

Circuit:	12 Transistor Superhetrodyne
Frequency Coverage:	FM 87 ~ 108 Mc (3.45 ~ 2.77 m) AM 530 ~ 1,605 Kc (556 ~ 187 m)
Antenna System:	FM Built-in Telescopic Antenna AM Built-in Ferrite Bar Antenna
Intermediate Frequency:	FM 10.7 Mc

Maximum Sensitivity : FM 1 μ V
(at 50mW output)
Selectivity : AM 40 μ V/m
23 dB at 10 Kc off resonance, at 1,400 Kc

Power Output : 550 mW (undistorted)
900 mW (maximum)

Speaker : 4" (10 cm) PM Dynamic, 8 Ω
22 mA (FM), 14 mA (AM) at zero signal,
235 mA at 550 mW output

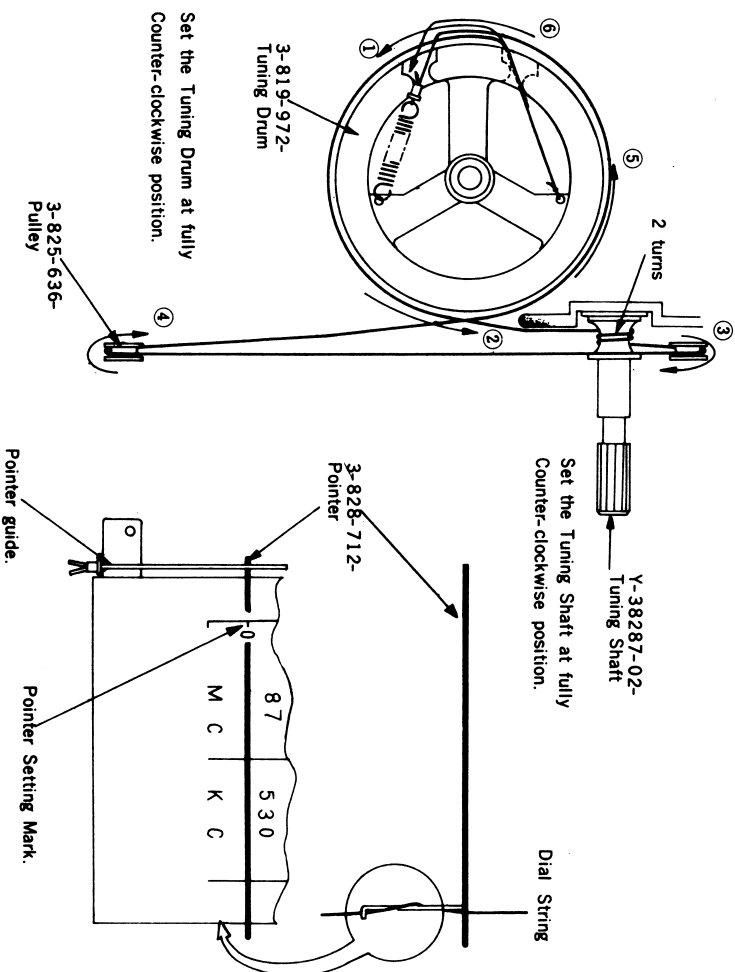
Power Source : Three "D" size Flashlight Batteries,
4.5 V in total or House Current by using
SONY AC Power Adaptor (AC-81 W)

Dimensions : 11 $\frac{1}{4}$ "(W) $\times$ 7 $\frac{1}{4}$ "(H) $\times$ 2 $\frac{1}{2}$ "(D)
(290 $\times$ 187 $\times$ 61.5 mm)

Weight : 2 lbs., 10 oz. (1.2 Kgs) with Batteries

The diagram illustrates a 100% AM radio receiver circuit, divided into several functional blocks:

