

# 1. Introduction

The Autonomous Rotorcraft Project operates two Yamaha RMAX helicopters (Fig. 1-1). This document describes the lost communication procedures.



*Fig 1-1. AFDD Autonomous Rotorcraft Project RMAX helicopter in operation at Fort Hunter Liggett in California.*

## 2. Loss of Communications

Radio checks are performed prior to operations to ensure working voice communications between the crew members and the Moffett ATC tower on the UHF trunking radio frequency.

The External Pilot (EP), the Safety Observer (SO), and the Ground Station Operator (GSO) use UHF trunking radios to enable voice communication with the ground station and the Moffett ATC tower. All the radios are set to scan both the dedicated project frequency and the Moffett ATC tower ground traffic communications.

In the event that voice communication is lost, all parties also carry cell phones to enable backup communications.

### 2.1 Loss of Comm with Ground Crew

If the EP and SO lose communication with the ground station, then the EP retakes manual control of the aircraft with the RC transmitter, lands the helicopter, and brings the rotor to a stop. The EP always retains the ability to retake control of the aircraft by depressing the engagement switch on the RC transmitter. The

helicopter is always operated within line-of-sight at a straight line distance of less than 750 ft.

After the vehicle has landed, the SO uses a cell phone to call the Ground Station Operator (GSO) to inform him that voice communications have been lost and that operations have been stopped. The SO also informs the Moffett ATC tower of the situation using the trunking radio if possible, and if not, using a cell phone.

### 2.2 Loss of Comm with ATC Tower

If the EP and SO lose communication with the Moffett ATC tower, then the EP retakes manual control of the aircraft with the RC transmitter, lands the helicopter and brings the rotor to a stop. The EP always retains the ability to retake control of the aircraft by depressing the engagement switch on the RC transmitter.

After the vehicle has stopped, the SO uses a cell phone to call the Moffett ATC tower to inform him that voice communications have been lost and that operations have been stopped.