INSTRUCTIONS

HUNTER KILLER

by R.K. Hopkins

Loading the game:

Switch your computer off, and then back on again, and them simply type 'RUN " " '. Consult your Basic manual if any problems arise.

Hunter Killer:

You are the commander of an 'S' type submarine on an important patrol off the coast of Germany and Denmark during the Second World War. Your 'billet' is the shaded area in rig. 1 known as the Heligoland Dight through which enemy submarines regularly pass. Your mission is to intercept and disrupt this traffic while confining your activities strictly to your billet, straying outside risks your being shelled by destroyers patrolling the adjacent sea lane. On the other hand, the coast is heavily mined, it is advisable to steer well clear of it both for this reason, and also to maintain a safe depth of water below your keel for evasion purposes. The Sea Bed Contour Chart in Fig. 2 is thus an essential navigation aid.

'S' Type Submarine:

This has been one of the most successful classes of British submarine, having been built for the Royal Navy in larger numbers than any other. It remained in service and production throughout World War II. They had an overall length of 217 ft., displaced up to 1000 tons, and a full complement of crew was 44. their diesel engines developed 1900 SHP giving a maximum speed of 16 knots, while 1300 SHP from the electric motors allowed a speed underwater of 9 knots. Maximum safe operating depth was considered to be about 300 feet.

Sailing a Submarine:

As on a normal ship, left rudder (←) steers to port, right rudder (→) to starboard. (If you have difficulty with these nautical terms, try this aide memoire: 'We LEFT PORT on the tide.'). Either joystick or cursor keys may be used to control the rudder, whose maximum deflection is 70 degrees. Rudder sensitivity is proportional to speed: the faster you are sailing, the faster you will be able to turn. Keys '«' & '»' control engine revolutions.

Of the two sets of engines, the diesels should be used on the surface: because they need air to run, they cannot be used under water. Indeed, a warning light will come on if you begin to submerge under diesel power. Submersion to a depth sufficient to cover the air intakes will irreparable damage the diesels. Under water, the electric motors should be used. These are driven by a bank of batteries that are charged up by the diesel engines when on the surface. Prolonged submersion can soon lead to flat batteries, so keep an eye on the battery charge indicator! Changing from one set of engines to the other is accomplished by pressing the 'M' key. An indicator in the main control room will show which engines are in use.

To dive the submarine, two actions must be taken. First, FLOOD your ballast tanks ('F' key): the indicator at the top left of the control room shows the level of water in the tanks, and indicates neutral bouyancy when they are about one-third flooded. This initial action will cause the submarine to sink slowly. To assist in diving, small wings on the hull known as HYDROPLANES can be rotated to deflect the bow up or down. As is the case with the rudder, their effectiveness depends on engine power. So, turning planes clockwise, using plenty of power and flooding ballast tanks is the necessary action for an emergency dive. Note that an 'S' type submarine needed about a minute to fully submerge. Hydroplanes are controlled using either a joystick or the up/down cursor keys, and a tell-tale in the control room mimics their angle. To stop diving, level the

hydroplanes, and to maintain a steady depth, DISCHARGE ballast ('D' key) to the neutral bouyancy level. such a stable condition is essential if torpedoes are to be fired: the shock of torpedo launching could easily put the vessel out of control. Lastly, to surface, rotate the hydroplanes fully anti-clockwise, and completely discharge ballast. If battery power is low, drift slowly up on bouyancy alone.

Using the Periscope:

The periscope column is in the centre of the control room: look at Fig. 3. To VIEW through it, press 'V'. This will raise the periscope, and allow you a close up view through its lens. the height of the horizon seen will depend on your depth: below about 30 feet nothing at all will be visible. For safety reasons the periscope is normally used at the greatest convenient depth, 34 ft. being optimal. Slightly deeper is possible but makes it difficult for the 1st Mate (in charge of trim) to keep the 'scope above water! Your target will be seen if within range, and assuming you're looking the right way. If you are not, rotate the periscope using '[' or ']'. the former turns it anti clockwise in 6 deg. increments, the latter clockwise in 36 deg. steps. Digital meters below the lens keep track of periscope angle, heading, rudder angle, enemy distance and the number of torpedoes running. Press 'V' again to return to the control room.