- TEL. ANT:** The external antenna input.
- IS1 B06:** A variable capacitor used for tuning.
- FM RF:** The first FM stage, consisting of a Q101 (2SC629) and a Q102 (2SK-23).
- FM Conv:** A variable capacitor for conversion.
- FM IF1:** The first FM intermediate frequency stage, consisting of a Q103 (2SC403A) and a Q104 (2SC403A).
- FM IF2:** The second FM intermediate frequency stage, consisting of a Q105 (2SC403A) and a Q106 (2SC403A).
- FM Tuner Block (FMC - 127W1):** A variable capacitor for fine-tuning.
- FM Limiter:** A circuit containing two stages (Q101, Q102) and a variable capacitor (D101) to limit the signal.
- FM IF3:** The third FM intermediate frequency stage, consisting of a Q103 (2SC403A) and a Q104 (2SC403A).
- FM IF4:** The fourth FM intermediate frequency stage, consisting of a Q105 (2SC403A) and a Q106 (2SC403A).
- FM IF5:** The fifth FM intermediate frequency stage, consisting of a Q107 (2SC403A) and a Q108 (2SC403A).
- FM IF6:** The sixth FM intermediate frequency stage, consisting of a Q109 (2SC403A) and a Q110 (2SC403A).
- Ratio Det:** A ratio detector circuit (Q111, Q112) that provides feedback and demodulation.
- FM AGC:** An automatic gain control circuit (Q113, Q114) to maintain consistent volume.
- FM AGC Det:** A detector for the AGC signal (Q115, Q116).
- FM AGC:** A second automatic gain control circuit (Q117, Q118) to maintain consistent volume.
- FM AGC Det:** A second detector for the AGC signal (Q119, Q120).
- FM AGC:** A third automatic gain control circuit (Q121, Q122) to maintain consistent volume.
- FM AGC Det:** A third detector for the AGC signal (Q123, Q124).
- FM AGC:** A fourth automatic gain control circuit (Q125, Q126) to maintain consistent volume.
- FM AGC Det:** A fourth detector for the AGC signal (Q127, Q128).
- FM AGC:** A fifth automatic gain control circuit (Q129, Q130) to maintain consistent volume.
- FM AGC Det:** A fifth detector for the AGC signal (Q131, Q132).
- FM AGC:** A sixth automatic gain control circuit (Q133, Q134) to maintain consistent volume.
- FM AGC Det:** A sixth detector for the AGC signal (Q135, Q136).
- FM AGC:** A seventh automatic gain control circuit (Q137, Q138) to maintain consistent volume.
- FM AGC Det:** A seventh detector for the AGC signal (Q139, Q140).
- FM AGC:** An eighth automatic gain control circuit (Q141, Q142) to maintain consistent volume.
- FM AGC Det:** An eighth detector for the AGC signal (Q143, Q144).
- FM AGC:** A ninth automatic gain control circuit (Q145, Q146) to maintain consistent volume.
- FM AGC Det:** A ninth detector for the AGC signal (Q147, Q148).
- FM AGC:** A tenth automatic gain control circuit (Q149, Q150) to maintain consistent volume.
- FM AGC Det:** A tenth detector for the AGC signal (Q151, Q152).
- FM AGC:** An eleventh automatic gain control circuit (Q153, Q154) to maintain consistent volume.
- FM AGC Det:** An eleventh detector for the AGC signal (Q155, Q156).
- FM AGC:** A twelfth automatic gain control circuit (Q157, Q158) to maintain consistent volume.
- FM AGC Det:** A twelfth detector for the AGC signal (Q159, Q160).
- FM AGC:** A thirteenth automatic gain control circuit (Q161, Q162) to maintain consistent volume.
- FM AGC Det:** A thirteenth detector for the AGC signal (Q163, Q164).
