in" the weakest stations while preserving a smooth and quiet tuning operation.

Excellent stereo separation is maintained under all receiving conditions.

Caution

The ST-5000 FW is a precision instrument. It should be serviced only by qualified service personnel trained in the service of high-quality instruments of this type.

Circuit Description

The following describes the functions of all stages and controls. The description follows the signal path and lists stages by the transistor symbol number at the left margin. Refer to the block diagram on page 9 and the schematic diagram on page 25~28.

Front-end Section

Stage/Control	Function
Balun B 101	This transformer matches either 75-ohm coaxial cable or 300-ohm twin lead to the tuner's input stage.
RF Amplifier X 101, X 103	The two RF amplifiers are designed to provide stable amplification, sharp selectivity at FM broadcast frequencies, and optimum noise figure. Field-effect transistors are ideally suited for this job as they have characteristics similar to that of triodes, and in addition have wide dynamic range. This results in very low cross-modulation products. The RF stages employ common-gate circuits (similar to grounded-grid circuits). Double-tuned coupling is employed between X 101 and X 103 to provide sharp selectivity, and the windings of L 101 and L 103 are tapped-down to match the low input impedance of the common-gate stage.
Local Oscillator X 106	This stage supplies injection signals to the mixers via L 105 and C 116. The circuit is a Hartley type with feedback applied to the source from the tap on L 106. Temperature charges have little effect on oscillator tuning in FET circuits so that this oscillator is extremely stable.
Mixer X 105	RF signals and local-oscillator signals are heterodyned in the gate-source junction of X 105 to produce the 10.7 MHz output. IFT 101 is a tuned transformer to develop the IF output and provide sharp selectivity. A low impedance output winding supplies link coupling to the IF section.

IF Amplifier Circuit Board

Stage/Control	Function
IF Amplifiers X 201, 202, 203, 204	These IF stages are basically RC coupled amplifiers that provide essentially flat response.
Solid-State Filters MF-1, 2, 3	The selectivity of this section is determined by three solid-state filters in the interstage coupling paths. These filters each have four-section ceramic filters that operate in "trapped-energy" modes. The filters provide extremely sharp skirt selectivity and flat response inside the pass band. These filters determine over-all selectivity in the tuner.
Diode Limiters D 201, 202, 203, 204, 205, 206, 301, 302, 303, 304	Limiting is accomplished by diode pairs, connected in parallel and poled in opposite directions. The diodes conduct when the input signal exceeds the barrier potential of about 0.6 volts. Thus, signal is limited in both directions to 1.2 volts peak-to-peak. The diodes provide symmetrical limiting.
IF Amplifier X 205, 206	The diode limiters are passive, and introduce loss. Therefore amplifiers, such as X 205 supply the interstage gain needed to drive the limiters.
Muting-Circuit Detector X207, D208, 209	The IF signal is extracted from the collector of X 205 to drive the Muting Circuit Detector. X 207 acts as a buffer amplifier to drive the voltage doubler D 208, D 209. The output of this circuit is a positive DC voltage proportional to carrier