

IL-2 Sturmovik 1946 (in about 2010)
Aiming method by Swampy, formerly of Vulture's Row

Torpedo Bombing





German - Russian

6km distance
4 min 30 sec run time

He111 / Ju-88 LTF5B -2km
LTW -3km



US - British - Japanese

5.7km distance
5 min 30 sec run time



Static target



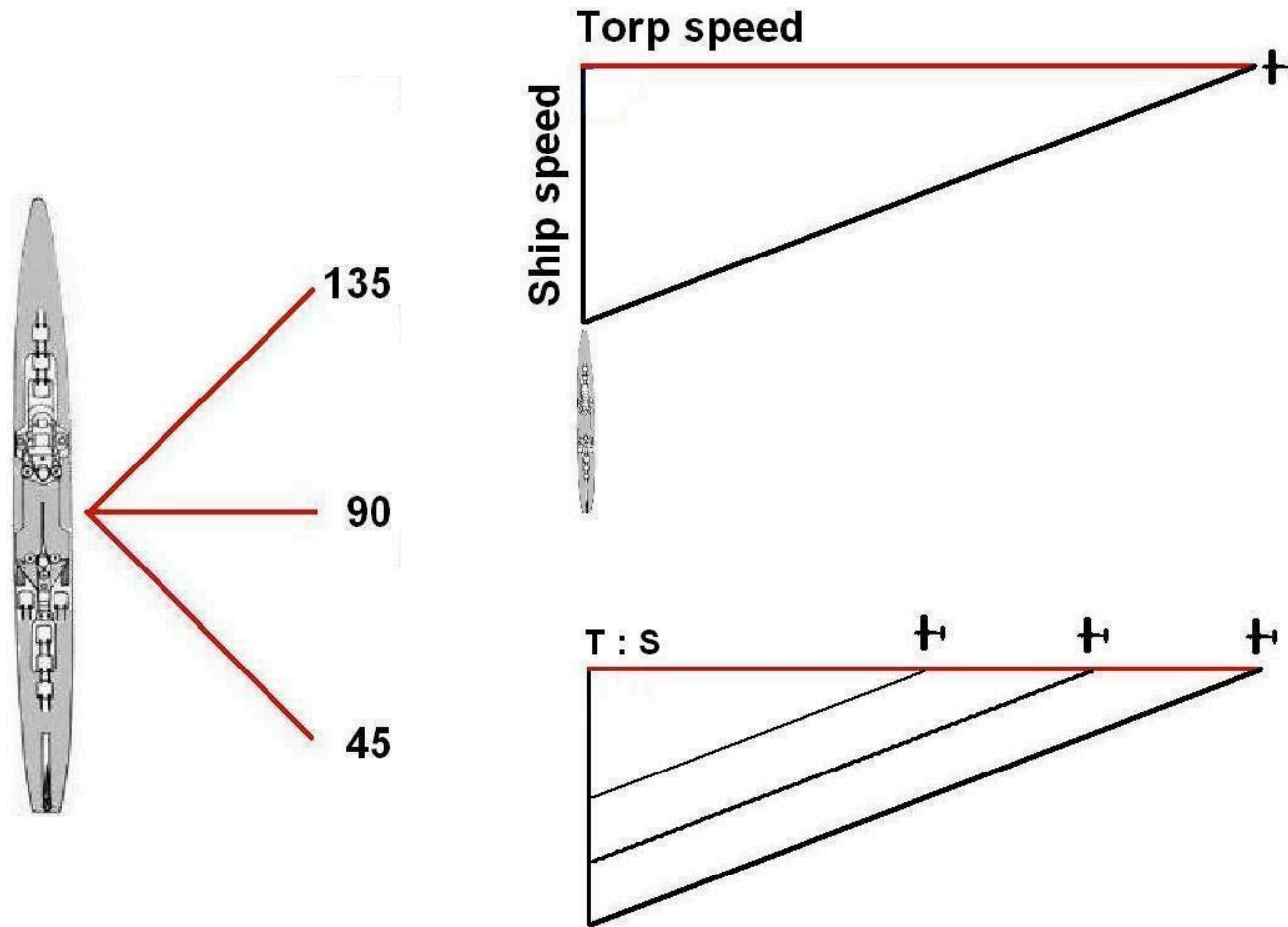


Don't use the rudder to aim the torpedo. The plane slews sideways to place reticle on target, but the torpedo follows the flight vector. Use ailerons to roll the plane onto target. Or, use short, violent kicks of the rudder to get reticle on target, then center ball and fly straight for a few seconds before releasing.



Moving targets

Aiming torpedoes is just right triangle math; ship speed on one leg, torpedo WATER SPEED on the other. In my opinion, the lower the torpedo is released, the sooner it's in the water and traveling at water speed instead of flying through the air at aircraft speed. Lobbing it a kilometer will allow you to turn away from ship guns sooner, but moves the torpedo path further ahead of the moving target (because it's flying at aircraft speed) causing possible misses. Most pilots release at point blank range anyway (because they can't aim or judge distance), but you can hit a tiny 30 km/h destroyer from 5 km if you can judge the range.



Ship speed wake length and smoke angle (in IL-2 1946 in about 2010). Does not work for IL-2 Great Battles, as the wake seems to be generated only off the tip of the bow (unless it's changed in the last few years), and large ships sit on a large part of the wake, disguising its length. (Compare the visible wake of a river patrol boat at 10 km/h to that of a cargo ship).



