

**Philips sheds some new light on what you should demand in a tuner.**



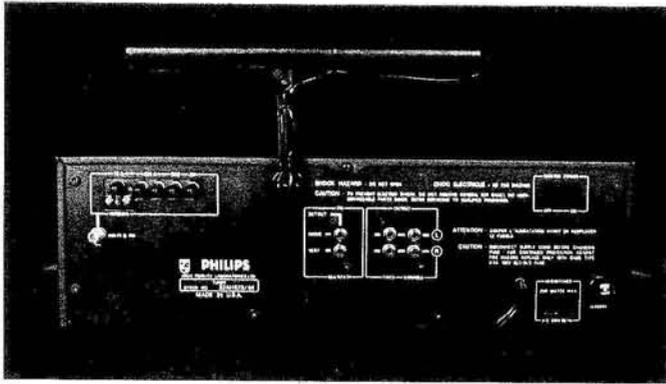
**The AH 673 High Performance Tuner.**

# Demand a tuner where the AM is as brilliantly engineered as the FM.

## AM Section.

Too often, a fifty dollar, battery operated, portable radio brings in better AM than an expensive receiver. You pay for the AM section, nothing's free. You should be able to enjoy it as much as the FM.

Philips believes you deserve better than you've been receiving. So they haven't given the back of the hand treatment to the AM. On the contrary. The performance of the full fidelity AM circuits approaches that of the FM. Wide range response, low distortion and low noise. The technical data on the back of this folder gives you the specific figures. Be sure to read them for they are highly unusual.

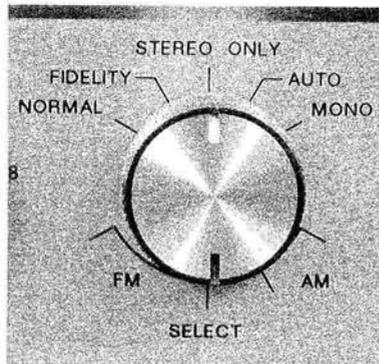


There are always some skeptics who believe that AM fidelity is invariably poor regardless of the quality of the receiver. They place the blame on the AM broadcaster. Philips has taken the broadcaster off the hook. Listen to the AH 673 Tuner and listen to what you've been missing.

**FULL FIDELITY AM** Our Full Fidelity AM circuits provide performance approaching that of FM—wide range response (20 Hz—10kHz  $\pm$  2dB), low distortion (0.5% @ 30% mod., 1.5% @ 90% mod.) and low noise (S/N 60dB for 100% mod.).

**MASSIVE AM ANTENNA** Look at the back of the Philips AH 673 Tuner. You'll see a massive 8" bar which has three dimensional movement. It helps you pick up weak signals and null out interference. An external AM antenna connection is also provided on the rear panel.

**AM FRONT END** A dual gate MOS FET with transient protected gate provides clear AM reception with low distortion throughout its wide dynamic range of from 200  $\mu$ V/meter to 500,000  $\mu$ V meter. Circuit exhibits excellent immunity to overload and reduces cross modulation distortion in strong signal areas.



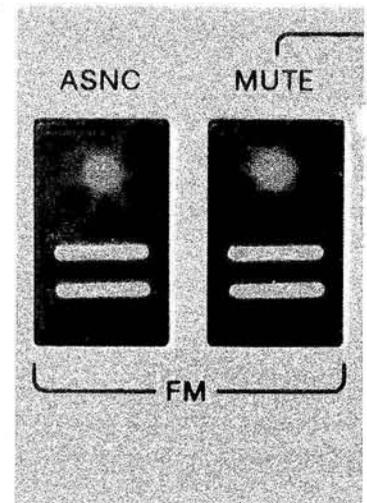
**SWITCHABLE 10kHz FILTER** A light touch of this switch activates a sharp bridge-T, LC Notch filter. This filter eliminates adjacent channel 10kHz heterodyne whistle.

**SWITCHABLE IF MODE** There are two separate IF systems. One for improved fidelity and one for improved reception. Turn the select control to the far left and you have the normal mode. (Illuminated function read-outs remind you of the mode you've selected.) The IF circuitry employs dual gate MOS FET's (2) with transient protected gates, separate IF AGC system, and an AM balanced detector. The result is the capability for wide dynamic range, low distortion, and large signal-to-noise ratio. The normal mode provides optimum weak signal reception and ultimate adjacent channel selectivity. The second IF system, the full fidelity mode, provides extended frequency response.

