



TOOTALL

Helicopter Transport Services

Dedicated to the helicopter pilots and crews who flew during the Viet Nam War



Colonel Bruce Perry Crandall



Bruce Perry Crandall (February 17, 1933) is a retired U.S. Army officer who received the Medal of Honor for his actions during the Battle of Ia Drang. During the battle he flew 22 missions in an unarmed helicopter into enemy fire to bring ammunition and supplies and evacuate the wounded. By the end of the Vietnam War, he had flown over 900 combat missions.

After retiring from the Army he worked several jobs in different states before settling down with his wife in his home state of Washington.



Major Ed W. "Too Tall" Freeman



Ed W. "Too Tall" Freeman (November 20, 1927 – August 20, 2008) was a United States Army helicopter pilot who received the U.S. military's highest decoration, the Medal of Honor, for his actions in the Battle of Ia Drang during the Vietnam War. During the battle, he flew through gunfire numerous times, bringing supplies to a trapped American battalion and flying dozens of wounded soldiers to safety. Freeman was a wing-man for Major Bruce Crandall. Freeman was subsequently promoted to the rank of Major, designated as a Master Army Aviator, and was sent home from Vietnam in 1966.

He retired from the military the next year. Freeman and his family settled in the Treasure Valley area of Idaho, his wife Barbara's home state, and continued working as a pilot. He flew helicopters for another 20 years, fighting wildfires, conducting animal censuses, and herding wild horses for the Department of the Interior until his second retirement in 1991. By then, he had 17,000 flight hours in helicopters and 8,000 in fixed-wing aircraft.



TOOTALL Helicopter Transport Services has operated in the most demanding of environments, providing all types of services in Georgia.

Our range of aerial solutions allows us to perform a multitude of tasks, including logistical support of isolated facilities, pipeline construction, lifting of internal, external and oversized loads, personnel transport.

TOOTALL Helicopter Transport Services provides both picture and camera helicopters to the entertainment and commercial industries. Our helicopters are certified for all major camera types and mounts, with personnel on staff for aerial coordination.



TOOTALL SKIN



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TOOTALL

Helicopter Transport Services (for DCS World MP server)

TOOTALL delivers cargo and transports passengers within Georgia for the oil company

TOOTALL use real world navigation (see map)

NDB - completely match Jeppesen charts

VOR - not implemented in the BETA version of the UH-1H. Instead, company uses its own NDB:

KTS – 1600 kHz (Kutaisi, TOOTALL Homebase) – *instead of VOR 113.6*

TBS – 1500 kHz (Tbilisi) - *instead of VOR 113.7*

How to navigate, please refer to the navigation section



TOOTALL

navigation map



For DCS World TOOTALL mission only



ADF/NDB Navigation

A **non-directional (radio) beacon (NDB)** is a radio transmitter at a known location, used as an aviation or marine navigational aid. As the name implies, the signal transmitted does not include *inherent* directional information, in contrast to other navigational aids such as low frequency radio range, VHF omnidirectional range (VOR) and TACAN. NDB signals follow the curvature of the Earth, so they can be received at much greater distances at lower altitudes, a major advantage over VOR. However, NDB signals are also affected more by atmospheric conditions, mountainous terrain, coastal refraction and electrical storms, particularly at long range.

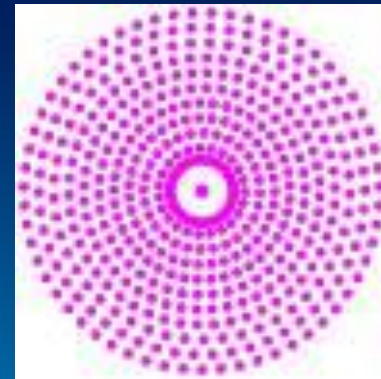
NDBs used for aviation are standardised by ICAO Annex 10 which specifies that NDBs be operated on a frequency between 190 kHz and 1750 kHz. Each NDB is identified by a one, two, or three-letter Morse code callsign.



NDB



NDB



This symbol denotes an NDB on an aeronautical chart.



UH-1H ADF/NDB Navigation equipment

ADF equipment determines the direction to the NDB station relative to the aircraft. This may be displayed on a relative bearing indicator (RBI). This display looks like a compass card with a needle superimposed, except that the card is fixed with the 0 degree position corresponding to the centerline of the aircraft. In order to track toward an NDB (with no wind) the aircraft is flown so that the needle points to the 0 degree position, the aircraft will then fly directly to the NDB. Similarly, the aircraft will track directly away from the NDB if the needle is maintained on the 180 degree mark. With a crosswind, the needle must be maintained to the left or right of the 0 or 180 position by an amount corresponding to the drift due to the crosswind.



