

KES

Intake Noise Reduction
Design Standard of Air
Intake System

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1. Scope of application

This standard of design shall be applied to air intake system.

2. Purpose

Purpose of this standard of design shall be to reduce intake noise of air intake system for improvement of vehicle value.

3. Meaning of vocabularies

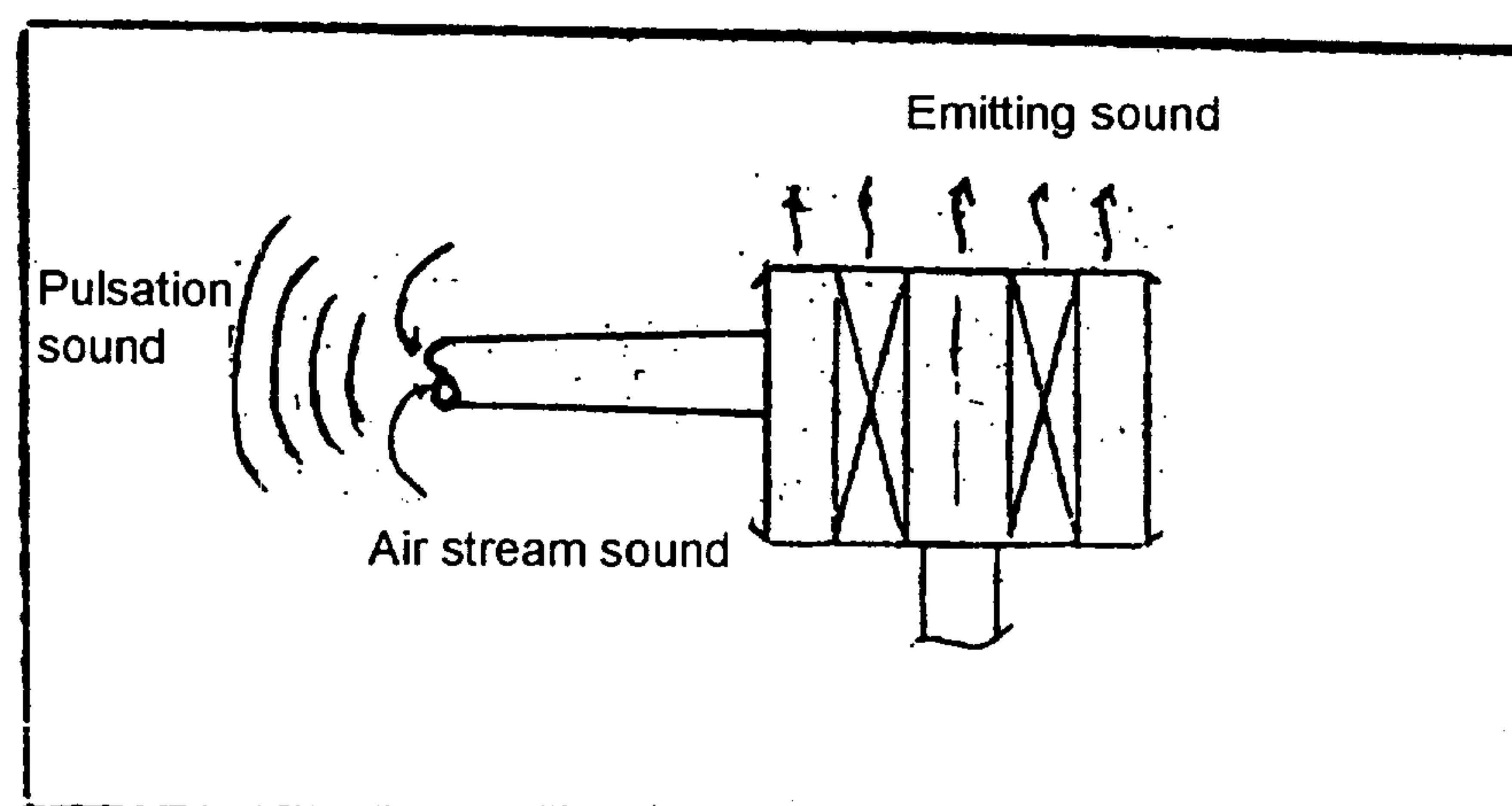
Meanings of vocabularies using in this standard of design are as follows.

3.1 Intake noise (Sound of air): Intake noise come from air intake system by suction of air during rotation of ENG and is classified with 3 items.

(1) Pulsation noise : This is originated from condensation by intake valve and this fundamental frequency is same with ignition frequency and rather low.

(2) Air stream noise : This is originated by converting an intake air stream into a warm current.

(3) Emitting noise : This is originated from vibration of air intake by sound pressure and ENG vibration in air intake system.



4. Standard of intake noise

4.1 Basic noise reduction techniques

(1) Insulation

Make a wall that intercept noise for reduction effects.

Degree of noise reduction is related to materials used. Iron plate, lead plate, rubber plate and etc. are especially effective and sealing of all cracks and holes are absolutely necessities for maximum insulation effect.

(2) Absorption

Sound absorption materials are porous materials in contrast to insulation. (For example, polytane form, fiber-glass blanket and etc.)

Set up this material inside the position that has an origin of noise in order to prevent a reflectivity and an echo.

(3) Damping

This is method to reduce vibration of surface that makes noise.

Damping can be obtained by making with materials that application of surface treatment and damping property are good.

In case of damping, the energy is absorbed when bending of panel is maintained and compression and sealing of materials are repeated.

(4) Stiffness

With of vibration can be reduced by increasing stiffness.

For example, anti-vibration effect can be obtained using that winding of body panel increase stiffness.

However, vibration amplitude/ frequency properties of mass that is increased by winding require caution because it can set off advantage of increased stiffness.