INTERNATIONAL STANDARD

ISO 2261

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Reciprocating internal combustion engines — Hand-operated control devices — Standard direction of motion

Moteurs alternatifs à combustion interne — Dispositifs de commande manuels — Sens de manœuvre normaux

Reference number
ISO 2261:1994(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 2261 was prepared by Technical Committee ISO/TC 70, *Internal combustion engines*, Subcommittee SC 1, *Definitions*.

This second edition cancels and replaces the first edition (ISO 2261:1972), of which it is a minor revision.

Annex A of this International Standard is for information only.

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Introduction

Standards regarding the direction of motion of operating devices are of particular value where stress is laid on a high degree of safety and/or a high operating speed. Often it is required that the operator has to move the operating device in the appropriate direction almost automatically. Therefore, standardization is important where a wrong operation would cause great inconvenience, damage or danger.

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Reciprocating internal combustion engines — Hand-operated control devices — Standard direction of motion

1 Scope

This International Standard specifies the direction of motion of hand-operated devices for speed regulation and reversing of reciprocating internal combustion (RIC) engines, having particular regard to RIC engines for marine and rail propulsion — irrespective of whether the operator's position is near the engine or remote from it.

Valves for the control of liquids and gases are excluded.

2 Effects of actuating the operating device

2.1 Where separate operating devices for reversing and speed regulation are installed:

a) actuating the operating device for reversing results in a forward movement, or a backward movement;

b) actuating the operating device for speed results in a speed increase or decrease.

2.2 Where combined operating devices for reversing and speed are installed:

a) actuating the operating device from the centre position in one direction results in a forward movement with increasing speed;

b) actuating the operating device from the centre position in the opposite direction results in a backward movement with increasing speed;

c) actuating the operating device from the travelling position to the centre position results in a speed decrease to a full stop.

3 Designation of operations

Operating directions and effects caused by actuation of the control devices are coordinated in tables 1 and 2.

4 Preferred position of operator on installations on which the direction of movement of the vehicle is visible to the operator

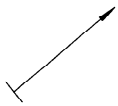
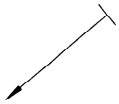
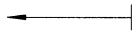
Operator positions should preferably be arranged in such a manner that the operator is looking towards the front of the vehicle.

If the operator's position is arranged parallel to the direction of travel of a vehicle (the operator looking sideways), the operator's position should be arranged in such a manner that the operating directions of the control devices correspond to the definitions given in this International Standard.

5 Designation

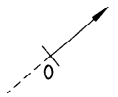
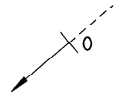
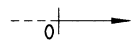
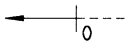
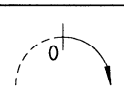
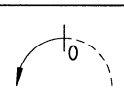
To indicate the effect resulting from the motion of an operating device, standardized symbols — instead of words — shall be placed next to the operating device (as shown in tables 3 and 4). These symbols are in accordance with ISO 7000 and IEC 417, as appropriate.

Table 1 — Operating directions and effects with separate operating devices for reversing and for speed regulation

Designation of operation	Motion of operating device	Type of operating device	Direction of motion of operating device[1]			
			Increase of speed or movement ahead		Decrease of speed or movement backward	
A_1	linear or approximately linear	hand lever		away from the operator		towards the operator
B_1				upwards		downwards
C_1				to the right		to the left
D_1	turning	handwheel or crank handle		clockwise		counter-clockwise

1) The above diagrams are used to describe the direction of motion and shall not be used as graphic symbols. The graphic symbols to be used are shown in table 3.

