Magnum Dynalab MD90 analogue FM tuner

Can this analogue design sound better than standard 'digital synthesiser' FM tuners?

Why this tuner is named after a twin-engined passenger jet is a question you will not find answered here. What can be told is that the MD90 is Magnum Dynalab's entry-level tuner, and that it succeeds the FT101A. Of course, it's analogue, like all Magnum tuners, and is equipped with an RF front-end which is both designed and manufactured in-house; something almost unheard of elsewhere.

Construction is impressive: the MD90 looks like a laboratory instrument. It is solidly constructed from thick-gauge fabricated panels, though the round-headed screws on the top panel, and the deeply protruding screws behind the front baffle extension make it look laboratory-like in perhaps not quite the intended sense. A pair of quality 4mm binding posts, an F-type screw aerial input, and a threepin IEC mains socket are joined by blanked off positions for XLR balanced outputs, one of several listed options. Another is a remote control kit, and further options include Kimber cable internal wiring and silver or gold anodised

PRICE	1375,00 Euro incl. BTW
SUPPLIER	DIMEX REFERENCE AUDIO EQUIPMENT
CONTACT	070-404 26 47 / INFO@DIMEX.NL

KEY FEATURES

- Manually tuned FM tuner
- Switchable interstation muting
- Multipath, tuning and signa strength meters

Analogue tuning: like the Canadian company's other models, the MD90 uses Magnum Dynalab's own front-end rather than the usual bought-in digital IC solution

finishes.

Three internally-lit, moving-coil meters show multipath, centre-tune and signal-strength information. In the centre, a numerical frequency display driven by the local oscillator reads the tuned frequency in MHz with a resolution of 100kHz. Toggle switches (very laboratory) take care of mono/stereo switching, two IF bandwidth settings and inter-station muting.

Finally, tuning is taken care of by a rotary potentiometer which controls the varactor diode frontend. The tuning control is not designed to be spun across the dial, but it has a good feel, and tuning doesn't drift enough to audibly benefit from manual correction, or to alter the display readout. A new power supply design ensures that the relevant circuits are left operating even when switched off, which helps maintain tuning performance even from cold.

This new model is said to deliver improved selectivity to help cope with today's more congested Band II conditions, thanks in part to a newly laid out motherboard. Other design highlights include a dual-keyed AGC, and in a direct lift from in-car practice, an auto-blend circuit that progressively reduces stereo separation as signal levels fall away.

A standard mono/stereo switch is also fitted to the unit. In the maker's words, 'continuously variable' (that is, manual) tuning helps maintain the maximum degree of stereo separation, and Magnum also maintains that slight detuning can minimise noise under some reception conditions, but this can only really be at the expense of distortion with heavily saturated inputs.

The MD90 appears to deliver better RF performance than the MD102 review sample I looked at some time ago. It certainly makes a pretty good fist at picking quite weak signals out of the ether, and background noise levels are well suppressed even while the stereo light remains lit, thanks at least in part to the stereo blend circuit. Capture and other RF-related problems were undetectable at the test site.

Antenna connection is via US-issue F-Type. Other options include (inexplicably), a blanked-off Digital Input

What was rather disappointing was to note the continuing deterioration of the technical standards of some broadcasts. The MD90 is all too adept at showing how the sound of stations such as Classic FM ducks through peaks — to a degree that, at times, makes it appear ridiculous. Capital Radio remains as much a dynamics-free zone as ever, though on the whole this station does a better job of concealing the evidence, or maybe the type of material it broadcasts makes it harder to telt. Trying to make the most of FM sound quality, I was driven by a process of elimination back to the usual suspects, in particular Radio 3 and Radio 4. Although the bass end of the spectrum seems less extended and physical than I remember of the MD102, it remains palpably superior to most conventional digitally-tuned tuners in my experience.

Background hiss levels are low enough not to be a factor with reasonably strong inputs, and the music stands out with a physical quality, surrounded by an almost tangible acoustic (broadcast allowing) that gave the music a strong sense of occasion.

Compared to the Magnum, many other tuners somehow sound flat and mechanical. The better broadcasts captured during the test period sounded highly articulate, and gave an impression of solidity and life in the depth plane, to the extent that it was almost possible to walk through and among the performers.

Of course, we live in changing times for broadcast radio. Some, for example, may consider that the purely practical benefits of a DAB outweigh what tuners like the Magnum can offer. Text information, negligible noise or other unwanted artefacts are obvious examples, and so are the extra stations that are not — and never will be — available on FM.

However, the sad inevitable fact is that such tuners rarely rise much above MP3 in sound quality terms, and many of today's synthesisertuned VHF tuners sound little better. The MD90 does sound better. It may be one of a dying breed, but I'd fly one of these any day.

WORDS - ALVIN GOLD

Radio ga-ga

HI-FICHOICE

It's a radio tuner with valves in it... and very little else!

PRODUCT Magnum Dynalab MD90T
Type Analog FM Radio tuner
Price: 2075,00 E
KEY FEATURES
Size (WxHxD): 48xll x38cm
Weight: 7.96kg * Fully analog - no digital synthesis or presets * Two Philips 6922 double triode valves in special amp stage. *Pin point manual tuning * Switchable IF-bandwidth to remove sideband stations
CONTACT 070 404 26 47
www: dimex.nl

Canadian tuner manufacturer Magnum Dynalab is profoundiy analogue in its approach. What's more, the MD90 is the ideal starting place to demonstrate this Forget digital radio, digital synthesis or even presets — this is about as analogue as it gets.

This isn't quite the entry point to the Magnum Dynalab range that particular laurel goes to the MD90. What's the difference? The MD90t features a special amplification stage with a pair of Philips mil-spec 6922 double triode valves, whereas the standard MD90 is purely solid state. Both valve and solid-state tuners are the spiritual heirs to the FTIOIA, considered to be the best tuner in its class through much of the l990s.

The big feather in the Magnum Dynalab camp is the company-designed custom tuner head, in place of the FM Synthesis tuner stages used by almost every other tuner maker these days. Doing without FM synthesis allows pin-point fine tuning onto a signal, using a tuning dial, a trio of VU meters and two types of intermed ate Frequency bandwidth settings. This is more painstaking than simply zapping over to the station's frequency, but the level of accuracy this manual method entails is considerably more accurate (suggested to be within +/- 2kHz) than the digital version, which jumps 50kHz steps.

Analogue tuner stages rely on the power supply to stabilise the fine tuning; as a consequence, the tuner wil take one or two days to stop drifting slightly. Because of this, there is no provision to turn off the tuner — once the mains is engaged, it is permanently on standby at least

"Bar just a handful of equally stunning tuners, the MD90t is almost certainly the best sound you have ever heard from radio"

Magnum Dynalab claims that the tuner is "one of the most sensitive, selective and sonically accurate FM tuners of our time", and the sensitivity and selectivity at least seems borne out in practice. The 200 ohm Balun transformer input means normal tuner aerial connections are out of the question, so a Magnum ST 2 indoor aerial was used instead.

