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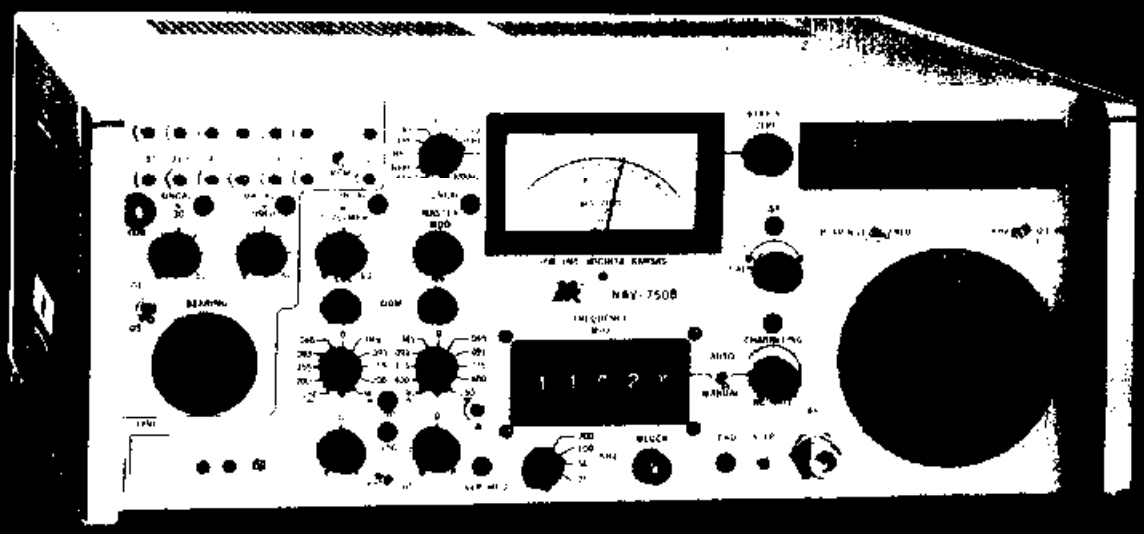
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Precision Simulators from...



NAV-750B NAV-750BR

VOR/LOC/COMM/MKR AND G/S BENCH TEST SETS

The NAV-750 series Precision Simulators are completely self-contained units designed for the semi-automatic functional testing and calibration of airborne VOR, LOC, G/S, MKR and COMM receivers

- Complete VOR, LOC, COMM, MKR and G/S generator
- ARINC two-out-of-five wire frequency selection output
- 25 kHz spacing with automatic channeling
- 40 paired LOC-G/S frequencies
- **NAV-750B** Continuously variable attenuator −6 dBm (112,000 μV) to −120 dBm (.224 μV). **NAV-750BR** Step attenuator 0 dBm to −127 dBm
- Automatic selection of VOR or LOC modulation
- Built-in bearing monitor
- Two-year limited warranty

NAV-750BR Automatic version of NAV-750B. Includes 100 Hz frequency resolution

750 series PRECISION SIMULATORS

VOR/LOC/COMM/MKR AND G/S BENCH TEST SETS

GENERAL:

GENERATOR — Semi-automatic generator features make it convenient for test operation. The RF generator is selectable in 25 kHz steps from 108 to 157.950 MHz and from 329 to 335 MHz. No operator tuning or leveling is required. The frequency thumbswitch controls the frequency when the MAN/AUTO switch is selected to MANUAL. When the channeling rate control is in the maximum counter-clockwise position and MAN/AUTO switch is switched to AUTO, the frequency selected on the thumbswitch will hold. Clockwise rotation of channeling rate control from stop begins to advance frequency upward in 25, 50, 100 or 200 kHz steps as selected by kHz Step switch. Channel stepping can be done remotely by grounding a TTL line, or by a front panel STEP switch. At 117.95 MHz, 135.975 MHz and 335.975 MHz channeling automatically stops and the END indicator comes on. The two out of five remote channeling also follows the automatic channel stepping. When stepping through (or manually selecting) a localizer channel, the modulation will internally switch to localizer unless the LOC-G/S switch is in the G/S position. If it is in the G/S position, G/S modulation will be internally selected and the RF generator will internally switch to the assigned G/S channel in the 330 MHz band. G/S operation may be selected by setting the actual G/S frequency on the thumbwheel FREQUENCY switch. The output frequency may be deviated by up to ±50 kHz on the 108 to 157.950 MHz band and ±150 kHz in the 330 MHz band by the ΔF control. The generator frequency is monitored by the counter when selected by the BEARING/FREQ switch (1 kHz resolution or 0.1 kHz resolution). A proportional temperature controlled crystal reference controls both the generator and counter. External modulation may be added to any signal through rear panel jack. A demodulation output is provided on the rear panel.