AN/ARN-83 ADF

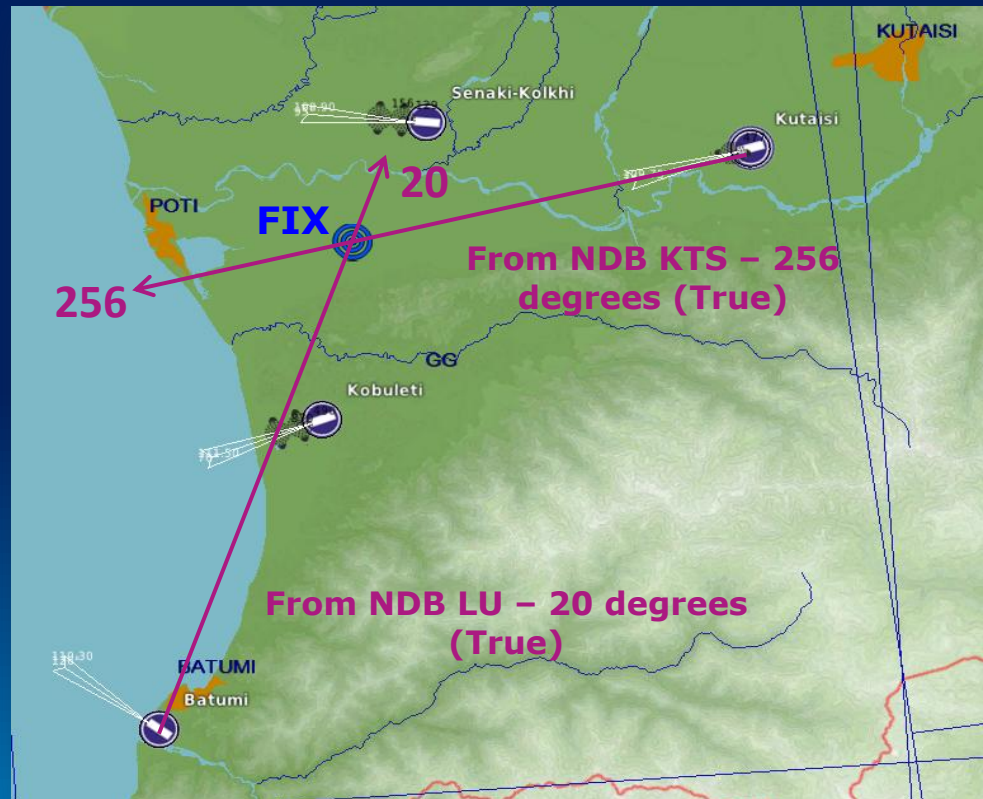


Radio Compass Indicator



Fix

NDBs have long been used by aircraft navigators, and previously mariners, to help obtain a fix of their geographic location on the surface of the Earth. Fixes are computed by extending lines through known navigational reference points until they intersect. For visual reference points, the angles of these lines can be determined by compass.

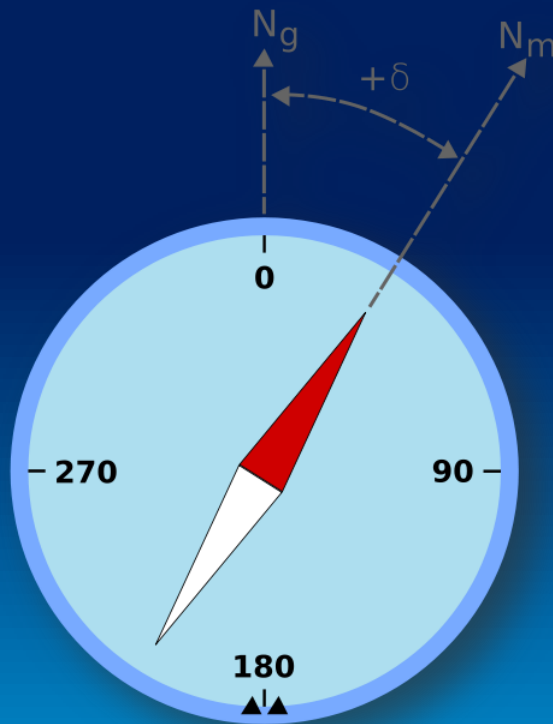


True North (geodetic north) is the direction along the earth's surface towards the geographic North Pole. True geodetic north usually differs from magnetic north . **The direction a compass points toward the magnetic north pole.** Angle between compass north and true north - **Magnetic Variation (MV)**