This steel whip aerial is more akin to a car aerial, and gives good gain and little multipath distortion, but isn't a Ron Smith Galaxy 17 (for example) in terms of signal gain. Nevertheless, even using the ST-2, the sound is virtually noise-free and the signal strength meter hit a healthy 8.5-9 out of 10 (in fact 10 is impossible on the signal strength meter, as it is buffered to prevent damage). This is helped by an autoblend circuit homever, which actively balances stereo against noise, to make sure the stereo quieting of the sound is optimal at all times. The tuner is very well laid out, in a sort of classical style. The rear panel has two solid WBT phono sockets, a 200-ohm aerial terminal and a central EIC socket. On the thick front panel, there are four toggle svvitches; one putting the tuner into standby, a stereo/mono toggle switch, two IF bandwidth settings and mute. The IF switch allows you to tune to a broad or narrow setting eliminating sideband interference. One of the few oddities of the design is the mute switch. It mutes the tuner, but only when tuning, to prevent nasty random noise as you scoot round the airwaves. It doesn't mute the tuner if it is tuned to

a station.

The remaining three VU meters (multipath, tuning, signal strength), the tuning display and blue stereo light all make picking your station easy, while the big, damped, tuning dial makes running round the airwaves a joy. There is even an option to add a remote control with presets, but this adds hundreds of pounds to the price of admission.

SOUND QUALITY

Unless you have been subjected to the even more upmarket tuners in the Magnum Dynalab range or the small handful of similarly stunning tuners from rival brands, the MD90t is almost certainly going to be the best sound you have ever heard from radio. For two days or so, the drifting makes stations move off tune slightly and this manifests itself as a growing sibilance every half hour or so. But a few days later, the tuner is rock-solid stable.

It is, jaw-droppingly good with the right material. Listen to a Radio Four play and the MD90t is like placing you directly behind the microphone. You no langer need to look at the Radio Times to discover who's acting — diction, vocal tics and accent are so precisely and accurately rendered that you will able to recognise them... and that's when the magic happens. Historical plays become costume dramas; you imagine the actors in costume, not standing around in jeans and T-shirts talking into a mic. Perhaps that old BBC radio insistence on announcers wearing dinner dress when speaking isn't so silly after all...

The sound is largely as good as the source material, but you always get a performance that seems unconstrained. There's no depth or width or height foreshortening, just a wonderful sense of full-range reproduction. The valves may be in tow, but there is none of that valve sweetness that people seem to expect. This just 'is' — it gives you an insight into the radio studio that no FM synthesis tuner can do.

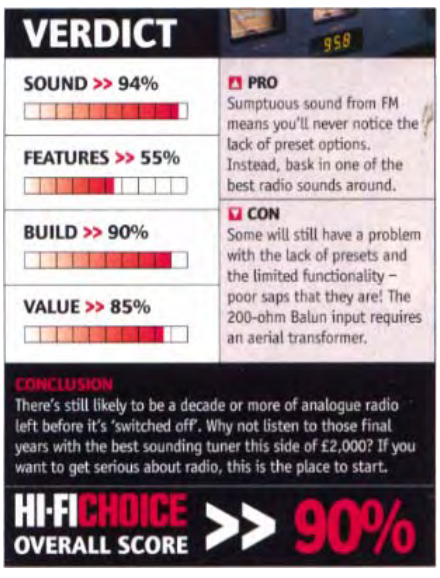
It doesn't announce itself as a top product — instead the MD90t slowly seduces you, meaning the tuner becomes a regular source on the inputs, often supplanting the CD player as you listen to new music and new voices. Of course it is wonderfully detailed and articulate and dynamic, but all this isn't that important. Instead, it becomes a constant companion, like radio always should be. The profusion of talk radio stations on digital radio suddenly seems unimportant — here, you play a station and stick to it for days and days on end.

There is often a strange move from live recordings and their holographic realism to a distinctly tighter soundstage with closemicrophoned speech. This sounds odd on many good tuners, but even this doesn't phase the MD90t — instead the sound shifts from the foreground to the background naturally.

So, what happens when you spend more? Aside from getting even closer to the sound in the studio itself, compression becomes less noticeable and bothersome on the very best. It's still there, still making many stations seem good for clock radios and nothing else, but the sound somehow manages to retain the musical savoir faire. On the MD90t, although it still makes the best of a bad job, it doesn't seem to make compression unimportant. Of course, this depends on your musical tastes — paradoxically, if you listen to Kiss FM and nothing else, you need something even more able than the MD90t to side-step the nasties of compression. But if your tastes run to Radio Four plays and Radio Three broadcasts, the MD90t offers a magical insight into BBC recording quality.

The world of radio is turning digital. There is only a finite time limit and number of channels on analogue radio, so why should anyone fork out E 2200 on a tuner that has no digital component? The Magnum Dynalab MD90t is why — there isn't a digital radio on the planet that can compete with its performance and what better way to listen to analogue's twilight years than through the one of the best tuners money can buy? **HFC**

Alan Sircom



Magnum Dynalab MD-102 tuner

A small, dedicated Canadian company makes one of the finest FM tuners in the world

COST EU 3395,00
SUPPLIER Dimex reference Audio Equipment bv
CONTACT 070-404 26 47 e-mail: info@dimex.nl

Friendly fascia sports self-lit meters

Quite how I ended up with this review is a moot point, but I'm more than glad I did. Magnum Dynalab makes some of the most fastidiously designed and exotic FM tuners in the world, with only a few, notably Marantz(with the legendary 10B) and Day Sequerra held in similar esteem, and I confess no real knowledge of these or other possible candidates. But I did visit Magnum at its small factory unit in Brampton Ontario, a hop, skip, and a jump to Toronto, where the MD 102 was being readied for production. What I found behind a modest retail frontage-reminiscent in some way of Niam Audio in the early 1970's-was a small, dedicated team making the finest FM tuners in the world, irrespective of cost.

The company's approach is highly conservative. Working essentially by hand, it makes only a handful of designs, including the three other tuners the MD 108, the FT-101A, and the Etude, plus the MD 208 receiver, a Virtual Surround sound decoder called the MD10, and a number of antennae and signal boosters. These include the signal sleuth, with a signal gain of up to 30dB, and the rather impressive ST-2 coil loaded indoor whip antenna, with a long captive lead which has a maximum gain according to antenna orientation, and signal polarization of 2.5dB. A sample of the ST-2 was supplied with the tuner for this test.

