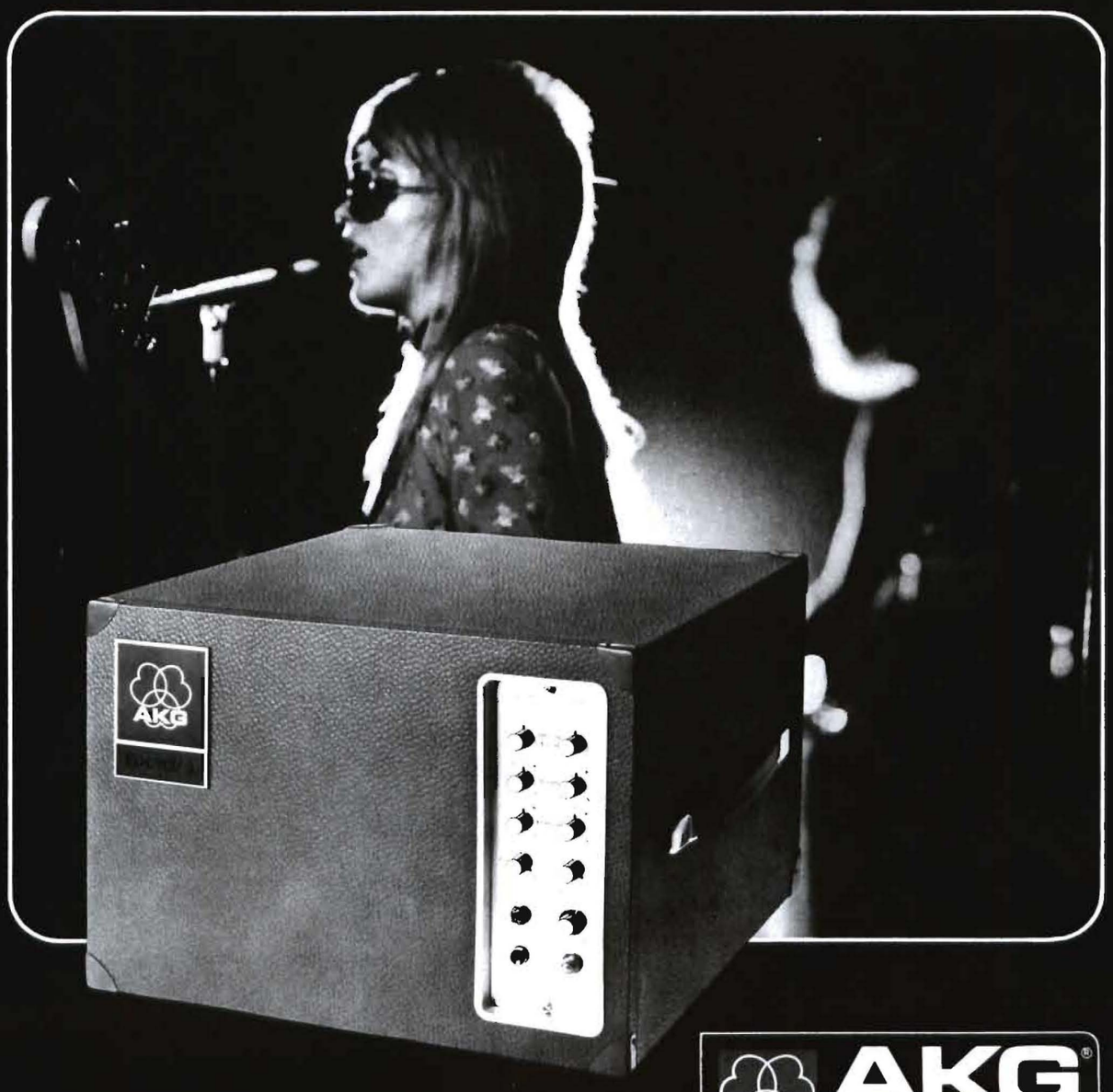
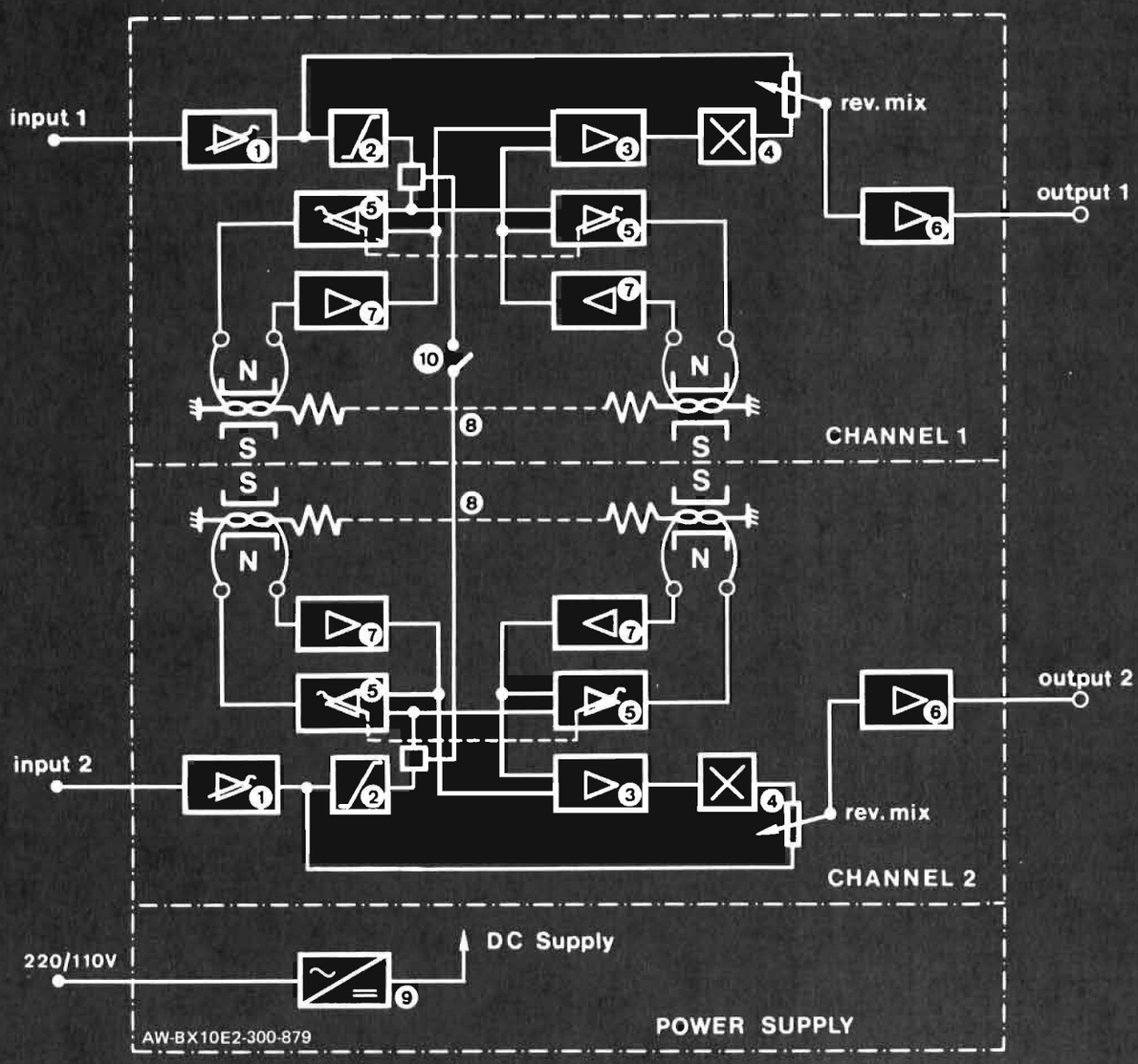
AKG BX-10E2
portable & studio
TTL reverberation system



