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Virtual Attack Squadron 128
“Golden Intruders”

Tanker duty document

Created by Marcel Hendrikse

DISCLAIMER

All material in this document is **FICTIONAL**.

None of the procedures and maneuvers have been reviewed or sanctioned by the United States Navy, nor by the U.S. Secretary of the Navy.

The contents in this document are intended for recreational flight simulation use only.

At no time and under no circumstance whatsoever can anything described in this document be used for real life flight purposes.

Foreword

This document is an addendum to the manual as published at http://www.simwings.nl/va128.

It describes virtual flight procedures – bases as much as possible on real life information – that will allow you to simulate a simulated KA-6D tanker mission in Flight Simulator 2004, using the RAZBAM KA-6D.

The tanker version of the famous A-6 Intruder first came available in 1969 and some 90 A-6A's were converted into flying tanker stations, replacing the older KA-3D Skywarrior tankers. This conversion replaced the digital attack computer, affectionaly known as "DIANE", by a second radio set and a refuelling package, consisting of the 'hose-and-drogue' setup:

The KA-6D was capable of hauling 26,000 pounds of fuel (13 tons!). A-6 squadrons embarked on aircraft carriers typically had 3, sometimes 4, KA-6D's assigned to them. They were extensively used throughout their service career, until replaced by the tanker versions of the S-3 Viking and F/A-18F.

We will take a look at tanker stations, flight profile, fuel control and extra operational KA-6D duties.

My inspiration for this addendum came from the chapter describing a KA-6D tanker flight in "Flight of the Intruder" by Stephen Coonts.

Software requirements are basically unchanged: make sure you have the carrier scenery and ArrestorCables, and, of course, the RAZBAM KA-6D.
If you feel more comfortable using a different KA-6D than the RAZBAM one, be my guest.

The mission profile described in this document can of course be flown from any aircraft carrier.

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Briefing

Flight operations are in progress and you, as a qualified A-6 driver, have been scheduled for a tanker flight. That means you are going to fly a KA-6D with side number 52x.

After the launch, it will be your job to climb to either the low station (5,000 feet) or the high station (20,000 feet). Of course, these levels can be adjusted according to prevailing weather conditions. Thirsty aircraft require clear visibility when connecting to the fuel drogue; they can fly into a cloud while connected to it, but they cannot join up with you in clouds. The danger of colliding will under such circumstances be very pronounced.

Your flight profile will generally consist of the following steps:

- Launch and climb to station
- Take up a 5-mile orbit around the ship
- Supply the BARCAP (2 planes) with 3000 pounds of fuel each
- Fly a wider circle around the ship to do a weather check
- Return to your original 5-mile orbit around the ship
- Proceed to a position where you rendezvous with the BARCAP; give them 2,500 pounds of fuel each
- Return to your original 5-mile orbit around the ship
- Plan another fuel offload to get your fuel load down to 7,000 pounds
- Fly to your marshall position and initiate your landing procedure

As stated in the foreword, set your fuel load to 100%, which should get you a number of around 26,000 pounds.

Make sure you have ArrestorCables set for a sufficiently high launching speed; you don't want to get launched too slow with a machine near maximum gross weight, 60 feet over the water, **possibly at night**…

Launch and climb to station

Right after launch, get the nose up to 8 degrees, raise gear and flaps and initiate an accelerating climb. Keep an eye on your VOR (set it to 108.40 and the NDB to 3xx, where xx is the number of the carrier) and start a steep turn to the left at 4.0 miles distance.

Look at the NDB needle: once the VOR distance readout says 5.0 miles, that needle should point to your 9 o'clock. Keep it that way, by adjusting your angle of bank accordingly.

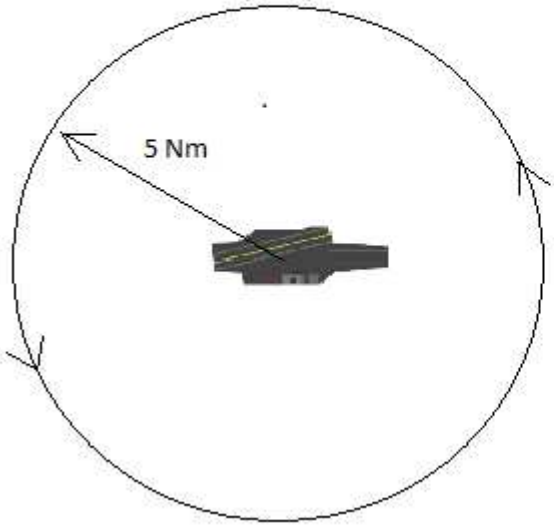
IMPORTANT:

If the NDB needle tends to go below 9 o'clock [distance will decrease!], steepen your angle of bank

If the NDB needle tends to go above 9 o'clock [distance will decrease!], flatten your angle of bank

Level off at your assigned station, still circling the carrier. **Make sure to be at a no-clouds altitude!**

Visual reference to circling the carrier:



On course; distance to carrier = constant

Going OUTSIDE the circle; distance to carrier INCREASES

Going INSIDE the circle; distance to carrier DECREASES

Always fly a LEFT-hand turn.