This chart is not really pertinent anymore, but shows some of the original work. Aiming works up to at least 45-50 degrees off broadside at close distances; medium and beyond you're going to miss. There's one picture below with blue marks on the aiming card showing correct aiming for 45 degrees off. It's best to come in broadside. Close in, the marks will work for ship speeds around +/- 5 km/h off the 10-20-30 km/h marks used on the aiming card, again shown on one of the pictures below. Back in the day, torp speeds were listed as 60 km/h and 80 km/h; actual tested speed of US/Brit/Jap torps was 62.2 k/mh, while 80 km/h was dead on. My testing of the current torp mod for Great Battles is it's arbitrarily set to German 95 km/h, US 100 km/h, Russian 103 km/h for the three types of torpedoes (my Nov 18, 2021 post).

Torpedo Angle Release

Angle to place bow of ship from fuselage chord (pipper)

Angle Off Bow	Ship Speed (Kph)	Degrees Torp Speed (Kph)		Millirads Torp Speed (Kph)	
		62.2	80	62.2	80
45	10	7.31	5.54	129	98
	20	16.4	12.1	290	214
	30	27.4	19.8	485	350
90	10	9.13	7.13	162	126
	20	17.8	14	315	248
	30	25.7	20.6	455	365
135	10	5.83	4.64	103	82
	20	10.5	8.54	186	151
	30	14.3	11.8	253	209

Ship Speed Estimation – Kph

10	Wake is 1 ship length long
20	Wake is 2 ship lengths long
30	Wake is 3 ship lengths long

Torp Speed – Kph

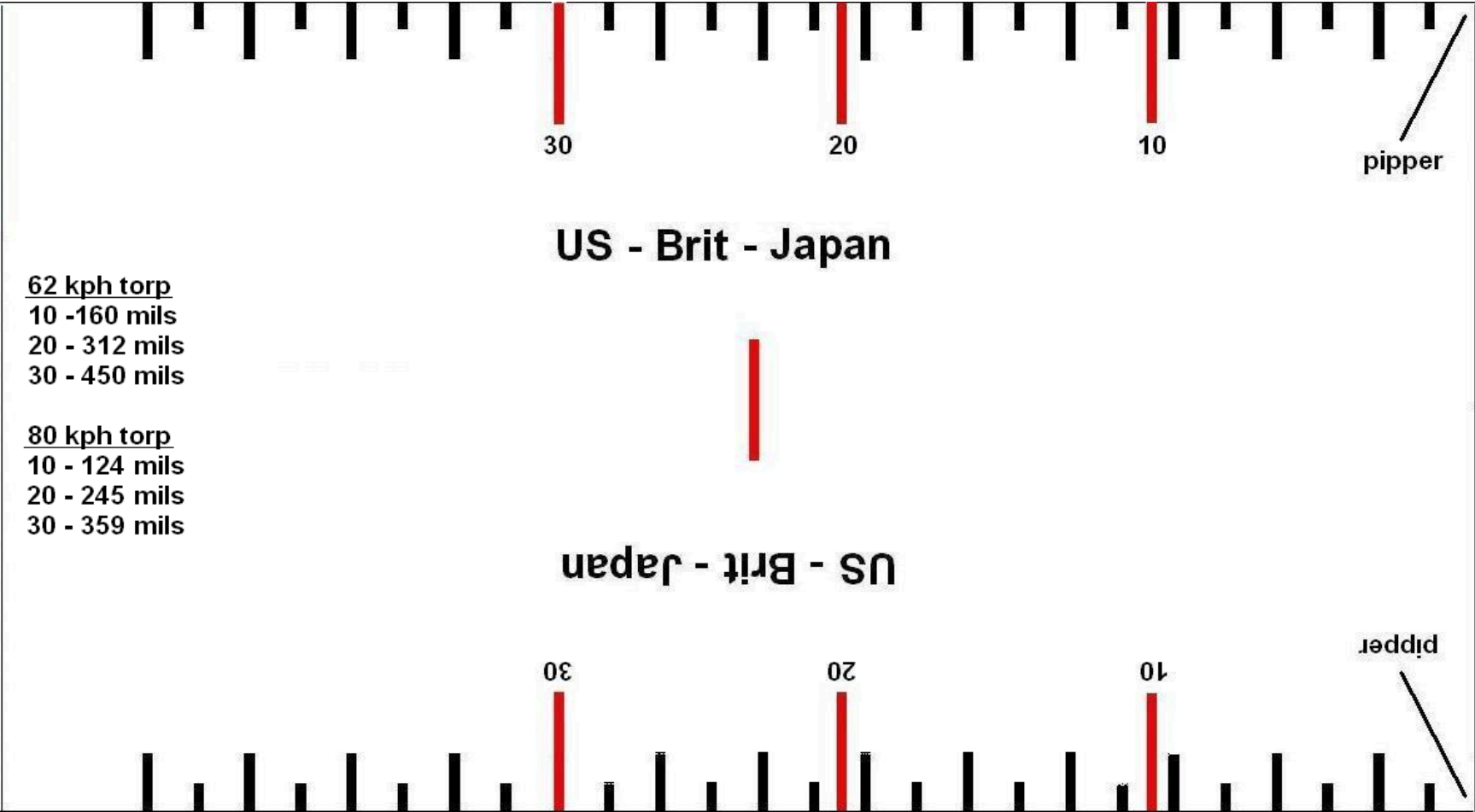
62.2	US, Japanese, British
80	German, Russian



This is the original Rube Goldberg device method of creating the aiming cards (which won't work with VR, sorry). Most, but not all, of my squadron mates were able to get it to work successfully, and received comments from other squadrons on how deadly we were with torpedoes, and how far out we could release and turn for home. I think squad mates who couldn't get it to work might have been changing view zoom levels in flight, which would throw the whole thing off, as would not centering the ball, or not coming in broadside.

