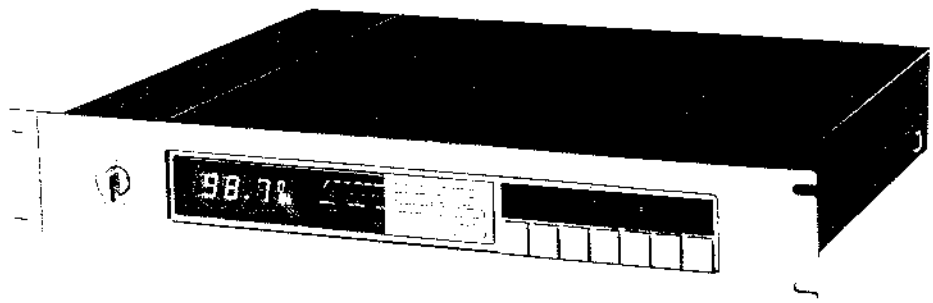
ST-J88B

US Model
AEP Model
UK Model



FM STEREO TUNER

SPECIFICATIONS

GENERAL

System: PLL crystal locked digital synthesizer system

Power Requirements: US model:
120 V ac, 60 Hz
AEP, UK model:
110, 120, 220 or 240 V ac ~ adjustable, 50/60 Hz

Power Consumption: 25 W

Dimensions: Approx. 480 (w) x 80 (h) x 370 (d) mm
19 (w) x 3¼ (h) x 14½ (d) inches
* including projecting parts and controls

Weight: US model:
Approx. 6.6 kg, 14 lb 9 oz (net)
Approx. 7.6 kg, 16 lb 13 oz (in shipping carton)
AEP, UK model:
Approx. 6.7 kg, 14 lb 12 oz (net)
Approx. 7.7 kg, 17 lb (in shipping carton)

TUNER SECTION

Tuning Range: 87.5 – 107.9 MHz (US model)
87.5 – 108 MHz (AEP, UK model)

Antenna Terminals: 300 Ω, balanced
75 Ω, unbalanced coaxial input

Intermediate Frequency: 10.7 MHz

Sensitivity at 50dB Quieting:
3.2 µV, 15.3 dBf (mono)
35 µV, 36.1 dBf (stereo) } (US model)

Sensitivity at 46dB Quieting (40kHz deviation):
3.2 µV (mono)
35 µV (stereo) } (AEP, UK model)

Usable Sensitivity: US model:
1.8 µV, 10.3 dBf
AEP, UK model:
1.2 µV (S/N = 26 dB, 40 kHz deviation)
1.8 µV, 10.3 dBf (IHF)

– Continued on page 2 –

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS 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

SERVICE MANUAL

Limiting Threshold: 1 μV (AEP, UK model)

S/N Ratio:

	US model	AEP, UK model (40kHz deviation)
mono	80dB	75dB
stereo	75dB	70dB

Harmonic Distortion: US model:

	mono		stereo	
	NORMAL	NARROW	NORMAL	NARROW
100Hz	0.04%	0.1%	0.07%	0.3%
1kHz	0.04%	0.1%	0.07%	0.3%
10kHz	0.04%	0.1%	0.15%	0.6%

AEP, UK model:
(40kHz deviation)

	mono		stereo	
	NORMAL	NARROW	NORMAL	NARROW
100Hz	0.04%	0.1%	0.07%	0.3%
1kHz	0.04%	0.1%	0.07%	0.3%
10kHz	0.04%	0.1%	0.15%	0.6%

IM Distortion: US model:

mono		stereo	
NORMAL	NARROW	NORMAL	NARROW
0.04%	0.1%	0.07%	0.3%

AEP, UK model:
(40kHz deviation)

mono		stereo	
NORMAL	NARROW	NORMAL	NARROW
0.04%	0.1%	0.07%	0.3%

Separation:

	NORMAL	NARROW
100Hz	50dB	45dB
1kHz	50dB	45dB
10kHz	45dB	40dB

Frequency Response: US model:
30 Hz – 15 kHz $^{+0.2}_{-0.5}$ dB
AEP, UK model:
40 Hz – 12.5 kHz ± 0.2 dB
30 Hz – 15 kHz $^{+0.2}_{-0.5}$ dB

Selectivity: US model:

	NORMAL	NARROW
300kHz	25dB	80dB
400kHz	65dB	——

AEP, UK model

	NORMAL	NARROW
300kHz	30dB	85dB
400kHz	70dB	——

Capture Ratio: 1.0 dB (NORMAL)
1.7 dB (NARROW)

AM Suppression Ratio: 60 dB

Image Response Ratio: 110 dB

IF Response Ratio: 110 dB

Spurious Response Ratio: 110 dB

RF Intermodulation: 80 dB

Sub-carrier Product Ratio: 70 dB (US model)
65 dB (AEP, UK model)

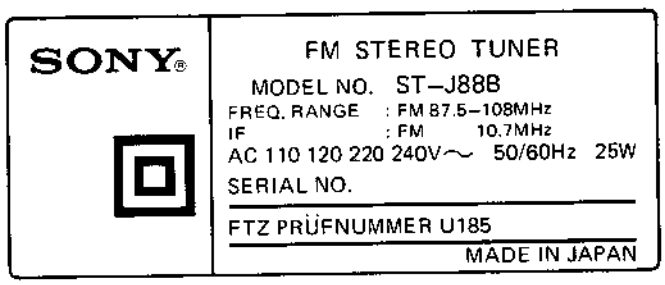
Muting and Auto-tunig Threshold: Approx. 5 μV, 19.2 dBf

Output Level: FIXED: 750 mV, 2 kΩ
VARIABLE: 0 – 1.2 V, 470 Ω

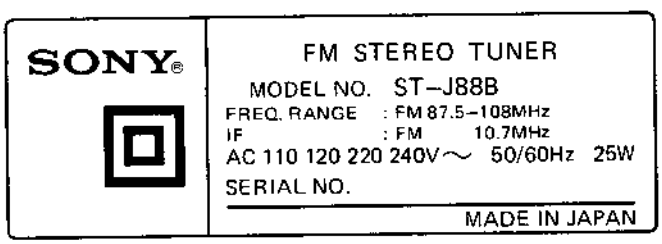
MODEL IDENTIFICATION

— Specification Label —

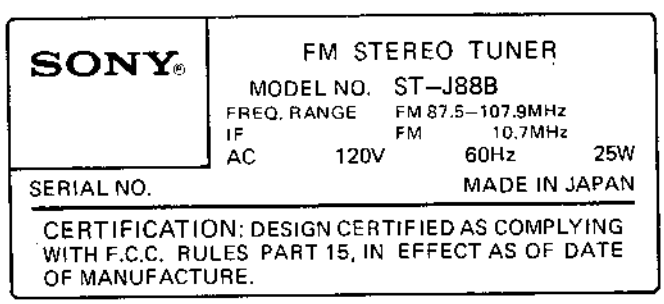
- AEP model



- UK model



- US model

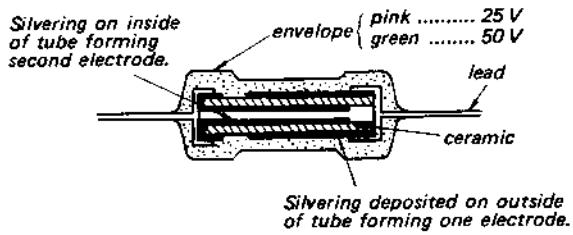


THE CERAMIC CAPACITORS

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.

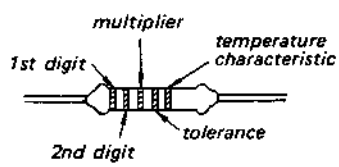
Disc-type ceramic capacitors can be used for replacing those originally used in the set.

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.

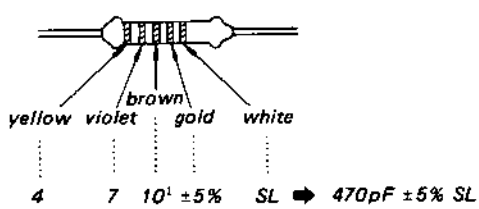


COLOR CODE (in pF)

Color	1st or 2nd Digit	Multiplier	Tolerance	Temperature charac-teristic
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:



Handling Precautions for MOS ICs (IC106, 404–408, 502)

Generally, the insulation resistance of the oxide layer in MOS IC structures is very high, and the oxide layer is very thin. Because of this, it is possible that the static voltages usually present on clothes and the human body will be enough to generate a potential difference across the insulator, high enough to cause a breakdown of the insulating layer.

The following precautions should be taken while handling these ICs.

(Particular care should be taken under conditions of low humidity.)

Precautions in Replacing MOS ICs

1. Store new ICs by inserting them into a urethane-polyester cushion (which is somewhat conductive), or wrapping it in aluminum foil, so that all the pins are at the same potential.
   (The ICs should be stored in that manner until mounted on the circuit board.)

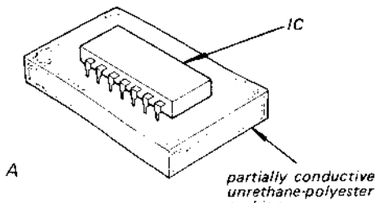


Fig. A

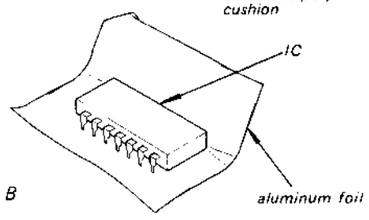


Fig. B

2. Check the soldering iron for possible power-line leakage current. Make sure that there is no leakage path by connecting an ohmmeter to the tip of the soldering iron and the plug as shown in Fig. C. If there is a leakage path, use some other soldering iron.

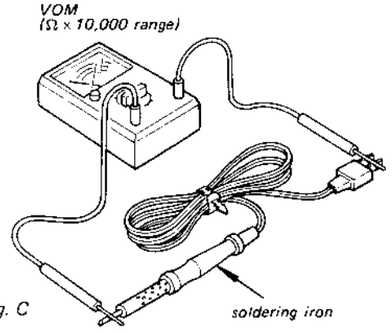


Fig. C

3. Equalize any potential difference between the clothes, the tools in use, the work bench, the set being worked on, and the packaged IC by touching them all in succession with the hands or a conductive wire or tool.
4. The following are effective methods for handling ICs that remove the potential difference across the oxide layer.
   - Use a paper clip modified by soldering in a wire braid insert.

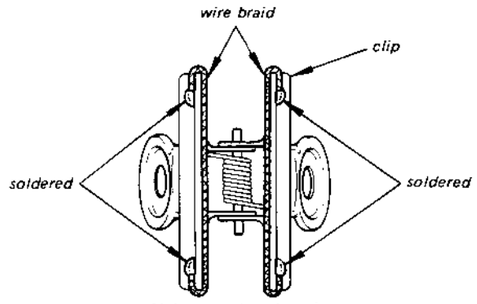


Fig. D

Make sure that there is no solder on the inside.

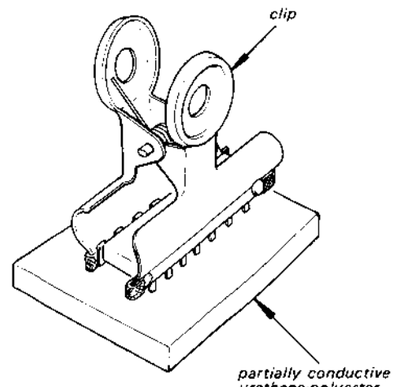


Fig. E

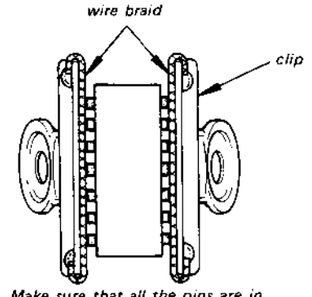


Fig. F

Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).