## FM Section.

**FM SECTION** Brilliant engineering abounds in the FM mode. The phase locked loop multiplex decoder and automatic stereo noise cancelling circuits are only two of the state-of-the-art features.

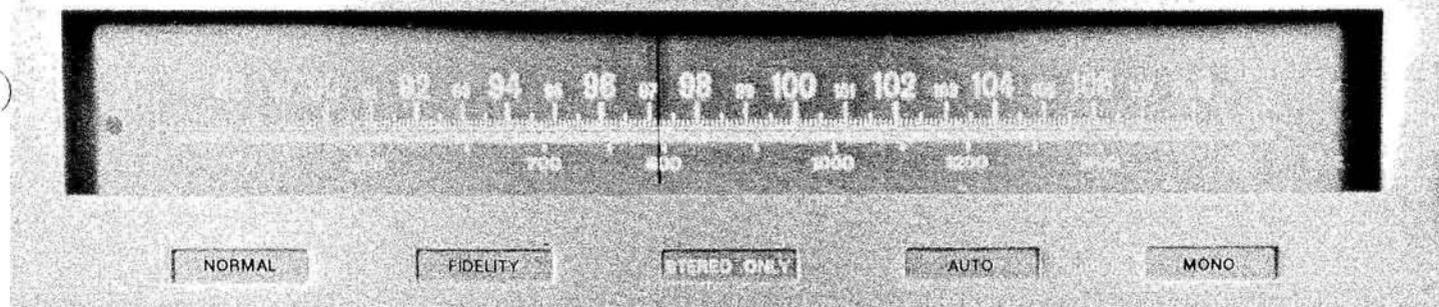
These features insure excellent sensitivity and clean reception in the FM stereo, auto and mono modes. Electronic touch switches are used, as in the AM mode, to control such features as muting and filters. A slight touch of a finger activates the desired function and illuminates the LED indicator above the switch.



**FM-IF AMPLIFICATION SYSTEM** Unique 24 pole linear phase LC filtering system provides an extremely high degree of linearity as well as ultra low distortion and excellent selectivity. The high gain (120dB) amplifier section combined with AGC and wide band (2 megahertz), low distortion (.05%) ratio detector complete this outstanding IF system.

**PHASE LOCKED LOOP MULTIPLEX DECODER** Multiplex decoding is accomplished by the use of state-of-the-art circuits employing the PLL (Phase Locked Loop) technique. This circuit locks onto the 19KHz pilot and generates an accurate 38KHz square wave, thus assuring virtually drift-free operation and excellent stereo separation.

**EXTENDED RESPONSE SUB CARRIER FILTER** The highly complex filter combines 5 section Cauer network with a bridge-T LC filter to provide extended frequency response and the attendant sharp cut off necessary to elimi-



nate unwanted high frequency. The circuit delivers an outstanding ultimate rejection of 60 dB @ 19KHz and 90 dB @ 38KHz (+5 -1dB) desired for smooth frequency response.

**ASNC CIRCUITRY** Activate the exclusive "Automatic Stereo Noise Cancelling" (ASNC) circuitry and *virtually eliminate* the annoyance of noisy broadcasts. Unique circuit senses the amount of noise present at the detector; if the noise level rises above a given threshold a Schmitt trigger in conjunction with a switching FET introduces a noise cancellation circuit providing clear reception of marginally weak stereo stations. This circuit automatically turns itself off on strong stereo stations, thereby maintaining optimum separation.

**FM FRONT END** Meticulously designed FM front end utilizes high Q RF tuned circuits to reject unwanted signals by more than 110 dB. RF and mixer stages incorporate 3 dual gate MOS FET's with transient protected gates for optimum gain and immunity to overload.

Extremely accurate oscillator circuit employs highly stable materials, an air variable military type machine milled trimmer and a deluxe gang with close tolerance, low drift components. This highly stable, low drift oscillator makes possible the complete elimination of AFC and its attendant problems.

**MULTIPLE FM MODES** FM STEREO: This "stereo only" feature permits only those stations broadcasting in stereo to be heard. In addition, interstation noise is automatically muted in this mode.

FM AUTO: In this mode, all stations are heard. Those broadcasting stereo will be heard in stereo, those broadcasting mono will be heard in mono.

FM: Both mono and stereo stations will be heard in mono.