Current method of creating the MK II aiming card is at the end.

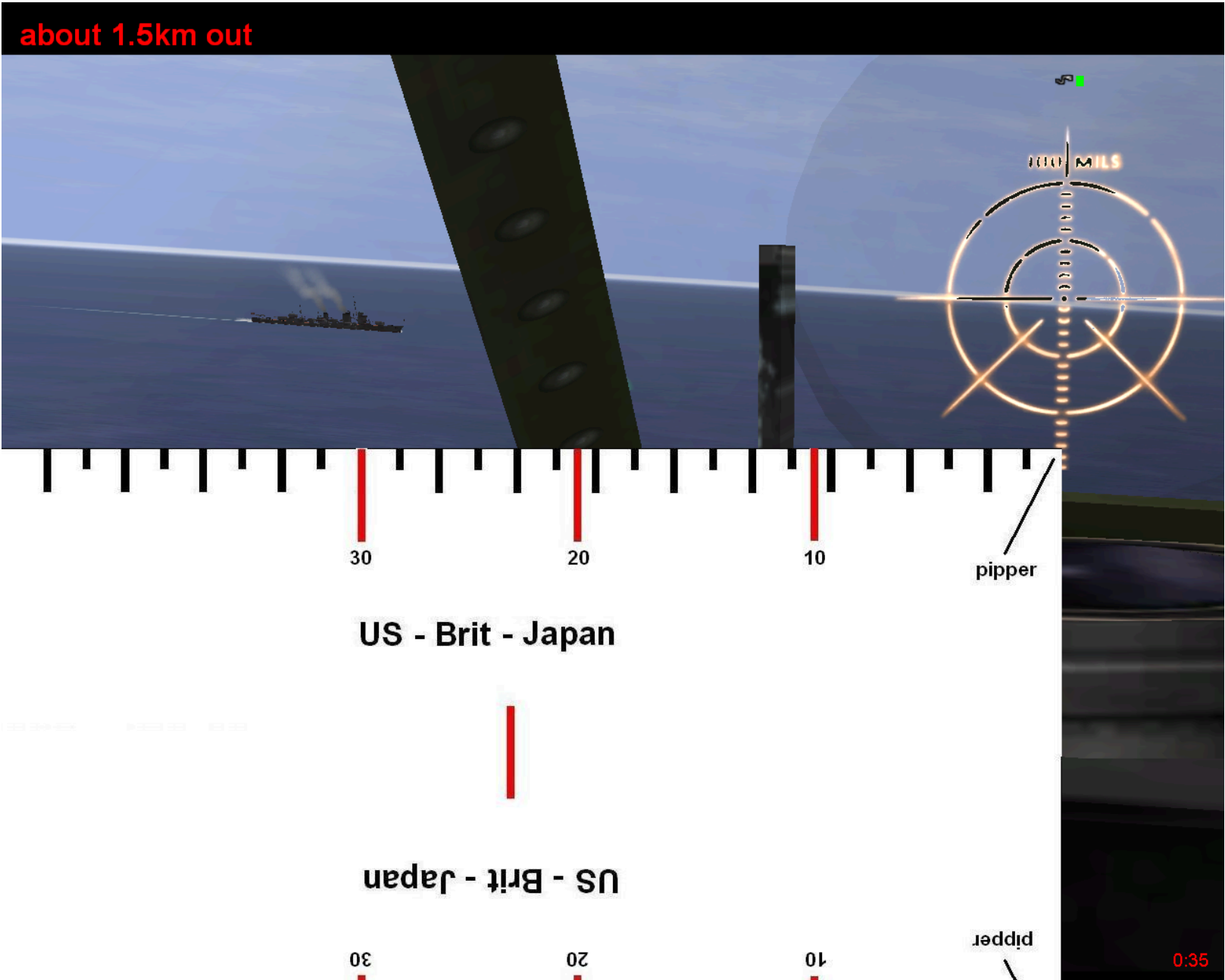
Mk I aiming card from 2010. Mk II will be similar, but without all the black millirad marks.



30 km/h target aiming

(again max release is at about 5 km)

(hold card up to monitor)

