

Equipment Profiles

This Month:

- Altec Lansing 711B FM Stereo Receiver
- Electro-Voice Model E-V Five-A Speaker System
- Panasonic RS-761S Stereo Tape Recorder
- Dual Model 1015 Automatic Turntable
- Shure Model SM-60 Dynamic Microphone
- Shure Model 330 Super-Cardioid Ribbon Microphone

Altec Lansing Model 711B FM Stereo Receiver



MANUFACTURER'S SPECIFICATIONS—
(Tuner Section): IHF Usable Sensitivity: 1.9 μ V. Image Rejection: 80 dB. Frequency Response: 20 to 20,000 Hz \pm 1 dB. Capture Ratio: 2.5 dB. Separation: 35 dB.
(Amplifier Section) Power Output: 100 watts IHF total music power @ 0.5% THD (4-ohm load); 70 watts (8 ohms); 60 watts (rms) total continuous power (8 ohms). Power Bandwidth: 15 Hz to 25,000 Hz. Frequency Response: 15 to 30,000 Hz \pm 1 dB. Tone Control Range: \pm 15 dB at 20 Hz and 20,000 Hz. Damping Factor: 50. Noise Levels (IHF): Tape Head: -58 dB; Phono: -65 dB; Extra: -88 dB. Dimensions: 5³/₈" H x 16³/₈" W x 12" D. Weight: 19 lbs. Price: \$399.50.

This solid-state entry from Altec Lansing is a medium-priced complete receiver containing virtually all of the facilities needed for a home music center. For its compact size, it delivers a goodly amount of power—a common characteristic of the latest crop of solid-state integrated receivers. For those who favor a quiet, almost aristocratic subdued look, the physical appearance of the Altec 711B will have instant "shelf appeal."

The front panel, with the exception of the heavy gold framing around its

rim and is colored a very soft, matte charcoal grey, which makes the gold-screened control designations extremely legible. Approximately seven inches of frequency spread, with a tuning control that includes a ball-bearing fly-wheel arrangement, makes for one of the smoothest and easiest-to-tune dials we have encountered in some time. The upper half of the panel also contains a peak-reading tuning meter and the usual stereo FM indicator light mounted behind the dial glass.

Functionally arranged controls located at the lower portion of the panel include a five-position selector switch, a dual volume control (simultaneously controlling both channel levels), a balance control, and the usual bass and treble controls. Secondary controls, all activated by means of rocker switches, include a high-frequency filter, the tape monitor switch, a "stereo-mono" mode switch, a loudness in/out switch, speaker switches for "main" and "remote" speaker installations, and the power on/off switch. A stereo headphone jack completes the layout of the front panel, which may be seen in Fig. 1.

The rear connection panel, shown in Fig. 2, offers very widely spaced screw terminals for connection of main and remote sets of speakers, FM antenna screw terminals (for both "local" and "distant" reception), input pairs of jacks for tape head, phono, "extra," and tape monitor and output jacks for recorder output and a center channel, the latter intended to feed a separate monophonic amplifier, not a center-channel speaker directly. One final feature at the rear of this receiver is a little slide switch called "amp gain-lo/hi." This feature is extremely useful in light of the great range of speaker

efficiencies which exist among popular speaker systems. The "amp gain" switch provides two settings of amplifier *gain* not total power capability, which is the same for either setting). Thus the user who has highly efficient speakers need not limit himself to just "cracking open" the volume control before he is drowned in loud sound. He would set the switch to the "lo" position.

Circuitry

Circuitry layout, viewed from under the set, can also be seen in Fig. 3. The totally shielded "front end" employs one FET as a first r.f. amplifier, followed by a second bi-polar device used as an *additional* r.f. amplifier, and separate transistors for local oscillator and mixer. Thus, the front end has *four* tuned circuits, rather unusual for a unit in this price class. With this fine front end, which could not be overloaded under any signal conditions, we wonder why Altec bothered to include the "local"-*"distant"* terminal arrangement?

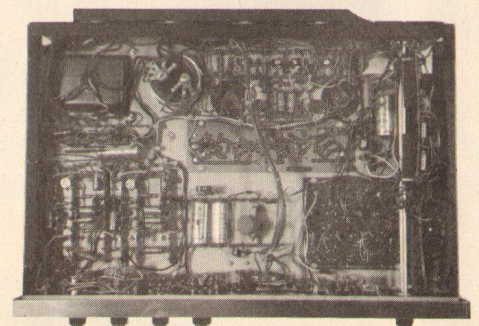
The i.f. circuit module contains two RCA CA-3012 integrated circuits, a balanced ratio detector and a meter-amplifier transistor.

The multiplex demodulator circuit board is of fairly conventional design, containing four active transistors, plus one for indicator light activation, as well as for a balanced-diode-bridge demodulator. Encapsulated bridged-T filters eliminate much of the residual 38 kHz and its harmonics at the output of this module.

Fig. 2—Rear panel connections of the 711B.



Fig. 3—View of the inside, showing combination of circuit board and direct-wiring layout.



Performance

Measured performance agreed very closely with published specifications. IHF FM usable sensitivity measured $2.3 \mu\text{V}$, well within manufacturing tolerances to be expected. Maximum quieting was a very respectable 70 dB, as shown in the curves of Fig. 4. Measured separation of our sample fell somewhat short of the specified 35 dB at 1 kHz by a few decibels, but it was certainly more than adequate at this frequency. Separation at the high end of the spectrum, however, fell off a bit too rapidly to below 20 dB at 10 kHz.

