

TEAC[®]

AN-80

NOISE REDUCTION UNIT

INSTRUCTION MANUAL

TEAC CORPORATION

Your new TEAC Noise Reduction Unit has been manufactured under the strictest quality control procedures. Each unit has been thoroughly tested at the factory, should any damage have been incurred during transit or should you have any doubts as to its performance, contact your dealer as soon as possible.

It is important that you thoroughly read and understand this manual prior to placing the unit in operation.

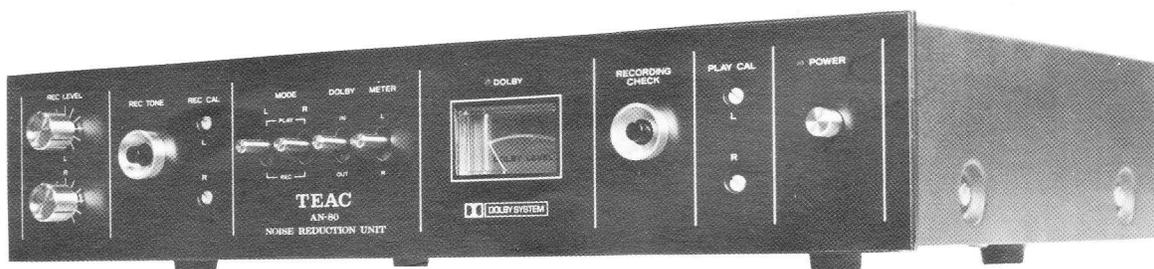
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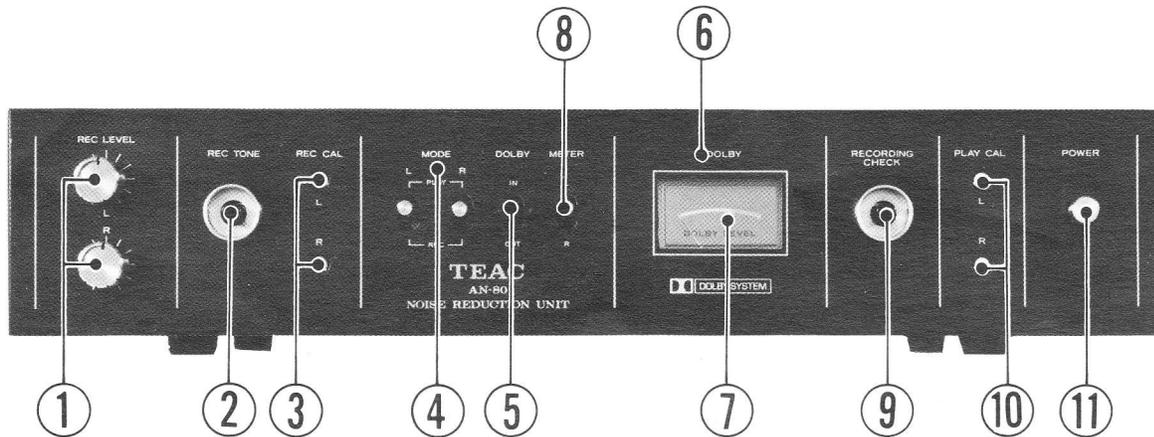
This manual contains the information and procedures required to install, calibrate and use the TEAC AN-80 Noise Reduction Unit with your tape recorder. By observing the procedures contained herein you will be able to set up the Dolby System correctly and produce recordings of a quality never before attainable. Recording techniques will vary with individual tape decks and the different types of tape used. No one set of rules can possibly cover all situations. A degree of judgement and some experimentation will be required in order to obtain optimum results.

The TEAC Dolby Noise Reduction System will enable you to make superior recordings at reduced tape speeds. A prime reason for using the higher speeds was to reduce tape hiss, with the AN-80 tape hiss is electronically reduced in amplitude so that it is no longer a limiting factor in tape quality. You will find that your slow speed recordings equal or surpass those you made in the past at higher tape speeds.

