

## Installation of a Turret Punch Press on Vibro/Dynamics Isolators

### Noise and Vibration Reduction

Terry Sullivan of Grand Products, a manufacturer of electronic assemblies for the Video Game Industry located in Des Plaines, IL, contacted Vibro/Dynamics regarding an installation of an Amada 344Q Turret Punch Press in his plant.

The press was generating high levels of noise and vibration. Terry was concerned that the noise could be harmful to the Shop Personnel. The transmitted vibration was also disturbing the Office Personnel. Grand Products asked Vibro/Dynamics if they could make recommendations to reduce the high noise and vibration levels in its plant caused by the Amada press.

Vibro/Dynamics responded quickly by sending an engineer to survey the installation. The press was simply setting on the shop floor without any resilient material between the press feet and the shop floor. Metal shims were used to level the press and angle iron brackets anchored to the floor kept the press from walking.

The heaviest job was run so that Vibro/Dynamics could observe the noise and vibration levels. The press was very noisy and vibration caused by impact forces was clearly felt in the floor and in the surrounding areas. Vibro/Dynamics has successfully installed hundreds of Turret Presses, and knew its Micro/Level® Isolators could effectively reduce transmitted vibration, but felt that most of the noise was coming directly from the die area. Isolators are very effective in reducing structural-borne noise, but cannot reduce air-borne noise caused by dies impacting the material or the material being handled.

Vibro/Dynamics has found that the best approach in situations like this is to isolate the press with resilient machinery mounts, and then reduce air-borne noise using sound enclosures.

Micro/Level Isolators do a great job of controlling the transmission of vibration and structural-borne noise, and sound enclosures are very effective in reducing air-borne noise. Vibro/Dynamics recommended that Grand Products use this approach to solve their noise and vibration problem.



U.S. Amada Turret Punch Press on Vibro/Dynamics  
10M1200H 1.25H8 Micro/Level® Isolators

From experience gained in prior installations, Vibro/Dynamics recommended that its Model 10M1200H Micro/Level Isolators be installed under the Amada 344Q Press. These isolators are very effective in reducing vibration, but stiff enough to control horizontal motion. Turret presses usually generate high horizontal inertia caused by the rapid material movement. Using an isolator that is too soft horizontally can result in excessive horizontal movement, so it is important to select an isolator with the proper vertical and horizontal stiffness.

Grand Products and Vibro/Dynamics agreed that before-and-after vibration and noise measurements would be beneficial in determining the effectiveness of the 10M1200H Micro/Level Isolators.

The objective of the noise and vibration measurements was to measure and compare the noise and the vibration in the floor and in the machine in both the existing hard-mounted condition and in the Vibro/Dynamics isolated condition.

Instrumentation for measuring noise and vibration was set up and measurements taken in the hard-mount condition. All measurements were taken while the press was doing the most severe part of the job.

The equipment used was:

- General Radio Type 1933 sound-level meter and analyzer.
- PCB Piezotronics Model 393C accelerometers.
- PCB Piezotronics Model 307A accelerometers.
- Teac RD-200T DAT tape recorder.
- Wavepak FFT Data Acquisition System.



**Front Accelerometer Positions**

Vibro/Dynamics assisted Grand Products personnel with the installation and leveling of the Amada press on the Micro/Level Isolators. Installation and leveling took less than two hours. Again, all measurements were taken while the press was doing the most severe part of the job.

## Results

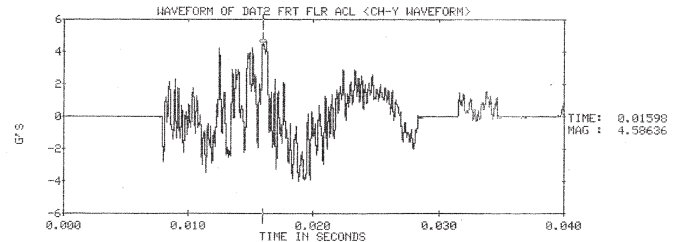
- Vibro/Dynamics Micro/Level Isolators provided a 3-to-1 reduction (67% isolation) in the peak floor acceleration level. Greater reduction can be realized using softer isolators, however, horizontal motion will increase.
- Vibration in the press foot was reduced 13% using Vibro/Dynamics 10M1200H Micro/Level Isolators.
- When the press was isolated, Sound Level Meter reading on Flat Response (all-pass) showed that the sound level was reduced 2.1 dB without using a sound enclosure. A reduction of 3 dB is equivalent to cutting the sound power in half. Overall sound levels were still high at 127 dB, requiring a sound enclosure be installed to improve the working environment.

## Summary

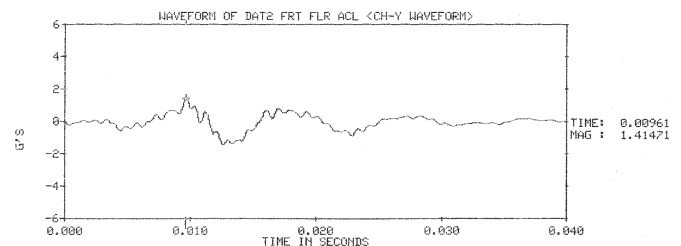
A follow-up two months after the press was installed showed that the press continues to perform great. Grand Products installed a noise enclosure to finish off the installation. Grand Products and their personnel are very happy - their press is quiet and their vibration problems have been solved.

### ACCELERATION READING (Gs)

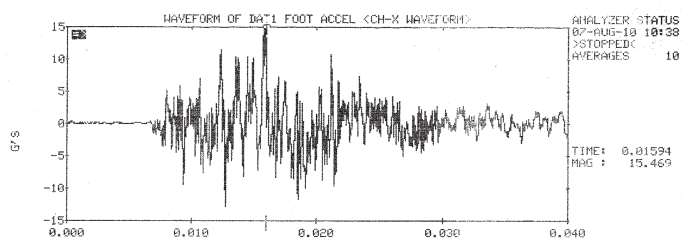
#### FLOOR - HARD MOUNTED



#### FLOOR - ISOLATED



#### PRESS FOOT - HARD MOUNTED



#### PRESS FOOT - ISOLATED

