So-M2-1A Raevr VANDR

The So-M2-1a Raevr VANDR is a variable organoid powered frame designed by Solan Starworks in AR 936.

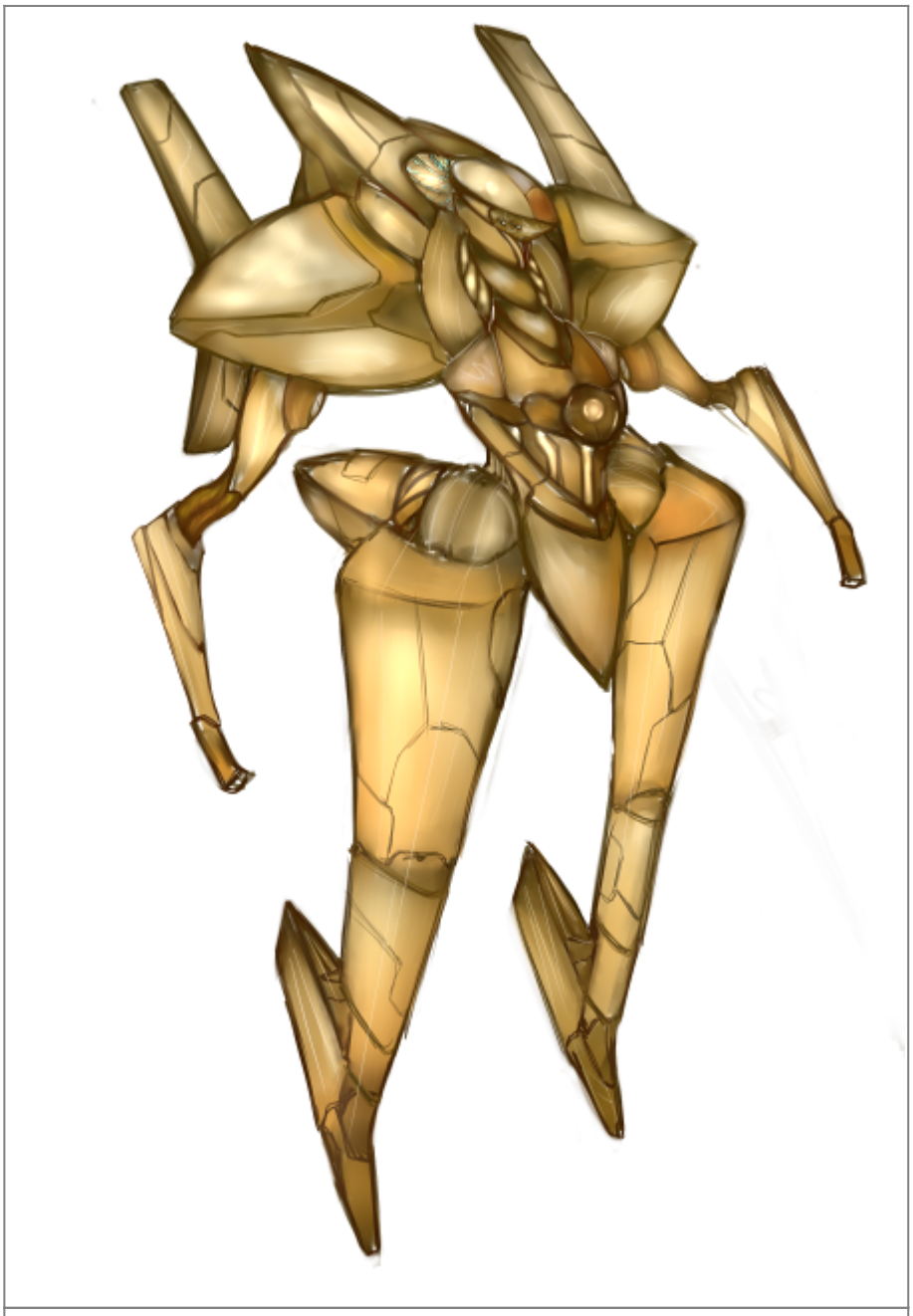
History and Background

After the completion of the Erla Vandr 2, Solan Starworks was commissioned to produce a series of three new powered frame models to the Astral Vanguard's specifications to assist it in escalating conflicts against rebels in the late AR 930's. A heavy weapons unit designed to carry large external armaments, a new reconnaissance unit to fill the gap produced by the more combat-oriented EV-II and a high-mobility VANDR designed for aerospace superiority operations and interception.