MKR — Marker Beacon generator covers frequencies from 70 MHz to 79.9 MHz in 25 kHz steps. 1020 Hz, 400 Hz, 1300 Hz, and 3000 Hz tone modulation is available at a 95%, calibrated, or 0 to 96%, variable, modulation level between 74 and 79.9 MHz.

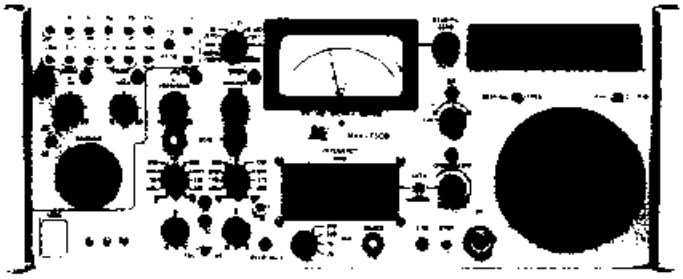
VOR — The VOR bearing selection is accomplished by push buttons on the twelve 30° bearings. The six digit counter displays the bearing to 0.01° resolution, counting from the digital bearing source. Two push buttons, +10° and −10°, add or subtract 10° from any bearing selected. The bearing knob rotates a 40 tooth gear which has a photo interrupter to pulse upward or downward the bearing selected. This system gives the ability to make analog bearing adjustments to center a left-right needle. The pulses are selectable in 0.01° steps or 0.05° steps. The 30 Hz VOR tones are both derived from a 2.16 MHz crystal. The 9960 Hz tone frequency is phase-locked to the 2.16 MHz crystal. A 1020 Hz tone (0-60%) is available. Each VOR tone appears on a rear panel jack. An additional jack supplies composite signals.

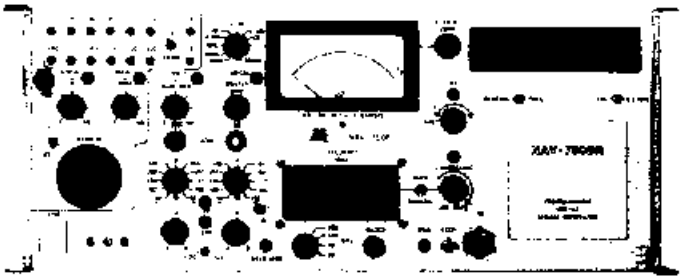
LOC — Localizer deviation can be selected ±0.046 DDM, ±0.093 DDM, ±0.155 DDM, ±0.200 DDM, and continuously adjustable ±0.400 DDM. One tone may be deleted while the other remains at 20%. The Master Modulation control allows further adjustment of modulation.

COMM — COMM frequencies from 118 to 157.950 MHz are selectable in 25 kHz steps. A 1020 Hz tone can modulate 0-60% for audio tests. External modulation also may be added through the external modulation jack.

G/S — G/S deviation can be selected ±0.045 DDM, ±0.091 DDM, ±0.175 DDM, ±0.400 DDM, and continuously adjustable ±0.800 DDM. One tone may be deleted while the other remains at 40%. The Master Modulation control allows further adjustment of modulation. The phase of the 90 and 150 Hz tones is fixed to within ±0.1° unless the ϕ button is pressed. The phase of the 90 and 150 Hz tones is then retarded at five times the angle selected by the VOR bearing selector.

The above description applies primarily to the NAV-750B.





NAV-750B

NAV-750BR GPIB Controlled

SPECIFICATIONS:

NAV-750B

RF OUTPUT

Frequency: 70.000 to 79.900 MHz, 108.000 to 156.00 MHz and 329.000 to 335.000 MHz. May be deviated ±30 kHz (70-79.9 MHz) and ±50 kHz (108-156 MHz) or ±150 kHz (329-335 MHz). Automatic channeling in 25, 50, 100 or 200 kHz steps

Level: −6 to −120 dBm (0.121 V to 0.224 μV). Accuracy ±1.5 dB (−6 to −50 dBm), ±2.5 dB (−50 to −120 dBm)

Modulation: 30(±1.2)% cal and 0-60% variable for 30 Hz and 9960 Hz tones on VOR. 20(±0.8)% for 90 Hz and 150 Hz tones on LOC, 40(±1.6)% on G/S. 30(±1.2)% cal for 1020 Hz tone on COMM. 0-60% variable on all bands. 95(±3)% cal and 0-96% variable for 1020 Hz, 400 Hz, 1300 Hz and 3000 Hz on MKR (74-79.9 MHz), 60% nominal (70-74 MHz)

