Star Trek Tactical Combat Simulator - Redcap's Ship Construction House Rules # 1

Shuttle Bays

Background

In large part, this house rule is the result of a protracted conversation with Owen E Oulton, a moderator on the web-based TrekRPGNet Forums (http://forum.trek-rpg.net/), whose help was most invaluable in my problem solving for the construction of detail for the Tenacious Class of Federation starship
(reference: http://forum.trek-rpg.net/showthread.php?s=&threadid=11012).

I have also received assistance on SS figures (and had a lesson in density, lol) from George Recker, Jr., from:
the Yahoo! Groups “TheFASAStarTrekUniverseE-group”
(at http://groups.yahoo.com/group/TheFASAStarTrekUniverseE-group/).

The ST:TCS Ship Construction Manual (Second Edition) possesses, on page 34, a chart stating the maximum number of shuttle bays is "one". This contradicts at least one movie canon ship (ST:II - TWOK), the USS Reliant, which clearly shows that there were two shuttle bays (rear of the body behind the engineering section, marked "1" and "2"); there are also other listings on the internet showing both canon and non-canon designs with more than one shuttle bay, mostly in the assault carrier and fighter carrier classes of ship.

The House Rule overview

With the above in mind, and bearing in mind that the ST:TCS was designed to allow players of the Role-Playing Game to indulge in more 'realistic' ship to ship combat actions, it seems rather silly to prohibit ships one designs from having more than one shuttle bay - let's face it, even the TNG Enterprise (NCC 1707-D) appears to have more than one shuttle bay!

This said, the SCM rules do not make it easy to add shuttle bays, so a fudge factor is required.

Since it has been shown that not just carriers possess more than one shuttle bay, it stands to reason that any ship with enough mass and physical size can possess more than one shuttle bay. So, Super Structure (SS) points are the governing factor here. Since ships tend to hold a few shuttles, the rule of thumb as suggested by Owen is a good start:

> "Well, the ship design system was relatively abstract, so it didn't deal with this aspect. The first edition Ship Construction Manual did have a section on "Designing in Detail" which stated only:

SHUTTLEBAYS

This is a storage and launch facility for shuttlecraft. There is no set size, as this depends on the number of shuttlecraft aboard and their size.

As a rule of thumb, though, I'd say that you could accommodate 1 shuttle per Class number. Example: a Class VI ship could carry a maximum of 6 shuttles."

he further went on to say:

"...but rather than making large shuttles take up 2 slots, I'd make small shuttles like Workbees, Sphynxes and Type 15 Shuttlepods only take a half slot."

This makes sense, and is therefore good to go, without modifying the construction rules at all. However, for more than this, SS points need to be expended, as additional space within the hull of a ship is required to be set aside. The Star Trek:TNG Officer's manual (FASA #2012), on page 50, notes the standard "S-20" Federation Administrative Shuttle has a displacement of 820 mt, with a size of 30m long by 8m tall and 12m wide. Owen was surprised at this (as was I - it looked way off), and checked: "In point of fact, the correct length for a Type 7 shuttle is a mere 28' (8.5m) by 18' (5.5m) by 9' (2.75m) high - those are the actual figures taken from the original design drawings by Andrew Probert. In this case it seems they merely forgot to convert in the first place."

Given that maintenance, loading, unloading, and all manner of other work (re-painting bumps etc - can you say "Commander Tucker"?!) will need to be performed while a shuttlecraft is on board it's mother ship, you should allot more space than just the footprint of the shuttle. Owen mentioned "To allow for maintenance space, transport to and from the landing pad(s) and the pads themselves, you'll need about 4 times the footprint per shuttle - each shuttle therefore should have about 85 squares, 43 for workbees and workpods. If that sounds like a lot of space, it is, but think about the cavernous hangars on modern aircraft carriers."

The SCM 2nd Edition states on page 14 that "...The capacity of a hold is measured in standard cargo units (SCU), which are a floor area of 1.5 metres square by 3 metres tall." On page 9, in the Ship Construction Form, at the bottom, there is a small equation: SS Mass = SS Points x 1500. From this it may be inferred that each SS point equals 1500 metric tons. This is confirmed by the comments on page 13 regarding Superstructure Strength.

On page 12, the section describing cargo units states that 1 SCU equals 50 metric tons. Therefore, by a simple process of maths, 1 SS point equals 30 SCU.

Now, George Recker, Jr. (from the e-mail discussion mailing list at Yahoo! Groups “TheFASAStarTrekUniverseE-group”) stated:

> “I did notice a problem with my numbers after I signed off last night. I must have hit the wrong button on the calculator or something. The Danube would be 270.88 SCU's in volume, but multiplied by its density would give a value of 23.65, rounded up to 24 SCU's. Multiplied by the 4 for other things it would need gives a value of 96, divided by the 30 SCU's per SS point gives 3.2 SS per Danube. As for the dimensions of the Danube, they are from the Star Trek Magazine, which was approved by Paramount, so I'm pretty sure they're right. I ran the numbers for the Type 7 last night as well. Volume of 82.6 cubic meters, and a displacement of 1.74 metric tons. Its volume would be 12.24 SCU's. It has a density of 2.1065 x 10^-2 mt/cubic meter. It gives a value of 0.26 SCU's per shuttle x 4 equals 1.04 SCU's for a Type 7 shuttle. It would require 0.035 SS per shuttle.”

I’ve no reason to question his maths, so I’ll be going with his shuttle SS and SCU figures on this House Rule. I’m not at all sure that the Star Trek magazine got the figures right for the Danube, but how many ships are going to be using Danubes anyhow? Primarily, they’re for star bases, and other fixed or immovable facilities!

The House Rule...

As Owen mentioned a fairly good rule of thumb, it's incorporated into this house rule: Every ship possesses it's class number in shuttles in ONE shuttle bay, as standard (i.e. a class VII ship possesses, as standard, one shuttle bay containing a maximum of 7 S-20 sized shuttles. A class IV ship would possess 4 shuttles in one shuttle bay).

Given the inconsistency of the rules, each additional shuttle bay will require one (1) SS point to be allocated to include it's share of launch facilities and structural bracing for the massive amount of open space it requires, etc, along with 0.035 SS points for each additional shuttle. This equates to roughly 30 SCU for the shuttle bay itself, and 12.24 SCU for each additional shuttle (based on volume, NOT mass).

Summary

Every ship possesses it's class number in shuttles, i.e. a class VII ship possesses, as standard, one shuttle bay containing 7 shuttles.

Cost Per additional Shuttle bay: 1 SS, 0.5 MCr.
Cost Per additional Shuttle: 1.04 SS, 12.24 SCU

Example:

A class VII ship is to be equipped with two shuttle bays, and fourteen (14) shuttles. The additional seven shuttles will cost 7.28 SS and 85.68 SCU points, and the additional shuttle bay will require 1 SS, 30 SCU, and 0.5 MCr, for a total cost of 8.28 SS, 115.68 SCU, and 0.5 MCr.