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Reciprocating internal combustion engines — Vocabulary of components and systems —

Part 10: Ignition systems

Moteurs alternatifs à combustion interne — Vocabulaire des composants et des systèmes —

Partie 10: Systèmes d'allumage

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 70, *Internal combustion engines*.

This second edition cancels and replaces the first edition (ISO 7967-10:2014), which has been technically revised.

The main changes are as follows:

— Clause 2, Normative references, added;

— subsequent clauses renumbered;

— new terms and definitions added;

— inappropriate words or expressions revised.

A list of all parts in the ISO 7967 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Reciprocating internal combustion engines — Vocabulary of components and systems —

Part 10: Ignition systems

1 Scope

This document establishes a vocabulary for ignition systems of reciprocating internal combustion engines.

In this document, the terms are classified as follows:

a) types of ignition system;

b) conventional ignition systems;

c) electronic ignition systems;

d) computer-controlled ignition systems;

e) parameters for ignition systems.

NOTE ISO 2710-1 gives a classification of reciprocating internal combustion engines and defines basic terms and definitions of such engines and their characteristics.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

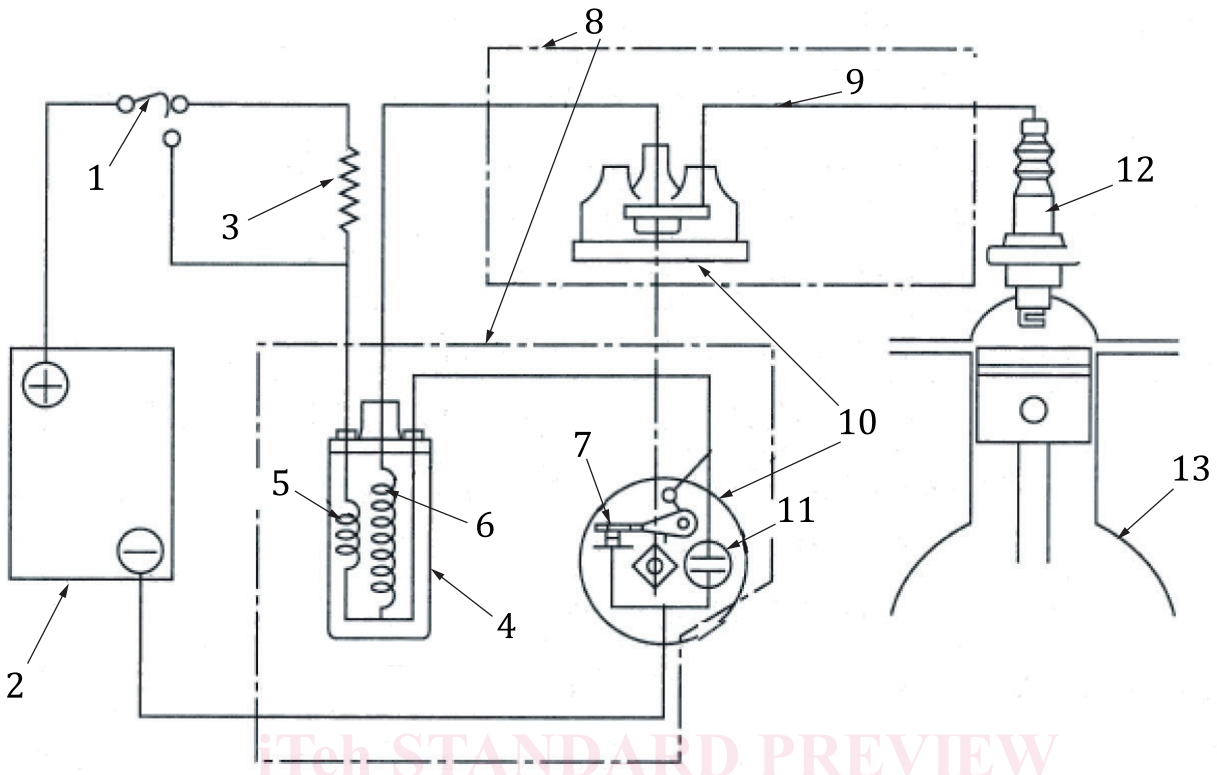
— IEC Electropedia: available at https://www.electropedia.org/

3.1 Types of ignition system

3.1.1
ignition system
ignition device system to ignite the fuel-air mixture in the cylinder

3.1.2
battery coil ignition system
ignition system (3.1.1) by battery and ignition coil

Note 1 to entry: See Figure 1.