- FM AGC:** A fourteenth automatic gain control circuit (Q165, Q166) to maintain consistent volume.
- FM AGC Det:** A fourteenth detector for the AGC signal (Q167, Q168).
- FM AGC:** A fifteenth automatic gain control circuit (Q169, Q170) to maintain consistent volume.
- FM AGC Det:** A fifteenth detector for the AGC signal (Q171, Q172).
- FM AGC:** A sixteenth automatic gain control circuit (Q173, Q174) to maintain consistent volume.
- FM AGC Det:** A sixteenth detector for the AGC signal (Q175, Q176).
- FM AGC:** A seventeenth automatic gain control circuit (Q177, Q178) to maintain consistent volume.
- FM AGC Det:** A seventeenth detector for the AGC signal (Q179, Q180).
- FM AGC:** An eighteenth automatic gain control circuit (Q181, Q182) to maintain consistent volume.
- FM AGC Det:** An eighteenth detector for the AGC signal (Q183, Q184).
- FM AGC:** A nineteenth automatic gain control circuit (Q185, Q186) to maintain consistent volume.
- FM AGC Det:** A nineteenth detector for the AGC signal (Q187, Q188).
- FM AGC:** A twentieth automatic gain control circuit (Q189, Q190) to maintain consistent volume.
- FM AGC Det:** A twentieth detector for the AGC signal (Q191, Q192).
- FM AGC:** A twenty-first automatic gain control circuit (Q193, Q194) to maintain consistent volume.
- FM AGC Det:** A twenty-first detector for the AGC signal (Q195, Q196).
- FM AGC:** A twenty-second automatic gain control circuit (Q197, Q198) to maintain consistent volume.
- FM AGC Det:** A twenty-second detector for the AGC signal (Q199, Q200).
- FM AGC:** A twenty-third automatic gain control circuit (Q201, Q202) to maintain consistent volume.
- FM AGC Det:** A twenty-third detector for the AGC signal (Q203, Q204).
- FM AGC:** A twenty-fourth automatic gain control circuit (Q205, Q206) to maintain consistent volume.
- FM AGC Det:** A twenty-fourth detector for the AGC signal (Q207, Q208).
- FM AGC:** A twenty-fifth automatic gain control circuit (Q209, Q210) to maintain consistent volume.
- FM AGC Det:** A twenty-fifth detector for the AGC signal (Q211, Q212).
- FM AGC:** A twenty-sixth automatic gain control circuit (Q213, Q214) to maintain consistent volume.
- FM AGC Det:** A twenty-sixth detector for the AGC signal (Q215, Q216).
- FM AGC:** A twenty-seventh automatic gain control circuit (Q217, Q218) to maintain consistent volume.
- FM AGC Det:** A twenty-seventh detector for the AGC signal (Q219, Q220).
- FM AGC:** A twenty-eighth automatic gain control circuit (Q221, Q222) to maintain consistent volume.
- FM AGC Det:** A twenty-eighth detector for the AGC signal (Q223, Q224).
- FM AGC:** A twenty-ninth automatic gain control circuit (Q225, Q226) to maintain consistent volume.
- FM AGC Det:** A twenty-ninth detector for the AGC signal (Q227, Q228).
- FM AGC:** A thirtieth automatic gain control circuit (Q229, Q230) to maintain consistent volume.
- FM AGC Det:** A thirtieth detector for the AGC signal (Q231, Q232).
- FM AGC:** A thirty-first automatic gain control circuit (Q233, Q234) to maintain consistent volume.
- FM AGC Det:** A thirty-first detector for the AGC signal (Q235, Q236).
- FM AGC:** A thirty-second automatic gain control circuit (Q237, Q238) to maintain consistent volume.