AKG acoustics



BLOCK DIAGRAM

1. Input preamplifiers with switchable sensitivity
2. TTL-system input limiters
3. TTL-system output buffer amplifiers
4. Reverb high- and low-frequency equalization controls
5. TTL-system drive amplifiers with switchable decay time
6. Master output amplifiers
7. TTL-system motional-feedback amplifiers
8. TTL-system springs and transducers
9. Power supply
10. Reverb mono/stereo switch

AKG BX-10E2
The ultimate "natural sound" portable reverberation unit

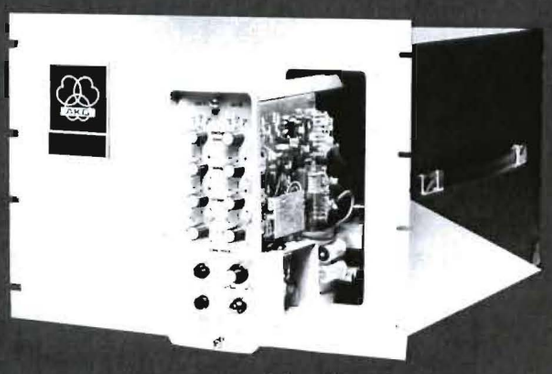
The AKG BX-10E2 is a carefully evolved improvement of the original BX-10E two-channel reverberation unit. Audibly smoother and cleaner than its famous predecessor, the BX-10E2 employs a redesigned Torsional Transmission Line (TTL) system plus newly developed equalization in its TTL-system electronics. (A patented AKG development, the TTL system assures highly accurate and natural reverberation characteristics by using a series of springs having their transmission properties controlled by statistical variations of their parameters. Moreover, the TTL system is the only reverb device—including live chambers—*which does not contain any of the dry input signal at its output.*) The result is an instrument that is *the* reference-standard for compact, high-performance reverbs—a unit that is truly portable, yet one that offers both the quality and operating features required in critical studio applications. Unrivalled in its class, the BX-10E2 is surpassed only by AKG's own larger and widely acclaimed BX-20E.

The BX-10E2 offers many important features for superior performance in a quality portable reverberation unit:

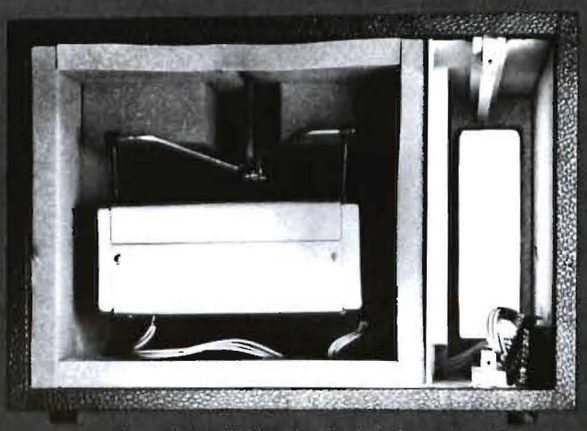
- Uses Torsional Transmission Line principal
- High density of resonant frequencies
- High pulse density to duplicate the many sound paths of a naturally reverberant environment
- High degree of statistical diffusion in both frequency and time domains
- Linear frequency response for maximum range of applications
- Precise duplication of natural room-reverberation effects
- Genuine two-channel design. Either channel can be used and controlled separately (channel separation: $\geq$ 35 dB).
- Switchable to composite mono drive (inputs 1+2) of reverb channels; dry channels are independent at all times
- Adjustable input sensitivity
- Built-in limiters (one per channel) to prevent overdriving of TTL systems
- Built-in low- and high-frequency shelving equalization for each reverb channel
- Built-in reverb/dry signal mixing
- No acoustic feedback... even when placed close to monitor loudspeakers
- No special mounting or isolation is required for installation
- Ideally suited for van or mobile studio operation. Lightweight (only 47 lbs)
- No locking or readjustments necessary for transportation
- No periodic maintenance, adjustments or "tuning"
- Small space requirements (12" H x 17⅝" W x 19½" D)
- RM-10 19" rack mount available

The BX-10E2 provides independent decay-time adjustment, reverb high- and low-frequency equalization, and reverberation/dry signal mixing for each channel. Both channels are electronically and acoustically separate. Decay time is adjusted through motional feedback. Reverberation/dry signal mixing enables reverberation to be added to dry signal without the need of a "reverb return" mixing section in the mixing console. The AKG BX-10E2's unique two-point suspension makes it impervious to acoustic feedback and mechanical vibration.

BX-10E2-Short: For speech and some music applications requiring shorter reverb decay times, AKG offers a special version of the BX-10E2. Known as the BX-10E2-Short, this specially modified unit provides switch-selectable decay times of 1, 2 and 3 seconds for improved articulation and intelligibility. The BX-10E2-Short has already gained almost instant recognition by major radio stations throughout the U.S., and is equally at home in film and videotape studios.