Magnetic Variation (MV)

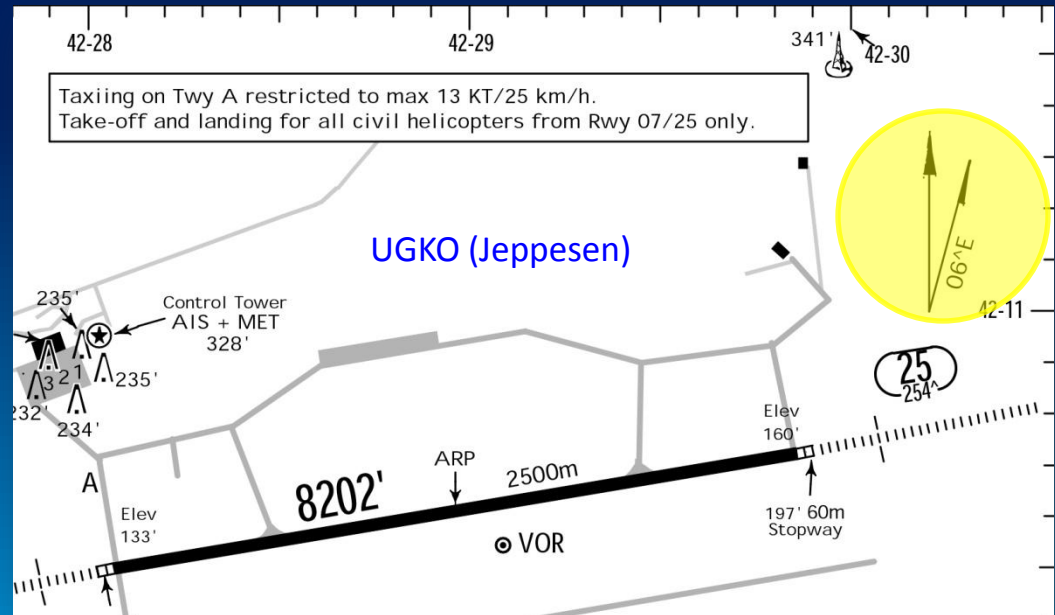
Magnetic declination is the angle between compass north (the direction the north end of a compass needle points) and true north (the direction along the earth's surface towards the geographic North Pole). The declination is positive when the magnetic north is east of true north. The term **magnetic variation** is a synonym, and is more often used in navigation. **Isogonic** lines are where the declination has the same value, and the lines where the declination is zero are called **agonic lines**. The lowercase Greek letter δ (delta) is frequently used as the symbol for magnetic declination.



Example of magnetic declination showing a compass needle with a "positive" (or "easterly") variation from geographic north.

DCS World **MV=06 East**

DCS World **MV** : $\delta = 06 E$



Magnetic Variation (MV)