Due to Solan's previous experimentation with transformable frames in the past, the high mobility Raevr VANDR was the first of the three to be developed. However, where the Erla-series had consistently been worked on by a single department of Solan, the Raevr was split into two separate projects due to a misfile that assigned the same project to two department heads, causing both Solan Staryards and Solan Starwinds to each produce a prototype with radically different design methodologies.

The Staryards model was a unit that could transform into a high speed fighter with powerful forward facing beam cannons and a prow that could be used to ram into ships and other frames. Starwinds had taken the more radical approach, using an aesthetically simplified Erla VANDR chassis and mounting a number of experimental spatial compression systems aboard, including a system that allowed the unit to carry projectiles in microscale pocket dimensions to avoid bulky missile racks and featured optimized MASC geometry that allowed it to initiate tremendous bursts of speed for a few minutes at a time. A phase of furious testing followed the completion of both models, culminating in a live-fire test carried out on Solan's special test site in the southern Maekardan desert. Ultimately, neither design team won out during the trials, leading the department heads of Solan to merge the divergent projects into a single design.

The final prototype for the high performance transformable powered frame '*Raevr VANDR*' was completed in the first quarter of AR 936.



So-M2-1a Raevr VANDR

About the Raevr VANDR

The Raevr VANDR is the only transformable mecha in use in the Commonwealth[1)], but is far from a once-off experimental design. Despite sporting an advanced aeroframe, every inch of the Raevr VANDR was designed to make it feasible as a mass production machine, and does not use any high-Veyrinite content systems or weapons such as the Erla VANDR II's “Phantoma Shroud” system. Every component is high-grade, but otherwise feasible to produce in large numbers using the production methods of AR 936, allowing the design to enter mass production immediately after testing.

In combat, the Raevr mounts a large number of missiles, as well as the same twin rapid beam cannons as the Erla VANDR II and VT Driver weapons in its long, finned legs and thin, long arms. It is armed primarily

to flank and skirmish thanks to its superior speed, or for fast attacks on the front with the use of its missile batteries. In fighter mode, it is even better suited to frontal assaults due to its ramming head and dual long-ranged beam cannons.

Although classed as a 'mission configurable' support platform because of racks on the back and sides that allow it to be outfitted with additional external modules, the Raevr is more currently used as a general air support unit. With the ability to zero-in on defensive emplacements on the ground through the usage of its Listening Device and make pinpoint beam and missile strikes from low orbit, the Raevr is the definitive transformable powered frame designed by Solan Starworks.

Statistical Information

- Government: Iromakuanhe Astral Commonwealth
- Organization: Astral Vanguard
- Role: Mission Configurable Fire Support
- Type: Organoid Powered Frame
- Class: So-M2-2A Raevr VANDR
- Designer: Solan Staryards
- Manufacturer: Solan Starworks
- Production: Limited Production

- Crew: 1 Iromakuanhe. Entry port inserts restrict the use of a standard model to Iromakuanhe pilots only.
- Maximum Capacity: There is sufficient room and life support resources to keep 3 people alive inside the cockpit.

- Width: 2.66 Meters (2.44 Meters in ARMS Mode)
- Height: 6.99 Meters (8.44 Meters in ARMS Mode)
- Mass: 23.7 Tonnes

- Range: 14 AU
- Lifespan: 11 Years

Speeds

- Ground speed (Hover): 440 KM/H
- Air speed (Flight): Mach 7.7
- Zero Atmosphere (Flight): .325c
- MASC Drive (FTL): 500c

Damage Capacity

- Hull: T7
- Shields: T8

Interior Descriptions

Cockpit

The cockpit is a cramped, cylindrical chamber on a slight angle that slopes down towards the front, with a seat similar to that of the EV 1. The front is inset with electronic display screens for diagnostic purposes, while the sides open up into airtight compartments with rations and self-defense weapons stashed away in sealed bioplastic bags. The orange color scheme has been replaced with a more somber blue and grey, with lines of a reflective white outlining panels and access ports for electronics. Although claustrophobic by comparison to the spacious cockpit of the 1a, this newer, more compact cockpit block has allowed for Solan to integrate the cockpit into the body.

