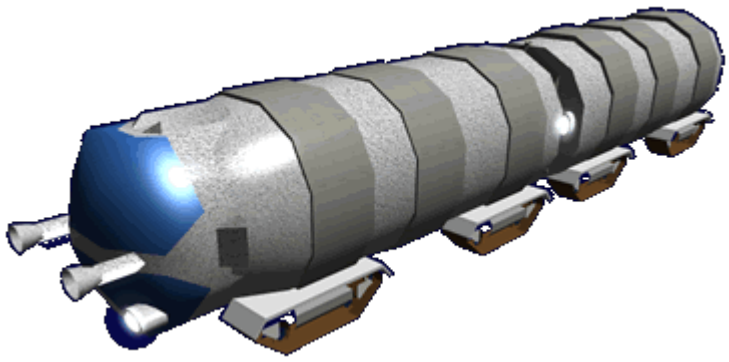
M.O.L.E.S. - Mineral Ore Location and Extraction System

The MOLES is a system for locating and extracting ores that was designed and tested by the *Scientific Studies Service (SSS)* in YE 32.



About the MOLES

The MOLES is a mining system developed by the *SSS*, it can be operated by an on-board crew or remotely. It consists of a Naikei (bore), a collection of Unpan (Carriages), and a cluster of drones to mine and collect the ore.

History

During *Project Kyasshu* the *SSS* explored ways to improve mining to supply their needs for production. The MOLES is the result of their efforts, and after testing the prototype they gave the designs to Ketsurui Fleet Yards for production.

Appearance

The MOLES primary unit for boring is cylindrical with a tapered nose, and blunt tail end. It rides upon 4 sets of tracks. Two high powered Ultrasonic/Sonic Drillers protrude out the front.

Operation

When boring the *Naikei* is accompanied by 3 or more *Unpan*. Detritus from the bore is brought in through a impeller and loaded into the *Unpans* When an *Unpan* is full it returns to the surface. When all of the *Unpan* are away from the *Naikei* it holds position. When one of the *Upan* returns it resumes boring. At times while boring the *Naikei* will carve a wider area for use as a pullout so that *Unpans* leaving can go around ones returning.

Statistical Data

General

Class: Mining System Nomenclature: Ke-K5-1a Type: Automated Designers: Scientific Studies Service (SSS) Manufacturer: Ketsurui Fleet Yards, Scientific Studies Service (SSS)

Naikai - Dimensions

Length: 19 meters (62.32 feet) Height: 7 meters (22.96 feet) Width: 6 meters (19.68 feet)

Speeds

- Driving: 60 kph (max)

Bore rates

Speed	Substance
15 m/m [1)]	dirt
8 m/m [2)]	soft rock, sandstone
4 m/m [3)]	dense rock, granite

Damage Capacity

See Damage Rating (Version 3) for an explanation of the damage system.

- Hull: 12 Armor
- Shields: None

Unpan - Dimensions

Length: 16.5 meters (54.12 feet) Height: 7 meters (22.96 feet) Width: 6 meters (19.68 feet)

Speeds

- Driving: 60 kph (max)

Damage Capacity

See Damage Rating (Version 3) for an explanation of the damage system.

- Hull: 12 Armor
- Shields: None

Naikei

The *Naikei* uses two high powered Ultrasonic/Sonic Driller arrays to tunnel through dirt and stone. The *Nakei* has a cockpit where two operators control the unit. The *Naikei* can be operated by the on-board Isolated Computer Pads. Normally it is only operated by computer once the site has been initially worked. The *Naikei* also has a pair of sleeping bunks, a privy and a small kitchen for use by the occupants. The life support system can supply potable water and breathable air for thirty days without refurbishment.

The *Naikei* uses a Ke-T8-E3103 Computer Array created for the *Ke-T8 "Kuma" Multi-role Shuttle* as its guidance and control system.

The two Ultrasonic/Sonic Driller arrays are larger and more powerful version of those on the MOGS; they can make a hole up to twice the width of the *Naikei*. The pulverized stone slurry is taken into the *Naikei* and some of it is kept to make braces. The rest of the slurry is passed into the *Unpan* and taken to the surface.

The aft portion of the *Naikei* has a compact fabrication unit like that found in the Ke-P1-06a - Workshop. The slurry that is kept on the *Naikei* is processed and turned into a high tensile polymer that is by Extrusion shaped into braces and supports. The polymer is flexible and pliable until exposed to ultraviolet radiation. A bar-code is attached to each support and is read by the MOLES units when navigating the excavation.

Sensors

The *Naikei* uses the same sensor package as the MOGS.

- Ground penetrating radar which can be used to image through rock, soil, ice, fresh water. It can detect objects, changes in material, and voids and cracks. Range is 1 kilometer.
- Seismometer to measure and record motions of the ground.
- Seismic reflection the Naikei has two seismic sources that generate controlled seismic energy. A series of receivers along its sides receive the reflected energy.
- Scalar ore scanner uses a scalar transducer to send a Scalar Field out in a 180° arc. The scanner then analyzes the phase shift of the reflected energy to identify ores. Range: 500 meters.

Lighting

The *Naikei* is equipped with retractable light bars containing Normal and Ultra-violet lights.

Shaberu

The Shaberu *shovel* are small automated units that mine the desired ore. They are hexagonal, 1.5 meters wide, and 1 meter tall. They have an assortment of mining tools:

- carbide cutting tool
- sonic drill
- impact hammer
- mining laser.

Once the *Shaberu* has extracted a piece of ore it moves it behind it for a *Kyuu* to come and collect it. The *Shaberu* receives commands from the *Naikei*. The *Shaberu* move on six mechanical legs.

Kyuu

The Kyuu *gatherer* actually perform the ore extraction. These drones gather the mined ore from the *Shaberu*. Once they are full they return the ore to the *Naikei*. They consist of a pair of claws, a scoop and a box to contain the ore. The Kyuu also assist with placement of braces and supports. They are two meters long, 1 meter wide and 1 meter high. They move on treads.

Unpan

The Unpan *carriages* are used to transfer the ore to the surface. The *Unpan* collect ore from the Nakei. Once full the *Unpan* starts making its way along the tunnel. It transfers its cargo to another *Unpan*, which in turn will pass it to another. The *Unpan* are autonomous.

The *Unpan* has a cargo capacity of 4m x 5x x 14m or 280 cubic meters.

Each *Unpan* can carry the following units inside for deployment when the *Naikei* reaches the desired site. They bring the units down when empty:

- 2 Kyuu (Gatherers)
- 4 Shaberu (Shovels)

MOLES Systems

Power

All units in the MOLES use Aether generators for primary power.

Armor Construction

Mining is dangerous work, and all MOLES units are built with a Durandium Alloy frame and covered in Durandium Alloy plating.

Additional Use

The MOLES is also capable of being used to bore tunnels for other uses, such as transportation.

OOC Notes

Artwork by Nashoba.

[1)] , [2)] , [3)]
Meters per minute

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