Variable Configuration Mission Adaptive Drone - Aerial

The Ke-O4-1a Variable Configuration Mission Adaptive Drone is a multifunction drone that became available in YE 30.

About the VCMAD-A

Organization Using This item: Star Army of Yamatai, Yamatai National Police, Scientific Studies Service Type: Multipurpose atmospheric drone Nomenclature: Ke-O4-1a Designers: Ketsurui Zaibatsu Research and Development teams, Star Army Research Administration Manufacturers: Ketsurui Zaibatsu, Star Army of Yamatai Entered service: YE 30

Description

The VCMAD-A is the latest offering by Ketsurui Zaibatsu for use by the Star Army of Yamatai. Original development for the systems was tactical in nature, but with the recent changes in the Star Army of Yamatai the role of the device was expanded for exploration and possible civil use.

The exterior of the drone is made of carbon composite materials for strength and low weight. When in operation the drone uses nanobots to alter the physical exterior based on flight performance. The nanobots can also repair the damage to the body of the drone provided damage does not exceed 10%.

Operation

The VCMAD can be deployed autonomously. It will perform the specified mission object by the best means possible. It is has standard evasion tactics as part of its programming. The VCMAD can also be controlled via Telepresence using either Armor Integrated Electronics System (AIES) or the Ke-M2-E3000 Leader Support Pack, or spine interface on a ship.

In the event of catastrophic damage or failure, the VCMAD will self-destruct.

The VCMAD-A drone uses various mission modules to change the purpose of it. The VCMAD-A has two bays for the modules to plug into.

Flight modes

- High velocity: When the drone needs to fly at high speeds the drone changes into a swept wing configuration and tapers the nose and tail features accordingly. This mode is primarily used for delivering the drone to the target area. It can also be used in to perform high speed video

surveillance.
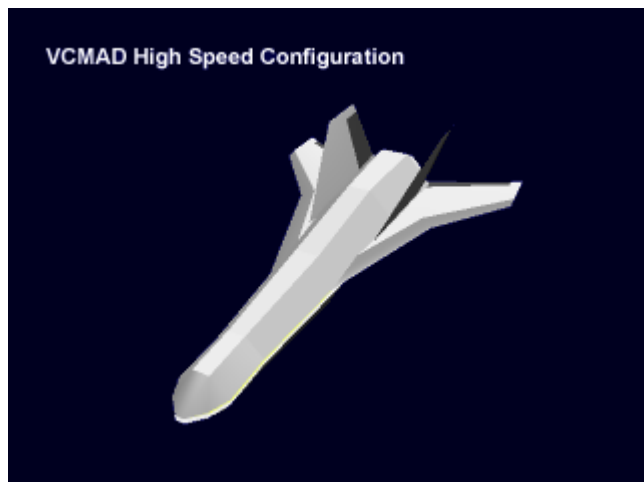
- When the drone is flying at slower speeeds the drone changes into a Dihedral fixed wing configuration and expands the tail features. In this mode it can either use the Gravimetric engine in low power mode or glide if atmospheric conditions are appropriate.
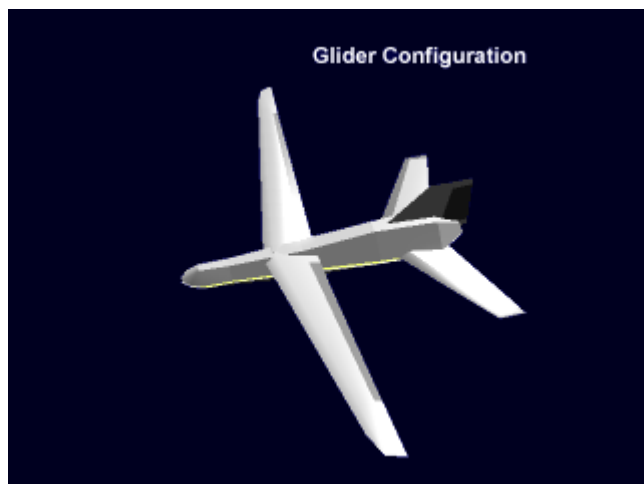
Specifications (Default)

Fuselage Length: 3 meters (9' 8") Width: .3 meters (12") Height: .5 meters (20")

Wings Length: 1 meter (39") Height: .5 meters (20") Width: 15cm (6")

When switched off the VCMAD is basically a long box with two sheets of material attached to the sides. The front is blunt but rounded. The aft section tapers to half the width. The wings are attached to the sides.

