8 (C). Capabilities

The Improved NIKE–HERCULES System is capable of performing two types of missions: surface-to-air and surface-to-surface. The system can also be used for radar scoring of simulated bombing runs. The general capabilities of the Improved NIKE–HERCULES System are described in *a* through *d* below.

a. Surface-to-Air Mission (fig. 2).

(1) The Improved NIKE–HERCULES System is designed to combat bombers or air supported missiles at altitudes up to 100,000 feet. The system can detect a missile traveling at Mach 3 with a typical radar reflecting surface of 0.6 square meter at a maximum range of 300,000 yards. Bombers traveling at Mach 2 with normal ECM capabilities and with a typical radar reflecting surface of 15 square meters can be detected at 350,000 yards. At 90,000 feet altitude, the air-supported missile can be destroyed at 55,000 yards range. At 80,000 feet, bomber formations can be destroyed at 100,000 yards. The NIKE–HERCULES missile can attain a maximum velocity of Mach 3.5 which surpasses the speed of known existing manned aircraft or aerodynamically supported missiles.

(2) When a missile is fired in a surface-to-air mission, an intercept cannot be made within a "dead zone" surrounding its launcher. This "dead zone" has a ground radius of approximately 10,000 yards and an altitude of approximately 20,000 feet. The dead zone is determined by the launch angle and the minimum turning radius of the missile.

b. (Deleted)

c. Surface-to-Surface Mission (fig. 4). The Improved NIKE–HERCULES System can deliver a nuclear warhead to a surface target at a maximum range of 100 nautical miles.

c.1. Radar Bomb Scoring Mission. The Improved NIKE–HERCULES System, when used in a radar bomb scoring mission, accurately plots the course of a bomber making a simulated bombing run and marks the point of the simulated bomb release. From this plot the theoretical impact point is calculated, and the accuracy of the bombing run is determined.

d. Operating Conditions. The Improved NIKE–HERCULES System is capable of operating 23 hours a day without impairment of performance, and at least 5,000 hours without major overhaul. The equipment operates efficiently over an ambient temperature range from −40° to +125°F and at relative humidities up to 100 percent. Rain, dust, snow, sand, salt air, and steady surface winds up to 60 miles per hour, and surface gusts up to 75 miles per hour will not interfere with normal operation. The equipment is designed to operate efficiently at altitudes up to 6,000 feet above sea level. The Improved NIKE–HERCULES ground guidance equipment with anti-jam display facilities can operate effectively in the presence of severe jamming.

8.1 (C). Capabilities of The NIKE–HERCULES ATBM System

The NIKE–HERCULES ATBM System is capable of performing three types of missions: Surface-to-air antiaircraft (A–A), surface-to-air anti-missile (A–M), and surface-to-surface. The system can also be used for radar scoring of simulated bombing runs as described in paragraph 8*c.1*. The capabilities of the ATBM system are described in *a* through *d* below.

a. Surface-to-Air Antiaircraft Mission.

(1) The NIKE–HERCULES ATBM System is capable of guiding a NIKE–HERCULES missile to intercept and destroy entire formations of high performance aircraft as well as air supported missiles. Intercept can be made at ranges in excess of 150,000 yards and at altitudes up to 100,000 feet. Targets can be detected at a range of 350,000 yards with the HIPAR/AAR system and 250,000 yards with the LOPAR system. The NIKE–HERCULES missile can attain a maximum velocity of Mach 3.5 and has a maneuverability advantage over all known tactical manned aircraft.

(2) When a missile is fired, intercept can-