

ISO TC22 SC10 WG1 Activity  
on the  
Test Procedure for the Evaluation of  
Injury Risk to the Cervical Spine in a Low  
Speed Rear End Impact

F Bendjellal  
Chair WG1

# ISO TC22 SC10 WG1

## ◆ WG Scope

- Discuss & Develop Test Procedures for Improving Occupant Protection

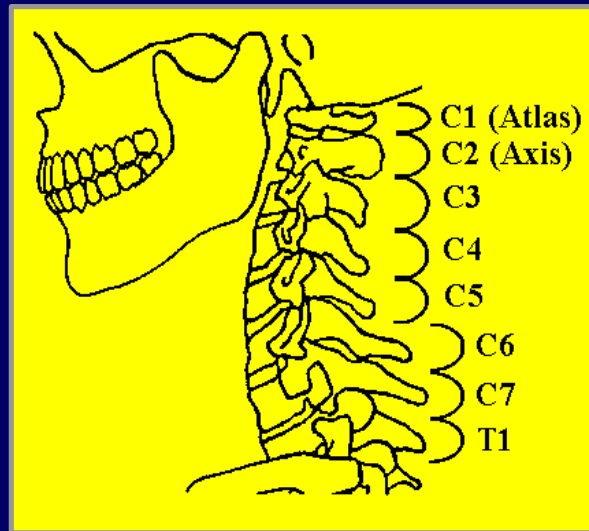
## ◆ Members

- Experts from Europe, Canada, USA and Japan

## ◆ Low-Severity Rear Impact Test procedure Discussion Plan

- Started in 2000
- Nov 2001, working draft discussed
- March 2002, revised committee circulated for ballot
- December 2001, first presentation to GRSP experts
- May 2002, expected to be submitted to each country for ballot

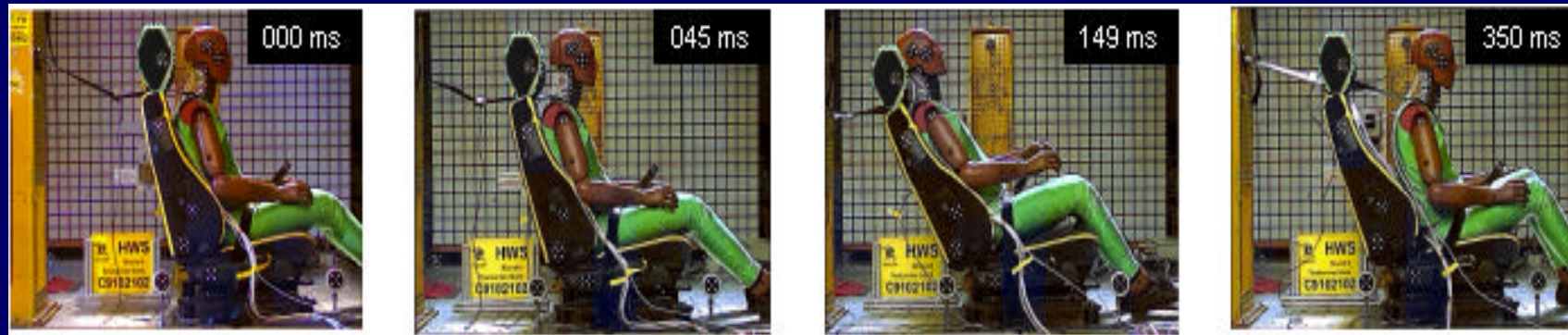
# ISO TC22 SC10 WG1 Test Procedure



## ◆ Background

- Real world situation
  - Low-severity neck injury in rear end low speed collisions
  - Reports of soft tissue neck injuries, commonly referred to as whiplash associated disorder (WAD)

# ISO TC22 SC10 WG1 Test Procedure



## ◆ Background

- Worldwide activity investigating various aspects of soft neck injuries (WAD)
  - Accident analysis
  - Biomechanical investigations to understand the problem
  - Tests involving seats
  - Tests involving anthropometric test devices

# ISO TC22 SC10 WG1 Test Procedure

- ◆ No harmonised test procedure available
  - Different test procedures are being developed
  - Not possible to compare different evaluations of seats

# ISO TC22 SC10 WG1 Test Procedure

## ◆ Scope

- A sled test procedure that simulates a low speed rear end impact resulting in a delta-v of the struck vehicle of 15 km/h.
- Its main purpose is the evaluation of seat/occupant interactions in front seat systems during the loading phase under standard conditions.
- The seat-belt system is not considered a significant factor during the loading phase. Seat-belt use therefore is not required unless it is known to affect the occupant response during the loading phase.

