U.S. Consumer Product Safety Commission
LOG OF MEETING

SUBJECT: Meeting with ROHVA

DATE OF MEETING: November 14, 2011

LOG ENTRY SOURCE: Matt Howsare/Dottie Lee

DATE OF LOG ENTRY: November 10, 2011

LOCATION: Hearing room, CPSC Headquarters

CPSC ATTENDEE(S): Chairman Inez Tenenbaum, Commissioner Robert Adler, Matt Howsare, Jason Levine, Jana Fong-Swamidoss, Dottie Lee, Robert Howell, Mark Kumagai, Caroleene Paul

NON-CPSC ATTENDEE(S):
Paul Vitrano - EVP, ROHVA
Kathy Van Kleeck - SVP, Government Relations, ROHVA
Duane Taylor - Director, Federal Affairs, ROHVA
Stacy Bogard - General Counsel, Polaris Industries
Jan Rintamaki - Director, Government Relations, Polaris Industries
Jeff Eyres - Assistant General Counsel, Polaris Industries
Brett Gass - Senior Staff Engineer, Polaris Industries
Aaron Deckard - Senior Project Engineer, Polaris Industries
Erika Jones - Mayer Brown, outside counsel to Polaris Industries
Brad Franklin - Manager, Government Relations, Yamaha Motor Corp., U.S.A.
Brian Gabel - Counsel, Yamaha Motor Corp., U.S.A.
David Murray - Wilkie Farr & Gallagher, outside counsel to Yamaha Motor Corp., U.S.A.
Tyler Furman - R&D Engineer, Kawasaki Motors Mfg. Corp., U.S.A.
SUMMARY OF MEETING: ROHVA members gave a presentation (attached) to Chairman Tenenbaum and Commissioner Adler in which they demonstrated the progress they have made to date in developing the ANSI/ROHVA voluntary standard. A brief discussion followed where the Chairman and Commissioner Adler raised the three general concerns of CPSC’s technical experts about the new ROHVA standard: the rigor of ROHVA’s lateral stability test, the lack of an understeering requirement, and inadequate occupant protection system requirements. The Chairman and Commissioner Adler briefly asked questions of ROHVA members concerning the presentation and the new standard. Chairman Tenenbaum concluded the meeting by recognizing that certain companies in attendance at the meeting manufactured ROVs that far exceeded the requirements of the ROHVA standard and encouraged these companies to continue working through the voluntary standards process to significantly strengthen the ROHVA standard to meet the level of safety that their products already provide and that CPSC staff believe should be attained.
# MEETING ATTENDANCE RECORD

**Date:** ____________  
**Project:** ________________________  
**Location:** _________________________  
**Purpose:** _________________________

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ROHVA Update:
Standards Development and Safety Programs

Presented to
U.S. Consumer Product Safety Commission
Chairman Inez Tenenbaum
November 10, 2011
Recreational Off-Highway Vehicles

- Only Growing Segment: +15% in 2010

- Tens of Thousands of Jobs related to:
  - Manufacturing
  - Retail
  - Tourism

ROHVA Members

ARCTIC CAT®
Kawasaki
POLARIS®
YAMAHA

84% of ROVs Represented by ROHVA
Recently innovations demonstrate need to avoid design restrictive standards.
<table>
<thead>
<tr>
<th>Vehicle Voluntary Standard</th>
<th>Occupant Behavior</th>
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<tr>
<td>✓ 1. Static and Dynamic Stability Performance Requirements</td>
<td>✓ 1. Required Helmet and Seatbelt Use</td>
</tr>
<tr>
<td>✓ 2. Occupant Retention Performance Requirements</td>
<td>✓ 2. Standardized Warning Labels</td>
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<tr>
<td>✓ 3. Restraint Warning System</td>
<td>✓ 3. E-Course Training</td>
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ROHVA Delivered On Commitments To CPSC And Is Continuing Its Work
Vehicle Standards

• ANSI / ROHVA 1-2010 issued in 03/10
  – Created initial benchmark
  – Continued to work to address CPSC comments and concerns

• ANSI / ROHVA 1-2011 issued in 07/11
  – First-ever dynamic stability standard for OHVs
  – Occupant retention construction/performance standards

Rapid, Significant Progress On Standards
CPSC Comments to ANSI/ROHVA 1-2011

- Support for J-turn and opinion favoring understeer on pavement
- SEA report on CPSC sponsored testing
  - Had hoped to have opportunity to discuss methodology and findings directly with SEA
  - Independently analyzed SEA testing

Carr Engineering, Inc.
James E. Walker, Jr., B.S.M.E., P.E.

ROHVA Engaged Carr Engineering to Evaluate SEA Testing and Conclusions
Stability

• Static testing: methods highly repeatable
  - Tilt table (+/- 3% Average; 14% Max.)
  - Center of gravity & SSF / Kst (+/- 2% Average; 5% Max.)