The 5-mile orbit

Take a couple of minutes to concentrate on flying the 5-mile circle, using the ADF to keep the ship at your 9 o'clock position as much as possible. Set your speed to be around 220-230 KIAS. Check the world map to see how you're doing.

It's a good exercise in controlling your aircraft and it demands 100% focus. Of course, you're allowed to activate the autopilot ALT hold function.

Then proceed to the next step.

Supply the BARCAP with their fuel

Maintain a 220-250 KIAS airspeed and get the fuel drogue out. Switch to the external view to confirm it has actually been deployed.

Now start transferring fuel.

3,000 Pounds of fuel takes 54 seconds to transfer using Arrestor Cables's 500 GPM (Gallon per minute) fuel transfer setting

2,500 Pounds of fuel @500 GPM will take 45 seconds.

Time 2 x 54 seconds with 15 seconds in between and after that, retract the drogue. **ArrestorCables: SHIFT+F6**

Now it's time for the weather check.

The weather check

Level the wings. The aircraft will start flying away from the carrier. To expedite this process, turn righ until your NDB needle points toward your 6 o'clock (your tail). The distance will now increase even faster.

When the VOR shows 14 miles, make a steep turn to the left and make sure at a distance of 15 miles, the NDB needle points to your 9 o'clock and orbit the carrier once at this distance.

Once done flying a full circle at 15 miles, return to the 5-mile orbit.

Another call

The BARCAP needs to be refuelled again in order to make sure they have sufficient fuel aboard if it comes to trouble. To that end, the KA-6D needs to go to the fighters instead of the other way around.

Also: the BARCAP needs to remain at or as close as possible to its assigned patrol zone. Travelling back to the carrier to go get fuel would be highly inefficient, especially since fighters are less economical in terms of fuel consumption than for instance attack planes.

Choose a point (perhaps an existing intersection; check FSNavigator if you have it installed – **recommended!**) and fly to it directly.

There, get out the refuelling drogue and transfer 2 x 2,500 pounds, so time 2 x 45 seconds, with 15 seconds in between.

Retract the hose and return to the 5-mile orbit.