Weapons Systems

RV-I Advanced Ram Striker [ARMS]

The Advanced Ram Striker mode is the operating name for the Raevr VANDR's nonhumanoid combat mode, characterised as a wedge-shaped fighter craft with a ram head that incorporates experimental VT Blade technologies and long-ranged beam cannons. These weapons are not accessible in humanoid mode because of slight shifts in VT geometry and power train allocation that occur when moving to the more conventional humanoid mode as well as deliberate locks in the OS meant to prevent damages to the unit from improper usage.

Location (VANDR): Lower Legs Location (ARMS): Nose/Prow

So-M2-W0935.A "Phantoma Edge" VT Sword

VT Sword

Purpose: Anti-Vehicle, Anti-Infantry Secondary: Anti-Shield

Damage: T9 Range: 4 Meters Rate of Fire: Varies

(2): So-M2-W0935.B "Shocklance" SCPA Cannons

SCPA (Sniper Charged Particle Accelerator) Cannon

Purpose: Anti-Armor, Anti-Vehicle Secondary: Anti-Shield Damage: T7, Electrical Damage

Range: 20 KM in Atmosphere, 60 000 KM in Space Rate of Fire: One blast every 4 seconds of charging Area of Effect: .5 Meters Muzzle Velocity: .50c Ammunition 180 Particle Shots, Replenishes completely

after 30 Minutes out of combat

RV-I VecTran Node System [VNS]

The VecTran Node System is an experimental containment field system that marries long-untested space compression field theory with newly-developed stasis and phasing technology to generate microscale pocket dimensions that may be used to safely store munitions. The effect is similar to the pocket dimension siphon fields used by the ZeP Siphon, allowing for a relatively small space to conduct or store a large amount of mass or energy. Anchored by the emitters in the shoulders, a single point in Euclidean space opens up to the pocket dimension and allows the unit to draw in or stow away missiles and other self-propelled projectiles.

Due to critical flaws in the Starwinds prototype, Solanii engineers created a number of safeties to prevent the Raevr from being destroyed if its VNS is compromised. In case of power train or containment failures (which are rare due to the usage of a Veyrinite-rich power conduit system), the system will overextend the Raevr's shields constrain and 'crush' the pocket dimension, reducing its contents to an ionized gas. This results in mild damages to the unit and the temporary loss of its VNS, which may be repaired only by replacing the emitters and circuitry in the back fins.

An inactive Raevr VANDR may 'idle' their VNS by drawing power from one of the capacitor systems, but cuts the total usage of the optical distortion emitter by half and reduces the overall stealth of the unit to distortion sensors. This allows a Raevr that has been powered-down in the field to temporarily retain its stored missiles without having to manually evacuate its Vector Transition Nodes and reload them at launch.

This technology is unique to the Raevr VANDR, which possesses a specially engineered aeroframe fitted with the complex internalized MASC Drive geometry required to generate such fields.

Location: Integrated into chassis, primary emitters in shoulders.

(6): So-M2-W1936 "Star Adder" APaLa Missile Node

Advanced Particle Lancing (APaLa) Missile

Location: Vehicle-Mounted Purpose: Anti-Emplacement, Anti-Vehicle Secondary: Anti-Starship Salvo Size: 3 Damage: T8, Electrical Damage

Range: 55 KM in Atmosphere, 5.4 Light Seconds in Space Rate of Fire: 1 salvo every 7 Seconds Area of Effect: 10 Meter 'Geyser' Muzzle Velocity: Mach 8.1 in Atmosphere, .27c in Space Ammunition 36 Missiles

Hardpoint Weapons

(2): So-M2-W2935 "Shocksting" RCPA Cannons

RCPA (Rapid Charged Particle Accelerator) Cannon

Location: Left and Right Wrist, Docked in ARMS Mode Purpose: Anti-Armor, Anti-Vehicle Secondary: Anti-Shield Damage: T7, Electrical Damage

Range: 3 KM in Atmosphere, 18 000 KM in Space Rate of Fire: 180 RPM Area of Effect: 1.5 Meters Muzzle Velocity: .35c Ammunition (Passive Mode): 200 Particle Shots, Replenishes completely after 90 Minutes out of combat Ammunition (Active Mode): Unlimited so long as the unit provides power.

