

The Good Ship ...

The Lady Jane

<http://www.curufea.com/ship.avi> -- 3d Rotation of the ship as a DivX AVI 1mb file

[Images of the ship](#) - Scale is 1 grid square to 10 metres



The Lady Jane

Despite the fact she is based on a scout ship, the Lady Jane is actually a modified passenger vessel. With the addition of weapons, better damage control systems, faster drives, and more cargo space, she is now a multi-purpose vessel, although she can still function quite adequately as a liner.

Because she is based on a liner, casual scans will reveal her as such, especially if the person scanning has some familiarity with human vessels. Of course, the Lady Jane is the only vessel of her type painted that particular colour, so anyone who's ever heard of Captain Samuel West will recognise her.

Power and Drive Systems

- Primary power comes from two fusion reactors, powered by a reaction mass of heavy water (H22O).
- The reaction mass is ionised by sheer heat in a pre-reaction ionisation chamber. Deuterium and oxygen ions are magnetically divided (like a mass spectrometer), and electrons are inducted directly to the power system.

- The temperature of the ionisation chamber is maintained by the nearby fusion reaction and, where necessary, electrical power.
- Frequently, the temperature in the ionisation chamber will exceed safe limits. Heat, and sometimes plasma, are vented directly to space. Even running at minimum power, it's difficult to go without venting for more than a few hours.
- If the ionisation chamber is cooled, it takes quite some time to reheat it to operating temperature. In this case (a cold start) the reaction mass must be ionised and the chamber heated using battery power. It's normal practice to start one reactor this way and cross-vent the ionisation chambers to start the other. This increases the time to start the reactors by about 50 per cent, but halves the battery power required.
- A normal cold-start takes eight hours for the first reactor (giving half power) and another four for the second. At normal output, the batteries will take about a week to recharge from a normal cold start.
- Starting both reactors at once, and really rushing it (which can damage the reactors) will take four to six hours, and the batteries will take two weeks to recharge.
- The ionised oxygen is stored for later use (see below)
- The deuterium ions move on to the reaction chamber, where they undergo a fusion reaction, forming helium. The reaction chamber must also be maintained at a high temperature, but once it is heated, it is self-sustaining so long as the deuterium keeps coming.
- The ionised helium is stored with the oxygen.
- The oxygen/helium mix can be de-ionised and hydrated and used for life-support in emergencies, but it's not recommended. There is a chance of it being radioactive.
- The oxygen/helium mix can also be re-introduced into the reaction chamber for further fusion. This requires greater temperatures (only just within the design tolerances, so it's not possible to conduct secondary fusion without continuous venting) but also produces far more energy. This method of extracting extra energy from the system is not recommended for prolonged use, as the resulting heavy elements, some of them radioactive, result in either erosion or clagging of the exhaust vents. On the Lady Jane, for some reason the port vent always clags, and the starboard is always eroded. Even swapping the reactors didn't change this. Engineers have suggested it's due to a slight imbalance in the gravity fields, but since clagging and erosion both result in similar costs and repair times, nobody's got too carried away with fixing it.
- Normally, though, the oxygen/helium mix is used as reaction mass for the ion drives. Not only is the mix pre-ionised (so long as you don't leave it sit for too long—if you do it de-ionises, draining battery power and causing ship-wide corrosion) it also provides far more thrust than the ionised hydrogen used in traditional ion drives.
- If there is insufficient oxygen/helium mix to run the drives (because of continued high thrust or heavy power demands), heavy water can be used as ion drive reaction mass instead. Because the heavy water must be ionised separately, this adds extra power demands, but not usually anything critical.
- The mass of the heavy water is actually slightly higher than the mass of the oxygen/helium mix, so it produces about the same thrust for the same power consumption. But it does increase heavy water consumption considerably.
- The practical upshot of this is that increased power or thrust both increase the consumption of reaction mass.
- With a nominal load of reaction mass, the Lady Jane has a range of 3 months at normal power output.
- Battery power is recharged gradually by the fusion reactors.
- At minimum life support (and no artificial gravity) batteries will last for about a week. This includes the power needed for the emergency beacon.

