

***MAGNUM DYNALAB***

***ETUDE***

***ANALOG FM TUNER***

INSTRUCTION MANUAL

## *Etude* an FM tuner for the audiophile

The 'Oxford Companion to Music' defines an **Etude** as . . .

*"Any composition intended as a basis for the improvement of the performer."*

The **Dynalab "Etude"** was designed specifically as a reference for audiophiles who demand sonic accuracy and will settle for nothing less. As a result, the **Etude** has established a new benchmark of performance excellence for an FM tuner.

Such as its namesake implies, the **Etude** challenges the art of FM broadcasting through its uncannily accurate off-air reproduction of all source material. Consequently, when tuned to a high quality, well maintained FM signal source, **Etude** listeners will find themselves sitting 'front row center' for each performance.

The **Etude** is a special edition of the FT-101A wherein considerable attention has been paid to the tuner's audio stages. Design of the audio final was the result of extensive testing with various upscale audio components, many of which were recommended by our audiophile dealers and associates. This, combined with the circuit refinements in its state-of-the-art rf section, has imbued the **Etude** with a superb level of performance integrity, such that will satisfy the most discerning FM listener.

HAPPY LISTENING!

## The Technical Side

Balance of function plays a key role in the **Etude's** design. It is already known that to concentrate wholly on sensitivity, while it might create a broader passband for station signals, it would almost certainly hamper the tuner's ability to maintain separation (selectivity) between channels. Conversely, if there was a singular concentration on selectivity it would mean narrowing the passband. And, narrowing it too much would almost certainly introduce an intolerable level of audio distortion.

It is this equal focus given both sensitivity and selectivity that establishes an environment in which a significant audio bandwidth can be realized and maintained. However, specific attention to the audio processing circuitry and its components completes the cycle, thereby assuring the listener that the audio program being received duplicates in every possible way what is being broadcast.

With the **Etude's** audio bandpass being 10Hz through 17.5KHz, this is your assurance of an audio program signal that can be as alive with the same "musicality" as if the selection were being played on your own turntable, tape deck or CD player.

Perhaps even more important is the **Etude's** ability to function effectively in today's increasingly saturated FM reception environment. And, here the listener is in for a real treat. the **Etude** has been designed to meet selectivity requirements for the European FM market where stations are often spaced only 100KHz apart. This is accomplished through the more costly, but highly beneficial method of hand selecting and matching the critical group delay filters in the IF section. As a result of this added process, adjacent channel selectivity has been increased significantly (some 50% over that of the FT-101). And, the FT-101 was doing an excellent job in Europe already.

## The Technical Side / Terms of Reference (cont'd)

*Image Rejection* deals with interference presenting itself through interaction with the tuner's IF circuitry. 'Image' interference manifests itself as a strong station appearing at more than one point on the dial.

*AM Suppression* attenuates any AM components that may be piggybacking on the FM signal.

*SCA Rejection* attenuates interference from any SCA signal that may be transmitted along with the FM stereo signal. (SCA or 'Subsidiary Carrier Authorization signals carry back-ground music, telemetry etc. at the 67 and 92KHz points from the main carrier).

*19 & 38KHz Rejection* deals with unwanted components generated from the 19KHz stereo pilot signal and its 38KHz. harmonic.

**Capture Ratio** relates the tuner's ability to 'focus' on one signal while rejecting other signals that might be on the same frequency. Quite often it is the multipath signals from that same station that are the main offenders. The **Etude's** capture ratio is better than 1.5dB in stereo, thereby assuring you that on-frequency interference will be maintained at acceptable minimums, even in the most stubborn reception environments.

**Signal-to-noise (SNR)** indicates at what level one can detect noise when listening to a fully quieted, unmodulated (no speech, music etc.) audio signal. **Etude** places any extraneous noise that might be generated within its own circuitry at an enviable 80dB down.

Finally, fidelity or "transparency" of the audio component relies on the circuit's ability to process the signal without adulteration or coloration. Not only is the **Etude** endowed with superior balance of sensitivity and selectivity, its specially-designed audio 'final' brings forth an audio signal that reproduces the source material as accurately as the FM station can transmit it.

### UNPACKING THE ETUDE

Carefully inspect all sides of the carton for damage. If there are marks or holes in the carton make note of their location in relation to the unit inside.