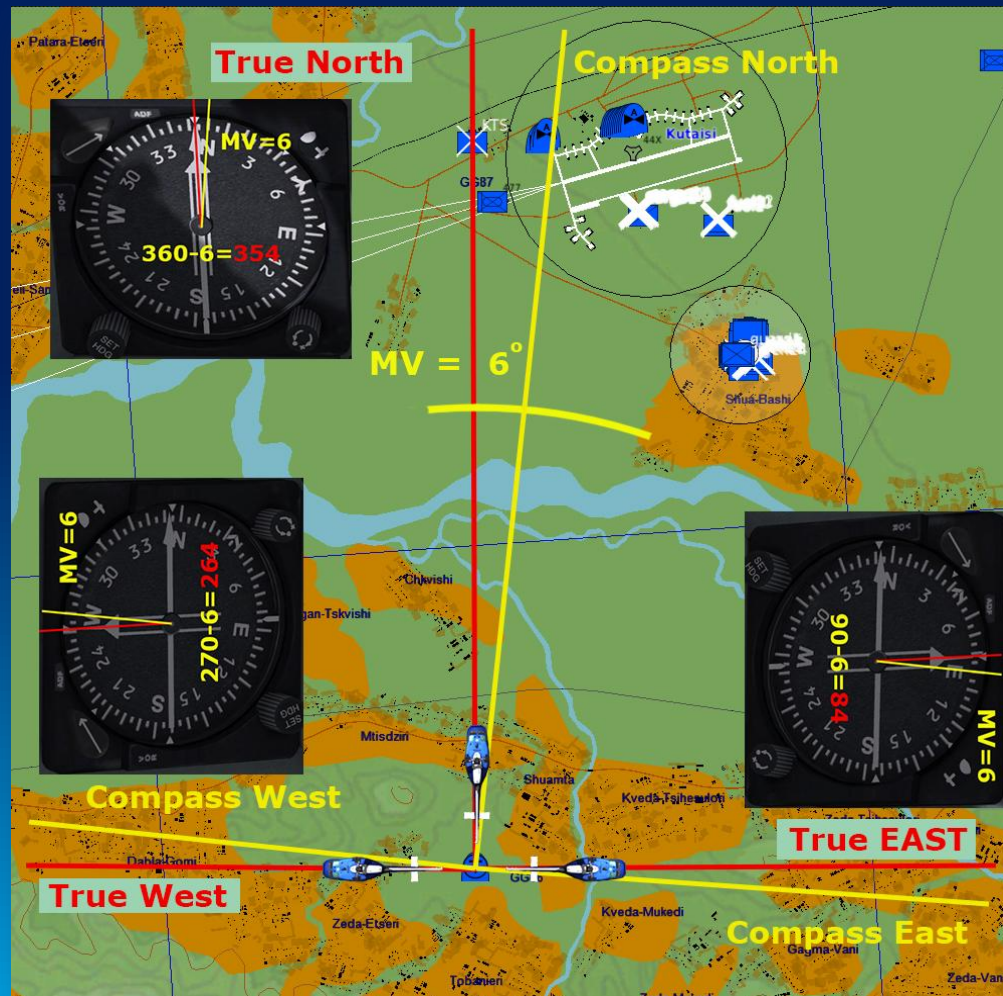
DCS World **MV** : $\delta = 06\text{ E}$

If you plan to fly on the map 360, in the cockpit you'll be flying a course **354** (360 compass - 6 MV=354)

If you plan to fly on the map 90, in the cockpit you'll be flying a course **84** (90 compass - 6 MV=84)

If you plan to fly on the map 270, in the cockpit you'll be flying a course **264** (270 compass - 6 MV=264)

If you plan to fly on the map X, in the cockpit you'll be flying a course **Y** (**X** compass - 6 MV=**Y**)



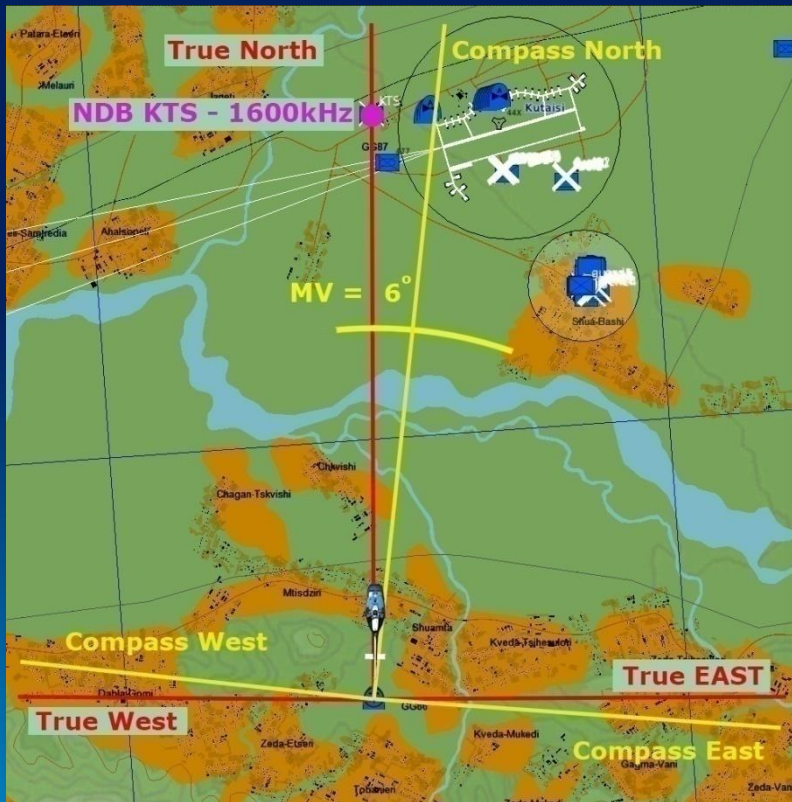
Magnetic Variation (MV) and ADF Radio Compass Indicator

