

**dbx**

**TX-3MkII  
AM/FM Stereo Tuner**

**Instruction Manual**

## INSPECTION and INSTALLATION

Your TX-3MkII was carefully packed at the factory in a protective carton. Nonetheless, examine both carton and contents for signs of shipping damage. If there is such evidence, don't destroy the carton or packing materials and notify your dealer immediately.

In any case it's a good idea to save the carton and packing.

No special cooling or ventilation is required in any installation.

## WARNING

TO PREVENT FIRE OR SHOCK HAZARD,  
DO NOT EXPOSE THIS COMPONENT  
TO RAIN OR MOISTURE.

This triangle, which appears on your component, alerts you to the presence of uninsulated dangerous voltage inside the enclosure — voltage that may be sufficient to constitute a risk of shock.



This triangle also appears on your component, and it alerts you to important operating and maintenance instructions in this accompanying literature.

## CAUTION

To Reduce Further the Risk of Shock, Do Not Remove the Cover or Back. There Are No User-Serviceable Parts Inside; Refer All Servicing to Qualified Personnel.

**NOTE to CATV system insaller:** This reminder is provided to call the CATV system insaller's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

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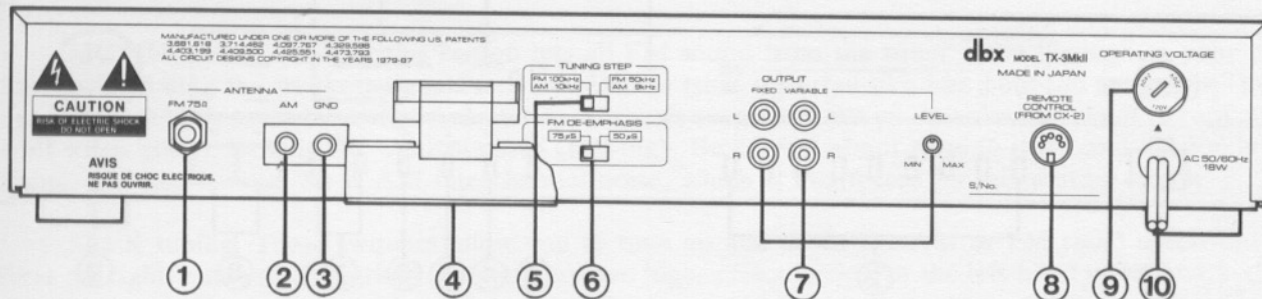
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## SPECIFICATIONS

### FM

Frequency response	20 Hz–15 kHz $\pm 0.35$ dB
THD, 100% modulation (1 kHz)	
Wide, mono	0.06%
Stereo	0.07%
Narrow, mono	0.3%
Stereo	0.5%
S/N ratio	
(A-weighted, 65 dBf)	
Mono	85 dB
Stereo	79 dB
Sensitivity (75-ohm input)	
Mono 30 dB S/THD+N	0.8 $\mu$ V/9.4 dBf
50 dB S/N	1 $\mu$ V/11.2 dBf
Stereo 50 dB S/N	21 $\mu$ V/38 dBf
60 dB S/N	43 $\mu$ V/43.8 dBf
Separation (1 kHz)	55 dB
(30 Hz–10 kHz)	40 dB
Capture ratio	1.5 dB
AM rejection	70 dB
Selectivity, 400 kHz	70 dB (alternate-channel)
200 kHz, wide	7 dB (adjacent-channel)
narrow	26 dB
RF intermodulation	73 dB
Image rejection	100 dB
IF rejection	100 dB
SCA rejection	80 dB
Subcarrier suppression	70 dB
Output level	1 V (100% modulation)
IF-bandwidth switching	3 $\mu$ V or greater
Stereo switching	3 $\mu$ V
Muting	3 $\mu$ V
AM	
Frequency response	40 Hz–5 kHz $\pm 2$ dB (National Radio Systems Committee preemphasis)
THD @ 5 mV/m input	0.5%
S/N ratio @ 5 mV/m, 1 kHz 30% modulation	Greater than 45 dB
Sensitivity @ 1 MHz, 1 kHz 30% modulation, 20 dB S/N	250 $\mu$ V/m
Selectivity	
@ 1 MHz ( $\pm 10$ kHz)	70 dB
IF rejection @ 1 MHz	70 dB
Image rejection @ 1 MHz	45 dB
Maximum RF input, 1 kHz, 80% modulation, 1% THD	3 V/m
Output level @ 1 mV 80% modulation	1 V
Memory backup	Greater than 10 days
Subject to change.	

