GROUP OF GOVERNMENTAL EXPERTS OF THE STATES PARTIES TO THE CONVENTION ON PROHIBITIONS OR RESTRICTIONS ON THE USE OF CERTAIN CONVENTIONAL WEAPONS WHICH MAY BE DEEMED TO BE EXCESSIVELY INJURIOUS OR TO HAVE INDISCRIMINATE EFFECTS

CCW/GGE/V/WG.2/WP.4
25 June 2003

Original: ENGLISH

Fifth Session
Geneva, 16-27 June 2003
Item 9 of the agenda

Working Group on Mines Other Than Anti-Personnel Mines

Overview of Fuzes, Sensors and Recommendations for Best Practice

Prepared by Canada

1. The Canadian view regarding the issue of Sensitive Fuzes for Anti-Vehicle Mines as prepared by the Delegation of Germany is that it is necessary to consider this issue in order to address humanitarian concerns posed by AVM use. Canada agrees in principle with the German proposal to define suitable technical parameters or limits referred to as "Best Practice" for fuze mechanisms to in order to reduce the risks of inadvertent initiation of anti-vehicle mines by human beings or agricultural livestock. However, in determining appropriate Best Practice values, the factors such as munition age, weather, climate storage, handling and other external conditions must be factored when applying actuation thresholds.

2. The Canadian goal in addressing fuze sensitivities should be to achieve appropriate functionality for the appropriate target. To attain this goal, the flexibility to apply this rationale to advances in fuze or sensor technology is paramount. The following suggestions are offered for consideration:

Observation/ Type of Fuze/Sensor	Best Practice	Comments
The inclusion of figures in Best Practice Column	Delete all figures or numerical references to a particular actuation threshold	The inclusion of any figure including an arbitrary reference as an example could very well and unintentionally end up as a base line figure, which would result in a value being inserted that may not be based on sound engineering principles or suitably establish to target an appropriate vehicle. Once established, a figure incorporated as the activation threshold must become suspect once the munition item leaves the quality control aspect of the manufacturers assembly line. Any number of

Observation/ Type of Fuze/Sensor	Best Practice	Comments
		environmental conditions could and will influence the performance of the fuze components.
Pressure Sensor	Should be minimum pressure appropriate for the intended target. A secondary sensor to aid in target discrimination would be appropriate. Must not be cumulative.	The idea is to define the threat and then design a mechanism to defeat it
Magnetic Sensor	Should be independent of earth's magnetic field and appropriate for the intended target. Should be used in conjunction with other sensors to aid in target discrimination.	Must not function by the proximity of mine detection devices or personnel passing with minimal metallic objects.
Acoustic Sensor	Match acoustic signature to given target(s). Should be used in conjunction with other sensors mainly for alerting and/or tracking target.	
Fiber-optic Wire Sensor	Attenuation level should be minimum pressure appropriate for the intended target. Should be used in conjunction with other sensors to aid in target discrimination.	
Scratch Wire Sensor	Scratch time / frequency / amplitude should match intended targets. Inadvertent activation is unlikely but should be used in conjunction with other sensors to aid in target discrimination.	There should be no risk to personnel alone
Roller Arm	Number of turns or the force required to turn the roller should match target size and speed. Inadvertent activation is unlikely but should be used in conjunction with other sensors to aid in target discrimination.	Risk of detonation by persons is assessed as very low unless deliberately turning the influence wheel, seek to achieve the optimum balance between functionality and force required to turn roller
Infra-red Sensor	Match heat signature for intended target(s). Should be used in conjunction with other sensors to reduce false alarm rate.	
Seismic /Vibration Sensor	Match seismic signature for intended target(s). A secondary sensor to aid in target discrimination would be appropriate.	
Break Wire Trip Wire	Inappropriate actuation method for anti-vehicle mines due to the fact	Other sensors, if they could be effectively incorporated, would be

Observation/ Type of Fuze/Sensor	Best Practice	Comments
Tilt Rod	that these methods cannot automatically reset themselves.	essential to prevent the inadvertent actuation by human beings or agricultural livestock. However, once the primary initiation method has been functioned, the secondary sensor becomes the single primary method of activation

3. With the development of 3rd generation fuzes for 1st and 2nd generation mines it could become cost effective to undertake fuze upgrades some existing AVM stocks instead of replacing them at considerable expense.