Remove the ETUDE from the end caps and wrapping, inspect all sides. Pay special attention to the corresponding areas on the unit where damage was found to the shipping carton. If damage is evident, document the type and extent of the damage, then repack the unit and call the dealer.

**DO NOT SEND THE UNIT BACK UNTIL YOU HAVE BEEN ASKED TO DO SO.**

**DO NOT DISCARD THE PACKING MATERIAL.** Should there be a necessity to return the unit for any reason, it must arrive safely and suitably packaged in order for us to receive the unit. Also if the unit has incurred damage as a result of improper packaging, it is not likely that a claim for the damage against the carrier will be successful.

## SETTING UP

1. Locate the tuner the shortest distance possible from your preamplifier but avoid any spots which may have extreme temperatures.
2. Connect the tuner to the preamplifier using cables that are consistent with the rest of the cables in your system.
3. Connect your FM antenna cable to the ANTENNA IN terminal on the rear panel of the tuner. The connector on the rear of the tuner is an "F" type ( 75 ohm ). Should your antenna cable be the 300 ohm twin lead you may convert to 75 ohm using a 300 to 75 ohm balun / transformer. Make sure that the center connector of the 75 ohm cable is properly inserted into the connector. If you do not have an antenna now, prepare the temporary straight wire antenna that is enclosed with the tuner. Connect one end into the center of the antenna input connector on the rear of the tuner.
4. Plug the tuner into a continuous A.C. power supply. Do not use a switched type. Be sure that the voltage marked on the rear of the unit is the same as the A.C. source that you are using.

## CHECKING THE TUNER OUT

1. Turn the power switch on, the meters and the frequency counter should light up.
2. Turn the stereo/mono switch to stereo
3. Turn the bandwidth switch to BW 1
4. Turn the mute switch to on
5. Turn the selector switch on the preamp to tuner
6. Turn the tuning knob until sound is heard, now fine tune the station using the center tune meter and the signal strength meter as indicators, the stereo light should be on.  
Turn the stereo/mono switch to mono, the stereo light should go out, turn the switch back to stereo, the stereo light should come back on.
7. You are now ready to listen and search for your favorite stations across the frequency.  
If you encounter difficult reception situations please read the control function section and the reception techniques section at the back of the manual.
8. It will take the tuner 48 hours to burn in, during this period you may experience some drifting but the unit should stabilize after this period.

## Control Functions

**PWR** - Switches power on and off to the tuner's meter lights, frequency display circuitry and audio circuitry. While the tuner is plugged into a live power outlet, the tuner's circuitry will remain on. This will cause the meter needles to move whenever there is a fluctuation in signal, similar to how they would react if the tuner was turned on.

*Moving the TUNE control when the tuner is switched off will activate the tuning circuit in the same manner as if the tuner was switched on.*

**MODE** - Switches the tuner's reception mode to Mono or Stereo. This will allow you to switch a broadcast that might be noisy in stereo to the quieter, monaural mode.

**I.F. BAND** - Changes the bandwidth within the I.F. section of the tuner. With the switch in the "wide" position, maximum bandwidth is allowed. However, if interference is being experienced from other nearby (in frequency) stations, the switch should be placed in the "narrow" position in order to decrease the passband. This will dramatically limit, if not nullify, the effect of the interference.

*While switching to the 'narrow IF' position will not increase distortion significantly, signal fidelity will always be at maximum with the switch in the "wide" position.*

**BLEND** - In the 'ON' mode, the stereo signal strength is sampled continuously in the Blend monitor circuit. Should the signal strength fall below the level required for full quieting with maximum stereo separation, the blend circuit will automatically adjust the stereo separation downward to minimize the noise that might otherwise be generated in the multiplex circuit.

In the 'off' position, the blend circuit becomes all but disabled and separation is allowed to remain close to maximum. This will allow you to decide whether the noise being presented is sufficiently annoying to disrupt the 'sound stage' by invoking the auto-blend function.

**MUTE** - In the 'on' position, a threshold is established over which only a clean, quiet signal will be allowed. Should the actual signal-to-noise ratio of the incoming signal go too low, the MUTE threshold will rise to squelch the signal. Should the incoming signal level drop below the threshold, the MUTE will quiet the tuner until the signal level rises above the threshold again.