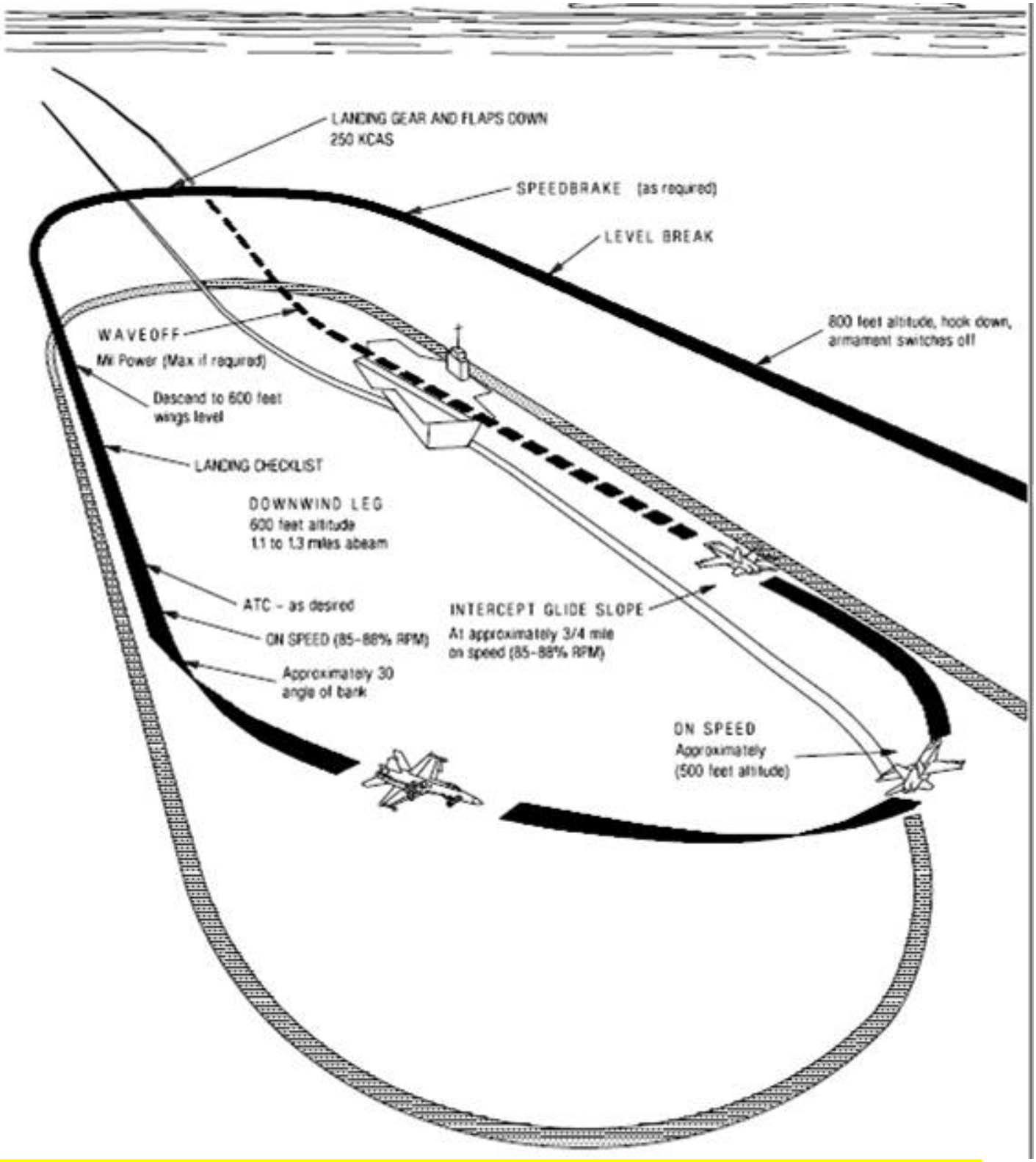
Check fuel status

While orbiting the carrier, check your fuel status.

You will have to get to 7,000 pounds or less, so dump any fuel you have over that number.

Now start setting up for the landing.

Landing procedure – VFR



Don’t let the F-18 in the picture fool you: this VFR procedure applies to ALL fixed-wing aircraft on a carrier!

As you can see, under VFR conditions, aircraft first fly over the ship, then make a ‘break’ to get into landing configuration and on-speed for the carrier landing.

On the downwind leg, set your VOR1 radio to 110.30 (was 108.40) and the OBS1 to the heading of the landing area (info can be obtained from ArrestorCables).

There’s a ‘snag’ here. In FS, the carrier is static; it’s an elevated runway. In real life – of course – the ship is moving. It needs to create wind across the deck for landings.

This means that real carriers move away from landing aircraft: an aircraft going 150 knots approaching a carrier going 20 knots will experience a closure rate of 130 knots.

In FS, take 15-25 seconds after passing the stern of the ship before turning to the final approach heading.

How do you know you passed the stern? You're VOR1 setting will start displaying the ILS needles on the OBS. Start counting or better: watch your onboard clock to measure time.

When flying at 600 feet on downwind, descend to 500 feet in the first 90 degrees of the turn to finals and down to 400 feet when rolling out on the final approach heading.