Speeds

Maximum: 1,347 kmph (837 mph) Minimum: Hover

Operational time: 36-72 hours.

Launch and Recovery

Preparation for launch

The VCMAD-A must be prepared for launch by installing the desired mission modules for the desired task.

Launch

The VCMAD-A is a VTOL device. To launch it uses the Ke-O4-P3000 to hover and lifts off. It then takes on the desired flight configuration, and then accelerates forward.

Recovery

To land it uses the Ke-O4-P3000 to slow down to hover mode. As it lowers itself, the VCMAD-A returns to the default configuration.

Note: The VCMAD-A can be launched and recovered from the ground. It can also be launched from a starship through any compartment with external access such as the cargo bay, power armor bay, or shuttle bay. If the starship is in flight, it should not be moving at speeds greater than .5 mach. Turbulence from the ship moving at higher speeds can cause the VCMAD-A to crash on launch and recovery.

Components

Note: All components in the drone are equipped with anti-tamper devices. Only Ketsurui Zaibatsu trained technicians may service them.

Ke-O4-E3000 Avionics

The drone uses a miniaturized Compact Integrated Electronics System (CIES) computer based on the one in the Ke-M2-E3000 Leader Support Pack.

Ke-O4-G3000 Power cells

The drone has two rechargeable power cells. The second cell is redundant unless the mission modules require extra power. The top of the drone fuselage is also covered with Photovoltaic cells which recharge

the power cells for extended duration.

Ke-O4-P3000 Propulsion

Propulsion is provided by a miniature Gravimetric engine based on the Ke-M2-P2902 Gravimetric Engine. It is capable of pushing the VCMAD-A to mach 1.1 for brief periods. Normally used for brief high speed fly-bys as the power drain is high. It also allows the drone to hover.

Mission bays (2)

The mission bays provide, power and control connections to the Compact Integrated Electronics System (CIES), have removable panels to accommodate module features such as cameras, antennae, etc.

Mission Modules

Ke-O4-E3000-ed Electronic Detection (Whisper)

Purpose: Detection and identification of electronic equipment. The Whisper module is designed to pickup electronic emmissions. It has a series of antenna arrays that extend when in the target area. The module then analizes the emmissions and categories them. Every device that has electrical energy produces some emission unless specifically masked. The Whisper modules recognition software is upgradeable so that as new devices are identified the system can recognize them. The Whisper module can detect emmissions up to 50km (30 miles) away.

Note: Prior to launch the Whisper module must be calibrated to the VCMAD-A so that the emmissions of the drone are ignored.

Ke-O4-E3000-ej Electronic Jamming (Jammer)

Purpose: Inhibit targets communications This module consists of four variable frequency transceivers. It has a variety of pre-programmed jamming techniques. It capable of multichannel reception and broadcast. The Compact Integrated Electronics System (CIES) programs this module with the frequencies to be jammed or can specify a sweeping frequency. Effective jamming is within 50km (30 miles).

Ke-O4-E3000-cr Communications Relay (Baton)

This programmable communications device can be relay up to 12 channels simulatenously. It is capable of Star Army of Yamatai encryption for tactical missions. It allows ground units to maintain communications and reduces or eliminates light of sight (LOS) situations on battle fields. Range is based

on altitude to maintain LOS.

Ke-O4-E3000-vr Visual Reconnaissance (Sky-eye)

This module has three high-resolution cameras with zoom, magification and auto focus. When they are in use the module stores basic telemtry data in the corner of the image: eg altitude, direction. The cameras can take either stills or moving pictures. The system automatically takes into account speed and lighting to adjust camera settings.

The three types of cameras are:

- Normal light (black and white or color)
- Thermal (infrared)
- Night-vision

Ke-O4-E3000-ar Audio Reconnaissance (Big ear)

The Big Ear module can only operate effectively at relatively slow speeds. Normal operation involves the drone being placed in a slow orbit over the target(s).

This module has three different shotgun microphones. They are gyrostabilized and autopositioning. Once locked on a target they will autotrack. The module can store up to 6 hours of audio data.

Each microphone covers a specific audio range:

- Sub-sonic
- Normal auditory
- Ultrasonic

Ke-O4-E3000-am Atmospheric monitor (Sniffer)

This module gathers atmospheric data, such as barometric pressure, temperature, humidity, wind speed. It also has the ability to take air samples and analyze them chemically.

Ke-O4-E3500 (Tracker)

- Details on the *Ke-O4-E3500 (Tracker)*.

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Last update: **2023/12/21 01:01**