Radar, Asdic & Depth Recorder:

The asdic set displays a north up true bearing for targets within 4 miles range. It comes on automatically at depths greater than 10ft, when its characteristic ping will be heard. On the surface, radar antennae are clear of the water, so the radar set is switched on instead. It has two ranges, 10 or 20 miles; RANGE is changed using

the 'R' key. Again, the display is North up, PPI format. finally, the echo sounder records the depth of water below the keel: if the vessel is rising, the trace falls, as it would if the submarine remained level while the sea bottom shelved off. Updated at all times, even when not in view, and having a range of 0 ft. (trace at top) to 200 ft., the sounder paper scrolls continuously from right to left.

The Chart Room:

The chart room is on the starboard side of the control room, accessed by pressing the 'C' key. the control room slides across, making room for the chart display as it goes. Most instruments remain in view & continue to work as normal. The main feature of the chart is the local coastline together with the logitude/latitude grid calibrated at bottom and right. Inverse figures indicate degrees, the others, minutes. Mine symbols give an idea of the extent of the coastal minefield, to be avoided at all costs. At top left, a short line radiating from a small circle displays the direction of the tide stream, whose strength is monitored by a meter below the chart. Below this meter is another giving the log reading, your speed through the water. Note that both course made and distance made are affected by tide. The position of your own craft is pinpointed by the left hand end of a submarine symbol on the chart, while that of your target is updated on a meter at bottom right provided it is in range of instruments then in use. The latter position is given only in minutes, the degree part being obvious. If, for example, the meter reads 30.2'N,7.4'E then the full position will be 58 30.2'N, 8 7,4'C. For the purposes of this simulation, the enemy will always be on the surface, start off from some point on the eastern side of the chart and steer a course with a lot of west in it at a speed of up to about 10 knots. You own position is not continuously updated while you are in the chartroom. Press 'C' again to return to the control room.

Torpedoes Away:

Only bow tubes are used with the result that you must arrange for your target to be either dead ahead, or steering on a collision course with your salvo. Pressing 'T' primes and fires the first torpedo, 'F' fires subsequent torpedoes in the same salvo. The torpedo count meter keeps track of the number of torpedoes actually running. Accuracy depends on your estimate of the target's course and speed: use a time spread salvo to make this less critical. The torpedoes run at 45 knots and have a range of 3 miles. Remember that your vessel must be stable before you can fire a torpedo: you must be at periscope depth of or less, have horizontal hydroplanes and neutral ballast. If the periscope angle is other than zero, on firing it will automatically swing to, and lock on zero. All control functions also lock until either a torpedo strikes, or all have run themselves out. If a salvo has clearly missed however, it can be aborted by pressing 'A'. Remember, the torpedoes are not laser bolts: they take time to reach a target! A PRACTICE TARGET is set up for you when the game first starts, or after you've sunk: go straight to the periscope view and fire a salvo immediately. The target submarine and your torpedoes should on a collision course.

Further Hazards:

Spotter planes regularly patrol the area. If you should be looking through the periscope when one flies over, you will both see and hear it. The crew will alert you to its presence by sounding the klaxon, a signal to dive since the plane will certainly drop depth charges. You have in fact about 1.5 minutes to reach a depth of 30 ft. or more to be safe. Of course you will not be spotted if submerged when the plane passes overhead. Dallying directly in the path of the enemy submarine will have a not surprising result: he will torpedo you. Submarines are not high enough in the water to see the course of approaching torpedoes, so don't expect any warning!

HAPPY HUNTING!