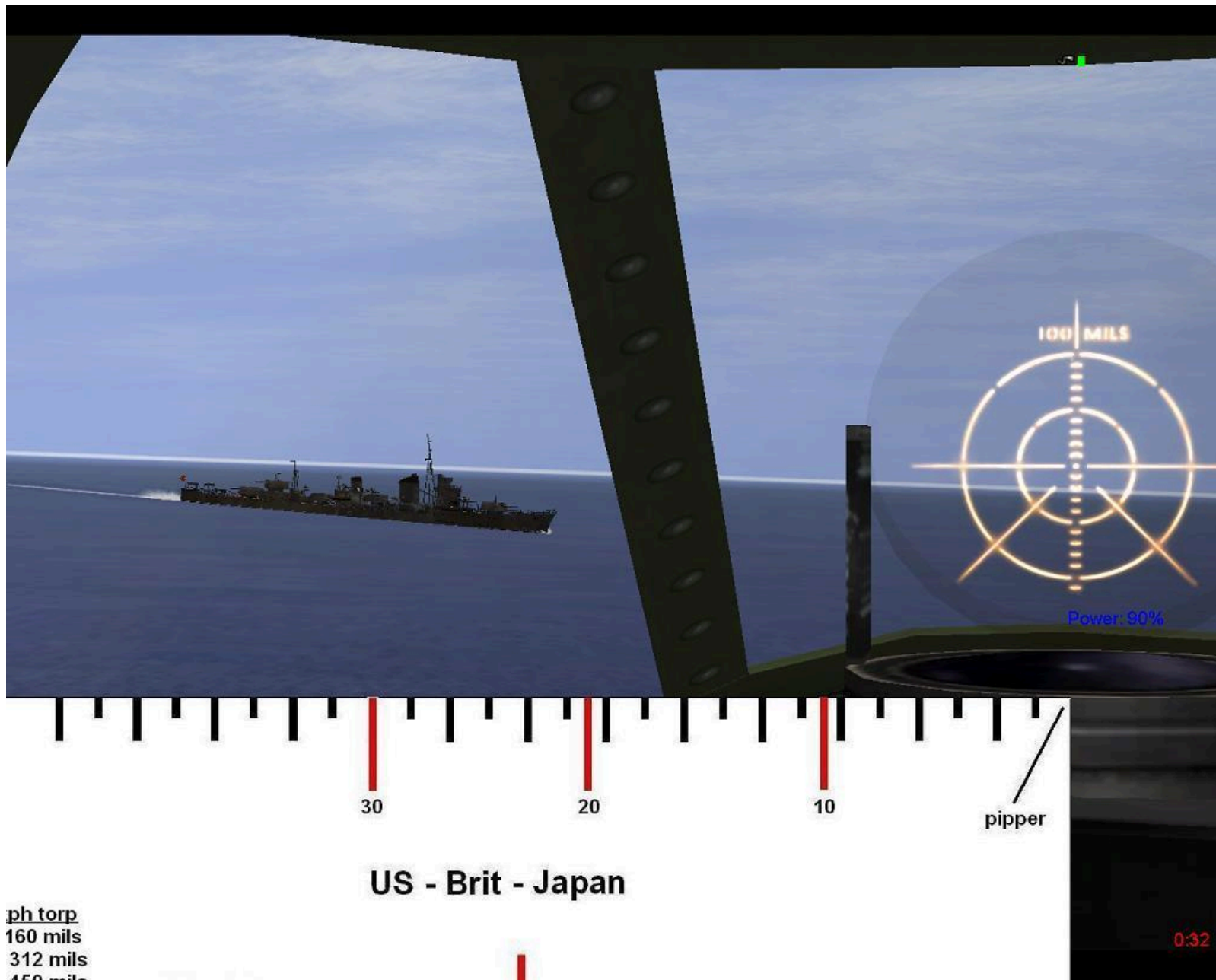




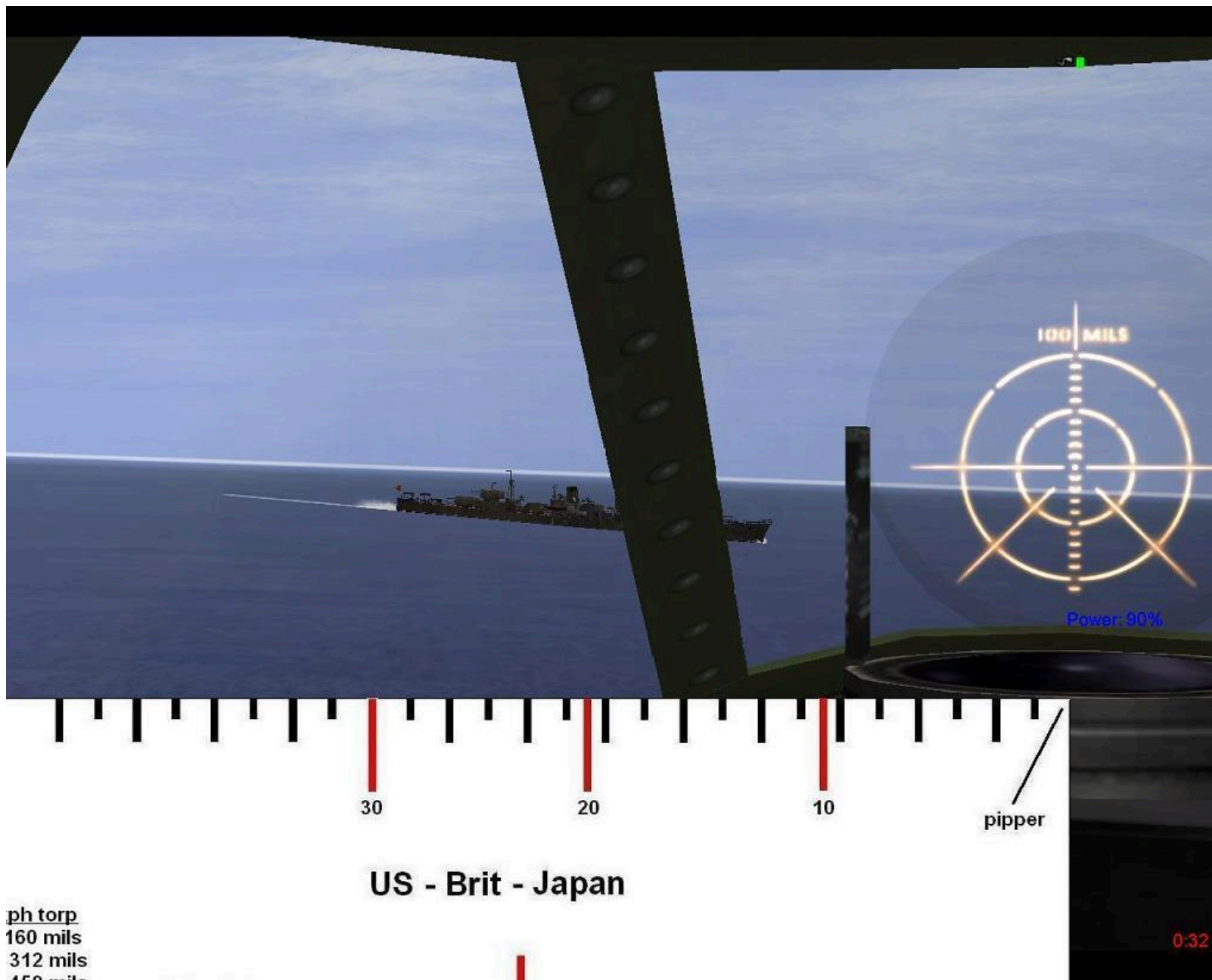
Compare to the picture above this with the aiming card; you can see it hit right where I was aiming. 30 km/h target. Exact distance is unknown, but I circled a few times before it hit.



