International Standard ISO 6813

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Road vehicles — Collisions — Terminology

Véhicules routiers — Collisions — Terminologie

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Foreword

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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 6813 was developed by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the member bodies in September 1979.

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

Australia	Czechoslovakia	Poland
Austria	Germany, F. R.	Romania
Belgium	Italy	South Africa, Rep. of
Brazil	Japan	Spain
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Chile	Mexico	USA
China	Netherlands	USSR

The member body of the following country expressed disapproval of the document on technical grounds :

United Kingdom

Printed in Switzerland

Road vehicles — Collisions — Terminology

1 Scope and field of application

This International Standard establishes the terminology relating to road vehicle collisions in either actual accidents or laboratory tests.

It is applicable to all types of collision except when the direction of the vehicle does not correspond to one of its main planes (for example collision of two skidding vehicles with a transverse component).

2 References

ISO 4130, *Road vehicles — Three-dimensional reference system and fiducial marks — Definitions.*

ISO 3984, *Road vehicles — Passenger cars — Moving barrier rear collision test method.*

3 Definitions

3.1 accident : Sudden, unpredicted event which adversely affects the state of a vehicle and/or its occupants. (See figure 1.)

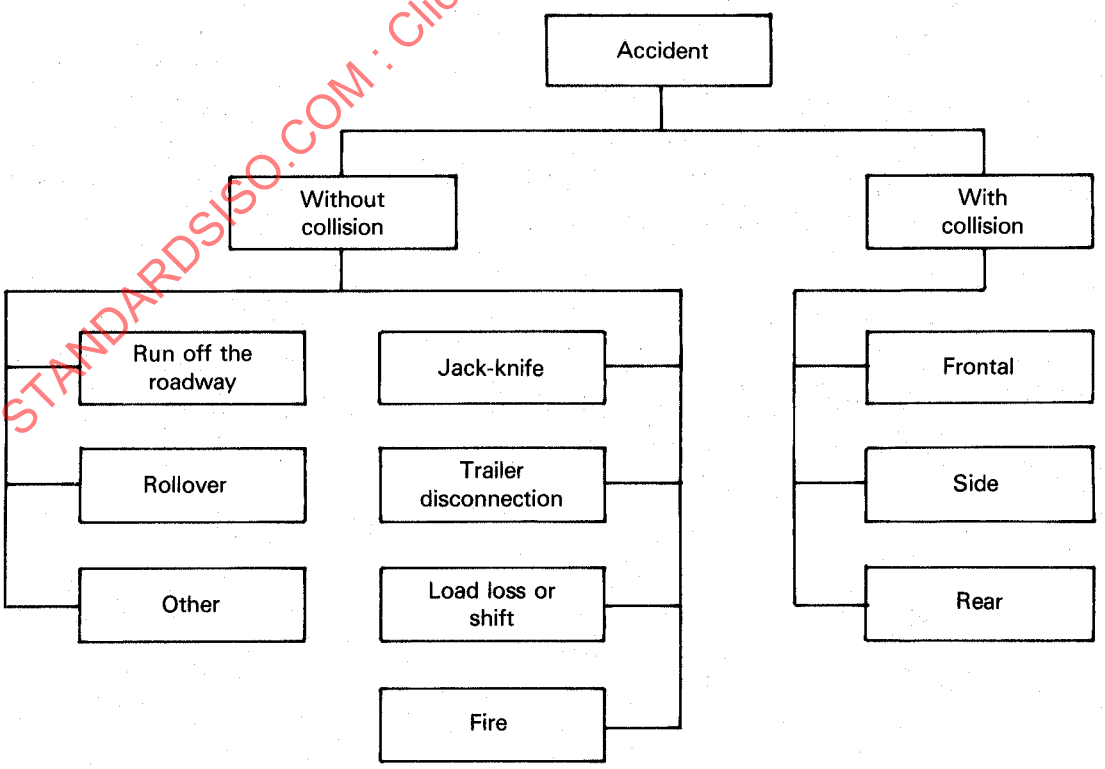


Figure 1

3.2 collision : Accident in which a vehicle strikes another vehicle or an obstacle, with ensuing damage to one or both. It is characterized by the following factors :

— collision type;

— object struck;

— collision direction;

— axis alignment;

— closing speed, $V_1 \pm V_2$.

(See figures 2 and 5.)

3.2.1 frontal collision

— between two vehicles : both vehicles undergo a frontal impact

— between a vehicle and a fixed obstacle : the vehicle undergoes a frontal impact.