The Dolby System operates by processing the signal as it is fed to your tape recorder. Upon playback, the signal is unprocessed or returned to its original state. Therefore the Noise Reduction Unit is connected into your audio system between your tape deck and the recording source, be it an amplifier, pre-amp or receiver.



FUNCTION OF CONTROLS

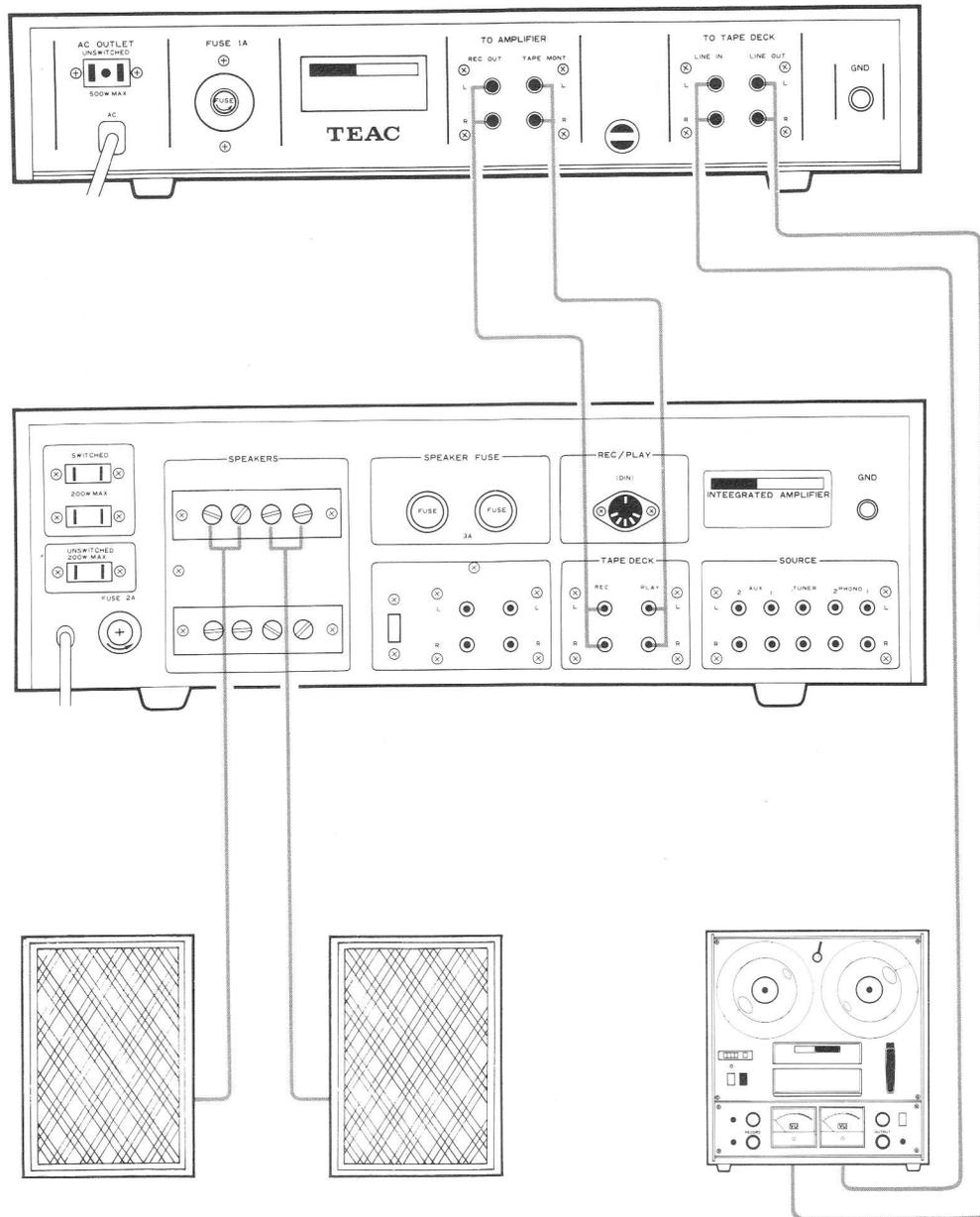


1. REC LEVEL:
Controls the signal levels from the recording source. Normally monitored on the tape decks VU meters.
2. REC TONE:
Actuates the recording calibration oscillator and produces a 400 Hz tone.
3. REC CAL (L and R):
Used to regulate the level at which the 400 Hz test tone is fed to your tape deck during calibration.
4. MODE (L and R):
These switches control the mode of operation, record or playback of the AN-80. When recording they must be in the REC position, to play back a recording, both mode switches must be in PLAY position.
5. DOLBY switch (IN-OUT):
Enables or disables the Dolby circuitry. To enjoy the noise reduction feature you must have the DOLBY switch IN. To play back non Dolbyized tapes without disconnecting the unit, place the DOLBY switch OUT.

6. DOLBY indicator lamp:
Illuminates when DOLBY switch is at IN position to indicate the DOLBY circuitry is operating.
7. DOLBY LEVEL meter:
Used during playback and recording calibration to match the processing-deprocessing signal levels.
8. METER switch (L and R):
Determines which channel information will be displayed on the Dolby level meter.
9. RECORDING CHECK (Spring loaded):
If your recorder has three heads (erase, record and playback) the recording check switch will allow you to determine that a recording is actually being made. By depressing this switch you will hear the signal coming from the playback head as it comes off the tape. The sound will be "brighter" but less loud than the original. This is the sound of a processed Dolbyized tape before the deprocessing action takes place and restores the normal balance while removing the hiss and noise.
10. PLAY CAL (L and R):
Used to calibrate the playback components of your recorder to the playback processors of the AN-80. Once properly set they need not be readjusted unless the tape deck playback level controls have been changed.
11. POWER switch:
Controls AC power to the AN-80, depress for ON, depress again and release for OFF.

CONNECTING TEAC MODEL AN-80 TO YOUR AUDIO SYSTEM

1. Connect cables to tape deck, noise reduction unit and amplifier as shown below.



Input jack nomenclatures may differ with amplifiers of different manufacture. Input amplifier jacks may be labelled, TAPE IN, TAPE MONITOR or AUXILIARY. Output amplifier jacks to tape recorder may be labelled RECORD OUTPUT or TAPE HEAD OUTPUT.

Do not connect the AN-80 to the microphone inputs of your tape recorder.

CALIBRATION PROCEDURES

Initial calibration is required for two reasons, to match the AN-80 to your particular recorder and to ascertain that the Dolby processing and unprocessing levels are identical. The accuracy of these adjustments determine the efficiency of the Dolby process. We suggest you read this section thoroughly before attempting calibration, then return and accomplish the calibration step by step. Once properly accomplished, these procedures usually need not be redone unless recorder playback or recording level controls are disturbed or a major system component is changed.

● PLAYBACK CIRCUIT CALIBRATION

1. Turn on the AN-80 and your recorder.
2. Set the controls on the AN-80 as follows;
MODE L and R switches to PLAY, METER switch to L or R as indicated by instruction, DOLBY switch to IN.
3. Set tape deck MONITOR switch to TAPE position if applicable.
4. Thread the TEAC test tape onto your tape deck.
5. Set tape speed to 7-1/2 ips (open reel recorders).
6. Play back the TEAC test tape.
7. This step will vary with the tape recorder used.
 - a. If your deck does not have separate playback or output level controls proceed to step 8.
 - b. If your deck has output level controls and the meters on the deck display the playback level, adjust the deck output controls until both channel meters read "0", then proceed to step 8.
 - c. If neither a nor b apply to your deck, set the output level controls to approximately 75% of full output.
8. As the TEAC test tape plays, place METER switch to L, adjust the PLAY CAL L potentiometer so that the Dolby meter reads at the Dolby reference line. Place METER switch to R, adjust the PLAY CAL R potentiometer so that the Dolby meter reads at the reference line. Recheck both settings as the test tape plays.