If you plan to fly on the map **360 (to NDB)**:

- in the cockpit you'll be flying **ADF course 354** ($360 \text{ compass} - 6 \text{ MV} = 354$)

If you plan to fly on the map **180 (from NDB)**:

- in the cockpit you'll be flying a **ADF backcourse 174** ($180 \text{ compass} - 6 \text{ MV} = 174$)



DCS World **MV** : $\delta = 06 \text{ E}$



Why we use the ADF/NDB navigation (IFR and VFR)

VFR - Visual flight rules

Flights operating under VFR are flown solely by reference to outside visual cues (horizon, buildings, flora, etc.) which permit navigation, orientation, and separation from terrain and other traffic. Visual flight rules can be simpler than IFR, and require significantly less training and practice. VFR pilots *may* use cockpit instruments as secondary aids to navigation and orientation, but are not required to.

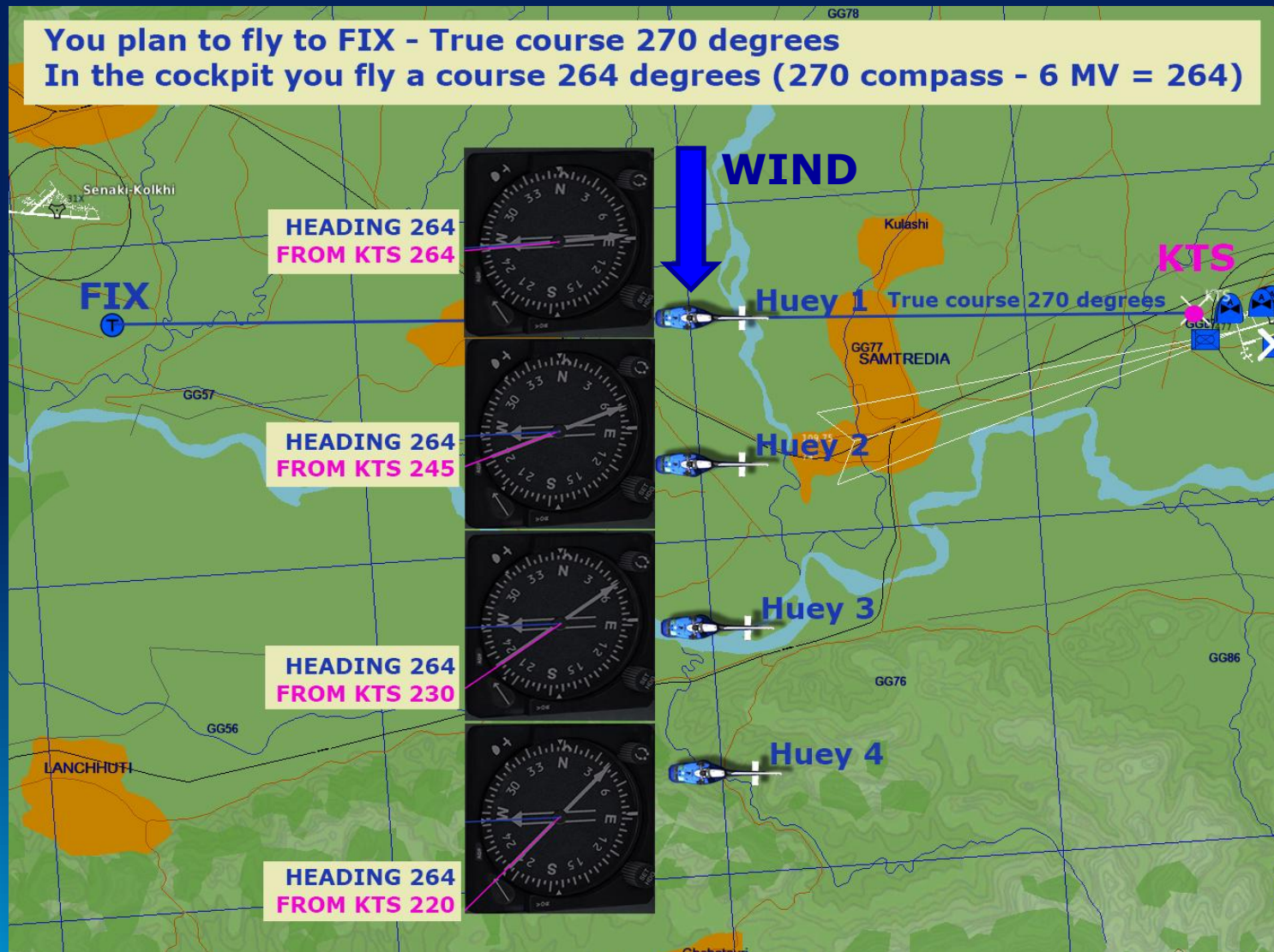
IFR - Instrument flight rules

Instrument flight rules permit an aircraft to operate in instrument meteorological conditions (IMC) in contrast to VFR. Procedures and training are significantly more complex as a pilot must demonstrate competency in conducting an entire cross-country flight in IMC conditions, while controlling the aircraft solely by reference to instruments. Instrument pilots must meticulously evaluate weather, create a very detailed flight plan based around specific instrument departure, en route, and arrival procedures.



VFR

Use the ADF/NDB navigation to compensate for **Wind Drift**



Only Huey 1 flies correct course to FIX



IFR

Use the ADF/NDB navigation to operate in instrument meteorological conditions (IMC)



How to plan a flight with ADF/NDB navigation



Flight mission (MEDEVAC)
Transport of injured passengers
from FIX1 to Kutaisi

- Take off from Kutaisi (UGKO)
- Flight to FIX 1 from NDB KTS
- Flight back to Kutaisi (UGKO)
to NDB KTS