(4): So-M1-W3935 "Phantoma Glide" VT Driver

VT Driver

Location: Hands[2)], Legs Purpose: Anti-Vehicle/Anti-Infantry Secondary: Anti-Shield

Damage: T6 Range: Varies Rate of Fire: Varies

(1): So-M1-W4784 "Storm Ray" LEMB Array

LEMB (Light Enhanced Multi-Beam) Laser

Location: Chest Purpose: Point Defense Weapon Secondary: Anti-Infantry Damage: MDR 2

Range: 5 KM in Atmosphere, 300 000 KM in Space Rate of Fire: Can maintain up to 12 beams simultaneously. Muzzle Velocity: 1c

(2): So-M1-W5784 "Star Locust" PASD Missile Pods

PASD (Particle Swarm Detonation) Missile

Location: Shoulder Pods Purpose: Anti-Armor, Anti-Vehicle Secondary: Anti-Shield Salvo Size: 9 Damage: T5, Electrical Damage

Range: 25KM in Atmosphere, 15 000 KM in Space Rate of Fire: 1 salvo every 8 Seconds Area of Effect: .5 Meters Muzzle Velocity: Mach 6 in Atmosphere, .2c in Space Ammunition 72 Missiles Ammo Replenish: Can refill capacity in hospitable conditions in about 2 hours outside of combat. Any further attempts to refill will require an external source of biomass.

Systems Descriptions

Variable Transformation System (VTS)

The VTS system first theorized and developed by the Testing and Staryards Divisions for use with the venerable EV1 , never saw implimentation due to design, and technological constraints of the time. However, with recent refinements to the technlogical base of the VANDR series, and in other fields, the VTS was once again re-evaluated for use upon the newer Series 2 - VANDR, Raevr.

The system allows for variable configuration of the VANDR in question from the normal characterized 'frame' platform to that of a high-mobility fighter craft allowing for adaptation in the face of possible space superiorty fighter engagements where the humanoid form maybe a hinderance. Due to the lower profile, and retunement of the VT geometry which has become specifically tuned to improve the 'funnel' forces of the craft. This in turn allows the Raevr while in fighter configuration increases in STL speeds as well as an afterburner like effect.

However, as a result of the more compacted profile, retunement of the VT base, maneuverability is lowered as a trade-off for the increase in overall STL/FTL speed.

Hull and Hull Integrated Systems

Hull and Chassis

Hypercarbon Sheath Armor (HySAr)

Organoid-type Substructure

Life Support

The Erla VANDR's life support functions are tied in directly with the Organoid's natural bioelectrics and life functions, meaning that should power failure occur, these systems will continue to function until the components expire.

Organoid Integrated Life Support Functions + Prajna

So-M1-R0784 KORD System

Shields

So-M2-S1784 Frame-type Vector Shroud Vector Shrouds are sophisticated vector field systems that envelop the craft in a conformal shell of compressed space, allowing one to become relatively invisible to electromagnetic and particle based sensors, and shrinking the frame's profile to other systems. As a shield, it is reliable and particularly effective versus energy weapons. Shares SP with the Vector Barrier Guards.

Locations: Integral Runtime: Limited by Power Source Only

So-M2-S1784 Vector Barrier Guard More powerful but considerably less reliable than the Vector Shroud,

the Vector Barrier is the first line of defense in the field, and an excellent last resort. They employ advanced space compression to generate a long 4m oval shield that is separate of the main unit and acts as a kind of disposable barrier. These are generated at various locations on the frame unit and remain fixed in proximity to the module that formed it.

Locations: Torso Runtime 3 Minutes

Power Generation

Reactor

So-M2-G0936 Frame-class ZeP Siphon The Type-P ZeP Siphon is an experimental early production model of the basic frame-class zero-point energy sources, which has been down-tuned in regards to performance and output to prevent the reactors from being damaged until the equations required to achieve full draw can be perfected. The engineering of the Type-P is identical to the tentative completed model, but features a limiter that keeps the output bellow combat-capable levels. Consequently, the mecha features a capacitor system that stores virtual particles and can catalyze them to effectively replace the reactor entirely for several hours.

The reactor is contained near the cockpit unit, and ejects with the mecha's escape pod because the technology is too expensive to abandon in the field.

Capacitor System

So-M2-G1936 Frame-class NEn Capacitor x6 The NEn capacitors equipped on the Erla VANDR II were originally meant to supplement the reactor by storing virtual particles produced, to allow for silent running operations and replace the output of the reactor in case of emergencies. However, technology constraints on the reactor's potential maximum output have changed this purpose, making the capacitors the main power system for combat scenarios.

