"Wow! This is GREAT! I'm Impressed!"
—David Weber

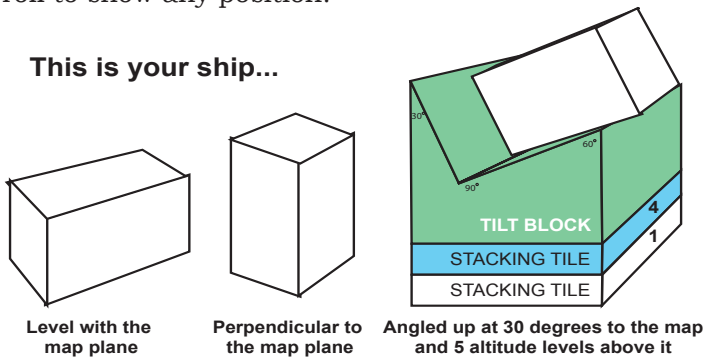
For 30 years, gamers have been promised "3-D, the math really works, and easy to play." It has never been delivered.

Attack Vector: Tactical (AV:T) finally delivers it.

In the next thousand or so words, you'll see everything needed to handle 3-D combat. Step by step, we'll walk you through four key solutions, with illustrations.

Solution #1: Box Minis and Tilt Blocks:

Your ship is box miniature with artwork on each side. Orientation and altitude are displayed on the map with tilt blocks and color coded stacking tiles, shown below. Tilt blocks can be nested to show combined pitch and roll to show any position.

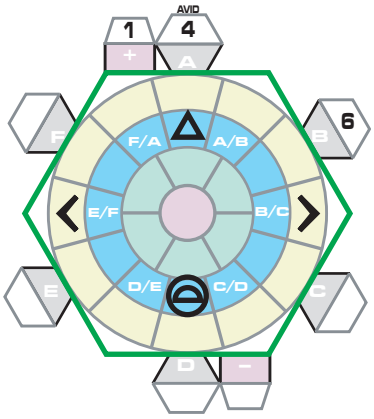


The game is played on a hex map; ships may face hex corners as well as hex edges, giving full 30 degree facing in both the plane of the map and in the vertical axis.

Solution #2: The AVID:

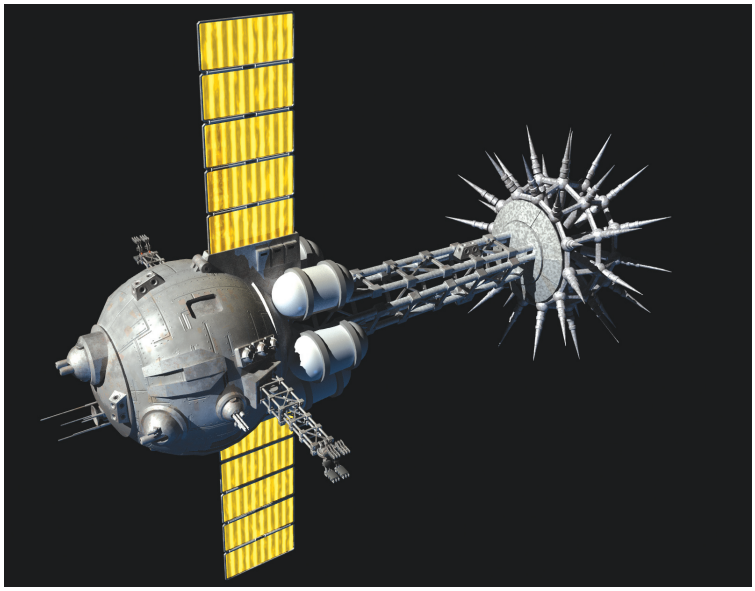
The AVID is the Attitude/Vector Information Display, and with two very simple rules, it graphically calculates all the math needed to shoot bearings in 3-D space. A small copy of the AVID is produced at the left here.

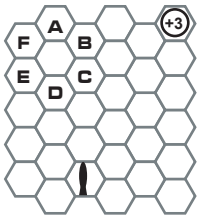
The green hexagon is an enlarged view of the map hex our ship is in. Inside of it is a top down view of a sphere, with the north pole being the purple circle, going to 60 degrees, 30 degrees and 0 degrees for green, blue and amber respectively. The amber and blue rings are divided into 12 windows, and the green ring is divided into 6.



Our ship's orientation is shown on the AVID by drawing symbols in the approrpriate windows. For example, the ship's nose (shown by the triangle) is facing in direction A, tilted up at a 30 degree angle. The port and starboard marks are each 3 windows around the AVID, to the left and right respectively. If the nose of the ship is up at a 30 degree angle, the stern (shown by the semi circle) is down at a 30 degree angle, shown by circling it.

The outer hexagons show our ship's vectors. This ship moves 4 hexes per turn in A, 6 in B, and 1 in +(Up). The inner halves of the hexagons are used to record velocity changes caused by the ship's main engines.