The Bridge

- The bridge of the Lady Jane is a domed circle, taking up two decks. In many respects, it resembles the deck of the original USS Enterprise.
- The lift debouches between the two deck levels. Ramps slope down around the circumference to the lower deck level. There is one station (normally the captain) at the level of the lift, with stairs leading down around it. In front of that station, there are two side by side, at the lower level. Normally, these are helm and targ. There are four other non-specific stations around the circumference.
- All stations can be reconfigured for any crew position or combination of positions. The captain's codes can override any command, and can be used to grant or deny access to specific commands.
- Any sensible crew member will customise his station by moving controls, creating macros, etc.. Customised stations are easier for the person who designed them to use, and more difficult for others (unless they trained under the person who designed it and haven't had time to develop their own style).
- Commonly, engineering crew won't even be on the bridge, they'll do their job from one of the engineering stations.
- The bridge has holographic projectors throughout, making it possible (and usual) to project a view of outside space, or a star map, or any other schematic the crew needs, ALL AROUND the bridge crew. In a normal view, the bridge crew will see the bridge as a clear dome with a 360° x 220° view of space. Doors appear if you look carefully enough. Other crew members and their stations will get in the way of the view. The three main bridge positions traditionally show the view below the vessel as part of the station display, so as to give a full view.
- Because the view is holographic, it is 3D, and some objects may appear to float inside the bridge. But it's not as advanced as the Star Trek holodeck. There are no force fields to give the impression of solidity.
- The computers are pretty bright. They can be given complex instructions and interpret them for most situations. For instance, they could be instructed "Take us from point A to point B, using the most fuel-efficient safe course. If anything approaches, alert the watch officer and avoid the object until further instructions. Respond to any hails with standard message XXX. Head away from any hostile object at best possible speed." There are probably situations in which these instructions would fail, but they'd be a surprise. Any action the computer took to follow these instructions would be fairly formulaic, and easily analysed and predicted by a decent computer or competent captain.

Damage Control, Bulkheads and Atmosphere Containment

- Although it's not immediately apparent on the deck plans, there are bulkhead doors at all access points between decks, including in the lift shaft
- Bulkhead doors normally remain open, but when they decide to close, they don't care what's in the way
- Individual bulkhead doors will close when anyone tells them to (a break glass kind of affair)
- All bulkhead doors will close
 - if the atmospheric pressure anywhere on the ship drops below a set level
 - on receiving a central command
 - on power failure
- Under any of these conditions, the lift shaft will also be completely filled with vacu-seal foam, which is a pain in the arse to clean out, but better than losing all your air
- Bulkhead doors can only be opened using crew codes (centrally or individually). As always, the

captain's codes override other crew

- Hull breaches will be repaired with vacu-seal foam as a first defence
- Any fire on board will cause surrounding bulkheads or doors to close and the affected room/s to be flooded with fire-retardant foam. The foam subsides fairly quickly, and it's unusual for anyone who's still ambulatory to be suffocated by it
- The usual protocols indicate that any unauthorised breach of quarantine (when quarantine conditions are declared) will result in ALL doors and bulkhead doors closing and locking. They can only be opened with crew codes. Air conditioning will also shut down for as long as possible, and when it returns, will be compartmentalised.
- Most systems have redundant backups, but there is no automatic repair system. Repair bots can be retrofitted, but they're about the same cost as the ship herself

EVA Points

- All EVA points (not cargo bays) have a cupboard holding:
 - At least one standard EVA suit
 - Standard tools for EVA operations. Tools, slap-patches, thrust bottles, etc.
 - Flashlights
 - A beacon
 - Ropes and associated hardware
- Most also contain one or more weapons

Décor

- The purely functional areas of the Lady Jane, such as loading docks and much of engineering, have bare walls and floors, but other areas are made to look like an 18th century sailing ship. Lots of wood and some brass
- The control surfaces are brassy where possible, but most of the controls appear on touch screens anyway (there are backups for all controls which are manual, and these are brass on wood)
- In the swankier areas, there is also red velveteen, especially on seats
- All berths include a double bed, view screens, and in most cases a sliding RV port. All are attached to individual bathrooms which have real water showers (water is recycled anyway). Bathrooms are all marble and brass
- Second and first class cabins also have outer rooms, with a desk with access to SOME ship's computer systems, etc.. These are much like an outer office

BC:

What do you reckon of separate deep space and planetary modules. The planetary bit has all the normal space thrusters, and is designed for forward thrust. The deep space bit is the warp drives and a big rotating bit for artificial gravity. The planetary bit will function independently, but at considerably reduced power, and it's atmosphere capable.