At the risk of boring regular readers, it is perhaps worth reprising a few points about digital and analogue tuners, and in particular the fact that, prior to DAB (now called digital radio, and which uses a digital data-reduced MPEG codec), there was no such thing as digital radio,. FM Band!! Uses frequency modulation, an analogue process that confers considerable immunity to impulsive forms of electromagnetic interference, but which remains subject to other familiar analogue failings. The only digital part of a digital FM tuner is the use of digital tuning steps, usually spaced 50kHz apart; but the system relies on signals that work in the RF band, which is difficult to separate from the audio. Stepped (digital synthesizer) tuning has earned a reputation in some quarters for always being precisely out of tune at all times, which may be the only Band II joke around-though like most of the best jokes, it includes just a grain of truth.

Magnum Dynalab claims that the best sound can only be produced when the signal received by the tuner is tuned and maintained in the analogue domain, which allows infinite resolution tuning across the band, and that the front end and the IF (intermediate frequency) amplifiers are 'precision aligned' to guarantee that all specifications are met all the time. Magnum further claims that this is impossible to achieve with a digitally tuned tuner, as these are dependant on component tolerance. Magnum also claims to be able to optimize sound quality, sensitivity and selectivity simultaneously.

The front end, and in-house design, is a sophisticated design with five tuneable stages, while the precision tuneable matched IF amplifier is designed to ensure consistent specification for adjacent and alternate channel separation and distortion.

Audio circuit highlights include a shielded toroidal transformer, and highly

Magnum Dynalab's classical 'technical' look reflects the analogue technology inside: there's nothing digital except the display!

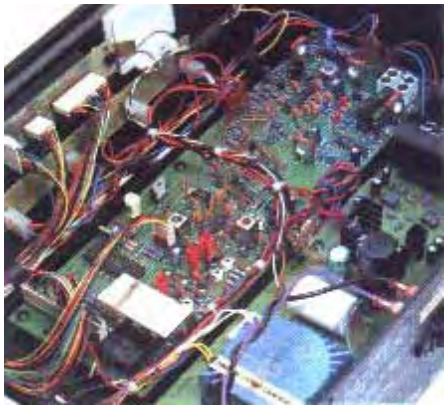
stabilized power supplies to prevent tuning drift (always a danger with analogue tuners), and 'ultra linear' power supply capacitors. The casework is aluminum and therefore non-magnetic, and output connectors are WB1 phonos and Neutrik XLRs (for balanced audio out: not tested).

The tuner front panel has a friendly, symmetrical layout, with two self-lit moving-coil meters, one of which shows centre tune and the other signal strength or multi path, according to a front panel switch setting; a large four digit display in-between shows the tuned frequency with a 100kHz resolution. The large right-hand rotary, which s well weighted, with free-running, slack-free spindle bearings, can be spun.

Though not from one end of the band to the other. The matching control on the opposite side selects one of the two aerial inputs, a facility that, with two differentially oriented directional aerials, allows weak signals to be plucked form the other, or very strong transmitters to be attenuated, without further weakening low-level signals from other directions.

The remaining front-panel switching provides two IF bandwidth settings, one of which maximises rejection of nearby unwanted signals at the cost of slightly higher distortion at full modulation levels, and the other a normal setting which improves sound quality when reception problems don't intrude. The remaining features are interstation muting and stereo/mono switching. Remarkably, you are not even asked to relinguish all creature comforts simply because this is not a synthesizer tuner.

An optional remote control is listed (though not submitted for t his test), which provides an on/off switch, remote fine tuning and five station presets. But with a tuning mechanism as efficient and as easy to use as this one, and interstation muting selected, tuning the Magnum was almost as easy, and somehow more rewarding that selecting presets. I had expected some tuning drift over time, but it was all but undetectable here.



Inside, the MD102 is superbly crafted

Sound Quality

There is a rare and special pleasure in auditioning products like these, which not only proport to be special, but actually are. The MD 102 was wired into a good system in parallel with a quality CD player (a Naim Audio CD5), and immediately impressed by performing to a standard that, was superficially at any rate, like the CD player-indeed, better according to one visitor when suing material that was reasonably closely matched. (not very scientific., I know but) The Magnum has a stablility and dynamic range that comes as a shock after other FM tuners, and on the worst interpretation it was musically in Naim Audio CD player territory.

To describe exactly what makes it special is not altogether straightforward. Most modern tuners sound rather like poor CD players: there is a certain stability and clarity which is reminiscent of compact disc, but little depth, weight or real underpinning to th esound, while imagery is often rather odd: usually limited in width and lacking depth. Even quite well regarded tuners somehow often sound 'shabby'.

The MD 102 is different: very different. In fact it's nothing less than stunning. This is a tuner that will breath life into the most prosaic of broadcasts, and which will invest good live broadcasts from radio 3 and 4, of music and speech alike, with an a strength amounting to boldness and a discreetness that suggests a well extended, and probably phase coherent output, image depth is well articulated, but there's plenty of left-right separation too and, for a tuner, the bass is almost uniquely firm and deep.

But it was not all just a matter of how low where the lows and how high the highs. The Magnum made music that was bigger and more progressive and organis than with other tuners. Difficult instruments-clarinet, solo soprano for example-retained a feeling of ease of presentation at the same time as displaying a complexity in their armonic content, the result of which was a more characterful, naturally varied sound, and for that reason a more credible one.

Conclusion

This tuner is quite unlike other FM tuners, and without a shadow of doubt musically superior to any other I have ever heard, including DAB/digital tuners, in every respect other than raw signal/ noise, which with the indoor whip aerial supplied was almost but never quite inaudible on strong stations, but which with a multi-element loft antenna was close to being effectively silent with strong signals.

Mil mistuning sometimes led to a characteristic 'spitchy' peak distortion, but careful tuning acted as an effective cure, and tuning drift was not an issue.

Of course, the Magnum is also a lot of more expensive than most digital tuners, but its absolute musical superiority (given a sufficiently good aerial) provides exactly the sort of gains that are often claimed, and sometimes delivered by vinyl spinners and valve amplifiers. The day will come when FM is phased out in favour of DAB, but it doesn't look as though this will be possible at any time in the foreseeable future, despite some optimistic early claims to the contrary; and for those who care about good broadcast sound, and the wealth of superb music and speech broadcasts on FM. The MD 102 has to be the way to go if it is within budget

TECHNOLOGY

This is an analogue FM tuner with precision aligned front end (having five tuneable stages) and internediate frequency amplifiers. Dual automatic gain control eliminates need for front panel local/distant switching. Shielded toroidal transformer and stabilised power supplies designed to prevent tuning drift. Casework is non-magnetic: at the rear are WBT unbalanced and XLR balanced output connectors, and two aerial inputs selected from fascia switch according to signal strengths. IF bandwidth settings are also fascia-controlled.