**FM MUTING** FM interstation muting is adjustable from approximately 2 to 20  $\mu$ v and is activated by the mute touch switch. The circuit cancels noise between stations during tuning. Usable in any of the three FM modes it is adjustable to eliminate weak station noise.

**EXCLUSIVE PATENTED DELUXE MULTIPATH MONITORING SYSTEM** The use of independent multipath and signal strength meters provide for dependable and convenient monitoring of signals. A separate center-tuned meter

becomes a multipath meter at a touch of the finger. The multipath meter in conjunction with the signal strength meter independently observes optimum signal strength and minimum multipath. These two meters permit adjustment of antenna orientation and location for maximum signal strength simultaneously with minimum multipath

for optimum signal reception. A unique balanced differential circuit provides rejection of random amplitude variations due to noise or fading, allowing accurate multipath analysis by the meter.

**FM ANTENNA INPUTS** Three FM antenna inputs are provided—the 300 ohm balanced terminals, the 75 ohm unbalanced terminal and a threaded terminal for screwtype coaxial connector to handle any situation.

**FM DETECTOR OUTPUT, FOUR CHANNEL READY** An FM detector output is available on the rear panel, ready for use when discrete 4 channel FM broadcasting is perfected.

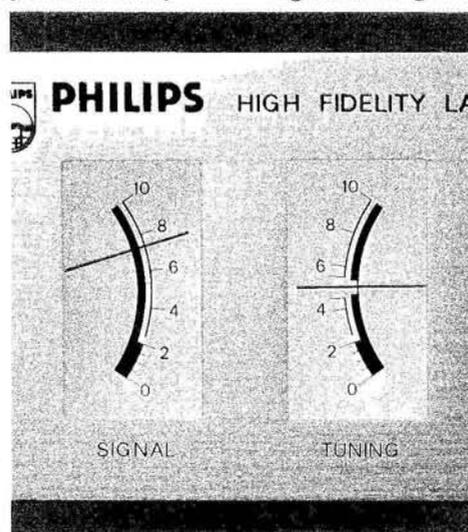
**TUNING METERS** The lighted tuning meter circuits use AGC to provide definitive meter reading over an extremely wide dynamic range (100 dB).

**AM-FM SIGNAL STRENGTH METER** This illuminated meter provides visual indication of signal strength over a range of greater than 70 dB.

**EXCLUSIVE AM-FM CENTER TUNED METER** Another illuminated meter for tuning. Once the signal has been selected it allows precise pinpointing for full fidelity reproduction.

**WIDE VIEW DIAL SCALE** The easy-to-read accurate dial scale features finely etched, precision graphics. The fine resolution, large viewing length and balanced graduations combine with a high momentum flywheel for easy viewing and a smooth, positive tuning characteristic. In the FM mode a light indicator identifies a stereo signal.

**SEPARATE LEVEL CONTROLS, AM & FM OUTPUTS** The ultimate in flexibility—separate adjustments for FM and AM output level are provided on the front panel. These continuously variable linear controls allow adjustments of 0 to 1 volt for each output. Very useful for balancing between functions and adjusting for variances in local stations. Fixed 1 volt outputs for AM & FM are also provided.



# Some illuminating facts and figures.

## Technical Data

## The Philips AH 673

### Performance

#### FM Section

Tuning Range 87.5-108 MHz  
 Antenna Input 300 ohm Balanced  
 75 ohm Unbalanced

Usable Sensitivity  
 Mono 1.6  $\mu\text{V}$   
 Stereo 3.0  $\mu\text{V}$   
 50dB Quieting Sensitivity  
 Mono 2.5  $\mu\text{V}$   
 Stereo 30  $\mu\text{V}$

Total Harmonic Distortion  
 Mono .09%  
 Stereo .1%

Capture Ratio 1.0 dB  
 AM Rejection 50 dB

IF Rejection 110 dB

Image Rejection 110 dB

Spurious Response 110 dB

Selectivity (Single Generator) 110 dB

(Dual Generator) 83 dB

Pilot Carrier Suppression 65 dB

Frequency Response (1.5-1dB) 20-15kHz

Stereo Separation 100 Hz 45 dB

1kHz 45 dB

10kHz 38 dB

Hum and Noise (65dB and 100% Modulation) 70 dB

Muting Threshold Adjust to 2 to 20  $\mu\text{V}$   
 Audio Output (600 ohm and 47k Load, 100% Modulation) 1.0

