# Infantry Target Cluster

Mounted Maneuver Ranges

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# General

This section primarily covers the infantry target clusters used on mounted maneuver ranges. The clusters consist of six Stationary Infantry Targets (SIT) and one Moving Infantry Target (MIT) or seven SIT's. Use this section in conjunction with the general SIT and MIT sections.

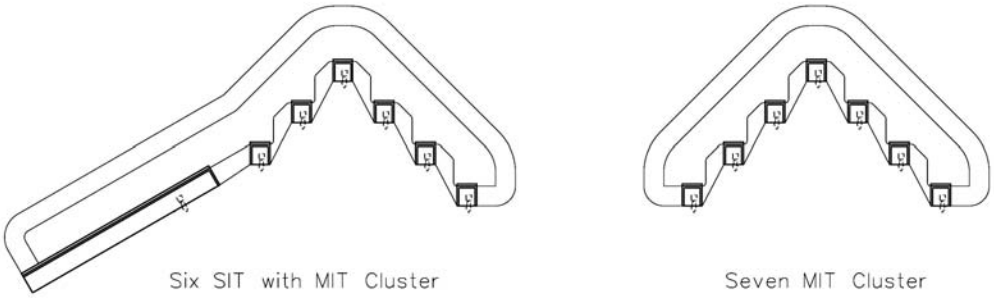
Range designers should refer to the Inspection Checklists provided in the RDG to ensure that all required items are included in the design.

# Civil/Siting

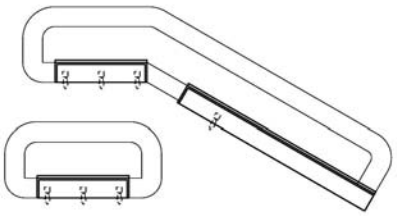
Refer to the SIT and MIT sections for specific requirements regarding emplacement size, construction type, Line of Sight, etc. This section includes additional information and requirements when these emplacements placed in clusters.

## Cluster Configuration

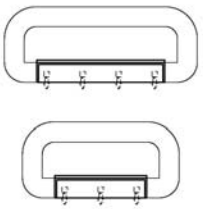
There are two primary configurations used for Infantry Clusters. The targets are placed in two rows or in a V-shaped configuration. The MIT is placed at one side of the SITs. The MIT can be either 15M or 40M long depending on the range's gunnery requirements. The lateral target spacing should be 10 feet to 15 feet (3M to 5M); depth spacing should be 5 feet to 15 feet (2M to 5M). Depth spacing on the two-row configuration depends on the thickness of the berm. Place the second row as close as possible while still allowing proper drainage. Coordinate with the installation to determine which configuration is preferred. The configurations can be adjusted to fit the terrain with the approval of the installation training staff.