[See figure 2 a).]

3.2.2 side collision between two vehicles : One vehicle undergoes a side impact, the other a frontal impact. [See figure 2 b).]

3.2.3 rear collision

— between two vehicles : one vehicle undergoes a rear impact, the other a frontal impact;

— between a vehicle and a fixed obstacle : the vehicle undergoes a rear impact. [See figure 2 c).]

3.2.4 collision direction : A collision may be longitudinal or angled (see figure 3).

3.2.5 collision angle between two vehicles : The collision angle is measured between the two vertical planes, each being the vertical longitudinal zero plane[1], of a vehicle. The angle shall be measured between 0 and 180°, (left or right) with a front collision identified as 0° and a rear collision as 180° (see figure 4).

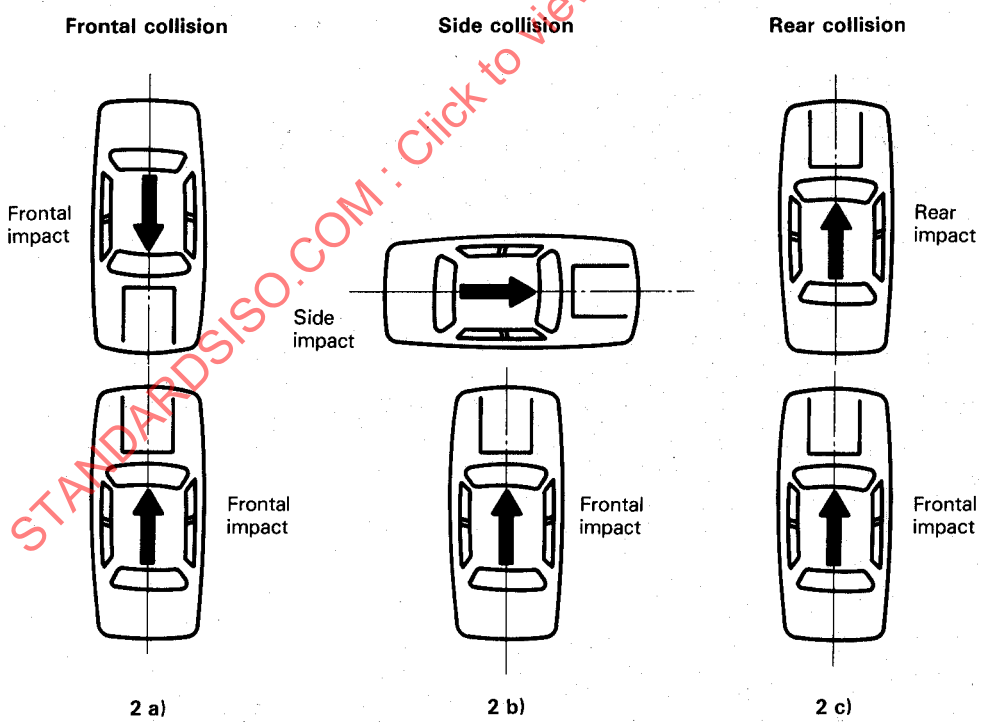


Figure 2

1) As defined in ISO 4130.

