

ST-JX310L / JX3030

SERVICE MANUAL

ST-JX310L:
AEP Model
UK Model

ST-JX3030:
AEP Model



PHOTO: ST-JX310L

SPECIFICATIONS

FM tuner section

Tuning range	87.5 MHz – 108 MHz
Antenna terminals	300 ohms, balanced 75 ohms, unbalanced
Intermediate frequency	10.7 MHz

	(at 40 kHz deviation)
Sensitivity	at 46 dB quieting 17.3 dBf, 4 μ V (mono) 38.3 dBf, 45 μ V (stereo)
Usable sensitivity	10.3 dBf, 1.8 μ V (IHF) 1.7 μ V (S/N = 26 dB)
Signal-to-noise ratio	76 dB (mono) 71 dB (stereo)
Harmonic distortion at 1 kHz	0.15% (mono) 0.3% (stereo)
IM distortion	0.15% (mono) 0.3% (stereo)
Separation at 1 kHz	45 dB
Frequency response	40 Hz – 12.5 kHz \pm 0.5 dB 30 Hz – 15 kHz $\begin{matrix} +0.5 \\ -2.0 \end{matrix}$ dB
Selectivity	70 dB at 300 kHz


AM (MW/LW) tuner section

	MW	LW	
Tuning range	531 – 1,602 kHz (9 kHz step)	153 kHz – 344 kHz	
Antenna	LAYOUT-FREE AM antenna external antenna terminal		
Intermediate frequency	450 kHz		
Usable sensitivity	LAYOUT-FREE AM antenna	300 μ V/m (at 999 kHz)	700 μ V/m (at 230 kHz)
	external antenna	30 μ V (at 999 kHz)	200 μ V (at 230 kHz)
Signal-to-noise ratio	54 dB (50 mV/m)		
Harmonic distortion	0.3% (at 50 mV/m, 400 Hz)		
Selectivity	35 dB (9 kHz)	35 dB (9 kHz)	

– Continued on page 2 –

Capture ratio	1.0 dB
AM suppression ratio	54 dB
Image response ratio	50 dB
IF response ratio	90 dB
Spurious response ratio	70 dB
RF intermodulation	60 dB (IHF)
Muting threshold	Approx. 25 dBf, 10 μ V
Output level/impedance at 75 kHz deviation	550 mV, 3.3 k ohms

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  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.

FM STEREO/FM-AM TUNER

SONY®



General System	PLL quartz-locked digital synthesizer system
Power requirements	FM stereo, FM/AM super-heterodyne tuner AEP model: 220 V ac (or 240 V ac adjustable by authorized Sony personnel), 50/60 Hz UK model: 240 V ac (or 220 V ac adjustable by authorized Sony personnel), 50/60 Hz
Power consumption	8 watts
Dimensions	Approx. 430 x 55 x 270 mm (w/h/d) (17 ¹ / ₈ x 2 ¹ / ₄ x 10 ³ / ₄ inches) including projecting parts and controls
Weight	2.9 kg (6 lbs 6 oz)

FEATURES

The quartz-locked digital frequency-synthesizer system allows accurate and stable tuning that is not affected by temperature variations or long period usage.

Quick and accurate station selection is possible with an electronic digital readout on the frequency display window.

Two methods of tuning are available:
Manual tuning, in which each band can be scanned either rapidly or step-by-step.

Memory preset tuning, in which the frequency of up to 15 stations can be stored in the memory. In this mode, you can tune in your favorite station by pushing its station button.

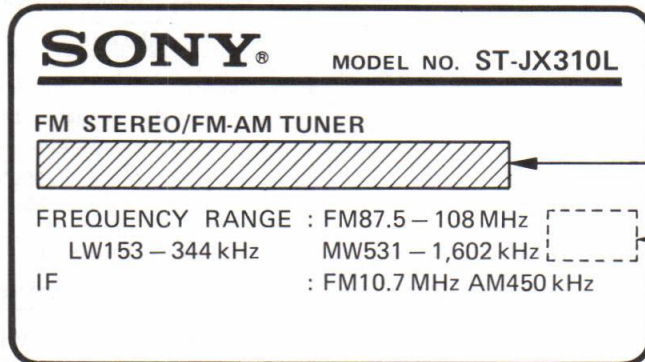
An FM muting circuit is incorporated to eliminate any interstation noise.

The memory contents are retained by a lithium manganese battery incorporated in the tuner when the power is turned off. This battery also allows the last station tuned in to be held in the memory.

MODEL IDENTIFICATION

—Specification Label—

ST-JX310L model

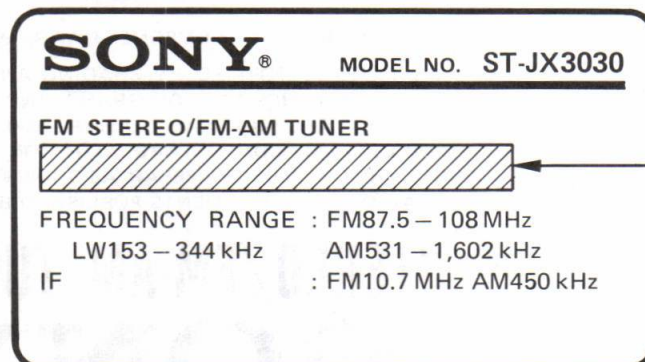


{ AEP model: 220 V ~ 50/60 Hz 8W
 UK model: 240 V ~ 50/60 Hz 8W

(G•AEP model)

FTZ

ST-JX3030 model



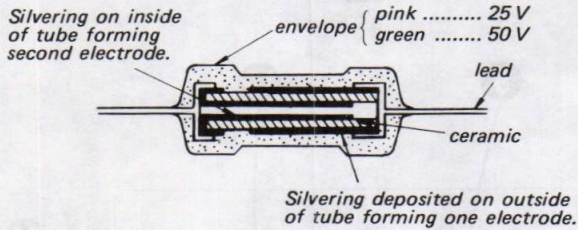
220 V ~ 50/60 Hz 8W

● THE CERAMIC CAPACITORS

This set uses tube-type ceramic capacitors whose shape is identical with the carbon resistors. Be careful not to use resistors instead of capacitors in repairing.

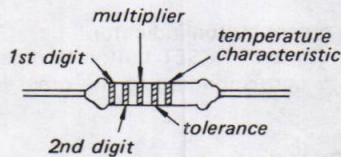
Disc-type ceramic capacitors can be used for replacing those originally used in the set.

Two kinds of drilled holes are provided in some patterns for mounting the tube-type and disc-type ceramic capacitors. Use appropriate holes where applicable.

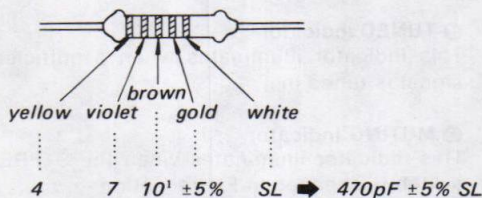


COLOR CODE (in pF)

Color	1st or 2nd Digit	Multiplier	Tolerance	Temperature characteristic
brown	1	10 ¹		Y
red	2	10 ²		D
orange	3	10 ³		
yellow	4	10 ⁴		RH
green	5			
blue	6			
violet	7			UJ
gray	8		± 30%	X
white	9			SL
black	0	10 ⁰	± 20%	CH
gold		10 ⁻¹	± 5%	V
silver		10 ⁻²	± 10%	B



Example:



● IF OFFSET ADJUSTMENT:

Circuit Connections Depending on the Ceramic Filter (CF201-203)

This set employs three types of ceramic filter (CF201-203) which have different center frequency. Therefore FM IF offset adjustment by diode connection is necessary to match the center frequency of the ceramic filter used with FM intermediate frequency.



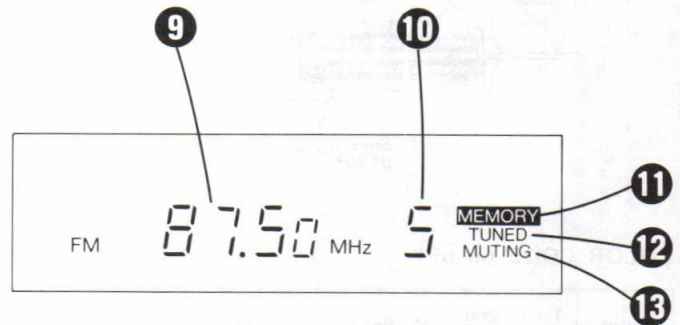
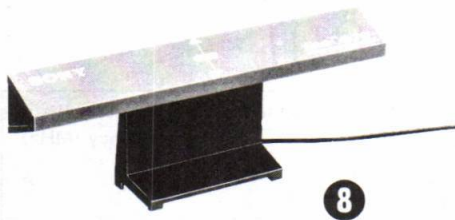
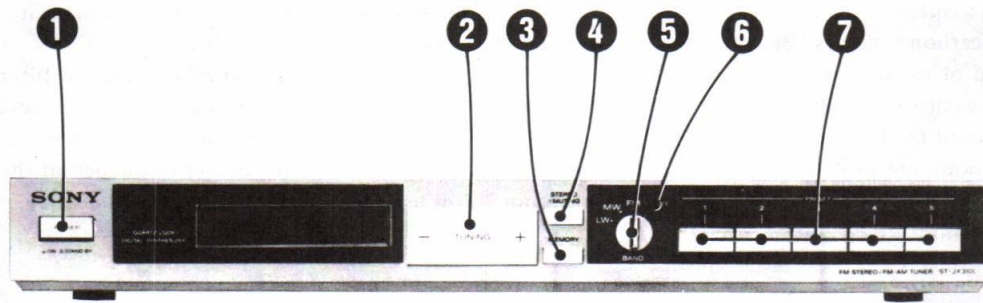
Ceramic filter Color mark	Center frequency (MHz)	Diode connection		FM intermediate frequency (MHz)
		D611	D612	
Red	10.70	X	X	10.70
White	10.75	○	X	10.75
Black	10.65	X	○	10.65

○: connected
X: not connected

* CF201, 202 and 203 should be used the ceramic filters of same center frequency.

Part Numbers of each color are shown below.

- Red 1-527-968-11
- White 1-527-968-51
- Black 1-527-968-41

LOCATION AND FUNCTION OF CONTROLS**1 POWER switch**

Depress to turn on the power. To turn the power off, press the switch again.

2 TUNING button

Press either side of this button to change the frequency. Press the left side (-) to go to a lower frequency and the right side (+) to go to a higher. To change the frequency continuously until the desired frequency is received, keep the button pressed. The frequency figures will change rapidly. To change the frequency slowly, successively press and immediately release the button.

3 MEMORY switch

Press to operate memory circuit. The MEMORY indicator will appear in the band/frequency-display window for a few seconds indicating that the memory circuit is standing by.

4 STEREO/MUTING switch

This switch serves the dual purpose of a mode and FM muting switch. Normally keep this switch engaged (the MUTING indicator illuminates) to eliminate FM interstation noise while tuning from station to station. The tuner operates in stereo mode for stereo sound sources and will be automatically switched to mono mode for monaural sound sources.

5 BAND selector

Selects the desired band: The selected band will be indicated in the band/frequency-display window.

