

# STEREO / FM-AM RECEIVER

# STR-7035

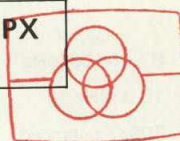
AEP Model  
UK Model

No. 1  
September, 1977

## SUPPLEMENT

File this supplement with the service manual.

Subject: FM (AM) Front-end/IF Amp/MPX  
Circuit Board Change



Free service manuals  
Gratis schema's

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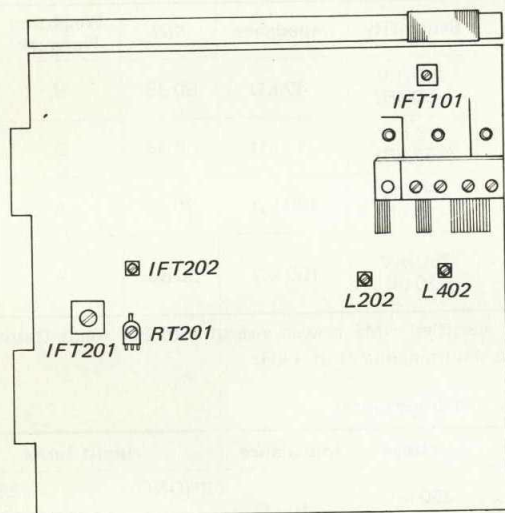
[www.freeservicemanuals.info](http://www.freeservicemanuals.info)

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### IDENTIFICATION OF SET

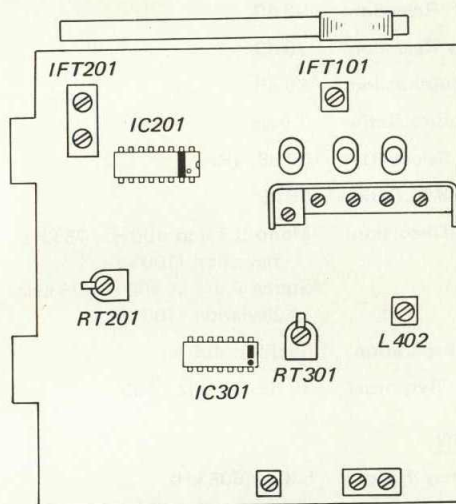
— FM (AM) Front-end/IF Amp/MPX Circuit Board —

Former model



Using transistors in the discriminator and MPX decoder circuit.

New model



Using ICs in the discriminator and MPX decoder circuit.

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

# SONY<sup>®</sup>

## SERVICE MANUAL

**SPECIFICATIONS**

**GENERAL**

**Power Requirements:** 110, 127, 220, 240V ac, 50/60 Hz  
**Power Consumption:** 140W (UK model)  
 230W (AEP model)  
**Dimensions:** 427 (w) x 149 (h) x 345 (d) mm  
 16 7/8 (w) x 5 7/8 (h) x 13 5/8 (d) inches  
 including projecting parts and controls  
**Weight:** Approx. 8.6 kg, 18 lb 15 oz (net)  
 Approx. 11.1 kg, 24 lb 8 oz  
 (with shipping carton)

**FM SECTION**

**Frequency Range:** 87.5–108 MHz  
**Intermediate Frequency:** 10.7 MHz  
**Antenna Terminals:** 300Ω balanced  
 75Ω unbalanced  
**Sensitivity:** 2.2μV (6.5 dB), IHF  
 1.7μV (4.5 dB), S/N = 26 dB  
 (1 kHz, 40 kHz deviation)  
**Image Rejection:** 55 dB  
**IF Rejection:** 90 dB  
**Spurious Rejection:** 78 dB  
**AM Suppression:** 55 dB  
**Capture Ratio:** 1.5 dB  
**Selectivity:** 60 dB, IHF  
**S/N Ratio:** 68 dB  
**Harmonic Distortion:** Mono 0.3% at 400 Hz, 75 kHz  
 deviation (100%)  
 Stereo 0.8% at 400 Hz, 75 kHz  
 deviation (100%)  
**Stereo Separation:** 35 dB at 400 Hz  
**Frequency Response:** 30 Hz–15 kHz  $\pm 2$  dB

**AM SECTION**

**Frequency Range:** 530–1,605 kHz  
**Intermediate Frequency:** 468 kHz  
**Antenna:** Built-in ferrite-rod antenna and  
 external antenna terminal  
**Sensitivity:** 250μV/m (48 dB/m), built-in antenna  
 30μV (29 dB), external antenna  
**Image Rejection:** 56 dB at 1,000 kHz  
**IF Rejection:** 40 dB at 1,000 kHz  
**S/N Ratio:** 50 dB  
**Harmonic Distortion:** 0.8%

**AMPLIFIER SECTION**

**Continuous RMS Power Output:** At 40 Hz–20 kHz  
 (Less than 0.8% THD, both channel driven simultaneously)  
 24 + 24W (8Ω)  
 At 1 kHz  
 26 + 26W (8Ω)  
 28 + 28W (4Ω) (AEP model)  
 According to DIN 45500  
 24 + 24W (8Ω)  
 25 + 25W (4Ω) (AEP model)  
**Dynamic Power Output:** 65W (8Ω)  
 (IHF constant power supply method) 80W (4Ω) (AEP model)  
**Power Bandwidth (IHF):** 10 Hz–25 kHz  
**Harmonic Distortion:** Less than 0.8% at rated output  
 Less than 0.1% at 1W output  
**IM Distortion:** Less than 0.8% at rated output  
 (60 Hz: 7 kHz = 4:1) Less than 0.1% at 1W output  
**Residual Noise:** Less than 0.08μW  
**Damping Factor:** 25 at 1 kHz, 8Ω

**Input Sensitivity, Impedance and S/N Ratio:**

Input	Sensitivity	Impedance	S/N	Weighting Network
PHONO	2.5 mV (-50 dB)	47 kΩ	60 dB	B
MIC	2 mV (-52 dB)	47 kΩ	60 dB	B
AUX	250 mV (-10 dB)	100 kΩ	70 dB	A
TAPE 1, 2 REC/PB (input)	250 mV (-10 dB)	100 kΩ	80 dB	A

Measured with specified RMS power output into 8Ω loads (both channels driven simultaneously) at 1 kHz.

**Output Voltage and Impedance:**

Output	Voltage	Impedance	Input Level
REC OUT 1, 2	250 mV (-10 dB)	10 kΩ	PHONO 2.5 mV (-50 dB)
			MIC 2 mV (-52 dB)
REC/PB (output)	30 mV (-28 dB)	82 kΩ	AUX, TAPE 1, 2 REC/PB (output) 250 mV (-10 dB)

**Headphones:** Accepts 8Ω–10 kΩ headphones  
**Speaker:** 8Ω or more speakers are suitable (UK model)  
 4–16Ω speakers are suitable (AEP model)  
**Frequency Response:** PHONO: RIAA equalization curve  $\pm 2$  dB  
 MIC: 30 Hz–10 kHz  $\pm 3$  dB  
 AUX, TAPE 1, 2 REC/PB (input) : 30 Hz–40 kHz  $\pm 3$  dB  
**Tone Control:** BASS:  $\pm 10$  dB at 100 Hz  
 TREBLE:  $\pm 10$  dB at 10 kHz  
**High Filter:** 6 dB/oct. above 5 kHz  
**Loudness:** +6 dB at 50 Hz, +4 dB at 10 kHz  
 (Volume control attenuation 30 dB)