## REAR



1 **ANTENNA INPUT.** Connect your antenna here. This jack is a 75-ohm F post for ready acceptance of appropriately terminated 75-ohm wire from an antenna or cable system. An adaptor is supplied with the TX-3MkII if your antenna system uses 300-ohm twin lead.

**NOTE:** No 300-ohm copper T-bar antenna is supplied with the TX-3MkII. If you do not already have a good-quality well-connected attic or rooftop antenna, or suitably low-noise FM reception from your cable system, you should purchase a good indoor FM antenna, designed for this purpose, of which a number have become available over the years. At the very least use adjustable rabbit ears; Radio Shack's simple, inexpensive gray-plastic set, while marketed for TV use, works well. All are superior to the standard 300-ohm T antenna.

2 **AM ANTENNA TERMINAL.** Connect a long-wire outdoor antenna to this terminal. It may be a simple, straight wire from a few feet to about 100 feet (30 meters) long. It should be extended parallel to the earth and as high as is convenient.

3 **GROUND (G) TERMINAL.** In some instances the effectiveness of a long-wire outdoor antenna will be improved by connecting a second wire from this terminal to a real earth ground. A substitute ground such as a water pipe or steam radiator may also be effective.

4 **AM ROD ANTENNA.** This antenna provides effective reception of local medium-wave length AM stations. The rod is mounted on a pivot. For best effect, swing it out. No additional external antenna connection will be needed for satisfactory reception of most local AM stations. One may be useful for reception of distant stations.

5 **TUNING STEP switch.** The setting position of this switch differs depending on the country where the unit is used. Set the switch to the proper position as follows;

In U.S.A. and Canada: FM 100kHz  
AM 10kHz position.

In other countries: FM 50kHz  
9kHz position.

6 **FM DE-EMPHASIS switch.** As the TUNING STEP switch, set this switch to the proper position;

In U.S.A. and Canada: 75MS position.

In other countries: 50MS position.

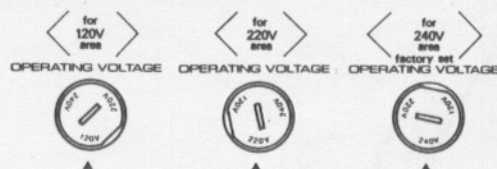
7 **SIGNAL OUTPUTS (FIXED, VARIABLE) and LEVEL control.** Connect either FIXED or VARIABLE jacks to the tuner inputs on your preamp or integrated amp. Other high- or line-level inputs, such as Aux, Tape, CD, or Video may be used if necessary. While the output level at FIXED outputs are fixed, the output level at VARIABLE can be adjusted by the LEVEL CONTROL to make the tuner level-matched to other input sources.

8 **REMOTE CONTROL (FROM CX-3MkII) terminal.** This connector is used when you want control the unit using the remote controller of the dbx CX-3MkII Control Amplifier. Using the DIN plug cord supplied, connect this connector and the CX-3MkII's REMOTE CONTROL connector.

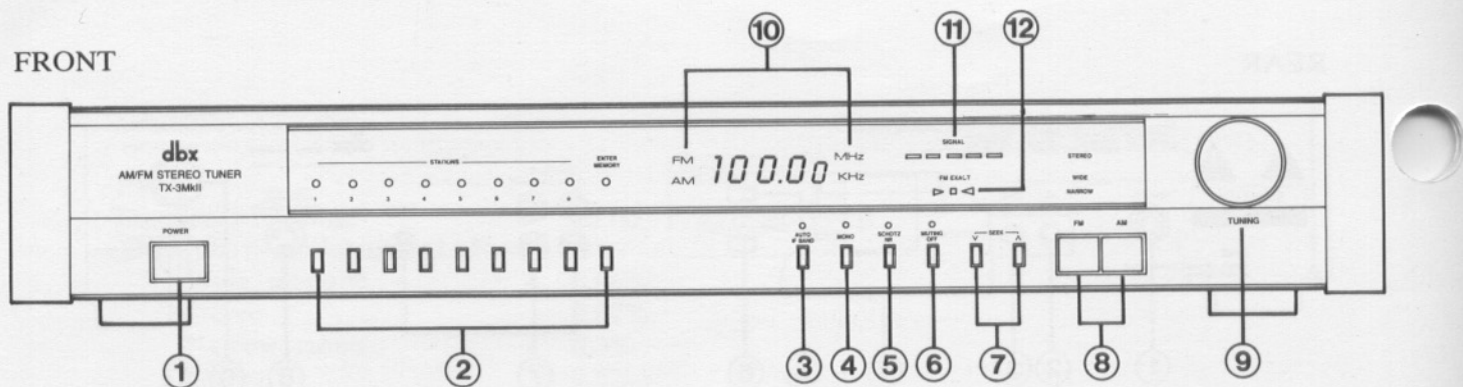
9 **OPERATING VOLTAGE selector.** Power requirements for the unit differ area to area. Ensure that your unit meets the power requirements in your area.

