

X-102 Update Package

History and Background

The Winter series of powered-frames was fielded prematurely in the form of the AMX-101 Winter, a high speed atmospheric defensive armor, intended to repel possible SMX invaders. The AMX-102 is the identification code for updated AMX-101 units with the X-102 software and hardware package.

About the X-102 Update Package

Set to become standard issue to AMX-101 units, the X-102 update package replaces a number of smaller critical parts, including the internal skeleton. These modifications grant the unit space warfare & tactical ability, seriously improving the unit's stability and efficiency. The upgrades also allow the newly designated AMX-102 to wield the [Compressed Packet Rifle](#) (an otherwise crew-servicable weapon) alone and with great ease.

Augmented Systems

Structural

The major alterations in terms of structure allow for a shift to a more aerodynamic form with less moving parts and a lower target profile, special mounting technology and augmented strength to help the unit properly wield the [Compressed Packet Rifle](#).

Skeletal changes

New changes to the existing skeletal structure completely remove the pilot from the arms and legs of the unit, placing their body within the torso of the machine, their neural action dictating the movement of the unit by either an extension of themselves or their will to perform a task.

The new changes make the newer model larger, more robust and better able to cope with the stresses of space combat, directed energy weapons and particle weapons while also enhancing the modular nature of the machine by allowing deck crews to completely remove limbs and exchange them.

Funnily enough, the new change also makes the unit substantially lighter, with new Structol metallurgy technology applied to the construction of the skeleton. The limbs of the unit (particularly the legs) become substantially longer, making room for the new engine systems. The limbs are able to retract and the torso compress against the pilot in order to fit inside tight spaces, (not unlike an octopus) making the unit ideal for urban combat but until the new smaller state is achieved, the external armor is physically

weaker. In much the same way, the unit is able to transform into a more aerodynamic fighter-like form, presenting a smaller sensor cross-section and much lower thermic profile.

Mounting Systems (Optional)

Claws

Beneath the armor lie a series of retractible telescopic arms which are able to grasp objects and manipulate them (fore-arms, knees & hips) which are able to act as hard-points for missiles or even rifles. They are also able to extend from the body to perform high precision action, such as docking or even holding heavy objects. In testing, common uses for this system during combat have involved grabbing objects such as armor plating or foliage and using it to a great tactical advantage, an outcome not foreseen by designers who then enhanced the ability of these small claw-like arms to hold objects delicately without crushing them or exert forces of up to 120PSI (Via slow pressure-release structol memory alloy). There are a total of six, each no larger than three human fingers. Normally, they sit beneath the external layer of armor and are invisible.

Plugs

64 retractible plugs lay under the skin of the armor, tied in directly with the structural layering system. They allow for mounting of external armor, engines or other systems. Each is no larger in size than a finger. During maintenance, these plugs also act as anchors against a support frame allowing the armor to literally be turned inside out while holding it safely for work-crews.

Structural Enhancement

A number of software calibrations and the addition of a structol strength amplification layer around the elbows, shoulders, wrists and calves and about the smaller chest-mounted arms allow the AMX-102 to lift greater loads and grant it a greater prowess in close combat. While using weaponry, this system allows recoil to be virtually stopped.

Propulsion

Major changes have been made to the Winter's propulsion systems, granting it a much greater fuel efficiency and proper space-combat ability, thanks to special calibration of the casimir field that surpasses the ability of smaller armors.

Full Authority Engine Control System

FAEC - Full Authority Engine/Systems Control is a system designed to allow the assigned engine or system to perform at maximum efficiency for a given condition, based on environmental variables and necessary realtime calibrations that need to be made, minimizing the pressure on the pilot who simply picks demands and is informed of the consequences of his or her choice.

FAEC makes it's decisions based on the variables it receives for the current flight condition, sifting through it and applying it to a flight-model to decide what the best outcome, should the data not be pre-calculated - "baked" - into the system.