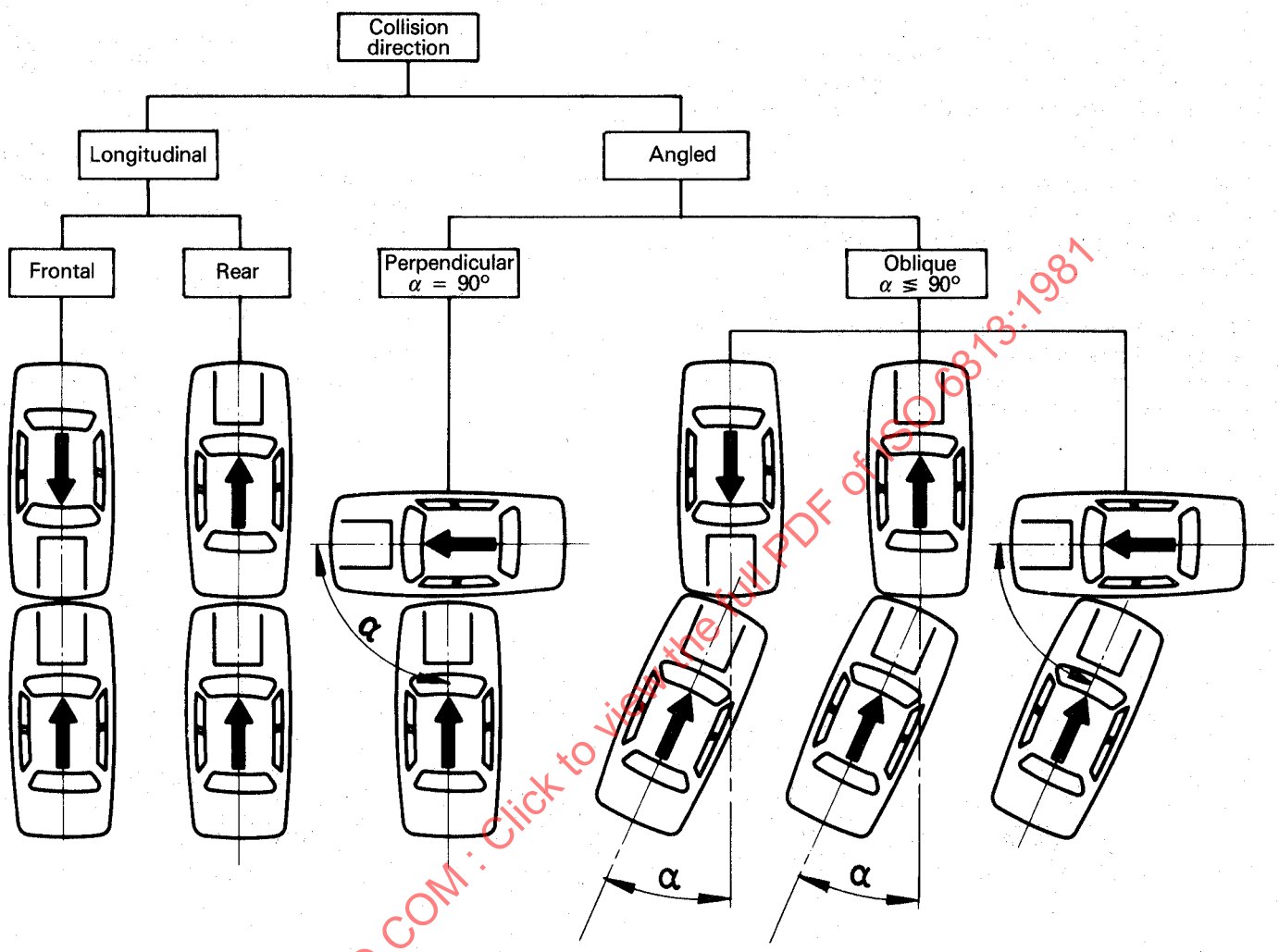


Figure 3

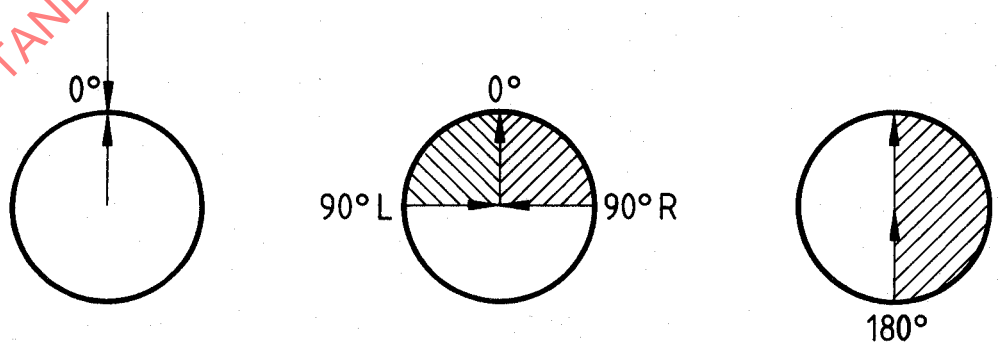


Figure 4

3.2.6 collision between a vehicle and a fixed or moving obstacle : If the obstacle face is flat and vertical (for example barrier), the obstacle or barrier face shall be regarded as being the front of another vehicle.

The collision angle is measured between two vertical planes, one of which is the vehicle's vertical longitudinal zero plane and the other is perpendicular to the obstacle's flat, vertical surface. [See figure 5 a).]

If the obstacle presents a curved face (pole, tree, etc.) the collision direction is, in any case, longitudinal (for frontal and rear collisions) [see figures 5 b) and c)] or perpendicular (for side collision). [See figure 5 d).]