6 STEREO indicator

This indicator will light when an FM stereo program of sufficient signal strength is tuned in with the STEREO/MUTING switch engaged.

7 Station PRESET buttons

To call up a memorized station, press the appropriate button.

8 LAYOUT FREE AM external ferrite-bar antenna

For AM (MW/LW) reception, always connect this antenna to the AM ANTENNA terminal on the rear panel. Position the LAYOUT-FREE AM antenna for best reception.

Band/frequency display window**9 Band/frequency-display**

Permits reading the received frequency at a glance from the figures.

10 Station preset button indicator

When the station PRESET button is pressed, a figure from 1 to 5 corresponding to the pressed button will appear.

11 MEMORY indicator

When the MEMORY switch is pressed, "MEMORY" will appear for a few seconds indicating that the memory circuit is standing by.

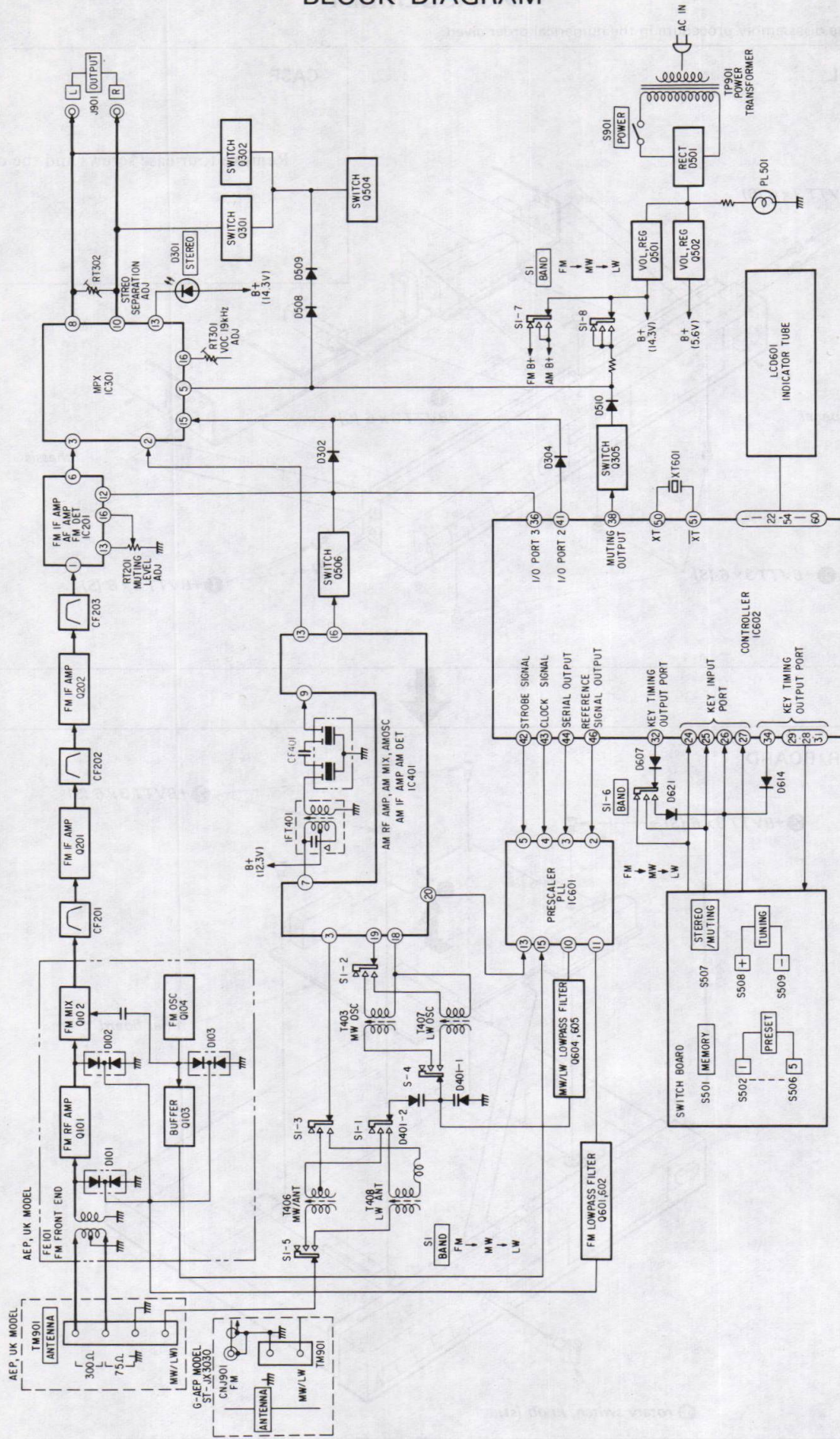
12 TUNED indicator

This indicator illuminates when a sufficiently strong signal is tuned in.

13 MUTING indicator

This indicator illuminates when the STEREO/MUTING switch is engaged in FM reception.

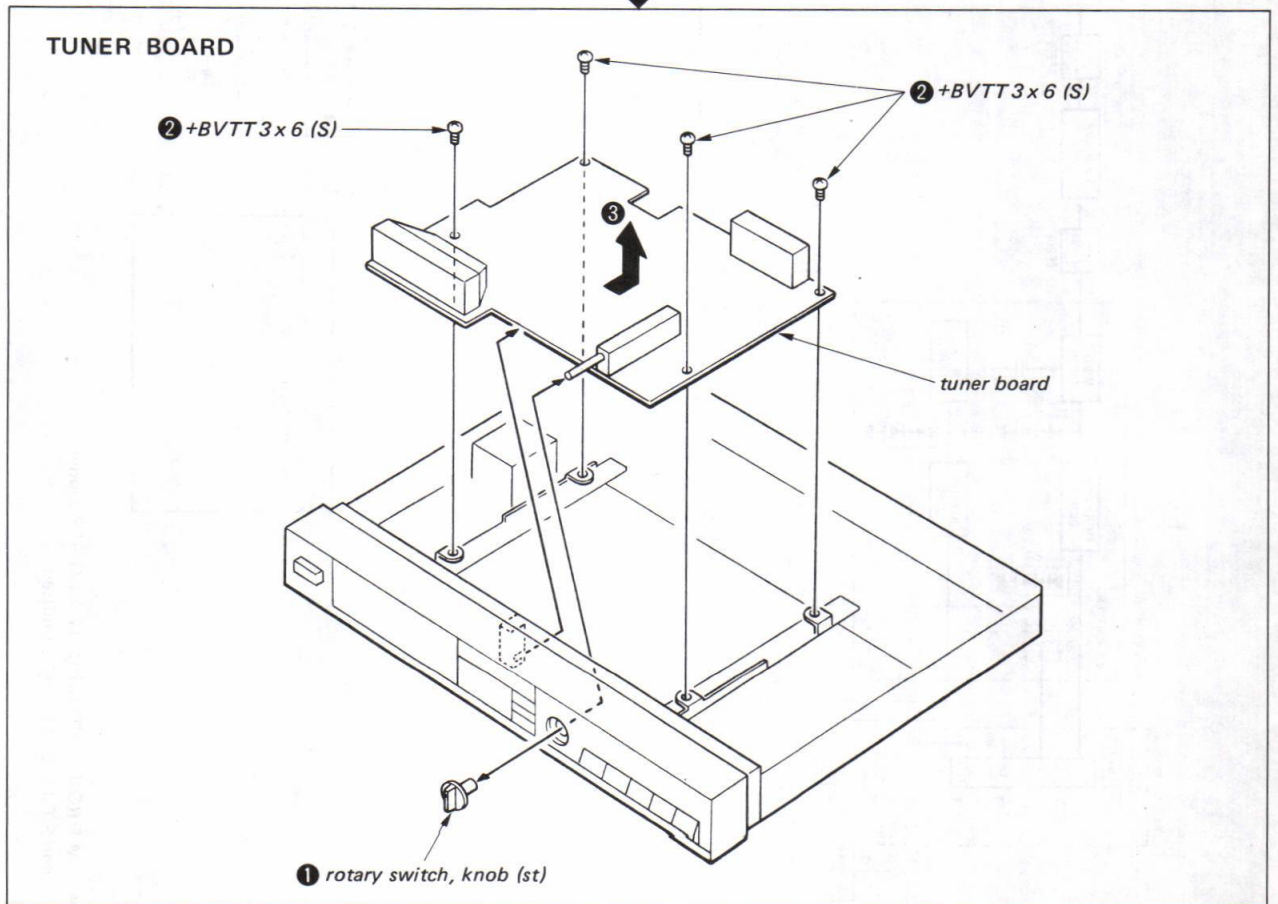
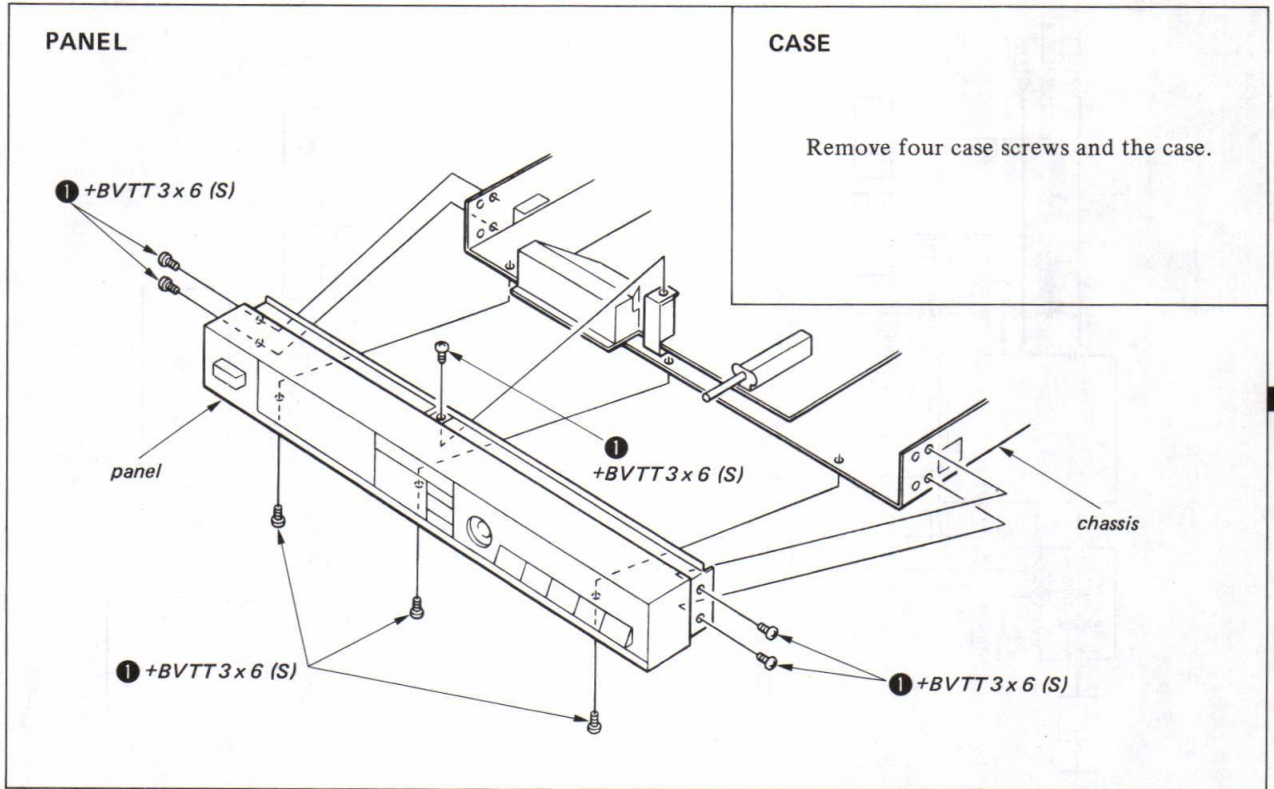
SECTION 1 BLOCK DIAGRAM