## ◆ Not addressed by the Present ISO Test Procedure

- Dummy choice
- Injury criteria

# ISO TC22 SC10 WG1 Test Procedure

## ◆ Sled Test Procedure

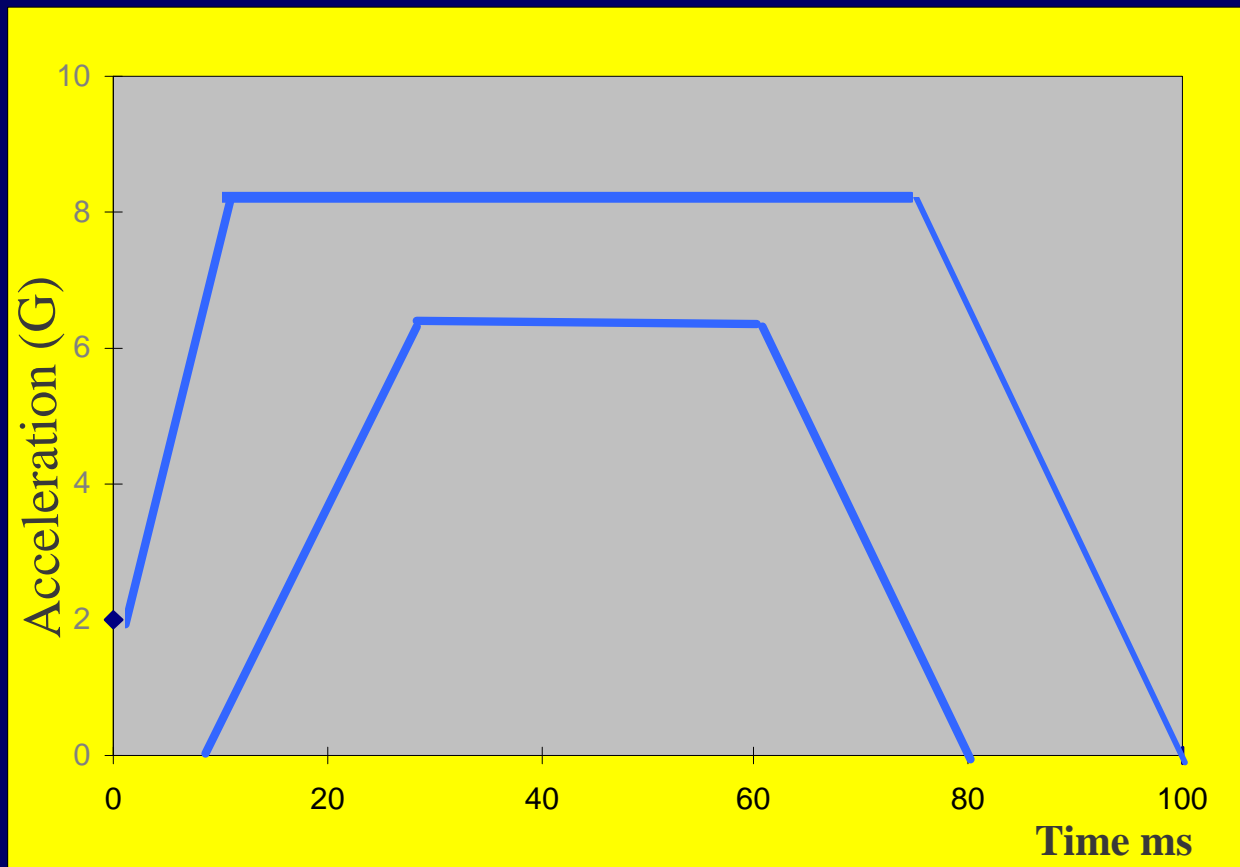
### • Severity

- Delta V 15 km/h, as majority of soft tissue neck injuries (WAD) is reported to occur at or below this level
- A generic crash pulse that is representative of current car-to-car rear end crashes



# ISO TC22 SC10 WG1 Test Procedure

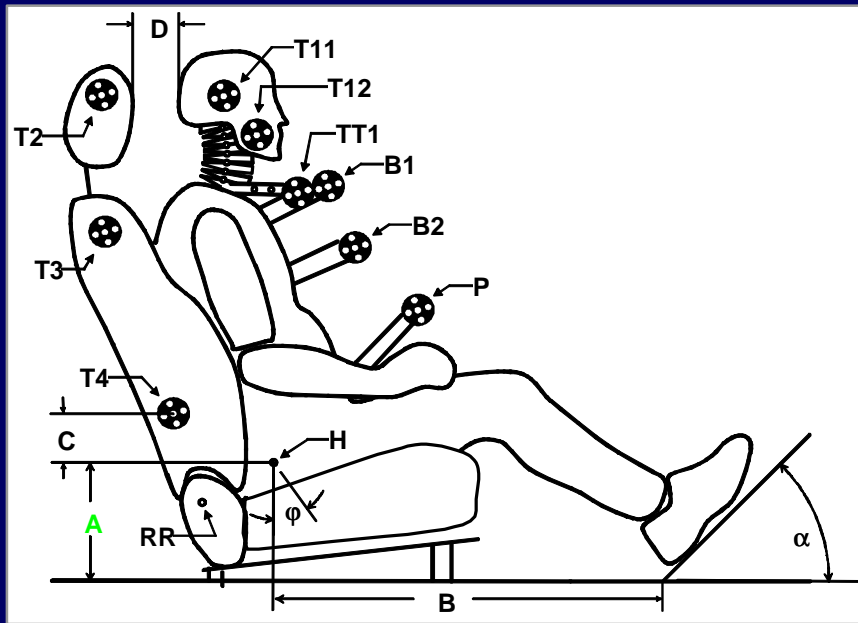
## ◆ Sled Pulse Corridor





# ISO TC22 SC10 WG1 Test Procedure

## ◆ Seat Mounted on Rigid Frame



- Seat H-point determination using SAE H Point Machine
- Seat adjustment (height, longitudinal, seat-back angle...) according to ECE 94

# ISO TC22 SC10 WG1 Test Procedure

## ◆ Measurements

- Sled deceleration/acceleration & velocity using SAE J211 Standard

## ◆ Cameras

- Provision for 2 high speed cameras

## ◆ Remaining Tasks

- Review and circulating out for approval of the draft document by WG members by end of March 2002
- Balloting and approval of CD by SC10 members

# ISO TC22 SC10 WG1 Test Procedure

## An example of a low-severity rear impact test