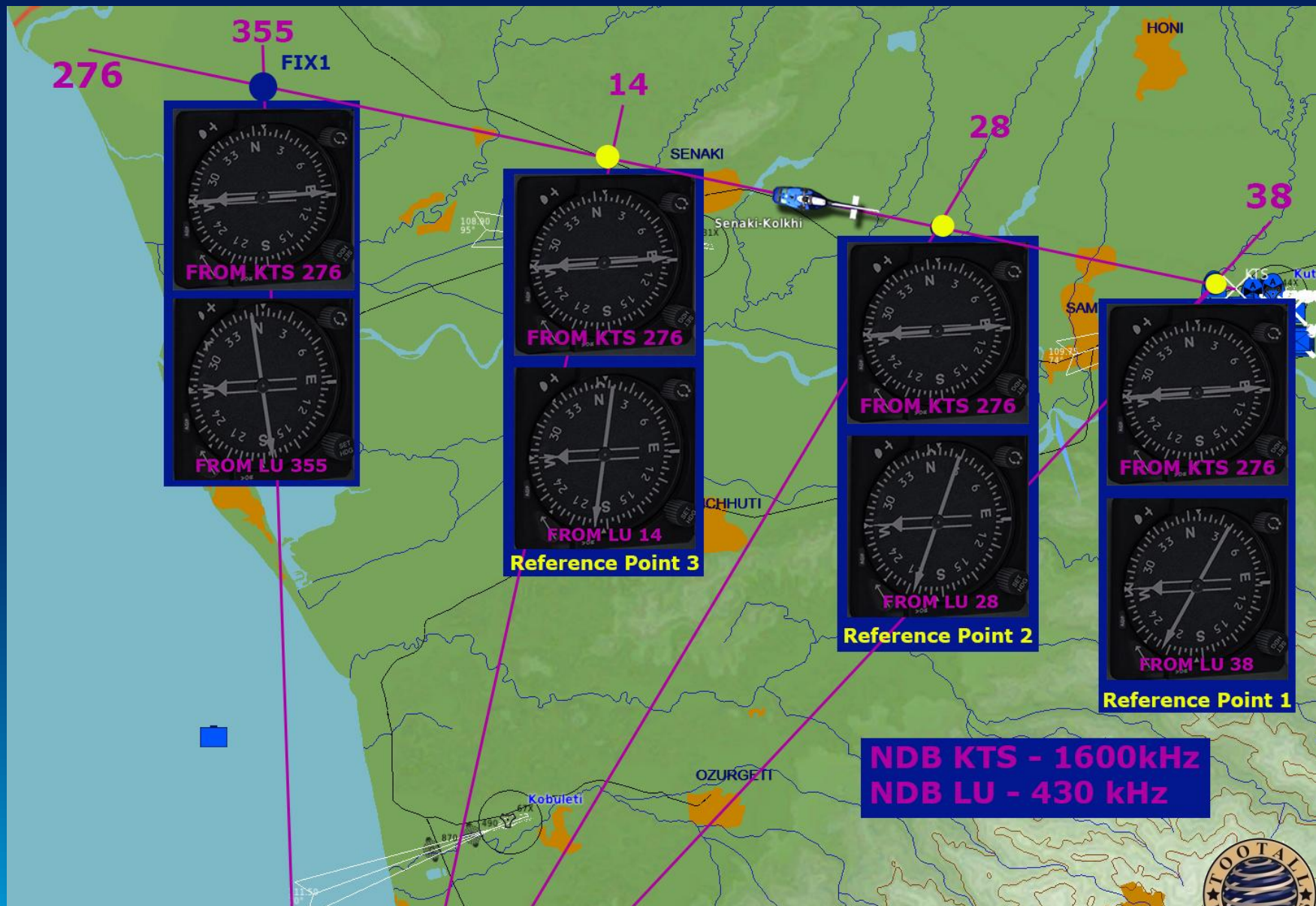
Plan your flight in
SP



Fly your plan in
MP



Flying with ADF/NDB navigation



Flight TIP

Find Visual Reference Point
on the Horizon



Use Heading Selector Knob