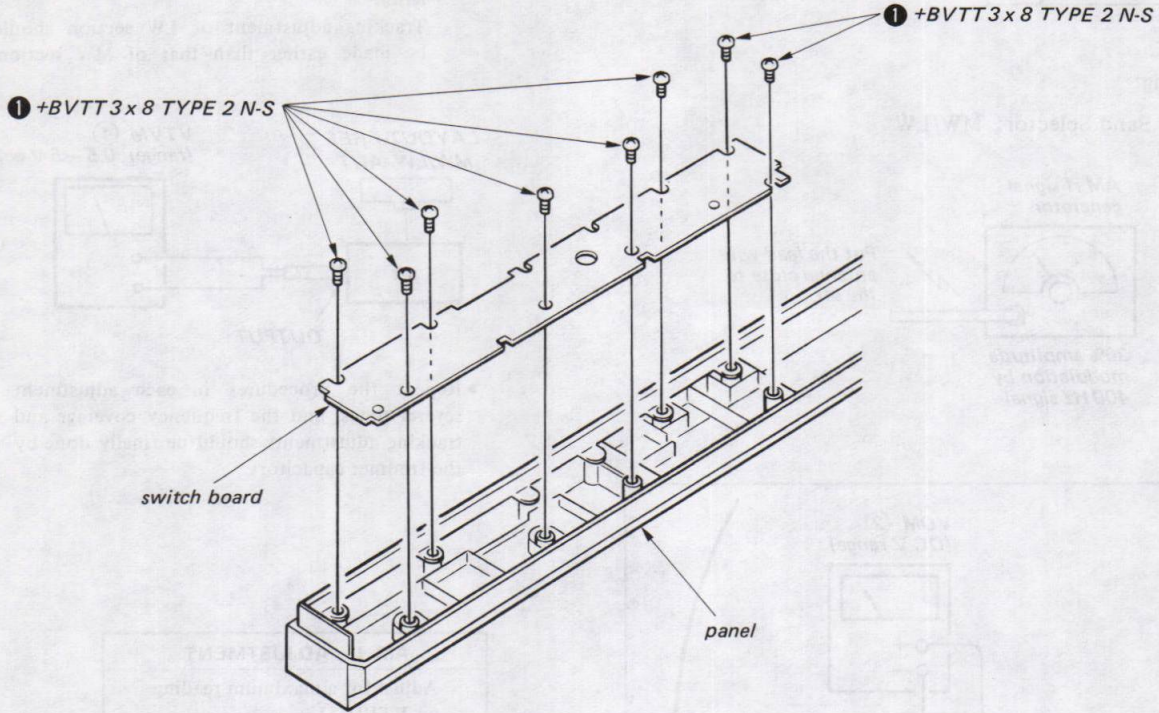
● FM FRONT END CIRCUIT for G-AEP model and ST-JX3030 model is omitted.

SECTION 2 DISASSEMBLY

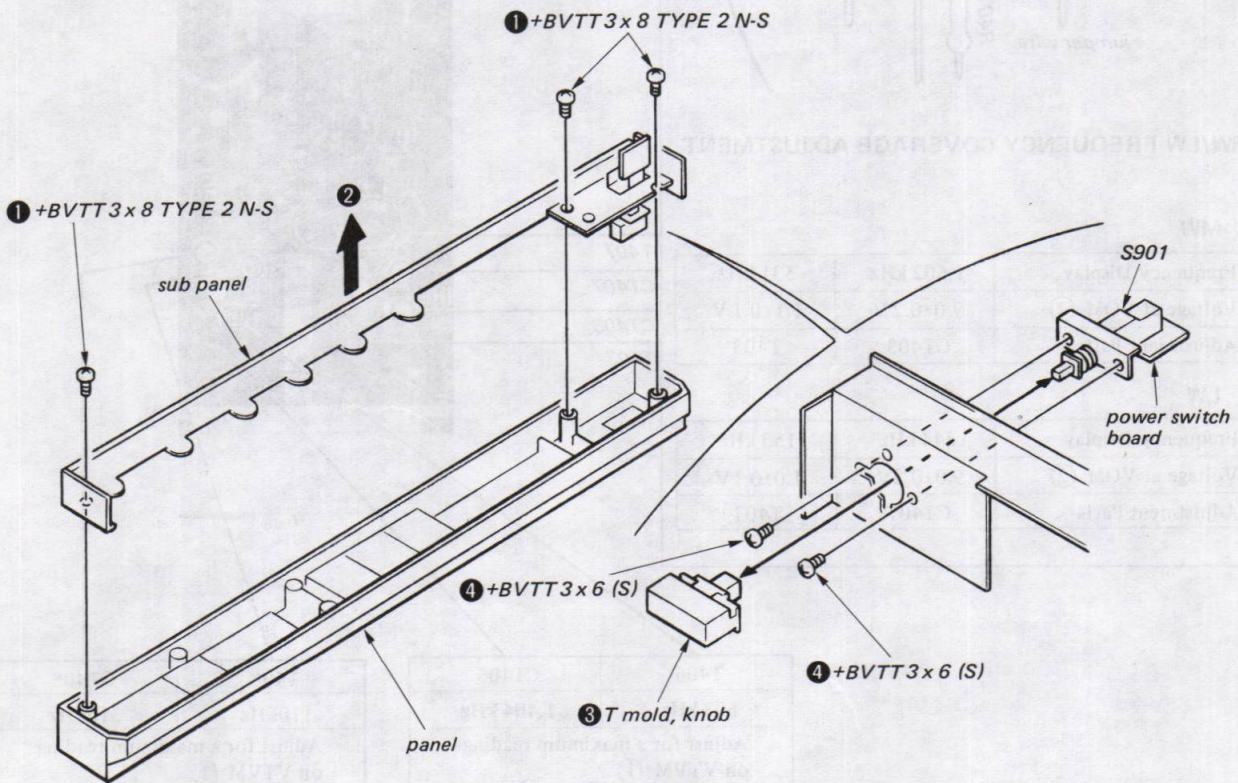
• Follow the disassembly procedure in the numerical order given.



SWITCH BOARD



SUB PANEL, POWER SWITCH BOARD

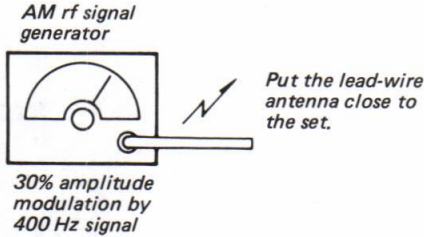


SECTION 3 ADJUSTMENTS

MW/LW SECTION

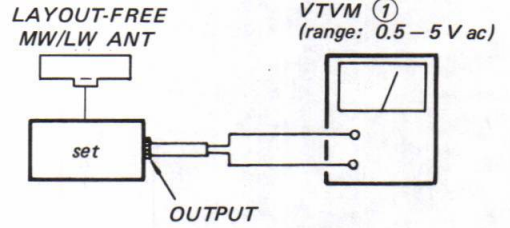
Setting:

Band Selector: MW/LW



Note:

Tracking adjustment of LW section should be made earlier than that of MW section.



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

MW/LW FREQUENCY COVERAGE ADJUSTMENT

- MW**

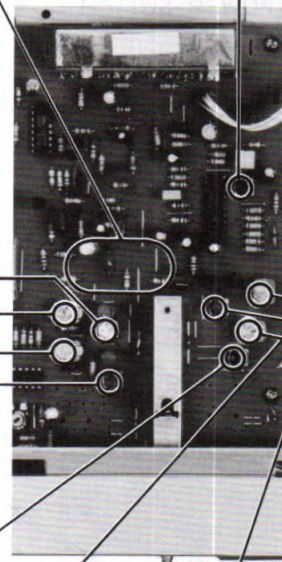
Frequency Display	1,602 kHz	531 kHz
Voltage at VOM ②	9.0±0.2 V	1.1±0.1 V
Adjustment Parts	CT403	T403

- LW**

Frequency Display	344 kHz	153 kHz
Voltage at VOM ②	9.0±0.2V	1.0±0.1V
Adjustment Parts	CT407	T407

AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM ①.	
450 kHz	IFT401

- tuner board -



T406	CT406
603 kHz	1,404 kHz
Adjust for a maximum reading on VTVM ①.	
MW TRACKING ADJUSTMENT	

T408	CT408
170kHz	310kHz
Adjust for a maximum reading on VTVM ①.	
LW TRACKING ADJUSTMENT	

FM SECTION

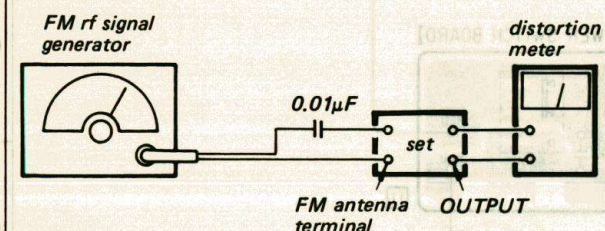
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.

FM Discriminator Alignment

Note: Repeat the secondary-side and primary-side adjustments several times.
For step3, adjust after removing VOM.

Setting:
STEREO/MUTING switch: OFF

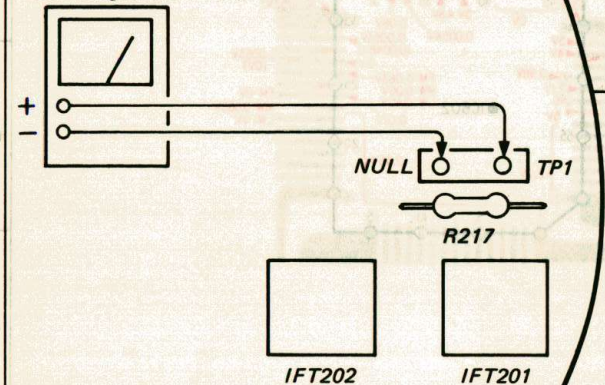
Procedure:



Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Modulation: 1 kHz, 40 kHz deviation (100%)

1. Tune the set to 98 MHz.
2. Connect a VOM to NULL test point (TP1) and adjust the primary-side core IFT201 for 0 V DC reading on the VOM.
3. Adjust the secondary-side core IFT202 for a minimum reading on the distortion meter.

