the term "panel" may be confusing to those not knowledgeable in the construction and appearance of baby cribs.

2. The purpose of the test procedure described under paragraph (b)(2) is questionable. If the head form has been rotated as described in paragraph (b)(1) and the neck has attained a vertical position, the head form will have cleared any cutout in the crib. Sideways rocking of the head form, as described in paragraph (b)(2) does not appear to offer any useful purpose in determining the possible restriction of the cutout. Furthermore, it is questionable as to whether this test procedure may not, in reality, eliminate certain designs of cribs wherein the corner post extends some distance above the top end of the crib itself. There are crib designs, for example, that incorporate the use of a canopy on the crib. In such designs, the corner post is extended a considerable distance above the top end rail. This configuration of corner post and top rail would generally provide an included angle of ninety degrees (90°),

and it can be envisioned that rocking of the head form at this 90° included angle could, under some circumstances, simultaneously contact opposing surfaces "B" of the head form and yet not be considered an entrapment.

Yours truly,

QUESTOR JUVENILE PRODUCTS COMPANY

J. P. Koziatek

J. P. Koziatek, P.E.
Director, Technical Services

JPK:MG

Court decisions interpreting the FHSA have indicated that the Commission must balance the impact of any regulation upon an industry against the potential for injury that it is designed to alleviate (Forrester v. CPSC, 559 F.2d 774 (CA DC 1977)). The courts have also mandated that the Commission make available during the normal comment period the evidence upon which it bases its economic impact decisions (Agua Slide 'N' Dive v. CPSC, 569 F. 2d 831 (5th Cir. 1978). It is submitted that the flawed and incomplete economic impact observations of the staff cannot form a sound legal basis for supporting a ban of such a large portion of crib manufacturers' current designs. In addition, if the Commission is basing its economic impact analysis upon information not in the record or if it wishes to reanalyize the economic impact based on new information, it must publish such information and allow an appropriate period of time for industry to comment upon it.

JPMA believes that unless the proposed rocking test is withdrawn, the Commission must reanalyze the economic impact of the proposal in light of the massive adverse economic impact the proposal would have upon crib manufacturers, and publish for comment the factual support and conclusions of that analysis.

Very truly yours,

Aaron Locker

AL/mk

was approximately 55°. The 65° test permits an additional 10° of safety margin beyond the intrinsic safety factors present in the horizontal V itself.

The 65° template test, as opposed to the rocking test, would not be over inclusive. A review of cribs currently manufactured, which pose no threat of entrapment to children and have never been involved in an entrapment incident, indicates that such non-hazardous cribs would not fail testing with the 65° template.

For these reasons, the rocking test should be withdrawn and horizontal or nearly horizontal cutouts should be tested with a template which probes for spaces with included angles of less than 65°.

2. The rocking test, as currently proposed, will have a substantial adverse economic impact upon crib manufacturers and, if it is retained, the Commission must re-evaluate the economic impact of the proposal. As was noted in JPMA's comments of September 28, 1981, the Commission's original economic impact study in this matter indicated that the proposed regulations would have little impact upon crib manufacturers (45 F.R. 82660). From the staff's review of industry catalogues, the Commission estimated that only four cribs, industry-wide, would be required to be redesigned (45 F.R. 82660). This view was restated in the latest proposal (46 F.R. 43453).

JPMA testing and review of current crib designs shows that the rocking test, as currently interpreted, would ban a substantial portion of the cribs currently being manufactured although they pose no entrapment hazard. A careful review has indicated that as many as 50% of currently manufactured cribs would be banned by the rocking test in the current proposal.

Obviously, the Commission's economic impact statement is seriously flawed, and does not properly indicate or assess the severe economic consequences of the rule upon crib manufacturers. It should be noted that the Commission's economic impact analysis was arrived at by visually inspecting the various catalogues of crib manufacturers. JPMA's analysis was reached by actually testing currently marketed cribs under the testing procedures of the Commission's newest proposals. Examples of the styles of non-hazardous cribs which would be banned by the Commission's current proposal were attached to JPMA's comments of September 28, 1981.