KEY FEATURES

- **Analogue FM tuner, exceptional sound quality and performance**
- **Centre tune and signal strength/ multipath self-lit front panel meters. Four digit display**
- **Free-running, low geared tuning rotary**

The Magnum Dynalab MD102t Valve Tuner

by Alan Sircom

It's bloody typical; that balmy, the midst of that record-breaking August heatwave is the perfect time to review a tuner with perma-triodes! You see, the triode output stage for the £2,695 Magnum Dynalab MD102t has the tubes in standby mode whenever mains is connected. There isn't even a main on/off switch; the only way to switch off the tuner totally (and thereby power down the triodes) is to tum off the mains at the wall socket.

In fairness, these triodes do not run that hot in standby mode, but when you get beyond about 35 degrees C, anything that raises the ambient temperature is sworn at. Those with strong eco-chummy sensitivities might baulk at the number of whales destroyed in the ozone layer by leaving a pair of 6922 double triodes burning away constantly. The rest of us will just have to suck up a slightly augmented 'leccy bill.

The 't' suffix of the MDl02 is, in essence, a £500 option on the standard entirely solid state, MD102. It's not the only option; £400 on top of the basic price of the MDl02 or MD102t buys you a remote control that can access the tuning without leaving the sofa. It also allows five station presets stored in its memory, without having potentially sonically degrading presets in the tuner itself. And then there's the choice of finishes; as wel! as a decent shade of black with gold lettering, it's possible to buy the MDl02t in gold with black lettering, or even silver with black lettering. But be warned that it's likely that the distributor, Branko Bozic of Audiofreaks, will try to talk you out of this last one — though no one knows why).

The valve output stage isn't the only special feature of the MDl02t. One of the big reasons why Magnum Dynalab is the radiophile's choice is that it is one of the last companies to produce its own front end. The tuner head part makes or breaks the sound and performance of a tuner — and most companies use cheap OEM phase locked loop tuner heads. Ultimately, no matter how good the components in the rest of the tuner, this is a bit like using an el-cheapo cartridge in a £10,000 turntable. Every tuner that made a profound impact upon the highend community — from the old Marantz l0B and Leak Troughline right up to the late, lamented Naim NAT 01 and 02, Linn Krernlin, Day-Sequerra and

Onix tuners — have sported custom-designed tuner heads. The downside to this custom produced front end is the prohibitive cost. Magnum Dynalab's five-stage tuning front end is entirely custom made and must be one of the last tuners to do so. In the process, this means the method of holding onto a radio signal is now a combination of heavily-shielded toroidal transformer and stabilised power supplies.

Audiophile credentials abound throughout the MD102t. The alloy casework is entirely non-magnetic. It features Black Gate capacitors, BurrBrown op amps, MIT capacitors in key stages of the signal path and — where appropriate — Kimber Hyper-pure copper wiring. Even the circuit board is above average and extremely thick. In fact, the most hard-core of tweakers would have a tough time up-rating the MD102t. You could upgrade the MD102t a notch by fitting Pearl Coolers around the pair of tubes; these would extend the life and reduce microphony of the already remarkably un-microphonic Amperex "Bugle Boy" 6922s. Pearl Coolers are fitted to the output stage of the more up-market MDl06 (with its fancy 'magic eye' tuning aid).

The front panel is a radio

enthusiast's dream. Forget presets, you get two big dials, five toggle switches, two needle meters and a central LED frequency display. The big right dial is all you get for tuning, but you also get a toggle switch to adjust the Intermediate Frequency bandwidth, a mono-stereo switch and whether the left-hand meter registers signal strength or multipath interference.

The IF bandwidth setting is useful when the nearby pirate radio station starts blurting out over the Sunday afternoon Radio Four play. Dropping the toggle into BW2 places the tuner into its 'narrow' bandwidth setting; sonically not as good as the 'wide' BWI setting, but better at rejecting adjacent channel interference. If the signal is really poor, though, you can also drop into mono mode, which helps lose a lot of interference compared to the stereosound.

Just how good? Suddenly, compression seems to be less of an issue than it seems through PLL tuners. Even the most heavy-handed of Optimod compression is not as

noticeable when precisely tuned. But when the compression is cut away, something really magical happens.

Sweltering heat takes its toll on the listener, but there is an upside to the timing of the review; you get to listen to The Proms; live feeds of Radio Three which will justify the expense of the MD102t within about a nanosecond. It became a nightly occasion, and a daily obsession: sometimes discovering new (to me at least) works; other times visiting old favourites anew. lt was never passive listening, though. The MD102t won't let

you listen to these live recordings passively; you are drawn into the passion and the fire of the music, or repelled by the performance. New works leave you hungry for more or flat and uninspired. Before long, you start muttering about last night's prom to people in coffee shops, strange looks notwithstanding.

Quite by chance, a track from the new Kraftwerk Tour De France Soundtracks CD was being played on a local indie station, while it was still fresh in my memory from being played through my own CD set up. While my own polycarbonate spinner isn't exactly in Wadia territory, it's distinctly better than the sort of ruggedised CD players used in radio studios. Except this time that professional CD player sounded more 'analogue' through the radio than I expected it to sound. The MD102t isn't playing music with rose-tinted spectacles, but it is digging up every last ounce of quality from a radio station.

The addition of the valves adds a smoothness to the sound. They also seem to give aid to the soundstage depth of the MD102t. Whilst wide, if not exceptionally so, soundstage is wonderfully deep space and draws the listener in to the best of radio. Strangely, it even has some solidity to the overall sound; something that never mormally happens in radio broadcasts.

There are no downsides to the MD102t. Well, almost. Only two issues spring to mind (constantly running tubes notwithstanding). First is that, despite being the best tuner you can buy under £2,700, it's still some way from the performance of the top of the line MDl08; I heard this briefly while picking up the MD102t from the distributor and that particular tuner is so good you can almost hear what colour shoelaces the DJ is wearing. The other downside is that this tuner spontaneously grows tuner enthusiasts in exactly the same way flats in London spontaneously grow Australians. Somehow, a tuner buff will discover you have one of the world's best tuners in your system and then one will turn up on the doorstep. Soon, more will follow, like zombies with signal strength meters. I know this from direct experience. I have a friend who is a real radio die-hard and I casually mentioned that I had this tuner in for review. He came round to listen to a Prom. .. and cried. A day later, he asked if he could come back and bring friends. My advice; buy one of these and never mention it to anyone; you never know who's a closet tuner geek.

Radio is often the poor relation of hi-fi. This is different... and as far removed from regular 'digital FM' tuners as a VPI is from a Technics DJ turntable. And it makes absolute mincemeat of DAB. Who needs presets when you can have valves and dials? Buy this and discover why all-analogue radio still matters.