If not, change the selector setting as follows, using a screwdriver.

10 **AC power cord.** Supplies AC power to the unit.



FRONT



1 POWER. This turns the TX-3MkII on and off. We recommend leaving this button in and plugging the tuner into a switched outlet on your preamp.

2 STATIONS 1-8 and ENTER MEMORY. For storing the stations you want memorized and listen to frequently, 8 for FM, 8 for AM. Tune the station, push ENTER MEMORY, then the numbered memory. The memories last for weeks in the absence of ac power, so you won't have to retune unless the tuner is off for a couple of weeks or more. Note that if you accidentally push ENTER MEMORY, it will go off by itself after 10 seconds or so, and also if you move the tuning knob or change to the other broadcast band.

3 AUTO IF BAND. With this button pressed (LED on); the TX-3MkII switches automatically the IF (intermediate frequency) modes, between IF Narrow and IF Wide, according to signal strength and adjacent-station conditions. On occasion, though, you may wish to override the TX-3MkII's decision and judge for yourself whether the TX-3MkII's decision is an improvement. So, in case of problematic FM reception, press this button again (LED off) to make the TX-3MkII more selective, better able to pick-up distant/or weak stations in the presence of adjacent strong ones, at a small, inaudible increase in distortion.

4 MONO. All stereo FM stations broadcast two signals — not left and right but L+R (mono) and L-R (difference), the latter of which is what contains the stereo information and is used by the tuner to create L/R stereo. In the current FM system, the L-R signal is some 20 dB noisier than the L+R signal, and even with Schotz noise reduction some weak signals can sound unacceptable in stereo. Pushing this button keeps the difference signal from being passed on, so only the mono signal goes to the preamp. We urge you to consider using the button whenever the stereo signal still sounds noisy after Schotz noise reduction has been used and your antenna reoriented (if possible).

Very distant, weak, multipath-ridden or otherwise hissy and dirty signals usually become entirely listenable in mono, for the TX-3MkII is a formidable mono tuner, too. Note as well that as more and more stations broadcast CDs, more and more CDs of mono master tapes will be aired, and FM stations generally do not switch to mono for just one selection; you'll see the TX-3MkII stereo-reception light remain on. Pushing this button when a station plays a Bruno Walter or early-Beatles CD, then, lets you get as good sound as possible from the TX-3MkII and as close as possible to the original. Don't forget to disengage the button for subsequent stereo reception.

5 SCHOTZ NR. Press this button (LED on) whenever stereo FM reception seems suboptimal; as we will explain, it may be best simply to leave it on all the time. Depending on signal strength and high-frequency content, the circuit, designed by the well-regarded RF engineer Larry Schotz, dynamically reduces the contribution of the high-frequency difference (L-R) signal, effectively blending the channels. The result is quieter stereo sound with little apparent loss in separation. If the signal is strong enough, the circuit cuts off, leaving you pure, unprocessed stereo and unaffected reception.