CH1-81-2a

LOCKER GREENBERG & BRAININ
ATTORNEYS AT LAW

AARON LOCKER
THEODORE M. GREENBERG
DAVID N. BRAININ
CHRISTOPHER J. CORBETT
FREDERICK B. LOCKER

ONE PENN PLAZA, NEW YORK, N.Y. 10001
(212) 594-7000
TWX 710-581-2884
TELCOPIER (212) 594-7356

October 29, 1981

Secretary
Consumer Product Safety Commission
Washington, D.C. 20207

Re: Proposed Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs; 46 F.R. 43452; 16 C.F.R. 1508.11/ 1509.13

Commissioners:

We represent the Juvenile Product Manufacturers Association, Inc. ("JPMA"). JPMA is a trade association whose members manufacture juvenile products sold and distributed within the United States. A substantial portion of cribs sold in the United States are manufactured by JPMA members. JPMA has taken an active part in this proceeding and filed comments to the Commission's proposals of December 1980 and August 1981. JPMA also initiated a meeting between the Commission's staff and members of the juvenile product industry to discuss problems of interpretation in the most recent proposal. That meeting was held on October 21, 1981. In response to the issues and questions raised at that meeting, JPMA wishes to make these additional comments and recommendations.

1. The proposed rocking test should be withdrawn and replaced with a test utilizing the template for the testing of horizontal or nearly horizontal Vs with angles of less than 65°. JPMA's comments of September 28, 1981, at pages 4 through 7, stated that the proposed rocking test would ban cribs which pose no risk of strangulation caused by entrapment. The comments indicated that if the headform was allowed to slide upon the top rail of the crib while the rocking action was taking place, this could result in the banning of many cribs currently produced which pose no hazard. A review by JPMA of current crib designs indicates that as many as 50% of all cribs currently manufactured could be banned by the application of the proposed rocking test. JPMA attached to its comments examples of five different designs, which clearly pose no risk of entrapment but which would be banned by the operation of the rocking test in this manner.

The rocking test was designed to test for potential entrapment hazards in the V-shaped spaces formed where the headboard intersects with a finial or corner post. Such an intersection forms a V in which one of its sides is horizontal or nearly horizontal. Because the headform remains in a vertical plane during its 90° swing to an upright position, it is alleged that these cutouts are not detected during the initial test with the headform. While JPMA understands the concern of the staff, its review of the entrapment data indicates that horizontal or nearly horizontal Vs present a hazard potential only when they contain a relatively small angle when compared to a more vertical V. JPMA believes that no real hazard exists when the open angle of a horizontal or a nearly horizontal cutout exceeds 65°.

Because angles of more than 65° present no entrapment potential, JPMA requests that the rocking test in sub-paragraph (b)(2) be withdrawn (16 C.F.R. 1508.11/1509.13(b)(2)). Instead of the rocking test, after the application of the test provided by sub-paragraph (b)(1), the headform should be tested utilizing a template which tests for any angles less than 65°. For the purposes of this test the depth of the template would be unimportant.

The use of such template is well supported by the record in this proceeding as well as the factual background from which this proceeding arose. First, as has been noted, cutouts with horizontal or near-horizontal sides pose a lesser threat of entrapment than more traditional cutouts with sides than are more nearly vertical. Vertical cutouts are able to entrap a child by catching both sides of the child's jaw bone. The child's head is more likely to simply roll out of a horizontal cutout, especially where it has an open angle of more than 65°. Also, it is much more difficult for a child to maneuver his head and neck into a horizontal cutout. Horizontal cutouts are often formed by the intersection of the crib's top rail and the crib's cornerpost. The crib's side-rail and wall prevent a child from maneuvering himself so as to somehow jam his head into the corner created by the cornerpost and top rail. To tilt a child's head away from the post would require a child to extend his shoulders and body into the side-wall. This is virtually impossible to do. Finally, a horizontal angle of 65° or more has never been involved with a fatal entrapment incident. The only entrapment incident that JPMA has knowledge of involved a <u>vertical</u> V cutout where the angle of the cutout

U.S. CONSUMER PRODUCT SAFETY COMMISSION

WASHINGTON, D.C. 20207

MINUTES OF COMMISSION MEETING
September 2, 1981

Third Floor Hearing Room
1111 - 18th Street, N.W.
Washington, D.C.

The September 2, 1981, meeting of the U.S. Consumer Product Safety Commission was convened in open session by Chairman Nancy Harvey Steorts. Commissioners David Pittle, Edith Sloan, Stuart Statler, and Sam Zagoria were present.

Ballot Vote Decisions. Chairman Steorts read into the record the following decisions made by ballot vote of the Commissioners since the last open meeting of the Commission.