Key

1	ignition switch (3.2.6)	8	distribution parts
2	battery	9	high-tension cord (3.2.25)
3	resister	10	distributer (3.2.9)
4	ignition coil (3.2.8)	11	condenser
5	primary coil	12	spark plug (3.2.21)
6	secondary coil	13	engine
7	contact breaker (3.2.12)		

Figure 1 — Typical configuration of battery coil ignition system

3.1.3
magneto ignition system
ignition system (3.1.1) by *magneto* (3.2.1)

3.1.4
high-tension ignition system
ignition system (3.1.1) by high-voltage electricity of secondary circuit of ignition coil produced by sudden current change in the primary circuit

3.1.5
dual ignition system
ignition system (3.1.1) with duplicate lines for redundancy

3.1.6
multi-point ignition system
ignition system (3.1.1) with more than two igniters installed on one cylinder

Note 1 to entry: An ignition system with two igniters is called a two-point ignition system.

3.1.7
electronic ignition system
ignition system (3.1.1) with ignition timing control by electronic device or circuit that generates electric pulses, which in turn generate a better spark that can burn the lean mixture and provide better economy and lower emissions

3.1.8
conventional ignition system
ignition system (3.1.1) with mechanical ignition timing control by the *contact breaker* (3.2.12) of the *distributor* (3.2.9)

3.1.9
electronic ignition system with breaker
electronic ignition system (3.1.7) with *contact breaker* (3.2.12)

3.1.10
breakerless electronic ignition system
electronic ignition system (3.1.7) without *contact breaker* (3.2.12)

3.1.11
computer-controlled ignition system
digital ignition system
computer-based ignition system which is usually a part of the electronic engine control unit (ECU)

Note 1 to entry: The ECU consists of a central control unit (CPU) or a microprocessor, random access memory (RAM), read-only memory (ROM) and input/output interfaces. Based on information from input sensors (e.g. engine air flow, coolant temperature, crank position, throttle position), ECU determines optimum settings for the output actuators of, for example, fuel injection, ignition timing and idle speed.

3.1.12
pre-chamber ignition system
ignition system (3.1.1) for gas engines, in which ignition is caused by the flame made in the small sub-combustion chamber (pre-chamber) provided on the cylinder head

3.2 Conventional ignition systems

3.2.1
magneto
electric generator for ignition using a permanent magnet

3.2.2
two-point ignition magneto
magneto (3.2.1) for ignition with two igniters which has one rotor and two sets of electric circuits

3.2.3
flywheel magneto
magneto (3.2.1) with a rotor which also works as a flywheel for the engine

3.2.4
starting vibrator
electromagnetic vibrator which supplies intermittent electric current starting from the battery to the primary circuit of the *magneto* (3.2.1) directly connected with the engine to assist ignition

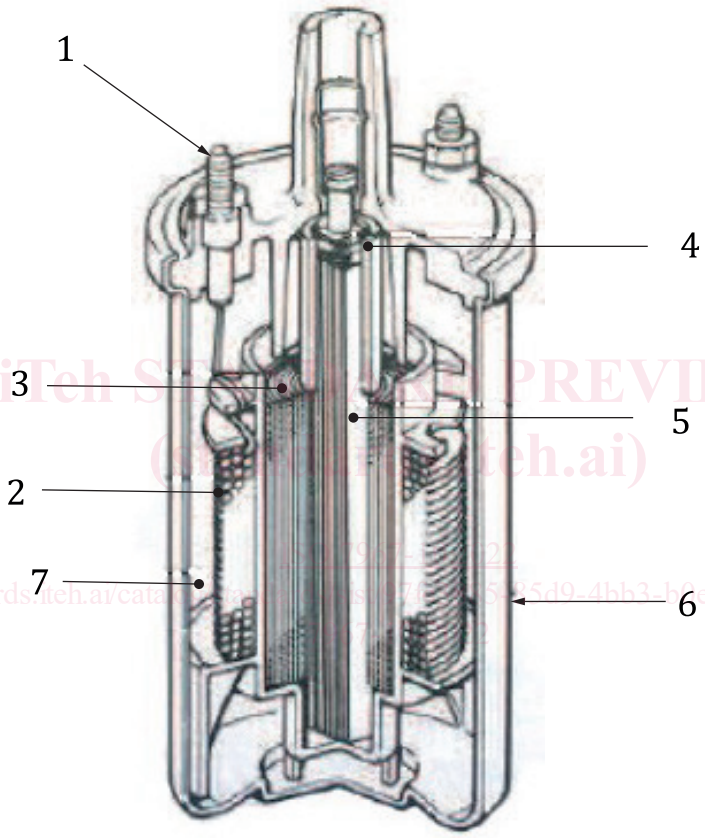
3.2.5
permanent magnet circuit
magnetic circuit which includes components such as permanent magnets and armatures

3.2.6
ignition switch
switch which opens and closes the primary circuit of the *ignition system* (3.1.1)

3.2.7
earth switch
stop switch
switch to short-circuit the primary circuit of the *magneto* (3.2.1) to shut down the engine

3.2.8
ignition coil
ignition armature
coil which produces high voltage for ignition in the *battery coil ignition system* (3.1.2) or the *magneto ignition system* (3.1.3)

Note 1 to entry: See Figure 2.