- 6 **MUTING OFF.** Pushing this button lets all FM sound from the tuner come through to your preamp, including the weakest signals and tuner noise (that waterfall-like hiss between stations). The muting threshold is set to let many weak stations through even when it's on, but you may want to turn it off when you're looking for weak stations (DX-ing). Be careful about turning it off and randomly tuning: FM hiss is loud. So is AM interchannel noise, which is unaffected by this muting circuit.
- 7 **SEEK tuning.** These switches allow you to tune up and down the AM or FM radio spectrum. Press the right-hand switch marked  $\wedge$  to tune toward higher frequencies, or the left-hand switch marked  $\vee$  to tune toward lower frequencies. When the switch is pressed the tuner scans in a station-by-station mode and automatically stops at a station whose signal is strong enough for good reception.
- 8 **FM/AM.** For choosing the appropriate band. As you will immediately hear, the TX-3MkII AM band is extended in its response, nearly an octave beyond most AM tuners. This means you may well use and enjoy AM more than you have in the past. But note that extended response with suboptimal AM reception can also be noisier than otherwise.
- 9 **TUNING KNOB.** For receiving stations that are not memorized.
- 10 **DISPLAY.** These 7-segment LEDs show the FM or AM frequencies, in Megahertz (MHz) or kilohertz (kHz), that American stations broadcast on. The fifth digit, smaller and dimmer, is for use in European and other countries where the tuning increment is 0.05 MHz. As you know, U.S.A. FM stations end in odd digits, never even, despite station slogans like "FM 101." But the TX-3MkII does let you partly detune between the cracks, which very occasionally will produce better reception with weak stations than the actual dead-on broadcast frequency.
- 11 **SIGNAL strength meter.** This row of five bar LEDs shows signal strength and is helpful for orienting your antenna. If all light, reception is probably as strong as possible (but not always; use your ear) and sound as good as the TX-3MkII is capable of. If four or three are lit, try SCHOTZ NR if it's not on all the time anyway. Likewise if two or one are lit (move the antenna, too), and then go to mono.
- 12 **FM EXACT indicator.** The center-tuning indicator (FM only) consists of an illuminated rectangular bar (like those in the signal strength meter) flanked on either side by a triangular pointer. The triangular pointers illuminate to indicate that the tuning is within an FM station's channel but not at the center of that channel. The pointer shows the direction that the tuning must be shifted in order to tune the station correctly. When you are accurately center-tuned the triangular pointer fades out and only the middle bar is illuminated. On the AM band, tune maximum signal strength.

## ABOUT FM ANTENNAS

For FM reception nothing beats good, well-placed (i.e., high) antenna. You can skip this section if you live in a building where such things aren't permitted. But if they are, or if you live in a house and are handy enough and brave enough to try it — carrying ladders, climbing, crawling, clambering around, installing the antenna, dressing the wire, drilling holes and so forth are all not without risk, and can be hard on the body — here are some ideas for how to go about improving your FM sound by yourself.

First, investigate using your current TV antenna if you have one and it's in good shape. Check that the wiring is secure and tight, replace as necessary, and divide the signal off at the TV set with a splitter going to the TX-3MkII. Your dealer can advise you on which kind you'll need. It is crucial that the tv antenna NOT have its FM elements snapped off to trap or filter out FM reception (the FM band lies between TV channels 6 and 7); you or your installer may have done this when putting it up.

There are a wide variety of suitable antennas to choose from, with some of the major brand names being Archer (Radio Shack), Jerrold, and Winegard. You will want probably to buy one that is also good for TV use. At the same time you buy the antenna, buy enough 75-ohm coaxial cable to go from it to your receiver, often through the basement if you're a homeowner. Seventy-five-ohm cable, although actually lossier (weaker) than 300-ohm flat twinlead, is better at rejecting interference, as from CBs, airplanes, transmitters, etc. Since most antennas have only thumbscrew terminals, you may need a 300-75-ohm adaptor to get the signal from the antenna to the 75-ohm cable. If you do stick with 300-ohm twinlead, twist it while running it between antenna and tuner, to reduce stray pickup.

Also buy enough standoffs — buttonhook staves — for dressing the cable. Keeping it steady as it comes down from rooftop or attic along the sides of the building will improve reception in wind. Buy hollow pipe mast(s) if you will need them for mounting; steel is much preferable to aluminum if the mast length is going to be over a foot or two, as is likely.

A rotor and rotor wire are necessary if you want to reorient your antenna — if the stations you want to receive don't all lie in the same direction, which is probable. Now you will need two lengths of mast pipe, one for holding the rotor to its support, and the second going inside the rotor and to the antenna for the actual turning. Hookup instructions are provided with the rotor; dress the wire as you do the signal cable. You will want to put the rotor control near your listening seat, for rotors aren't remote-controllable (yet).