**MODEL IDENTIFICATION**

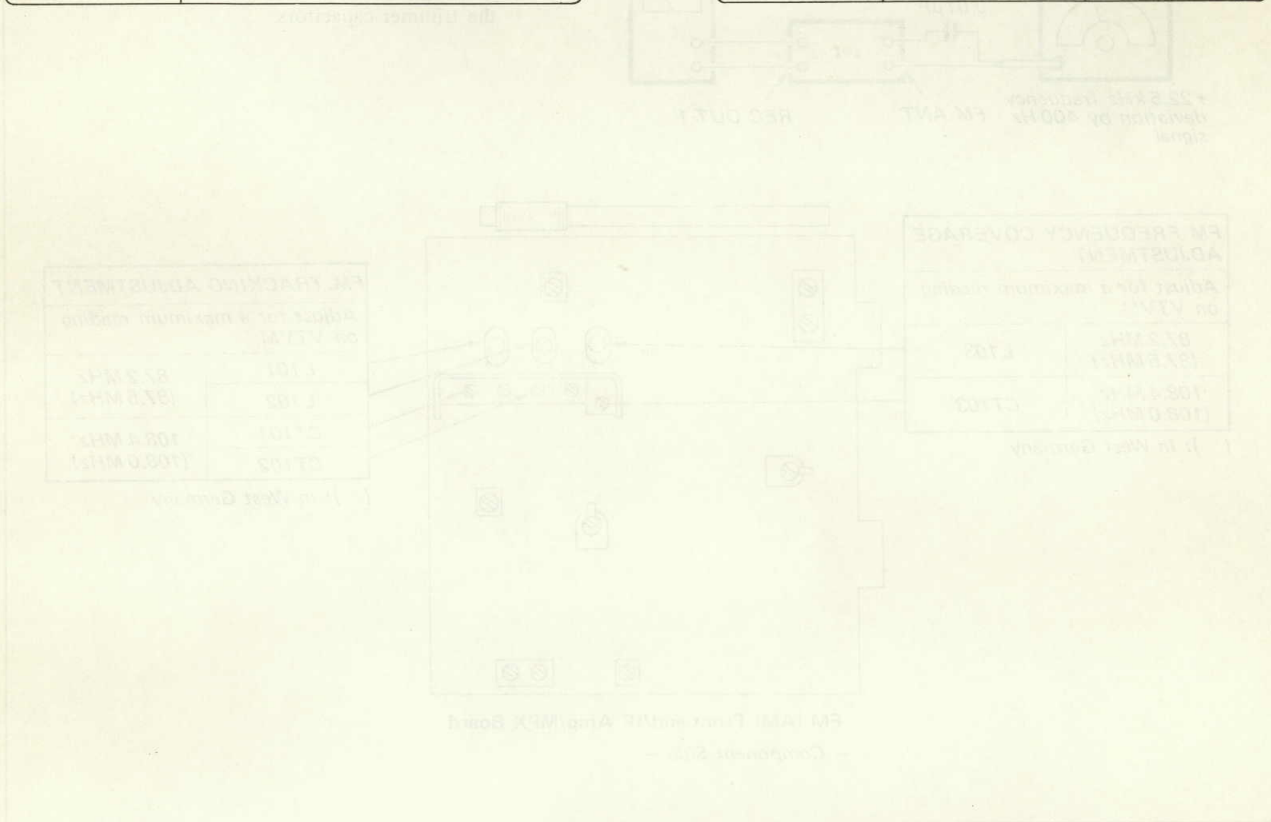
— Specification Label —

**AEP model**

**UK model**

<b>SONY</b>	<b>FM STEREO/FM-AM RECEIVER</b>
	MODEL NO. <b>STR-7035</b>
	FREQ RANGE : FM 87.5-108MHz AM 530-1605kHz
	IF : FM 10.7MHz AM 468kHz
	AC 110, 127, 220, 240V ~ 50/60Hz 230W
SERIAL NO.	
MADE IN JAPAN	

<b>SONY</b>	<b>FM STEREO/FM-AM RECEIVER</b>
	MODEL NO. <b>STR-7035</b>
	FREQ. RANGE : FM 87.5-108MHz AM 530-1605kHz
	IF : FM 10.7MHz AM 468kHz
	AC 110, 127, 220, 240V ~ 50/60Hz 140W
SERIAL NO.	
MADE IN JAPAN	



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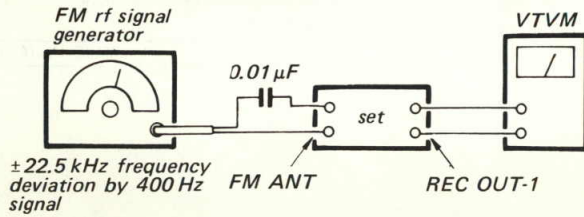
# SECTION 1 ADJUSTMENTS

## 1-1. FM SECTION

### Setting:

- FUNCTION switch: FM
- MONO switch: MONO
- MUTING switch: OFF

### 1. FM Frequency Coverage and Tracking Adjustment



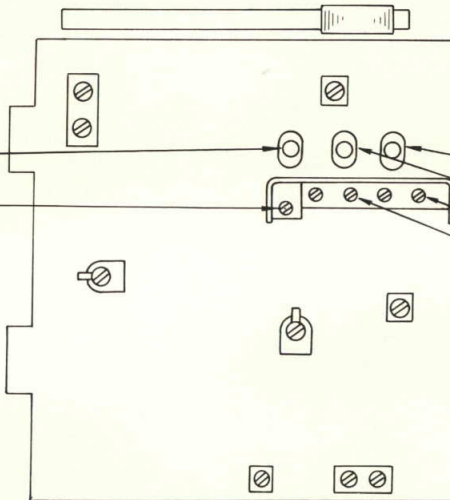
**Note:** Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

#### FM FREQUENCY COVERAGE ADJUSTMENT

Adjust for a maximum reading on VTVM.

87.2 MHz (87.5 MHz)	L103
108.4 MHz (108.0 MHz)	CT103

( ) : in West Germany



FM (AM) Front-end/IF Amp/MPX Board

— Component Side —

#### FM TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

L101	87.2 MHz (87.5 MHz)
L102	
CT101	108.4 MHz (108.0 MHz)
CT102	

( ) : in West Germany

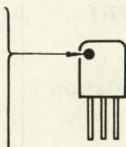


## 2. FM IF Alignment (1)

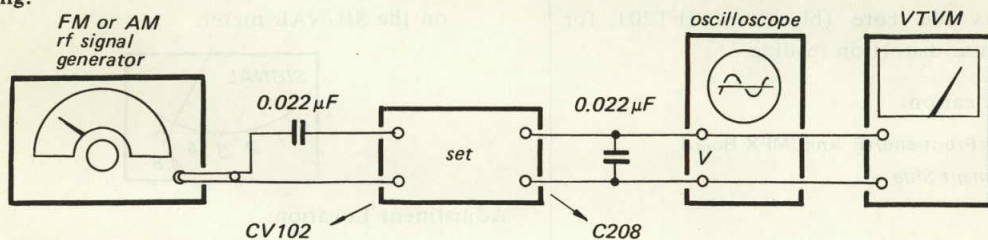
The ceramic filters used in the fm-i-f circuit are color-coded according to their specified center frequencies.