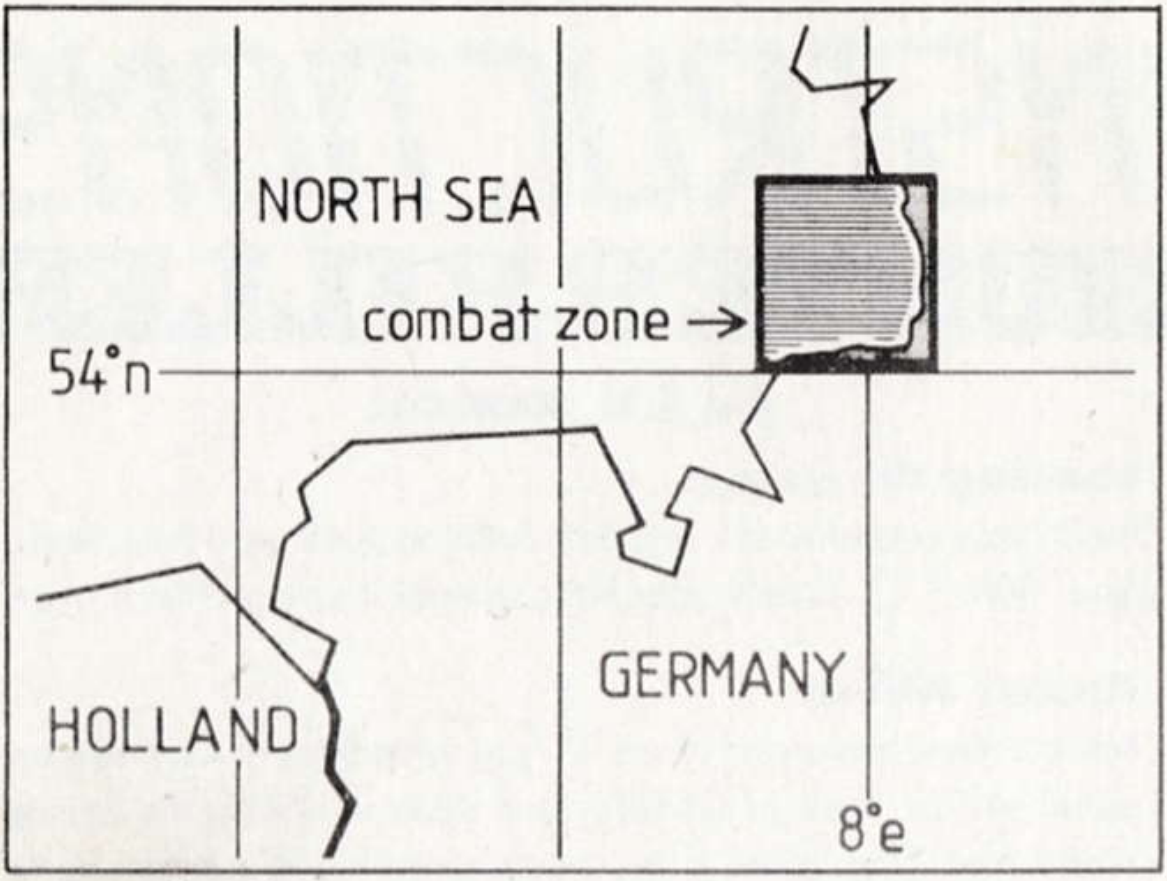


Fig. 1 Combat Zone

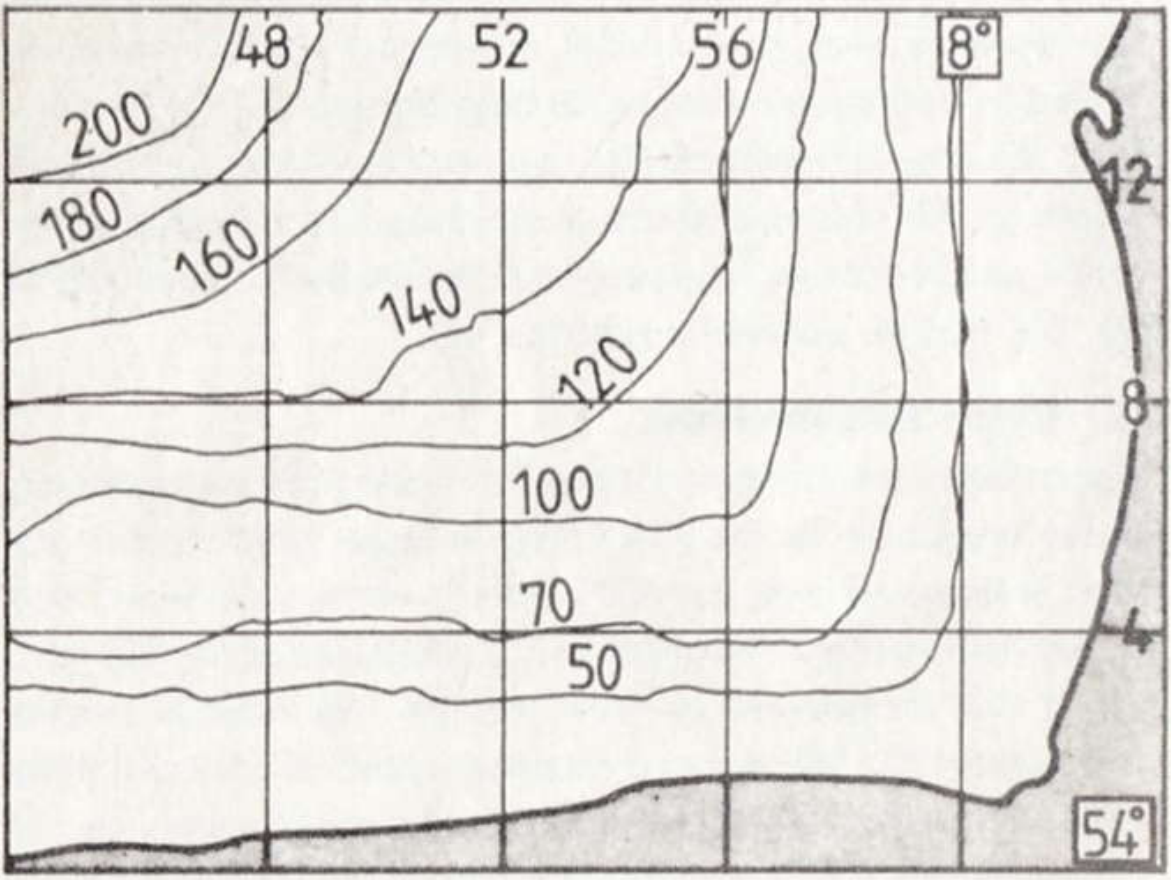


Fig. 2 Seabed Contour Chart

Fig. 3 Control Room

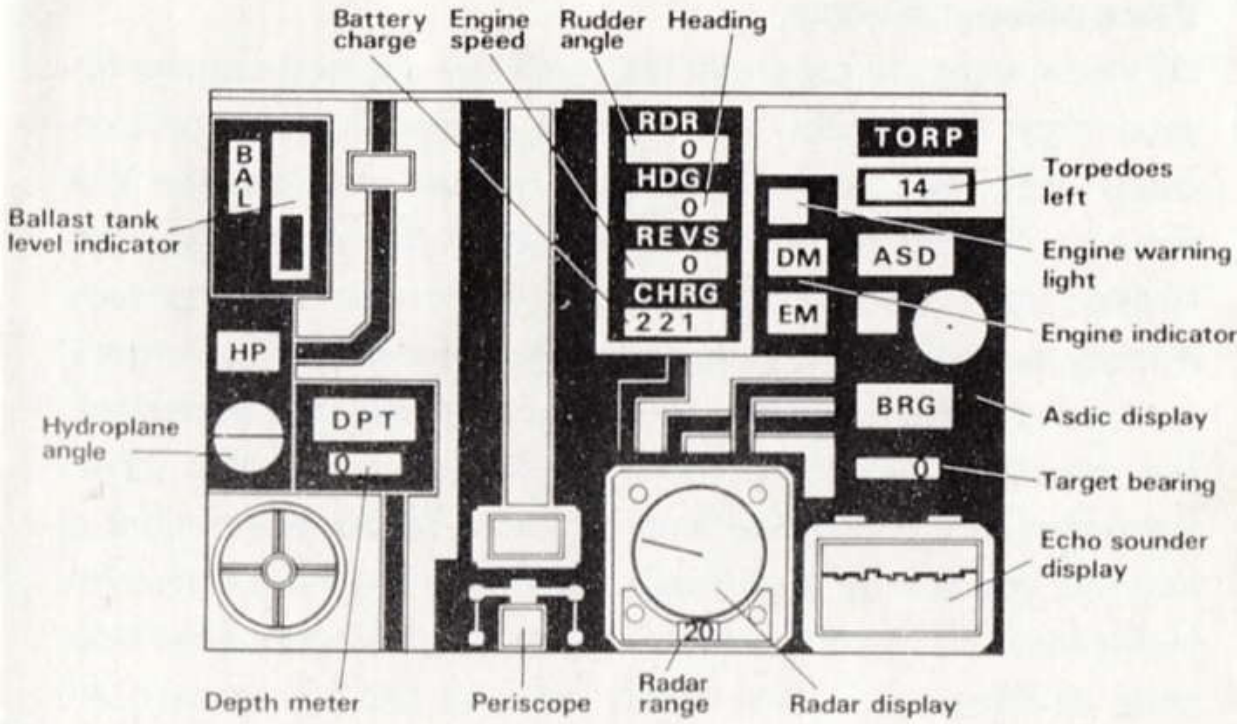