- Take a short length of fine bare wire and wind it around the IC so that it shorts all the pins of the IC, while it is still in the urethane-polyester cushion or aluminum foil. This ensures that all the pins are at the same potential.

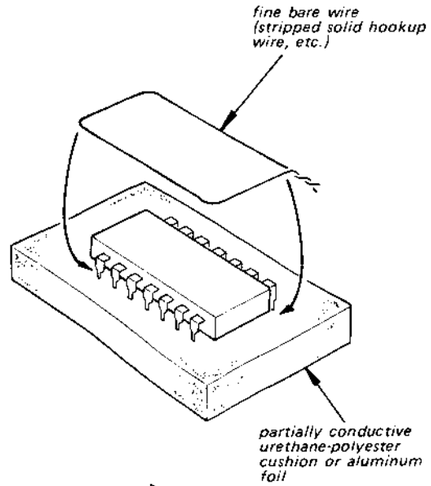


Fig. G

- When it is necessary to handle the IC with the fingers, do not touch any pin, and hold the IC at the ends of its plastic-package case as shown in Fig. H.

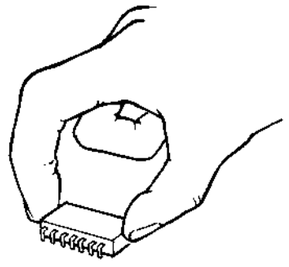


Fig. H

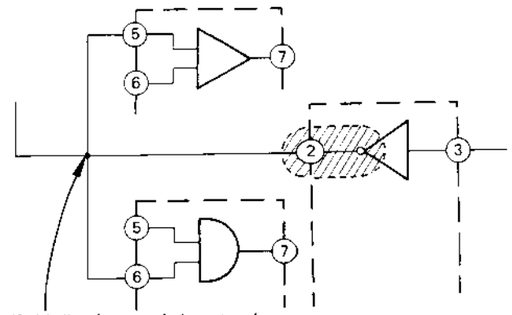
5. Method of Mounting
   Insert the IC while holding it with the modified clip, and solder all the pins with the clip still shorting the pins. (Similarly, solder all the pins while the bare shorting wire is still wound around them.). Remove the clip or the bare shorting wire only after all the pins have been soldered.

Precaution while Checking C-MOS ICs

The C-MOS ICs (Complementary MOS) are MOS ICs that have their output sections made up of N-channel and P-channel push-pull stages to increase their speed of operation. If the output terminal of these ICs comes into contact with B+ or B– voltage, then the FET which is ON at that time will either become shorted or open.

This is valid for all the output sections that are connected together by the interconnections. Even the circuits that are physically separated (and not on the same board) can be destroyed simultaneously.

Example:

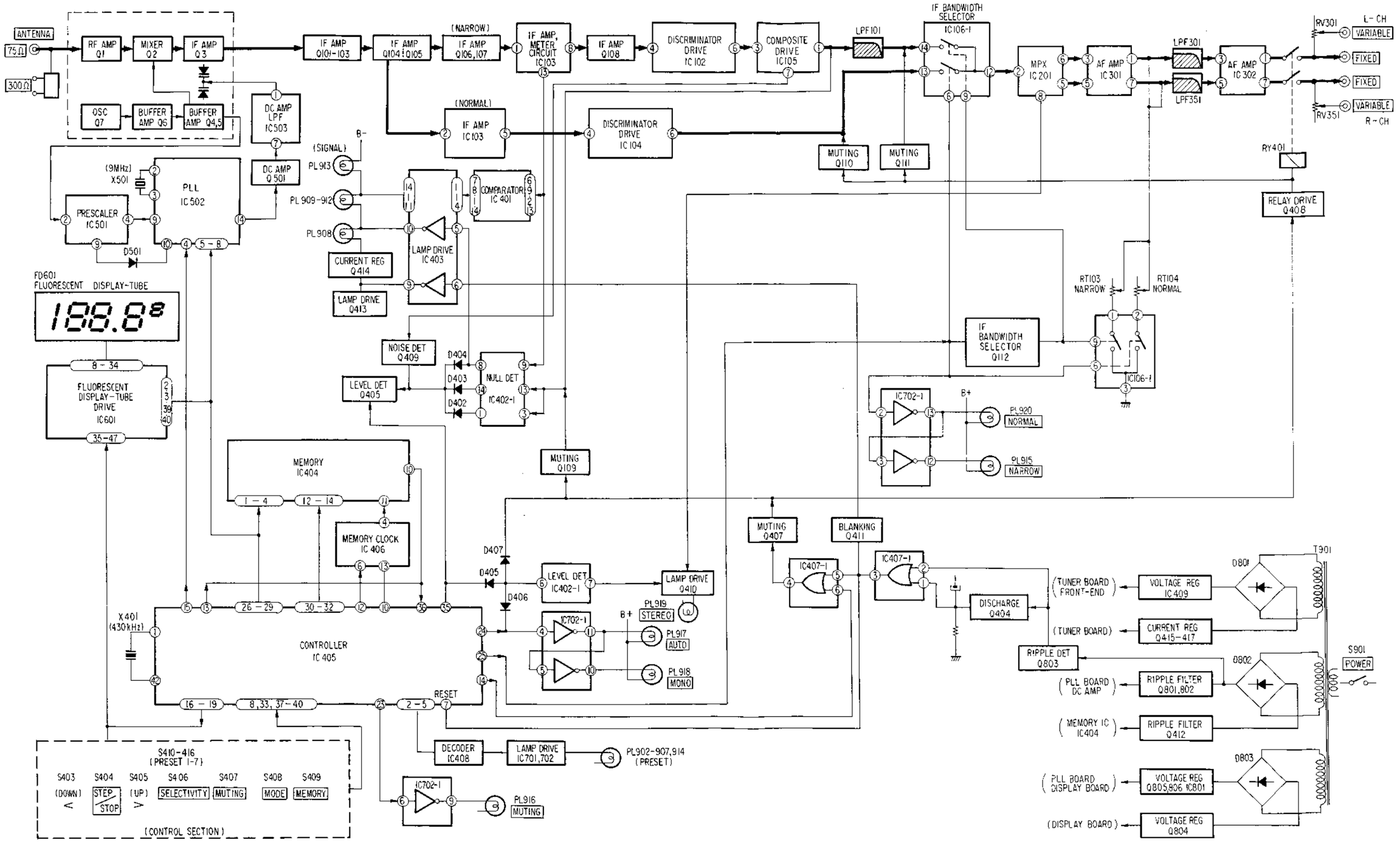


If this line is grounded, or touches B+ or B– bus . . . , the output stage of this IC will be destroyed.

Fig. I

SECTION 1
OUTLINE

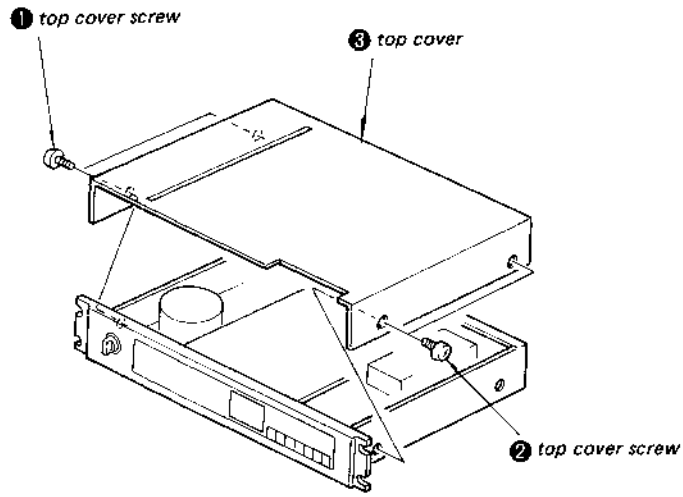
1-1. BLOCK DIAGRAM



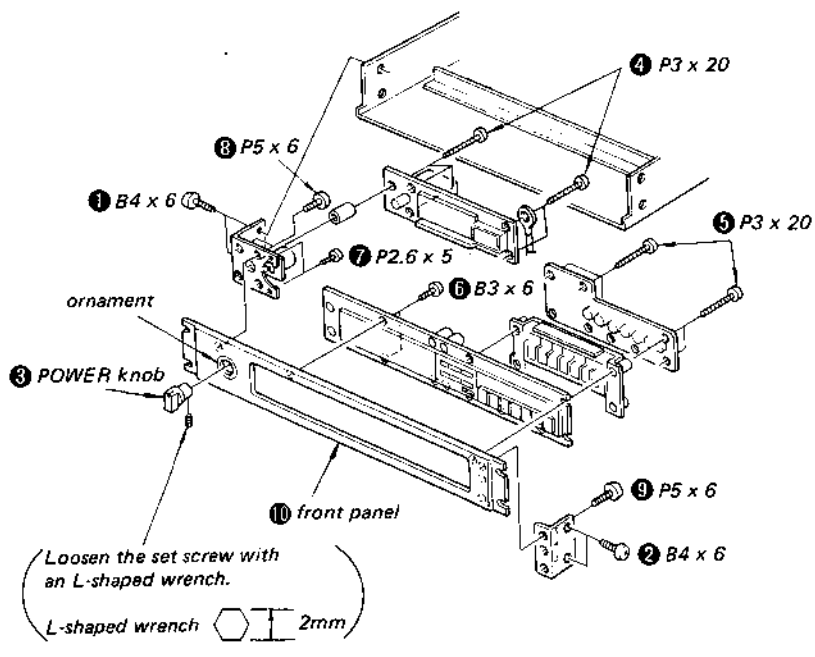
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

TOP COVER REMOVAL



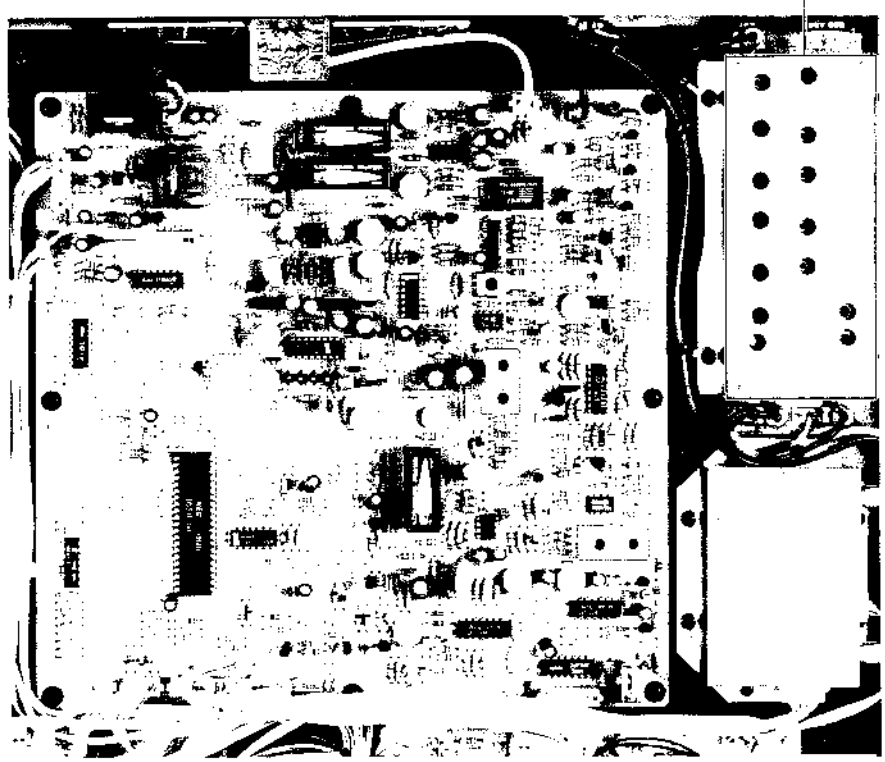
FRONT PANEL REMOVAL



SECTION 3
ADJUSTMENTS

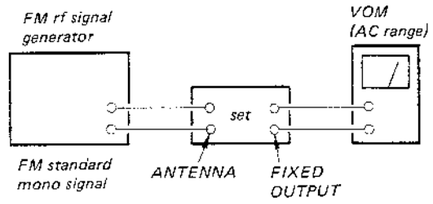
Servicing Precaution

The front-end section can not be repaired and it is only supplied as the front-end block.
This section has been carefully adjusted at the factory.



