

Application Note for A/133 Water Cooled Accelerometers

Application: Exhaust Testing

Location : USA

Customer : Confidential



Background :

The A/133 IEPE and A/33 charge output water cooled accelerometers were developed by DJB Instruments in association with several major Automotive customers for the testing and measurement of exhaust and turbo charger vibration. The obvious problem in this application is heat, exhausts and turbo chargers can operate at several hundred degrees centigrade and measuring vibration at these temperatures is extremely difficult and often it is assumed must be done by a non-contact vibration measurement technique such as laser vibrometry. The A/33 charge based triaxial accelerometer was originally developed in 1997 and was followed in 2005 with the IEPE version A/133. Capable of measuring vibration on a product with a surface temperature up to 800°C using a very simple water cooling system with a flow rate of approximately 0.5 litre per minute, the accelerometers are offered in triaxial and uniaxial configurations.

Application :

A major US Automotive OEM approached DJB Instruments via its US distributor Measurement Instruments for a triaxial accelerometer for use in testing exhaust vibration on vehicles in full operational conditions, i.e high temperature and road use. Their data acquisition and analysis system had the facility to provide the constant current supply to operate an IEPE accelerometer, so DJB specified the A/133 variant.

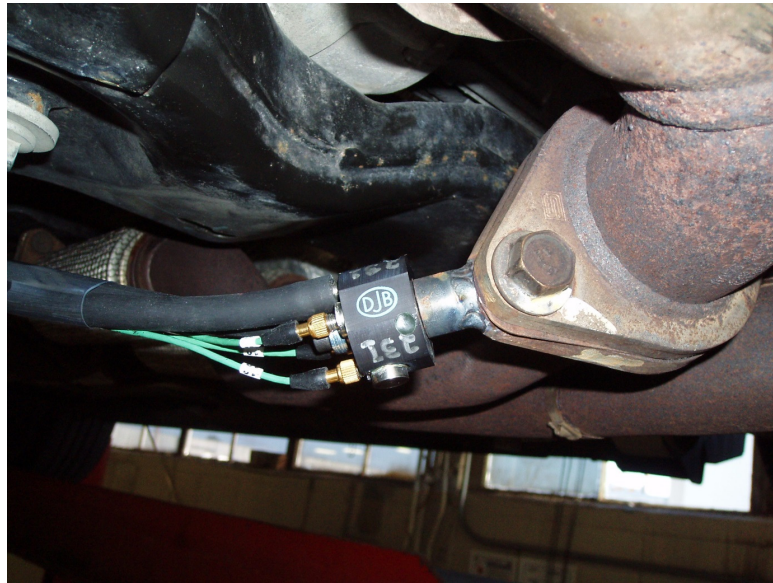
As the pictures below show the accelerometers were installed in a number of locations on a new exhaust development, with a single bolt mounting through the centre of the accelerometer body they are simple to install in what can be a confined space.



Supplied with cooling water via a windscreen washer pump the accelerometer cables and cooling pipes were protected by trunking to avoid damage under the vehicles during road tests, these were routed back to the instrumentation and pump/water supply within the vehicle.

Cables were also supplied by DJB and were made to suit the customers' installation requirements.

Over the many years of field use the A/133 and A/33 accelerometers have proven themselves as extremely rugged devices that can be used in harsh conditions for many years. On the rare occasion damage occurs they have the benefit of being fully repairable, each axis insert can be removed and replaced.



For more details about the water cooled accelerometer range from DJB Instruments UK Ltd please visit www.djbinstruments.com or contact our sales team sales@djbinstruments.com or on +44 (0)1638 712288