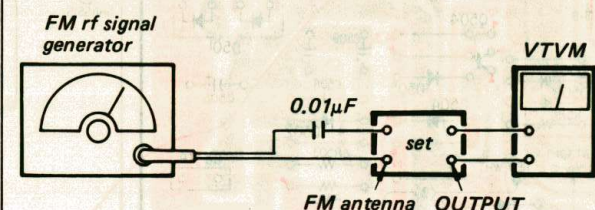
VOM (range: 2.5 V DC)



FM Muting Level Adjustment

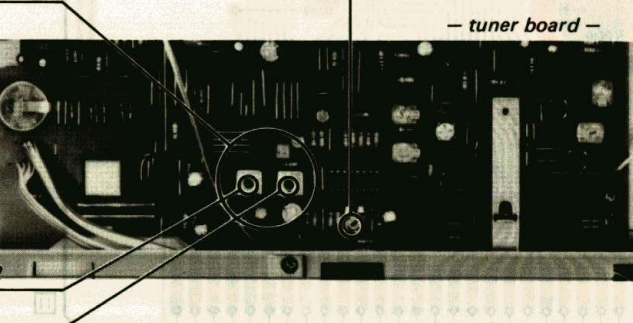
Setting:
STEREO/MUTING switch: ON

Procedure:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 40 kHz deviation (100%)
Output level: 17.8 µV (25 dB)

1. Tune the set to 98 MHz by pressing the MANUAL TUNING switches.
2. Adjust RT201 for a 0 V reading on the VTVM.

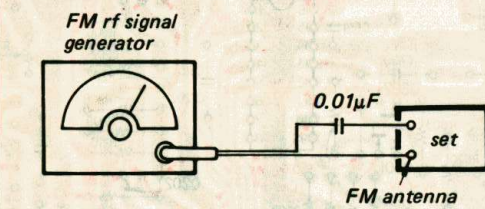


VCO Adjustment

Setting:
STEREO/MUTING Switch: OFF

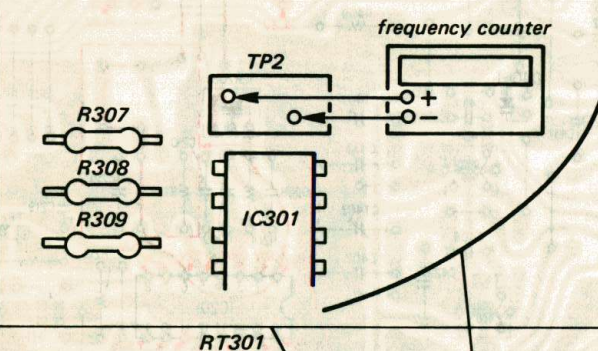
A) Regular Method

Procedure:



Carrier frequency: 98 MHz
Modulation: no modulation
Output level: 1 mV (60 dB)

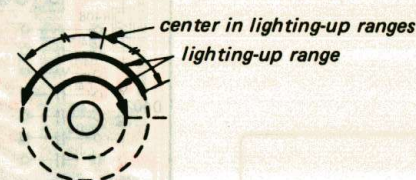
1. Tune the set to 98 MHz.
2. Adjust RT301 for 19 kHz ± 50 Hz on the counter.



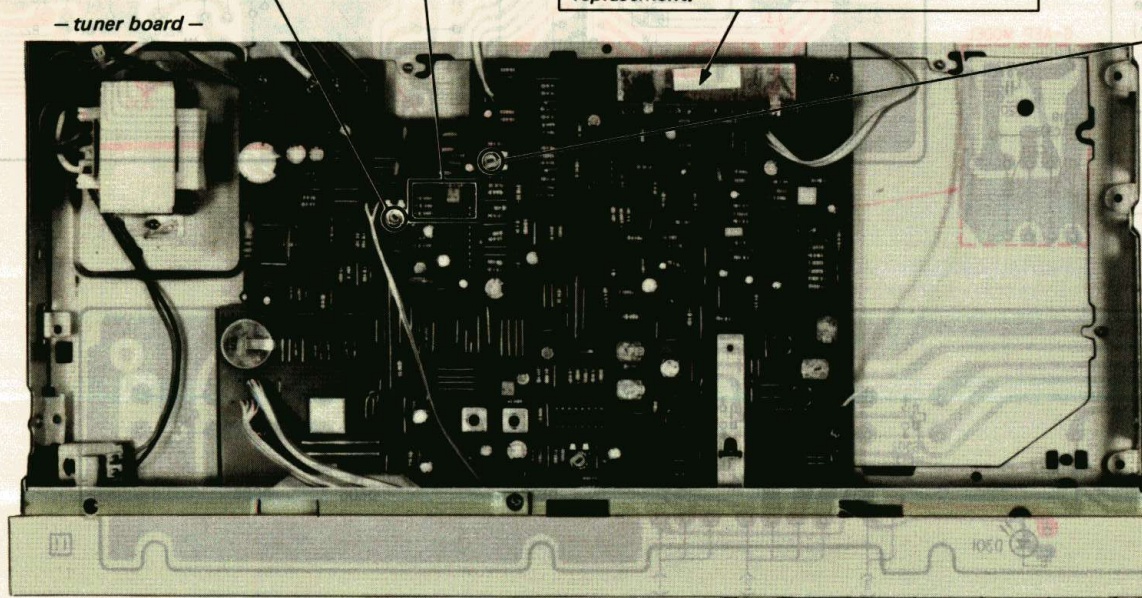
B) Simple Method

Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT301 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RT301 at the center of the lighting-up range of both turns as shown below.



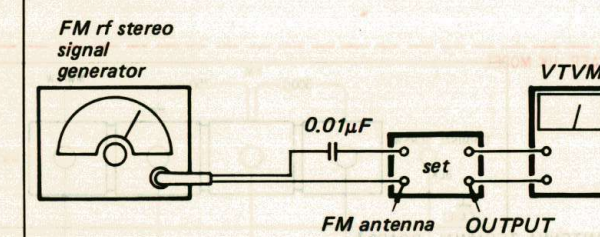
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.



FM Stereo Separation Adjustment

Setting:
STEREO/MUTING switch: ON

Procedure:



Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Modulation:

Audio (1 kHz): 16.25 kHz deviation (40%)
Pilot (19 kHz): 7.5 kHz deviation (19%)
Sub-channel: 16.25 kHz deviation (40%)

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	(A)
R-CH	L-CH	(B) Adjust RT302 for minimum reading.
R-CH	R-CH	(C)
L-CH	R-CH	(D) Adjust RT302 for minimum reading.

L-CH Stereo separation: (A) - (B)
R-CH Stereo separation: (C) - (D)

The separations of both channels should be equal.

Note on MOUNTING DIAGRAM:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : part mounted on the conductor side.
- : indicates side identified with part number.
- ▲ : nonflammable resistor.
- : B+ pattern
- : signal path
- : L-CH signal path
- : R-CH signal path

Note on SCHEMATIC DIAGRAM:

- All capacitors are in µF unless otherwise noted. pF: pF
- All resistors are in ohms, 1/4 W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- : nonflammable resistor.
- △ : internal component.
- : panel designation.
- : adjustment for repair.
- : B+ bus.
- Voltagages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 kΩ/V).
- no mark: FM
- () : MW
- () : LW
- < > : MUTE ON
- Voltage variations may be noted due to normal production tolerances.

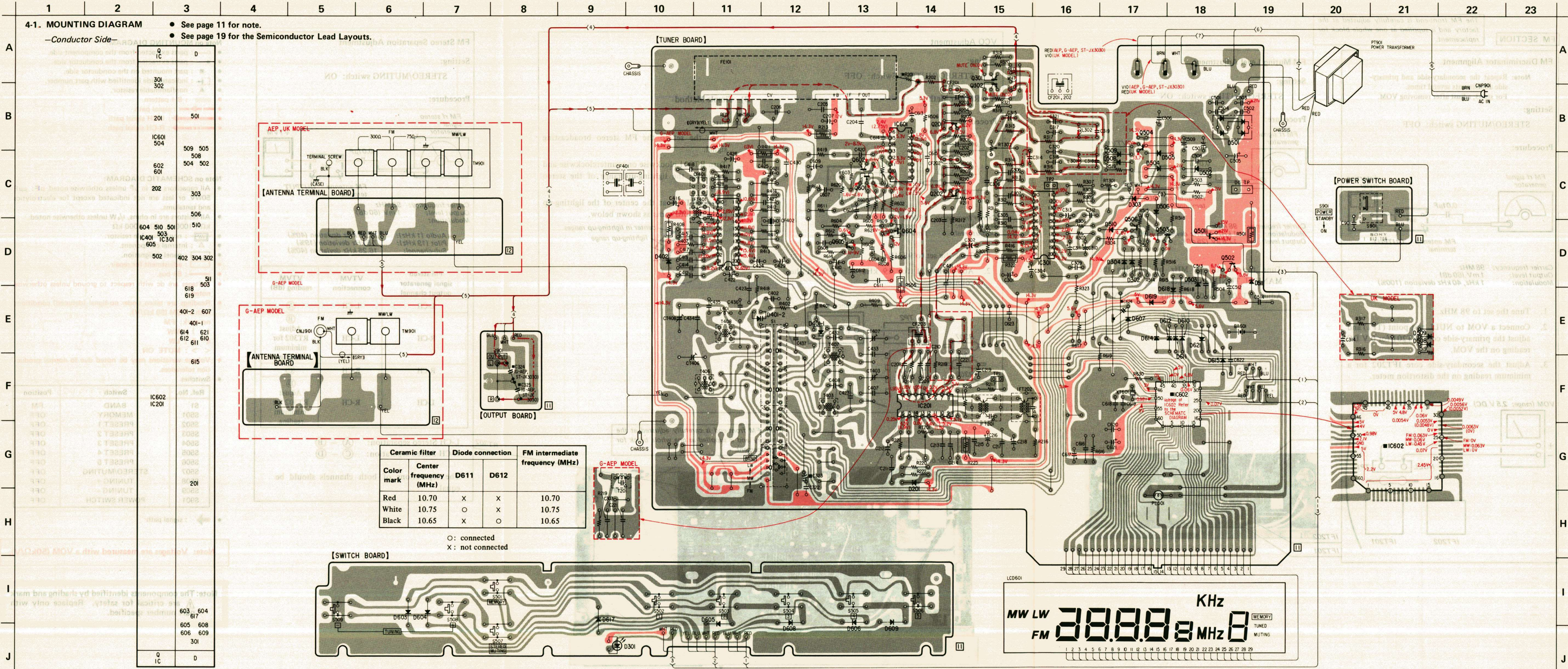
Switches

Ref. No.	Switch	Position
S1	BAND	FM
S501	MEMORY	OFF
S502	PRESET 1	OFF
S503	PRESET 2	OFF
S504	PRESET 3	OFF
S505	PRESET 4	OFF
S506	PRESET 5	OFF
S507	STEREO/MUTING	OFF
S508	TUNING +	OFF
S509	TUNING -	OFF
S901	POWER SWITCH	OFF

- : signal path

Note: Voltages are measured with a VOM (50kΩ/V).