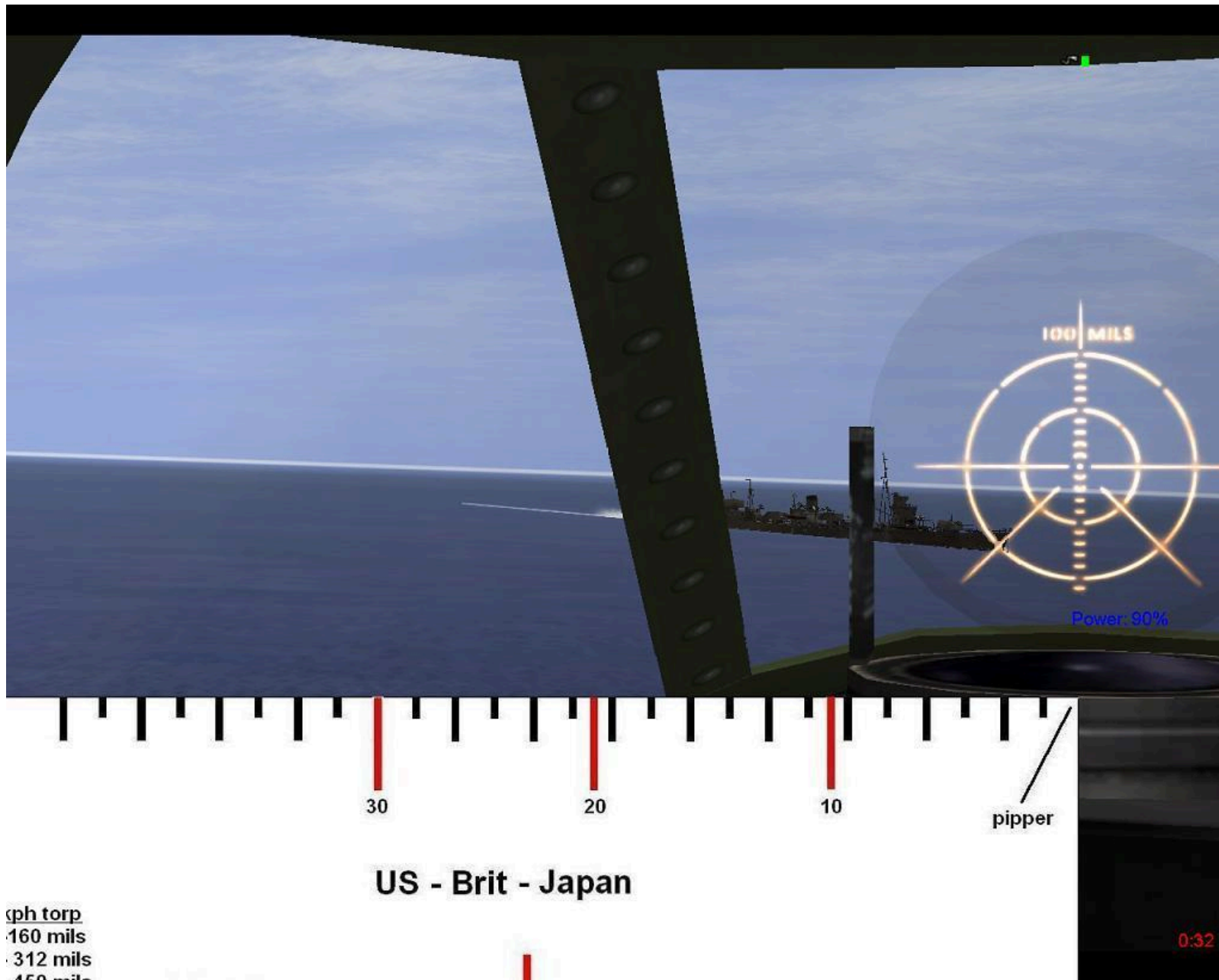
Center the ball before dropping the torpedo.