TECHNICAL SPECIFICATIONS

Type	All-analogue FM tuner
Inputs:	2x 300ohm F-type connectors
Outputs:	1x pair single ended: 1.0V
	1x pair balanced: 2.2V
Signal/noise ratio:	80d B
THD mono/stereo (MD102)	0.10%
THD (tube output stage):	1.8%
Stereo separation:	50d B (+/- 1dB):
Audio Frequency response	15Hz- 17kHz
Dimensions (HxWxD]	114 x 483 x 381 mm
Weight:	7 .1 kg
Price :	E 4575,00

Magnum Dynalab ST-2

Type :	-2 Vertical omnidirectional
Ou tpu t:	FM antenna
Length:	Half wave design
Price :	1x 300ohm F-type connector
	1 .37m
	E 150,00

STEREO • MULTICHANNEL AUDIO • MUSIC
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Magnum Dynalab MD-106T FM Tuner

EQUIPMENT REPORT

Neil Gader

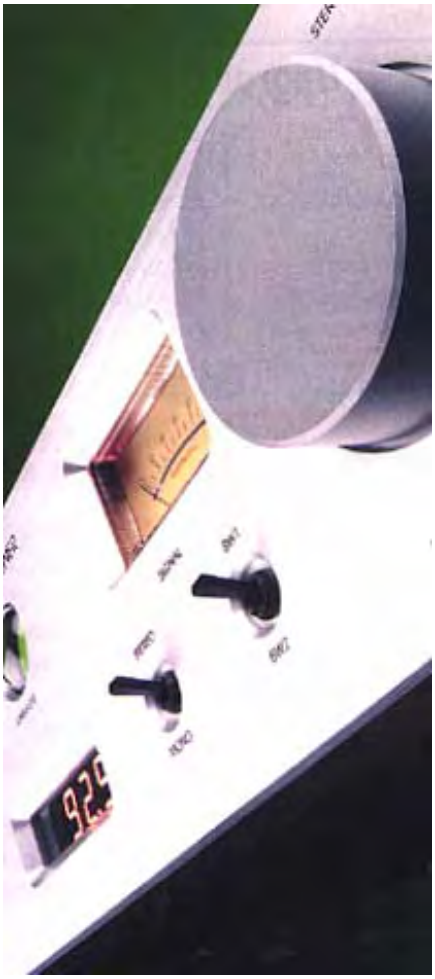
FEBRUARY/MARCH 2005

It wasn't until a few weeks after I reviewed the Magnum Dynalab MD-90 tuner a couple of years ago (see Issue 142) that I realized I'd been listening to a lot more radio than I used to —that I'd been hooked.

The addiction rnanifested itself in subtle ways. Each morning, for example, instead of flicking on the kitchen radio to wake up to NPR's "Morning Edition, " I'd switch on the MD-90 and let Bob Edwards' rich baritone fill the house. Rather than tune past a classical station on my way to classic rock or light jazz background music, I'd sit transfixed by the sheer richness and liveliness of an orchestra, and would continue listening until the movement was completed. But ever true to my audiophile roots, as good as the MD-90 was I began considering how much further the medium could go— any untapped resolution out there? So when offered the chance to review one of Magnum Dynalab's premium FM tuners, the MD- 106T, I leaped at the chance.

The MD-106T is the first of Magnurn Dynalab's triode tuners. Designed in-house by former Sonic Frontiersman Zdenko Zivkovic, the 106T is an all analog, zero-feedback design that uses a pair of Amperex 6922s in the audio section. Across the board its key specifications exceed the MD-90's. The critical front end is an ultra-sophisticated five-stage design, each stage like the audio equivalent of a series of fine, finer, finest HEPA air-purifying filters. The multiple-stage design endows the tuner with qualities that read like a personality test straight out of an old Dear Abby column-selectivity, sensitivity, and strength. Sensitivity enables the tuner to cleanly lock onto and isolate the weakest stations at the fullest possible bandwidth, while minimizing background noise; strength lets the tuner capture the most powerful of a pair of overlapping stations; and selectivity allows it to keep nearby stations---either adjacent (right next door to) or alternate (two stations over from)—-from bleeding into the signal of the desired station. Car radios, for example, are biased with selectivity in mind---strong stations win, nearby weak ones are shut out. In execution, it's a balancing act worthy of the Flying Wallendas.

For those who jettisoned their turntables and went digital, yet still long for the mechanical precision and "tweakability" of analog, the MD106T goes a long way toward satisfying the craving. It's a tactile pleasure to operate, and it restores some of the ritual of analog playback. The four toggles control power, mute, narrow and wide bandwidth, and stereo/mono. They snick into place with precision. The oversize tuning and antenna knobs have a heavy,



confidence-inspiring exactness. The front panel bas a large digital readout for station frequency, although it's so bright it could use a dimmer. Tw in meters monitor multipath and signal strength, but it's the Green Lantern glow of the Cyclops tube "tuning eye"[1] that restores the sensation of control to the fine-tuning process--full illumination means you've captured the station's maximum signal irrespective of its "advertised" frequency. Digital tuners, it should be pointed out, are more like ON/OFF switches—they

For those who jettisoned their turntables and went digital, yet still long for the mechanical precision and "tweakability" of analog, the MD-106T goes a long way to satisfying the craving.

can't tune a station if it is off frequency because of unusual atmospheric conditions or anomalous reflections. Analog tuners look for the best audio signal there is, not simply the stated frequency.

Although most of us don't think in these terms, the front end of a tuner really begins with its antenna. Unlike our polycarbonate- or vinyl-based source material, a radio signal travels a free-air path from the transmitter, encountering weather- and structure-induced distortions long before it ever hits your antenna and the front end of the tuner. Magnum therefore provides the MD106T with dual antenna inputs and strongly recommends that users run a regular whip-pole omni, like Magnum's own ST-2, along with a directional MD6FM Yagi for weaker channels or those bedeviled with multipath problems. Multipath was not a problem for me in Los Angeles, and the ST-2 sufficed, but for a favorite low-wattage station, Magnum's point about supplementing the tuner with a Yagi is well taken.

