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DEPARTMENT OF DEFENSE

Department of the Army

Notice of Opportunity to Seek Partners for a Cooperative Research and Development Agreement and Licensing Opportunity for Patent No. 9,303,932 B1, issued April 5, 2016 Entitled "Firearm with Both Gas Delayed and Stroke Piston Action"

AGENCY: Department of the Army, DoD.

ACTION: Notice of Intent.

SUMMARY: The U.S. Army Aviation and Missile Command (AMRDEC) is seeking Cooperative Research and Development Agreement (CRADA) partners to collaborate in transitioning firearm with both gas delayed and stroke piston action into commercial and/or government application(s). Interested potential CRADA collaborators will receive detailed information on the current status of the project after signing a confidentiality disclosure agreement (CDA) with AMRDEC.

Under the CRADA, further research, development and testing will be conducted to further refine the principles and prototypes. Based on the results of these experiments a refined fully functioning firearm action could be designed and manufactured. The developed principles and designs might be further modified for other uses outside of the firearms industry.

DATES: Interested candidate partners must submit a statement of interest and

capability to the AMRDEC point of contact before July 13, 2018 for consideration.

ADDRESSES: Comments and questions may be submitted to: Department of the Army, U.S. Army Research Development and Engineering Command, Aviation and Missile Research Development, and Engineering Center, ATTN: RDMR-CST (Ms. Wallace – Rm B300Q), 5400 Fowler Road, Redstone Arsenal, AL 35898-5000, or Email: *usarmy.redstone.rdecom-amrdec.mbx.orta@mail.mil* .

FOR FURTHER INFORMATION CONTACT: Questions about the proposed action can be directed to Ms. Cindy Wallace, (256) 313-0895, Office of Research and Technology Applications, email: *cindy.s.wallace.civ@mail.mil*

SUPPLEMENTARY INFORMATION:

Collaborators should have experience in the development and testing of firearms. The target end products include government and commercial applications and unique applications identified by the CRADA partner.

The full CRADA proposal should include a capability statement with a detailed description of collaborators' expertise in the following and related technology areas: (1) gas and/or blowback operated automatic firearms; (2) collaborators' expertise in successful technology transition; and (3) collaborator's ability to provide adequate funding to support some project studies is strongly encouraged. A preference will be given to collaborators who shall manufacture automatic or semi-automatic firearms in the United States. Collaborators are encouraged to properly label any proprietary material in their CRADA proposal as PROPRIETARY. Do not use the phrase "company confidential."

Guidelines for the preparation of a full CRADA proposal will be communicated shortly thereafter to all respondents with whom initial confidential discussions will have established sufficient mutual interest. CRADA applications submitted after the due date may be considered if a suitable CRADA collaborator has not been identified by AMRDEC among the initial by AMRDEC are expeditiously commercialized and brought to practical use. The purpose of a CRADA is to find partner(s) to facilitate the development and commercialization of a technology that is in an early phase of development. Respondents interested in submitting a CRADA proposal should be aware that it may be necessary for them to secure a patent license to the above-mentioned patent pending technology in order to be able to commercialize products arising from a CRADA. CRADA partners are afforded an option to negotiate an exclusive license from the AMRDEC for inventions arising from the performance of the CRADA research plan.

Technology Overview. Most conventional high powered automatic firearms function using a variation of long, short piston or direct impingement gas operation. The locking/unlocking mechanisms used in these firearms require extensive machining and manufacturing costs. A solution for delaying case extraction without the use of elaborate locking mechanisms or heavy bolts would allow for a simpler design.

By utilizing the principles of a gas delayed system to retain the bolt until safe extraction is possible and a stroke piston action to facilitate case extraction/ejection a simpler mechanism may be used for a high-powered

automatic firearm. Two separate barrel ports, one near the chamber for the gas delaying function and the other near the muzzle for the stroke piston action, allow propellant gasses to act upon one piston. The piston is directly connected to the firearm's bolt via a linkage. Upon firing, the port near the chamber is utilized first causing gasses to hold the piston forward. Once propellant gasses reach the port near the muzzle the piston is forced rearward. The barrel port diameters will determine the forces acting upon the piston and bolt. Two prototypes of advancing design, detailed within the patent, were developed for initial testing and showed promising results.

Publications. P. Jackson: "Firearm with Both Gas Delayed and Stroke Piston Action, "US Patent 9,303,932 B1, April 5, 2016.

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