### FM IF CERAMIC FILTERS

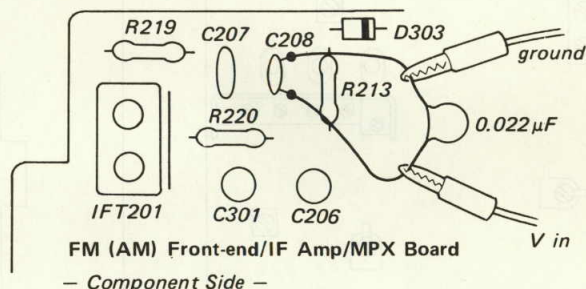
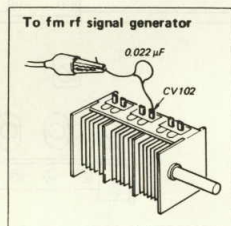
Part No.	Specified Center Freq.	Color
1-527-220-11	10.70 MHz	red
1-527-220-21	10.67 MHz	blue
1-527-220-31	10.73 MHz	orange
1-527-220-41	10.64 MHz	black
1-527-220-51	10.76 MHz	white



### Setting:

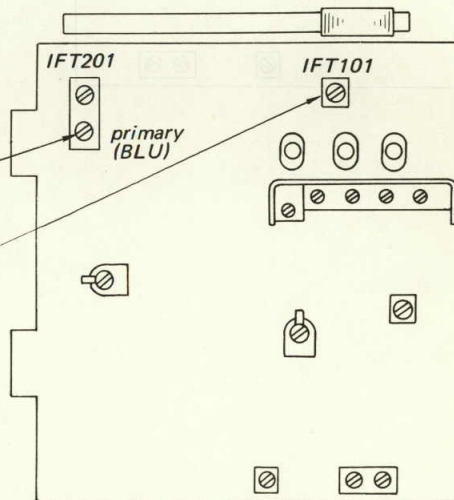


Carrier frequency: center freq. of ceramic filter  
FM 400 Hz 100%



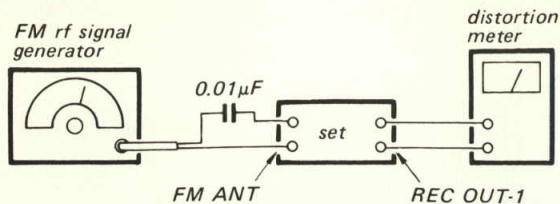
### Procedure:

Step	Modulation	Procedure
1	AM 400 Hz 30%	Adjust to minimize the waveform amplitude on the screen.
2	FM 400 Hz 75 kHz deviation	Adjust for a maximum reading on VTVM.
3	Repeat above steps several times.	



### 3. FM IF Alignment (2)

#### Procedure:



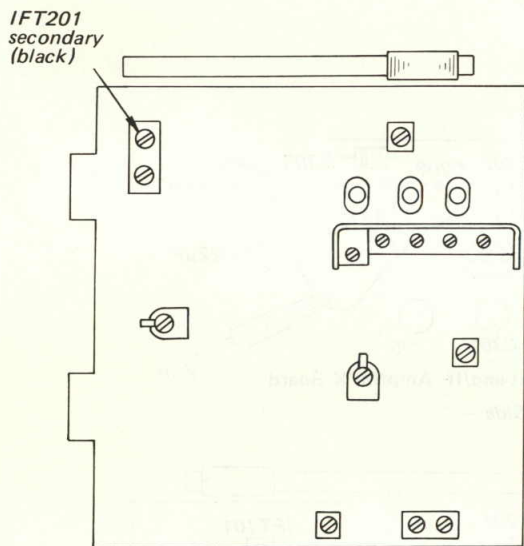
Carrier frequency: 98 MHz  
 Modulation: 400 Hz, 75 kHz deviation (100%)

Output level: 1 mV (60 dB)

Tune the set to 98 MHz and adjust the secondary-side core (black) of IFT201 for a minimum distortion reading.

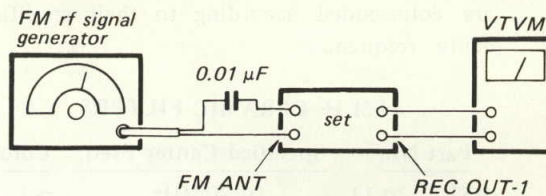
#### Adjustment Location:

**FM (AM) Front-end/IF Amp/MPX Board**  
 - Component Side -



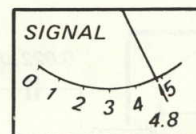
### 4. Signal Meter Adjustment

#### Procedure:



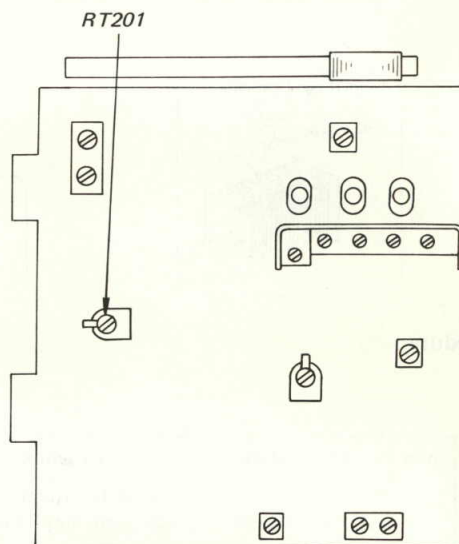
Carrier frequency: 98 MHz  
 Modulation: no modulation  
 Output level: 3.2 mV (70 dB)

Tune the set to 98 MHz and adjust RT201 for specified pointer position (See figure below.) on the SIGNAL meter.



#### Adjustment Location:

**FM (AM) Front-end/IF Amp/MPX Board**  
 - Component Side -

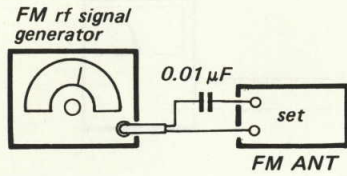


### 5. MPX Adjustment

**Setting:**

MONO switch: STEREO

**Procedure:**



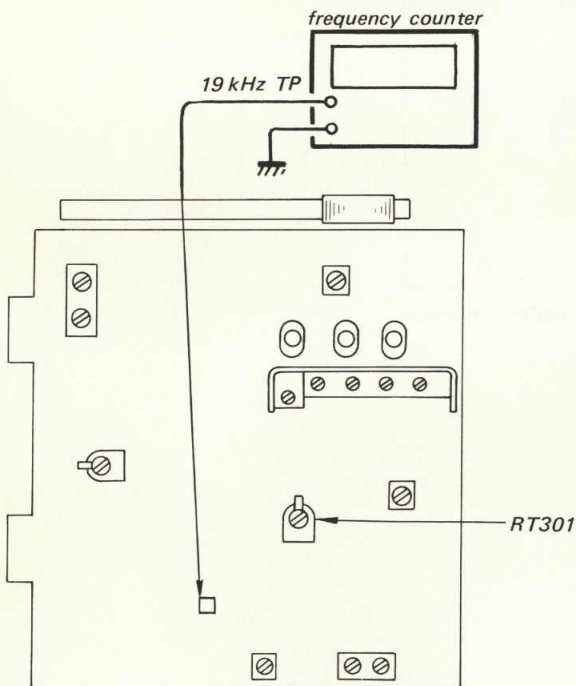
Carrier frequency: 98 MHz  
 Modulation: no modulation  
 Output level: 3.2 mV (70 dB)

1. Tune the set to 98 MHz.
2. Adjust RT301 for 19 kHz  $\pm$  100 Hz on the counter.

**Note:** Perform this adjustment after the power switch turned ON and one minute passed.

**Adjustment Location:**

FM (AM) Front-end/IF Amp/MPX Board  
 - Component Side -

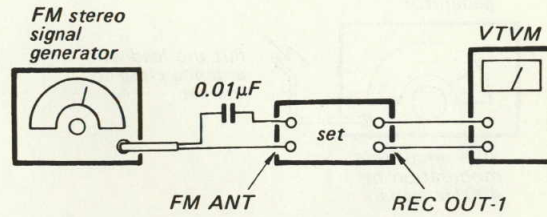


### 6. FM Stereo Separation Adjustment

**Setting:**

MONO switch: STEREO

**Procedure:**



Carrier frequency: 98 MHz  
 Output level: 1 mV (60 dB)  
 Mode: Stereo  
 Modulation:  
 Audio (400 Hz): 67.5 kHz deviation (90%)  
 Pilot (19 kHz): 7.5 kHz deviation (10%)

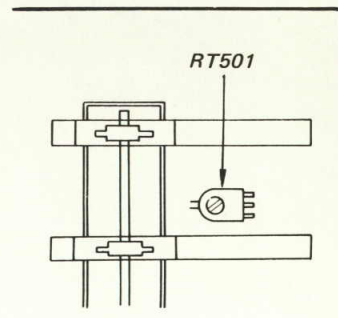
FM stereo signal generator output channel	VTVM connection	VTVM reading
L-CH	L-CH	(A) Adjust RT501 for maximum reading.
R-CH	L-CH	(B)
R-CH	R-CH	(C)
L-CH	R-CH	(D)

Stereo separation: (A) - (B), (C) - (D).