1. Additional Comment Period for Revised Proposed Crib Amendments

By unanimous vote (5-0) the Commission approved a Federal Register document extending for 30 days the period for comment on staff recommended technical revisions to previously proposed amendments to the Commission's crib regulations.

2. Athlone Industries, CPSC Docket No. 80-5: Draft Decision and Order

By unanimous vote (5-0) the Commission denied a motion for an order in the nature of mandamus, denied respondents' request for an oral argument, and approved issuance of the opinion and order.

3. Appeal of Partial Denial of FOIA Request, Appeal of Denial of Waiver of Fees: Bernard Scharf

By a 4-1 vote, the Commission affirmed on appeal the Freedom of Information Officer's withholding of certain requested documents. Commissioner Zagoria affirmed the withholding in part, voting to release certain of the withheld documents. The Commission also voted 5-0 not to waive or reduce the fees assessed for the documents which were released.

CONSUMER PRODUCT SAFETY COMMISSION

16 CFR Parts 1508 and 1509

Amendments to Requirements for Full-Size and Non-Full-Size Baby Cribs; Extension of Comment Period

AGENCY: Consumer Product Safety Commission.

ACTION: Notice of extension of comment period.

SUMMARY: The Commission recently proposed amendments to its requirements for full-size and non-full-size baby cribs to address head and neck entrapment hazards associated with certain design configurations on crib end or side panels. The Commission had specified that comments should be submitted by February 17, 1981. After considering the comments received, the Commission staff concluded that the proposed amendments would need certain technical revisions. The Commission agrees that the technical revisions recommended by the staff are appropriate and has therefore decided to extend the period for receipt of written comments on the revisions until September 28, 1981.

DATE: Written comments limited to the staff recommended revisions to the proposed amendments must be received in the Office of the Secretary no later than September 28, 1981.

ADDRESS: Comments should be mailed (preferably with five copies) to the Office of the Secretary, Consumer Product Safety Commission, Washington, D.C. 20207. Received copies may be seen in the Office of the Secretary, Third Floor, 1111 18th Street, N.W., Washington, D.C. 20207. All material which the Commission has that is relevant to this issue, including any comments that may be received on this issue, may be seen in, or copies obtained from, the Office of the Secretary, Third Floor, 1111 18th Street, N.W., Washington, D.C. 20207 (202) 634–7700.

FOR FURTHER INFORMATION CONTACT: Elaine H. Besson, Office of Program Management, Consumer Product Safety Commission, Washington, D.C. 20207; telephone (301) 492–6453.

SUPPLEMENTARY INFORMATION:

Proposed Amendments.

On December 16, 1980, the Commission proposed for public comment amendments to the requirements for full-size and non-full-size baby cribs to address entrapment hazards presented by certain configurations on the end and side panels of baby cribs (45 FR 82660). The amendments would add to the Commission's mandatory requirements for baby cribs a performance test which simulates the head and neck entrapment hazard pattern associated with certain designs of cribs. The test incorporates use of a headform probe developed by Commission staff based on relevant anthropometric data which correspond to the ages of the children at risk. A more detailed explanation of the background of the development of the headform probe as proposed is provided in the original proposed notice, cited above.

As proposed, the amendments would prohibit cutout designs on crib end or side panels that failed to comply with a performance test. By using a "headform probe" the test simulates the way that a child's head and neck can become entrapped. When the probe is placed in the cutout, it must be free to swing through a vertical arc without interference from any portion of the crib end or side panels.

The proposed amendments described the probe and the way it should be positioned at all times during the test procedure. The probe should be placed with its "neck" resting within the cutout area. The head of the probe should then be pivoted upward and backward, in a

vertical arc. The cutout would fail the proposed test if the head portion of the probe could not freely attain a full upright position. Figure 3 of the proposed amendments schematically described this procedure.

Suggested Changes to Proposed Test Procedure

As originally worded, the proposed requirements identified as a failure: contact with any surfaces or edges other than those surfaces labeled "A" or "B" or the edges of those surfaces when the headform probe is rotated in a vertical arc after being placed in a cutout along the upper edge of a crib end or side panel. Some of the commentors objected to the wording of the requirement as overly restrictive in that it would prohibit may designs which could not be considered as entrapment hazards.