30 km/h target aiming. As you can see, in close, ship speed estimation can be at least +/- 5 km/h

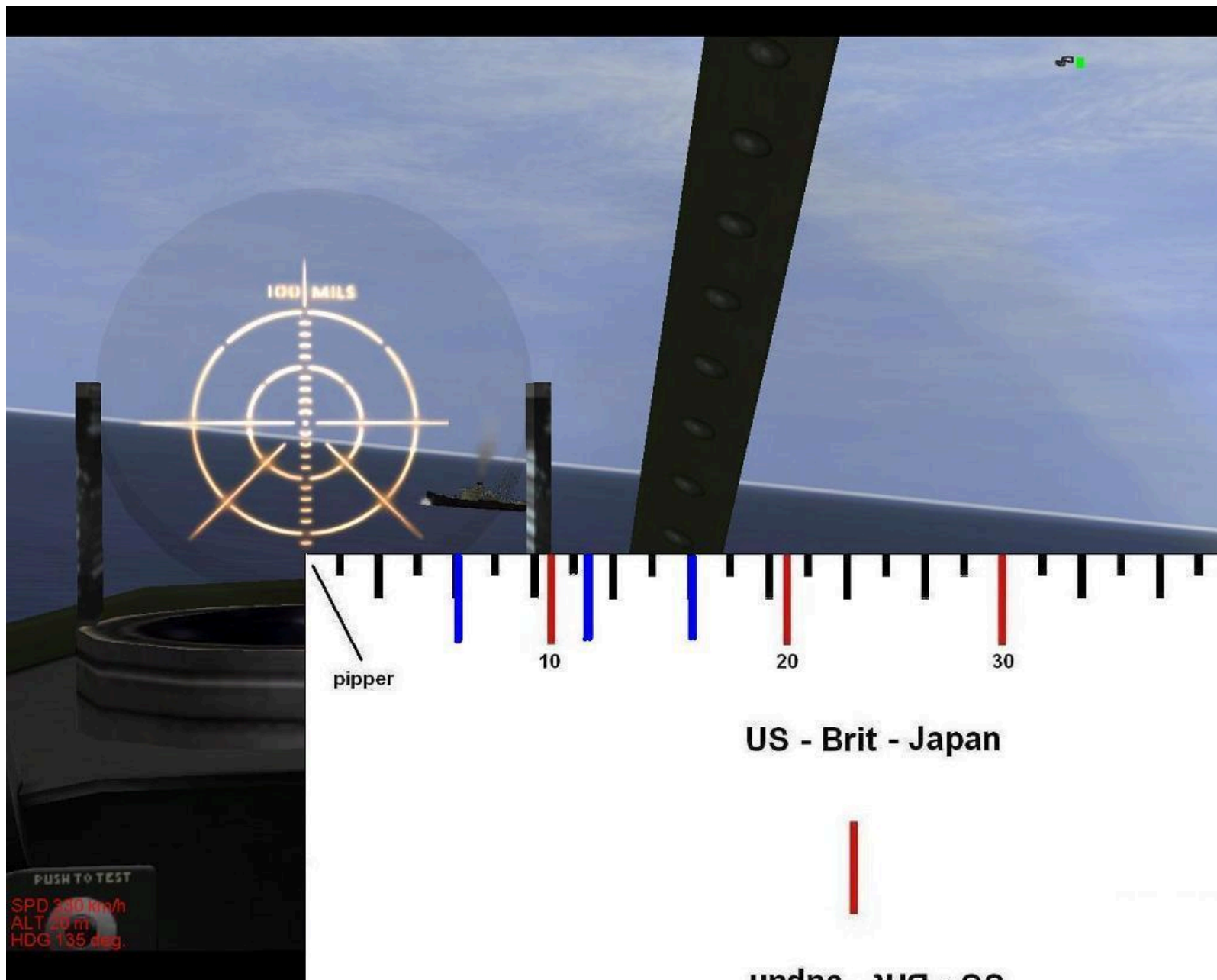


20 km/h target aiming.



10 km/h target aiming.
US - Brit - Japan

10 km/h target aiming.



Turn the card around to aim from the other side. Blue marks shown were testing aiming at 45 degrees off broadside.



DON'T CHANGE ZOOM LEVEL from that used when creating the card. Back in the day, I think I used 4 taps of zoom-in during torpedo runs. You want to be able to see the bubble during run-in.

How to make the aiming card: (I don't have the game on my computer anymore, or the map I made, so you're stuck with my verbal skills for this bit.) In Mission Editor, I used a short, round tower with a conical roof for the short markers, and a matching tall, round tower with conical roof for the tall markers, and I used a small, square, white 1-1/2 story building that looked like the British airfield towers you see in WW2 bomber movies for the center marker). Use whatever works for you, as long as it can be seen clearly from 1 km down the runway at the aircraft spawn point.

In mission editor, pick a runway. At one end, place a unique marker in the center of the runway. Make a "T" across the end of the runway by placing, at 50 meter intervals out to both sides, a short marker (50m), tall (100m), short (150m), tall (200m), short (250m), tall (300m).

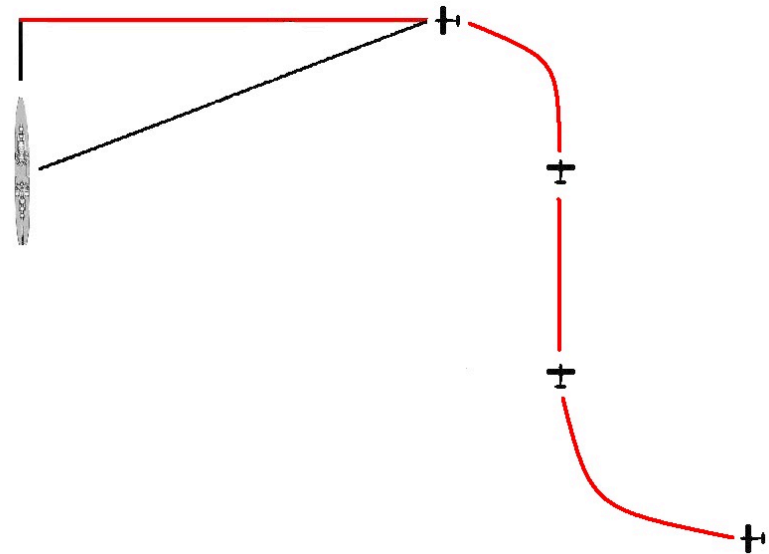
Down the center of the runway, at a distance matching torpedo speed (1,000m for 100 km/h torp speed, 622m for 62.2 km/h torp speed, etc), place a spawn point. This should work for yards/mph as well, but at 88 yards per 10 miles per hour, I think. Some math wiz can tell me how wrong I am... but the ratio should hold.

