

**Attachment 38****MEASUREMENT PROCEDURE FOR  
PROXIMITY STATIONARY NOISE LEVEL**

## 1. Scope

This measurement procedure shall apply to the measurement of the proximity stationary noise level of motor vehicles (except **motor vehicles equipped with no exhaust pipe, and motor vehicles equipped with an exhaust pipe, but whose engine will not operate when the motor vehicle is in a stopped state**) and motor driven cycles (hereinafter simply referred to as “motor vehicles” **collectively**, unless specifically specified).

## 2. Test Vehicle Conditions

The test vehicle shall be under the following conditions.

- (1) The test vehicle shall be in a serviced condition as set forth in the applicable maintenance service procedure.
- (2) The test vehicle shall be warmed up thoroughly by running it at appropriate speed.

## 3. Adjustment, etc. of Test Equipment, etc.

## 3-1 Noise measuring devices

## 3-1-1 Noise level meter, etc.

- (1) The noise measuring device refers to either of the following. The device shall be fully warmed up and calibrated before its use.
  - ① The noise level meter shall comply with the requirements set forth in the JIS C 1505-1988 “Precision Noise level meters”, or have the equivalent performance.
  - ② The sound level meter shall comply with the technical requirements prescribed in Item (4), Paragraph 1, Article 57 of the Enforcement Regulations for Road Vehicles Act.
- (2) The characteristics of the frequency compensating circuit shall be “A” characteristics.

- (3) The dynamic characteristics of the indicating mechanism shall be “fast dynamic characteristics (FAST)” if the noise level meter has the “fast dynamic characteristics (FAST).”

### 3-1-2 Engine tachometer

The engine tachometer shall be a tachometer other than that mounted on the test vehicle.

### 3-1-3 Automatic recording device

When an automatic recording device is used, the dynamic characteristics of the automatic recording device shall be in the same conditions as those specified in Item (3) of 3-1-1.

## 3-2 Microphone

The noise level meter microphone shall be placed in the positions and directions specified in each of the following Items given below. Moreover, the microphone must be equipped with a windscreen. The position of the microphone refers to the center position of the microphone's front side. If the microphone manufacturer gives special instructions regarding the direction of the microphone, such instructions shall be observed.

- (1) The position of the microphone shall be M1 in the Figure, a point 0.5 meter away from the outlet center of the exhaust pipe (in cases where the outlet of the exhaust pipe is directed upwards, from the outermost surface of the test vehicle which is nearest to the outlet on a vertical plane which is perpendicular to the longitudinal center line of the test vehicle and includes the outlet's center) on a vertical plane which includes the center of the exhaust pipe outlet and is intersected with a vertical plane, including the direction of the exhaust stream, at an angle of  $45 \pm 10$  degrees outwards and backwards (in cases where the outlet of the exhaust pipe (hereinafter referred to as “the outlet”) is directed upwards (referring to cases where the angle of the outlet to the vertical line is 30 degrees or less), M2 in Figure). Moreover, the height of the microphone shall be within  $\pm 0.025$  meters of the height of the outlet's center (0.2 meters above the ground level in cases where the height of the outlet's center is less than 0.2 meters above the ground level).
- (2) If any part of the test vehicle constitutes a hindrance and prevents the microphone from being installed at the position prescribed in the preceding Item, the position of the microphone shall be at a point which is  $0.5 \pm 0.025$  meters from the outlet's center and is the nearest installable

position to the point prescribed in the preceding Item (except those positions affected by the exhaust gas streams or positions whose height above ground is less than 0.2 meter).

- (3) If the microphone can not be installed physically at the measuring position specified in the preceding Item, the microphone shall be positioned at the nearest possible position (excluding positions whose height above ground is less than 0.2 meter) to the measuring position concerned at the height of the center of the exhaust pipe outlet, within the range outside the vertical plane which includes the center of the exhaust pipe outlet and is intersected with a vertical plane, including the direction of the exhaust stream, at an angle of 45 degrees outwards and backwards and 0.5 meters away from the exhaust pipe outlet's center.
- (4) The direction of the microphone shall be held horizontally and be pointing towards the outlet's center. However, if the outlet is directed upwards (including the one having the inclination where the direction of the exhaust stream does not exceed approx. 30 degrees in relation to the vertical line of the exhaust pipe concerned), the microphone shall be directed upward.
- (5) If the test vehicle has plural outlets and the distance between the centers of the respective outlets exceeds 0.3 meters, the microphone shall be installed with each center of the respective outlets as the measuring object. If the distance between the centers of the outlets is 0.3 meter or less, the microphone shall be installed with the rearmost outlet as the measuring object (in cases where the test vehicle has plural rearmost outlets, the outermost outlet; in cases where the test vehicle has plural rearmost and outermost outlets, the uppermost outlet). In this case, a section where the exhaust gas is leaking shall be regarded as the outlet of the exhaust pipe.