Slide-out access to modular electronics (shown with RM-10 rack mount)



Soundproofed and vibration-isolated construction

TECHNICAL DATA

Number of Channels: Two

Nominal Input Level: −22, −6, +6 and +12 dBm (independently and internally switchable for each channel)

Maximum Permissible Input Level: 18 dB above selected nominal input level, each channel

Input Impedance: ≥2000 ohms, balanced, each channel (stereo or mono operation)

Dry/Reverb Output-Mix Facilities: Each channel independently and continuously adjustable for any dry/reverb output ratio ranging from pure dry signal only to pure reverb signal only

Output Level, Frequency Response, Total Harmonic Distortion, Crosstalk Rejection, Signal/Noise Ratio: These data differ between dry-signal-only and reverb-signal-only output modes; see various entries under appropriate output-data headings below

Output Impedance: ≤100 ohms, balanced, each channel

Recommended Load Impedance: ≥200 ohms each channel

Max. Permissible Operating Angle of Inclination (measured at housing): ≤8 degrees

Power Supply: 120/220 volts ac +15, −10% (internally switchable) 40-60 Hz

Power Consumption: 12 VA

External Dimensions: 12" H x 17-⅝" W x 19-½" D

Net Weight: Approx. 47 lbs

DRY-SIGNAL-ONLY OUTPUT DATA (Reverb mix controls in both channels turned fully ccw for pure dry-signal outputs):

Nominal Output Level: +3 dBm (±3 dB) each channel

Max. Continuous Sine-Wave Output: +8 dBm each channel

Frequency Response: ±1 dB 50-20,000 Hz; −3 dB at 30 Hz

Total Harmonic Distortion (load ≥200 ohms per channel):

At selected input level: ≤0.5% at 40 Hz; ≤0.2% at 1000 Hz; ≤0.25% at 5000 Hz

At 6 dB above selected input level: ≤0.8% at 40 Hz; ≤0.2% at 1000 Hz; ≤0.25% at 5000 Hz

Crosstalk Rejection Between Channels: ≥70 dB

Signal/Noise Ratio at Nominal Output Level (per DIN 45 405):

Weighted: ≥75 dB rms. **Unweighted:** ≥75 dB rms

REVERB-SIGNAL-ONLY OUTPUT DATA (Reverb mix controls in both channels turned fully cw for pure reverb-signal outputs):

Reverb Decay Time (measured with ⅓-octave pink noise centered at 500 Hz): Each channel independently switchable, 1.5, 2.5 and 3.5 seconds

Maximum Output Level: Associated equipment requires up to +24 dBm input headroom per channel to accommodate instantaneous peaks in reverb signal

Level Difference Between Channels: ≤2 dB (same decay time, both channels

Frequency Range: 20-12,000 Hz

Frequency Response: 50-8000 Hz within tolerance band of ±6 dB from design-center curve with pink noise at input, and with output measured through ⅓-octave filter

Bass Control Range: ±8 dB shelving at 150 Hz (independently and continuously adjustable for each channel)

Treble Control Range: ±4 dB shelving at 5000 Hz (independently and continuously adjustable for each channel)

Crosstalk Rejection Between Channels: ≥35 dB (per DIN 45 505)

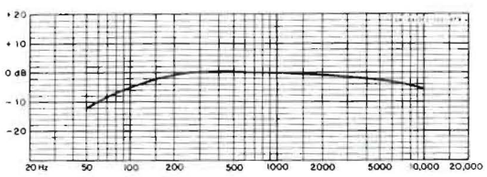
Hum Sensitivity: ≤1 mV/50 mG field

Signal/Noise Ratio at Nominal Output Level (bass and treble controls at "flat" or "0" settings, DIN 45 405):

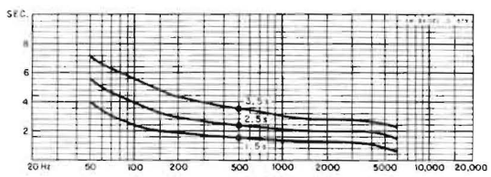
Weighted: ≥65 dB rms. **Unweighted:** ≥60 dB rms

Acoustic-Feedback Isolation: ≥100 dB; i.e. sound level in close proximity to unit may be up to 100 dB SPL before acoustic feedback occurs

Elastic-Suspension Resonant Frequency: ≤10 Hz



BX-10E2: Frequency response, reverb signal only (1.5 sec decay time)



BX-10E2: Decay time vs. frequency

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AKG acoustics

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RU10 109 10MF
PRINTED IN U.S.A.