

INTERNATIONAL STANDARD

**ISO
6394**

Second edition
1998-11-15

Acoustics — Measurement at the operator's position of noise emitted by earth-moving machinery — Stationary test conditions

*Acoustique — Mesurage du bruit émis par les engins de terrassement
au poste de conduite — Conditions d'essai statiques*



Reference number
ISO 6394:1998(E)

ISO 6394:1998(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 6394 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*, in collaboration with ISO/TC 127, *Earth moving machinery*.

This second edition cancels and replaces the first edition (ISO 6394:1985), which has been technically revised.

Annex A forms a normative part of this International Standard.

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Introduction

This International Standard is a special test code for specific types of earth-moving machinery. It is an extension of ISO 11201 which contains the general requirements for many types of machinery and equipment.

Specific procedures are described in this special test code to enable the sound pressure level at the operator's position, with the machine stationary, to be determined in a manner which is repeatable. Attachments (bucket, dozer, etc.) for the manufacturer's production version are to be fitted, since this is the configuration most likely to exist when the machine is in actual use.

This International Standard enables compliance with noise limits to be determined. It can also be used for evaluation purposes in noise reduction investigations.

An additional special test code is given in ISO 6393. This other special test code is intended to be used to determine the exterior noise emitted by earth-moving machinery while the machine is stationary, in terms of the A-weighted sound pressure level.

Corresponding measurements of exterior noise and noise at the operator's position under dynamic test conditions are described in ISO 6395 and ISO 6396, respectively.

Acoustics — Measurement at the operator's position of noise emitted by earth-moving machinery — Stationary test conditions

1 Scope

This International Standard specifies a method for determining the noise emitted by earth-moving machinery, measured at the operator's position, in terms of the time-averaged A-weighted sound pressure level while the machine is stationary with the engine operating at rated speed under no-load conditions.

This International Standard is applicable to the following specific types of earth-moving machinery:

- excavators (hydraulic or rope-operated);
- crawler and wheel tractor-dozers;
- crawler and wheel loaders; and
- backhoe loaders (also known as excavator loaders).

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3411, *Earth-moving machinery — Human physical dimensions of operators and minimum operator space envelope*.

ISO 6393, *Acoustics — Measurement of exterior noise emitted by earth-moving machinery — Stationary test conditions*.

ISO 9249, *Earth-moving machinery — Engine test code — Net power*.

ISO 11201, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane*.

IEC 60651, *Sound level meters*.¹⁾

IEC 60804, *Integrating-averaging sound level meters*.¹⁾

¹⁾ IEC 60651 and IEC 60804 will be replaced by IEC 61672.

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 11201 and the following apply. For the convenience of users of this International Standard, some definitions are quoted from ISO 6165:1997.

3.1
time-averaged A-weighted sound pressure level, $L_{pAeq,T}$
 A-weighted sound pressure level averaged on an energy basis over the whole measurement period, T

3.2
excavator
 self-propelled machine on crawler, wheels or legs, having an upper structure normally capable of a 360° swing with mounted equipment, primarily designed for excavating with a bucket, without moving the undercarriage during the work cycle

NOTE An excavator work cycle normally comprises excavating, elevating, swinging and discharging material.

[ISO 6165:1997]

See Figure 1.

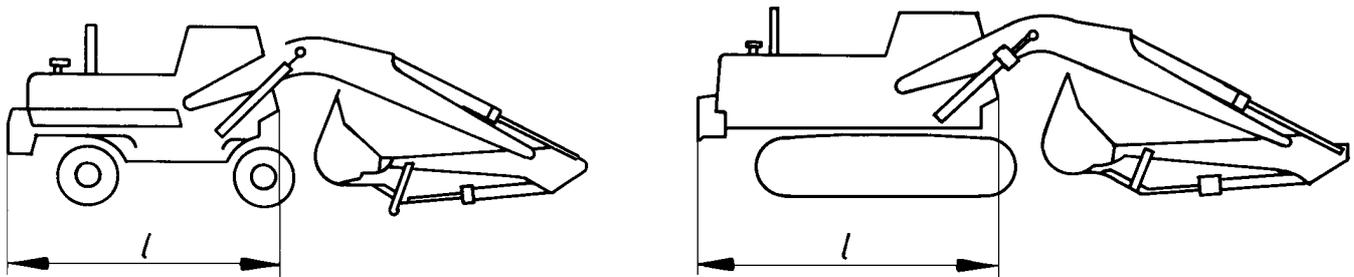


Figure 1 — Excavator

3.3
tractor-dozer
 self-propelled crawler or wheeled machine with equipment having either a dozing attachment which cuts, moves and grades material through forward motion of the machine, or a mounted attachment used to exert a push or a pull force

[ISO 6165:1997]

See Figure 2.

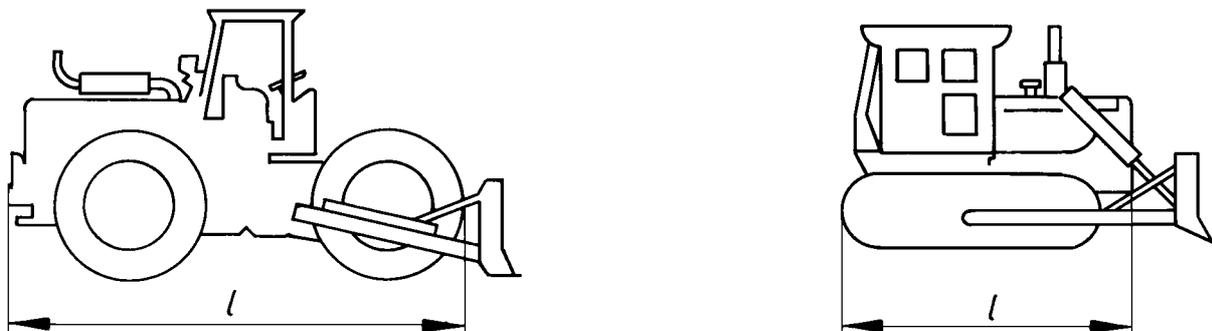


Figure 2 — Tractor-dozer