The capacitors are contained around the body in the limbs and backpack unit so that they can regulate with the environment.

Propulsion

Main

So-M1-P0935 Vector Transition Drive The VT Drive is a variant of the MASC Drive that has been optimized for powered frames, that replaces the fins and extensions of the basic MASC Drive with a substructure and underarmor that has been heavily doped with purified Veyrinite, effectively internalizing the complex geometry required to produce the funnel-like compression of space that could be turned to functional propulsion. Although such techniques were used on spacecraft, the technology could not be sufficiently micronized for practical usage in powered frames until the inception of the Mk II.

The drive allows for both slower than light and faster than light travel, as well as a third mode known as the 'Vector Translation' or 'Sublight Jump'. As long as sensors are functional, the pilot may initiate a sudden jump to any point within a range of under a light second without charging their drive system. When undertaking this 'Sublight Jump', the unit loses all directional momentum as a consequence of inertial dampening and the distortion of the mecha's compressed space fields.

Faster than light travel requires several minutes of charging and calibrations to ensure the creation of stable corridors in compressed space, else the unit might experience critical damages during or after transit.

Maneuver

So-M1-P1935 Lift Ring System Because the MASC Drive itself is less effective than conventional drives in atmospheric conditions, the EV II partners it up with an array of GravElectric (GE) Lifter rings which have been placed at the joints and extremities of the powered frame. These generate anti-gravity forces that allow it to propel itself as easily as if it were in microgravity conditions, and can generate precise thrust through the manipulation of Lorentz Force fields. This allows it greater land[3)] and air speed.

Electronics

Control Systems

So-M1-E0784 VANDR-type Immersion Control Pod w/ VCANIOS Core

Due to their natural interface abilities, designing a responsive and intuitive control system for an Iromakuanhe was relatively easy. This system, know as the Immersion Control Pod, allows easy and natural control of most vehicles, including large units such as powered frames and starships. The Control Pod is the seat component of the cockpit, and is comprised of a rounded chair in which the pilot is most comfortable in a reclining position, and multiple entry port plugs. The chair itself is lined in a soft, organic material lined in a highly flexible rubbery skin that is smooth to the touch and has a light golden reflective sheen. It will naturally conform to the user's body, and can even form cushioned indentations for the tips of horns.

Use

To connect with the machine, one must connect the plugs to their entry ports, which can be done manually, or automatically by the organoid. The pilot's senses and ability to move will then quickly begin to fade as they are rerouted to those of the frame, which they will be able to control as extensions of their own bodies. Weapons systems and certain functions may have to be practiced.

Note

Transfer of pain cannot occur because organoids lack developed tactile senses in most cases, however, the have been uncomfortable sensations reported by pilots when their units lost limbs or took heavy damage, similar to a sort of strong pressure. On very rare occasions, the sensory redirection effect caused by the control module lasts after disconnection from the craft, which will require immediate medical attention.

Communications Systems

So-M1-E1784 Frame-type Communications Package

Location: Torso, Cockpit Pod

Includes:

- Laser
- Radio
- MASC-Assisted Laser
- MASC-Assisted Radio

Passive Sensors

So-M1-E0935 Frame-type Passive Sensors Pod The passive sensors of the Erla VANDR II consist of advanced long-range RADAR for area scanning, along with Vector Wave Sensors and Subspace Mass Sensors for early warning purposes. With the exception of RADAR, the components of the passive sensors package do not produce any traceable emissions at low-level operation. The array consists of two clusters, located in the head antenna and rear cockpit pod.

Includes:

- Vector Wave Sensors
- Subspace Mass Sensors
- RADAR

Active Sensors

So-M1-E1935 Frame-type Active Sensors Pod For the purposes of seperating sensors and streamlining design, the Erla VANDR II has its passive and active sensors seperated and located in areas where they would be considered most effective. The pods that comprise the passive sensors contain a short-range thermal scanner for low-light operations and lifesign detection, high-energy LADAR emitter as well as long-range MASC Particle Scanner nodes that allow the mecha to target or scan objects at an extreme distance. These sensors are often of greater importance during combat and when determining the course for high-speed STL and FTL maneuvers.