- FM AGC Det:** A thirty-second detector for the AGC signal (Q239, Q240).
- FM AGC:** A thirty-third automatic gain control circuit (Q241, Q242) to maintain consistent volume.
- FM AGC Det:** A thirty-third detector for the AGC signal (Q243, Q244).
- FM AGC:** A thirty-fourth automatic gain control circuit (Q245, Q246) to maintain consistent volume.
- FM AGC Det:** A thirty-fourth detector for the AGC signal (Q247, Q248).
- FM AGC:** A thirty-fifth automatic gain control circuit (Q249, Q250) to maintain consistent volume.
- FM AGC Det:** A thirty-fifth detector for the AGC signal (Q251, Q252).
- FM AGC:** A thirty-sixth automatic gain control circuit (Q253, Q254) to maintain consistent volume.
- FM AGC Det:** A thirty-sixth detector for the AGC signal (Q255, Q256).
- FM AGC:** A thirty-seventh automatic gain control circuit (Q257, Q258) to maintain consistent volume.
- FM AGC Det:** A thirty-seventh detector for the AGC signal (Q259, Q260).
- FM AGC:** A thirty-eighth automatic gain control circuit (Q261, Q262) to maintain consistent volume.
- FM AGC Det:** A thirty-eighth detector for the AGC signal (Q263, Q264).
- FM AGC:** A thirty-ninth automatic gain control circuit (Q265, Q266) to maintain consistent volume.
- FM AGC Det:** A thirty-ninth detector for the AGC signal (Q267, Q268).
- FM AGC:** A fortieth automatic gain control circuit (Q269, Q270) to maintain consistent volume.
- FM AGC Det:** A fortieth detector for the AGC signal (Q271, Q272).
- FM AGC:** A forty-first automatic gain control circuit (Q273, Q274) to maintain consistent volume.
- FM AGC Det:** A forty-first detector for the AGC signal (Q275, Q276).
- FM AGC:** A forty-second automatic gain control circuit (Q277, Q278) to maintain consistent volume.
- FM AGC Det:** A forty-second detector for the AGC signal (Q279, Q280).
- FM AGC:** A forty-third automatic gain control circuit (Q281, Q282) to maintain consistent volume.
- FM AGC Det:** A forty-third detector for the AGC signal (Q283, Q284).
- FM AGC:** A forty-fourth automatic gain control circuit (Q285, Q286) to maintain consistent volume.
- FM AGC Det:** A forty-fourth detector for the AGC signal (Q287, Q288).
- FM AGC:** A forty-fifth automatic gain control circuit (Q289, Q290) to maintain consistent volume.
- FM AGC Det:** A forty-fifth detector for the AGC signal (Q291, Q292).
- FM AGC:** A forty-sixth automatic gain control circuit (Q293, Q294) to maintain consistent volume.
- FM AGC Det:** A forty-sixth detector for the AGC signal (Q295, Q296).
- FM AGC:** A forty-seventh automatic gain control circuit (Q297, Q298) to maintain consistent volume.
- FM AGC Det:** A forty-seventh detector for the AGC signal (Q299, Q300).
- FM AGC:** A forty-eighth automatic gain control circuit (Q301, Q302) to maintain consistent volume.
- FM AGC Det:** A forty-eighth detector for the AGC signal (Q303, Q304).
- FM AGC:** A forty-ninth automatic gain control circuit (Q305, Q306) to maintain consistent volume.
- FM AGC Det:** A forty-ninth detector for the AGC signal (Q307, Q308).
- FM AGC:** A fiftieth automatic gain control circuit (Q309, Q310) to maintain consistent volume.
- FM AGC Det:** A fiftieth detector for the AGC signal (Q311, Q312).
- FM AGC:** A fifty-first automatic gain control circuit (Q313, Q



