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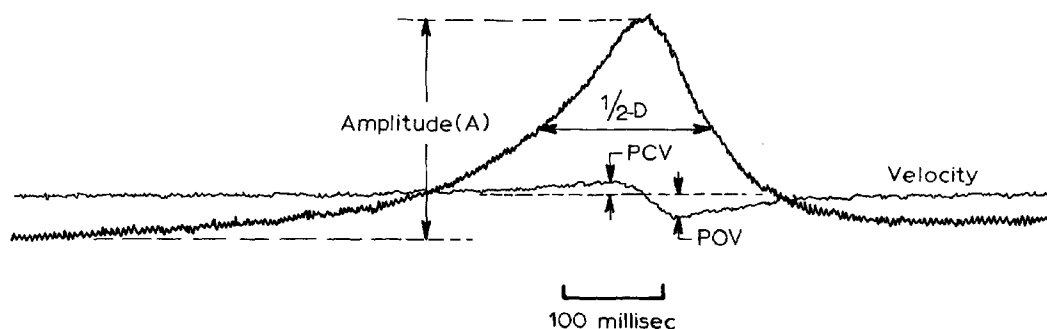
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(54) Title: ALERTNESS MONITOR



$$A / PCV = 14.6$$

$$1/2-D = 122 \text{ millisecc}$$

(57) **Abstract:** An alertness monitoring system uses reflectance measurement of infrared light pulses to monitor eye movement of a vehicle or machine operator. The data is used to measure eye and eyelid movement for presence slow or drifting eye movements, and/or eyelid closure and optionally one or more of, absence of saccadic movement, loss of eye co-ordination, wavering eyelids, partial eye closure, and drooping eyelids as indicators of loss of attention and drowsiness. The eye movements of a subject are analysed using reflected infra red light to obtain measures of the blink amplitude velocity ratio and the saccade amplitude velocity ratio. The readings are continuously compared with eye movement data indicative of degrees of alertness which correlate to blood alcohol content values so that the monitor provides an indication of the operator's legal fitness to operate the vehicle or machine from the point of view of drowsiness no matter how it is caused.



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