V-Shaped SIT CLUSTER



Six SIT with MIT Cluster



Seven MIT Cluster

Two Row SIT Cluster

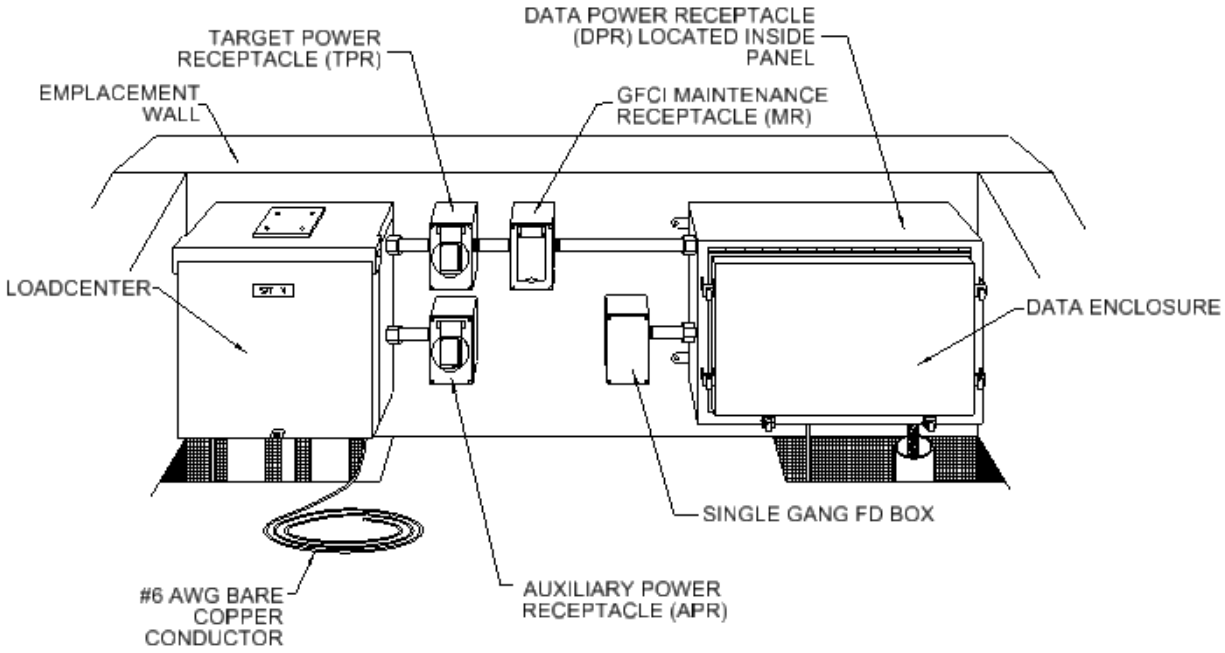
## Electrical/Communications

Refer to the SIT and MIT section for additional information and requirements for the individual target types. Refer to the Downrange Distribution Section of the RDG for additional information including downrange power, communication, transformers, trenching requirements, etc.

The power and data serving the 7-man clusters do not have to serve each emplacement separately. Power and data may feed the targets in the cluster in a master-slave type relationship where three slave emplacements may be sub fed from a master emplacement. Each slave emplacement will not be required to house all of the equipment required in a master emplacement. This will reduce the cost of construction and the cost for the target network communications devices. This is permissible because one load center may provide power for up to three additional cluster emplacements, and the networking equipment may distribute data to three additional cluster emplacements. Due to the equipment requirements in the master emplacements a master power emplacement cannot be located in the same emplacement as a master data emplacement.

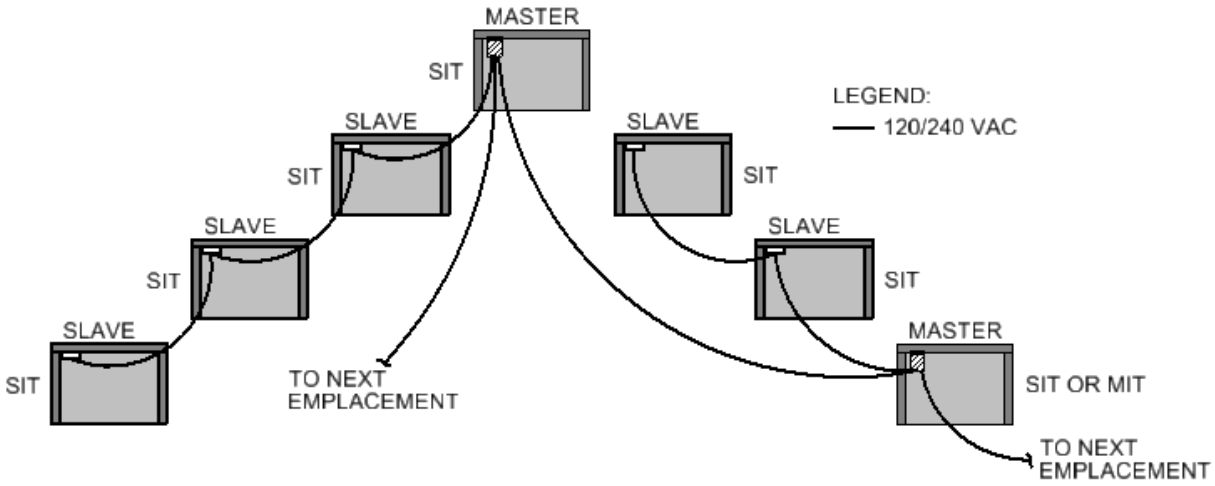
## Cluster Power Requirements

The arrangement of the 7-man clusters shall be set up so that power feeds two emplacements within the cluster that are called master power emplacements. The master power emplacement will be provided with a load center that serves power to the target mechanisms within the master power emplacement and target mechanisms located in three additional emplacements. The additional emplacements are called slave emplacements. The elevation of a master power emplacement is provided below.