The difference between separations (A)  $\rightarrow$  (B) and (C)  $\rightarrow$  (D) should be equal.

**Adjustment Location:**

Control Board  
 - Component Side -





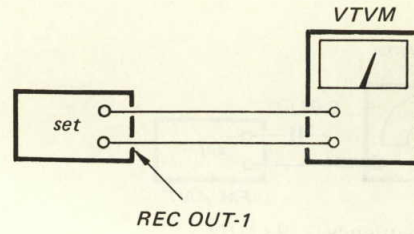
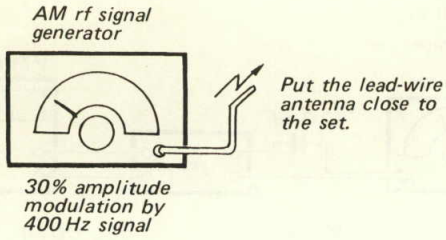
**STR-7035**  
**Supplement No. 1**

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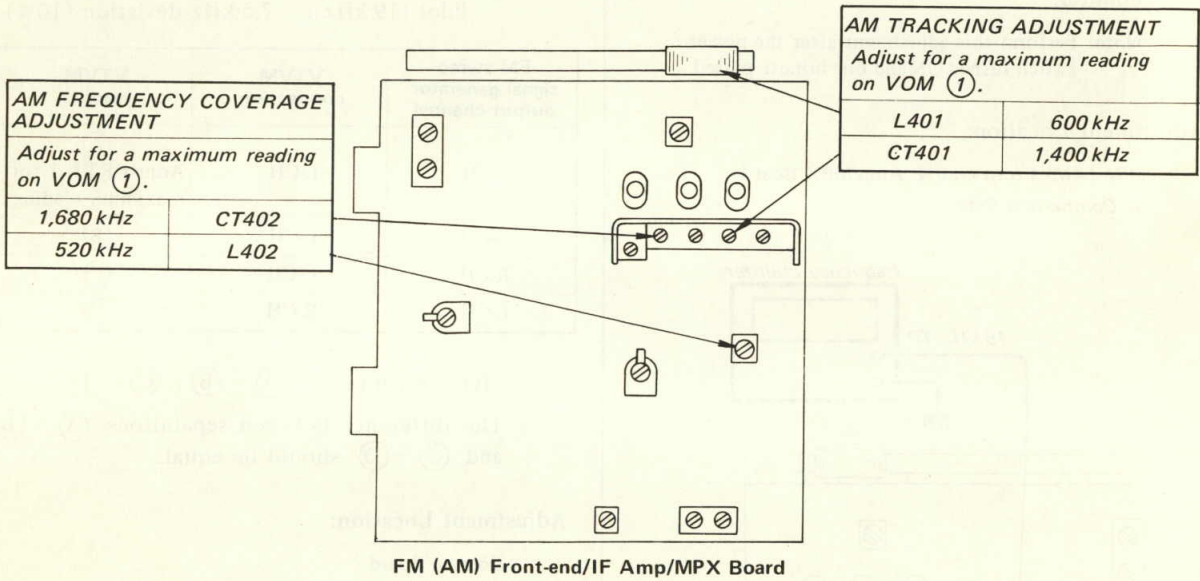
**1-2. AM SECTION**

Setting:

FUNCTION switch: AM

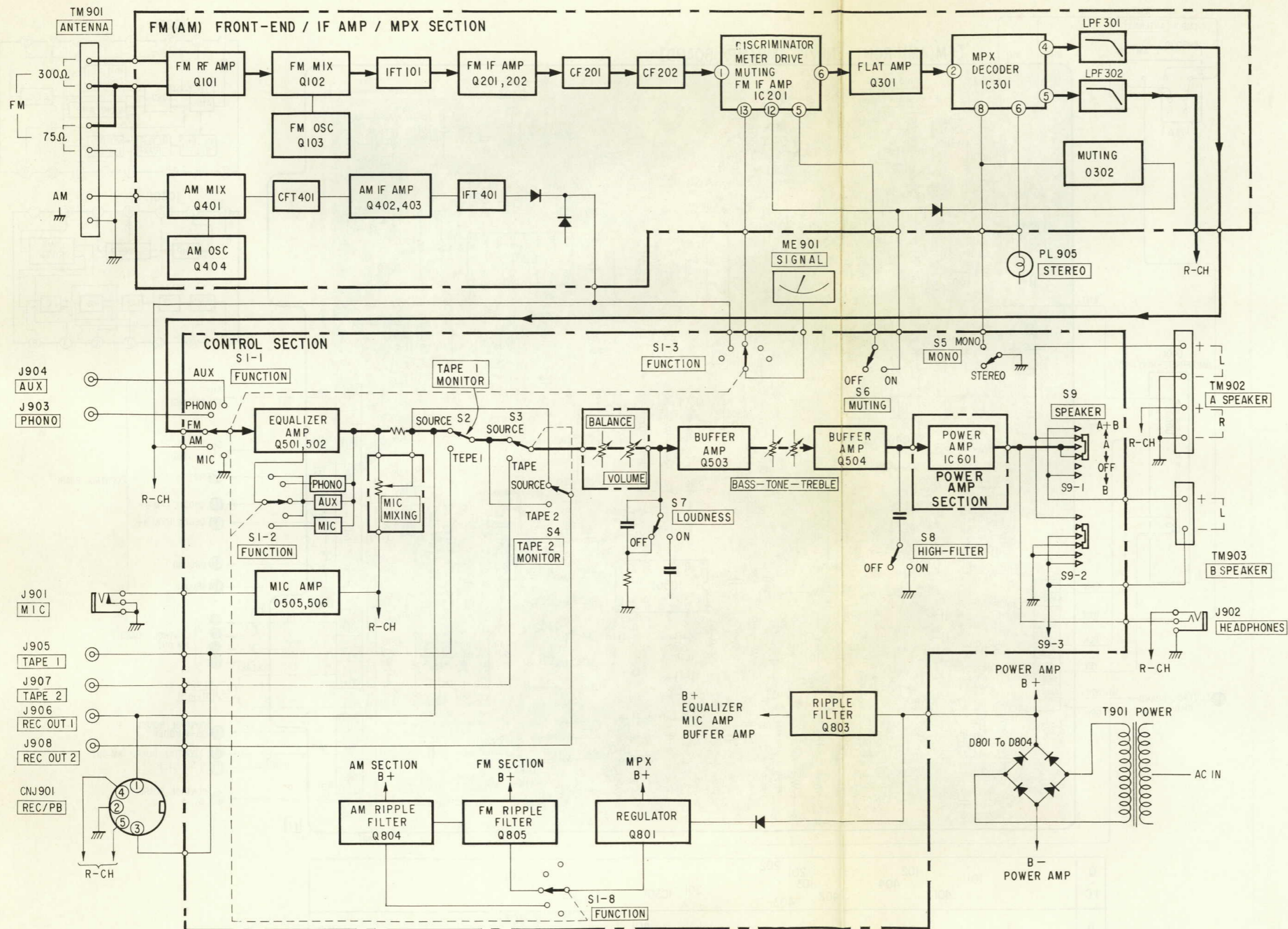


**Note:** Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.



SECTION 2  
DIAGRAMS

2-1. BLOCK DIAGRAM





**STR-7035** **STR-7035**

Supplement No. 1 Supplement No. 1

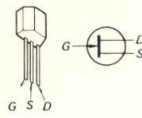
**2-2. MOUNTING DIAGRAM - FM (AM) Front-end/IF Amp/MPX Board -**

- Conductor Side -

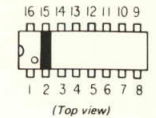
**Replacement Semiconductors**

For replacement, use semiconductors except in ( ).