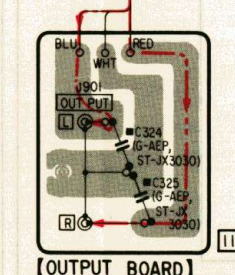
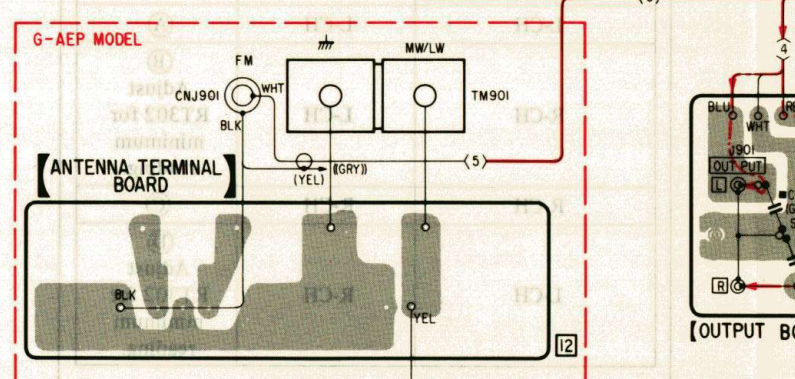
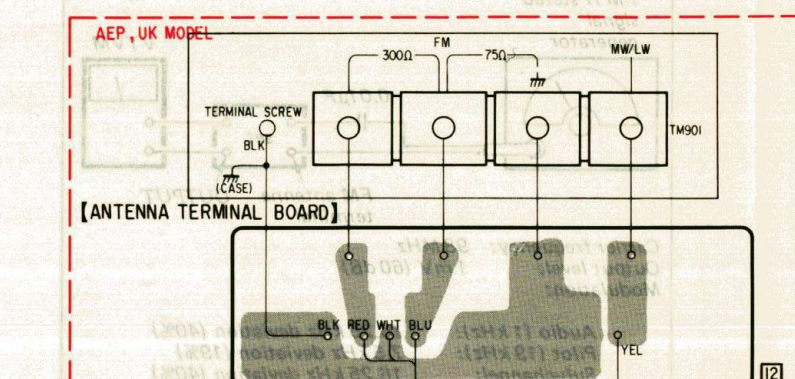
Note: The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.



4-1. MOUNTING DIAGRAM
—Conductor Side—

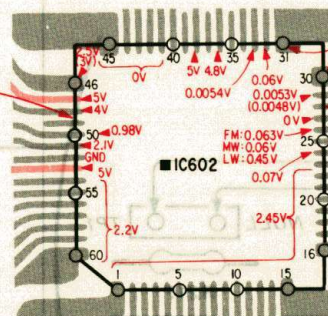
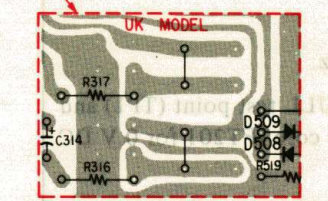
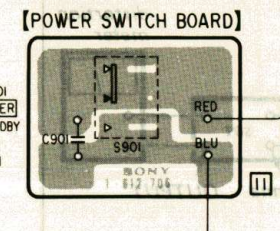
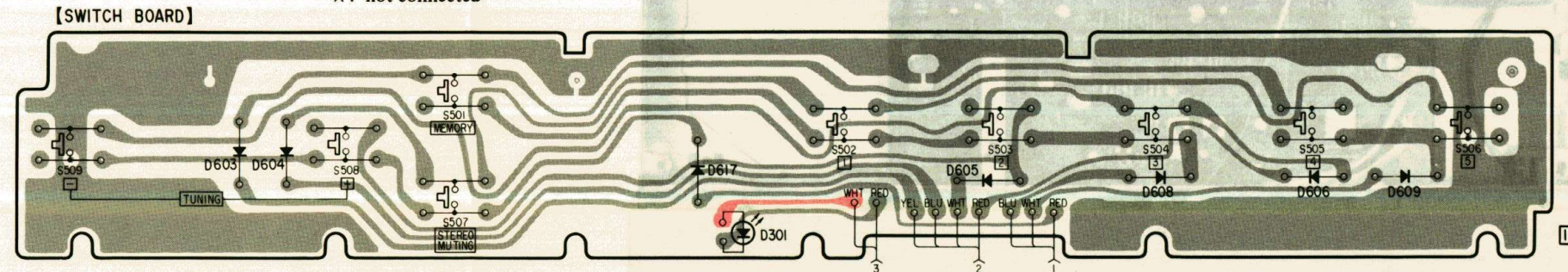
- See page 11 for note.
- See page 19 for the Semiconductor Lead Layouts.

Q IC	D
301	302
201	501
IC601	509 505
504	508
602	504 502
601	
202	303
	506
604 510 501	510
IC401 IC301	503
605	
502	402 304 302
	511
618	503
619	
401-2	607
401-1	
614	621
612	610
	611
	615
IC602	
IC201	
	201
603	604
617	
605	608
606	609
	301
Q IC	D



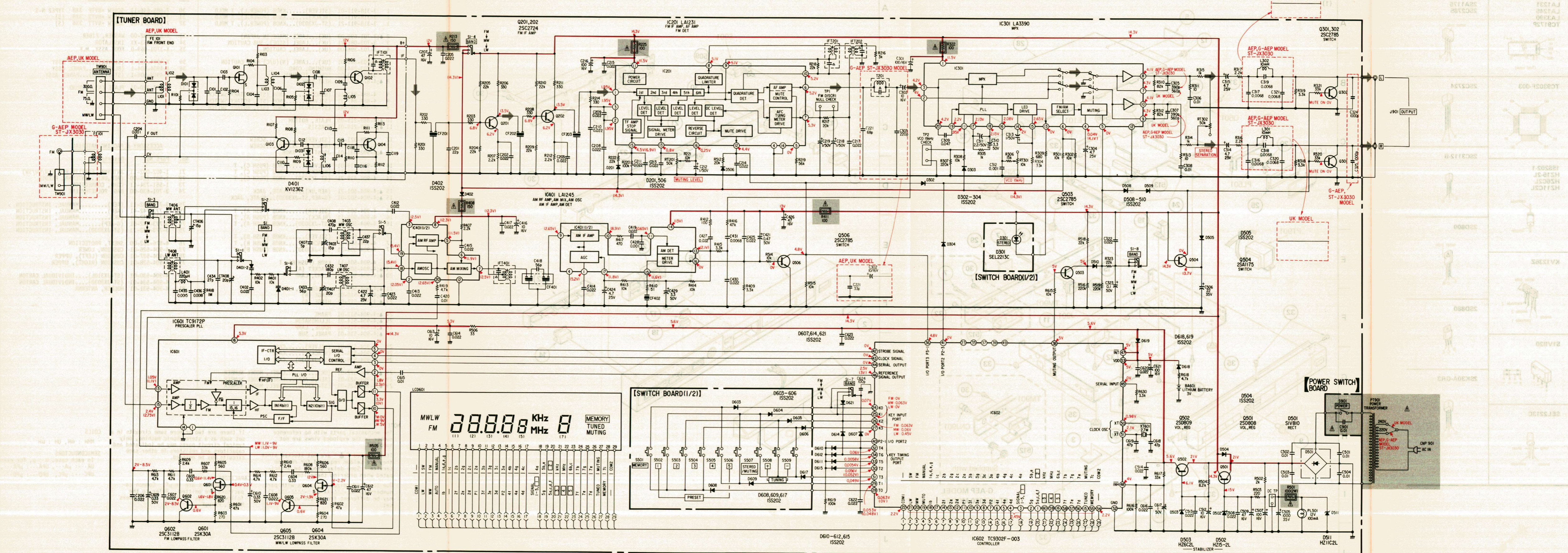
Color mark	Center frequency (MHz)	Diode connection		FM intermediate frequency (MHz)
		D611	D612	
Red	10.70	X	X	10.70
White	10.75	○	X	10.75
Black	10.65	X	○	10.65

○: connected
X: not connected



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

4-2. SCHEMATIC DIAGRAM See page 11 for note. FM FRONT END CIRCUIT for G-AEP model and ST-JX3030 model is omitted.