MASTER POWER EMPLACEMENT

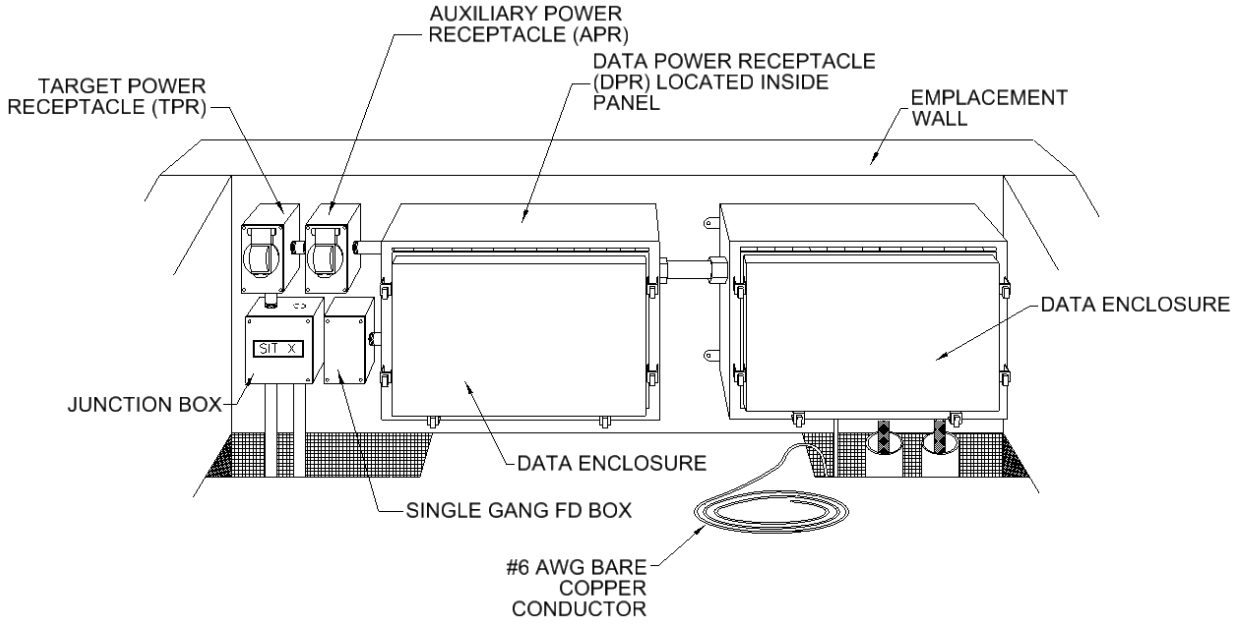
The load center that is installed in each Master Power emplacement shall be provided with a 240V, 2-pole circuit breaker that serves the target power outlet for the target mechanism in the master power emplacement and it shall provide power to the target mechanisms installed in the slave emplacements. The slave emplacements will not have a local circuit breaker for the target mechanisms in those emplacements. A junction box will be used to splice power wiring in each slave emplacement to feed the slave emplacement power outlets and to continue the power branch circuit to the next slave emplacement. The following diagram shows how the power shall be routed for a typical 7-man cluster.




