

installation method of the source is fixed as supporting the blower to be tested at four fixed points.

- (3) The average vibromotive force obtained by taking measurements at surroundings of the source and that obtained by taking measurements at the center of the source are

in good agreement. So, the center of the source is proposed for the measurement point for the case of small sources such as the sources under investigation in this paper.

- (4) The vibromotive force measured by the substitution method show good agreement with the directly measured result, when the source to be tested is installed by same installation condition.

Thus, the measurement of vibromotive force by the substitution method would be useful for the laboratory determination of vibromotive force of machinery, for which the application of direct measurement method would be difficult.

#### REFERENCES

- 1) T. ten.Wolde and G.R.Gadefelt, "Development of standard measurement methods for structureborne sound emission, "Noise Control Eng.J.28(1), 5-14(1987)
- 2) K.Mugikura, K.Ando, M.Tano, and K.Takaku, "Experimental study on vibromotive force of blower installed in buildings," J.Archit. Plann. Environ. Eng. AIJ (389), 1-9(1988)(in Japanese).
- 3) T.Hiramatsu, Y.Muraishi, H.Ohkawa, and M. Koyasu, "Study on the measurement for driving force generated by machines," Proc. Spring Meet. Acoust. Soc. Jpn., 525-526 (1985) (in Japanese).
- 4) M. Koyasu, H.Ohkawa, Y.Muraishi, and T.Hiramatsu, "Method for measurement of vibromotive force generated by machinery and equipment installed in buildings," Proc. Inter-Noise 85, 653-656 (1985)
- 5) T.Hiramatsu, H.Ohkawa, and M.Koyasu, "Determination of vibromotive force generated by machinery and equipment and prediction of structure borne noise in buildings," Proc. Inter-Noise 86, 619-622 (1986).
- 6) K.Ishii, T.Hiramatsu, H.Ohakawa, and M.Koyasu, "Laboratory determination of vibromotive force and structure borne noise generated by machinery in building services," Proc. Inter-Noise 87, 607-610 (1987).
- 7) T.Hiramatsu, H.Ohkawa, and M.Koyasu, "Study on the measurement for driving force generated by machines. "Proc. INCE Jpn. Meet., 525-526 (1987) (in Japanese).
- 8) T.Hiramatsu, H.Ohkawa, and M.Koyasu, "Study on the measurement for driving force generated by machines. Part2, "Proc. INCE Jpn.Meet., 525-526 (1988) (in Japanese).
- 9) T.Hiramatsu, H.Ohkawa and M.Koyasu, "Studies on the reference vibration source to be used for the determination of vibromotive force of machinery by the reception plate method," Proc. Inter-Noise 88, 619-622 (1988).