I characterized the MD-90 as having "...a warm midrange with an almost tube-like buttery smoothness. " ***The MD106T had an even quieter, blacker background, an improved delicacy factor that permits the lowest-level dynamic gradations to shimmy onto the stage. String sections seemed to sparkle with air at the lowest of volumes. The 106T's sound was brighter and more present in the upper mids than the MD-90's, but it was not the hyper-intense brightness of a pin light; rather, the illumination dispersed across the orchestral stage, filling in dark corners like a flood lamp.*** *Image stability was another area where the MD-106T stood head and shoulders above most tuners. The location of artists on the soundstage was cleanly defined and as rooted in place as if the soles of their shoes were made of Velcro. In comparison most tuners sound a bit loose and ephemeral.*

There were two primary characteristics that distinguished the 106T from lesser tuners, including Magnum's own MD-90. The first was a sense of space and timbre. Instruments and voices had a luminance that, it seemed to me, derived equally from the tuner's transient behavior, grain-free treble, and low-level resolution. During Beethoven's Rondo in B for Piano and Orchestra, for example, I could hear the orientation of the piano in a pocket of the stage; arpeggios were clean and harmonically rich, particularly in the upper midrange. On jazz, a tenor sax was more lively and natural, evincing its characteristic reediness as well as the rippling air and body resonance of its tubular architecture. On voice, Tony Bennett acquired added speed and presence, bringing to fuller life his classic phrasing and joyous delivery. Likewise, cymbals and hihats had a much more natural balance of sweetness and transient sting.

The other primary characteristic of the 106T is its ability to capture weaker stations. One of my favorite jazz stations in Los Angeles (KLON-88.1) is low wattage and broadcasts from distant Long Beach. On all other tuners it was listenable, but just barely. Burdened by noise and multipath, KLON performance varied greatly at all hours. The MD-106T was simply more tenacious and solid in locking in on the station. The MD-106T didn't necessarily locate more stations than the MD-90, but it made me want to hang around and listen to the weaker stations I had previously passed by.

In my judgment, tuners, even those, like this one, of an exceedingly high order, suffer from an elemental immediacy gap that places a veil between the music and the listener. This lack of immediacy is related to a couple of factors—micro/macro dynamics and transient speed---- that reside within the DNA of tuners, whose channel separation, bandwidth, and dynamic range can't quite match a traditional "direct"source component like CD players or turntables. The result is a characteristic mellowness, where transients are lightly rounded, and you hear a bit more air than attack. The edge distinctions of violin and cello bowing are softened, and brass sections lose some sparkle and intensity. ***Nevertheless, at its best (usually at night when the air was enriched with humidity) the MD-106T never failed to engage me like the first-rate source component (and Golden Ear winner) that it is.***

A great tuner doesn't replace another front-end component. That's not its purpose. It is the best source of free, high-resolution, new music out there. (MP3? I don't think so.) And it connects you to a world of art and ideas in a way that a basic radio could never aspire to. ***From my standpoint, a highend system isn't fully dressed without a tuner. With the MD-106T, you'll be dressed to the nines.***

SPECIFICATIONS

Frequency response: 15Hz—17kHz
Signal-to-noise: 80dB
Image rejection: 110dB 50db quieting (mono/stereo): 2.0uV, 13.2dBf/2.3uV, 34dBf
Usable sensitivity (mono/stereo): 0.7uV, 9.0dBf/11.2dBf
Capture ratio: >1.5dB
Alt. channel sel. (wide/narrow): 70/80dB
Adj. channel sel. (wide/narrow): 3/35dB
Channel separation: 50dB THD (mono/stereo): 0.10%/0.10%
Dimensions: 19" x 4.5" x 15"
Weight: 16 lbs.

ASSOCIATED EQUIPMENT

Sota Cosmos Series III turntable; SME V pick-up arm; Shure V15VxMR cartridge; Sony DVP9OO0ES; Magnum Dynalab MD90 Tuner; Classé Delta CP500/CA2200, Plinius 8200 Mk2 integrated amp; PSB T55, ATC SCM20SL/SCM35; Nordost Blue Heaven cabling, Wireworld Silver Electra & Kimber Palladian power cords; Richard Gray line

[1] ***It has an automatic dimmer.***

The Magnum Dynalab MD 109 Tuner

by Alan Sircom

There is a sense of the traditional to FM tuners. They have a sense of decorum; staid even. Hardly the sort of thing that you'd expect 50 Cent to get excited about: Until now that is — the Magnum Dynalab MD 109 fits the bill perfectly. It is the King of Bling, in tuner terms.

This FM only unit has all the elements needed to loft it to the top table of radio receivers. *First, it's made by Magnum Dynalab; that in itself is an arbiter of the highest quality.* Okay, having a brand name is no automatic guarantee of quality, *but like there hasn't been a duff Rolls-Royce or a naff Leica, so there isn't a mediocre Magnum Dynalab tuner.* Next, the MD 109 is dubbed the 'Triode Reference FM Tuner' by Magnum Dynalab and is they feel, their best effort. Then, instead of the usual tuner circuit, the MD 109 features the proprietary TRACC (Triode Reference Audio Control Center) circuit and features a toroidal transformer the sort of size normally found in power amps. Then, finally, there's the display and the sheer simplicity of the device. There's another bonus, too. .. but let's not spoil the fun just yet.

This big, heavy tuner comes in an even bigger and heavier blue flight case. This is too snug for the remote control to be packed in with the case, so this has to travel separately. But, given the robust, tank-like build of the handset, it should be able to look after itself. Other remote controls tend to dive down the back of the sofa in fear when confronted by this Mike Tyson of a handset. Yes, it has all the ergonomies of a housebrick and functions happen a little slowly, but the 18 buttons are big and clearly marked and I'm happy to trade small and breakable for big and brutal.

The unbreakable build of the remote extends to the tuner itself. *Magnum Dynalab makes big, solidly built products, but this is exceptional even against such impressive stable-mates. The flight case seems almost superfluous; you could drop the MD 109 out of the back of a low-flying Hercules onto a concrete airstrip and the only thing that would dent is the runway. Well, almost.* There are smaller, lighter and less well-built power amplifiers — can you think of any other tuner (the legendary Marantz 108 excepted) that needs two peopie to lift it out of the packaging?

This is Magnum Dynalab's World Source Platform. Not just marketing hype, the platform (and the aforementioned TRACC technology entailed within) has taken two years to design. Basically, it means the MD 109 delivers an unparalleled 200 ohm output impedance flat from 0.2 Hz to 200 KHz, (which virtually eliminates the influence of the interconnect cables). It also has a signal to noise ratio better than 110 dB, with no phase shift or distortion variance from 0.2 Hz to 200Khz. Much of this is thanks to the power supply stage, as designer Zdenko Zivkovic concentrated much of his effort on perfecting the ground plane. By lifting the audio ground from the chassis ground, it's suggested that impurities that originate with the ground plane are effectively eliminated, leaving only the original signal. *A ripple-free power supply and a hefty pair of transformers (one for the RF and control stages, one for audio) help, too.*
The RF stage bas been completely redesigned as well. Already well known for rolling their own, Magnum Dynalab take the concept to the limit here, with an eight-stage Varactor —tuned front end.