7-MAN AND 8-MAN CLUSTER POWER WIRING DIAGRAM

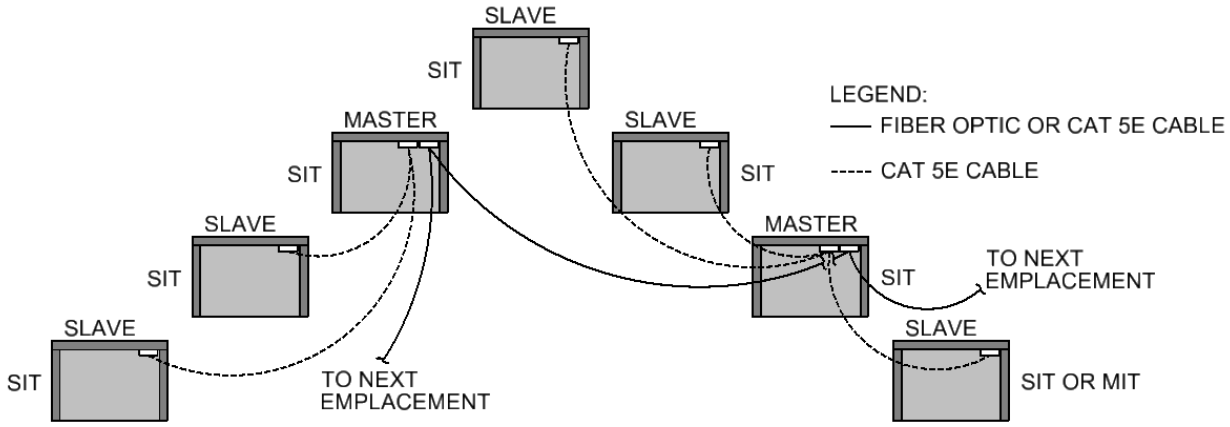
## Cluster Data Requirements

Communications shall be distributed to the 7-man clusters in a similar manner to the way power is distributed to the cluster emplacements. Data will serve one of two master data emplacements. The data cables will be distributed out of the master data emplacements. Each master data emplacement will serve up to three slave emplacements. It is critical to note that a master power emplacement and a master data emplacement cannot be co-located in the same target emplacement due to the physical size of the load centers, data enclosures, and target outlets with the limited width of the SIT emplacement. See the elevation below for the equipment that is required in a data master emplacement.




MASTER DATA EMPLACEMENT

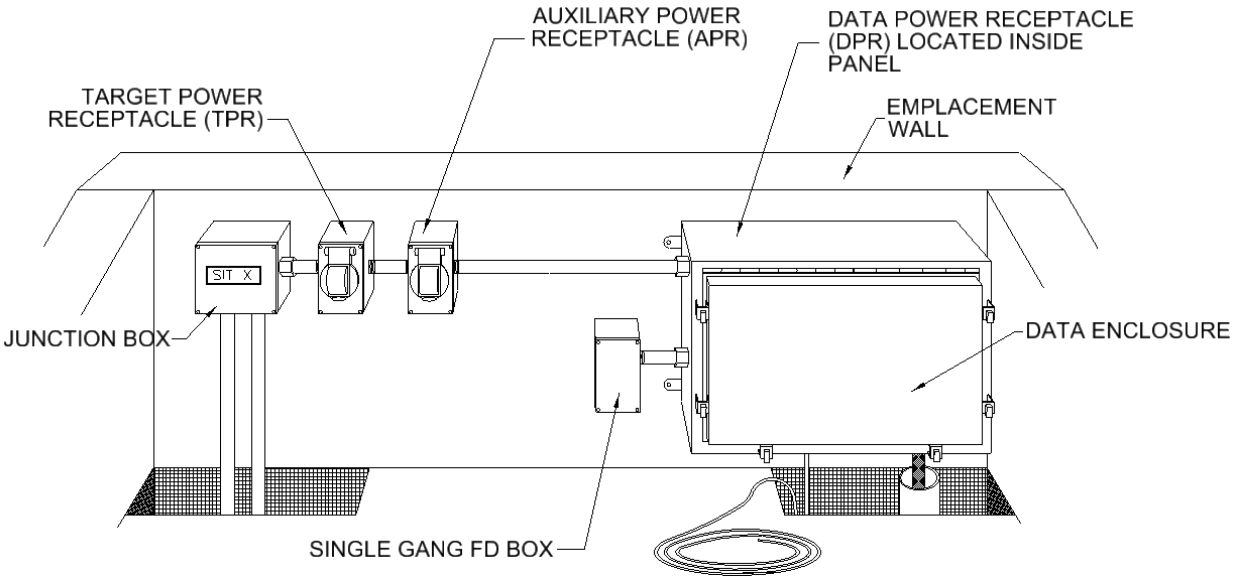
The master data emplacement is provided with two data enclosures to accommodate all of the electronics required to distribute data to the target mechanisms, to allow enough room to terminate the CAT 5E data cables routed to the target mechanisms in the cluster, to terminate the fiber optic or CAT 5E data cables routing data to and from the Cluster to other emplacements on the range, and to provide enough space for the installation of data cable surge protectors for all CAT 5E cables. The data cables are distributed from the data enclosures installed inside the master data emplacements to data enclosure installed in each slave emplacement. The following diagram shows how the data shall be routed for a typical 7-man cluster.




7-MAN AND 8-MAN CLUSTER DATA WIRING DIAGRAM

## Cluster Slave Emplacements

The slave emplacement within a 7-man cluster is an emplacement that receives power or data from another emplacement within the cluster. All emplacements will either be a slave for power, data, or both power and data. Because the slave emplacement is dependent upon another emplacement, a power or data failure in another emplacement will disable the slave emplacement. See the elevation below for a slave emplacement to both power and data.




POWER AND DATA SLAVE EMPLACEMENT