

## Blount Voice Activated Target Launcher Theory of Operation

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Overview: The voice activated launcher consists of a transmitter, receiver, and a remote push button this is called a set. Each gun club may have multiple sets, therefore, each set must have a unique ID. Sixteen IDs have been incorporated for this purpose. The purpose of this device is to provide a "hands free" means to release clay pigeons for trap leagues. Up to five transmitters may be used with a single receiver and remote push button. Each transmitter "listens" for a "PULL" command and transmits a trigger to the receive unit. The receive unit then decodes the trigger command and closes a relay contact which is used to trigger the launcher. The remote push button may be used to trigger the launcher as well as enabling or disabling the RF triggers.

Transmitter: The transmitter will be placed near the shooter with a microphone placed to receive the shooters voice. The shooter will say "PULL" or some other word to trigger the device. Men, women, or children must be able to produce a valid call. When a valid call has been detected, a 418MHz trigger signal is transmitted to the receiver. The transmitter must be able to reject background conversation, gun action sounds, gun fire, PA announcements, and adjacent shooter's calls. The selection of a valid call signal is performed by analog circuitry as well as signal processing in the software. The response time of the unit must be quick and consistent to avoid what shooters call a "Slow Pull" condition. False triggers are more acceptable than slow triggers, but both problems should be avoided.

Receiver: The receiver unit uses the remote push button as its input for a state machine. If the remote push button switch is ON, then RF triggers will be accepted as long as the switch is active or until the RF triggers have a gap of about two and a half minutes. At that point the receiver will ignore all RF triggers and look to the remote push button for a state change. The RF triggers may be reactivated by a toggling of the ON/OFF switch or by depression of the PULL button ( if the switch is in the ON position, also a target will be released ). If the ON/OFF switch is in the OFF position, no RF triggers will be accepted. If the PULL button is pressed, the receiver will release a target regardless of the ON/OFF position. When a trigger has been accepted from either a RF signal or depression of the PULL button, no triggers will be allowed for about two seconds. This is called a refractory period which allows the launcher to mechanically get prepared for another launch.