Assign aircraft/vehicles to the spawn point. When spawning in a plane, cockpit framing blocks a lot of the view of the markers. I'd test it with a jeep or other open vehicle, as I don't think the default zoom view would be different than in a plane but the view would be clear.

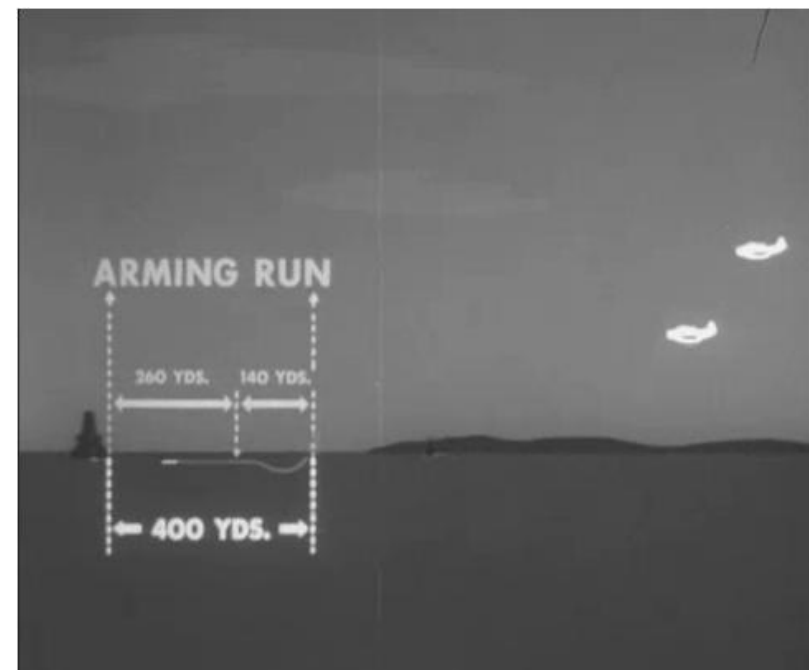
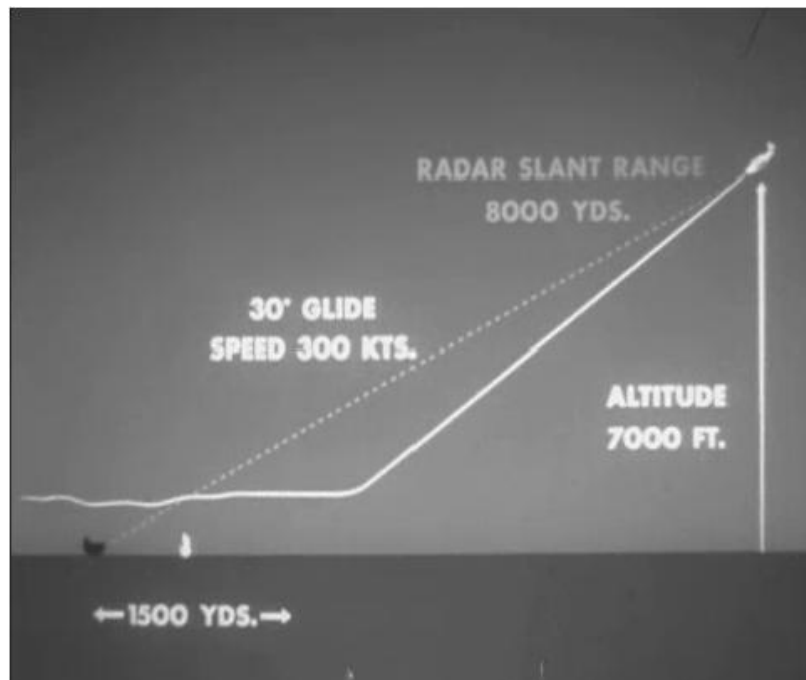
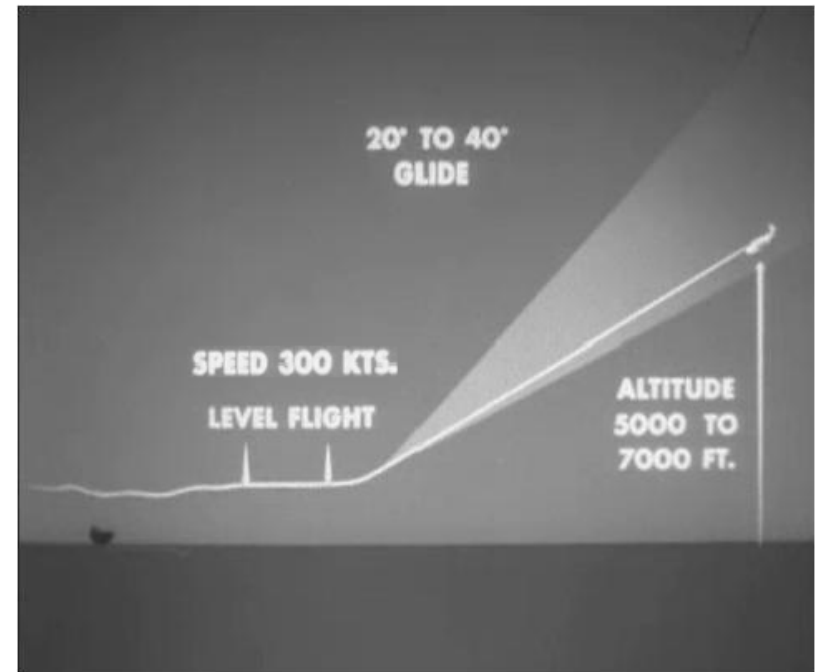
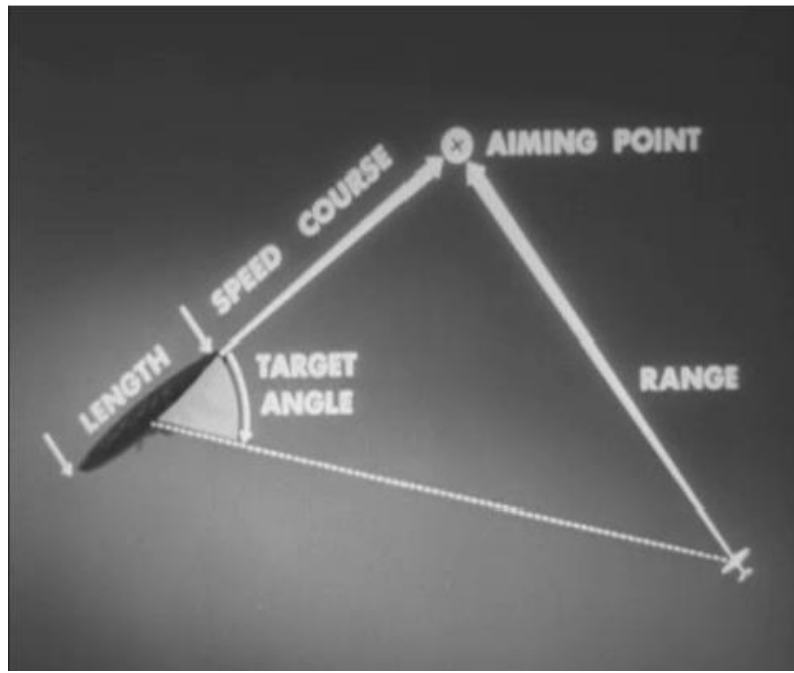
Create one of these airfields and cards for each torpedo speed you will be using.