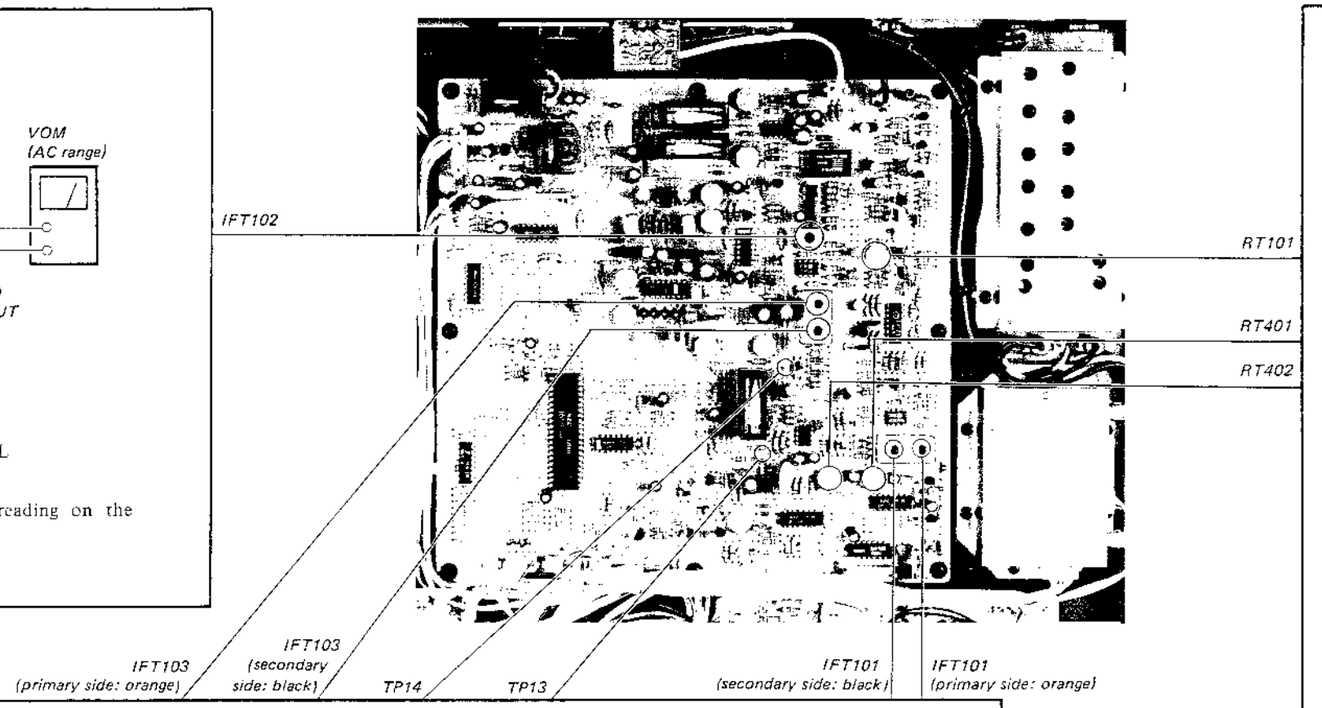
Tuning Adjustment

Procedure:



Output level: 2μV (6dB)

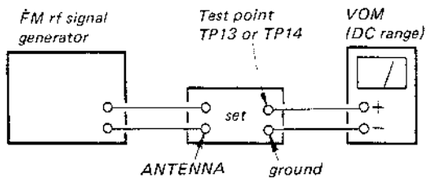
1. SELECTIVITY switch: NORMAL
   MUTING switch: OFF
2. Adjust IFT102 for maximum reading on the VOM.



Discriminator Alignment

A) Secondary Side

Procedure:



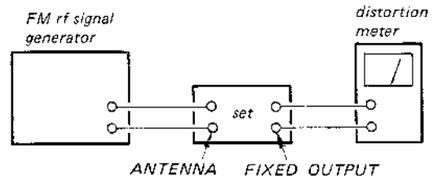
Carrier frequency: 98.1MHz
Modulation: no modulation
Output level: 1mV (60dB)

1. Connect the VOM to the test point TP13.
2. MODE switch: MONO
   SELECTIVITY switch: NARROW
3. Turn the core (secondary side: black) of IFT101 for 0V reading on the VOM.
4. Connect the VOM to the test point TP14.
5. SELECTIVITY switch: NORMAL
6. Turn the core (secondary side: black) of IFT103 for 0V reading on the VOM.

Note: Repeat the secondary side and primary side adjustments several times.

B) Primary Side

Procedure:



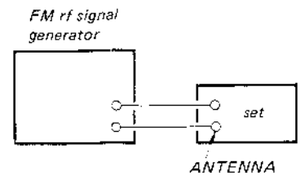
FM standard mono signal
Output level: 1mV (60dB)

1. MODE switch: MONO
   SELECTIVITY switch: NARROW
2. Turn the core (primary side: orange) of IFT101 for minimum distortion reading on the distortion meter.
3. SELECTIVITY switch: NORMAL
4. Turn the core (primary side: orange) of IFT103 for minimum distortion reading on the distortion meter.

Note: Repeat the secondary side and primary side adjustments several times.

Signal Indicator Adjustment

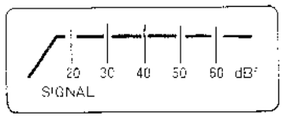
Procedure:



Carrier frequency: 98.1MHz
Modulation: no modulation

1. SELECTIVITY switch: NARROW
2.

FM rf signal generator output level	Indication	Adjustment part
560μV (55dB)	The sixth lamp from the left lights up.	RT101
56μV (35dB)	The fourth lamp from the left light up.	RT401
5.6μV (15dB)	The second lamp from the left lights up.	RT402

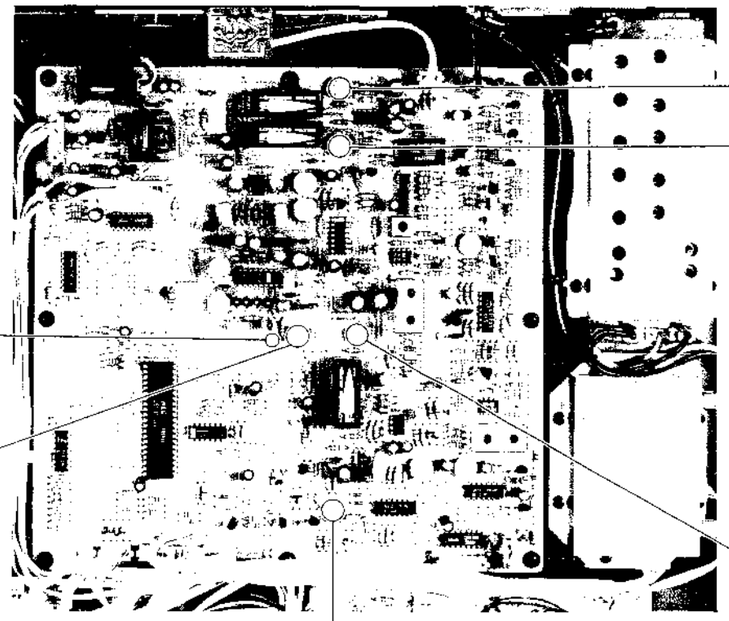


signal indicator

FM Standard Mono Signal	
Carrier frequency:	*98.1MHz*
Modulation:	*400Hz, 75kHz deviation (100%)*
	. . . . . US model
	400Hz, 40kHz deviation (100%)
	. . . . . AEP, UK model

FM Standard Mono Signal

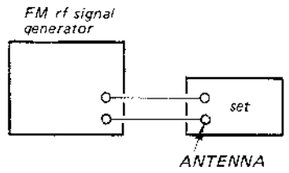
Carrier frequency: *98.1MHz*
Modulation: *400Hz, 75kHz deviation (100%)*
..... US model
400Hz, 40kHz deviation (100%)
..... AEP, UK model



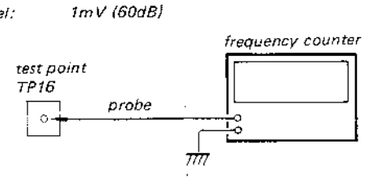
76kHz Adjustment

A) Regular Method

Procedure:



Carrier frequency: *98.1MHz*
Modulation: *no modulation*
Output level: *1mV (60dB)*

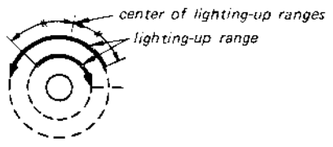


1. Tune the set to 98.1MHz.
2. Adjust RT202 for 76kHz ±50Hz on the counter.

B) Simple Method

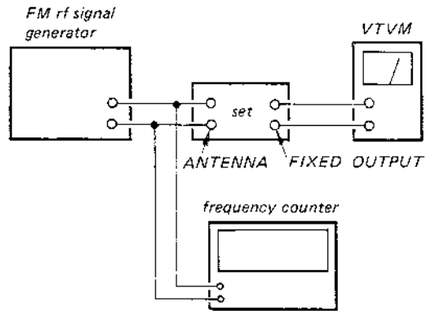
Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT202 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RT202 at the center of the lighting-up range of both turns as shown below.



Muting Range Adjustment

Procedure:

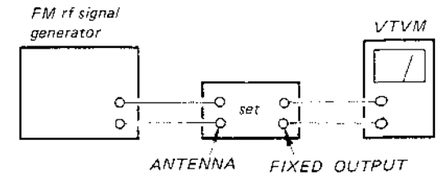


Carrier frequency: *98.1MHz*
Modulation: *400Hz, 75kHz deviation (100%) (US model)*
400Hz, 40kHz deviation (100%) (AEP, UK model)
Output level: *1mV (60dB)*

1. SELECTIVITY switch: NARROW
   MUTING switch: ON
2. US model:
   Adjust FM rf signal generator for +70kHz (98.17MHz) on the frequency counter.
   AEP, UK model:
   Adjust FM rf signal generator for +30kHz (98.13MHz) on the frequency counter.
3. Adjust RT403 for 0V reading on the VTVM.

Output Level Adjustment

Procedure:

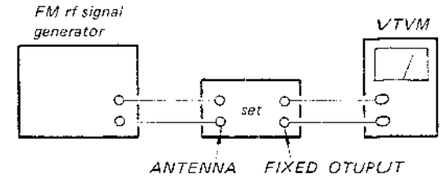


FM standard mono signal
Output level: 1mV (60dB)

1. SELECTIVITY switch: NORMAL
2. US model:
   Adjust RT301 (L-CH) and RT351 (R-CH) for 0.775V (0dB) reading on the VTVM.
   AEP, UK model:
   Adjust RT301 (L-CH) and RT351 (R-CH) for 0.42V (5.5dB) reading on the VTVM.