It was clearly not the intention of the proposed requirement and test procedure to prohibit such designs where contact is made with only one side of the headform probe. For example, a horizontal top rail with no cutouts but having a cornerpost extending vertically more than 2½ inches would fail the proposed requirements. A child's head or neck would not become entrapped by such a configuration. The Commission proposes to clarify the language of the requirements so that contact with only one side of the probe does not constitute failure. Single point contact with those surfaces coinciding with the back of a child's head will still be considered a failure. During the test the probe may be moved sideways so that the probe can be rotated to a full vertical position. Any simultaneous contact at 2 or more points on opposite sides of the probe would be considered a failure.

One commentor suggested expanding the identification of the surfaces of the probe and then specifying those combinations of surfaces which, when contacted by the probe during the test procedure, would constitute a failure to meet the requirements. Several sets of surfaces were cited by the commentor as potentially failing combinations.

The Commission has accepted the basic suggestion for additional labeling of surfaces in order to clarify the procedure and requirements. However, to identify all possible "failing" combinations would result in a cumbersome requirement with a lengthy and possibly confusing list of failures. In addition, the commentor's suggestion omitted consideration of possible panel contact with the edges formed by adjacent surfaces of the probe. The Commission proposes to revise the test procedure by identifying additional surfaces and edges of the probe (see revised figure 2 below) and simplifying the commentor's suggested definition of what constitutes failure to comply.

The Commission staff has also noted that, although not specifically addressed in the public comments, the proposed test procedure and requirements need to be revised to prevent the use of certain "vee"-shaped cutouts that could entrap an infant's head and present a risk of strangulation. These cutouts would have been permitted by the language of the proposed amendments.

The proposed amendments would have permitted symmetrical "vee"-shaped cutouts if the angle between the legs of the "vee" were less than the included angle between surfaces of the headform probe designated "B" in proposed figure 2. Such cutouts would allow passage of the probe, but only if the probe were permitted to ride upward on the edges of surfaces "B" as the probe is swung through a vertical arc. This action, however, is not consistent with the premise that gravity alone should be sufficient to allow a child to fall free without becoming entrapped.

The Commission, therefore, plans to revise the requirements in the final rule so that simultaneous contact between *both* surfaces "B" and the panel will not be permitted. Only contact with one surface "B" in addition to surface "A", or at least one of its edges, and the neck will be permitted.

There could also be "vee"-shaped cutouts that are asymmetric with respect to the vertical. Such a configuration would exist on a crib panel with a convex (semicircular) shape on its top edge and a finial, cornerpost or canopy support. Similar designs have been used for crib head and footboards. Depending on the angle formed, these designs could present the entrapment hazard, but would not fail the test if the probe is swung only through a *vertical* arc.

To prevent hazardous asymmetrical "vee"-shaped cutouts, the Commission plans to revise the test procedure to require that upon completion of the swing to the upright position, the probe be rocked sideways in a plane parallel to the plane of the crib panel. If the rocking motion causes simultaneous contact by both surfaces "B" or its edges (in any combination) and the panel, the cutout fails the test. The rocking motion would not affect the results of a test of a rectangular-shaped cutout that permits passage of the probe when it is swung through a vertical arc.

Economic Impact of Revisions to Proposed Amendments

The Commission staff has reviewed the changes in the test procedure to assure that their preliminary assessment of potential economic impact of the crib amendments is still valid. A review of 1980 and 1981 manufacturers' catalogs identified several models which contain an asymmetrical "vee" shape formed by the corner post or canopy support and a convex-shaped end panel. No identified crib models had dimensions that would definitely fail the revised procedure but would have passed the proposed test procedure and requirements. In any case, manufacturers are not precluded from using a "vee"-shaped cutout design as long as it passes the test requirements.

The Commission staff does not believe that the revisions to the proposed amendments explained above will place added burden on crib manufacturers. Rather, the revisions serve to clarify the test procedure and to assure that only potentially hazardous crib cutout designs are prohibited.

It is the opinion of the Commission staff that unless there is some as yet unidentified impact which could cause a major disruption in the design-production process, an effective date six months after the amendments are issued will provide the manufacturers with sufficient time to comply with the requirements.