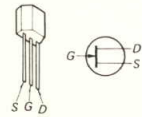
**Q101: 2SK42-4 (2SK42)**



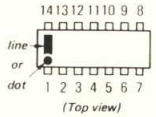
**IC201: HA1137W**



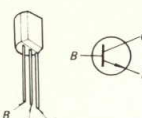
**Q102: 2SK23A-840 (blue)**



**IC301: HA1156W**



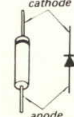
**Q103, 402-404: 2SC710**



**D301-303: 1S1555**

**D401, 402: 1T22A**

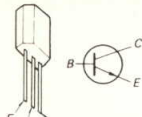
**D403: 1S1555 (1T40)**



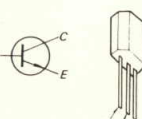
**Q201, 202: 2SC403C**

**Q301: 2SC632A (2SC631A)**

**Q302: 2SC634A (2SC633A)**

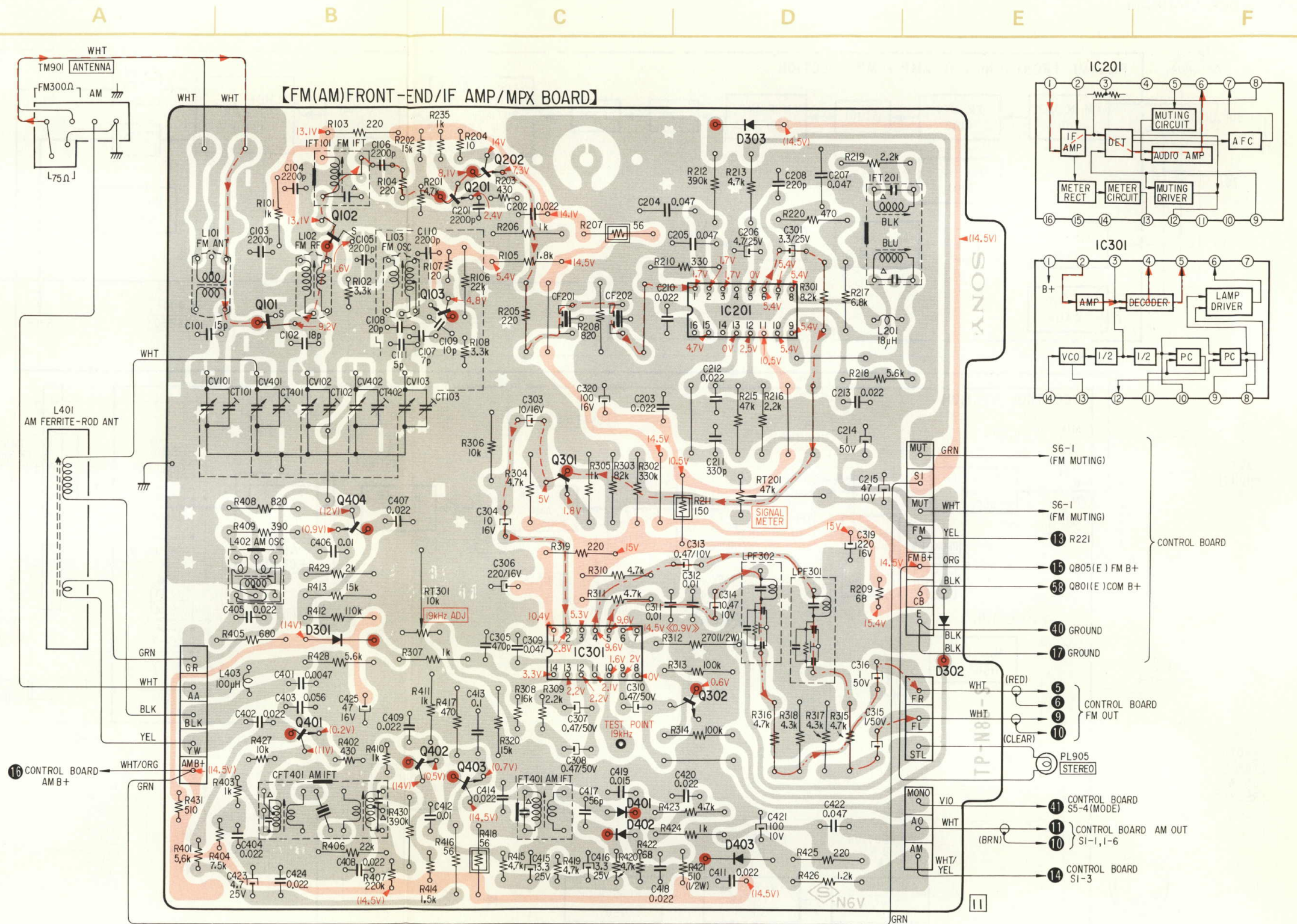
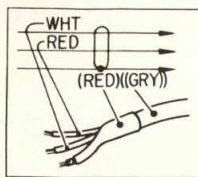


**Q401: 2SC710 (2SC633A)**



**Note:**

- : indicates side identified with part number.
- : B+ pattern.
- Signal path:
  - : RF or FM composite
  - : L-CH
  - : R-CH
- Color code of sleeving over the end of the jacket.



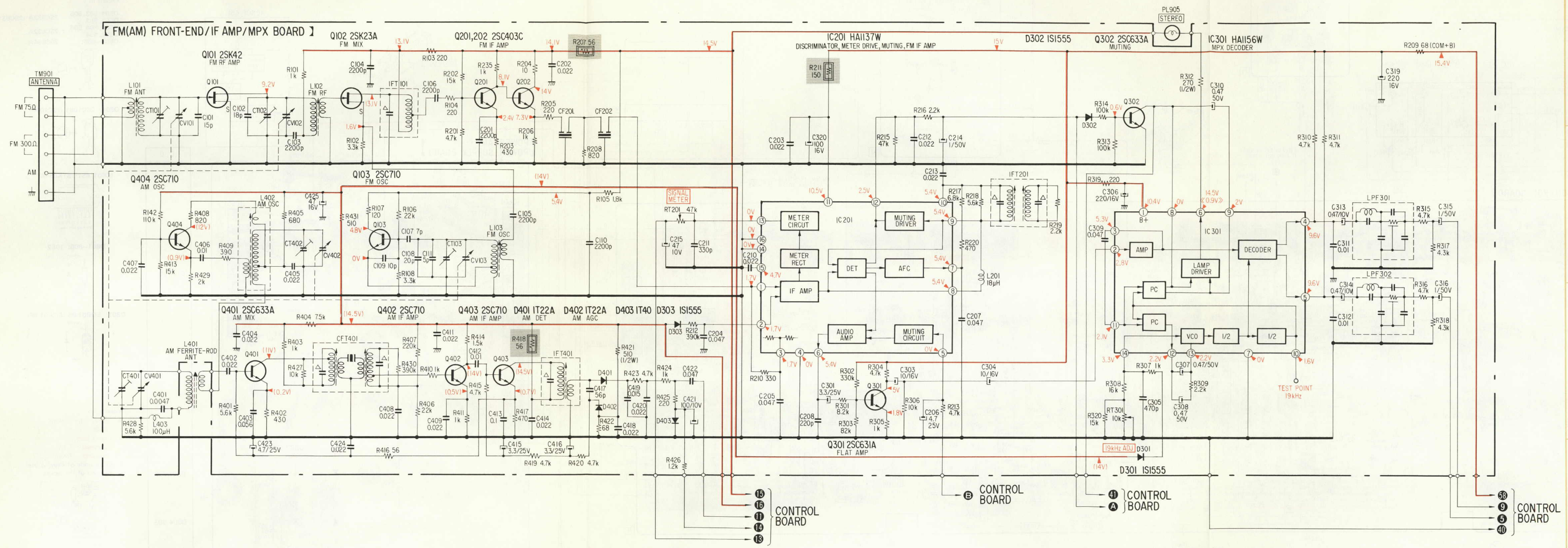
Q	101	102	201	202	IC201
IC	401	404	103	301	IC301
D	301	402	403	401	303
				402	403