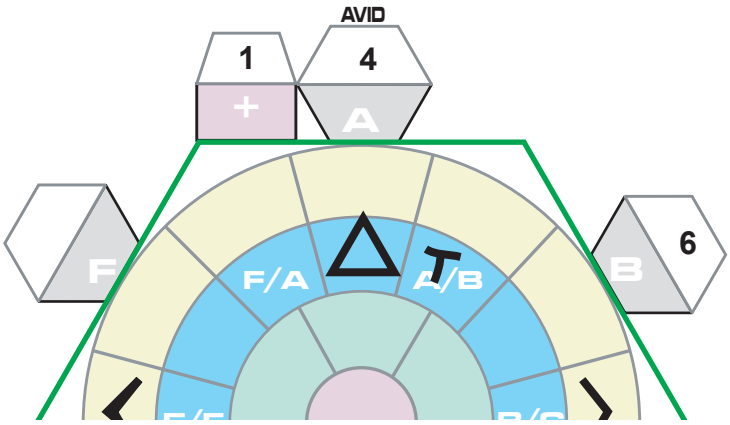




On the hex map to the left, we have a ship facing direction A, with a target 6 hexes away on the A/B hex spine, and 3 hexes above the map. The ship itself is in the orientation shown on the AVID illustration below -- nose facing in A, angled up at 30 degrees. At conventions, the target is usually a chocolate .

We're going to use the AVID and some very simple rules to determine where in the sky that target is.

The first step is finding out if we see it through the hex edge or the hex corner. In this case, it's clearly the A/B hex corner. That narrows down the "orange slice" of the AVID we see it through.

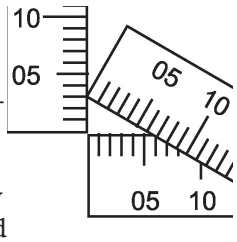


Next, we find the AVID ring the target is seen through. Doing this boils down to three simple questions.

The first question is "Is it farther away horizontally or vertically?" (if it's the same distance away in both, it's in the blue ring). In this case, it's 6 hexes away and 3 hexes up, meaning it will be visible through either the 0 degree (amber) or 30 degree (blue) ring.

Narrowing down between blue and amber, we have two questions to answer. The first is "What is 3 times 4?" (the 4 is a constant). The second is "Which is bigger, 12 or 6?". 12 is bigger than 6, putting the target in the blue ring. Looking back at the illustration, you'll see a T written in an AVID window. We see the target in: A/B (blue ring). (If the target were only 1 hex up, 1x4 is 4, which is smaller than 6, which would place the target in the amber ring.)

Solution #3: Measuring The Slant:



Instead of using the Pythagorean theorem to measure distances on a slant, we use a pair of rulers printed at right angles to one another, and simply measure the slant distance with a piece of scratch paper. In this case (3 up and 6 out), the range comes out to a bit shy of 7 hexes. In wargames, things should blow up, so we always round in favor of the attacker.

Solution #4: Graphical Firing Arcs:

The last part of a firing solution is finding what weapons bear. Printed below are the weapon mount arcs for a *Rafik* class multi-role frigate. (This is the rigate the model on the cover is examining in the holotank, and a full color picture is on the lower right corner of page 1.)

To make them work, we need to know how many windows away the target's bearing is from the nearest orientation marker (Nose, in this case).

Remember how the center of the AVID is a top-down view of a sphere? Firing arc diagrams are the view from *inside* of that sphere, looking out. The bearing we shot is one window to the right of the *Rafik*'s nose. Using the same symbols as the AVID, we've shaded the firing arc window one to the right of the nose. Mounts A and C can see the target, while it's out of arc of mount B.

Aside from rolling dice to see how much damage is done, that's all there is to 3-D combat...though there's considerably more to ***AV:T:***

- The most accurate spaceship movement engine ever put into a wargame, done in graphical form, and all the equations underlying them in sidebars.
- Simple resource tracking combined with truly simultaneous resolution keeps all players engaged, with no "down time" waiting on opponents to move units in "initiative order".
- Counterless seeking weapon rules that reduce incoming projectiles to "constant bearing and rate of closure". Handles thousands of seekers on while still playing fast.
- Strong science background (and numbers underneath) make it easy to adapt to popular RPGs, such as ***Traveller*** and ***GURPS: Transhuman Space.***.

Designed by Ken Burnside, of ***Star Fleet Battles*** fame, ***AV:T*** should appeal to fans of ***SFB***, ***Babylon 5 Wars***, ***Full Thrust*** and ***Silent Death***, or any of the classic Air Combat games.

Release Date: Spring 2004.
Deluxe Boxed game, $54.95, containing:

- 36 full color box miniatures.
- 16 tilt blocks, 100 stacking tiles, 3 d10s.
- 8 laminated Ship Control Cards, 2 Weapon Ready Reference Cards, 2 extra large map sheets.
- 64 page rulebook, 32 page Fleet Book, 48 page setting book describing the Ten Worlds.

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