NAV-750C
VOR/LOC/GS/COMM/MKR Bench Test Equipment

Accurate ILS, VOR, ADF, marker beacon and SELCAL signals for testing avionics receivers

- Accurate ILS and VOR RF waveforms
- Wide frequency coverage
- SELCAL calling tones
- Internal ILS and VOR waveform generators
- 0.0001 DDM resolution
- 0.01% bearing resolution
- Marker beacon
- Optional pulse modulation
- Automatic direction finder testing
- Comprehensive memory facilities

The NAV-750C provides internal generation of waveforms suitable for testing Instrument Landing Systems (ILS), VHF Omni-directional Radio Range (VOR) systems, Marker Beacons and SELCAL radio receivers. Avionics parameters are presented in the same form as described in the ICAO standards. The NAV-750C offers an ideal single instrument solution for the testing of avionics receivers and alarm monitors. The use of Direct Digital Synthesis techniques ensures excellent accuracy and stable performance under all operating conditions.

ILS

In ILS mode, the Sum of Depth of Modulation (SDM) of the 90 Hz and 150 Hz tones can be entered to a resolution of 0.1% AM depth. The Difference in Depth of Modulation (DDM) is entered to a resolution of 0.01% depth for a DDM up to 20% and 0.1% for higher DDM settings. A choice of which tone is dominant is available to the user.

The 30 Hz repetition frequency of the ILS waveform can be adjusted in 0.1 Hz steps. For 0% DDM, additional modulation signals can be added to the ILS waveform.

Changing between localizer and glide-slope operation is accomplished with a single key stroke.

Marker Beacons

In the Marker Beacon mode, signals are generated simulating the outer, middle and inner marker beacons. A single key press selects which marker beacon is simulated. Carrier frequency, modulation depth and modulation frequency can be varied from the default settings. Using the normal calling tones menu enables pulsed marker beacon modulation signals to be generated.

VOR

In VOR mode, the AM depth of the subcarrier and 30 Hz tone can be independently set and the relative phase of the 30 Hz tone and the modulation tone on the subcarrier is set by directly entering the bearing information in degrees. The VOR repetition rate of 30 Hz can be adjusted in 0.1 Hz steps. For a fixed bearing, additional modulation can be applied to simulate voice/identity signal. A To/From Beacon key provides a rapid means of reversing a bearing entry and accounting for different bearing conventions.

SELCAL

SELCAL selective calling tone signals are used on the radios providing communication between the aircraft operator and the flight crew. The Avionics Signal Generator provides facilities for generating the SELCAL codes and the modulation signals to test the radio receiver.

Simple Operation

Major parameters can be adjusted by keyboard entry of data, using the UP/DOWN keys or using the rotary control. The use of a large screen dot matrix display ensures clear and unambiguous readout of the avionics parameters.

Instrument settings can be stored in non volatile memories. A sequence of test settings can be stored and, using the external trigger facility, the currently recalled memory can be incremented to step through the stored test sequence.

Specification

ILS Mode

Tone Frequencies
90 Hz, 150 Hz nominal. Tone frequency may be changed by varying the ILS repetition rate of 30 Hz in 0.1 Hz steps. Tone frequencies maintain 3:1 and 5:1 relationships with the ILS rate.

Frequency Accuracy
As frequency standard

Tone Suppression
Either tone can be suppressed

Additional Modulation
Available for 0% DDM from an internal or external modulation source

Sum of Depth of Modulation (SDM)

SDM Range
0 to 99.9% in 0.1% steps representing the arithmetic sum of each tone depth

SDM Selection
By keyboard entry of data and variation by UP/DOWN keys or rotary control

RF Accuracy of SDM
±2% of SDM setting for carrier frequencies up to 400 MHz

At 40% SDM accuracy is ±0.8% depth
At 80% SDM accuracy is ±1.6% depth

Difference in Depth of Modulation (DDM)

DDM Range
0 to 20% in 0.01% steps
20 to 99.9% in 0.1% steps

DDM Selection
By keyboard entry of depth in %, mA or index and variation by UP/DOWN keys or rotary control

RF Accuracy of DDM
±0.02 of DDM setting ±0.0003 DDM (0.03% depth)
At 0 DDM (on course) accuracy is ±0.0003 DDM (0.03% depth)
At 0.155 DDM accuracy is ±0.0034 DDM (0.34% depth)

LF Output
Available from the LF Output connector

LF Accuracy of DDM
Equivalent to ±0.0003 DDM ±0.005 of setting
At 0 DDM (on course) accuracy is ±0.0003 DDM

Marker Beacon Mode

Provides default carrier of 75 MHz, 95% AM depth and a modulation frequency of 400 Hz, 1.3 kHz or 3 kHz corresponding to Outer, Middle and Inner Markers. Carrier frequencies, AM depth and modulation frequency can be adjusted from the default values.

VOR Mode

Selection
By keyboard entry of depth and variable by UP/DOWN keys and rotary control

Bearing Control
Relative phase of 30 Hz tone and subcarrier modulation adjustable from 0° to 359.9° in 0.01° steps by entering VOR bearing. Bearing can be entered as TO or FROM the beacon

Bearing Accuracy
±0.05°

Additional modulation
Available on 0° bearing from an internal or external modulation source

AM Depth Accuracy
±3% of setting ±0.5% for carrier frequencies up to 400 MHz

Frequency
The VOR repetition frequency of 30 Hz may be varied in 0.1 Hz steps. The subcarrier frequency and deviation maintain a fixed relationship with the VOR repetition rate

Frequency Accuracy
As frequency standard
9.96 kHz subcarrier

AM Range
0 to 49.9% depth in 0.1% steps

Modulation
Frequency modulated by a 30 Hz tone with settable deviations of 420 Hz, 450 Hz, 480 Hz, 510 Hz and 540 Hz

30 Hz Tone

AM Range
0 to 49.9% depth in 0.1% steps
Arithmetic sum of 30 Hz tone and sub carrier limited to 99.8%

ADF Mode

Provides default carrier of 190 kHz with 30% AM depth at 1 kHz rate. Carrier frequency, AM depth, modulation rate and RF level can be varied from the default values.

SELCAL Mode

Provides a facility for modulating the RF carrier with sequential calling tones defined by the SELCAL protocol. Allows the entry of two character pairs to define the SELCAL code generated to open the audio path of aircraft radios. Default tone duration and gap are 1 s and 250 ms respectively and can be varied from nominal values.

Versions and Accessories

When ordering please quote the full ordering number information.

Ordering Numbers	*Description*
750C	NAV-750C VOR/LOC/GS/COMM/MKR Bench Test Equipment
750C-C	NAV-750C VOR/LOC/GS/COMM/MKR Bench Test Equipment with Certificate of Calibration