



Western Michigan University installed a Lansmont 10TTV shaker table in their new engineering laboratory to conduct automotive part testing. It was necessary to install the shaker table on a vibration isolation system to prevent the vibrations created by the table from shaking the lab and offices above.



First floor level. The top surface of the shaker table is 60" x 98" with a capacity of 6,000 lbs. Sine sweep and random vibration testing are conducted in a frequency range of 3 – 300 Hz. The isolation system is installed in the pit below.



Pit floor (at left).

The shaker is installed on a structurally and dynamically rigid reaction mass. Fabreeka® provided a static and dynamic analysis of this concrete mass and modeled the isolation system response.

The mass weighs approximately 85,000 lbs and is supported on six PAL 255-012 pneumatic isolators. The isolators have a vertical natural frequency of 1.35 Hz with only 4% damping to minimize vibration transmission from the mass to the pit floor. The isolation system was "tuned" in the field using the supplied vertical adjustable damping.

View (below) showing underside of table top attached to the reaction mass.



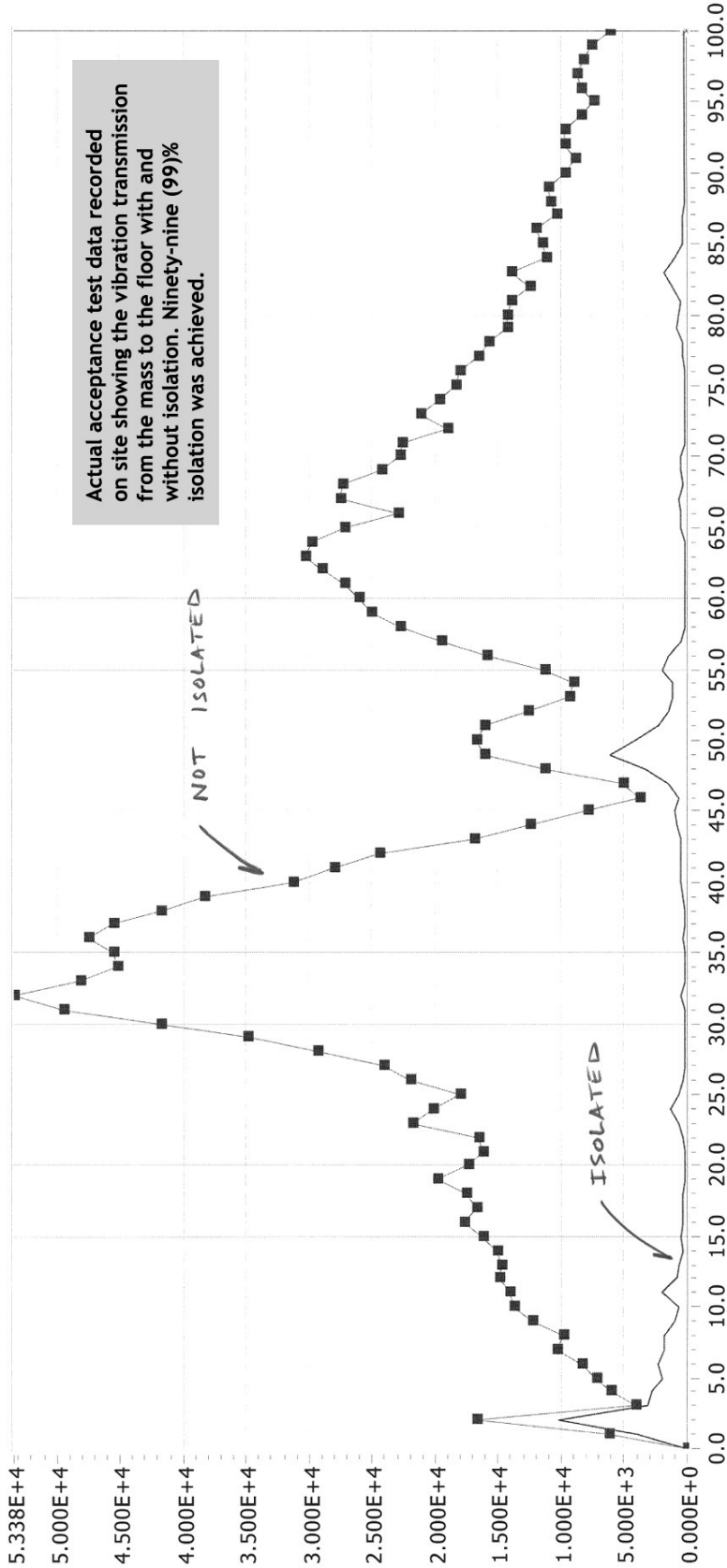


Description:

WMU Isolation block transmissibility Block down vs Block Floating

9/10/2003
12:40 PM

microinch/sec
5.338E+4
5.000E+4
4.500E+4
4.000E+4
3.500E+4
3.000E+4
2.500E+4
2.000E+4
1.500E+4
1.000E+4
5.000E+3
0.000E+0



mark 0 100.0 0.0E+0

mark 1 100.0 0.0E+0

Hz

Plot page

A

Data file name A SEPT 9 WMU pit floating Ch0

Reference data A SEPT 9 WMU pit block down Ch0

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