IF Bandwidth Selector Gain Adjustment

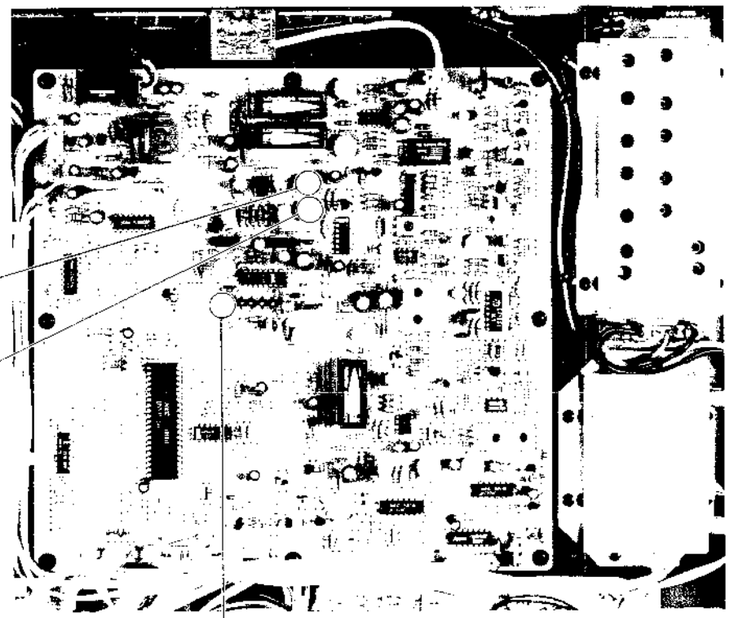
Procedure:



FM standard mono signal
Output level: 1mV (60dB)

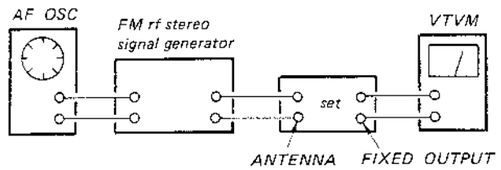
1. MODE switch: MONO
   SELECTIVITY switch: NORMAL
2. Memorize the VTVM reading.
3. SELECTIVITY switch: NARROW
4. Adjust RT102 for the same reading as obtained in step 2.

FM Standard Stereo Signal		
Carrier frequency: 98.1MHz		
Modulation:		
Audio (400Hz):	33.75kHz deviation (45%)	US model
Subchannel (38kHz):	33.75kHz deviation (45%)	US model
Pilot (19kHz):	7.5kHz deviation (10%)	US model
Audio (400Hz):	20kHz deviation	AEP, UK model
Subchannel (38kHz):	20kHz deviation	AEP, UK model
Pilot (19kHz):	7.5kHz deviation	AEP, UK model



Stereo Separation Adjustment

Procedure:



FM standard stereo signal
Output level: 1mV (60dB)

1. MODE switch: STEREO
   SELECTIVITY switch: NARROW

2.

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT103 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT103 for minimum reading.

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

The difference between the separations of both channels should be within 2dB.

3. SELECTIVITY switch: NORMAL

4.

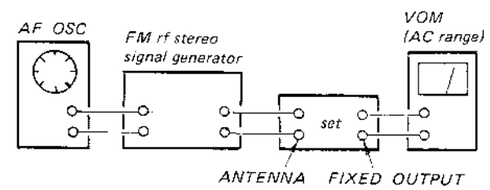
FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT104 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT104 for minimum reading.

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

The separations of both channels should be equal.

19kHz Cancel Adjustment

Procedure:



FM standard stereo signal
Output level: 1mV (60dB)

1. MODE switch: STEREO
   SELECTIVITY switch: NORMAL
2. Remove AF OSC.
   (19kHz pilot signal is only supplied.)
3. Adjust RT201 for the same FIXED OUTPUT levels of both channels.

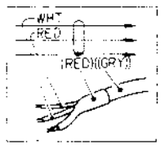
4-1. MOUNTING DIAGRAM (TUNER BOARD)

– Conductor Side –

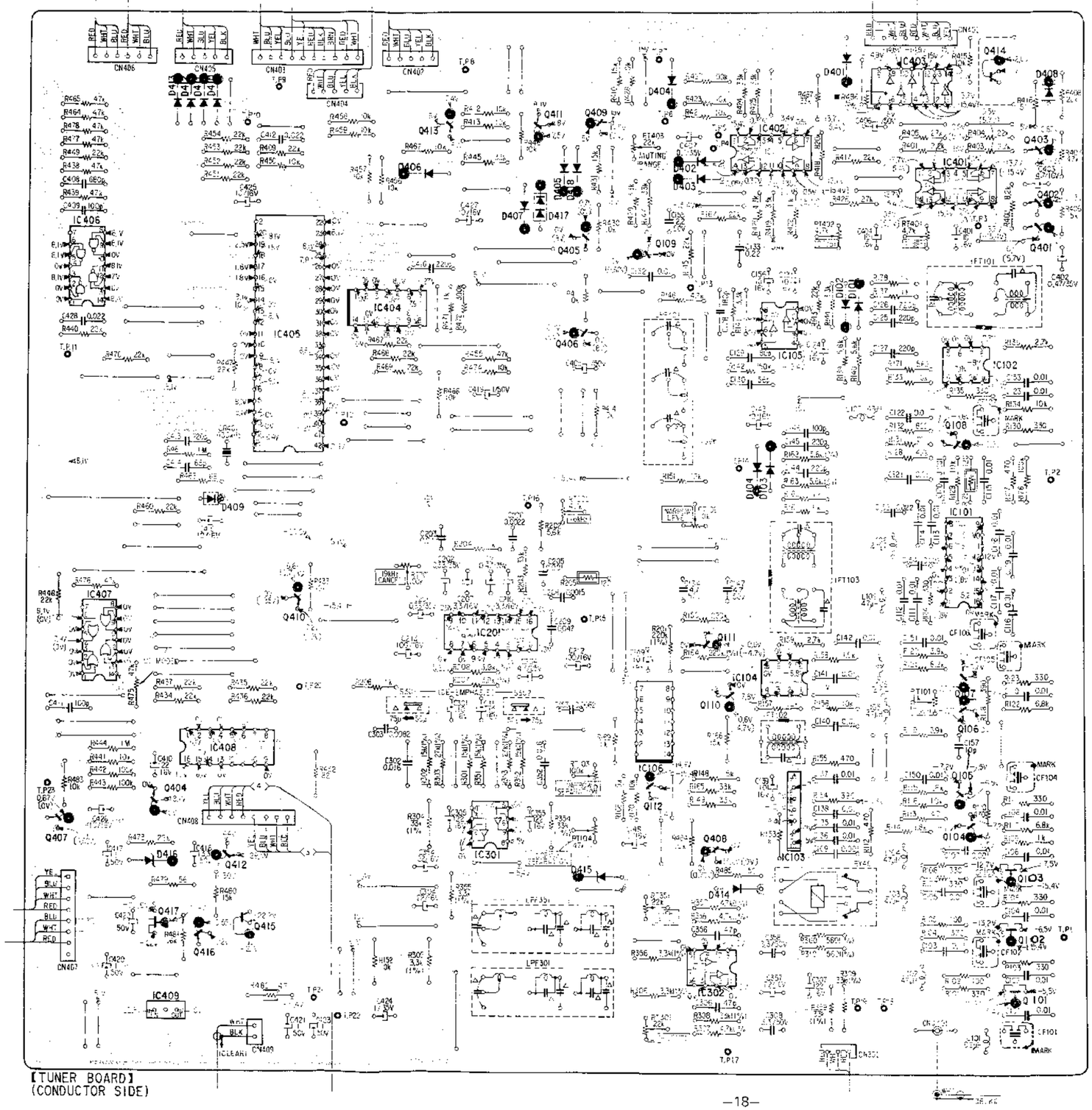
IC , Q	D
	401
414	
IC403	404 408
	410-413
413 411 409	
IC402 403	402
	405,418
406 IC401	403
	407,417
402	
401 405	
109 IC406	
	102,101
IC404	
IC105 IC405	
406	
IC102	
108	
	104,103
	409
IC101	
410	
IC201	
IC407 111	
IC104 107	
110	
106 IC106	
IC408	
112 105	
404 IC103	
407 104	
IC301	
408 412	
	416
103	415 414
417,415 102	
416	
IC302	
101	
IC409	
IC , Q	D

Note:

- Color code of sleeving over the end of the jacket

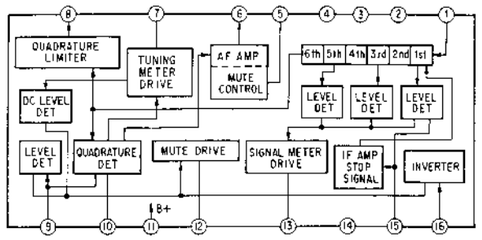


- ——— : parts extracted from the component side.
- ■ : part mounted on the conductor side.
- [ ]— : indicates side identified with part number.
- Readings are taken with a VOM (20kΩ/V).
  no mark: Detuned condition
  (98.1MHz is indicated on the display.)
  [ ] : Tuned condition
  (Received signal: 98.1MHz, 60dBμ, stereo mode, 100% modulation)
- e : B + pattern

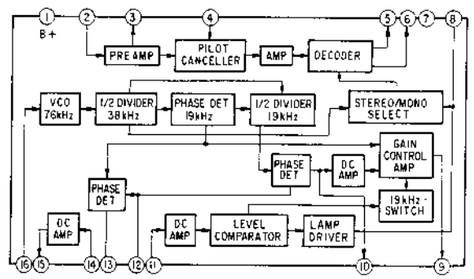


【TUNER BOARD】
(CONDUCTOR SIDE)

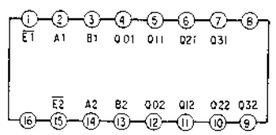
IC101 LA1231



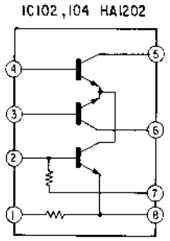
IC201 HA11223W



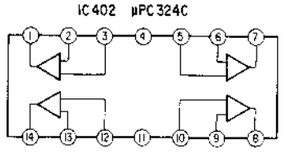
IC408 TC4555BP



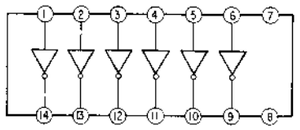
IC102,104 HA1202



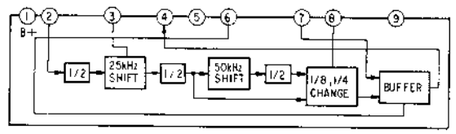
IC402 μPC324C



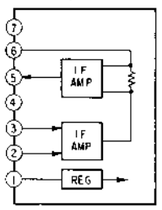
IC403,701,702 μPA67C



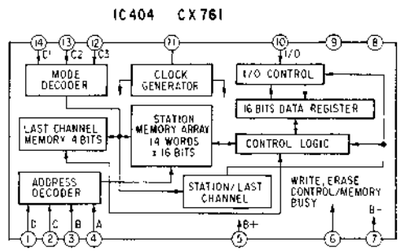
IC501 CX554



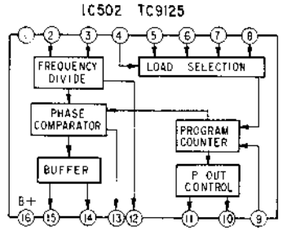
IC103 μPC577H



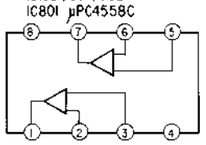
IC404 CX761



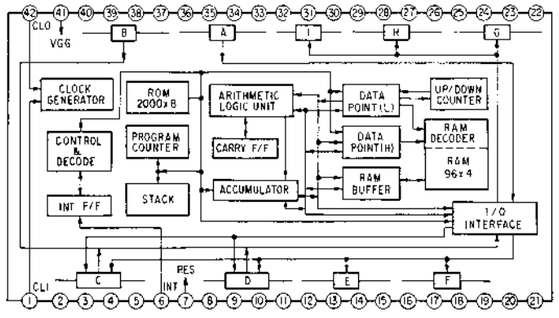
IC502 TC9125



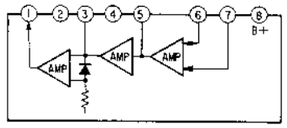
IC105,301,302 NJM4560D
IC801 μPC4558C



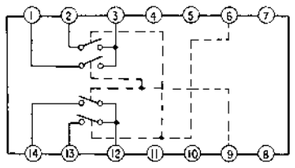
IC405 μPD553C-044



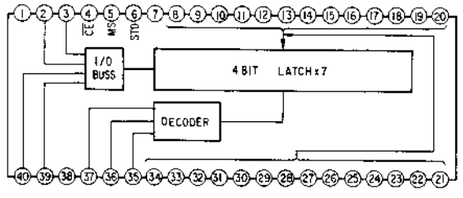
IC503 HA1457



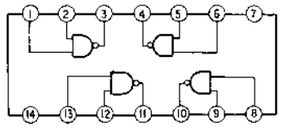
IC106 CX770



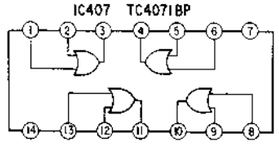
IC601 TMS1025N2L



IC406 TC4011BP



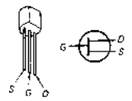
IC407 TC4071BP



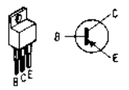
Replacement Semiconductors

For replacement, use semiconductors except in ( ).