How are you going to do space combat? Will a flimsy deep-space module be a liability?

PC:

Detachable module as in the Narcissus for the Nostromo from Alien?

A small crewed ship shouldn't need a separate planetary craft - but it could be possible.

I do like the idea of a large, empty ship :)

(but then I am the consummate Alien fan - so beware what you ask for)

BC:

It depends on what kind of energy requirements you have for warp-capable ships. The way I see it, interstellar flight would require mind-boggling power, such that you couldn't fit the reactors, drives, etc.. into something you could take into an atmosphere.

I wasn't thinking so much of something like the Nostromo, which was essentially a tug. I was thinking the bridge and minimal living quarters would be part of the planetary craft, while the warp drives, main crew areas, cabins, etc. would all be part of the bit that stays in orbit. None of it would necessarily be empty, although perhaps a lot of the drive areas would be uncommonly used.

If you're using realistic space combat, then it doesn't matter what shape the vessel is, because the fight won't be a matter of aiming, it'll be computers vs ECM vs ECCM vs ECCCMM etc.. If you're using heroic space combat, then I want something sleek and fast that can dodge about between sizzling frap rays and confuse missiles into hitting each other.

I've just realised what I'm talking about is essentially the jumpship/dropship idea used in Battletech. The jumpship would be left behind almost immediately upon entering normal space.

Presuming a humvee is 3 metres wide, the scale I've given you would give a vessel about 100m wide and 150m long, and it's bulkier and taller than the Icarus too. It's a bit Flash Gordon, actually.

PC:

That's not too bad. Is that the main hull or various sticky-outie bits?

BC:

Main hull. There's a single, large sticky outie bit on top like a long, fat tail, and four similar but smaller bits on the bottom. I'm presuming all the small burny offie in the atmosphere bits will fold away when not in use.

Another thought on how to improve the look of the aft, what if you cut off most of the curvy bit at the aft of the two central ventral fins. Bring it back in so the point is only about 5 metres long and the curve is much shallower.

PC:

It'll look nicer when it has more details as well. There's something very Flash Gordon-ny about smooth curves broken up with wierd arcane devices that are 3 times more complex or larger than they need to be :) I'll put some indentations and things for the hardpoints.

BC:

And lines of rivets? I think the weapons will need to extend straight forward from where they're mounted, but the whole of the projector will need to be outside the vessel when extended, since they actually have a full field of fire, except where interrupted by trying to shoot through the hull. I'm quite fond of the Jaffa staff weapon look. It's up to you how much would need to stick out, and how much would be internal, but the outside bit needs to be able to rotate and retract.

PC:

I should be able to get them somewhere. I was going to go with the Babylon 5 defense grid. But the opening petals of that stargate weapon are quite cute. I've got the main dish from the Millenium Falcon for sensors - unless you can think of any other sensor types? Also - any thoughts on the thrusters?

BC:

I was originally going to draw the thrusters as hexagonal panels that open up, revealing three holes. Thrusters would point pretty much perpendicular to one of the three main axes, so the holes might be distorted a little. If you can't find the staff weapons, then the B5 defence grid is fairly cool too. The main sensors could be nicked from the MF, but I think a prong sensor at the aft would be good (spike with ovoid knob on). Perhaps one dish, and the rest as prongs of various sorts. A fat one with a big knob, with grooves all the way down (like a bunch of discs, smaller and smaller, stacked on top of each other) for the communications.

Those guns are pretty cool. Let's go with them. We'll have to move the gun ports to fit them in properly. Perhaps on top, put the ports roughly at the same point on the x axis, but move them out to the primary hull, about 1/3 of the way out from the dorsal fin. On the bottom, put them at the widest point, on the primary hull, just outside the outermost ventral fins. The top ones could be the wide, rectangular ones, and the bottom ones the ones with the four barrels. In that case, the ports would slide open, and the guns slide straight out, directly perpendicular to the hull. As for the square ports for communications, that was just to differentiate them. They could be whatever shape was most appropriate for the item in question. For a spike, perhaps an iris or a split circle, for a dish, it could fold out with the hull plate forming the back of the dish, then slide a little way perpendicular to the hull to give it clearance. It'd still be able to rotate once it was out. I've drawn how the airlocks open. I'll have to actually draw the deck plans before I know where emergency viewing ports would be.

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