3.3 axis alignment : A collision between two vehicles or between a vehicle and a fixed or moving obstacle is centered if the main planes of the two vehicles or the vehicle and the obstacle are the same; otherwise it is offset. (See figures 6 and 7.)

For main planes is intended :

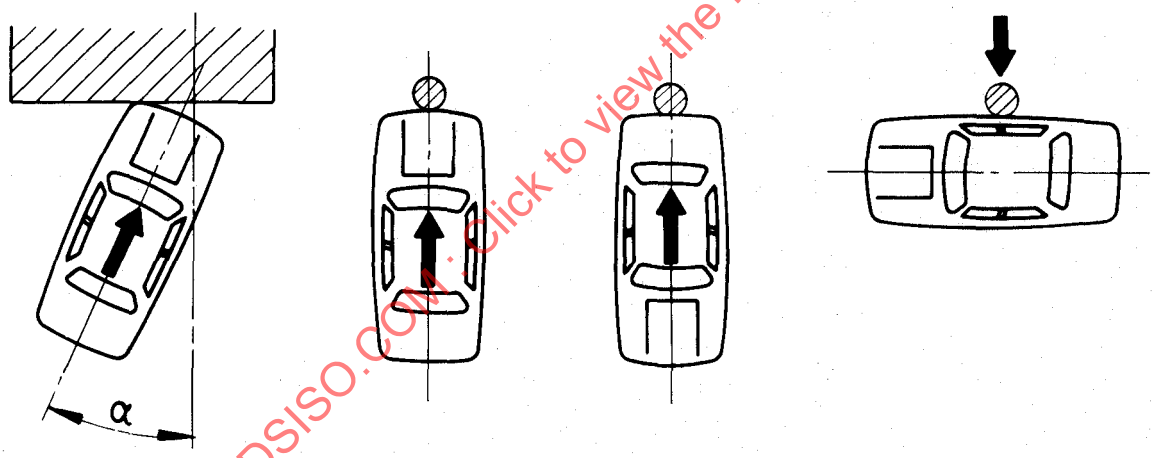
— in the frontal or rear collision, the vertical longitudinal zero plane of each vehicle;[1)]

— in the side collision, the vertical longitudinal zero plane for the striking vehicle and the vertical transverse plane (containing the driver's R-point) for the vehicle struck.

3.4 offset : In a collision between two vehicles, or a vehicle and a fixed or moving obstacle , the offset is the distance between the vertical planes, each being the main plane of each. (See figures 6, 7, 8 and 9.)

3.4.1 In longitudinal collision, the vertical longitudinal zero planes are considered.[1)] (See figure 6.)

3.4.2 In perpendicular collisions the vertical longitudinal zero plane of the striking car and the vertical transverse plane (containing the driver's R-point) of the struck car are considered.



Oblique — 5 a)

Longitudinal (frontal collision) — 5 b)

Longitudinal (rear collision) — 5 c)

Perpendicular (side collision) — 5 d)

Figure 5

1) As defined in ISO 4130.