This allows three levels of IF selection (instead of two in previous Magnum Dynalab models) for absolutely pin-point precise analogue tuning, which is surprisingly drift free from the outset. Normally, Magnum Dynalab tuners bristle with toggle switches, covering all the finer points of locking a signal in place. Not here. Instead, the MD 109 sports just two dials; the right hand one covers tuning, the left is a selector, but for now is effectively dormant. But, all those other controls are still required by a tuner of the MD 109's mettle. So, where are they? This is where that huge LCD display comes into play. It's actually a touchscreen. Touch-screen panels are not new to audio — Classé bas been using them for a while, as have various homecontrol systems — but it's the first time something so advanced bas been used to control something as retro as a fully analogue, tube tuner. Along the bottom of the LCD screen are six 'soft' buttons for power, stereo/mono, band (actually that three position JE sensitivity control, not AM or FM selection), blend, mute and display dim. The touch-screen is good for 10,000 hours, more if mostly dimmed, but doesn't switch off completely until you turn the tuner off. This can be a distraction in some rooms, as can the large display, but at least the station's frequency can be read across the room. ...even if that room is the Albert Hall. You can manually store up to 40 presets, and these can be accessed from the touch screen or the remote.
Sadly, the inclusion of the display spells the end of the magic eye found in other Magnum Dynalab designs. This is a shame because it's one of the most easy, intuitive and accurateways of determining how good the signal is. But, the big signal strength and centre tune VU meters are in place, arranged vertically either side of the main display.

When first powered up, the tuner goes into a diagnostic/stealth mode for half a minute or so, during which it presents a big Magnum Dynalab logo on the touch screen until it reaches the right operating temperature and turns back to being a tuner. So far, so very high-tech. There's a word in the name that suggests an older heritage though; triode. This tuner uses four of them, 6922 double triodes to be precise, sourced from different manufacturers for different uses within the tuner itself. The 6922's used in the Vl and V2 sockets are Amperex Bugle Boys, while the V3 and V4 positions are occupied by Jan Philips designs. The only other physical switch is the on/off rocker switch at the back of the tuner. The rest of the rear panel is populated with an IEC mains input and both heavy-duty gold-plated phono and XLR sockets for single ended and balanced output. There's an f-type aerial input, and there's also a large blanking plate, too. More on this later.

It's been getting harder and harder to write about Magnum Dynalab tuners, because you keep running out of superlatives. *Every time you hear one, you are surprised by how close to the studio you are getting. And the next one up the portfolio just gets better than the last.* Now we are at the top of the Magnum Dynalab tree. Now, it gets silly. You start

to question if it's possible to hear that much detail from a tuner source, no matter how impressive that source may be. After all, FM broadcasts are often compressed and the sheer live nature of the medium at its best can produce compromises in their own right. Besides, most of the time, you are listening to CDs being played through players markedly inferior to the one in your system. But strangely, none of this seems to matter.

The odd thing is just how much the MD 109 improves even the dirtiest talk radio ('dirty' here meaning 'poor sound quality' and has nothing to do with shock jocks like Howard Stem). When Baz from Leytonstone calls in to the station on bis Mobile phone, you don't expect much, yet the ME) 109 rewards such listening by seeming to eliminate spitch from the transmission that normally gets between you and the person speaking. But, that's merely an aperitif. The entrée is decent live broadcasts, well produced plays and the sort of highclass programming the BBC is occasionally so justly proud of.

There is a sense of naturalness to the source that you don't often get with CD, even when the station is playing CDs. Now, that's odd. It's an analoguelike sound, without being faux analogue-y. I suspect this may be something to do with the deep yet close-knit soundstage, or maybe that FM as a source introduces more crosstalk than CD. Whatever, *I found the playing of CD music on the radio on a par with the best home sources on this tuner.*

This is an interesting conclusion. Crosstalk — where the signal from the left channel bleeds into the right and vice versa — is a given on FM, but usually it's masked by the noise floor of the signal. Or, so I thought. Perhaps, that noise floor is in part related to the tuner itself and in this tuner that noise floor is simply lowered. e UK*Something very positive is going on with the MD 109 that isn't going on with any other FM tuner currently sold in the UK* (I'll hold out from saying this positive trend is not found on any current tuner, simply because the DaySequerra is back and is an untested force).

Soundstaging is another Magnum Dynalab strong point, amplified to the nth degree here. The sound is deep, wide but not especially so and with surprisingly good soundstage height. It's rare to find a wide soundstage on FM, unless it's done at the expense of all other dimensions, but there's no sense of trade-off on the MD 109. The sound stands slightly wide of the loudspeakers, but this is easily overlooked when you listen into the cavernous depth of the staging. *A quick snippet of Brahms on Radio Three ably demonstrated this; the image depth seemed to be well past the end of the living room walls, and should have come with a sign sayfing 'Here be Dragons!'*

Of all the tuner benefits, the most obvious one is vocal articulation, though. *The MD 109 sets a benchmark for voices that no other tuner can match as yet. News programmes take on a clarity and directness that makes them sound like it's a conversation in the room, not in a remote studio. The voices are not behind microphones, they are living, breathing solid human beings, there in the room with you. This makes outside broadcasts to war-torn zones or rainforests seem rather strange and discomforting when the giant gorilla (or guerrilla) jumps out of the sideboard.*

All of these aspects could be very closely replicated — to a lesser degree — with a cheaper tuner. But no tuner combines all these aspects so gracefully and so incisively. This doesn't just put you in the broadcaster's suite, it makes you a part of the broadcasting chain. I found myself talking back to the people in the room as if I were engaged in conversation with them, then shaking my head to remember they were in a studio and weren 't really in the same room as me. This was disturbing, but understandable and there was no need to reach for the chlorpromazine. *That almost hallucinogenic holographic property transcends normal tuner values, though and is my main justification for recommending an eight grand tuner in what are the twilight years of FM.*

Of all the FM-only tuners yet tested, this is the most future-proofed. Why? Because of that 'another bonus' mentioned earlier. There is a panel at the back of the MD 109 that is currently blanked over. Soon, that panel will be filled... with a digital tuner module (presumably the aerial input is located on another plate so that if a second aerial socket is required, it's easier to change back plates than deliver an expensive tuner into the hands of Messrs Black and Decker). Although entirely untested as yet, that digital module option means this tuner is currently the only dedicated FM-only source component that doesn't have a slight tinge of Death Row about it. One day, perhaps soon, perhaps not for a generation, analogue radio will switch off forever. Anyone buying an expensive FM tuner today is hoping the switchoff is a long way off and they will get a decade or more from their purchase. The MD 109 is different. It will confidently see out FM. .. and still be waiting for you in the DAB future.

I still miss the magic eye, but I'll get over it.