Spectral Purity: **Close-in Noise: (300 Hz Bandwidth)**
108.0 MHz, >78 dB below carrier level at ±15 kHz; 334.7 MHz, >74 dB below carrier level at ±20 kHz

Broadband Noise: (1 kHz Bandwidth)
>80 dB below carrier level at 108.0 and 334.7 MHz, ±100 kHz or greater from carrier frequency

NAV-750BR

ΔF: Range: ±999.9 kHz 0.1 kHz increments
Accuracy: Time Base (10 MHz counter)

RF Output Level: Level: 0 to 127 dBm in 1.0 dB increments. Accuracy ±2.5 dB

DDM: Selectable: In 0.001 DDM increments
Accuracy ±0.001 DDM plus ±0.3% of selected value of DDM plus centering error.
Centering error: ±0.001 DDM

Modulation: 30(±1.2)% cal and 0-60% variable for 30 Hz and 9960 Hz tones on VOR. 20(±0.8)% for 90 Hz and 150 Hz tones on LOC. 40(±1.6)% on G/S. 30(±1.2)% cal for 1020 Hz tone on COMM. 0-60% variable on all bands. 95(±3)% cal and 0-96% variable for 1020 Hz, 400 Hz, 1300 Hz and 3000 Hz on MKR (74-79.9 MHz), 60% nominal (70-74 MHz)

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Broadband Noise: (1 kHz Bandwidth)
>80 dB below carrier level at 108.0 and 334.7 MHz, ±100 kHz or greater from carrier frequency

NAV-750B / NAV-750BR

MASTER OSCILLATOR

Accuracy: Ovened-stablized crystal oscillator provides accuracy of better than 0.0001% of selected signal generator output frequency over temperature range of 15 to 35° C and 0.0003% over 10 to 45° C range after 20 minute warm-up and calibration at 25° C

Aging: Less than 2 ppm per year

NAV-750B/NAV-750BR

VOR/LOC/COMM/MKR AND G/S BENCH TEST SETS

SPECIFICATIONS continued

NAV-750B / NAV-750BR

TEST SIGNAL ACCURACY

VOR:	Bearing accuracy ±0.05° on all headings; counter displays bearing to 0.01° resolution. 30(±1.2)% modulation with 30 Hz (±0.02%) tones (calibrated). 1020 Hz tone modulation 0 to 60%
LOC-G/S:	90 and 150 Hz (±0.02%) tones phase-locked to 0.1 degree. Modulated 20 (±0.8)% each tone on LOC, 40(±1.6)% each tone on G/S. 1020 Hz tone modulation 0 to 60%
LOC DDM:	±0.046, ±0.093, ±0.155, ±0.200 DDM and tone delete for flag tests. Continuously variable ±0.400 DDM. Centering accuracy ±0.001 DDM (±0.85 μA)
G/S DDM:	±0.045, ±0.091, ±0.175, ±0.400 DDM and tone delete for flag tests. Continuously variable ±0.800 DDM. Centering accuracy ±0.001 DDM (±1 μA)
COMM:	1020 Hz (±0.5%) tone modulation calibrated at 30(±1.2)% or variable 0-60%
MKR:	1020 Hz (±0.5%), 400 Hz (±0.7%), 1300 Hz (±0.7%) and 3000 Hz (±0.7%) tone modulation 95(±3)% cal, 0-96% variable from 74 to 79.9 MHz; 60% nominal modulation from 70 to 74 MHz

PHYSICAL CHARACTERISTICS:

Power:	105 to 120 VAC or 220 to 250 VAC, 50 to 400 Hz. Power consumption is 250 W maximum, 110 W nominal
Dimensions:	16.8" (42.7cm) wide, 6.8" (17.3cm) high, 18.4" (46.7cm) deep. Optional 19" (48.3cm) rack adapter available
Weight:	41 lbs. (18.5 kg) approximately

NAV-750B Accessory — COMM-760 for Semi-Automatic Testing of Aircraft Communications Transceivers



The COMM-760 Test Set is designed to facilitate the testing of each of the 720 or more channels on modern communications transceivers. Measurement capability includes: receiver audio output level, S+N:N ratio, frequency response, squelch operation, transmitter power, frequency and frequency error, modulation sensitivity, overmodulation, and frequency response. When teamed with the NAV-750's automatic channel system, receiver, power, and frequency parameters are measured in rapid go:no-go checks of each channel with selectable fault limits. A back panel printer output is also provided for recording channel frequency and type of fault on any approved digital printer. The COMM-760 is not compatible for use with the NAV-750BR.

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