

## SIGNAGE - LARGE ARMS

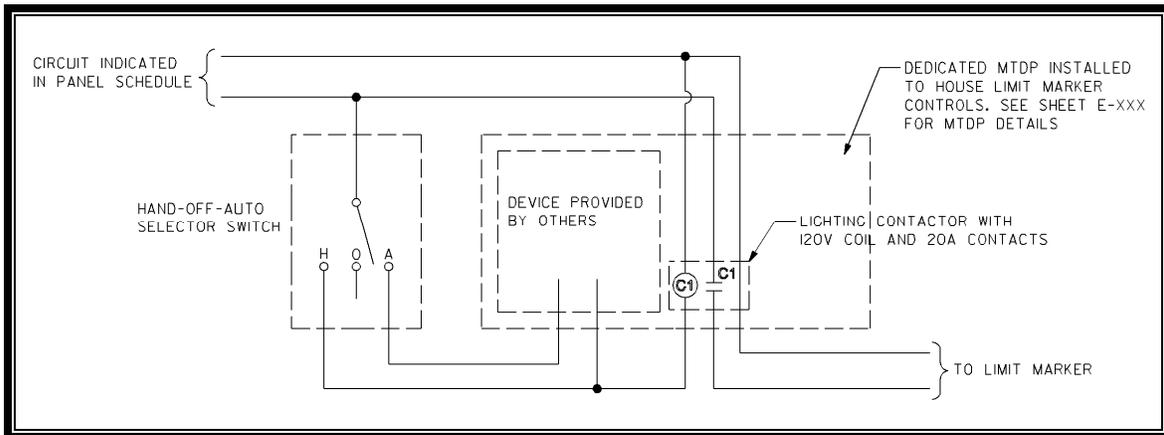
**Firing Point Markers:** Firing points along tank trails must be indicated with numbered markers in order to identify firing point locations for controllers and provide point cues for target display. These markers must be positioned so that they are concealed from continuous observation by crews. The course should be designed to channel the tank crew into the best (i.e., tactically sound) engagement route for the target arrays on the range.

**Trail Markers:** At installations where local soil conditions do not require construction of maneuver trails, a system of trail identification for locating firing positions during the training exercise is required. Trail markers are also needed in order to avoid arbitrary maneuvering that can cause environmental damage to the range. The method of marking is determined by the installation. However, since damaged markers must be replaced regularly, cost-effective markers such as semi-buried automobile tires with reflectors or wooden posts with reflectors are recommended.

**Range Limit Markers:** Limit marker equipment is required for armored and combined type ranges (i.e., SGR, D-MPTR, D-MPRC, BAX, and AATLF). The limit marker equipment may require red and/or white lighting. If red lighting is required, it will be located on the sign post. If white lighting is required, it will be located so that it shines up onto the actual sign. The limit marker equipment will require the installation of one 120V, 20A, GFCI power receptacle. This receptacle may be located at the bottom of the sign post, on the white light fixture, or on the front wall of the protective berm if the berm is provided with a wall. Marker configuration, size, and electrical loads will be coordinated with the user (range operations officer) in order to determine the needs for



the specific design. For maneuverable ranges, remote control for limit markers will be provided via the training network. Limit markers on these types of ranges shall receive power from the loadcenter located in the nearest non-SIT emplacement (i.e. MIT, SAT, or MAT) or power center. Power to the limit marker will be routed through a lighting contactor located in a separate, dedicated MTDP. MTDP used to house limit marker controls shall have the same requirements as MTDPs that house target controls. Adjacent to the MTDP shall be a NEMA 3R rated enclosure that will contain a Hand-Off-Auto switch. The switch shall be accessible from the exterior of the enclosure so that the enclosure does not need to be opened to manually activate limit marker lighting. With the switch in the Auto position, power shall be routed through a device provided/installed by others that will be located in the dedicated 10" x 10" space within the MTDP. The device provided by others will be controlled via the training network cables and function as a switch to activate lighting contactor. With switch in the Hand position, power shall bypass the device provided by others so that the lighting contactor can be controlled locally when training network is no operational. A Schematic of limit marker controls is shown below. Boundary and limit marker equipment shall be placed on a circuit separate from the circuits serving range target equipment. The locations of the limit markers are based on target layouts, the range SDZ, and any deviations required by the installation. See TC 25-8 for more details.



Limit Marker Control Schematic