TECHNICAL SPECIFICATIONS

Type :	All analogue Valve FM tuner
Valve complement:	4x 6922
Audio frequency response:	2Hz-200kHz (-+-0.05 dB)
Output Level:	2.0V (balanced] 1.0V (single-ended]
Output impedance:	200 ohms (2 Hz - 200 KHz]
Signal to noise ratio:	>110 dB
Usable sensitivity (mono):	0,7 microVolt
50 dB quieting (stereo):	2,3 uV (20.0dBf)
Capture ratio:	1.5 dB
Image rejection:	125 dB
Signal to noise ratio:	80 dB
Alternate channel (wide):	>46 dB
Alternate channel (narrow):	>70 dB
Alternate channel (super narrow):	80 dB
Adjacent channel (wide):	3 dB
Adjacent channel (narrow):	21 dB
Adjacent channel (super narrow):	48 dB
Stereo separation:	50 dB
AM suppression:	70 dB
SCA rejection:	80 dB
IF Rejection:	80 dB
Dimensions (HxWxD):	152 x 483 x 407mm
Weight:	17. 1 kg
Finishes:	Black or silver
Price :	11.710,00 E / £7990

THE INNER EAR REPORT

Magnum Dynalab ST-2 FM Antenna

Source: Magnum Dynalab
Rating: 90% effective

Before we get into the merits of antennas of any sort, allow us to address the subject of FM signals. Signal interference problems generally increase as the distance between the transmitting and receiving antennas increases. Along with noise mixed inseparably with the signal, there can be fluttering and fading of the signal caused by aircraft flying within the area. As well, there is 'tropospheric scatter' which causes part of a distant signal to be bent, or 'refracted' back down to earth some distance away. This is often evident when a temperature inversion is somewhere overhead in the signal's path. Such a signal reflection can create reception where there was none before, or can disrupt reception of a local station already on that frequency.

The obstructions to an FM signal range from small hills and buildings to office towers and mountains. Depending on the signal's strength when meeting such an obstruction, the effect could be partial absorption or reflection. As a result, you might end up with the main signal, plus any number of reflected signals; each of which is now out of step with the main signal. We refer to these extraneous signals as 'multi-path interference'. It is one or more of these multi-path signals arriving at your antenna out of time/ phase synch with the main signal that usually disrupts the quality of the signal, rendering it 'fuzzy', and very often, unlistenable.

Aside from noise generated within the locale of the antenna, most other types of interference are easily dealt with by the characteristics inherent in a competent FM tuner design. The problem is that interference can make itself known at different points within the tuner's circuitry.

The circuit's ability to deal with interference from other station signals lies mainly in its 'selectivity'. Some tuners may not have this quality in abundance as it could detract from the sensitivity of lessercapable 'front end' designs. Without the necessary selectivity, the RF stages in such a design can 'saturate' with signal when an antenna with mare gain than a dipole is used. The symptoms of such a problem present their unwelcome 'images' at more than one point on the dial.

Finally, a good sensitivity figure puts the tuner in a position to pull in most stations so that they can be heard in a mostly noiseless state, and in their intended stereo. This is expressed in terms of dBf or microvolts (uv). While there are three different specifications used to express sensitivity: 'IHF', 'Usable' and '50 dB quieting', the latter, expressed in terms of 'mono' and 'stereo', is the most significant. It is around the 50 dB quieting level that the signal should be quiet enough to provide audio worth listening to.

As we can see, receiving a clean FM signal can be as uncertain as the weather, which influences the signal. There are days when signals abound and the quality is good. And then there are days when stations, normally received well, come in so poorly that we would rather not listen to radio at all. The ST-2 FM antenna may be the solution to at least some of our problems. The whip-like device can be installed on the wall or the ceiling. It can be used in a vertical or horizontal position, where multipath interference is particularly annoying. In the horizontal position, the ST-2 becomes directional, or more precisely bi-directional, when it is placed at right angles to the transmitter site. In an upright, vertical position, the reception may not be as good, but the choice of stations increases. The best possible installation of the ST-2 is near a window or outside the house, as high up as practicable. Magnum/Dynalab has designedcircuitry in the base loading coil which connects to the whip and to the tuner via a 75 ohm cable. A good length of the cable is supplied with the ST-2—as are succinct instructions to get the most out of the antenna. The Magnum/ Dynalab offers an alternative to elaborate rotor antennas which will improve signals and cut down noises under the worst condition. Those of you who have been connected to cable are well advised to try this antenna which, when in the proper position, allows the tuner to deliver a much cleaner signal.

THE INNER EAR REPORT

Magnum Dynalab Signal Sleuth Antenna

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The ST-2 offers an alternative to elaborate rotor antennas which will improve signals and cut down noises under the worst condition. Those of you who have been connected to cable are well advised to try this antenna which, when in the proper position, allows the tuner to deliver a much cleaner signal. And for those who live in fringe reception areas, there is a gadget called

.....The Signal Sleuth - Model 205

This remarkable device does exactly what the name implies; it investigates FM signals and tracks them. Weak signals are amplified, thereby offering the possibility of listening to some of the fringe FM stations that are impossible to receive under ordinary conditions. The Sleuth works on adjacent channel interference by reducing the strength of the dominant channel so that the weaker signal can be handled by the tuner. In other words, the 205 adds gain to the FM signal so that your tuner can use it. Note that a good antenna (such as the ST-2 , as well as a good tuner should be used to assure acceptable FM reception. If the signal is simply weak, the 205 will do its task very well indeed. When a signal is combined noise at the receiving end, the 205 will amplify this information as well which may result in amplified hullabaloo. The Sleuth cannot purify a bad signal -- this is up to the tuner's capture ratio as well as the antenna's capability to distinguish noise from signal. However, the 205 can raise the FM signal above the noise peaks by defining the pass-band and eliminating spurious interference. Weak signals from distant stations can be amplified by the Sleuth and reception becomes astoundingly clear if there is no interference close by. If noise happens to be present around the reception area, the only cure is to find the source of the noise (it may be a car with dirty sparkplugs, your AC voltage, or your power line outside). The 205 is not a cure-all device. It simply adds three more RF stages to a tuner's front end and offers an RF gain control to regulate potential overloading. The available gain is close to thirty times the input value. A tuning control additionally specifies the frequency being selected, hence appropriating attenuation to a narrow band and not to all frequencies equally. This unique method provides more selectivity. The sound of the Sleuth is as good as the back-up system, which is to say that it has no sonic signature of its own. If anything, it defines the common signal, adds texture and depth to the sound and lets one focus on the program material. Magnum Dynalab's manual is succinct, enlightening, and provides answers to questions that linger in every radio listener's mind. To sum up, the 205 is one those devices that contributes to any critical music system.