Fig. 4 Periscope View

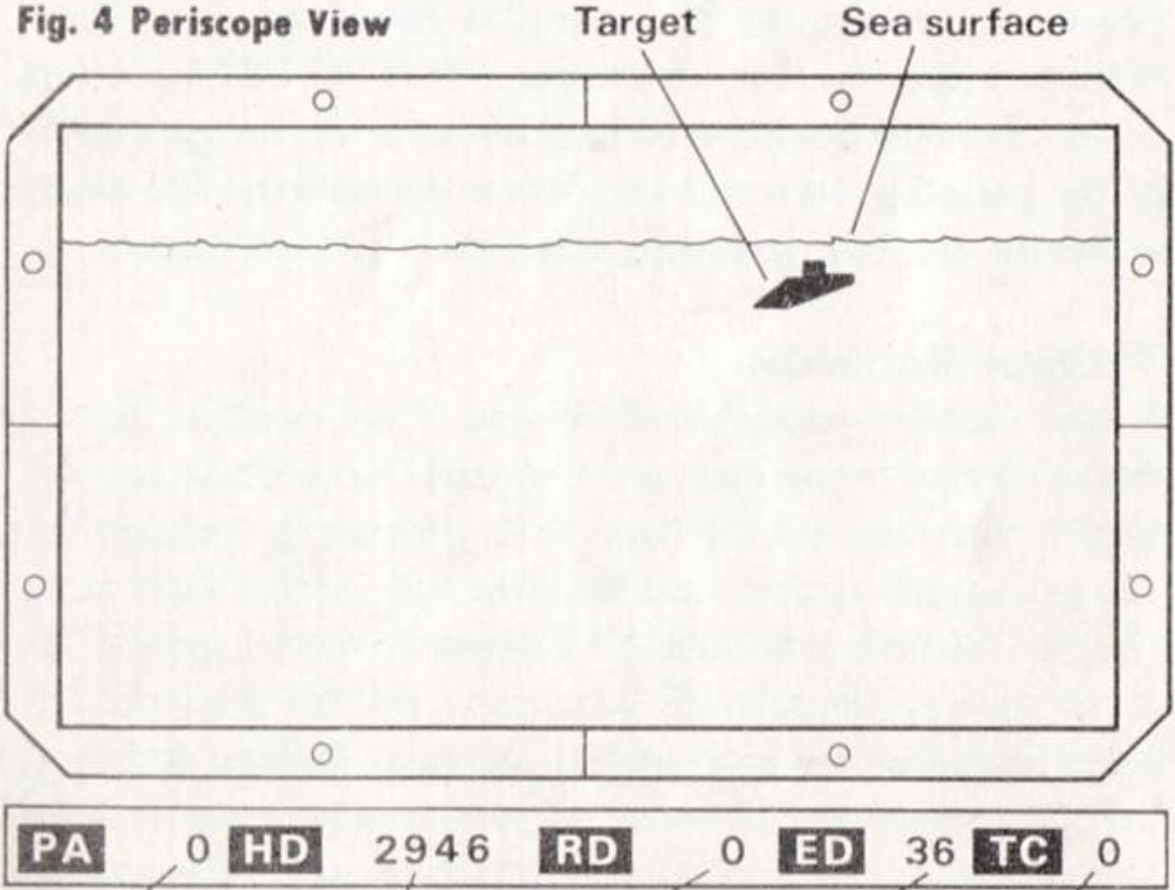
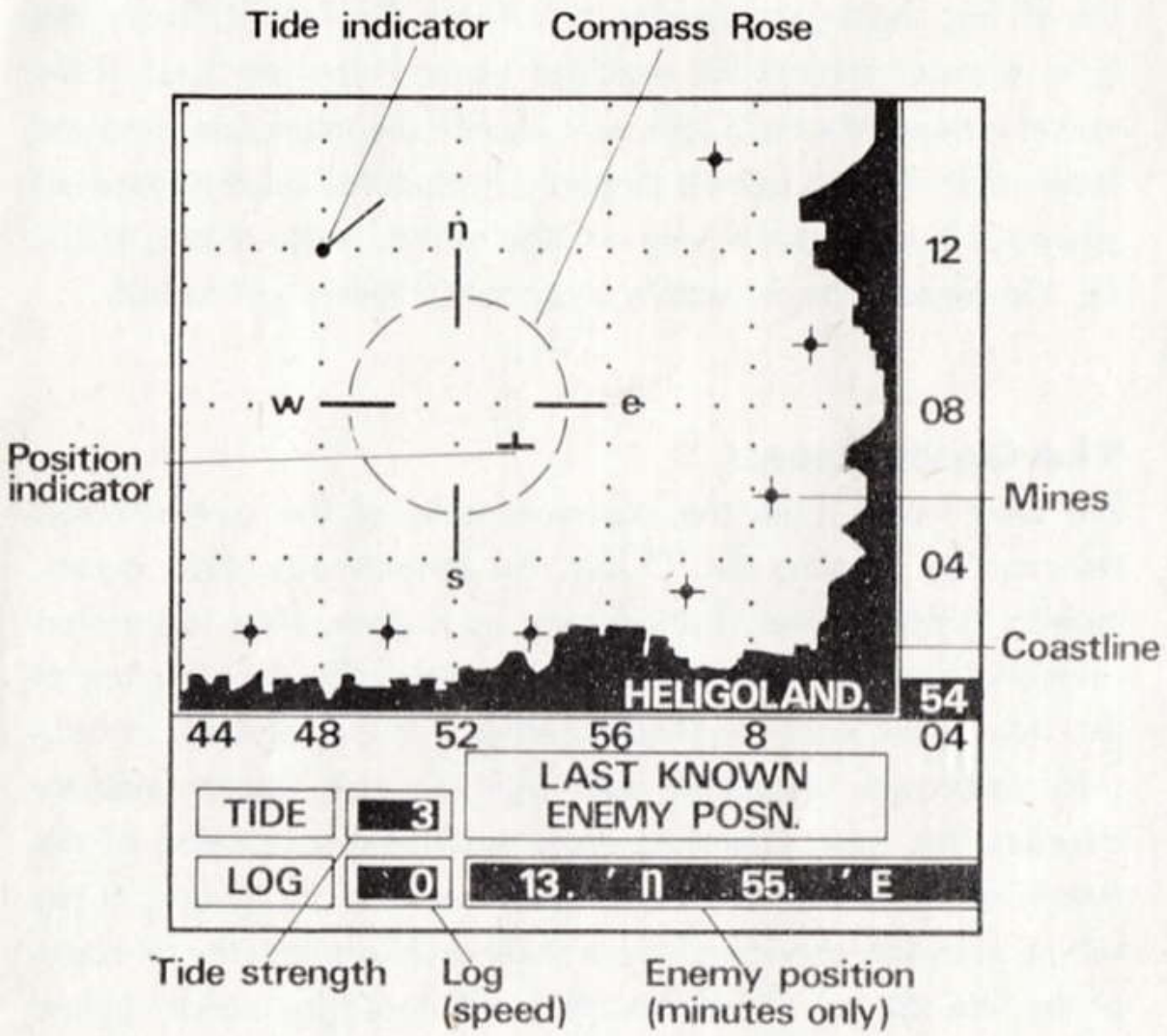


Fig. 5 Chart Room



Summary of Controls

← Cursor or Joystick left	rudder left
→ Cursor or joystick right	rudder right
↑ Cursor or joystick forward	hydroplanes down
↓ Cursor or joystick back	hydroplanes up

A	abort salvo	M	change engines
C	to/from chartroom	[	periscope left 6°
D	discharge ballast	]	periscope right 36°
F	flood ballast	R	change radar range
>	increase engine revs	T	Torpedoes prime
>	decrease engine revs	V	raise periscope and view