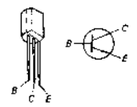
Q101–103: 2SK125
Q417, 801: 2SK34



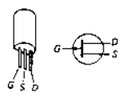
Q414, 415, Q804 : 2SA771 (2SA769)



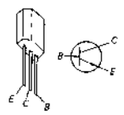
Q104–108: 2SC710-14 (2SC710)



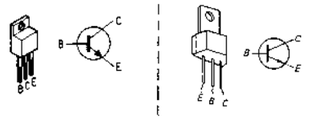
Q501: 2SK43-4 (2SK43)



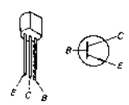
Q109–111, Q404 : 2SC1636



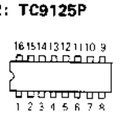
Q805, 806: 2SC1986D-O (2SC1826)



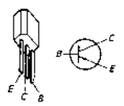
Q112, Q401–403, Q405–408, Q803 : 2SC1364 (2SC1815)
Q802 : 2SC1475



IC101: LA1231
IC408: TC4555BP
IC502: TC9125P

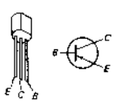


Q409–411, Q416 : 2SA1027R (2SA1026)

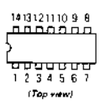


IC102, 104 : HA1202
IC105, IC301, 302 : NJM4560D

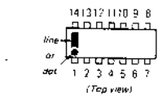
Q412, 413: 2SA684 (2SA773)



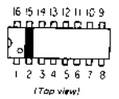
IC103 : μPC577H
IC401, 402 : μPC324C
IC403, IC701, 702 : μPA67C
IC404 : CX761C (CX761)
IC406 : TC4011BP
IC407 : TC4071BP



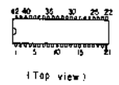
IC106: CX770



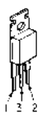
IC201: HA11223W



IC405: μPD553C-044

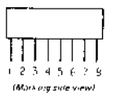


IC409: μPC14315H

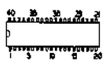


IC501: CX554

IC503: HA1457

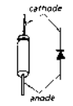


IC601: TMS1025N2L

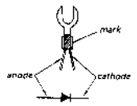


IC801: μPC4558C

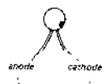
D101–104, D401–407, D410–414, D418, D501–503 : 1S1555
D415 : HZ7C2L (HZ7C1L)
D416, 805 : HZ30-2L (HZ30-1L)
D804 : 10E2



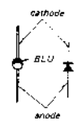
D408: MV104V



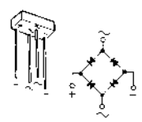
D409: MV203V



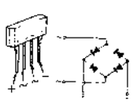
D417: MV12N



D801, 803: S1RB10



D802: S1VB20



4-2. MOUNTING DIAGRAM

– Component Side –

IC , Q	D
IC409	
	101
IC302	
416	
417,415	102
	103
	414
	415
	416
412	
408	
IC301	
407	104
404 IC103	
112	105
IC408	
IC106	
	106
110	
IC104	107
IC407 IC201	
410	
IC101	
	409
	104,103
108	
IC102	
IC405 406 IC105	
IC404	
	102,101
IC406	
109	
405	
401	
402	407,417
IC401	
	406 403
	405,418
	402
IC402 403	
413 411 409	
	410-413
IC403	404 408
414	401

【TUNER BOARD】
(COMPONENT SIDE)

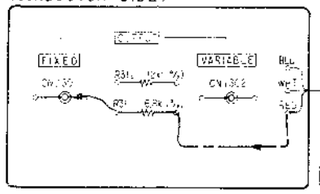
【OUTPUT(L) BOAR
(CONDUCTOR SIDE

【CONNECTION
(COMPONENT S

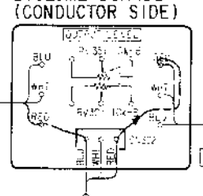
FM FRONT-END

【PLL BOARD】(CONDUCTOR SIDE)

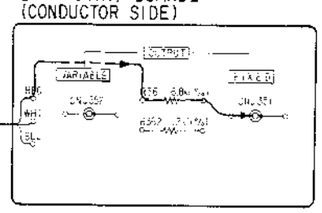
【OUTPUT(L) BOARD】
(CONDUCTOR SIDE)



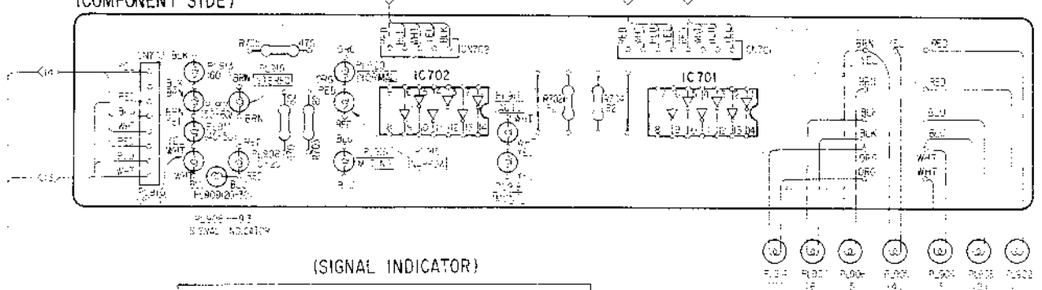
【VOLUME BOARD】
(CONDUCTOR SIDE)



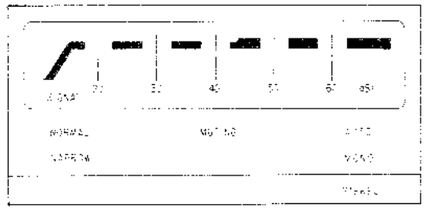
【OUTPUT(R) BOARD】
(CONDUCTOR SIDE)



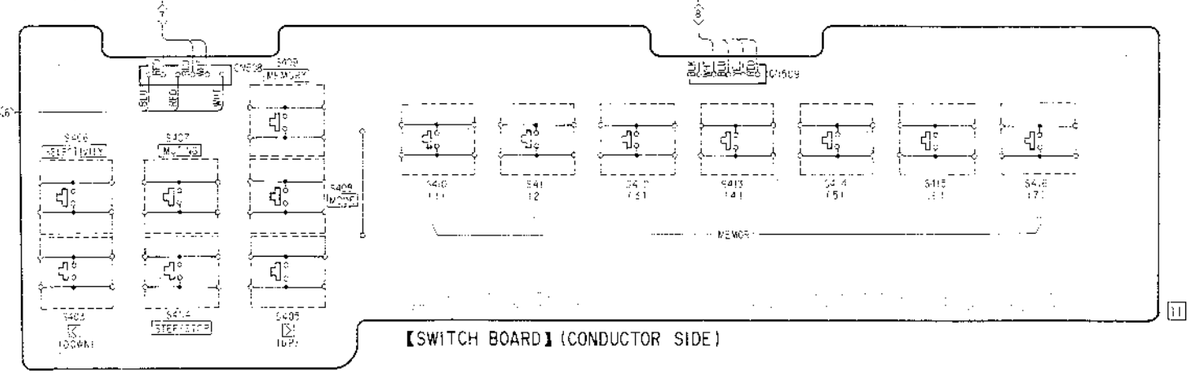
【CONNECTION BOARD】
(COMPONENT SIDE)



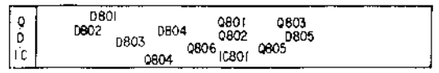
(SIGNAL INDICATOR)



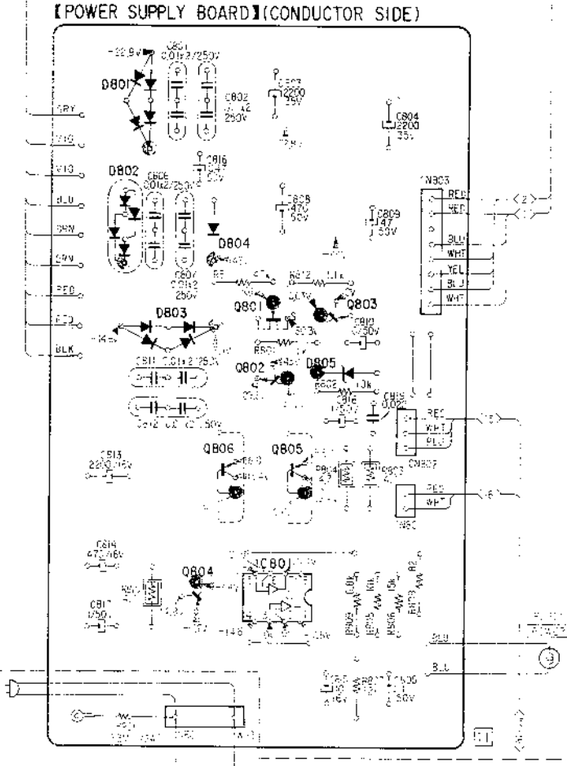
【SWITCH BOARD】(CONDUCTOR SIDE)

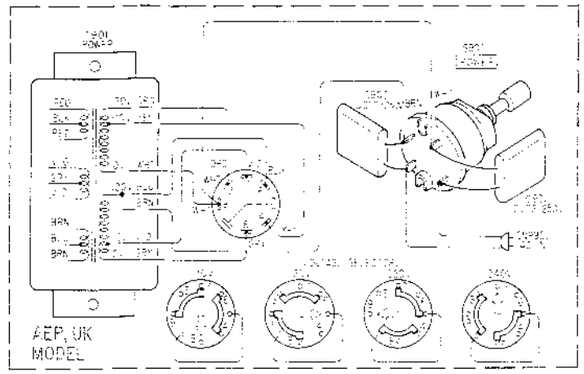


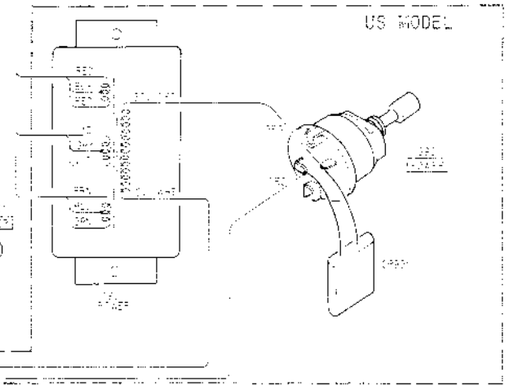
Q D IC



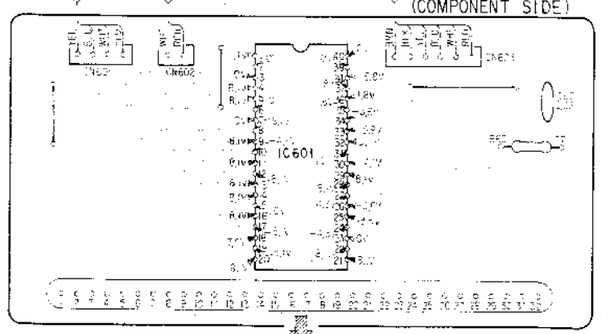
【POWER SUPPLY BOARD】(CONDUCTOR SIDE)

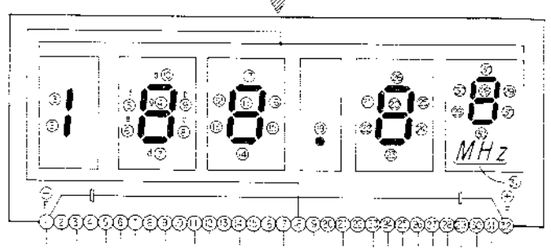






【DISPLAY BOARD】
(COMPONENT SIDE)

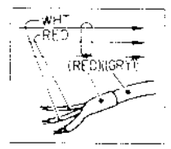




FD601
(FLUORESCENT DISPLAY TUBE)

Note:

- Color code of sleeving over the end of the jacket.