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7F-81W 7F-81W

Schematic Diagram

Q101 2SC629

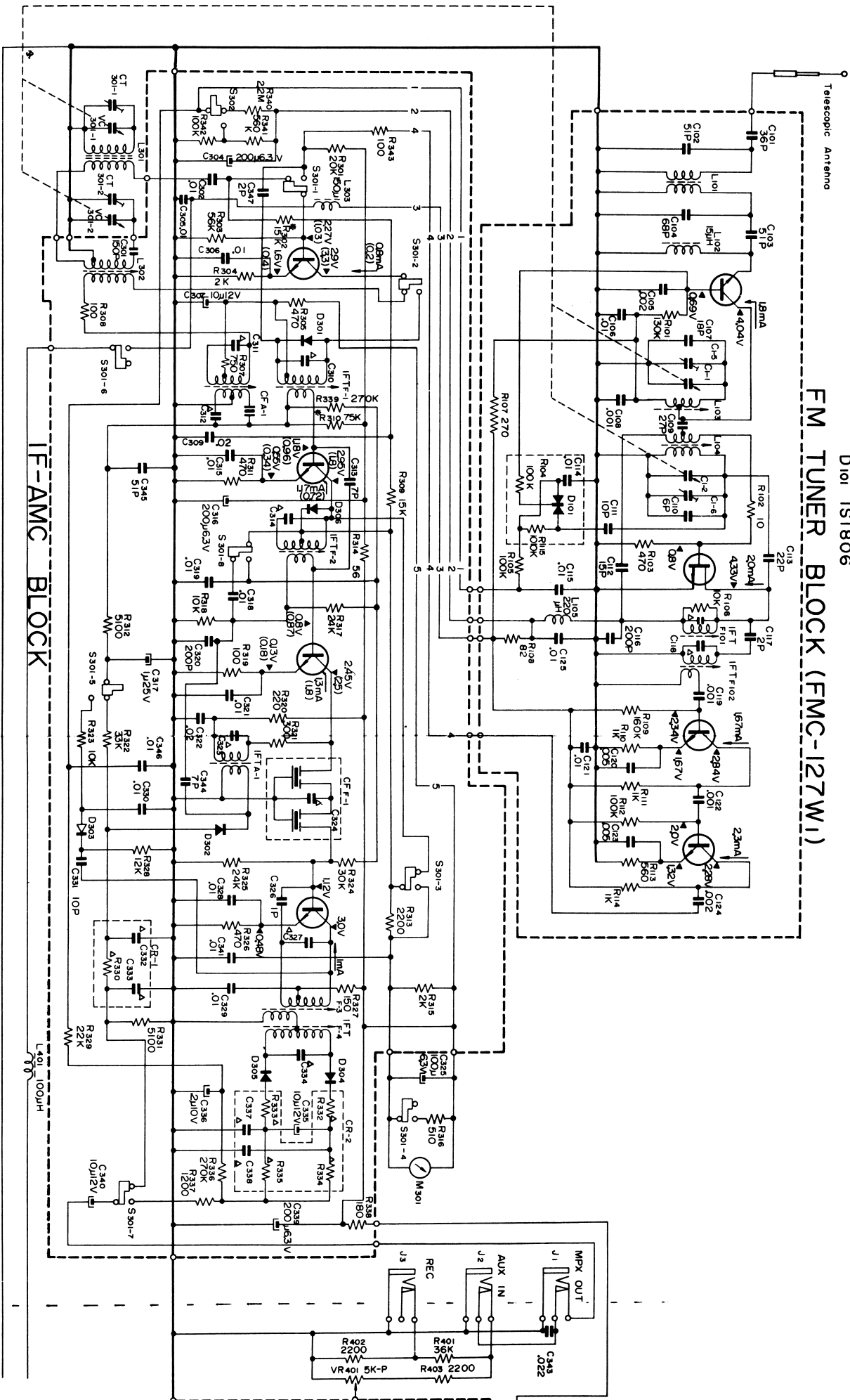
Q102 2SK23

Q103 2SC403A

Q104 2SC403A

D101 1S1806

FM TUNER BLOCK (FMC-127W1)



IF-AMC BLOCK

Q301 2SC403A

D301 1T26

Q302 2SC403A

D306 1T26

Q303 2SC403A

D302 1T23G

Q304 2SC403A

D303 1T240

D304,305 1T26

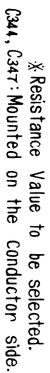
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FM Tuner Section

