Sony Stereo Preamplifier, Model TA-2000

MANUFACTURER'S SPECIFICATIONS—Input Sensitivities—Tape Head, Phono 1, Phono 2 (Normal): 1.2 mV max. (adjustable. Phono 2 (low): 0.06 mV max. (adjustable). Tuner, Aux-1, Aux-2, Tape in, Rec/PB: 120 mV (all adjustable) max. Microphone: 1.2 mV. Max. Low-Level Inputs: 100 mV. Rated Output Levels—Rec. Out: 120 mV into 1.5k ohms, max. 10 V. Preamp Out, Line Out: Choice, 0.3 V or 1 V., 10K ohms (max. 2.5 V). Center Channel Out: Choice, 0.45 V or 1.5 V, 7.5K ohms (max. 5 V). Headphone Out: 3 V, 1.5K ohms (max. 10 V). REC/PB (Output): 120 mV, 80k ohms (max. 1 V). Harmonic Distortion, 1 kHz @ rated output—High-Level Inputs: Under 0.03%. Low-Level Inputs: Under 0.05%. IM Distortion @ rated output—High-Level Sources: Under 0.05%. Low-Level Inputs: Under 0.07%. Frequency Response — Tuner, Aux-1, Aux-2, Tape In: 20 Hz to 100 kHz +0, —2 dB. Phono 1, Phono 2: RIAA within ±0.5 dB. Tape Head: NAB within ±0.5 dB (adjustable). Microphone: 20 Hz to 30 kHz, +0, —2 dB. Signal-to-Noise Ratios—High Level Inputs, 200 mV applied: 90 dB. Phonos 1 & 2, 3 mV applied: 70 dB. Phono 2, low (0.1 mV applied): 50 dB. Tape Head, 1.5 mV applied: 65 dB. Microphone, 1.5 mV applied: 65 dB. Tone Control Ranges—Bass (in 2-dB steps, total of 11 steps): ±10 dB @ 100 Hz. Treble (in 2-dB steps, total 11 steps): ±10 dB @ 10 kHz. Filter Actions—High Filter: 12 dB/octave cut above 9 kHz. Low Filter: 12 dB/octave cut below 50 Hz. General — A.C. Convenience Outlets: 3 switched, 1 unswitched. Dimensions: 15¾ in. W x 5½ in. H x 12⅜ in. D. Weight: 19 lbs. 4 oz. Accessories supplied: 6 shorting plugs, 4 pin plugs, 4 patch cords. Price: $329.50.

Not intended for "mass consumption" by any means, the Sony Stereo Preamplifier, Model TA-2000 Preamplifier Control Chassis, at a suggested list price of $329.00, is "professional" in both appearance and performance. For old audiophiles such as ourselves it is nice to know that there is now a growing choice of such solid-state chassis on the market again. You may be sure that there will always be room for such preamp-control units, for there will always be those who insist upon the utmost in control flexibility, together with being able to choose from among the better separate power amplifiers (often hidden from sight), separate tuners, and other components. Judging by this design, it is sure to find its way into many a modestly equipped recording studio as well, for it deserves to be classed with professional studio equipment.

The front panel, shown in Fig. 1, is made of the same heavy, gold-anodized aluminum as the Sony receiver reviewed in the preceding Profile. But whereas the receiver has hidden controls, to give it a simple look, the TA-2000 is resplendent with all sorts of wonderful knobs, levers, jacks, and meters. Somehow, though, they all seem to "belong" on this panel; about five minutes of instruction-book scanning serves to explain them all.

In brief, there's a smooth-acting master volume control at the left, followed by left- and right-channel illuminated VU meters. These meters, by the way, have two sensitivity ranges, selected by means of a push-push switch. In the test position, 0 VU corresponds to "rated output" (either 0.3 or 1.0 volts, depending upon the sensitivity of your power amplifiers). In the normal position, an extra 14 dB of sensitivity is imparted to the meter movements, so that they are more responsive during actual use, which usually involves levels well below rated output. Step-type switch tone controls come next, and each step is worth 2 dB (at 100 Hz for the bass control and at 10 kHz for the treble control), for a maximum range of precisely ±10 dB. The mode switch permits listening to the left speaker or right speaker only, stereo and reverse (remember when all equipment had a "stereo reverse" position?), L + R mono and left or right channels to both speakers. At the upper right of the panel is a function-switch arrangement consisting of a three-position lever switch *plus* a five-position rotary switch. The design philosophy is again similar to that employed in the Sony 6060 receiver. The lever switch "up" and "down" positions select the most popular program sources—phono and tuner, while the mid-position swings selection over to the rotary switch for such less-often-used sources as Mic, Tape Head, Phono 2, Aux 1 and Aux 2.