The FM tuning meter is of the peak-reading type, common to many receivers. As mentioned here in the past, this makes it slightly more difficult to tune to center of channel compared with the center-reading types. The meter circuit is not designed to operate truly as a signal-strength indicator of received stations as some peak-reading types are.

As for amplifier measurements, just about every one was better than the published specifications. The 0.5% total-harmonic-distortion (THD) figure was reached at 34 watts per channel with 8-ohm load) against the 30 watts claimed by the manufacturer. A curve of THD is shown in Fig. 5, along with IM distortion, which reaches 2.2% at 36 watts per channel.

Tone-control action is plotted in Fig. 6, along with that of the high-frequency filter. Note that this filter has only a 6-dB-per-octave slope, and really does no more than counter-clockwise rotation of the treble control. Loudness compensation, when switched into the circuit, produces bass boost of +5 dB at 50 Hz at one-half rotation of the volume control and +11 dB at 50 Hz for one-quarter volume control setting. Power bandwidth is shown in Fig. 7, while Fig. 8 illustrates square-wave response at 100 Hz and 10 kHz.

Listening to FM and FM stereo on the Altec 711B, we were able to pick up 35 clear FM stations with just a simple dipole antenna. Just to see if

Fig. 4 - FM quieting characteristics of the 711B.

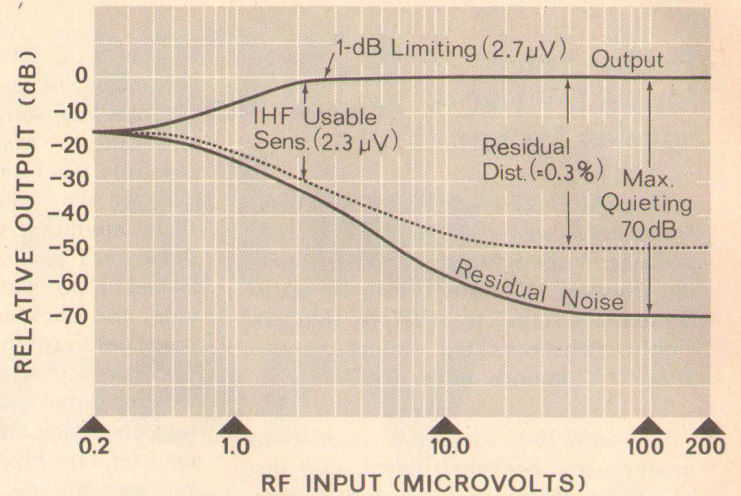
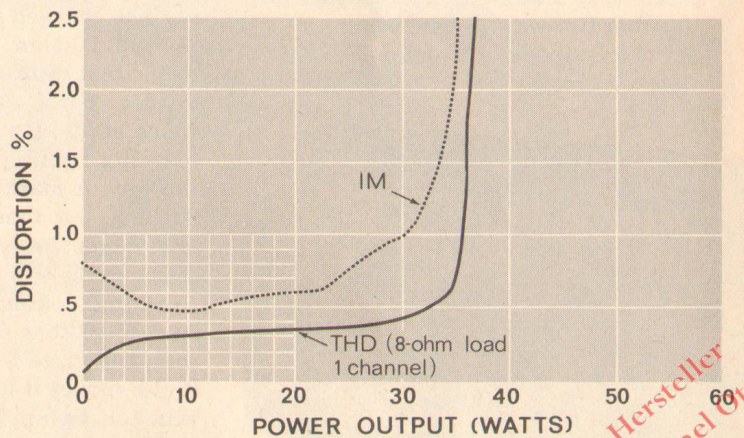


Fig. 5-THD and IM curves with both channels driven.



the local-distant antenna connections meant much, we then connected our antenna to the "local" terminals, only to find that we still picked up the same 35 stations. In fact, one station (a local) exhibited minor interference from an even stronger local adjacent station when the antenna was connected to the distant terminals. This cleared up considerably using the "local" terminals, but aside from this single phenomenon, all other stations seemed about the same regardless of antenna connection.

Of the stations received, eleven were broadcasting in FM stereo. All of these "gated" the circuits into the stereo mode with no popping or noise of any kind, and no erratic illumination of the stereo indicator lamp was noted at any

point on the dial. Operating the receiver with the muting circuits "in" reduced the number of received stations to 31. A few of these were marginal in that high orders of distortion were noted, until the muting switch was turned back to the "off" position.

The sound we heard (using fairly inefficient speaker systems) was full bodied and very pleasing. Settings of about 11 o'clock produced room-filling sound, and as we "pushed harder" there was no evidence of break-up. At a suggested retail price of \$399.50, the Altec 711B has come up with a design that does not scrimp on latest circuit components or quality of parts used, combining this with attractive appearance.

Check No. 40 on Reader Service Card

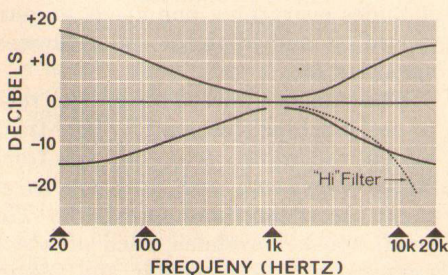


Fig. 6 - (left). Tone-control range. Dotted line shows effect of "Hi" filter.

Fig. 7 - (right). Power bandwidth curve.

Fig. 8 - (far right). Square-wave response - upper, 100 Hz; lower, 10 kHz.