9. You have now properly calibrated the Dolby playback level. Do not disturb your decks playback level controls. You may prefer to mark their position with a felt tip pen or magic marker. From this point forward final playback volume settings are accomplished with the volume controls on the power amplifier. After prolonged system use, periodic checks should be made to ascertain that control settings have not been changed.

Caution: Your TEAC test tape represents the standard Dolby calibration level as used in all Dolby systems and components.

As such, it is a calibration standard and must be treated with respect. Never place it in strong magnetic fields such as exist near the power transformer of your audio equipment. Keep it away from head demagnetizers or tape bulk erasers and speaker magnets. Exposure to strong magnetic fields will result in partial demagnetization with a resultant loss of output level and inaccuracy of subsequent calibrations.

● RECORDING CALIBRATION

Place the record level controls of your recorder to their mid position. If your recorder has combined record level/playback gain controls, do not disturb the position as adjusted during playback calibration.

As you calibrate the recording circuitry you will be alternately recording and playing back. Each time you record you must place the MODE L and R switches in the REC position, during playback they must of course be placed in the PLAY position.

Set the REC CAL controls full clockwise.

1. Thread the recorder with a blank (raw) tape, set index counter (if applicable) to zero.
2. Place both L and R MODE switches to the REC position.
3. Set the tape deck or recorder so that its VU meters or recording level indicators display the incoming (recording) signal. Place MONITOR switch to SOURCE, if machine has a pause control place the deck in the recording mode with the pause control engaged to keep the tape from moving.

4. Depress the REC TONE button on the AN-80 and hold it in. With your free hand adjust the L and R REC CAL controls on the AN-80 so that the recorders VU meters read zero. If your recorder does not have meters use the point on your recording indicators where distortion or maximum recording level is indicated. If your recorder has "Cat Eye" indicators this would be at the point just short of closure. This is an approximate adjustment at this point.
5. Set the deck in the recording mode. While tape is moving, depress the REC TONE button for 5 to 10 seconds. You are now recording a 400 Hz tone.
6. Rewind the tape to the beginning (zero on the counter). Place deck MONITOR switch to TAPE position. On the AN-80 place the MODE L and R switches to PLAY position. As the tone is played back alternately move the METER switch between the L and R positions.

Note the reading on the AN-80 meter relative to the Dolby reference line. The ideal is to have the meter read exactly at the Dolby reference level. Chances of its doing so at the first attempt are slight.

Record the 400 Hz tone again as outlined in step 5. (Remember to place the MODE L and R switches to the REC position.) Before recording the tone adjust the L and R REC CAL controls up or down depending on whether in step 6 the meter read above or below the Dolby reference line.

Play back the second recording of the 400 Hz tone. Note the position of the AN-80 meter to the Dolby reference line. Repeat the recording and playback procedure as often as necessary adjusting the REC CAL controls each time, until the meter reads at the Dolby reference level on both channels during playback. This adjustment is important, mark the position of the deck record level controls with a felt tip pen upon completion of this procedure.

You have now completed the recording calibration procedure. From this point forward, the only controls you will operate on your recorder are those that control the mechanical functions. Do not disturb the settings of the playback or recording level control unless you want to recalibrate the system.

RECORDING INSTRUCTIONS

● GENERAL RECORDING INSTRUCTIONS

Since you have calibrated the AN-80 to your system you are now ready to make recordings. During recording you will operate the mechanical controls of your deck but not the input or output level controls. They have been set properly during the calibration procedures and must not be disturbed. The recording level will be monitored on the tape decks monitoring devices (either VU meters, distortion indicators or "Cat Eye" indicators) but the signal level will be controlled from the REC LEVEL controls on the AN-80. In other words you will record exactly as you did before but the input signal levels will be controlled from the AN-80.