Locate the antenna as high as is safe and practical. A chimney is often a good possibility, although chimneys are not nearly as strong as they appear, and you will have to compromise height above the chimney (and hence more leverage stress on the bricks and mortar) with blasts of fireplace heat onto the antenna elements from a working chimney during the winter. Strapping kits for chimney mounting are available when you buy the antenna. Metal stack pipes that vent house plumbing are in ideal option but less common. An unused chimney is also okay: you can mount the antenna as close to the opening as you wish provided it doesn't scrape the top.

Grounding is important for any antenna, and is essential when the antenna is up higher than anything else around. The enclosed Safety Instruction sheet gives grounding tips, as can your dealer and any instruction sheets that come with the materials you buy. The basic point is to use very thick copper wire (preferable to aluminum) with lots of contact at the antenna end, and a long copper stake (4' minimum) driven well into the ground with another firm connection to the wire. In many terrains it is hard to drive a 4' stake into the ground without running into rocks, so be advised that the first few feet next to your building's foundation, if available to you, are usually clear. Note also that grounding will not altogether protect you and your stereo in a bad lightning storm; if you can, unplug the entire system from the main wall jack and disconnect the 75-ohm wire from the tuner as well.



In-attic mounting is a solution for some of the problems encountered with the above, although you should still ground the antenna. In many attics you may find it easier to hang the antenna and pipe mast(s) upside down, being sure to clear floor obstructions; this solution has no drawbacks except at the rotor end by your tuner and chair, where two marked directions will be accurate but the other two will be reversed (e.g., N and S the same, E and W backward).

A couple of notes about antenna orientation. Use the signal-strength meter, naturally, when turning any antenna to find strongest reception. But stronger is not always better — you should use your ears too. Listen for multipath, hiss, buzz, and the like; turn up the treble to accentuate dirty sound. Best of all, if your preamp (e.g., the Apt Holman or the dbx CX-3MkII) or one of your dbx signal processors (e.g., the IBX-DS or 3BX-DS) has such a feature, is to use L-R “ambience” mode. This automatically exposes the noisiness of the FM difference signal and is a great aid in tuning and orienting your antenna for quietest reception.

## WARRANTY and SERVICE (U.S.A. only)

dbx warrants this product to be free from defective materials and workmanship for a period of three (3) years from the date of first consumer purchase from an authorized dealer. If you are uncertain as to whether a dealer is authorized, contact us. The unit must be delivered by you or your representative with proof of purchase to one of our authorized service agencies.

Please save your sales slip, and please return the warranty registration card (doing so will establish a convenient proof-of-purchase date in case your sales slip gets lost). Note that not doing so doesn't affect your rights under this warranty; we ask you to simply because it's helpful to us.

For shipping, pack the unit carefully, in its original or other suitable packing. All merchandise must be prepaid and will be returned freight-paid. Include your or the sender's name and address, telephone number, and reason for return. Insure your shipment, and in the U.S.A. use UPS or similar carrier, not Parcel Post.

FOR INFORMATION ON YOUR NEAREST SERVICE STATION, contact your authorized dealer or call 1-800-648-7939.

For non-service problems and questions NOT covered in this manual, call (U.S.A. Pacific Standard time, business hours) our Customer Service, at 1 (408) 749-8400.

This warranty automatically transfers to subsequent owners, but does not extend to any of our products that have been subject to misuse, abuse, modification, neglect, accident, incorrect wiring not our own, or to use in violation of operating instructions furnished by us. Nor does it extend to any units altered or repaired for warranty defect by anyone other than an authorized service agency, nor to units with defaced, removed, or modified serial numbers. It is limited to, at our discretion, repair or replacement of the product.

This warranty does not cover any incidental or consequential damages and is in lieu of all other warranties expressed or implied, including those of merchantability and fitness, and no representative or person is authorized to assume for us any other liability in connection with the sale of our products.

Some states don't allow limitations on how long an implied warranty lasts and/or on exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific rights; you may also have other rights, which vary from state to state.

For products purchased outside the U.S.A., this warranty is valid only in the country of purchase and the U.S.A.

NOTE again: For information on your NEAREST U.S.A. SERVICE STATION, contact your authorized dealer or call 1-800-648-7939.

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