Request for Comments

Because the issues discussed above resulted from information developed since the original proposal, the public has not had an opportunity to comment on this part of the proposed test procedure. Accordingly, the Commission is providing an additional opportunity for comment on the issues raised by the above discussed revisions. Since information currently available indicates that the economic impact of the revised test procedure will be minimal, the Commission believes that a period of 30 days is sufficient for the public to submit comments on the revisions. If no comments are received, or no substantive issues are raised with respect to the revisions, the Commission intends to publish final amendments to the requirements in accordance with the staff recommended revisions. If the Commission receives substantive technical comments on the revised test procedure, it will analyze the comments and publish a notice in the **Federal Register** explaining any revisions made in response to the comments received. The Commission is particularly interested in receiving comments on the technical changes from persons or groups having special knowledge or expertise as to the subject matter. For

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convenience, the language of the revised proposed test procedure follows:

PART 1508—REQUIREMENTS FOR FULL SIZE BABY CRIBS

PART 1509—REQUIREMENTS FOR NON-FULL SIZE BABY CRIBS

§ 1508.11/1509.13 Requirements for cutouts.

Full-size/Non-full-size baby cribs shall comply with the following test requirement.

(a) Place the neck of head-form probe shown in Figure 2 into any cutout (partially-bounded opening) located along the upper edges of an end or side panel. The axis of the neck shall be horizontal and at right angles to the plane of the panel at the point of contact. The head portion of the probe shall be on the outer side of the panel. With the neck resting on the panel at any point within the cutout area (for compliance purposes, the Commission may test at all points that could result in a failure), and the front of the probe pointing downwards, draw the head of the probe towards the panel until surface "A" makes contact with the outer side of the panel (see Figure 3).

(b)(1) Press down on the neck to cause the head to swing upwards through the cutout in the panel. The probe shall not be rotated about the major axis of the neck during this procedure. The arc through which the head is swung shall be in a vertical plane and shall terminate when the major axis of the neck attains an upright position or is prevented from attaining an upright position by an obstruction. During the test, contact shall be maintained between surface "A" (or at least one of edges "AB"), the neck of the headform probe and the panel. If, during the swing to the upright position, a surface, other than surface "D", or edge adjacent to surface "D" is contacted, sideways motion of the headform shall not be restrained.

(2) Upon completion of the swing to the upright position, the headform may be rocked from side to side parallel to the plane of the panel while maintaining contact between surface "A" or an edge "AB" and the panel. The maximum angle through which the headform is rocked shall be determined by contact with the panel by a surface or edge other than "A" or "AB" or until one of the surfaces "B" is in a vertical plane.

(c) During the test described in paragraph (b) of this section, no portion of the panel shall contact:

(1) Simultaneously, more than one of surfaces "B", "C" or edges "BC", "CC", "CD" or "BD", in any combination if they are on opposing sides of the headform.

(2) Any of surfaces "D".

Note.—Edges are identified by the letter designations for surfaces that lie on either side of the edge.

(Secs. 2(f)(1)(D), (q)(1)(A), (s); 3(e)(1), 74 Stat. 372, 374, 375, 80 Stat. 1304–05, 83 Stat. 187–89; 15 U.S.C. 1261, 1262)

Dated: August 20, 1981.