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2-3. SCHEMATIC DIAGRAM - FM (A-M) Front-end/I-F Amp/MPX Section -



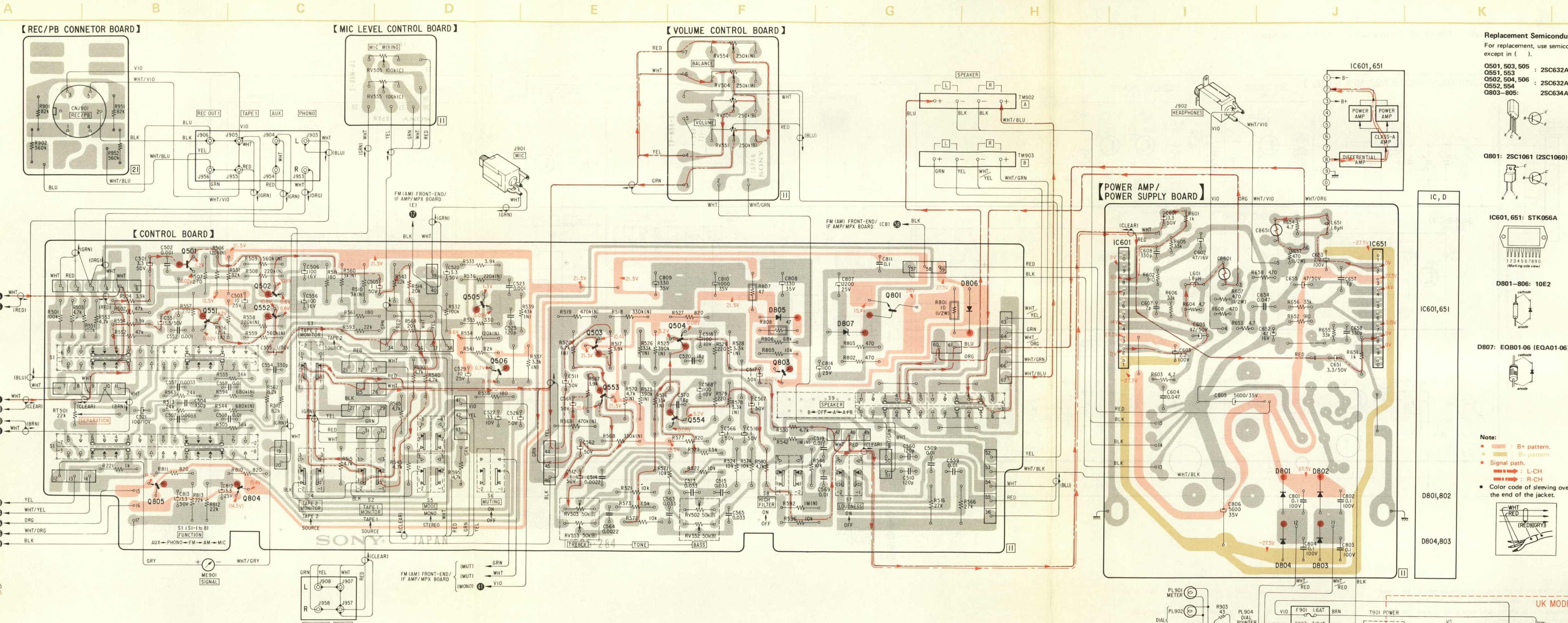
- Note:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} = \mu\mu\text{F}$ . 50WV or less are not indicated except for electrolytics.
  - All resistors are in ohms,  $\frac{1}{2}\text{k}$  unless otherwise noted.  $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{k}\Omega$
  - $\square$ : nonflammable resistor.
  - $\triangle$ : internal component.
  - $\text{---}$ : B+ bus.
  - $\square$ : panel designation.
  - $\square$ : adjustment for repair.
  - Voltages are dc with respect to ground unless otherwise noted.
  - Readings are taken under no signal (detuned) conditions with a VOM (20  $\text{k}\Omega/\text{V}$ ).
  - ( ): AM mode
  - $\llcorner$ : FM stereo mode
  - no marking: FM mode
  - MUTING switch: OFF
  - Voltage variations may be noted due to normal production tolerances.

**Note:** The components identified by shading are critical for safety. Replace only with part number specified.



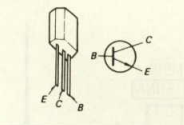
Supplement No. 1

- Conductor Side -

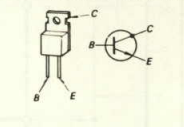


Replacement Semiconductor  
For replacement, use semiconductor except in ( ).

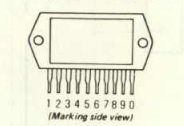
- Q501, 503, 505 : 2SC632A (2SC631A)
- Q551, 553 : 2SC632A
- Q502, 504, 506 : 2SC632A
- Q552, 554 : 2SC632A
- Q803-805 : 2SC84A



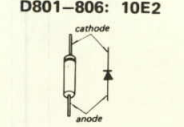
Q801: 2SC1061 (2SC1060)



D801-806: 10E2



D807: EQB01-06 (EQA01-06)

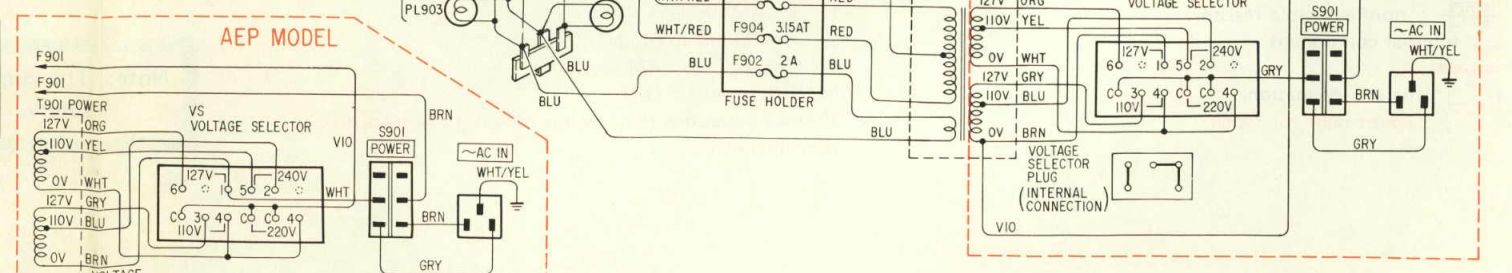


Note:

- Red line: B+ pattern.
- Yellow line: B- pattern.
- Red arrow: L-CH
- Yellow arrow: R-CH
- Color code of sleeving over the end of the jacket.