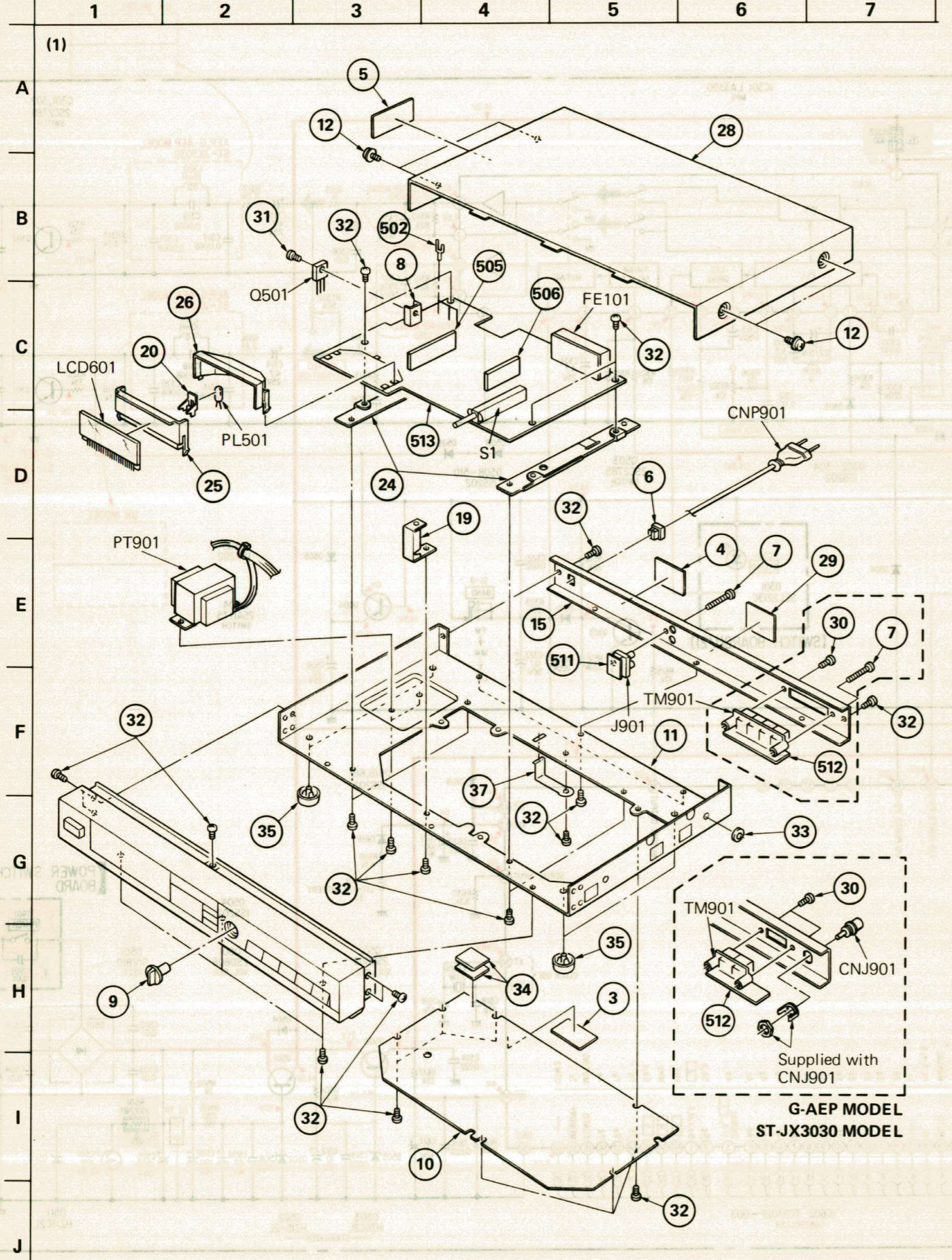


SECTION 5

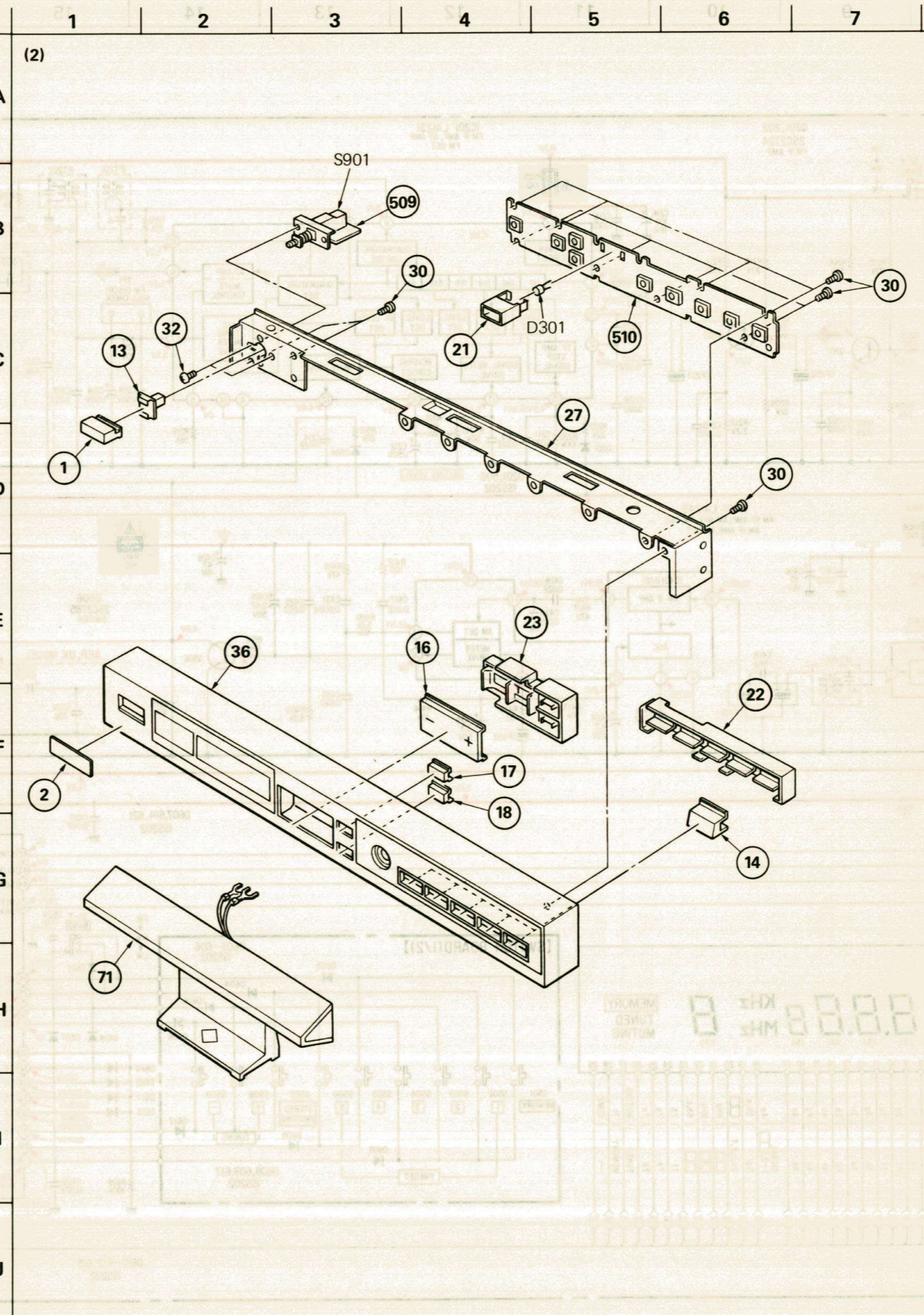
EXPLODED VIEWS AND PARTS LIST

Semiconductor Lead Layouts

LA1231 LA1245 LA3390 TC9172P 	2SA1175 2SC2785
TC9302F-003 	2SC2724
1SS202-1 HZ15-2L HZ6C2L HZ11C2L 	2SC3112-B
KV1236Z 	2SD809
S1VB20 	2SD880
SEL2213C 	2SK30A-GR3



G-AEP MODEL
ST-JX3030 MODEL



GENERAL SECTION			GENERAL SECTION		
No.	Part No.	Description	No.	Part No.	Description
1	3-318-911-01	(SILVER).....KNOB (POWER.L), T MOLD	30	7-685-646-11	SCREW +BVTP 3X8 TYPEZ N-S
1	3-318-911-11	(BLACK).....KNOB (POWER.L), T MOLD	31	7-685-752-04	SCREW +BVTT 3X8 (S)
1	3-318-911-21	(ST-JX3030).....KNOB (POWER.L), T MOLD	32	7-685-871-01	SCREW +BVTT 3X6 (S)
2	3-701-690-00	(UK)...LABEL (MADE IN JAPAN)	33	4-830-092-00	WASHER, FIBER
3	3-703-081-21	(UK)...LABEL (SIDE), SUB CAUTION	34	9-911-863-XX	INSULATOR
4	3-703-396-00	(UK)...LABEL, CAUTION	35	3-3701-069-00	FOOT ASSY, M.F
5	3-703-845-01	(UK)...LABEL (N)(U/C) MAIN CAUTION	36	X-4904-503-1	(SILVER)....PANEL ASSY
6	3-703-244-00	BUSHING, CORD	36	X-4904-504-1	(BLACK)....PANEL ASSY
7	3-703-473-00	SCREW, TERMINAL	36	X-4904-506-1	(ST-JX3030)...PANEL ASSY
8	4-875-327-01	HEAT SINK	37	4-887-320-01	PLATE (A), GROUND
9	4-884-847-11	(BLACK).....KNOB (ST), ROTARY SWITCH			
9	4-884-847-31	(SILVER).....KNOB (ST), ROTARY SWITCH			
9	4-884-847-41	(ST-JX3030).....KNOB (ST), ROTARY SWITCH			
10	4-889-215-00	PLATE, BOTTOM			
11	4-889-219-01	CHASSIS			
12	4-889-321-01	(SILVER).....SCREW			
12	4-889-321-11	(BLACK,ST-JX3030)...SCREW			
13	4-902-831-01	JOINT (G), KNOB			
14	4-904-419-01	(SILVER).....KNOB (PUSH C), T			
14	4-904-419-11	(BLACK).....KNOB (PUSH C), T			
14	4-904-419-21	(ST-JX3030).....KNOB (PUSH C), T			
15	4-904-501-21	(AEP,UK)....PLATE, JACK			
15	4-904-502-01	(G-AEP,ST-JX3030)...PLATE, JACK			
16	4-904-503-01	(SILVER).....KNOB (PUSH A), T			
16	4-904-503-11	(BLACK).....KNOB (PUSH A), T			
16	4-904-503-21	(ST-JX3030).....KNOB (PUSH A), T			
17	4-904-504-01	(SILVER).....KNOB (PUSH B), T			
17	4-904-504-21	(BLACK).....KNOB (PUSH B), T			
17	4-904-504-31	(ST-JX3030).....KNOB (PUSH B), T			
18	4-904-504-11	KNOB (PUSH B), T			
19	4-904-506-01	BRACKET (A)			
20	4-904-507-01	BLIND, LAMP			
21	4-904-509-01	HOLDER (B), LED			
22	4-904-510-01	HINGE (B)			
23	4-904-512-01	HINGE (A)			
24	4-904-513-01	FRAME			
25	4-904-514-01	ILLUMINATOR			
26	4-904-515-01	HOUSE, LAMP			
27	4-904-516-01	PANEL, SUB			
28	4-904-518-01	(SILVER).....CASE			
28	4-904-518-11	(BLACK).....CASE			
28	4-904-518-21	(ST-JX3030).....CASE			
29	4-904-522-01	(UK).....LABEL, MODEL NUMBER			
29	4-904-523-01	(AEP,G-AEP)...LABEL, MODEL NUMBER			
29	4-904-525-01	(ST-JX3030)...LABEL, MODEL NUMBER			

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
71	1-402-082-11	ANTENNA, FERRITE-ROD (LW/MW/SW)
72	1-501-224-00	(AEP,UK)...ANTENNA, FEEDER
73	1-551-734-11	CORD, CONNECTION
74	3-701-630-00	BAG, POLYETHYLENE
75	3-773-742-11	(AEP).....MANUAL, INSTRUCTION
75	3-773-742-41	(AEP).....MANUAL, INSTRUCTION
75	3-773-742-51	(UK).....MANUAL, INSTRUCTION
75	3-773-742-61	(G-AEP).....MANUAL, INSTRUCTION
75	3-773-742-71	(ST-JX3030)...MANUAL, INSTRUCTION
76	4-876-352-00	SHEET, PROTECTION
77	4-904-526-01	CUSHION, LOWER
78	4-904-527-01	CUSHION (LEFT), UPPER
79	4-904-528-01	CUSHION (RIGHT), UPPER
80	4-904-530-01	(ST-JX310L)....INDIVIDUAL CARTON
80	4-904-534-01	(ST-JX3030)....INDIVIDUAL CARTON
81	4-904-531-01	HOLDER, ANTENNA

NOTE:

The mechanical parts with no reference number in the exploded views are not supplied.

Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Due to standardization, parts with part numbers (C-000-000-XX or C-000-000-X) may be different from those used in the set.

If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

COILS
 - MMH : mH, UH : μH

SEMICONDUCTORS
 In each case, U : μ, for example:
 UA...: μA... UPA...: μPA...
 UPC...: μPC, UPD...: μPD...