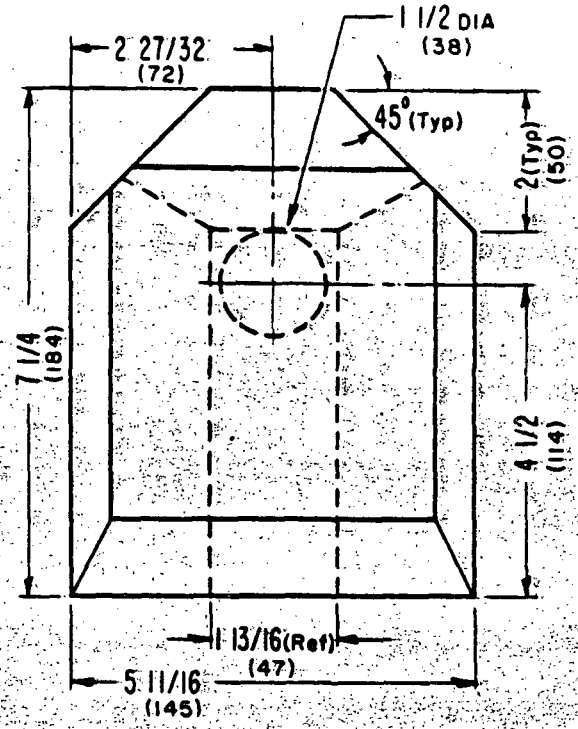
Sadye E. Dunn,

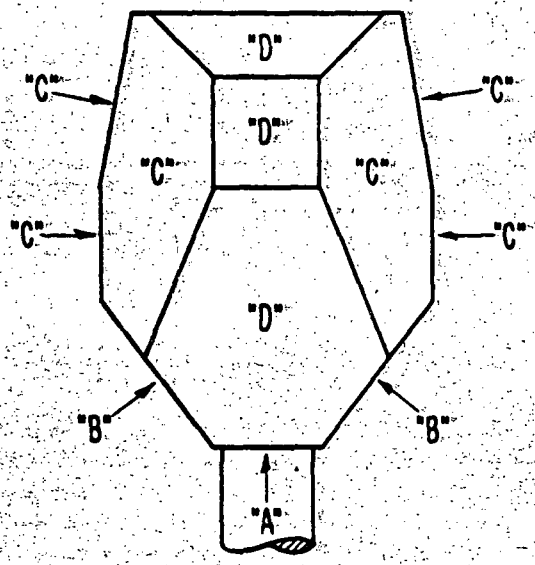
Secretary, Consumer Product Safety Commission.

BILLING CODE 6355-01-M

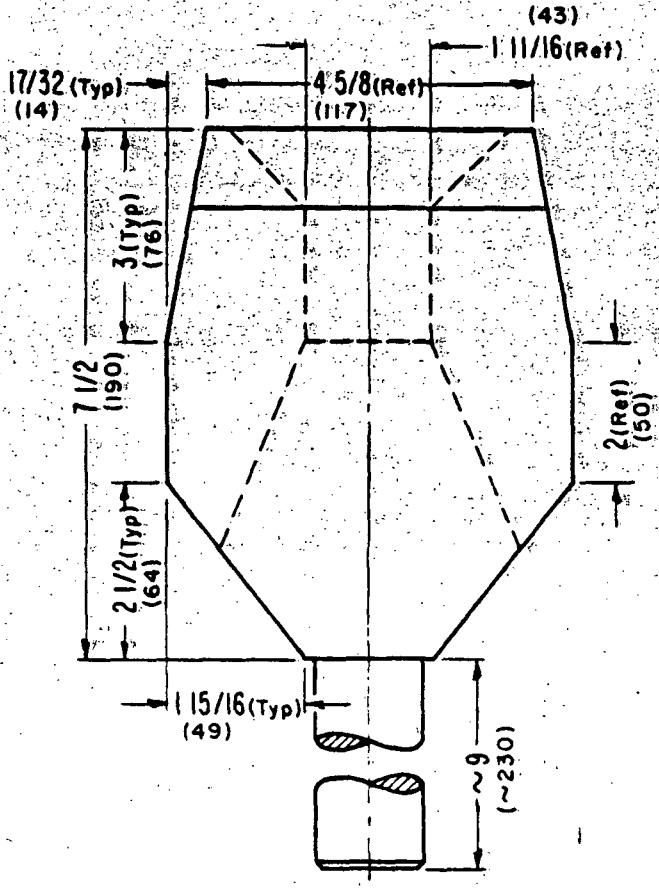
FIG 2—HEADFORM PROBE

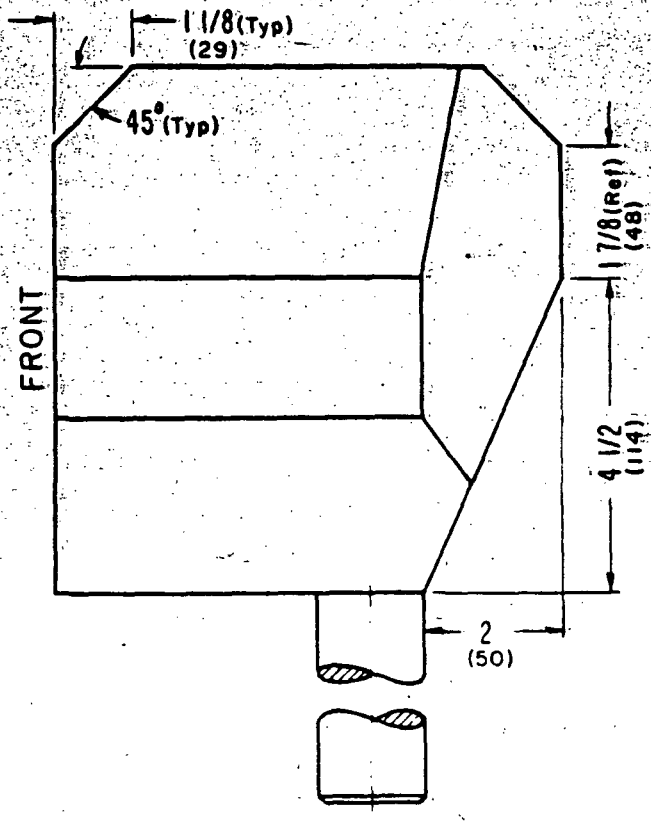
DIMENSIONS ARE SHOWN IN INCHES AND WILL BE USED FOR COMPLIANCE PURPOSES. MILLIMETERS, SHOWN IN PARENTHESIS, ARE FOR CONVENIENCE ONLY.