(**SET HDG**) to "mark" Visual
Reference Point



Do not forget synchronize compasses



set up altimeter (QNH)

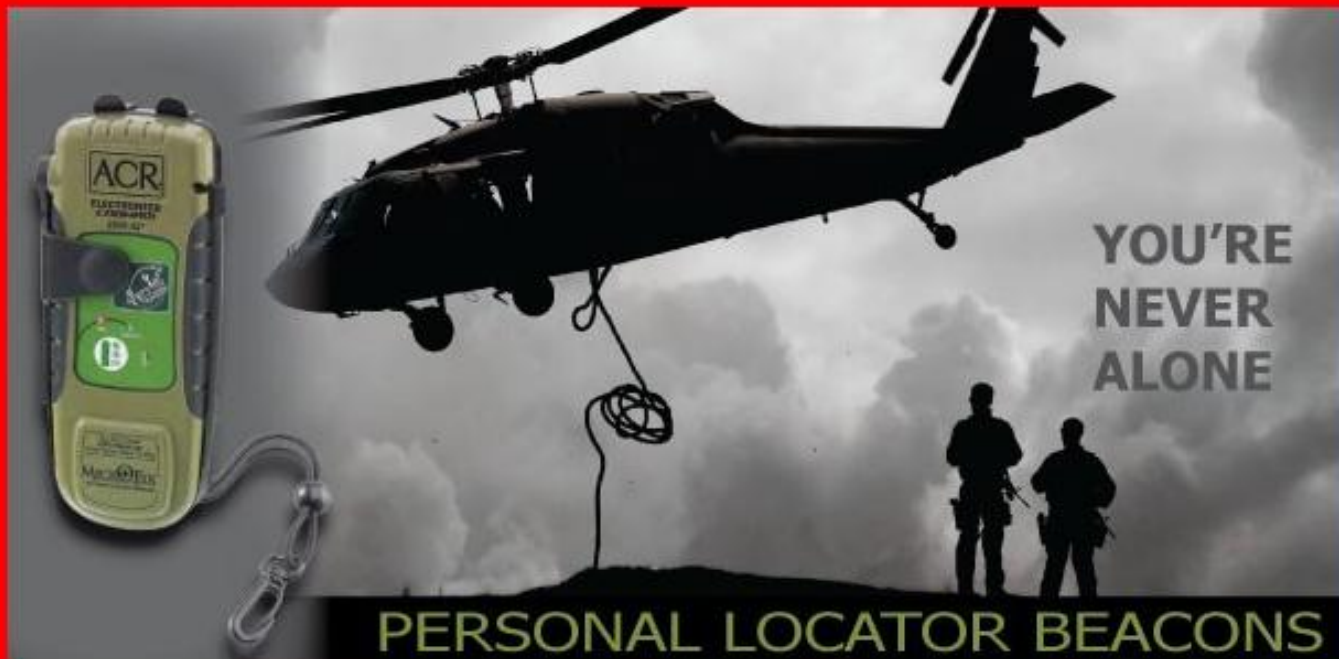


QNH from ATIS (132 MHz):
29.94

(UGKO ALT 152)