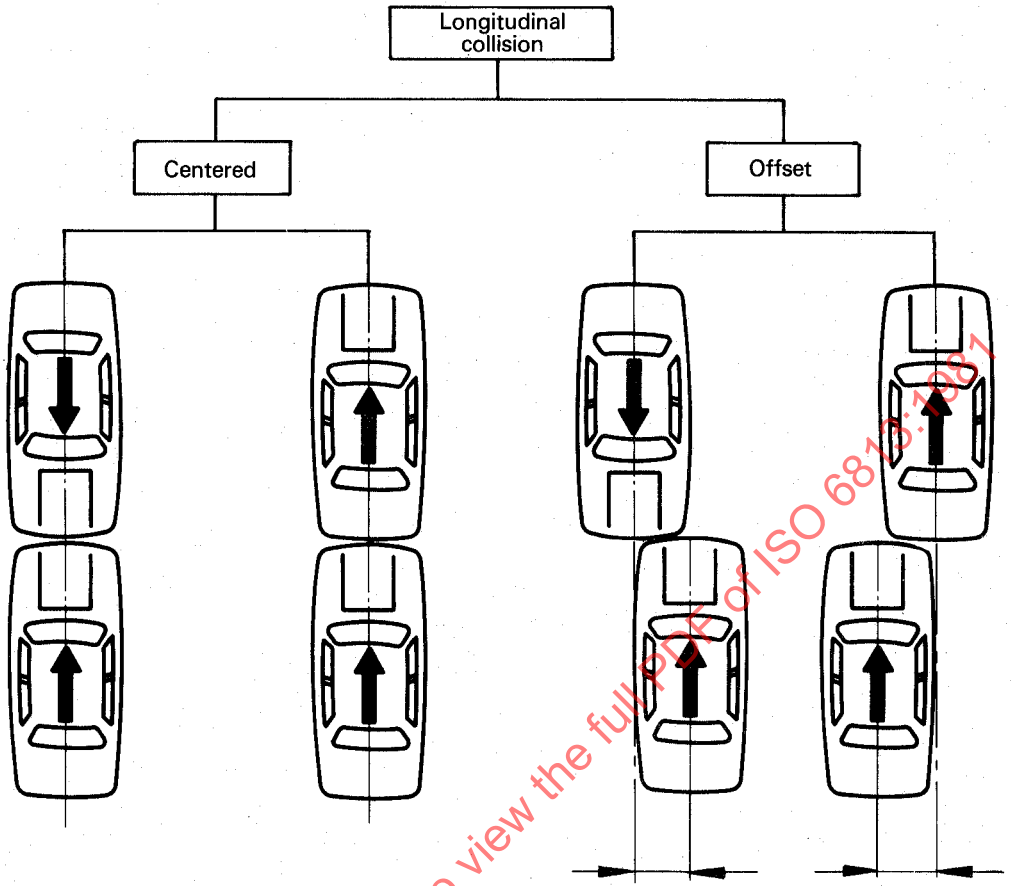


Figure 6

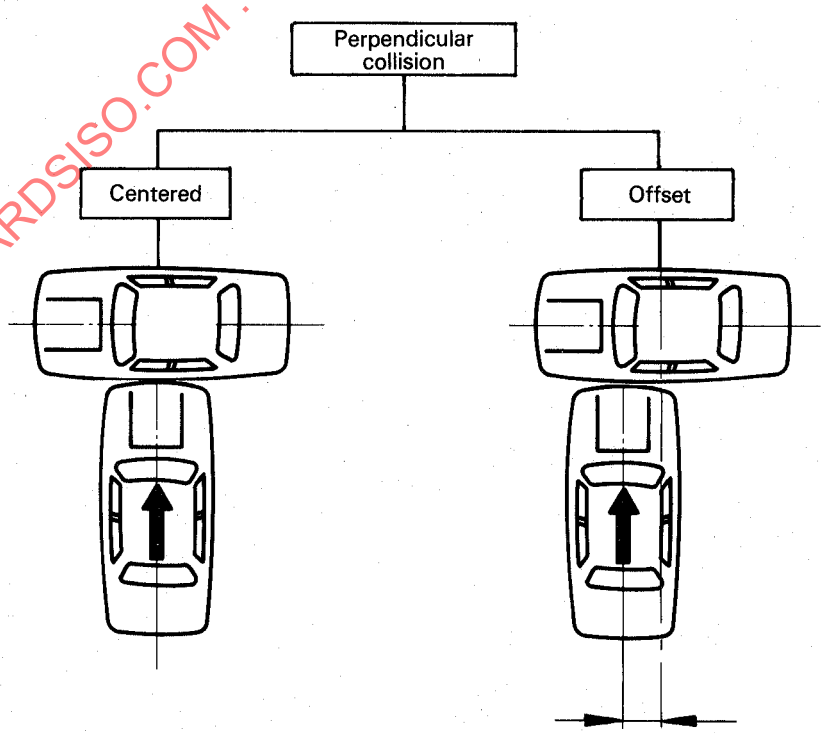


Figure 7

3.4.3 In oblique collisions, the main planes are considered but the measurement shall be made on the vertical plane tangent to vehicle horizontal projection (between arrows in figure 8).

3.4.4 In front and rear collisions, the offset can also be expressed as the portion of front (or rear) end involved (1/3, 1/2, 2/3 etc.) and by indicating left or right (for example see figure 9).