Performance Characteristics:

- Lower fuel consumption
- Automatic protection against stalls and engine malfunctions based on the local environment
- Hyper-redundant engine management systems
- 100% automatic engine start-up procedure
- Tighter integration of all systems involved (higher accuracy & greater motion stability)
- Monitoring and diagnostics
- Automatic emergency responses, unless overridden

Ion Rings

Ion Rings are specially constructed coils of nano-carbon tubing for mounting, iron and neodymium weaving which are then pressed into highly dense incredibly powerful magnets, which range between an inch to a full foot across.

While naturally ferro-magnetic, when a charge is applied, different portions of the ring polarize, creating powerful magnetic points which can be controlled to manipulate the direction and velocity of the plasmic thrust by charging different portions of the rings and the frequency of the charge pulse.

Ion rings are used for both thrust management (internally) for fuel consumption management and thrust release vector management (external) for additional maneuverability via thrust-vectoring of up to 90 degrees in any direction and 160 degrees on larger versions.

The net result is that when the user applies motion control, the information is sent through the FAEC's digital throttle quadrant management system to regulate pressure and ionic plasma velocity by using the ion rings.

MPD Plasmic Engines

There are Eight plasmic engines on the AMX-102 - One on each foot, one upon each hip and two especially high-performance behind each shoulder, replacing the basic high-pressure vent propulsion systems.

Plasmic Engines are basically magnetoplasmicdynamic engines which make use of the hall-effect to it's greatest extremes, coupled with tight pressure and pulsed thrust to make the most out of plasma, rather than just releasing it as a rocket does. The level of actual performance is far more efficient than that of

pressured plasmic jet engines on the previous 101 model and - properly calibrated - are capable of a much higher envelope of performance.

The MPDs consist of a large set of ion-ring based natural magnetic compressors, comparable to a jet engine which compress the plasma flow into dense pockets from a fairly low pressure flow and then in set high precision pulses, expel tiny amounts of thrust several hundreds of times a second, using magnetic accelerators to provide extra kinetic energy and therefor more thrust.

For higher performance, a volatile chemical can be added to the plasma, the chemical reaction resulting in an explosive rise in thrust - ideal for combat maneuvers and rapid acceleration.

These same plasmic engines are able to take air from the environment and super-heat it into plasma, extracting nitrogen and oxygen and burn it within an atmosphere as a fuel, conserving fuel or even collecting it for use within a vacuum.

Revolvic Plasma Chamber

About the size of a large marble, a revolvic plasma chamber holds a small reserve of plasma - it's thermobarically deflective walls ensuring near zero loss of energy and by further compressing the plasma, it's release pressure is far higher and therefor, thrust greater. On demand, the plasma chamber is vented back into the plasmic circulatory system for active use - usually to deliver an explosive burst of maneuvering thrust, though there are other functions.

When a chamber is depleted, it is revolved into position to refill and re-compress while another chamber is readied - usually six to eight of these chambers ready to be rapidly chained at a time. Used, they allow even the heaviest units to make near instantaneous course adjustments of up to 270 degrees (taking between .25 and .35 of a second, typically). They are also ideal for evasive thrust when aligned with an Ion Ring, as they typically are.

Thermic Cyclor

Thermic Cyclor - A very careful software calibration of the casmir field allows thermal energy released by the Winter to be tightly controlled and fed back as electrical energy (even in a vacuum or disruptive atmosphere) via a thermic cyclor - a device which chemically collects thermal energy via endothermic reaction. The reaction is self-sustaining, provided thermal energy is available and no waste products are created as a results. as the energy is then used to provide more power to the extremely demanding casmir field, granting greater propulsive ability. The result is that the energy efficiency rating and operating range of the Winter sky-rocket and the fuel consumption rate drops dramatically, with the plasmic systems used only to provide evasive thrust in space.

Careful use of a thermic cyclor allows the Winter to match it's ambient environment, making it invisible on infa-red sensors. This also allows the Winter to thermally shroud other units around it for a 10 foot radius, due to the range of the casmir field.