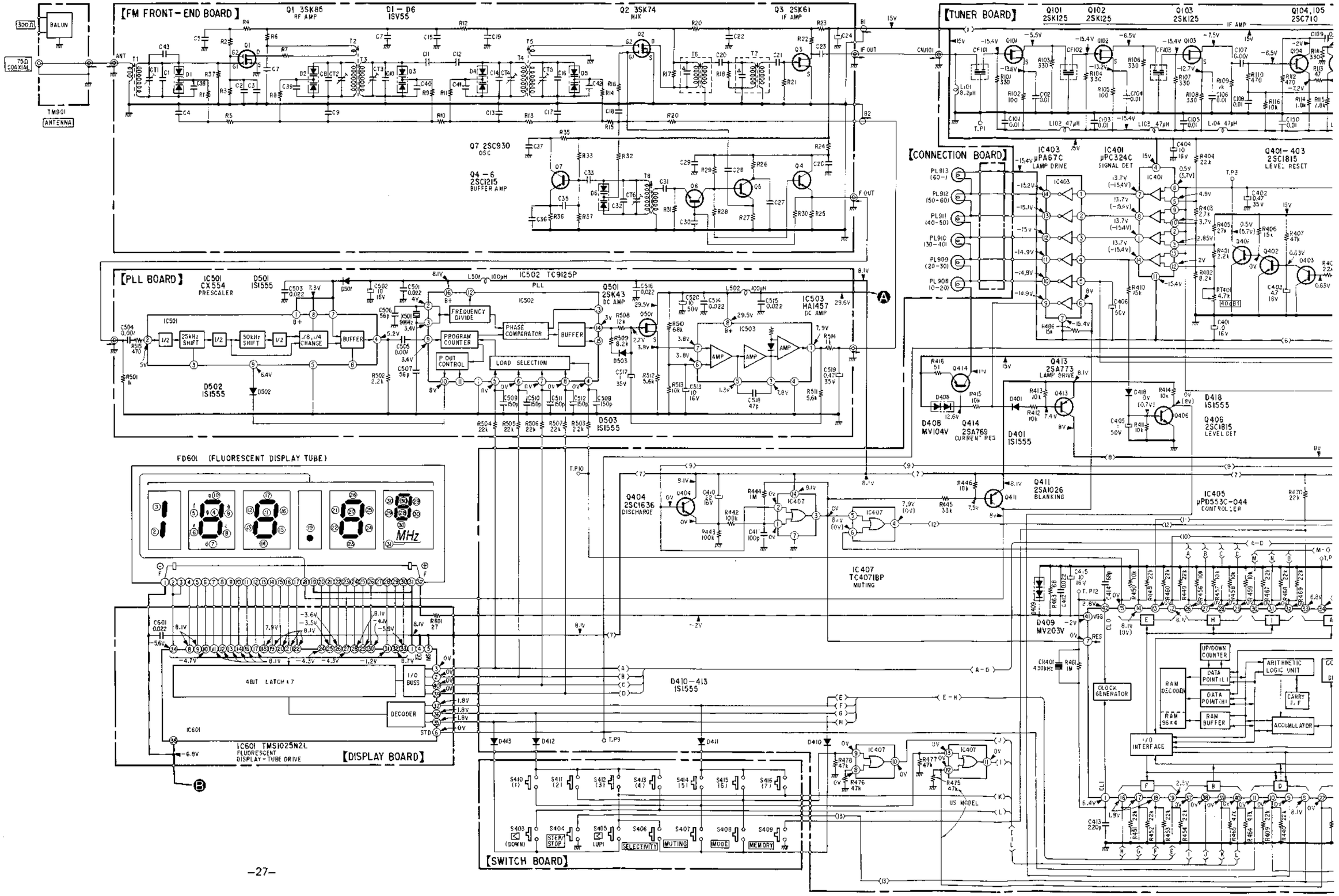


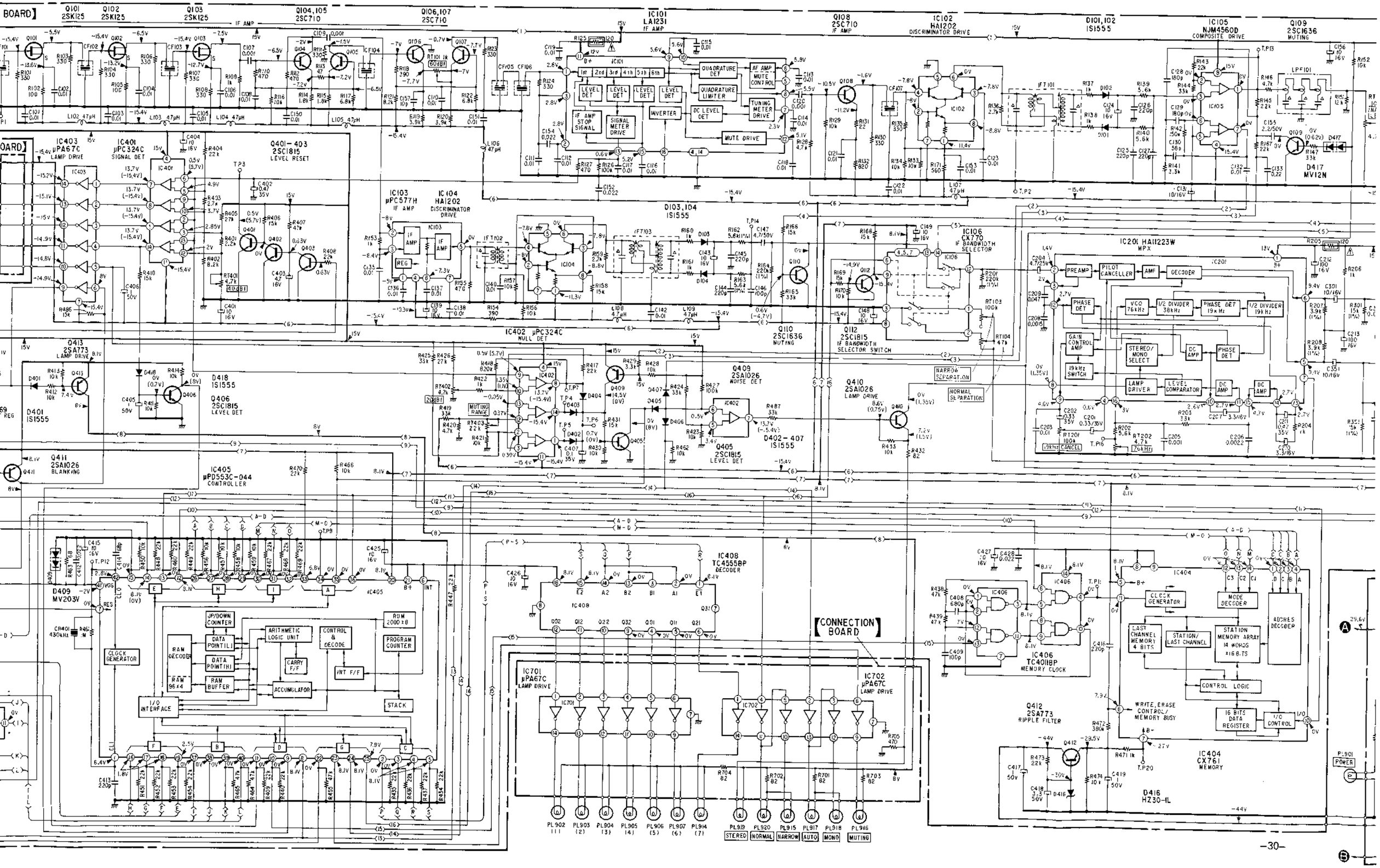
- ——— : parts extracted from the component side.
- ■ : part mounted on the conductor side.
- ⊡ : indicates side identified with part number.
- ▲ : nonflammable resistor.
- Readings are taken with a VOM (20kΩ/V).
  no mark: Detuned condition
  (98.1MHz is indicated on the display.)
  [ ] : Tuned condition
  (Received signal: 98.1MHz, 60dBμ, stereo mode, 100% modulation)
- ※ : signal path
  : L-CH signal path
  : R-CH signal path
- c : B+ pattern
- : Ceramic Capacitor

4-3. SCHEMATIC DIAGRAM

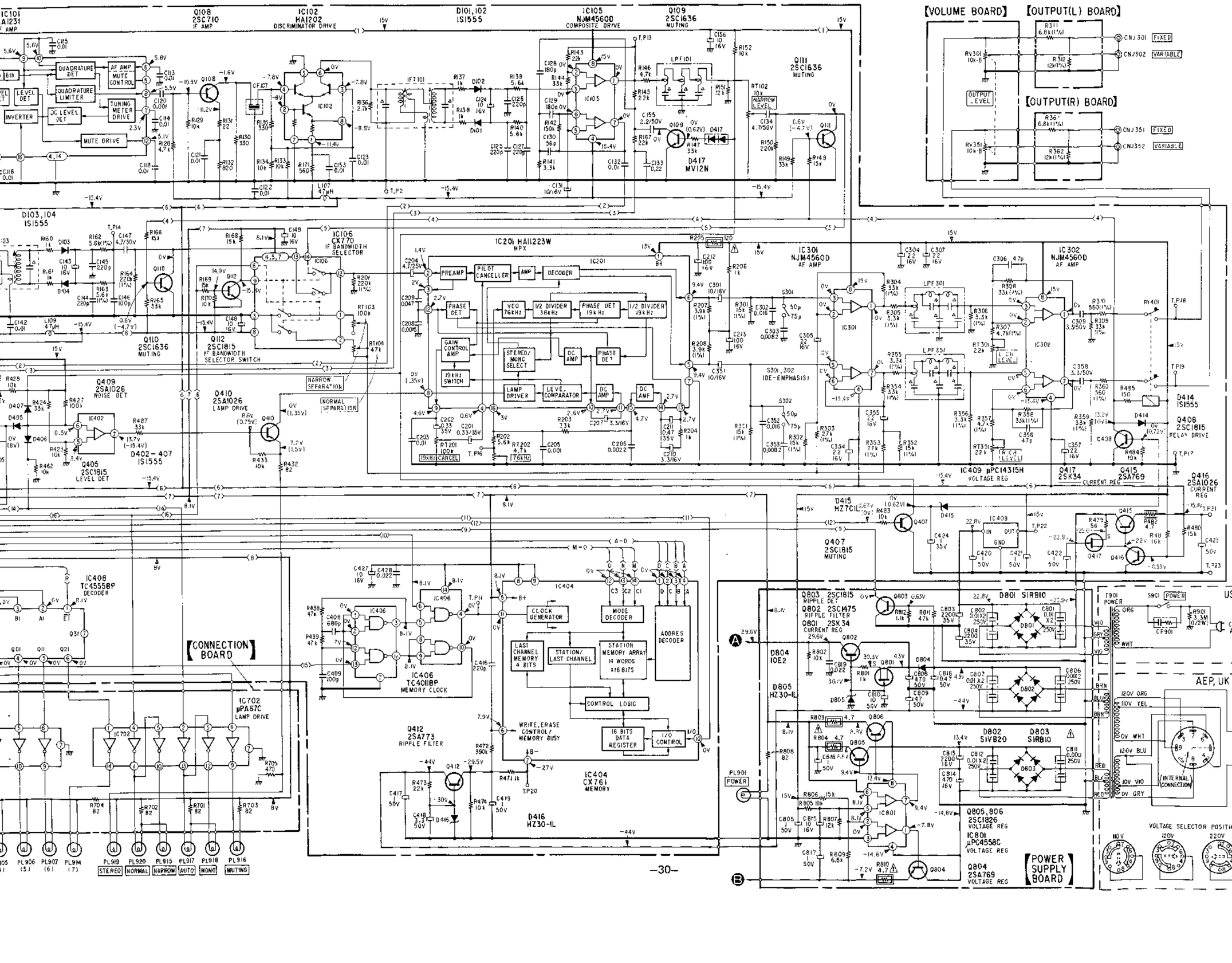
See page 32 for the notes and pages 21, 22 for replacement semiconductors.