#### AM Section

Tuning Range 540-1600kHz

Sensitivity (normal AM)  
 Long Wire 20  $\mu\text{V}$   
 Rod Antenna 200  $\mu\text{V}/\text{m}$   
 3dB AGC Level 200  $\mu\text{V}/\text{m}$

Selectivity  
 Normal AM (Adjacent Chn) 40dB  
 Full Fidelity (Alt. Chn) 40dB

Image Rejection (Normal AM) 65dB @ 1mHz

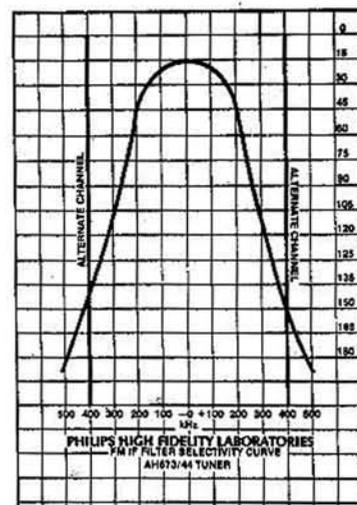
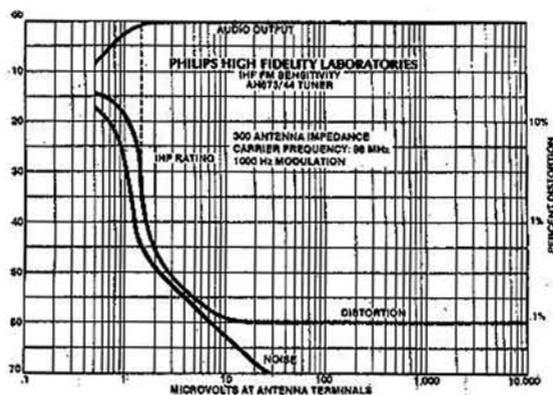
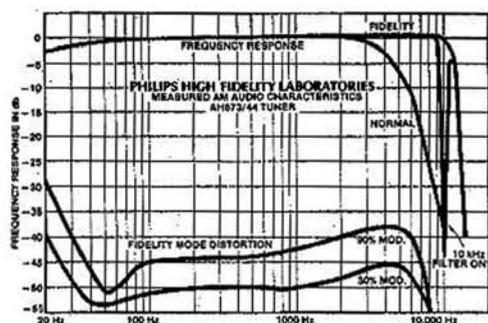
IF Rejection (Normal AM) 50dB @ 1mHz

Harmonic Distortion (Full Fidelity)  
 30% Modulation 0.5%  
 90% Modulation 1.5%

Frequency Response  $\pm 2\text{dB}$   
 Normal AM 20-3kHz  
 Full Fidelity 20-10kHz

Hum and Noise (50k $\mu\text{V}/\text{m}$ ) 60dB

100% Modulation



### Features

#### General

Supply Voltage (120vac@60Hz)  
 UL and CSA Approved  
 FCC Approved

#### Front Panel

Lighted Dial Scale (Linear-FM)  
 Flywheel Tuning  
 Lighted Meters  
 Signal Strength (AM & FM)  
 Center Tuner (AM & FM)  
 Switchable to Multipath (FM)  
 Function Indicator Lights  
 AM Normal  
 AM Fidelity  
 FM Stereo Only  
 FM Mono  
 FM Auto  
 Stereo Indicator Light  
 Controls (Rotary)

Mute Level  
 AM Output Level  
 FM Output Level  
 Selector Switch (Rotary)  
 AM Normal  
 AM Fidelity  
 FM Stereo only  
 FM Auto  
 FM Mono  
 Touch Switches with LED's  
 Power Switch (OFF/ON)  
 Multipath (IN/OUT)  
 ASNC (IN/OUT)  
 Mute FM (ON/OFF)  
 Filter 10kHz AM (IN/OUT)

#### Rear Panel

Inputs  
 Antenna FM  
 300 ohm Balanced

75 ohm Unbalanced  
 Antenna AM  
 Screw  
 Coaxial  
 Outputs  
 FM Detector (1)  
 Audio Output (2)  
 Fixed (2)  
 Audio Output  
 Adjustable (2)  
 Scope Output  
 (Multipath) (2)  
 AC Receptical  
 Unswitched (1)  
 Main Fuse

Dimensions: 5 1/2" x 18" x 13 1/2"  
 Weight: 25 lbs.

Data subject to modification without notice.



Philips High Fidelity  
 Laboratories, Ltd.

P.O. Box 2000 - 1104 Maple - 1104-1102