We recommend that you turn the MUTE switch on when tuning from one station to another. This will minimize noise-induced current spikes and prolong the life of your speakers. However, when you are taping off the air, it is good practice to turn the MUTE switch off. This will prevent the tuner's muting circuit from squelching the program signal intermittently due to a momentary decrease in signal strength or a momentary increase in noise level.

**TUNE** - Rotating this control drives a precision, 10-turn potentiometer throughout its travel providing a precise and highly stable voltage for the tuning varactors.

## Displays

**MULTIPATH METER** - Indicates the presence of multipath and expresses, on a log scale, multipath signal strength relative to main signal strength. A reading of 10 would indicate an approximate 1:1 multipath to main signal ratio.

**CENTER TUNE METER** - Allows you to fine-tune the frequency of choice in order to maximize stereo separation and minimize noise. Placing the pointer exactly on '0', indicates the center of the FM station frequency to which you have tuned via the frequency display. One gradation to the right or left of center approximates 100KHz (0.1MHz) up or down in frequency.



## Displays (cont'd)

**RF INPUT METER** - Indicates on a log scale in gradations of 0-10, the level of signal being received. A reading approaching '9' would indicate a signal level of approximately 90dBf (35,000uv @ 300 ohms).

**Note:** Signal readings are available only in logarithmic form and are therefore difficult to display in a linear fashion. Hence the log scale.

**FREQUENCY DISPLAY** - Shows the tuned frequency from approximately 87.5MHz thru 108.5MHz. in steps of 100KHz. The tuner circuitry is totally independent of the frequency display circuitry. Rather, the display is reliant on the tuner for frequency information from the local oscillator. Therefore, should the display ever fail, the tuner will continue to function normally.

## Reception Techniques

Within the FM reception system there are three elements. One is the antenna. Another is the lead-in cable. And the third, of course, is the tuner.

Beginning with the antenna, you will find the most appropriate unit to be one that has been tuned to the FM broadcast band. The next step would be to select the best antenna for your reception requirements.

While the best location for any antenna would be outside, mounted as high as possible, not everyone will be able to accomplish this. In either case, the most important task should be to seek out and take full advantage of what reception equipment there is that will come close to meeting your specific requirements. The results will speak for themselves.

## Indoor Reception

For reception of local stations, an antenna such as the Magnum Dynalab **Silver Ribbon**, indoor antenna will usually be more than sufficient. However, for reception of more distant stations, you may wish to consider placing the antenna somewhere away from the tuner and using an antenna amplifier such as the Magnum Dynalab 205.

There are two varieties of antenna available for indoor reception. One is the 'active' variety which combines a small receiving element with self-contained amplifier. The other is the 'passive' variety that provides a tuned length of 'wire' to accomplish gain. The Silver Ribbon is an example of the passive type.

The decision as to which to use will involve both practical and aesthetic considerations. It is recommended that you audition both at the same time so you can compare the characteristics of each. You are cautioned against using comparative meter readings as an indicator of relative efficiency. Active antennas typically provide rf drive, regardless of whether a signal is actually being received. Therefore the meter reading will almost always be high when compared to that obtained from a passive antenna. We recommend that you rely more on your auditory senses to weight their relative worth.

For most reception situations where use of an indoor antenna is mandatory, the Silver Ribbon is likely to offer the most cost-effective solution.

## Outdoor Reception

There are three basic groupings of antennas used in outdoor installations. They are; omnidirectional, bidirectional and uni-directional. Generally, the amount of signal gain available with an antenna will increase proportionately with its ability to concentrate in a given direction. Hence the omnidirectional antenna will exhibit the lowest gain and the unidirectional antenna the highest.

## RECEPTION INFO

### ANTENNA CABLING

The lead-in cable from the antenna is often the weakest link in the system. Some time spent on selection and matching will yield dramatic results when it comes to noise reduction in weak signals.

A good grade of 75 ohm coaxial cable will provide very efficient signal passage, along with effective shielding against interference. There are different grades of 75 ohm cable there is RG59/U and RG 6 , RG 6 is the better of the two and should be used in runs of 100 feet or more. A good type of RG 6 is Beldon 1189 A, it has quad shielding, combine this cable with LRC connectors and you will have an installation that will optimize the performance of your tuner.