ST-J88B ST-J88B




BOARD
Q101 2SK125
Q102 2SK125
Q103 2SK125
IF AMP
Q104,105 2SC710
Q106,107 2SC710
IC101 LA1231 IF AMP
Q108 2SC710 IF AMP
IC102 HA1202 DISCRIMINATOR DRIVE
D101,102 1S1555
IC105 NJM4560D COMPOSITE DRIVE
Q109 2SC1636 MUTING
IC403 μPA67C LAMP DRIVE
IC401 μPC324C SIGNAL DET
Q401-403 2SC1815 LEVEL RESET
IC103 μPC577H IF AMP
IC104 HA1202 DISCRIMINATOR DRIVE
D103,104 1S1555
Q110 2SC1636 MUTING
IC106 CX770 IF BANDWIDTH SELECTOR
Q112 2SC1815 IF BANDWIDTH SELECTOR SWITCH
IC201 HA11223W MPX
PREAMP
PILOT CANCELLER
AMP
DECODER
PHASE DET
VCO 76kHz
1/2 DIVIDER 38kHz
PHASE DET 19kHz
1/2 DIVIDER 19kHz
GAIN CONTROL AMP
15kHz SWITCH
STEREO/ MONO SELECT
DC AMP
PHASE DET
LAMP DRIVER
LEVEL COMPARATOR
DC AMP
DC AMP
Q413 2SA773 LAMP DRIVE
D401 1S1555
D418 1S1555
Q406 2SC1815 LEVEL DET
IC402 μPC324C NULL DET
Q409 2SA1026 NOISE DET
Q410 2SA1026 LAMP DRIVE
D402-407 1S1555
Q405 2SC1815 LEVEL DET
NARROW SEPARATION
NORMAL SEPARATION
Q411 2SA1026 BLANKING
IC405 μPD553C-044 CONTROLLER
CLOCK GENERATOR
UP/DOWN COUNTER
DATA POINTER(L)
DATA POINTER(H)
RAM DECODER
RAM 96x4
RAM BUFFER
ARITHMETIC LOGIC UNIT
CARRY F/F
ACCUMULATOR
CONTROL & DECODE
INT F/F
ROM 2000x8
PROGRAM COUNTER
STACK
I/O INTERFACE
IC408 TC4555BP DECODER
IC701 μPA67C LAMP DRIVE
IC702 μPA67C LAMP DRIVE
[CONNECTION BOARD]
PL902 (1)
PL903 (2)
PL904 (3)
PL905 (4)
PL906 (5)
PL907 (6)
PL914 (7)
PL919 STEREO
PL920 NORMAL
PL915 NARROW
PL917 AUTO
PL918 MONO
PL916 MUTING
IC406 TC4011BP MEMORY CLOCK
CLOCK GENERATOR
MODE DECODER
LAST CHANNEL MEMORY 4 BITS
STATION/ LAST CHANNEL
STATION MEMORY ARRAY 14 WORDS x16 BITS
ADDRES DECODER
CONTROL LOGIC
16 BITS DATA REGISTER
I/O CONTROL
WRITE, ERASE CONTROL/ MEMORY BUSY
Q412 2SA773 RIPPLE FILTER
IC404 CX761 MEMORY
D416 HZ30-1L
PL901 POWER

ST-J88B


IC101 AI231 IF AMP
Q108 2SC710 IF AMP
IC102 HAI202 DISCRIMINATOR DRIVE
D101,102 1S1555
IC105 NJM4560D COMPOSITE DRIVE
Q109 2SC1636 MUTING
Q111 2SC1636 MUTING
【VOLUME BOARD】
【OUTPUT(L) BOARD】
【OUTPUT(R) BOARD】
OUTPUT LEVEL
FIXED
VARIABLE
D103,104 1S1555
IC106 CX770 IF BANDWIDTH SELECTOR
Q110 2SC1636 MUTING
Q112 2SC1815 IF BANDWIDTH SELECTOR SWITCH
NARROW SEPARATION
NORMAL SEPARATION
IC201 HAI1223W MPX
PREAMP
PILOT CANCELLER
AMP
DECODER
PHASE DET
VCO 76kHz
1/2 DIVIDER 38kHz
PHASE DET 19kHz
1/2 DIVIDER 19kHz
GAIN CONTROL AMP
STEREO/ MONO SELECT
DC AMP
19kHz SWITCH
LAMP DRIVER
LEVEL COMPARATOR
IC301 NJM4560D AF AMP
IC302 NJM4560D AF AMP
S301,302 (DE-EMPHASIS)
LPF301
LPF351
D414 1S1555
Q408 2SC1815 RELAY DRIVE
Q409 2SA1026 NOISE DET
Q410 2SA1026 LAMP DRIVE
Q405 2SC1815 LEVEL DET
D402-407 1S1555
IC402
IC409 μPC14315H VOLTAGE REG
Q417 2SK34 CURRENT REG
Q415 2SA769 CURRENT REG
Q416 2SA1026 CURRENT REG
Q407 2SC1815 MUTING
IC408 TC4555BP DECODER
IC406 TC40118P MEMORY CLOCK
IC404 CX761 MEMORY
CLOCK GENERATOR
MODE DECODER
ADDRES DECODER
LAST CHANNEL MEMORY 4 BITS
STATION/ LAST CHANNEL
STATION MEMORY ARRAY 14 WORDS x16 BITS
CONTROL LOGIC
16 BITS DATA REGISTER
I/O CONTROL
WRITE, ERASE CONTROL/ MEMORY BUSY
Q412 2SA773 RIPPLE FILTER
D416 HZ30-1L
【CONNECTION BOARD】
IC702 μPA67C LAMP DRIVE
PL901 POWER
PL913 STEREO
PL920 NORMAL
PL915 NARROW
PL917 AUTO
PL918 MONO
PL916 MUTING
【POWER SUPPLY BOARD】
Q803 2SC1815 RIPPLE DET
Q802 2SC1475 RIPPLE FILTER
Q801 2SK34 CURRENT REG
D804 10E2
D805 HZ30-1L
D801 SIRB10
D802 SIVB20
D803 SIRB10
Q805,806 2SC1826 VOLTAGE REG
IC801 μPC4558C VOLTAGE REG
Q804 2SA769 VOLTAGE REG
US MODEL
AEP, UK MODEL
CNP901 AC IN
VOLTAGE SELECTOR POSITION
110V
120V
220V
240V

Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- : nonflammable resistor.
- △ : internal component.
- : panel designation.
- : adjustment for repair.
- : B+ bus.
- : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- Readings are taken with a VOM (20kΩ/V).
  no mark: Detuned condition
  (98.1MHz is indicated on the display.)
  [ ] : Tuned condition
  (Received signal: 98.1MHz, 60dBμ, stereo mode, 100% modulation)

- Switch

Ref. No.	Switch	Position
S301, 351	DE-EMPHASIS	50μS
S403	<(count down)	OFF
S404	STEP/STOP	OFF
S405	>(count up)	OFF
S406	SELECTIVITY	NORMAL
S407	MUTING	ON
S408	MODE	AUTO
S409	MEMORY	OFF
S410	PRESET 1	OFF
S411	PRESET 2	OFF
S412	PRESET 3	OFF
S413	PRESET 4	OFF
S414	PRESET 5	OFF
S415	PRESET 6	OFF
S416	PRESET 7	OFF
S901	POWER	OFF

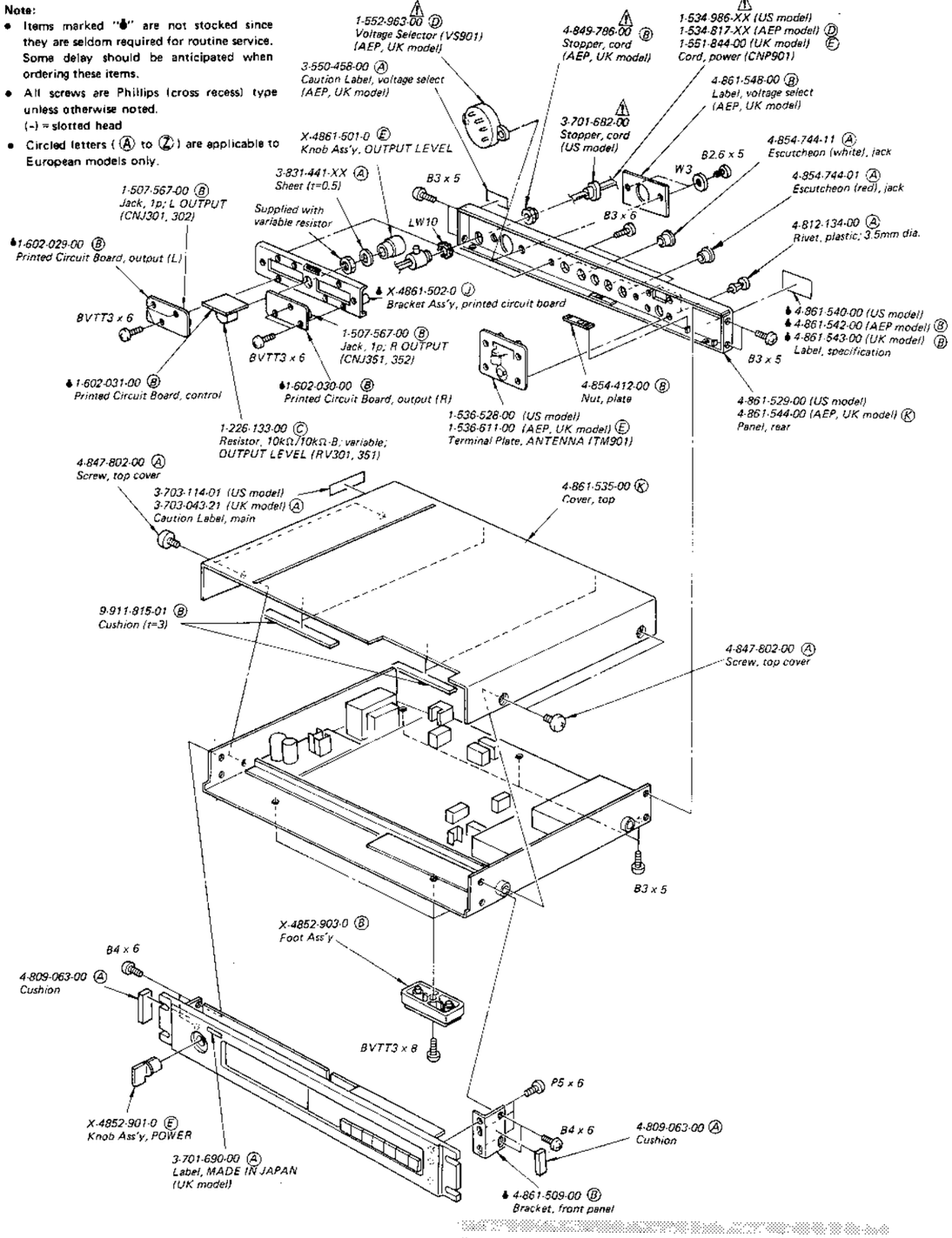
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

