

The first velocity pin makes contact with the projectile at a distance of 3.5 centimeters in front of the target and triggers the velocity-measuring scope. The three intervals available provide redundant measurements of velocity and acceleration to provide a consistency check.

I. Control System

The control system was designed with the following criteria in mind:

- i) It must handle pressures up to 6000 psi remotely.
- ii) It must be essentially fail-safe, yet contain a minimum of interlocks.
- iii) It must indicate, at a glance from the operator, the complete status of the system at any time, particularly just before firing.
- iv) It must be easily adaptable to both breeches.

The above specifications were met by coupling two subsystems to the main high pressure system. A 110 VAC electrical system controls a low pressure (60 psi) air system, through the use of electrically operated three-way solenoid valves. These in turn control the actuators of the high pressure (6000 psi) valves.

1. High Pressure System (Fig. 13)

The high pressure system is built entirely of 1/4" OD x 7/64" ID 316 SS annealed tubing. Since the gas used as propellant is obtained from bottles it is desirable to allow for direct access to the breech reservoir from the bottles without first passing through the high pressure pump. This is done by laying a bypass line from the pump inlet to the outlet (Valve No. 18). A one-way check valve is inserted just before the entry of the bypass line into the high pressure side of the pump outlet to guard against the possibility of someone inadvertently opening the bypass valve when the system pressure is above 2000 psi.