Table 2 — Operating directions and effects with a combined operating device for both reversing and speed regulation

Designation of operation	Motion of operating device	Type of operating device	Direction of motion of operating device[1] from central (stop) position with increase of speed[2]			
			Movement ahead		Movement backward	
A_2	linear or approximately linear	hand lever		away from the operator		towards the operator
B_2				upwards		downwards
C_2				to the right		to the left
D_2	turning	handwheel or crank handle		clockwise		counter-clockwise

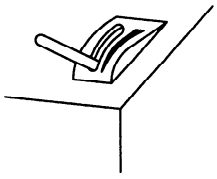
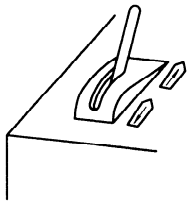
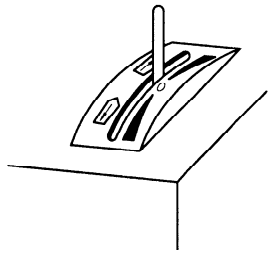
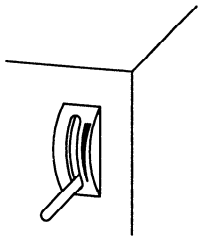
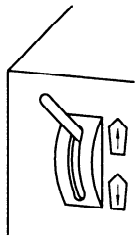
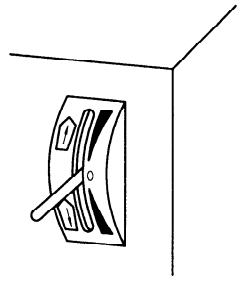
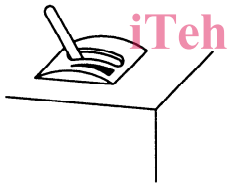
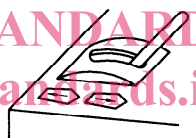
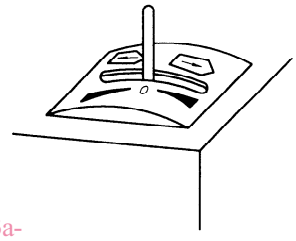
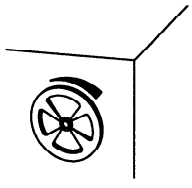
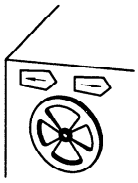
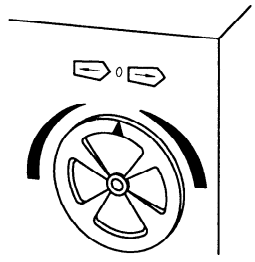
1) The above diagrams are used to describe the direction of motion and shall not be used as graphic symbols. The graphic symbols to be used are shown in table 3.

2) Decrease of speed in every case will be attained by actuation of the operating device in the direction towards the central (stop) position.

Table 3 — Symbols for speed regulation and vehicle direction

Designation of operation	Symbols for speed-progressive increase or decrease	Explanation	ISO/IEC Registration No.
A, **B** or **C**		Motion of the operating device towards the wide end of the wedge results in an increase of speed. Motion of the operating device towards the point of the wedge results in a decrease of speed.	IEC 417-5004
D			ISO 7000-1364
	Symbols for vehicle direction		
A, **B**, **C** or **D**	forward movement 	With engines driving a vehicle — marine or rail — directly (without a reversing gear) the direction of rotation of the engine determines the direction in which the vehicle moves. Forward movement of the vehicle is indicated by a symbol representing the vehicle with an arrow pointing towards the front end (bow) of the vehicle. Backward movement of the vehicle is indicated by a symbol representing the vehicle with an arrow pointing towards the rear end (stern) of the vehicle.	ISO 7000-0775
	backward movement 		ISO 7000-0776

Table 4 — Illustrations of typical operations

Designation of operation	Vehicle speed	Vehicle direction	Designation of operation	Vehicle direction and speed
A_1			A_2	
B_1			B_2	
C_1			C_2	
D_1			D_2	

NOTE — The actual design may differ from the illustration shown above.

The operating devices may be combined at random according to the application.

Annex A
(informative)

Bibliography

[1] ISO 7000:1989, *Graphical symbols for use on equipment — Index and synopsis.*

[2] IEC 417:1973, *Graphical symbols for use on equipment — Index, survey and compilation of the single sheets.*