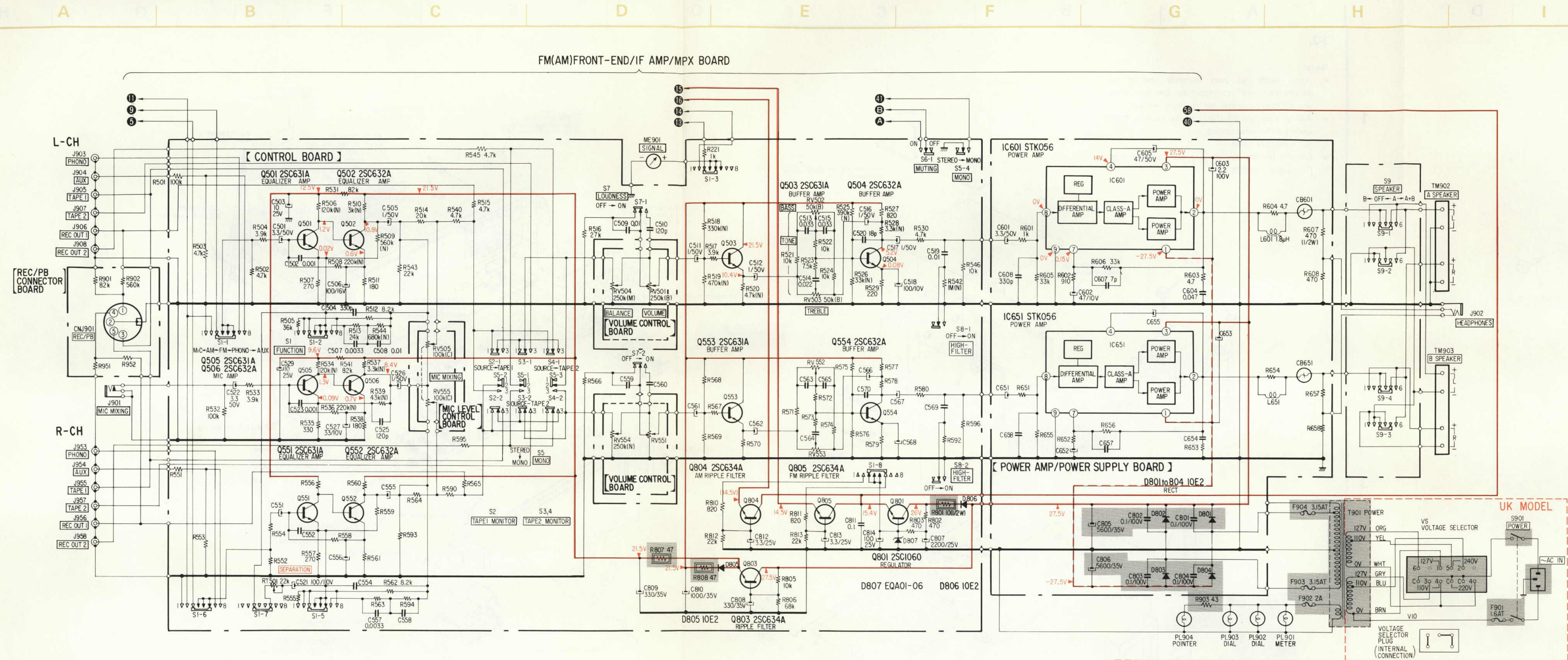


Q	501	551	502	552	505	506	503	553	504	554	803	801	
D	805	804									805	807	806





2-5. SCHEMATIC DIAGRAM - Audio Amp Section -



**Note:**

- Components for right channel have same values as for left channel.
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} = \mu\mu\text{F}$  50WV or less are not indicated except for electrolytics.
- All resistors are in ohms,  $\frac{1}{2}\text{W}$  unless otherwise noted.  $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{k}\Omega$
- : nonflammable resistor.
- (N) : low-noise resistor.
- : B+ bus.
- : B- bus.
- : panel designation.
- : adjustment for repair.
- : Direct connection to points marked  $\perp$  on the chassis.
- Voltages are dc with respect to ground unless otherwise noted.

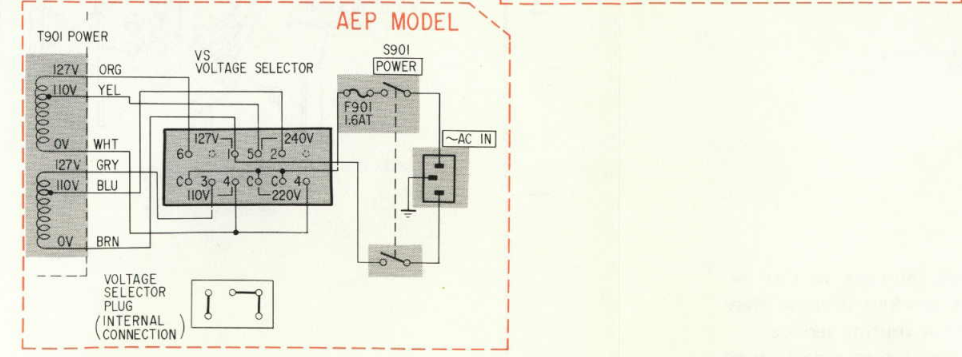
• Readings are taken under no signal conditions with a VOM (20 k $\Omega$ /V).

• Voltage variations may be noted due to normal production tolerances.

• Switch

Ref. No.	Switch	Position
S1	FUNCTION	FM
S2	TAPE 1 MONITOR	SOURCE
S3, 4	TAPE 2 MONITOR	SOURCE
S5	MODE	STEREO
S6	FM MUTING	OFF
S7	LOUDNESS	OFF
S8	HIGH FILTER	OFF
S9	SPEAKER	A
S901	POWER	OFF
VS	VOLTAGE SELECTOR	

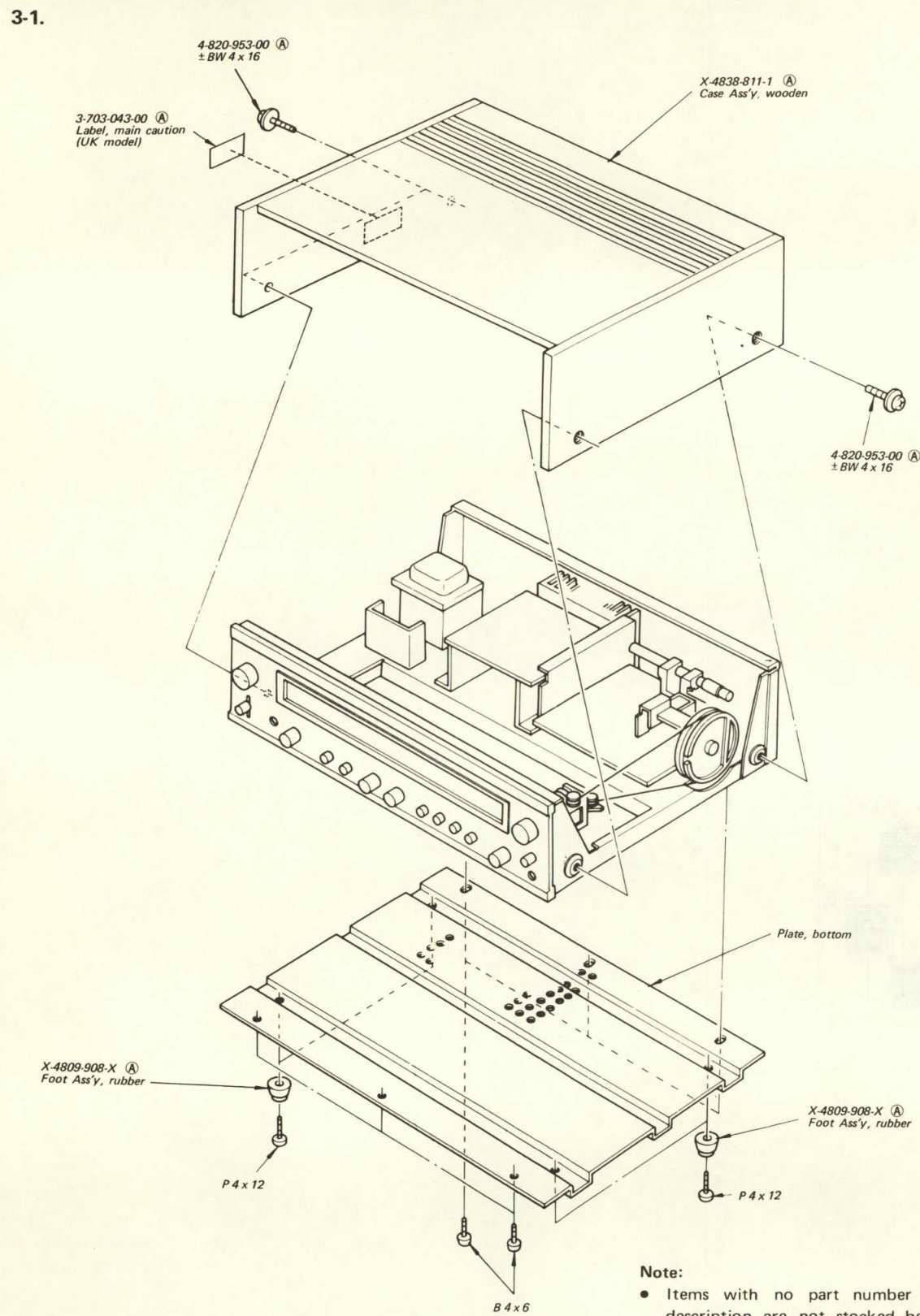
**Note:** The components identified by shading are critical for safety. Replace only with part number specified.