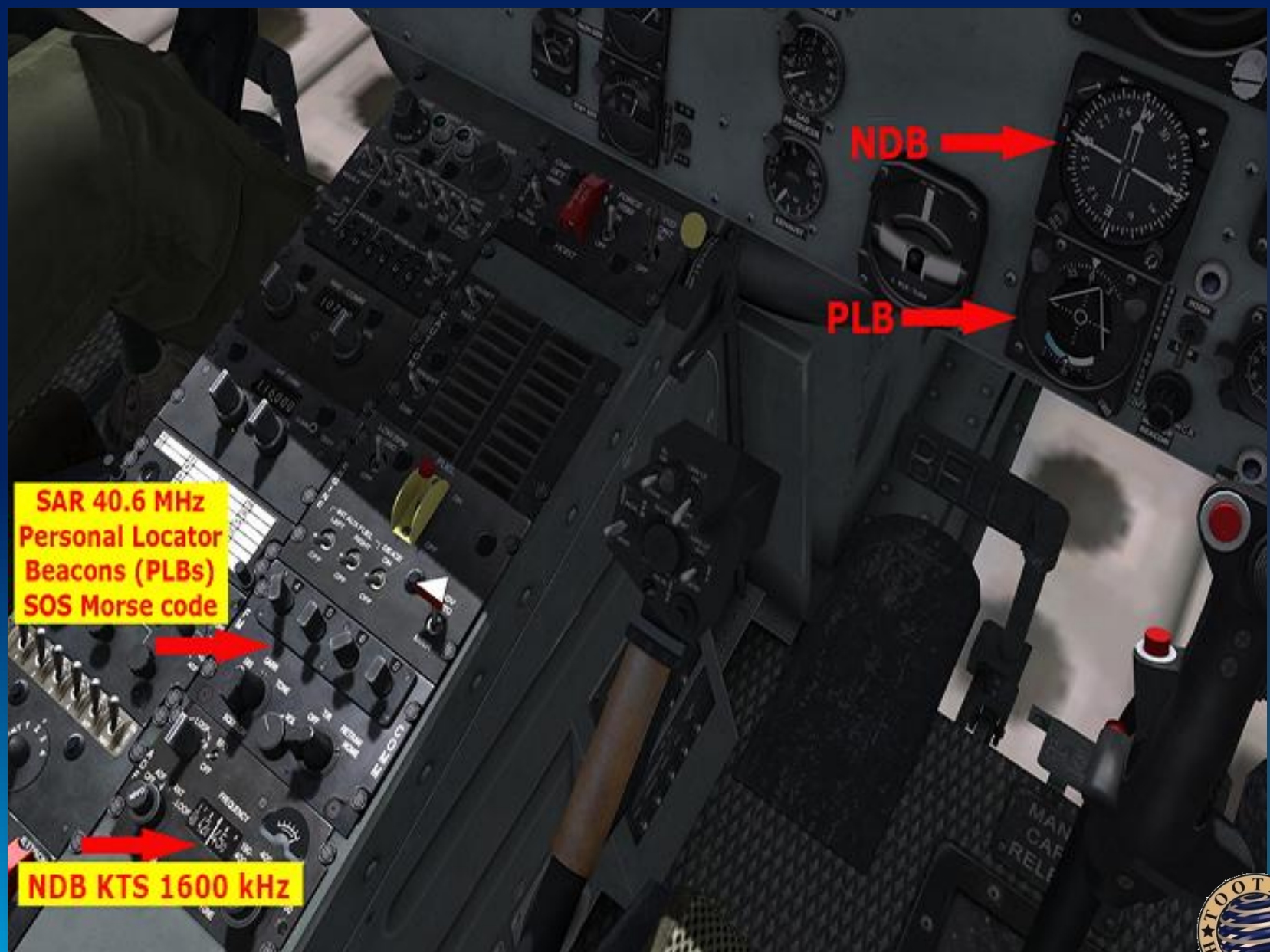
MISSIONS



SAR PLB
40.6 MHZ



MISSIONS



HAVE A GOOD FLIGHT

mission made by “airwar”



Thanks to all, who helped to make this mission:

Flyingfrog

Flyer49

Andrew41

MasterZelgadis

Geloxo

Святой