● MAKING A " DOLBY" RECORDING

1. Turn on your audio system. Set deck MONITOR switch to SOURCE position if applicable.
2. Place MODE L and R switches to REC position.
3. Place DOLBY switch to IN position.
4. Record the program material in your usual manner except that the level controls are now on the AN-80 instead of on your recorder.

PLAYBACK INSTRUCTIONS

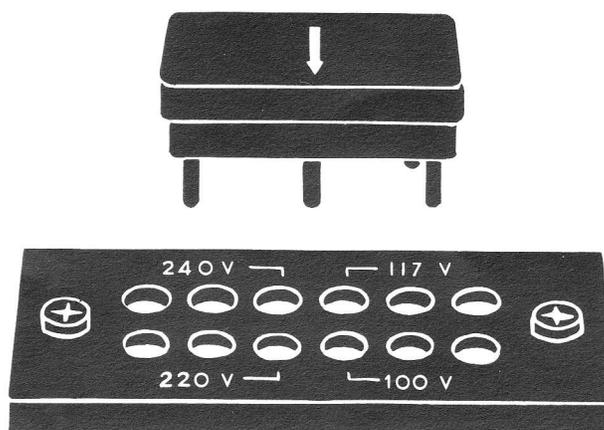
● PLAYING BACK A "DOLBY" RECORDING

1. Place Dolby switch to IN position.
2. Place tape deck MONITOR switch to TAPE position if applicable.
3. Set MODE L and R switches to PLAY position. Play back the tape as you normally would, make final volume adjustments with the power amplifier volume controls, do not disturb the output level control settings on your recorder.

CHANGING THE POWER LINE SETTING

The AC power source voltage to this equipment can be changed to either 100, 117, 220 or 240 volts by re-inserting the Voltage Selector Plug in the power transformer primary. It is set at the voltage indicated on the tag and outside of carton before shipment from the factory but can be changed to one of the other voltages mentioned above. To re-set the voltage, the plug is pulled out, the arrow on the plug matched with the required voltage indication, and re-inserted. After making this voltage conversion, always double check to see that it is correct.

* US Model is 117 V only.



USER MAINTENANCE

No user maintenance is required with the AN-80. Normal precautions against overheating should be observed. Do not place the unit where it is exposed to direct sunlight for extended periods of time.

SPECIFICATIONS

Frequency Response	20-15,000 Hz \pm 2 dB
Increased SN Ratio	10 dB at 10,000 Hz 5 dB at 1,000 Hz better than 6 dB over all("B" weighting network)
Input Sensitivity	Line: 0.03 V
Input Impedance	Line: 35,000 ohms
Outputs	To tape deck input: 0.58 V Line: 0.58 V
Harmonic Distortion	below 0.5%
Multiplex Filter	better than -35 dB at 19 kHz better than -30 dB at 38 kHz
Signal to Noise Ratio	better than 60 dB
Channel Separation	better than 50 dB
Tone Oscillator	400 Hz
Power Requirements	100/117/220/240 V AC 50/60 Hz, 4 W (US model is 117 V, 60 Hz only.)
AC Outlet	Unswitched: 500 W max.
Dimensions	3-1/2"(H) x 16-1/8"(W) x 10-3/4"(D) [88(H) x 410(W) x 273(D) mm]
Weight	8-13/16 lbs, [4 kg] net

*Features and specifications subject to change without notice.

Standard Accessories

- * Test tape (open reel)
- * Test tape (cassette)
- * Input-output connection cords
- * Silicon cloth
- * Fuse
- * Instruction manual

SERVICE

Should the equipment need repair, contact the dealer where it was purchased, or the Authorized TEAC Service Center nearest you.

- 1) The Warranty period is described in the enclosed warranty card, read the card for complete details.
- 2) For repairs after expiration of the warranty period a service charge will be made in addition to the price of repair parts.
- 3) If only repair parts are required, place your order with your dealer, or the nearest TEAC Authorized Service Center.

NOTE

Although the unit may still be under the Warranty period, you may be charged for repairs made necessary by misuse, or damage incurred as a result of improper operation.

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