Conductor Side

IF—AMC Section

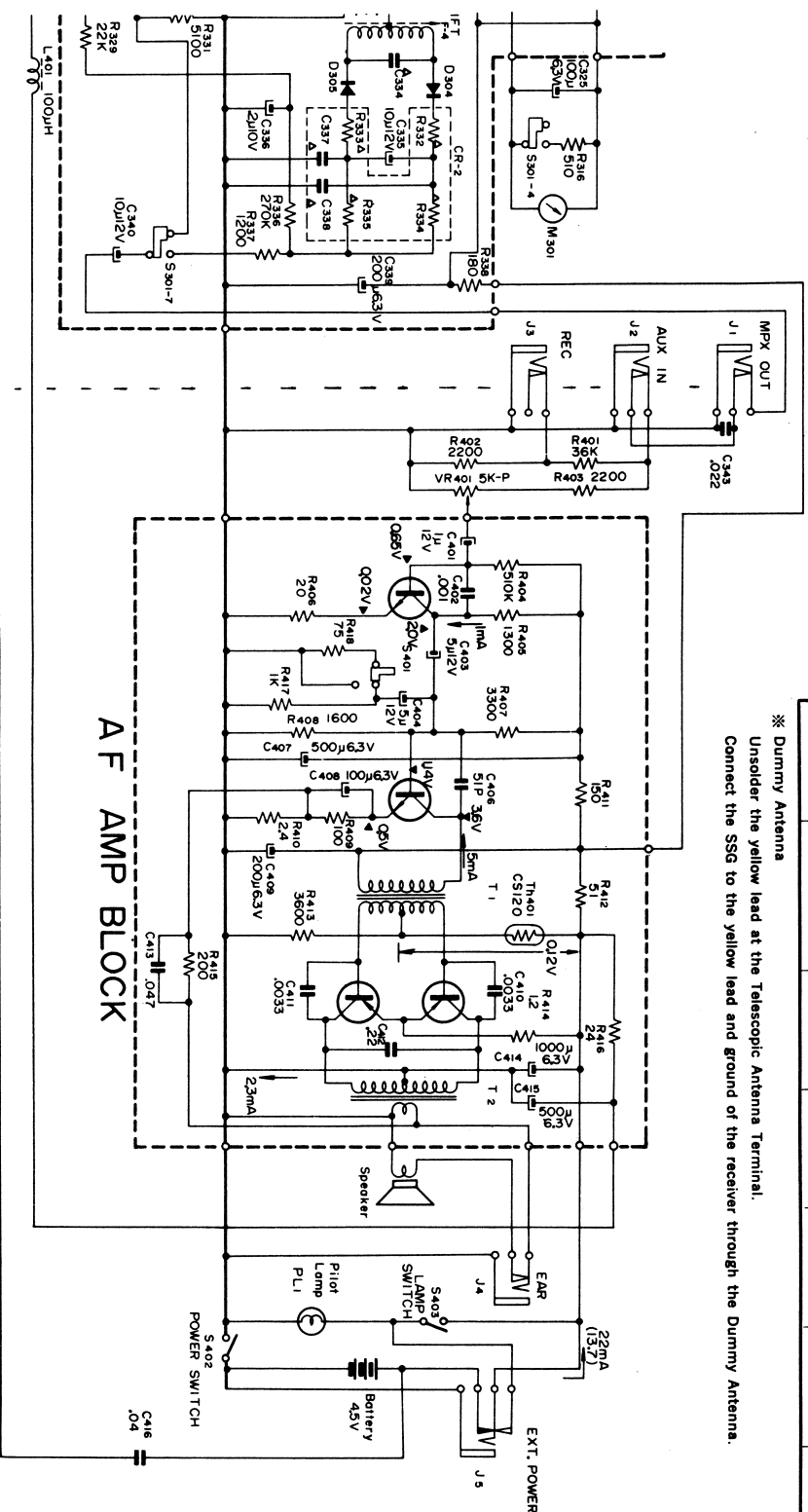
Conductor Side



Adj. Item	S.S.B. (Standard Signal Generator) Coupling	S.S.B. Freq.	Receiver Dial Setting	Connect V.I.V.M.	Adjust	Remarks
FM Freq. Coverage	$\frac{R}{R + R_{S.S.B.}}$ *Dummy Antenna $R = 100 - R_{S.S.B.}$ where R: Output Impedance of SSG.	86 Mc (400 c/s ±22.5Kc FM)	Fully Downward	To Earphone jack with 8Ω Load Resistor in parallel.	FM OSC Coil (L _{osc}) FM RF Trimmer (C ₁₋₂)	Adjust for maximum Meter reading. Volume Control: Max. Tone Control: Speech Power Supply: DC 4.5V AFC: OFF
FM Tracking	— ditto —	86 Mc (109.5 Mc)	Tune to 86 Mc Signal Tune to 109.5 Mc Signal	— ditto —	FM RF Coil (L _{RF}) FM RF Trimmer (C ₁₋₂)	— ditto —
AM Freq. Coverage	Loop Antenna	520 Kc (1000 c/s, 30% AM) 1,680 Kc	Fully Downward Fully Upward	— ditto —	AM OSC Coil (L _{osc}) AM OSC Trimmer (C ₁₋₂) AM ANT Coil (L _{ant}) AM ANT Trimmer (C ₁₋₂)	— ditto —
AM Tracking	— ditto —	620 Kc (1,400 Kc)	Tune to 620 Kc Signal Tune to 1,400 Kc Signal	— ditto —	AM ANT Coil (L _{ant}) AM ANT Trimmer (C ₁₋₂)	— ditto —

NOTE

1. Position of the Band Setting Switch shows AM side.
2. Δ: Built in IFT, CR-1, CR-2 and CF (Encapsulated Component)
3. ✱: Resistance Value to be selected.
4. Value in the Parentheses are for (AM).
5. M: TUNING METER.
6. S301-1 ~ S301-8: Band Setting (AM-FM)
7. S302: AFC Switch. (ON)
8. S401: Tone Switch. (MUSIC)



* Dummy Antenna
Unsolder the yellow lead at the Telescopic Antenna Terminal.
Connect the SSG to the yellow lead and ground of the receiver through the Dummy Antenna.

AF AMP BLOCK