Includes:

- LADAR
- MASC Particle Scanner
- Thermal Sensors

Stealth and Countermeasures

Passive Stealth

So-M1-E5935 Phantoma Sink System The Phantoma Sink System is a system that was developed specifically for the Erla VANDR II, that uses the reactor and primary drive system to effectively regulate the space immediately around the unit, allowing it to camouflage itself by imitating background radiation and heat levels within 88% accuracy. This is done by effectively sinking reactor by-products such as heat, heat gradient, neutrinos, loose virtual particles and electromagnetic radiation back into the artificial space that it taps for energy. However, the reactor must be operating at at least minimal levels to initiate this effect or the system will be unable to function.

In practice, this means the mecha can hide in plain sight in areas with large numbers of mecha with Aether, Quantum Foam and Zero-Point reactors, and be difficult to track in even nominal conditions.

Active Stealth

So-M2-E0936 Muted Resonance Shroud

Detection Range: 250 M Max Field Size: 1 KM

Countermeasure

So-M2-E1936 Listening Device The Listening Device is a system employed to passively intercept and sample data being transmitted through unsecured methods. It is also a critical component in many important electronic warfare devices, and allows Astral Vanguard starships and vehicles to track the communications of hostile forces. As the unit approaches the source of the transmissions, it becomes increasingly easier to track, until a positive match can be made at a certain threshold.

Location: Head Can Intercept:

- Radio
- Microwave
- Subspace (requires Vector Wave Sensors)

Specifications		
Medium	**Maximum Interception/Detection Range**	**Tracking Range**
Radio	1 200 000 KM	30 000 KM
Microwave	600 000 KM	15 000 KM

Specifications		
Medium	**Maximum Interception/Detection Range**	**Tracking Range**
Subspace	15 000 KM of Receiver or Sender	5000 KM

(2): So-M2-E2936 Regenerative Beacon Flares

Location: Humanoid Form: Leg Pods, Fighter Form: Leg Pod Purpose: Anti-Missile, Anti-Targeting Lock Secondary: Misdirection Salvo Size: 1, 2 or 3 Damage: MDR 1

Range: 25KM in Atmosphere, 15 000 KM in Space Rate of Fire: 1 salvo every 2 Seconds Area of Effect: 500M in Atmosphere, 2500 KM in Space Muzzle Velocity: Mach 6 in Atmosphere, .2c in Space Ammunition 24 Missiles Ammo Replenish: Can refill capacity in hospitable conditions in about 1 hour outside of combat. Any further attempts to refill will require an external source of biomass.

(2): So-M2-E3936 Regenerative Canister Missiles

Location: Back of Torso Purpose: Anti-Beam, Sensors/Communications Jamming Secondary: Misdirection Salvo Size: 3, 6 or 9 Damage:

- *Impact:* MDR 1
- *Cloud:* Tier 1, Light Anti-Personnel

Range: 20KM in Atmosphere, 12 500 KM in Space Rate of Fire: 1 salvo every 2 Seconds Duration: Cloud dissipates after 20 seconds. Area of Effect: 400M Muzzle Velocity: Mach 3 in Atmosphere, .1c in Space Ammunition 27 Missiles Ammo Replenish: With power supply from reactor, can refill capacity in hospitable conditions in about 2 hours outside of combat. Any further attempts to refill will require an external source of biomass.

Misc

Internal Storage

There are internal storage compartments within arms reach of the pilot on the left and right, with each roughly 50cm x 25cm x 25cm in size. By default, they contain:

- Rations
- 2 Litres of water
- (4) Leyflar Supercapacitor
- (1) Solanii Laiz Carbine

Crowd Control Device

The mouth of the Erla VANDR II is equipped with a gland that can project capsules of an organic foamy adhesive, which break on impact. These allow the pilot to restrain civilians and unarmored infantry without harming them, and can also be used to anchor light objects to surfaces.

Optical Distortion Emitter

The metamaterial coating of the unit's HySAr armor can be electrically charged to generate a functional stealth field. Although not originally meant to be used as such, it can function as an optical stealth system when outside of combat. The power of a single NEn Cap can power the ODE for up to 11 days without recharging.

BHS

Biomass Harvest System (BHS)

1)
and unknowingly, one of a handful in the Kikyo Sector.
2)
VT drive geometry extends throughout the arms, but only the hands are exposed.
3)
While hovering and performing low-atmospheric maneuvers.