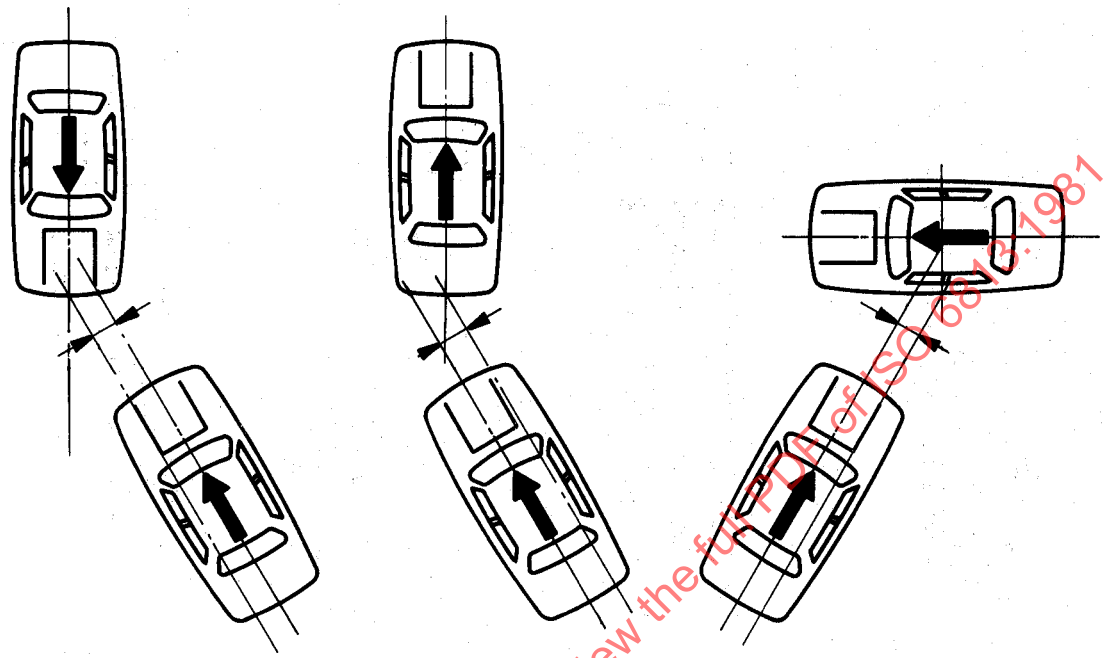
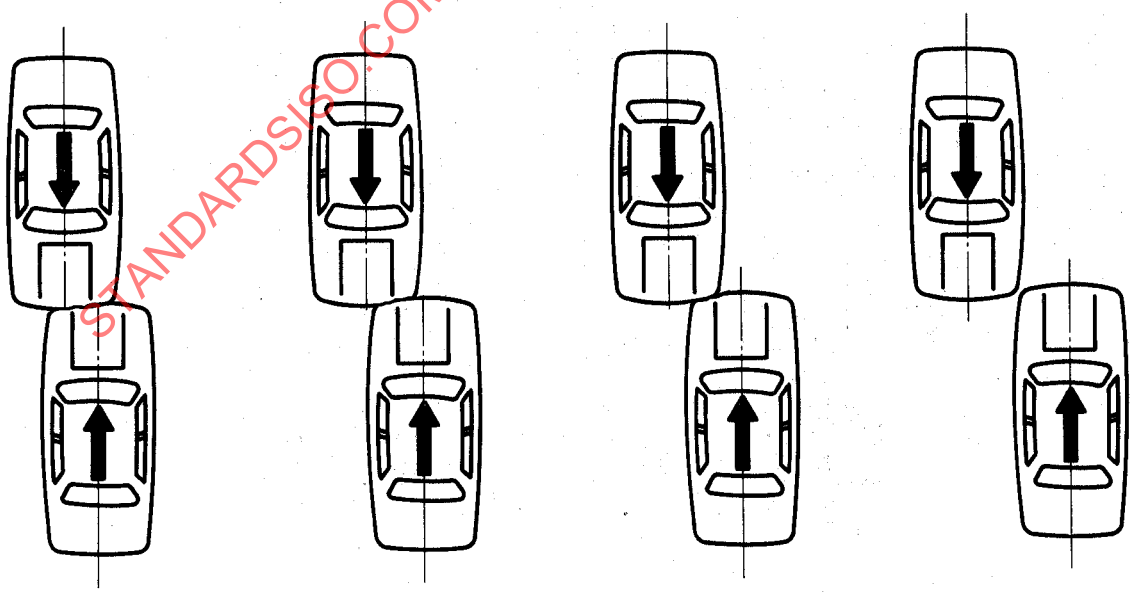


Figure 8



NOTE — The sideswipe is the limit case of offset.

Figure 9