Energy from the Thermic Cyclor is funneled through a capacitor beforehand for emergency purposes. The

energy output is ideal for powering positron based weaponry.

Computing

Independent Navigation System

A software update to the ARIA unit, the INS grants a Winter the ability to recognize it's location based on sensor information and navigate without the aid of remote systems by examining the location of stars, radiation levels and gravity levels. It is also able to learn about an environment before entering an atmosphere, gaining a situational awareness of the combat area during re-entry. This makes the unit ideal for deep-penetration and assault missions.

Augmented Combat Awareness

Born of Sourcian neural technology, coupled with an ARIA type processor, Combat Awareness is a modification to ARIA which teaches it to produce a computational model of the battle-field, not unlike those produced by starship tactical sub-systems.

This information then augments what is fed to the pilot via the neural interface, granting a clear image of what is happening in three dimensions with a direct understanding of distance and scale previously unavailable due to the limitations of the humanoid mind by providing relative comparisons and forging new neural pathways by educating the pilot psionically.

Sensors

Forearm sensor cluster (Optional)

Intended for contemporary combat, clusters of sensors mounted upon the fore-arms of the Winter allow a much higher precision when firing integrated weaponry, allowing the stopping power of the [Subspace Field Assisted Rail Cannon](#) to be put to much greater use. These are ideal if Subspace Assisted Rail Cannons are fitted to both fore-arms instead of [Linear Gatling Cannons](#).

Active tracking sphere

An eyeball like turret between the collar-bones of the armor (slightly smaller than a human head) keep watch and scout the environment optically whenever the armor is focused on a particular target. While it may not eliminate target-fixation, it works to recognize potential ambushes and automatically evade targets if the onboard ARIA recognizes the pilot has become fixated. The unit can be detached and suspended upon the end of a telescopic wire, allowing it to see around corners and can even broadcast information if the umbilical cable is detached.

Tactical

A number of intelligent tactical additions allow Winter pilots to perform various ambush and surprise maneuvers previously unavailable to powered-armor.

Decoy

A structol buoy can be jettisoned from the middle knuckles or knees of the Winter which will then explosively inflate, creating a replica. The structol will smartly organize itself, copying a “natural” stance for the decoy to be in, while a capacitor charged beacon inside creates a series of false signatures able to fool the majority of sensor systems. These decoys are able to create a variety of different forms, provided they are the size of the Winter or smaller, making decoys ideal for defense or setting up traps.

Typically, there are up to 16 decoys stored in each slot within hot-swappable magazine containers within the wrists and knees. The standard issue is 6, making for a total of 24 decoys per unit. The maximum is 64.

Provided a decoy has not gone out of range or been destroyed, it is reusable.

Wire Anchors (Optional)

Launched from the index knuckle or under-side wrist of the arms, these wire anchors can be set to either penetrate a target with razor-sharp nerinium prongs, to wrap and grapple a target or to release slowly and form a hook in place of a prong. The number of uses is immense, particularly within an atmosphere. The wires are DR3 though they are incredibly resilient to stretching and heavy loads and will not buckle without the use of energy weapons or highly specialized cutting equipment.

Tactical gel rounds (Optional)

A new type of round for the Subspace assisted rail-cannon, Tactical gel rounds are another result of structol technology. Upon hitting a target, the solid round decompresses to form a gel solution which then splashes over a target and hardens into a complex metalloid composite. Tactical gel rounds are DR3 and are incredibly resilient to stretching and heavy loads and will not buckle without use of energy weapons or highly specialized cutting equipment.

OOO Information

This page was made by [Osaka/Osakanone](#) on 2014/04/16 16:01.

- No approval information was found in forum search

From:

<https://wiki.starmy.com/> - **STAR ARMY**

Permanent link:

<https://wiki.starmy.com/doku.php?id=faction:lorath:mecha:lo-amx:102:x102>

Last update: **2023/12/21 05:34**

