INTERNATIONAL STANDARD ISO 3958

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Road vehicles — Passenger cars — Driver hand control reach

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3958 was drawn up by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the member bodies in October 1975.

It has been approved by the member bodies of the following countries :

Australia	Iran	Romania
Austria	Italy	South Africa, Rep. of
Belgium	Japan	Spain
Brazil	Korea, Dem. P. Rep. of	Sweden
Bulgaria	Korea, Rep. of	Turkey
Czechoslovakia	Mexico	United Kingdom
France	Netherlands	U.S.A.
Germany	New Zealand	U.S.S.R.
Hungary	Poland	Yugoslavia

No member body expressed disapproval of the document.

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Road vehicles — Passenger cars — Driver hand control reach

0 INTRODUCTION

The hand-reach envelopes described in this International Standard were developed using data acquired from test subjects performing reach tasks in test fixtures simulating a range of actual vehicle configurations[1] [2]. The test subjects included equal numbers of men and women selected to represent the driving population on the basis of standing height and age, and were tested with upper torso three-point restraint (a diagonal non-extending shoulder strap independent of the lap strap).

The envelopes constructed using the safety belt described above are meant to define a restrained reach.

The hand-reach envelopes are three-dimensional surfaces described in tabular form and can be referenced to a particular vehicle seating configuration according to the procedures described in clauses 4 and 5.

1 SCOPE

This International Standard defines the boundaries of road vehicle hand control locations that can be reached by desired proportions of different driver populations.

2 FIELD OF APPLICATION

2.1 This International Standard applies to passenger cars (term 3.1.1 in ISO 3833[1]). It is primarily directed towards the initial design stages of a new vehicle programme. Its application for checking purposes in actual vehicle prototype seat models will take into account the allowable tolerance for the H-point.

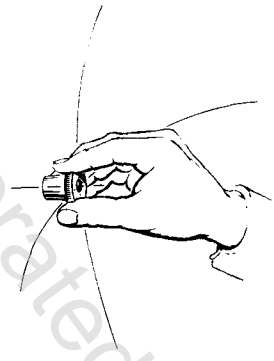
2.2 The hand-reach envelopes are directly applicable to left-hand drive motor vehicles designed for seated operators in full-width or single-width seats having fore-and-aft seat adjustment approximately horizontal. Application to right-hand drive vehicles is assumed to be symmetrically opposite.

2.3 The hand-reach envelopes are directly applicable for a three-finger grasping reach to a forward-mounted control knob of 25 mm diameter manœuvred horizontally in the fore-and-aft direction. For reach to finger-operated controls or for reach to controls grasped by the whole hand, incremental adjustments are required.

3 DEFINITIONS

3.1 driver hand-reach capability : The maximum reach capability of drivers in a simulated driving situation with the non-reaching hand on the steering wheel and the right foot on the accelerator pedal.

3.2 basic reach task : The hand-reach to a forward-mounted control with the control held in a three-finger grasp (see figure 1).



This diagram represents a three-finger grasping reach to a 25 mm (1.0 in) diameter control knob. All measurements for the hand-reach envelope are referenced to the centre of the control knob face.

FIGURE 1 — **Three-finger grasping reach**

3.3 hand-reach envelope : A geometric description of the hand-reach capability for a specified position of a driver population and type of torso-restraint system.

1) ISO 3833, *Road vehicles — Types — Terms and definitions.*