REAR VIEW—
IDENTIFYING SURFACES





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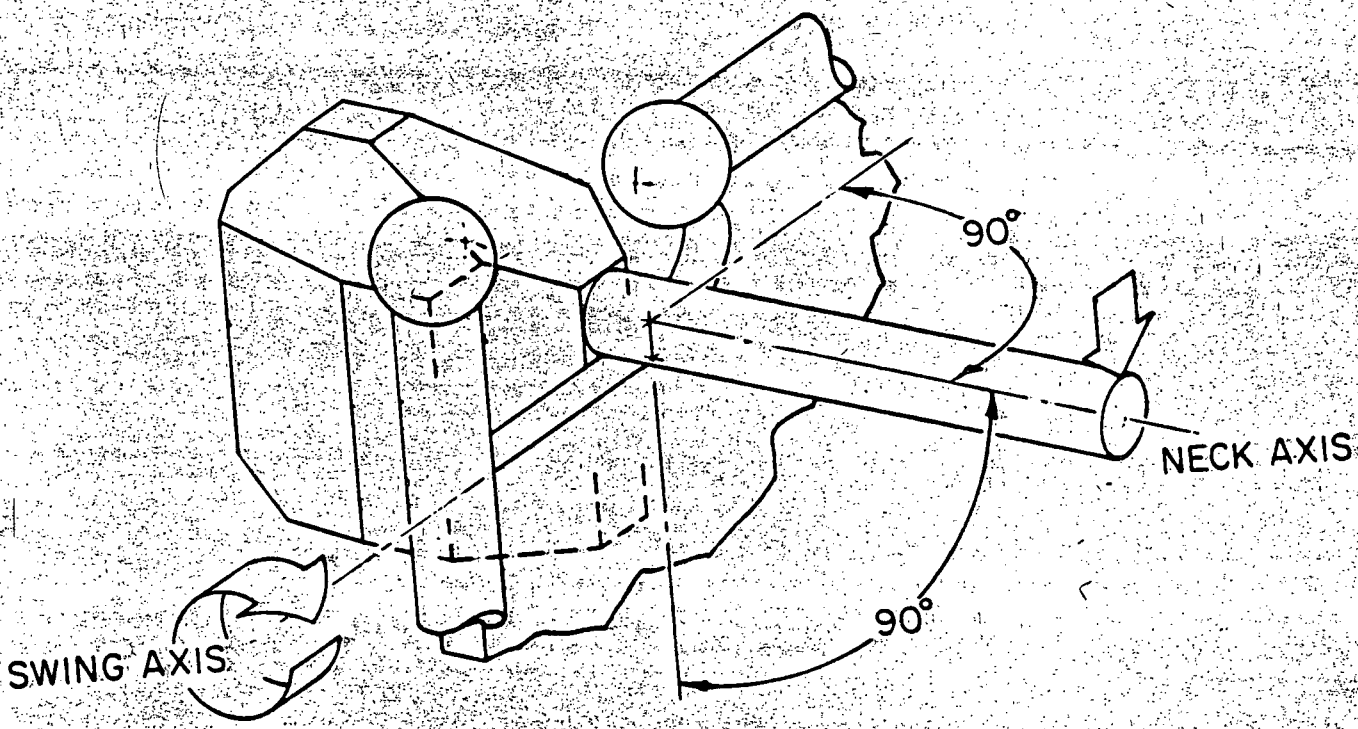

FIG 3

[FR Doc. 81-24898 Filed 8-27-81: 8:45 am]
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