

Ilion, New York
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TO: W.E. LEEK
FROM: J.C. HUTTON
SUBJECT: M/742-X GAS SYSTEM FUNCTION CYCLE
(Description for Chart Use)

- POSITION 1 The system is at rest. Then the hammer falls, ignition occurs, the bullet passes down the barrel over the gas cylinder orifice. At this time, the forward inertia weight is very quickly moved rearward by gas pressure, pushing the action spring inertia weight, and cocking both the action spring and drive spring.
- POSITION 2 The action spring inertia weight has cocked the action spring and is latched. The forward inertia weight is also latched, allowing the drive spring to move the rear inertia weight for the beginning of the driving stroke. Unlocking of the bolt occurs at .450" stroke.
- POSITION 3 The drive spring, via the rear inertia weight, has accelerated the action bars to their peak velocity. Having expended the energy stored in it, the drive spring is now at rest, as the action bars continue rearward.
- POSITION 4 The action bars have completed the opening stroke (4.750" travel), and now are stopped by the rear buffer. At this time, the front end of the action bars contact the action spring inertia weight, unlatching the action spring. The action spring begins to move the action bar assembly forward.
- POSITION 5 The action spring has propelled the action bar assembly forward. At this time, the action spring inertia weight contacts the forward inertia weight, and begins to move the drive spring and rear inertia weight forward also. No loading of the drive spring occurs; it is resting between the forward and rear inertia weights.
- POSITION 6 The closing stroke of the action is complete, with both the action spring and drive spring in position for the next shot, and the bolt locked up.

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Sheet 2 of EXHIBIT 11

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