• J-turn: Not repeatable nor reproducible
  - Steering wheel angle @ twl (+/- 14% Average; 63% Max.)
  - Ay lateral acceleration @ twl (+/- 13% Average; 37% Max.)
  - SEA internal variation (~19%)
  - CEI run to run variation (~22%)

Lack of Repeatability Makes J-Turn Inappropriate For Standard
Handling

- Handling (understeer gradient) on pavement:
  - Inappropriate for use as a standard or metric due to lack of correlation to crash risk, crash involvement or off-highway handling

- Handling (understeer gradient) can change/reverse depending on:
  - Surface (off-highway ‘Texas’ dirt)
  - Driveline

- May dictate compromises in vehicle design that can reduce utility and/or crash avoidance capacity

**Understeer On Pavement Not Correlated To Actual Off-Highway Behavior**
CPSC Comments to ANSI/ROHVA 1-2011
Question ANSI/ROHVA Occupant Retention Standards

DESIGN
RESEARCH
ENGINEERING

Chris A. Van Ee, Ph.D., P.E.
Daniel E. Toomey, M.S.E., P.E.

ROHVA Engaged DRE to Evaluate
Occupant Retention Standards
**Occupant Retention System**

- ROPS, Seat Belt and Zone 1 provides effective restraint and protection to helmeted occupants.

- Zones 1, 2 and 3
  - Geometry based on anthropometry of population
  - Strength requirements for zones are reasonable
  - MADYMO simulations show effectiveness of the zone barriers

- Zone 4 – ROPS design and seat belt use are effective in mitigating the potential for head crush injuries to helmeted occupants.

**ANSI/ROHVA ORS Provide Appropriate Retention**
Mandatory Standards Are Not Necessary

- Significant evolution of voluntary standards

- ROHVA has been responsive to CPSC's areas of concern (dynamic stability; occupant retention)

- Chairman: CPSC has "an active partner in addressing safety concerns with" ROHVA members. Mandatory standards necessary if:

  1. Insufficient compliance with voluntary standard ➔ All ROHVA members comply/will comply with ANSI/ROHVA 1-2011

  2. Voluntary standard does not adequately protect consumers from unreasonable risk of death and injury ➔ The data show that vehicles meeting ANSI/ROHVA 1-2011 do not present an unreasonable risk of death and injury

Analyzed Incident Data For True Causes
Relevance of Vehicle Design in Incidents

• In 1989, CPSC conducted a multi-disciplinary qualitative analysis of 162 fatality incidents in order to address crash avoidance issues for ATVs (A. Corley, Analysis of Causative Factors in All-Terrain Vehicle-Related Deaths – 1989 (Jan. 1991))

• Conclusion: Vehicle design (i.e stability, steering/handling) not the primary factor in 94% of the incidents; “overwhelming number” attributed to actions of the operator

• CPSC has not conducted such a multi-disciplinary qualitative analysis of ROV IDIs

ROHVA Commissioned a Similar Multi-disciplinary Qualitative Analysis
Qualitative Analysis of ROV IDls

Carr Engineering, Inc.

Applied Safety and Ergonomics, Inc.

J. Paul Frantz, Ph.D., C.P.S.M., CPE
Applied Safety and Ergonomics
Conclusions from Qualitative Analysis of IDIs

- Portion of ROV incidents that potentially could be addressed by different stability & handling performance requirements is very small
  - 90% of incidents would not have been prevented by different stability & handling performance requirements
  - 10% of IDIs are inconclusive – It is not possible to conclude that different design attributes could have prevented the crash

- ROHVA's work on rules for behavior is addressing the primary risks

Differences Between ROHVA & CPSC Approaches To Stability & Handling Not A Factor In At Least 90% of IDIs
Rules for Behavior

ROV Safety Rules

- Key messages to address hazard patterns
- Regularly promoted by ROHVA and others

NEWS from CPSC

U.S. Consumer Product Safety Commission

Office of Information and Public Affairs

Washington, DC 20207

FOR IMMEDIATE RELEASE
CPSC Recall Hotline: (800) 638-2772
May 27, 2011
CPSC Media Contact: (301) 504-7908
Release #11-233

CPSC Warns Memorial Day Weekend

“... CPSC encourages ROV riders & passengers to follow these guidelines from CPSC and the Recreational Off-highway Vehicle Association (ROHVA) ...”

CPSC Support of ROHVA Safety Rules Important
Education And Training

ROV E-Course

- Over 2,800 enrolled in 2011
- Up 23% from 2010
- Supported by members
- Publicity via enthusiast, trade and government partners

Demand for E-Course Building and Will Drive Hands-On Training
Education And Training

**ROV Hands-On Training**

- Incorporating best practices and leveraging resources from ASI & MSF
- ROV Basic *DriverCourse* and Open Trail Experience Suite – launch in early 2012
- Training available to customers of non-member companies

Recreational and Occupational Users
Excited About ROHVA Training
Next Steps

Continue to Promote Safe and Responsible Use

1. Demand building for ROV E-Course: appreciate more help from CPSC

2. Launch ROV Basic DriverCourse and Open Trail Experience Suite in early 2012

3. Promote education and training with media events (Locations TBD)

Continue Dialogue with CPSC regarding Vehicle Standards

1. Answer questions regarding ROHVA’s work

2. Rely on a fact based approach to safety correlating standards development to real world risk

3. Request open communication with CPSC regarding its positions and the underlying data

ROHVA Is An Active Partner on Safety