

FM Set Installed in Car

An FM installation in your car can give you better sound, less noise

By MAX ALTH

THE shape of FM things to come was outlined in miniature by Andrew's Radio Service Company of Yonkers, N. Y., when Andy, at the behest of Harry Taubin, of the Bronx, installed an FM tuner in the latter's '47 Buick.

While this is by no means the first FM installation in a car, this is the first FM broadcast receiver installation of which this writer has heard. The forecast is that auto radios of the near future will incorporate an FM band, or even possibly be designed for FM reception only.

The results, Mr. Taubin relates, are satisfactory. The quality of reception is very good in town, and is satisfactory up to about 35 or 40 miles from the city, at which distance ignition noise begins to compete with the signal. However, Mr. Taubin could not drive very much further from town without losing considerable AM signal, either. It is only the fact that there are other AM stations along the way that enables him to receive AM programs over a greater road distance than FM signals. When FM stations increase in number, as they are doing right along, it is conceivable that FM auto receivers will supplant AM sets entirely.

FM reception in the city is considerably superior to AM reception, Mr. Taubin reports. Noise is less, sound quality is better and—this is, of course, a personal point of view—the FM programs are better.

The installation consists of a converted Meissner 8C FM tuner feeding the audio section of the Buick auto receiver.

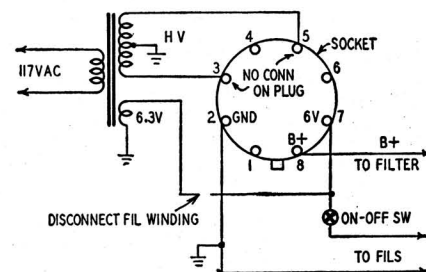
Surprisingly enough, the regular AM antenna already installed in the car is used. The only change is a reduction in antenna length for FM use. It has been found that maximum FM signal is picked up with the antenna extended half way. Since there is sufficient AM signal strength in the city, the antenna is left half extended all the time the car is in town, for reception of both AM and FM.

Converting tuner and receiver

The conversion of the FM tuner from 117 volts a.c. to 6 volts d.c. is simple. The 6X5 rectifier tube is removed; the transformer and power wiring are left in place for future use.

An octal plug is wired to the car radio. Ground is connected to pin 2, the high side of the 6-volt battery to pin 7, and B-plus to pin 8. When this plug is

inserted into the tuner's 6X5 socket, filament and plate voltages are furnished the tuner, as shown below. Disconnect the high side of the tuner's filament transformer from the filament circuit. Remove the on-off switch (part of the tuner's volume control) from the transformer primary and connect it in the filament circuit, as in the diagram. Disconnect the shielded wire leading to

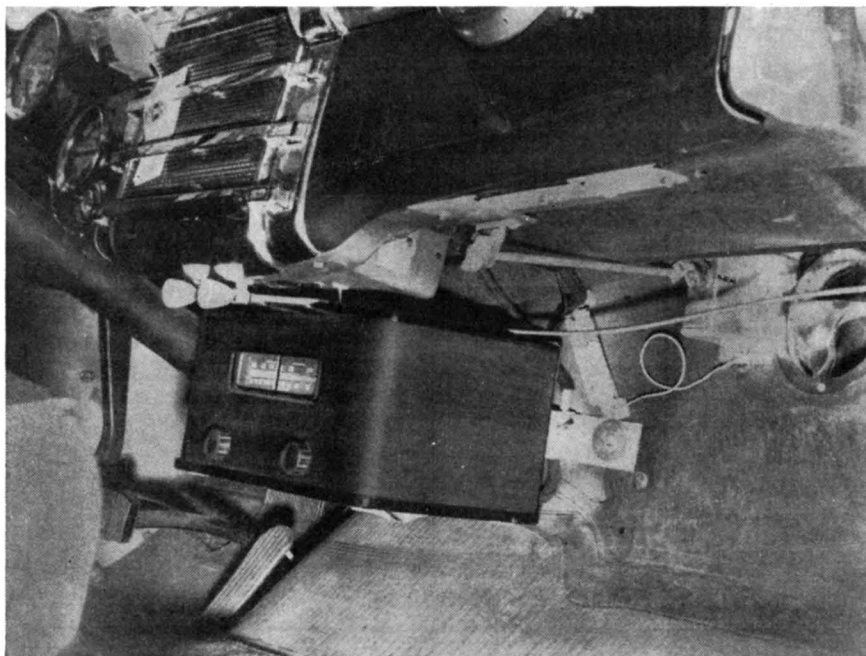


Power cable plugs into original 6X5 socket.

the grid of the 6C4 output tube from the arm of the volume control and solder it permanently to the high side of the control so that volume will always be maximum.