The key to maximizing the efficiency of the system is insuring that all connections are clean and tight, silicon grease on out door connections will insure good performance over a long period of time.

If you splice either cable make sure that exactly the same type of cable is used.

### TYPES OF ANTENNAS

Multi- element Yagi\_ this is a unidirectional antenna capable of pulling in very distant stations due to its high gain, the higher the gain the better. These types of antennas are very directional and should be used with a rotor to get the maximum benefit of the antenna, the directional feature helps eliminate multipath problems by allowing only the signal from the direction that the antenna is facing to be picked up by the antenna and not the signals that come from a different direction.

Our model MAGNUM DYNALAB QFM -9 is a Yagi type  
Vertical ½ Wave- This design offers ease of installation and operation. This type of antenna is omni-directional which means that it picks up stations coming from all directions( no rotor req'd ) it also gives 2.5 Db gain to the signal strength over that of a standard dipole  
If multipath is a reception problem try laying the antenna down in the horizontal plane rather the vertical plane. This type of antenna can be used indoors or outdoors but regardless whether it is installed indoors or outdoors the higher you can put it the better it will perform.

Our model MAGNUM DYNALAB ST-2

## OPTIONS AVAILABLE

**I.R. REMOTE- *ANALOG*** Infra red remote socket, if your tuner is equipped with an infra red remote there will be a plug located in the seven pin din socket. When installing the infra red remote receiver the plug will be removed and the cable that comes with the infra red remote will be connected to the socket. If your tuner does not come with an infra red remote, a plug will fill the hole marked I.R. Remote.

## ***ANALOG* REMOTE CONTROL**

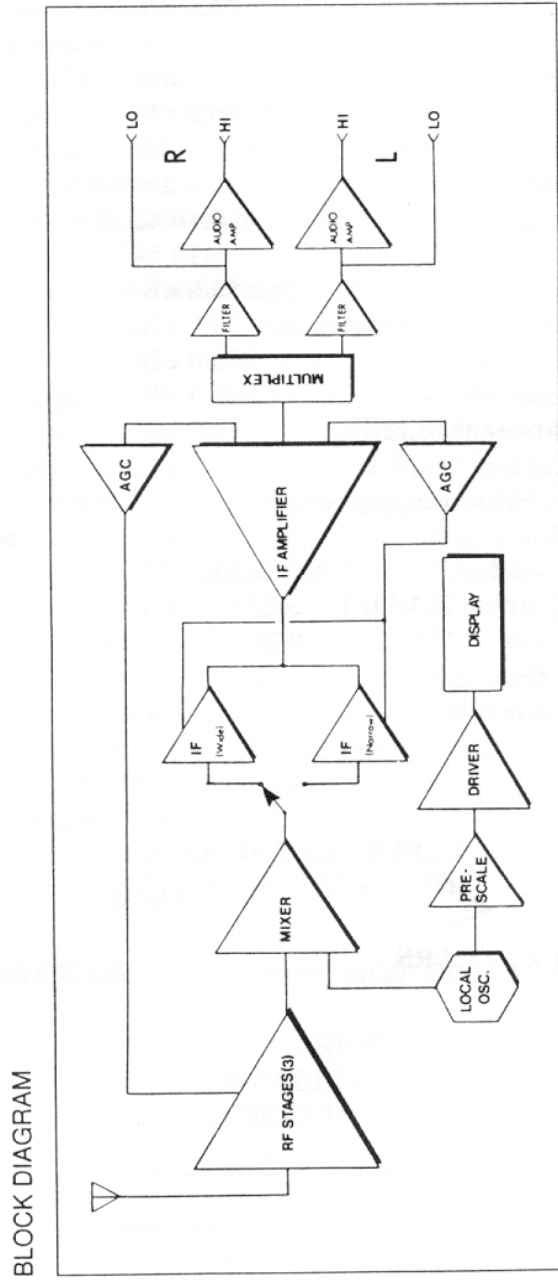
Certain manufactures feel that in order to build a remote-controlled tuner the signal must be digitized, we at Magnum Dynalab feel that this is where the problems start when you are trying to produce the best sound. We have designed a special ***ANALOG*** remote control which maintains the finite tuning and sound produced with our ***ANALOG*** tuners. The remote is optional and can be added to any of our tuners at any time without any extra costs.