CAPACITORS:
 All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.
 MF:μF, PF:μF.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
501	TERMINAL
502	♣;1-535-115-00	TERMINAL
503	1-535-416-00	TERMINAL
504	♣;1-560-060-00	PIN, CONNECTOR 2P
505	1-560-242-11	BUS BAR 3P
506	1-560-242-61	BUS BAR 2P
507	♣;1-562-249-00	SOCKET, CONNECTOR 4P
508	♣;1-562-327-00	SOCKET, CONNECTOR 3P
509	♣;1-612-706-11	PC BOARD, POWER SWITCH
510	♣;1-612-708-11	PC BOARD, SWITCH
511	♣;1-612-709-11	PC BOARD, OUTPUT
512	♣;1-612-711-11	PC BOARD, ANTENNA TERMINAL
513	♣;1-612-710-11	PC BOARD, TUNER
513	♣;A-4351-396-A	(UK).....MOUNTED PCB, TUNER
513	♣;A-4351-397-A	(AEP).....MOUNTED PCB, TUNER
513	♣;A-4351-398-A	(G-AEP,ST-JX3030)...MOUNTED PCB, TUNER
BA601	1-528-120-00	BATTERY, LITHIUM (CR-2025)
C201	1-161-263-00	CERAMIC 22PF 5% 50V
C202	1-161-494-00	CERAMIC 0.022MF 30% 25V
C203	1-161-494-00	CERAMIC 0.022MF 30% 25V
C204	1-161-323-00	CERAMIC 0.001MF 10% 50V
C205	1-161-494-00	CERAMIC 0.022MF 30% 25V
C206	1-161-494-00	CERAMIC 0.022MF 30% 25V
C207	1-123-332-00	ELECT 47MF 20% 16V
C208	1-161-494-00	CERAMIC 0.022MF 30% 25V
C209	1-161-494-00	CERAMIC 0.022MF 30% 25V
C210	1-161-494-00	CERAMIC 0.022MF 30% 25V
C211	1-161-494-00	CERAMIC 0.022MF 30% 25V
C212	1-123-380-00	ELECT 1MF 20% 50V
C213	1-161-494-00	CERAMIC 0.022MF 30% 25V
C214	1-161-494-00	CERAMIC 0.022MF 30% 25V
C215	1-161-494-00	CERAMIC 0.022MF 30% 25V
C216	1-123-333-00	ELECT 100MF 20% 16V
C217	1-161-494-00	CERAMIC 0.022MF 30% 25V
C218	1-123-380-00	ELECT 1MF 20% 50V
C219	1-123-380-00	ELECT 1MF 20% 50V
C221	1-161-265-00	(AEP,UK)...CERAMIC 33PF 5% 50V
C221	1-161-269-00	(G-AEP,ST-JX3030)...CERAMIC 68PF 5% 50V
C301	1-123-333-00	ELECT 100MF 20% 16V
C302	1-123-356-00	ELECT 10MF 20% 16V
C303	1-161-315-00	(G-AEP,ST-JX3030)...CERAMIC 220PF 10% 50V
C304	1-123-369-00	ELECT 4.7MF 20% 25V
C305	1-161-318-00	(AEP,G-AEP,ST-JX3030)...CERAMIC 390PF 10% 50V
C305	1-161-320-00	(UK)...CERAMIC 560PF 10% 50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C306	1-161-330-00	CERAMIC 0.01MF 30% 25V
C307	1-161-318-00	(AEP,G-AEP,ST-JX3030)...CERAMIC 390PF 10% 50V
C307	1-161-320-00	(UK)...CERAMIC 560PF 10% 50V
C308	1-161-330-00	CERAMIC 0.01MF 30% 25V
C309	1-101-006-00	CERAMIC 0.047MF 50V
C310	1-123-382-00	ELECT 3.3MF 20% 50V
C311	1-123-381-00	ELECT 2.2MF 20% 50V
C312	1-104-077-00	POLYSTYRENE 0.001MF 5% 50V
C313	1-123-380-00	ELECT 1MF 20% 50V
C314	1-123-369-00	ELECT 4.7MF 20% 25V
C315	1-123-369-00	ELECT 4.7MF 20% 25V
C316	1-108-575-00	(AEP,G-AEP,ST-JX3030)...MYLAR 0.0068MF 5% 50V
C317	1-108-575-00	(AEP,G-AEP,ST-JX3030)...MYLAR 0.0068MF 5% 50V
C318	1-108-575-00	(AEP,G-AEP,ST-JX3030)...MYLAR 0.0068MF 5% 50V
C319	1-108-575-00	(AEP,G-AEP,ST-JX3030)...MYLAR 0.0068MF 5% 50V
C320	1-108-575-00	(AEP,G-AEP,ST-JX3030)...MYLAR 0.0068MF 5% 50V
C321	1-108-575-00	(AEP,G-AEP,ST-JX3030)...MYLAR 0.0068MF 5% 50V
C322	1-101-005-00	CERAMIC 0.022MF 50V
C323	1-123-607-00	ELECT 0.1MF 20% 50V
C324	1-161-323-00	(G-AEP,ST-JX3030)...CERAMIC 0.001MF 10% 50V
C325	1-161-323-00	(G-AEP,ST-JX3030)...CERAMIC 0.001MF 10% 50V
C402	1-101-005-00	CERAMIC 0.022MF 50V
C407	1-102-236-00	CERAMIC 5PF 10% 50V
C408	1-104-069-00	POLYSTYRENE 470PF 5% 50V
C412	1-161-494-00	CERAMIC 0.022MF 30% 25V
C413	1-161-494-00	CERAMIC 0.022MF 30% 25V
C414	1-161-494-00	CERAMIC 0.022MF 30% 25V
C415	1-161-494-00	CERAMIC 0.022MF 30% 25V
C416	1-123-356-00	ELECT 10MF 20% 16V
C417	1-161-494-00	CERAMIC 0.022MF 30% 25V
C418	1-161-268-00	CERAMIC 56PF 5% 50V
C419	1-161-494-00	CERAMIC 0.022MF 30% 25V
C420	1-161-330-00	CERAMIC 0.01MF 30% 25V
C421	1-123-379-00	ELECT 0.47MF 20% 50V
C422	1-123-369-00	ELECT 4.7MF 20% 25V
C423	1-161-494-00	CERAMIC 0.022MF 30% 25V
C424	1-123-369-00	ELECT 4.7MF 20% 25V
C425	1-161-494-00	CERAMIC 0.022MF 30% 25V
C426	1-123-332-00	ELECT 47MF 20% 16V
C427	1-161-494-00	CERAMIC 0.022MF 30% 25V
C428	1-161-323-00	CERAMIC 0.001MF 10% 50V

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "♣" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF . Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μF , PF: μpF .

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

- In each case, U : μ , for example:
UA... : μA ..., UPA... : μPA ...,
UPC... : μPC , UPD... : μPD ...

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C429	1-123-382-00	ELECT	3.3MF	20%	50V
C430	1-161-494-00	CERAMIC	0.022MF	30%	25V
C431	1-161-329-00	CERAMIC	0.0068MF	30%	25V
C432	1-103-707-00	POLYSTYRENE	180PF	5%	50V
C433	1-102-730-00	CERAMIC	56PF	5%	50V
C434	1-161-264-00	CERAMIC	27PF	5%	50V
C435	1-161-053-00	CERAMIC	0.0015MF	30%	50V
C436	1-102-120-00	CERAMIC	0.0018MF	10%	50V
C437	1-161-263-00	CERAMIC	22PF	5%	50V
C501	1-101-004-00	CERAMIC	0.01MF		50V
C502	1-101-004-00	CERAMIC	0.01MF		50V
C503	1-101-004-00	CERAMIC	0.01MF		50V
C504	1-101-004-00	CERAMIC	0.01MF		50V
C505	1-123-349-00	ELECT	1000MF	20%	35V
C506	1-123-357-00	ELECT	22MF	20%	35V
C507	1-123-333-00	ELECT	100MF	20%	16V
C508	1-161-494-00	CERAMIC	0.022MF	30%	25V
C509	1-123-332-00	ELECT	47MF	20%	16V
C512	1-123-356-00	ELECT	10MF	20%	16V
C513	1-161-494-00	CERAMIC	0.022MF	30%	25V
C514	1-161-494-00	CERAMIC	0.022MF	30%	25V
C603	1-130-638-00	FILM	0.33MF	5%	50V
C604	1-130-638-00	FILM	0.33MF	5%	50V
C607	1-101-005-00	CERAMIC	0.022MF		50V
C608	1-101-005-00	CERAMIC	0.022MF		50V
C609	1-123-609-00	ELECT	0.33MF	20%	50V
C610	1-123-609-00	ELECT	0.33MF	20%	50V
C611	1-161-494-00	CERAMIC	0.022MF	30%	25V
C612	1-123-332-00	ELECT	47MF	20%	16V
C613	1-123-356-00	ELECT	10MF	20%	16V
C614	1-101-005-00	CERAMIC	0.022MF		50V
C615	1-161-330-00	CERAMIC	0.01MF	30%	25V
C616	1-161-494-00	CERAMIC	0.022MF	30%	25V
C617	1-123-380-00	ELECT	1MF	20%	50V
C618	1-102-852-00	CERAMIC	47PF	5%	50V
C619	1-102-852-00	CERAMIC	47PF	5%	50V
C620	1-101-005-00	CERAMIC	0.022MF		50V
C621	1-101-005-00	ELECT	100MF	20%	16V
C622	1-161-494-00	CERAMIC	0.022MF	30%	25V
C623	1-101-005-00	CERAMIC	0.022MF		50V
C624	1-102-973-00	CERAMIC	100PF	5%	50V
C901	1-101-004-00	CERAMIC	0.01MF		50V
CF201	1-527-968-11	(RED)...FILTER, CERAMIC			
CF202	1-527-968-41	(BLACK)...FILTER, CERAMIC			
CF203	1-527-968-51	(WHITE)...FILTER, CERAMIC			
CF401	1-527-937-00	FILTER, CERAMIC			
CF402	1-527-981-00	FILTER, CERAMIC			

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ - $\Delta\Delta\Delta$ - $\Delta\Delta\Delta$ -XX or Δ - $\Delta\Delta\Delta\Delta$ - $\Delta\Delta\Delta$ -X) may be different from those used in the set.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μ F, PF: μ μ F.

COILS

- MMH : mH, UH : μ H

SEMICONDUCTORS

- In each case, U : μ , for example:
UA... : μ A... , UPA... : μ PA... , UPC... : μ PC,
UPD... : μ PD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CT403	1-141-180-00	CAP, TRIMMER 15P
CT406	1-141-180-00	CAP, TRIMMER 15P
CT407	1-141-171-00	CAP, TRIMMER 20P
CT408	1-141-171-00	CAP, TRIMMER 20P
CNJ901	1-561-919-00	(G-AEP,ST-JX3030)...SOCKET, CONNECTOR
Δ CNP901.1-551-427-11		(AEP,G-AEP,ST-JX3030)... CORD, POWER, EULO PLUG
Δ CNP901.1-556-560-00		(UK)...CORD, POWER
D201	8-719-107-94	DIODE 1SS202-1
D301	8-719-300-82	DIODE SEL2213C
D302	8-719-107-94	DIODE 1SS202-1
D303	8-719-107-94	DIODE 1SS202-1
D304	8-719-107-94	DIODE 1SS202-1
D401	8-719-902-79	DIODE KV1236Z
D402	8-719-107-94	DIODE 1SS202-1
D501	8-719-511-20	DIODE 1SVB20
D502	8-719-910-52	DIODE HZ15-2L
D503	8-719-910-68	DIODE HZ6C2L
D504	8-719-107-94	DIODE 1SS202-1
D505	8-719-107-94	DIODE 1SS202-1
D506	8-719-107-94	DIODE 1SS202-1
D508	8-719-107-94	DIODE 1SS202-1
D509	8-719-107-94	DIODE 1SS202-1
D510	8-719-107-94	DIODE 1SS202-1
D511	8-719-910-18	DIODE HZ11C2L
D603	8-719-107-94	DIODE 1SS202-1
D604	8-719-107-94	DIODE 1SS202-1
D605	8-719-107-94	DIODE 1SS202-1
D606	8-719-107-94	DIODE 1SS202-1
D607	8-719-107-94	DIODE 1SS202-1
D608	8-719-107-94	DIODE 1SS202-1
D609	8-719-107-94	DIODE 1SS202-1
D610	8-719-107-94	DIODE 1SS202-1
D611	8-719-107-94	DIODE 1SS202-1
D612	8-719-107-94	DIODE 1SS202-1
D614	8-719-107-94	DIODE 1SS202-1
D615	8-719-107-94	DIODE 1SS202-1
D617	8-719-107-94	DIODE 1SS202-1
D618	8-719-107-94	DIODE 1SS202-1
D619	8-719-107-94	DIODE 1SS202-1
D621	8-719-107-94	DIODE 1SS202-1
FE101	A-4344-037-A	(AEP,UK)...FM FRONT END
FE101	A-4344-040-A	(G-AEP,ST-JX3030)...FM FRONT END
IC201	8-759-812-31	IC LA1231
IC301	8-759-833-90	IC LA3390
IC401	8-759-812-45	IC LA1245