SECTION 3 EXPLODED VIEWS

A B C D



- Note:**
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
  - All screws are Phillips (cross recess) type unless otherwise noted. (-) = slotted head
  - Circled letters (A to Z) are applicable to European models only.

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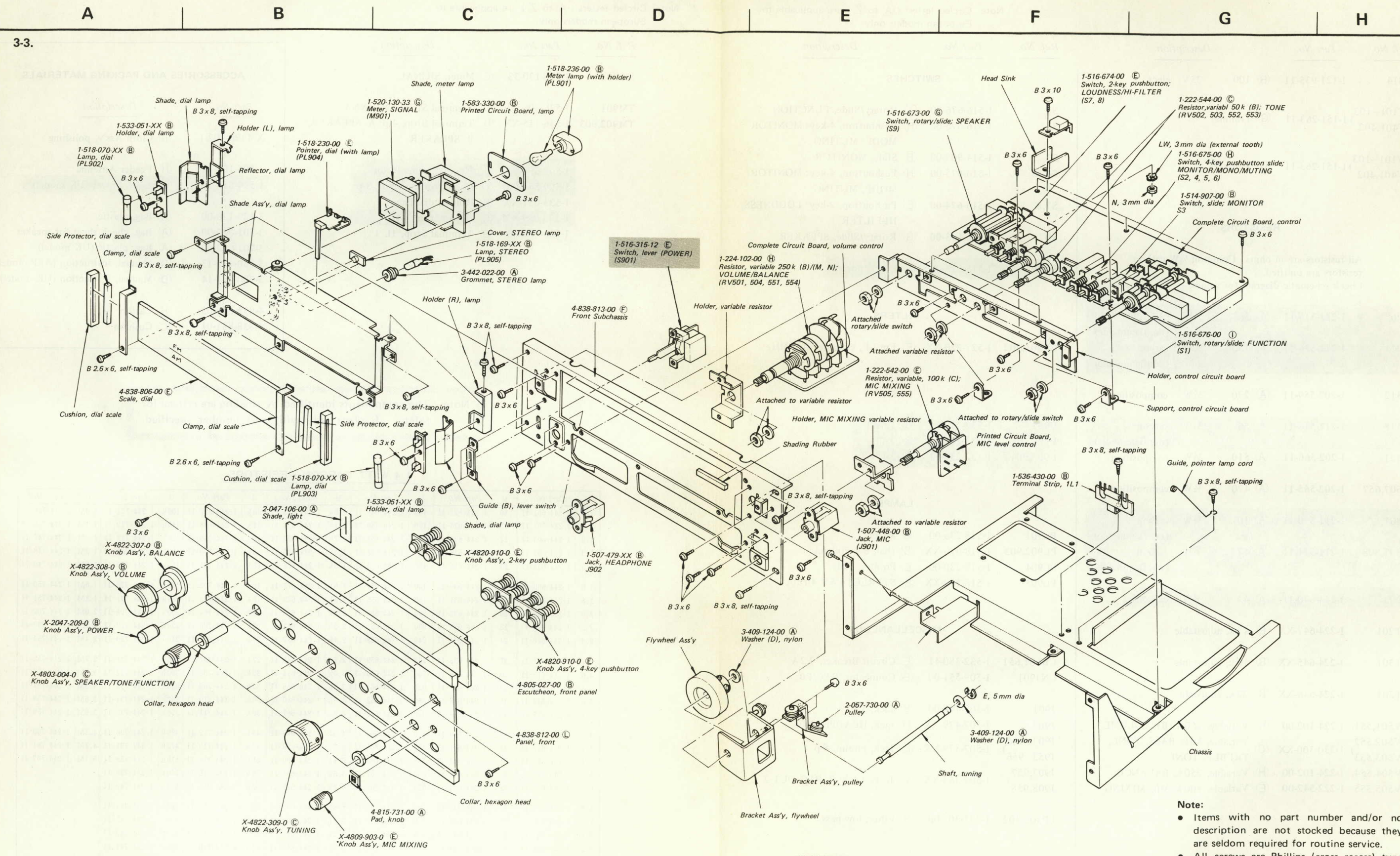
2



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SECTION 4 ELECTRICAL PARTS LIST

Note: Circled letters (A to Z) are applicable to European models only.



Note: The components identified by shading are critical for safety. Replace only with part number specified.

Table with columns: Ref. No., Part No., Description. Lists components like PRINTED CIRCUIT BOARDS, SEMICONDUCTORS (Transistors, ICs, Diodes), TRANSFORMERS, COILS AND INDUCTORS.

Table with columns: Ref. No., Part No., Description. Lists components like IFTs, capacitors, and other parts.

Note: Items with no part number and/or no description are not stocked because they are seldom required for routine service. All screws are Phillips (cross recess) type unless otherwise noted. (-) = slotted head. Circled letters (A to Z) are applicable to European models only.

Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading are critical for safety. Replace only with part number specified.



Supplement No. 1

Note: Circled letters (A to Z) are applicable to European models only.

Table with columns: Ref. No., Part No., Description. Lists various components like capacitors (C211, C212, C214, C215, C301, C303, C304, C305, C306, C307, C309, C310, C311, C312, C313, C314, C315, C316, C319, C320, C401, C402, C403, C404, C405, C406, C407, C408, C409, C411, C412, C413, C414, C415, C416, C417, C418, C419, C420, C421, C422, C423, C424, C425, C501, C502, C503, C504, C505, C506, C507, C508, C509, C510, C511, C512, C513, C514, C515, C516, C517, C518, C519, C520, C521, C522, C523, C525, C526, C527, C529, C601, C602, C603, C604, C605, C607, C608, C801, C805, C807, C808, C810, C811, C812) and resistors.

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Supplement No. 1

Note: Circled letters (A to Z) are applicable to European models only.

Table with columns: Ref. No., Part No., Description. Lists components like switches (S1, S2, S3, S4, S7, S8, S9, S901), resistors (R207, R211, R312, R418, R421, R607, R801, R807, R903), fuses (F901, F902, F903), filters (CF201), lamps (PL901, PL902, PL904, PL905), and miscellaneous (CB601, CNJ901, J901, J902, J903, J905, J907, J908, LP301).

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Supplement No. 1

Note: Circled letters (A to Z) are applicable to European models only.

Table with columns: Ref. No., Part No., Description. Lists components like meters (ME901), terminal strips (TM901, TM902), and voltage selector (1-508-690-00).

Note: The components identified by shading are critical for safety. Replace only with part number specified.

1/4 WATT CARBON RESISTORS

Table listing 1/4 Watt Carbon Resistors with columns for resistance value, tolerance, and part number.

Table titled 'ACCESSORIES AND PACKING MATERIALS' with columns: Part No., Description. Lists items like cloth (X-4490-002-1), antenna (1-506-161-11), cord (1-534-819-12), bags (3-429-126-00), manuals (3-780-481-13), and cushions (4-838-831-01).