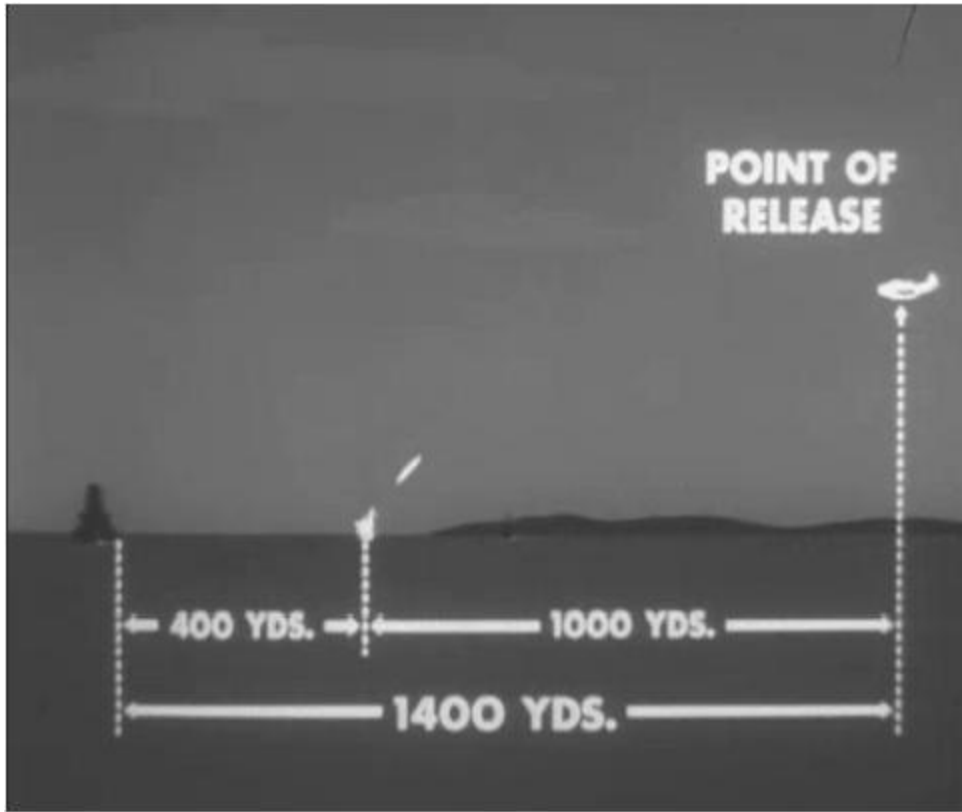
Spawn in, pick a zoom level (if you tend to zoom in during torp runs), place a blank card/paper against your monitor. Mark the center point and speed markers.

Go fly. On the torpedo run, set your zoom level if required, hold card to your monitor, align with the reticle piper (center line). Align on target, drop torpedo.



Original US Navy training slides (which gave me the idea):





Again, in-game, you can launch from 5 km out and 10 m off the water, no need to lob the thing a thousand yards.