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
IC601	8-759-202-63	IC TC9172P
IC602	8-759-202-64	IC TC9302F-003
IFT201	1-404-400-00	TRANSFORMER, DISCRIMINATOR
IFT202	1-404-401-00	TRANSFORMER, DISCRIMINATOR
IFT401	1-404-535-11	COIL (WITH IFT)
J901	1-507-912-11	JACK, PIN 2P (OUTPUT)
L301	1-408-257-00	(AEP,G-AEP,ST-JX3030)... MICRO INDUCTOR 10MMH
L302	1-408-257-00	(AEP,G-AEP,ST-JX3030)... MICRO INDUCTOR 10MMH
L401	1-408-425-00	MICRO INDUCTOR 220UH
LCD601	1-806-874-11	INDICATOR, L-CRYSTAL LT5056
PL501	1-518-511-00	LAMP, PILOT
PT901	1-447-846-11	TRANSFORMER, POWER
Q201	8-729-672-43	TRANSISTOR 2SC2724
Q202	8-729-672-43	TRANSISTOR 2SC2724
Q301	8-729-245-83	TRANSISTOR 2SC2458
Q302	8-729-245-83	TRANSISTOR 2SC2458
Q501	8-729-288-02	TRANSISTOR 2SD880
Q502	8-729-180-93	TRANSISTOR 2SD809
Q503	8-729-245-83	TRANSISTOR 2SC2458
Q504	8-729-201-52	TRANSISTOR 2SA1015
Q506	8-729-245-83	TRANSISTOR 2SC2458
Q601	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q602	8-729-201-84	TRANSISTOR 2SC3112-B
Q604	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q605	8-729-201-84	TRANSISTOR 2SC3112-B
R201	1-247-119-00	CARBON 330 5% 1/4W
R202	1-247-119-00	CARBON 330 5% 1/4W
R203	1-247-119-00	CARBON 330 5% 1/4W
R204	1-247-163-00	CARBON 22K 5% 1/4W
R205	1-247-163-00	CARBON 22K 5% 1/4W
R206	1-247-119-00	CARBON 330 5% 1/4W
R207	1-247-139-00	CARBON 2.2K 5% 1/4W
R208	1-247-119-00	CARBON 330 5% 1/4W
R209	1-247-163-00	CARBON 22K 5% 1/4W
R210	1-247-163-00	CARBON 22K 5% 1/4W
R211	1-247-119-00	CARBON 330 5% 1/4W
R212	1-247-139-00	CARBON 2.2K 5% 1/4W
R213	1-247-111-00	CARBON 150 5% 1/4W F
R214	1-247-119-00	CARBON 330 5% 1/4W
R216	1-247-142-00	CARBON 3K 5% 1/4W
R217	1-247-162-00	CARBON 20K 5% 1/4W
R218	1-247-163-00	CARBON 22K 5% 1/4W
R219	1-247-173-00	CARBON 56K 5% 1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R220	1-247-179-00	CARBON 100K 5% 1/4W
R221	1-247-155-00	CARBON 10K 5% 1/4W
R222	1-247-163-00	CARBON 22K 5% 1/4W
R225	1-247-107-00	CARBON 100 5% 1/4W F
R301	1-247-155-00	CARBON 10K 5% 1/4W
R302	1-247-155-00	CARBON 10K 5% 1/4W
R304	1-247-167-00	CARBON 33K 5% 1/4W
R305	1-247-131-00	CARBON 1K 5% 1/4W
R306	1-247-159-00	CARBON 15K 5% 1/4W
R307	1-246-529-00	CARBON 220K 5% 1/4W
R308	1-247-155-00	CARBON 10K 5% 1/4W
R309	1-247-127-00	CARBON 680 5% 1/4W
R310	1-247-177-00	CARBON 82K 5% 1/4W
R311	1-247-083-00	CARBON 10 5% 1/4W
R312	1-247-177-00	CARBON 82K 5% 1/4W
R313	1-247-083-00	CARBON 10 5% 1/4W
R314	1-247-131-00	CARBON 1K 5% 1/4W
R315	1-247-131-00	CARBON 1K 5% 1/4W
R316	1-247-139-00	CARBON 2.2K 5% 1/4W
R317	1-247-139-00	CARBON 2.2K 5% 1/4W
R318	1-247-143-00	CARBON 3.3K 5% 1/4W
R319	1-247-143-00	CARBON 3.3K 5% 1/4W
R320	1-247-167-00	CARBON 33K 5% 1/4W
R321	1-247-167-00	CARBON 33K 5% 1/4W
R322	1-247-107-00	CARBON 100 5% 1/4W F
R323	1-247-163-00	CARBON 22K 5% 1/4W
R401	1-247-155-00	CARBON 10K 5% 1/4W
R402	1-247-155-00	CARBON 10K 5% 1/4W
R407	1-247-139-00	CARBON 2.2K 5% 1/4W
R408	1-247-111-00	CARBON 150 5% 1/4W F
R409	1-247-143-00	CARBON 3.3K 5% 1/4W
R410	1-247-100-00	CARBON 51 5% 1/4W
R411	1-247-107-00	CARBON 100 5% 1/4W F
R412	1-247-107-00	CARBON 100 5% 1/4W
R413	1-247-155-00	CARBON 10K 5% 1/4W
R414	1-247-155-00	CARBON 10K 5% 1/4W
R415	1-247-143-00	CARBON 3.3K 5% 1/4W
R416	1-247-171-00	CARBON 47K 5% 1/4W
R417	1-247-123-00	CARBON 470 5% 1/4W
R418	1-246-545-00	CARBON 1M 5% 1/4W
R419	1-247-147-00	CARBON 4.7K 5% 1/4W
R501	1-206-640-00	METAL OXIDE 100 5% 2W F
R502	1-247-138-00	CARBON 2K 5% 1/4W
R503	1-247-115-00	CARBON 220 5% 1/4W
R504	1-247-153-00	CARBON 8.2K 5% 1/4W

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "●" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

- All capacitors are in μF . Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μF , PF: μpF .

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

- In each case, U : μ , for example:
UA...: μA ..., UPA...: μPA ..., UPC...: μPC ,
UPD...: μPD ...

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R505	A.1-247-107-00	CARBON	100	5%	1/4W	F
R506	1-247-095-00	CARBON	33	5%	1/4W	
R512	1-247-162-00	CARBON	20K	5%	1/4W	
R514	1-247-155-00	CARBON	10K	5%	1/4W	
R515	1-247-155-00	CARBON	10K	5%	1/4W	
R516	1-246-529-00	CARBON	220K	5%	1/4W	
R518	1-247-163-00	CARBON	22K	5%	1/4W	
R519	1-246-529-00	CARBON	220K	5%	1/4W	
R601	1-247-171-00	CARBON	47K	5%	1/4W	
R602	1-247-171-00	CARBON	47K	5%	1/4W	
R603	1-247-117-00	CARBON	270	5%	1/4W	
R604	1-247-117-00	CARBON	270	5%	1/4W	
R605	1-247-125-00	CARBON	560	5%	1/4W	
R606	1-247-125-00	CARBON	560	5%	1/4W	
R607	1-247-167-00	CARBON	33K	5%	1/4W	
R608	1-246-527-00	CARBON	180K	5%	1/4W	
R609	1-247-140-00	CARBON	2.4K	5%	1/4W	
R610	1-247-140-00	CARBON	2.4K	5%	1/4W	
R611	1-247-147-00	CARBON	4.7K	5%	1/4W	
R612	1-247-147-00	CARBON	4.7K	5%	1/4W	
R613	1-247-147-00	CARBON	4.7K	5%	1/4W	
R614	1-247-147-00	CARBON	4.7K	5%	1/4W	
R615	1-247-155-00	CARBON	10K	5%	1/4W	
R616	1-247-179-00	CARBON	100K	5%	1/4W	
R617	1-247-167-00	CARBON	33K	5%	1/4W	
R618	1-247-147-00	CARBON	4.7K	5%	1/4W	
R619	1-247-179-00	CARBON	100K	5%	1/4W	
R620	1-247-129-00	CARBON	820	5%	1/4W	
R621	1-247-129-00	CARBON	820	5%	1/4W	
R630	1-247-143-00	CARBON	3.3K	5%	1/4W	
RT201	1-226-238-00	RES, ADJ, CARBON 50K				
RT301	1-228-505-00	RES, ADJ, METAL GLAZE 10K				
RT302	1-226-238-00	RES, ADJ, CARBON 50K				
S1	1-554-897-11	SWITCH, ROTARY SLIDE (BAND)				
S501	1-553-739-21	SWITCH, KEY BOARD (MEMORY)				
S502	1-553-739-21	SWITCH, KEY BOARD (PRESET 1)				
S503	1-553-739-21	SWITCH, KEY BOARD (PRESET 2)				
S504	1-553-739-21	SWITCH, KEY BOARD (PRESET 3)				
S505	1-553-739-21	SWITCH, KEY BOARD (PRESET 4)				
S506	1-553-739-21	SWITCH, KEY BOARD (PRESET 5)				
S507	1-553-739-21	SWITCH, KEY BOARD (STEREO/MUTING)				
S508	1-553-739-21	SWITCH, KEY BOARD (TUNING +)				
S509	1-553-739-21	SWITCH, KEY BOARD (TUNING -)				
S901	A.1-554-881-11	SWITCH, PUSH (1 KEY)(POWER SWITCH)				

ELECTRICAL PARTS

Ref.No.	Part No.	Description
T201	1-235-126-00	(G-AEP,ST-JX3030)...ENCAPSULATED COMPONENT
T403	1-406-089-11	COIL (OSC)
T406	1-402-069-11	COIL (ANT)
T407	1-406-090-11	COIL (OSC)
T408	1-402-071-11	COIL (ANT)
TM901	1-536-707-00	(G-AEP,ST-JX3030)...TERMINAL BOARD, PUSH 2P
TM901	1-536-708-00	(AEP,UK)...TERMINAL BOARD, PUSH 4P
XT601	1-567-125-00	VIBRATOR, CRYSTAL

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "A" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.
 MF: μF, PF: μμF.

COILS

MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
 UA... : μA..., UPA... : μPA..., UPC... : μPC,
 UPD... : μPD...

The components identified by shading and mark A are critical for safety. Replace only with part number specified.