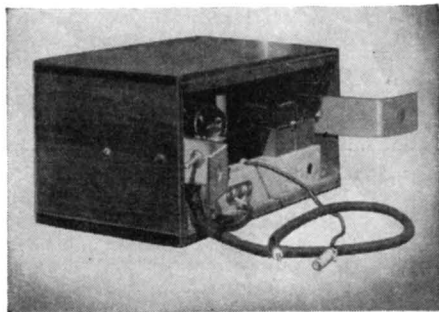
The tuner is mounted in the car by means of two home-made metal brackets. These are bolted to the fire wall of the car and to the sides of the wood cabinet that houses the tuner. The cabinet is strong enough for this purpose. A hole is drilled in one of the brackets, and an antenna-change-over toggle switch is mounted here. A receptacle for the plug on the end of the antenna lead-in is mounted next to the switch, and a length of shielded antenna wire is run from the switch to the AM-set antenna input.

A hole is drilled in the side of the AM set, through which the power leads to the tuner are brought. The AM detector output is disconnected from the volume control and connected to one end contact of a toggle switch. A lead is run from the other end contact through a length of shielded wire to a female bayonet socket. This takes the FM audio output via the plug that comes with the tuner. The center contact is wired to the a.f. amplifier of the AM set. The toggle switch is mounted on the side of the AM set, permitting the AM audio amplifier to be connected to either the FM or the AM signal. The volume control of the AM set, up on the dash of the car, controls the volume of either.



The tuner is mounted beneath the regular car radio where the driver can easily adjust it.

To operate the AM receiver, the set is turned on, and the audio and antenna toggle switches are thrown to the AM side. The on-off switch turns the tuner filaments off, as they are not used.



Brackets and antenna switch on tuner's rear.

To receive FM programs, the filaments are turned on and the two toggles thrown to FM. The AM receiver must, of course, be on, as well, as its A.F. section is used.

Little difference in signal strength is found when the antenna is adjusted for the various frequencies on the 88-108-mc FM band.

NBC SYNC CARRIERS

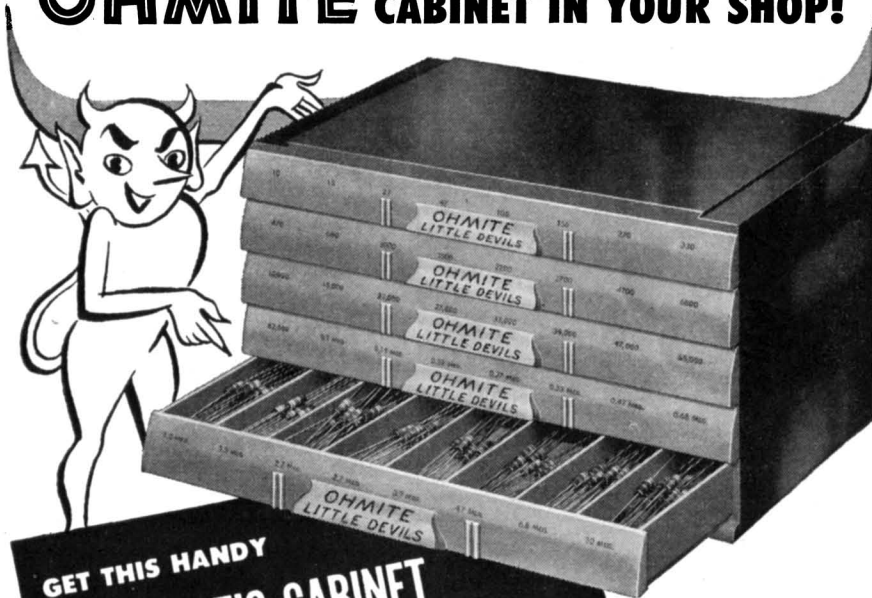
The first use of carrier synchronization for television stations was announced recently by David Sarnoff, chairman of the board of RCA and the National Broadcasting Company. Stations WNBT and WNBW, New York and Washington outlets of the network, both operate on channel 4. In some locations between the two transmitters, viewers get co-channel interference, due largely to the slight difference in frequency of the two carriers. Even though crystal-controlled, this slight difference is inevitable at television frequencies. The heat effect usually destroys reception from both stations. It appears on the screen as horizontal black and white sound bars.

The problem of keeping the frequencies of the two transmitters precisely equal is solved by synchronization. Two sync units are used, one at WNBW in Washington, the other at RCA Laboratories in Princeton, N. J., between New York and Washington.

Receivers set up in Princeton compare the frequencies of WNBT and WNBW. Information about the difference between the two is translated into variations in the frequency of a 1,000-cycle tone, which is transmitted by telephone line from Princeton to New York. The audio frequency variations (± 300 cycles) are used to control WNBT's frequency, keeping it in exact step with that of WNBW.

Though synchronization of television carriers is a recent development, some AM stations have been operated on this basis for many years. Television engineers hope that the new technique will hasten the end of the freeze on TV station allocations; one of the main reasons for the stoppage was that a study had to be made of co-channel interference to determine future allocation policies.

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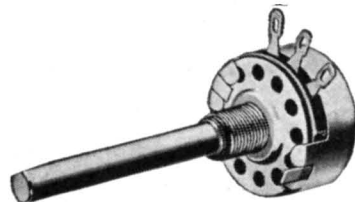
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