The lower section of the panel includes a separate lever for power on/off, a "line" output jack (for connection to tape recorders without having to get at the back of the instrument), a stereo headphone jack with a very welcome headphone level control, lever switches for actuating low- and high-frequency cut-off filters (having a meaningful 12 dB/octave slope starting at 50 Hz and 9 kHz, respectively) flanking a center lever switch that cancels or bypasses the stepped tone control switches completely (for the real purist who wants everything absolutely FLAT). Aux 2 inputs are in the form of a front panel jack, making it easy to dub recordings from your friend's tape recorder, again without having to get around to the back of the set. Left and right microphone inputs are also located on the front panel for the same ease of accessibility. Finally, at the lower right, another lever switches the circuit in and out for tape monitoring.

The rear panel, in addition to the necessary input and output jacks, features individual input level adjustment controls for every single input jack pair, plus an output level switch for choosing 0.3 volts or 1.0 volt out, depending upon power amplifier sensitivity. The phono 2 input has a slide switch associated with it which offers a choice of input sensitivity. In the "low" position, it will accept any of the extremely low-output cartridges which would otherwise require a step-up transformer or pre-preamp. A mixed center channel output jack, together with its own output level control, a recorder jack designed to fit standard imported recorders and *four* (count

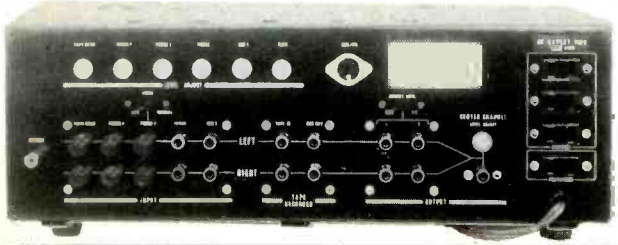

Fig. 2 — Back-panel layout of TA-2000 preamplifier.

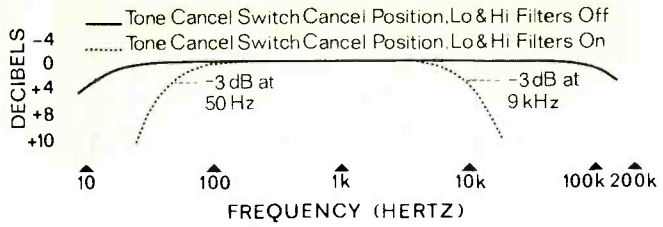

Fig. 3 – Frequency response with and without LOW and HIGH filters in the circuit.

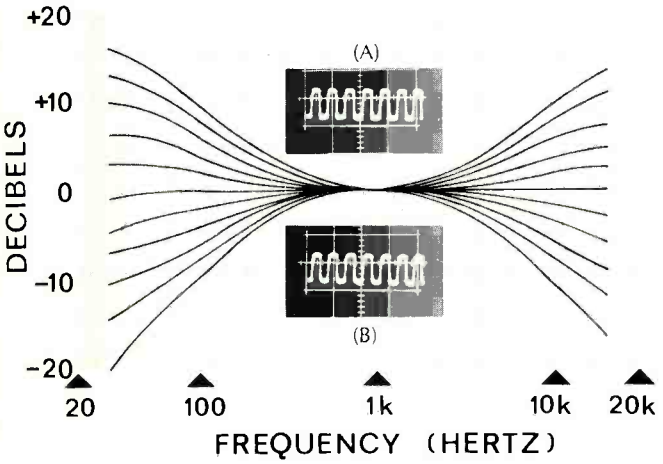

Fig. 4 – Step-type bass and treble controls provide precise curves. Center curve is "flat" setting, with tone controls active. Trace (A) shows 10-kHz square-wave response with tone controls bypassed. Trace (B) shows results with tone control "in-circuit." In flat position, some evidence of "rounding off" at waveform top is seen, though even with this setting uniform response was obtained up to 60 kHz.