**COMPOSITE OUTPUT** - This option should only be purchased when the tuner will be operated in a professional environment as a monitor. In the standard tuner this option is covered with a plug.

## TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
no sound, meter lights are not on	power cord disconnected power off at source	connect power cord check AC source
no sound, meter lights on	interconnect not properly installed preamp set to wrong source  power amp off	check installation of interconnects. turn preamp to tuner  turn on amp
signal strength is low	antenna not connected wrong type of antenna  station too far away antenna pointed the wrong way	check antenna hookup check inst manual for types of antennas change your antenna rotate the antenna to point at the station
reception is poor	antenna not connected wrong type of antenna cross talk from neighboring stations multipath is occurring	check antenna hookup check inst. manual switch to narrow setting on IF band width rotate your antenna, read reception techniques
intermittent sound	mute switch is on	turn mute switch off

# Block Diagram



## SPECIFICATIONS

50 Db quieting - stereo	34.0 dBf
capture ratio -	1.5 dB
image rejection -	75.0 dB
signal to noise ratio-	75.0 dB
alternate channel - wide	70.0 dB
alternate channel - narrow	80.0 dB
adjacent channel - wide	9.0 dB
adjacent channel - narrow	25.0 dB
THD - mono	0.10 %
THD - stereo	0.18 %
stereo separation	50.0 dB
AM suppression	70.0 dB
SCA rejection	75.0 dB
I.F. Rejection	80.0 dB
19 Khz and 38 Khz component rejection	70.0 dB
audio frequency response ( +/- 1 dB )	15 Hz -17Khz
balanced audio output ( 600 ohms )(optional)	2.2 V
line audio output ( RCA )	1.0 V
line power ( must be specified )	110/220/230/240 Vac
dimensions ( inches H.W.D )	3.25 x 19 x 13
dimensions ( cm H.W.D )	8.25 x 48.3 x 33.1
weight ( lbs./Kg )	16/7.1
Power consumption ( typ/max )	50w/100w

**MAGNUM DYNALAB LTD. RESERVES THE RIGHT TO CHANGE OR MODIFY THE SPECIFICATIONS WITHOUT NOTICE**

**WARRANTY: TWO ( 2 ) YEARS**

**LIMITED WARRANTY**

Magnum Dynalab Ltd. herein referred to as the “ manufacturer “ guarantees this product to be free of defect in both material and workmanship and agrees to remedy any such defect or replace any defective component at no charge for a period of two years from date of sale to the first end user. This warranty is void if the product has been found to be subjected to misuse, abuse , lightning strike, unauthorized service, damaged in transit or has been altered or repaired in such a way as to detract from its performance, reliability or its safe operation.

Should such defect be discovered and it falls within the terms of this guarantee, the manufacturer will correct the defect in workmanship and/or replace any defective component with a new one of similar capability and value. This warranty does not apply to the cabinet or appearance items such as the faceplate, control knobs or meter lenses no does it cover any expenses in shipping the unit to the appropriate service depot.

The foregoing is in lieu of any other warranties expressed, implied or statutory and the manufacturer neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of this product. This warranty is not transferable except by written authorization from the manufacturer. In order to qualify under the terms of the above warranty, all items must be returned to the appropriate factory service depot with all shipping charges prepaid in lieu of having previously registered the purchase of the unit by completing and returning the attached Purchase Registration Card, the unit must be accompanied by proof of purchase from an authorized Magnum Dynalab Ltd. dealer.

**Your Location**

In the USA

In Canada

Other countries

**The Shipping address is**

575 Kennedy Road , Cheektowaga, NY 14227 PH:  
800-551-4130

8 Strathearn Ave. # 9 , Brampton, Ont. L6T 4L9  
800-551-4130 , 1-905-791-5888

Selling dealer:

**Warranty**

**TO PREVENT FIRE SHOCK OR HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE, TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER OR FACEPLATE, NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

Model NO \_\_\_\_\_ Ser.NO. \_\_\_\_\_

Purchased from: \_\_\_\_\_ On \_\_\_\_\_