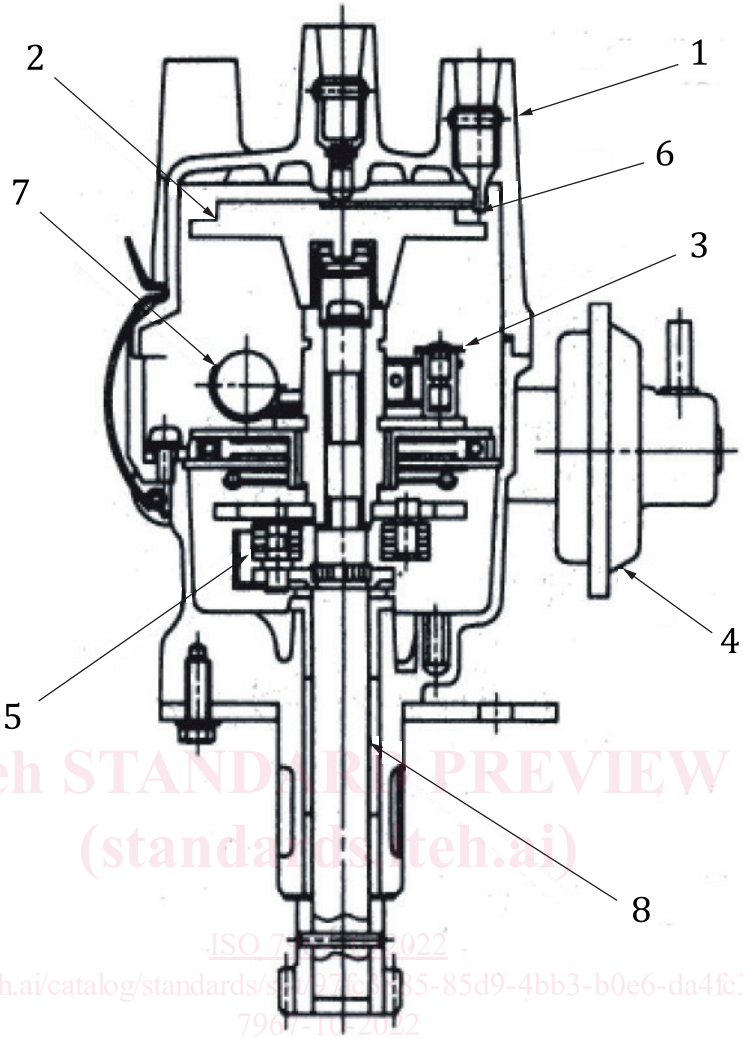
Key

1	primary terminal	5	core
2	primary coil	6	case
3	secondary coil	7	insulation material
4	spring		

Figure 2 — Typical ignition coil

3.2.9
distributor
device which distributes high voltage electricity for ignition to cylinders of multi-cylinder engines in the proper order

Note 1 to entry: See Figure 3.



Key

1	distributer cap (3.2.10)	5	centrifugal timer (3.2.18)
2	distributer rotor (3.2.11)	6	terminal
3	contact breaker (3.2.12)	7	condenser
4	vacuum control (3.2.19)	8	rotor shaft

Figure 3 — Typical construction of distributor

3.2.10
distributor cap
distributor cover
part of a *distributor* (3.2.9) which has the arrangement of terminals for proper distribution of high-voltage electricity for ignition

3.2.11
distributor rotor
distributor arm
rotating part of a *distributor* (3.2.9) which distributes high-voltage electricity to the terminals of the *distributor cap* (3.2.10)

3.2.12
contact breaker
device which opens and closes the primary circuit of the *distributor* (3.2.9)

3.2.13
breaker points
contact points
electric terminal in the *distributor* (3.2.9) for opening and closing the primary circuit

3.2.14
timing cam
distributor cam
contact breaker cam
cam which controls a contact breaker lever

3.2.15
cam type ignition timing advancer
device which causes *ignition timing advance* (3.5.3) by varying the relative angle between the axes of the *distributor rotor* (3.2.11) and the *timing cam* (3.2.14)

3.2.16
shaft timing advancer
timing advance system which varies the relative angle between the axes of the *magneto* (3.2.1) and the engine shaft

3.2.17
auto-timer
automatic spark advance
ignition timing advancer which works automatically according to the engine speed and power

3.2.18
centrifugal timer
centrifugal control
centrifugal advance
auto-timer (3.2.17) working by centrifugal force

3.2.19
vacuum control
vacuum advance
auto-timer (3.2.17) working by intake air pressure

3.2.20
multi-contact distributor
distributor (3.2.9) with more than two sets of *contact breakers* (3.2.12), which are switched depending on the operating condition of the engine

3.2.21
spark plug
part which ignites a fuel-air mixture with the spark generated between electrodes by high voltage

Note 1 to entry: See Figure 4.