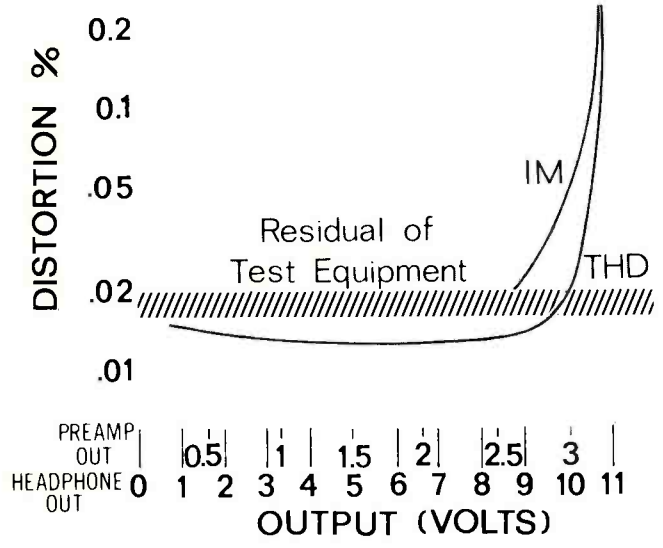

Fig. 5 – Distortion curves are shown, using manufacturer's drawings (see text).

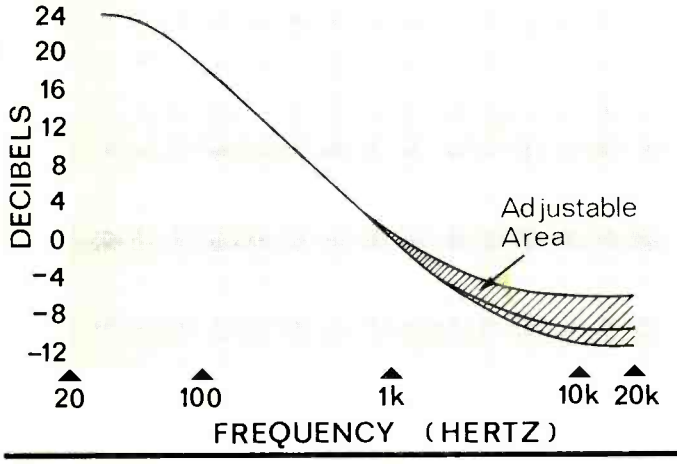

Fig. 6 – Tape-head equalization can be adjusted to compensate for different playback tape equipment.

'em) a.c. convenience outlets (one unswitched) complete the back panel layout. (See Fig. 2.)

We plotted frequency response (Fig. 3) and tone-control range (Fig. 4) for this fine unit, as well as the low- and high-frequency filter action (Fig. 3). We must admit, however, that when we tried to measure distortion at normal operating levels (both THD and IM), it was too low for our test equipment. Accordingly, we present these measurements as published by the manufacturer in their comprehensive instruction manual, as shown in Fig. 5.

We measured phono equalization, too, and found it was so precise that reproducing the curve would mean simply re-publishing the standard RIAA curve itself. When we first tried to repeat the procedure for tape-head equalization, however, we found the high end to be off by 2 dB—but that was before we discovered that the preamp has adjustable tape equalization to suit the needs of tape playback units that don't quite conform to NAB standards. Figure 6, then, shows the results obtained at the extremes of this adjustment (located under the chassis), as well as the standard NAB response curve.

What superlatives can be applied to the dynamic performance of this unit that haven't been used before? For one thing, the residual noise is so low that even magnetic cartridges are afforded a dynamic range of over 80 dB, referenced to 5 millivolts of input. High-level inputs are good for 90 dB of signal to noise (assuming the source is that good). This is about the limit of most good power amplifiers—where it's a lot easier to do. The frequency-response measurements were deliberately taken with the tone controls in the circuit (set to the "flat" step position, of course), and the response was excellent. Yet, when we took photos of 10-kHz square-wave response we found that the wave was "squarer" with the tone controls "cancelled out" than when the tone controls were active (Fig. 4), indicating that the tone controls, even when set flat, do alter this response (possibly because of some phase shifting), justifying even this last frill engineered by Sony.

Frankly, we're all for integrated receivers — they've brought stereo hi-fi components to the point of "almost mass acceptance." But when we encounter a unit such as the Sony TA-2000, we long for the old, "original approach"—even at $329.95!