#### 4. Noise measuring site

The noise measuring site for the measurement of the proximity stationary noise level shall be an almost-flat place free from conspicuous sound-reflecting bodies, such as walls and guard rails, in the range approx. 2 meters from the external of the motor vehicle and microphone.

#### 5. Measuring method, etc.

The measurement of the proximity stationary noise level shall be performed by the procedure prescribed in each of the following Items given below.

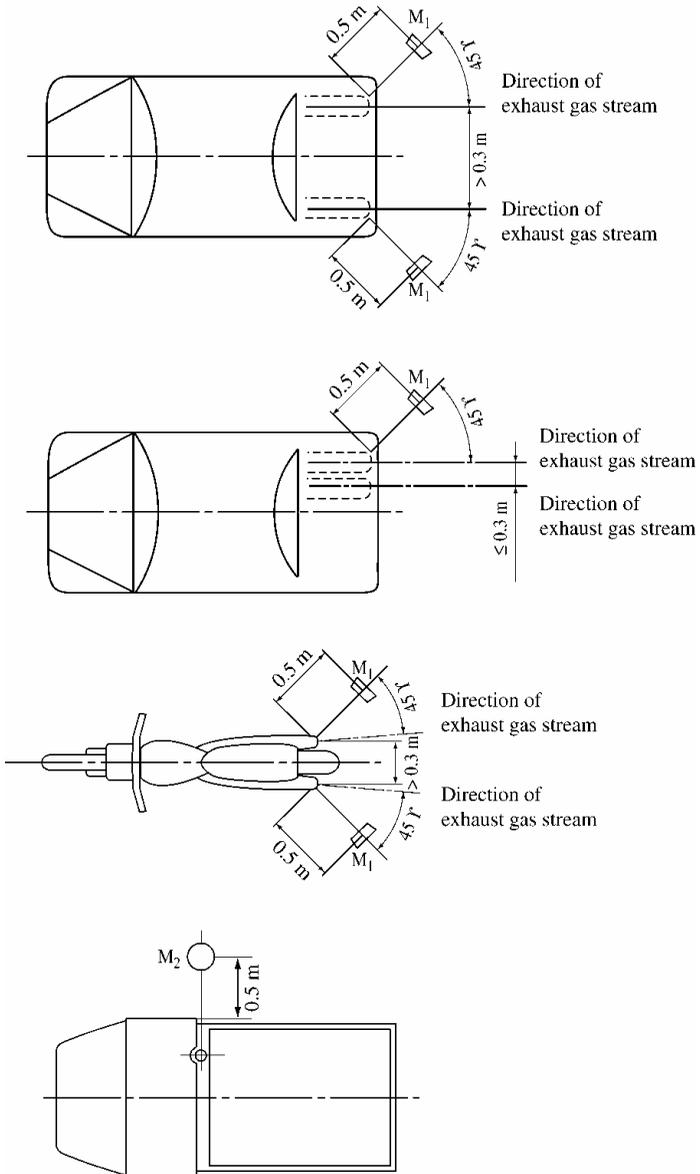
##### 5-1 Conditions of motor vehicles

The motor vehicle shall be in a stopped state. The shift position of the transmission shall be in neutral and the clutch shall be in the engaged condition. In the case of motor vehicles with the transmission which has no neutral shift position, the driving wheels shall be cleared from the ground.

#### 5-2 Measurement procedure

The measurement shall be conducted by running the engine of the test vehicle for about five seconds in a unloaded state within  $\pm 100\text{min}^{-1}\{\text{rpm}\}$  of the engine speed at which 75% (50%, in the case of small-sized motor vehicles and mini-sized motor vehicles (limited to motor cycles) and motor-driven cycles whose engine speed exceeds 5,000 rpm when the maximum engine output is delivered) of the maximum engine output is delivered. Then release the accelerator pedal suddenly or close the throttle valve suddenly. Make the measurement by recording the maximum value of the motor vehicle noise level during this operation. For engines whose revolution speed is unstable owing to their engine construction, it is only required that the mean value of the revolution speeds is within the aforesaid revolution speed range. Furthermore, the engine revolution speed shall be measured by a tachometer (not the tachometer, mounted on the test vehicle).

Figure



Case where the outlet of exhaust pipe is directed upwards

- $M_1$  : A point  $0.5 \pm 0.025$  meter away from the outlet center on a vertical plane which includes the outlet's center and is intersected with a vertical plane, including the direction of the exhaust stream, at an angle of  $45 \pm 10$  degrees outwards and backwards.
- $M_2$  : A point within 0.025 meters horizontally from the vertical line passing through a point 0.5 meter from the outermost surface of the test vehicle which is nearest to the outlet on a vertical plane which is perpendicular to the longitudinal center line of the test vehicle and includes the outlet's center.