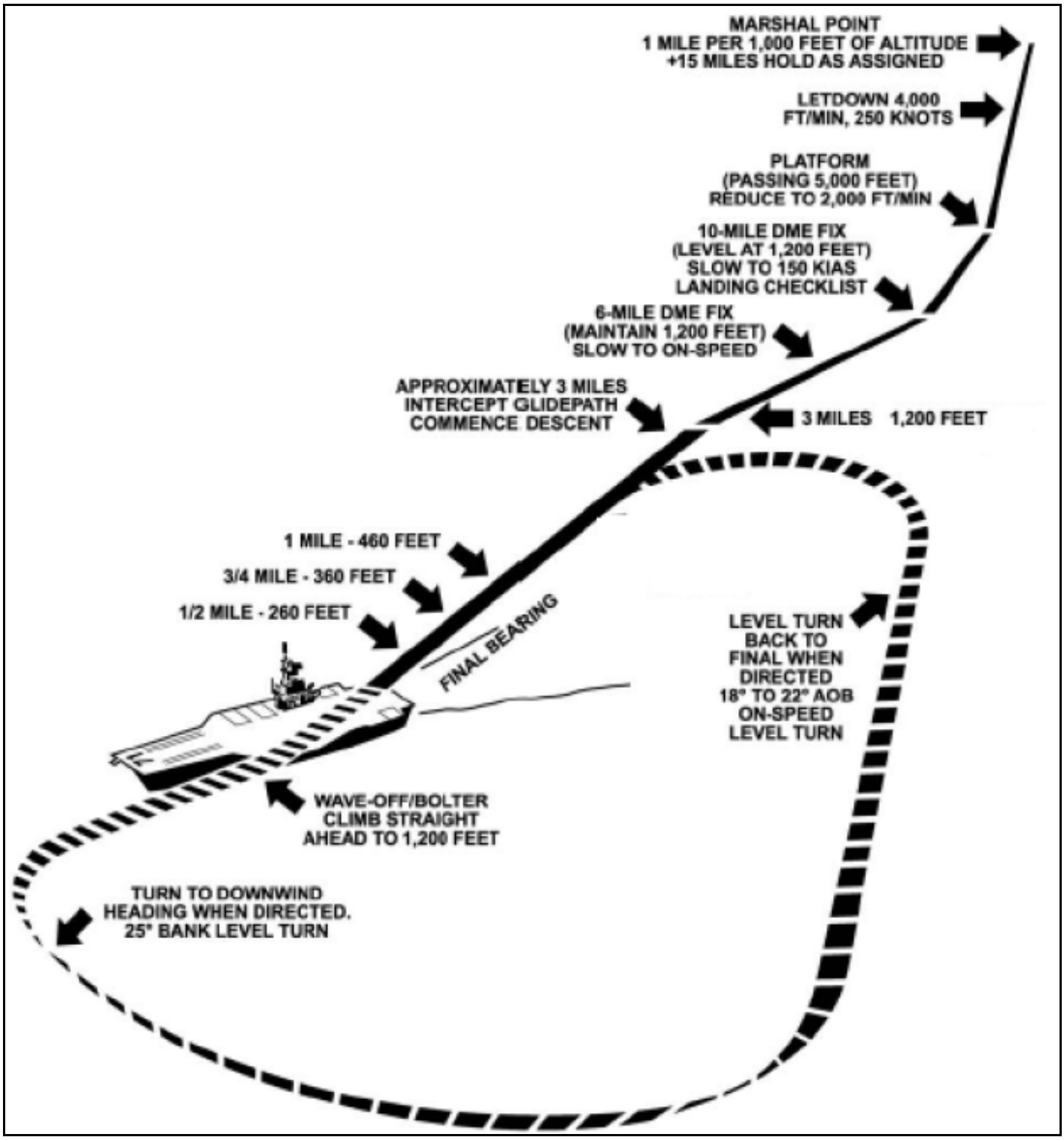
You're flying a KA-6D; so keep your speed around 118-120 knots once you start turning toward the ship.

Do not idle throttle and flare! Fly the plane onto the deck at a constant speed, close the airbrakes and apply full power until you notice you're stopping….IDLE at once.

Retract flaps, fold wings, taxi out of the landing area, park and shutdown.

Welcome back!

Landing procedure - IFR



Use this procedure at night or in bad weather.

Note the two "when directed" statements:for the wave-off/bolter pattern in FS just climb to 1,200 feet, level off and then turn to downwind.

As for the level turn back to final: carry that out at 6 miles from the carrier.

Again make sure you maintain 118-120 knots for "on-speed".

The RAZBAM Intruder – characteristics

Although the A-6 as designed by RAZBAM is a good flightsim plane, there are some things to take into account.

First, the aircraft is quite sensitive to changes in vertical speed cause by the (changes in) power settings. This means you can easily control the (K)A-6(D)'s glide path by adding or subtracting power. This is a good feature, however, it can also lead to excessive forward speed during landing.

That's where the airbrakes (located on the aircraft's wing tips) come into play: they will create the drag that in turn forces you to apply power in the range of 80-92% RPM, where the throttle is more effective (read: throttle changes are faster responded to). When the plane is lighter, it will require less RPM to control the glide path. Therefore make sure you are absolutely below 7,000 of fuel load when initiating a landing procedure.

When controlling the approach with the throttles, make sure your inputs remain controlled and precise. Avoid excessive addition or subtraction of power, as it will negatively influence your glidepath!

Second, the reactions in rolling motion. RAZBAM's A-6 has somewhat 'snappy' responses; it tends to respond very quickly to sideways movement of the control stick.

This is something to be aware of especially during an IFR/night landing. The ILS on the carrier is more sensitive than a VOR beacon. Keep you corrections to the needles at a minimum, do NOT start chasing them!

Third: trimming. Make good use of the elevator trim! It enables you to take the slack out of the control stick and prevents you from having to constantly pull or push the stick. Especially a heavily laden KA-6D can be flown more comfortably when you use the trim as required.

That's it.

Enjoy flying your tanker duties and keep in mind that flying IFR (with a good result: a nice landing on a carrier deck) is a very rewarding experience!