
**Aircraft — Hydraulic components —
Marking to indicate the fluid for which
a component is approved**

*Aéronefs — Composants hydrauliques — Marquage indiquant le
fluide pour lequel les composants sont approuvés*

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.

This third edition cancels and replaces the second edition (ISO 3323:1987), which has been technically revised.

The main changes are as follows:

- [Figure 1](#) (phosphate ester based fluid) was updated;
- [Figure 2](#) (hydraulic fluid) was added.

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.

Aircraft — Hydraulic components — Marking to indicate the fluid for which a component is approved

1 Scope

This document establishes a scheme for the marking of components (other than pipelines, hoses and fittings) used in aircraft hydraulic systems, so that the correct type of fluid is readily apparent during any assembly or testing operations in workshops. The marking is not intended to serve any purpose when a component is installed in an aircraft.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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/>

4 Scheme

A component which is to be fitted in an aircraft hydraulic system shall indicate the type of hydraulic fluid for which it is approved by means of a plate, clearly marked with the name of that type of fluid. The types of hydraulic fluid are as follows:

- mineral oil base;
- synthetic hydrocarbon base;
- chlorinated silicone base;
- phosphate ester base;
- castor base;
- silicate ester base.

Optionally, the name and/or specification number of the particular hydraulic fluid may also be marked. An example of a typical plate is shown in [Figure 1](#) and [Figure 2](#). The term “label” may be used to describe the plastic alternative to a metallic plate.

The plates (or labels) shall be neutral in colour except for phosphate ester based fluids which shall be violet in colour as specified in [5.4](#).

5 Materials, design and manufacture

5.1 The identification plate shall be secured to the component in such a manner that it is readily visible and does not become detached under normal conditions of use. The plate shall be mechanically

secured to the component when it is used to identify fluids likely to corrode glued joints, such as phosphate ester chosen as an example in [Figure 1](#).

5.2 If a component is large enough to accommodate a manufacturer's nameplate, provided that the size of the component allows, the identification plate may be incorporated in the manufacturer's nameplate.

5.3 The materials used for plates shall be durable and resistant to the effects of the appropriate hydraulic fluids and of the environmental conditions of use, e.g. anodized metal or plastics.

5.4 For phosphate ester based fluids, the colour of the label shall be violet, identified by chromaticity coordinates and spectral radiance factor, $x = 0,337$, $y = 0,242$ and $\beta = 6,5 \%$ under CIE¹⁾ standard illuminant B.

5.5 The dimensions of the identification plate shall be at the option of the manufacturer or user of the component, commensurate with the dimensions of the hydraulic component. Preferred dimensions are shown in [Figure 3](#) and [Table 1](#).

5.6 The size of the lettering shall be as large as practicable commensurate with the size of the plate.

5.7 The requirements for the marking of pipelines and hoses in aerospace vehicles to indicate the type of fluid for which they are approved are given in ISO 12.



Key

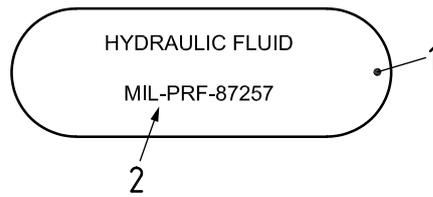
- 1 colour: violet
- 2 optional indication

Optional indication may be:

- an industry standard, e.g. ISO 9940 (recommended) or AS1241;
- the manufacturer internal standard, e.g. NSA307110, BMS 3-11 or other standards equivalent or traceable to ISO 9940 or AS1241, if requested by the purchaser;
- a specific product name (use only if the component is installed in a system explicitly constrained to that product).

Figure 1 — Example of a typical identification plate for phosphate ester based fluid

1) Commission Internationale de l'Éclairage (International Commission on Illumination).



Key

- 1 colour: neutral
- 2 optional indication

Optional indication may be:

- an industry standard, e.g. MIL-PRF-5606, MIL-PRF-83282, MIL-PRF-87257;
- the manufacturer OEM internal standard, if requested by the purchaser, or
- a specific product name (use only if the component is installed in a system explicitly constrained to that product).

Figure 2 — Example of a typical identification plate for hydraulic fluid

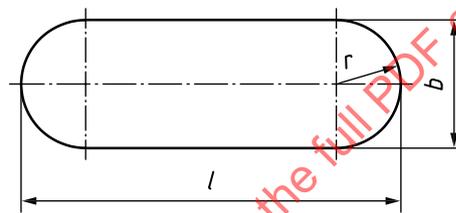


Figure 3 — Preferred dimensions of identification plates

Table 1 — Preferred dimensions of identification plates

Dimensions in millimetres

l	b	r
15	5	2,5
30	10	5
50	17	8,5

Bibliography

- [1] ISO 12, *Aerospace — Pipelines — Identification*
- [2] ISO 9940, *Aerospace series — Fluid, hydraulic, phosphate ester-base, fire resistant — Technical specification*
- [3] MIL-PRF-5606²⁾, *Hydraulic Fluid, Petroleum Base; Aircraft, Missile, And Ordnance*
- [4] MIL-PRF-83282²⁾, *Hydraulic Fluid, Fire resistant, Synthetic Hydrocarbon base, metric*
- [5] MIL-PRF-87257²⁾, *Hydraulic Fluid, Fire Resistant, Low Temperature, Synthetic Hydrocarbon Base*
- [6] SAE AS1241³⁾, *(R) Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft*
- [7] NSA307110, *Specification Fluid — Hydraulic phosphate ester — Base fire resistant*
- [8] BMS 3-11, *Boeing Specification for Aviation Turbine Hydraulic Fluid*

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2) Published by United States Department of Defense.

3) Published by SAE International (www.sae.org).