

97-GP SERIES

CANCELLATION
March 1971

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Standards
for

AUTOMOTIVE VEHICLE SAFETY

Standards 97-GP-101 to 97-GP-301 inclusive, covering safety features for automotive vehicles, have been cancelled. They have been replaced by the Motor Vehicle Safety Regulations of the Ministry of Transport, which are available from Information Canada.

Publication 97-GP, Guide to Traffic Safety, has also been cancelled.

97-GP-202
24 May 1968
AMENDMENT NO. 1
16 August 1968

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

STANDARD

for

HEAD RESTRAINTS - PASSENGER CARS

6. DEMONSTRATION PROCEDURES

6.2 In Item (c) at the end of the fourth line insert
the word "reference."



CANADA

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

STANDARD

FOR

HEAD RESTRAINTS - PASSENGER CARS

97-GP-202

24 MAY 1968

EFFECTIVE DATE
1 JANUARY 1969

THIS STANDARD SPECIFIES REQUIREMENTS FOR HEAD RESTRAINTS TO REDUCE THE
FREQUENCY AND SEVERITY OF NECK INJURY IN REAR-END AND OTHER COLLISIONS.

DEPARTMENT OF DEFENCE PRODUCTION, OTTAWA, CANADA

15 CENTS

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

STANDARD

for

HEAD RESTRAINTS - PASSENGER CARS

1. PURPOSE AND SCOPE

1.1 This standard specifies requirements for head restraints to reduce the frequency and severity of neck injury in rear-end and other collisions.

2. APPLICABLE PUBLICATIONS

2.1 The following publications are applicable to this standard:

- 2.1.1 Society of Automotive Engineers (SAE)
J826, Manikins for Use in Defining Vehicle Seating
Accommodations, November 1962
Aerospace-Automotive Drawing Standards, September 1963

3. APPLICABILITY

3.1 This standard applies to:
Passenger Cars.

4. DEFINITIONS

4.1 "Head Restraint" means a device that limits rearward angular displacement of the occupant's head relative to his torso line.

4.2 "Designated seating position" means any plan view lateral location intended by the manufacturer to provide seating accommodation for a person at least as large as a 5th percentile adult female, except auxiliary seating accommodations such as temporary or folding jump seats.

4.3 "Seating reference point" means the manufacturer's design reference point which -

- (a) Establishes the rearmost normal design driving or riding position of each designated seating position in a vehicle.

* See Par 5.1

- (b) Has co-ordinates established relative to the designed vehicle structure;
- (c) Simulates the position of the pivot center of the human torso and thigh; and
- (d) Is the reference point employed to position the two dimensional templates described in SAE J826.

4.4 "95th percentile adult male" means a person possessing the dimensions and weight of the 95th percentile adult male specified in Public Health Service Publication No. 1000, Series 11, No. 8, "Weight, Height and Selected Body Dimensions of Adults".

5. DETAIL REQUIREMENTS

5.1 A head restraint that conforms to either (a) or (b) shall be provided at each outboard front designated seating position:

- (a) It shall, when tested in accordance with 6.1, during a forward acceleration of at least 8g on the seat supporting structure, limit rearward angular displacement of the head reference line to 45 degrees from the torso reference line,

or
- (b) It shall, when adjusted to its fully extended design position, conform to each of the following:
 - (1) When measured parallel to torso line, the top of the head restraint shall not be less than 27.5 inches above the seating reference point.
 - (2) When measured 2.5 inches below the top of the head restraint, the lateral width of the head restraint shall be not less than:
 - (i) 10 inches for use with bench-type seats, and
 - (ii) 6.75 inches for use with individual type seats.
 - (3) When tested in accordance with 6.2, the rearmost portion of the head form shall not be displaced to more than 4 inches perpendicularly rearward of the displaced extended torso reference line during the application of the load specified in 6.2, and
 - (4) When tested in accordance with 6.2, the head restraint shall withstand an increasing load until one of the following occurs:
 - (i) failure of the seat or seat back, or
 - (ii) application of a load of 200 pounds.

6. DEMONSTRATION PROCEDURES

6.1 Compliance with 5.1(a) shall be demonstrated in accordance with the following with the head restraint in its fully extended design position:

- (a) On the exterior profile of the head and torso of a dummy having the weight and seated height of a 95th percentile adult male with an approved representation of a human, articulated neck structure, or an approved equivalent test device, establish reference lines by the following method:
 - (1) Position the dummy's back on a horizontal flat surface with the lumbar joints in a straight line.
 - (2) Rotate the head of the dummy rearward until the back of the head contacts the same flat horizontal surface in (1).
 - (3) Position the SAE J826 two-dimensional manikin's back against the flat surface in (1), alongside the dummy with the H-point of the manikin aligned with the H-point of the dummy.
 - (4) Establish the torso-line of the manikin as defined in SAE Aerospace-Automotive Drawing Standards, Sec. 2.3.6, P. E1.01, September 1963.
 - (5) Establish the dummy torso reference line by superimposing the torso line of the manikin on the torso of the dummy.
 - (6) Establish the head reference line by extending the dummy torso reference line onto the head.
- (b) At each designated seating position having a head restraint place the dummy, snugly restrained by a Type 1 seat belt, in the manufacturer's recommended design seated position.
- (c) During a forward acceleration applied to the structure supporting the seat as described below, measure the maximum rearward angular displacement between the dummy torso reference line and the head reference line. When graphically depicted, the magnitude of the acceleration curve shall not be less than that of a half sine wave having the amplitude of 8g and a duration of 80 milliseconds and not more than 20% above the half-sine wave. The half-sine wave is identified by the following formula in which "t" is time:

$$\text{Acceleration (g)} = 8 \sin \frac{\pi}{0.08}$$

6.2 Compliance with 5.1(b) shall be demonstrated in accordance with the following with the head restraint in its fully extended design position:

- (a) Place a test device, having the back pan dimensions and torso line, (centerline of the head room probe in full back position) of the three dimensional SAE J826 manikin, at the manufacturer's recommended design seated position.
- (b) Establish the displaced torso reference line by applying a rearward moment of 3300 in. lb. about the seating reference point to the seat back through the test device back pan located in (a).
- (c) After removing the back pan, using a 6.5-inch diameter spherical head form or a cylindrical head form having a 6.5-inch diameter in plan view and a 6-inch height in profile view, apply, perpendicular to the displaced torso line, a rearward initial load 2.5 inches below the top of the head restraint that will produce a 3300 in. lb. moment about the seating reference point.
- (d) Gradually increase this initial load to 200 lbs. or until the seat or seat back fails, whichever occurs first.

5. NOTES

5.1 The requirements in this standard are identical with those in United States Federal Motor Vehicle Safety Standard No. 202, Head Restraints - Passenger Cars, and changes in that standard will be duly incorporated in CGSB Standard 97-GP-202.

5.2 Certification to US Standard No. 202 applicable at date of manufacture will certify conformance to CGSB Standard 97-GP-202.

5.3 The publications listed in Section 2 are available from the Canadian Government Specifications Board.

5.4 Further related information may be found in the CGSB Guide to Traffic Safety, also available from the Canadian Government Specifications Board.

Correspondence regarding this standard should be addressed to the Canadian Government Specifications Board, c/o Department of Defence Production, Ottawa 4, Ontario.