ST-J88B ST-J88B

(1)

Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

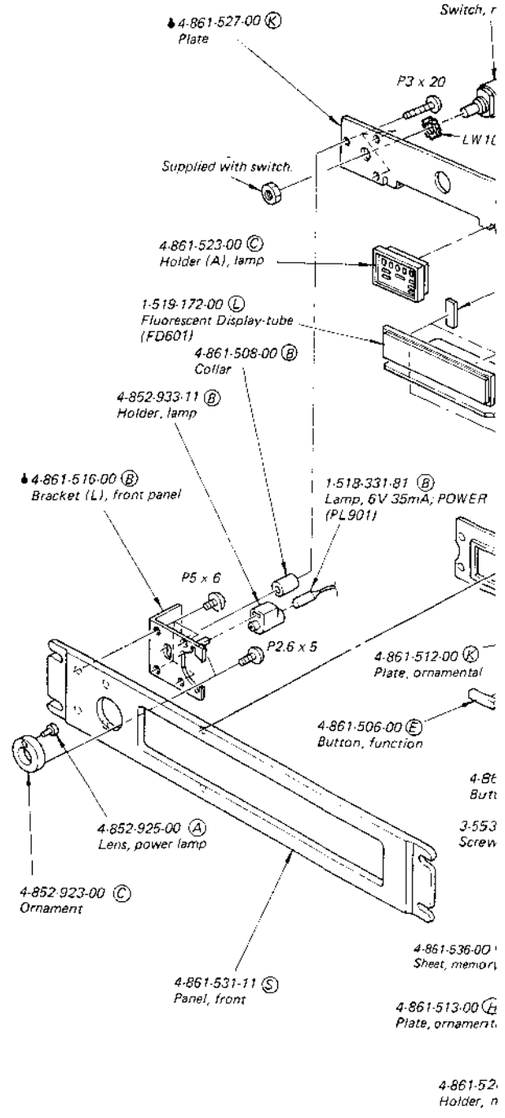


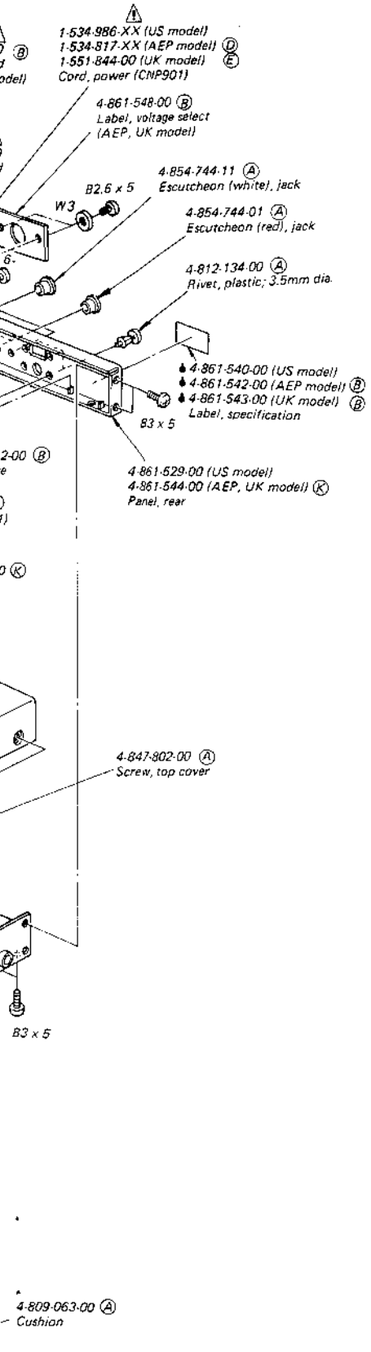
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(2)

Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (
  European model



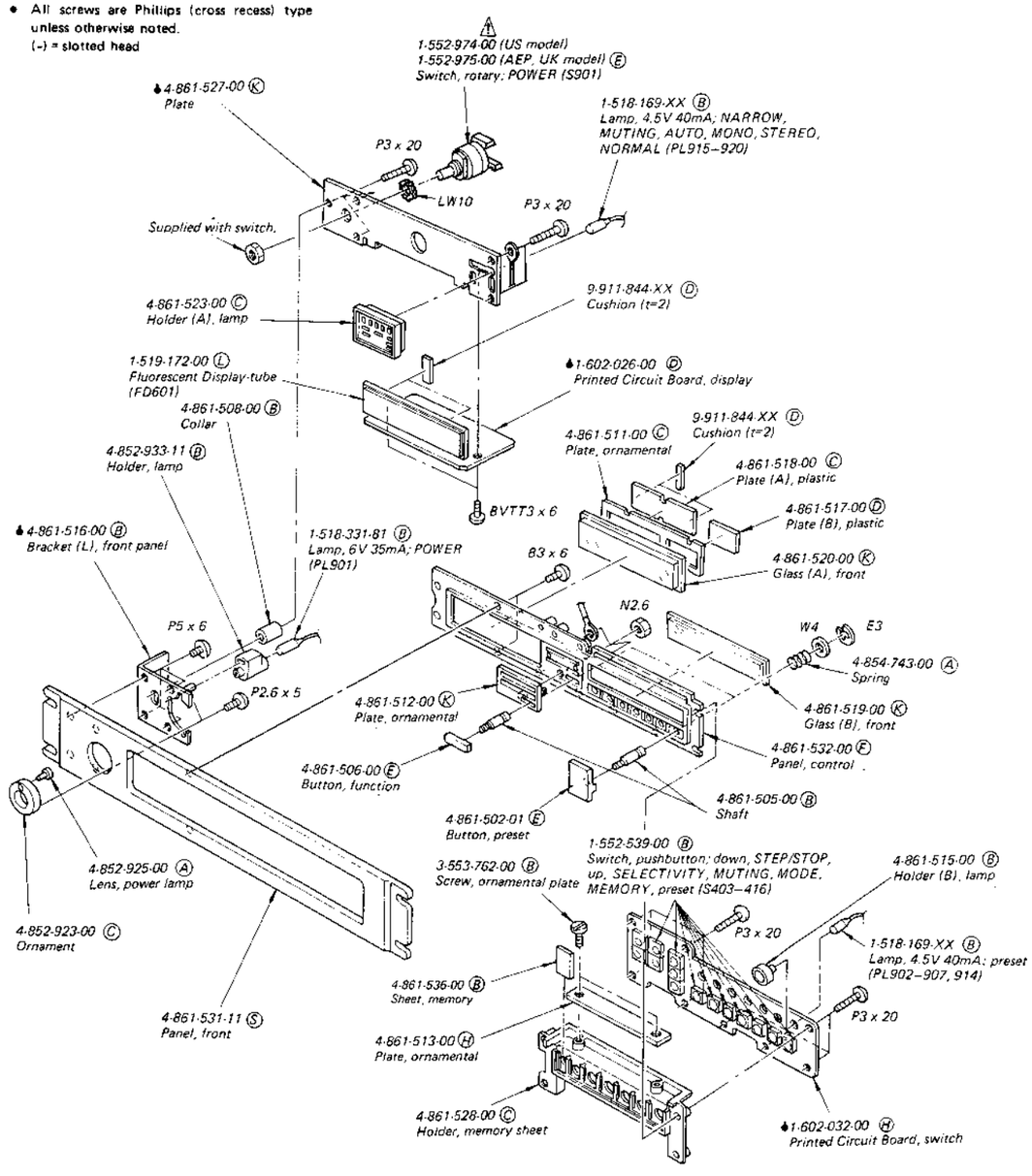


nts identified by shading and mark
al for safety. Replace only with
specified.

(2)

Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

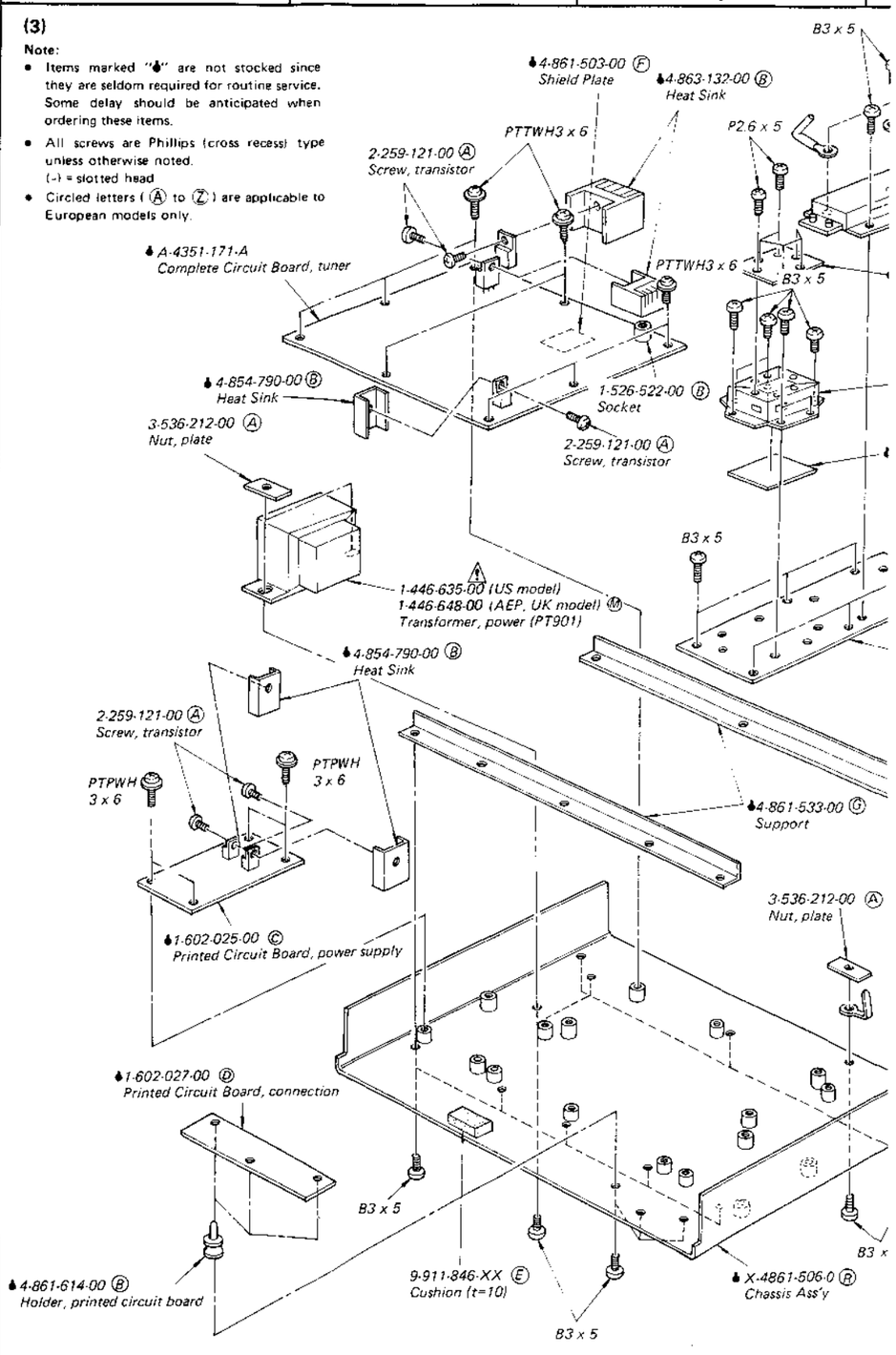


Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(3)

Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

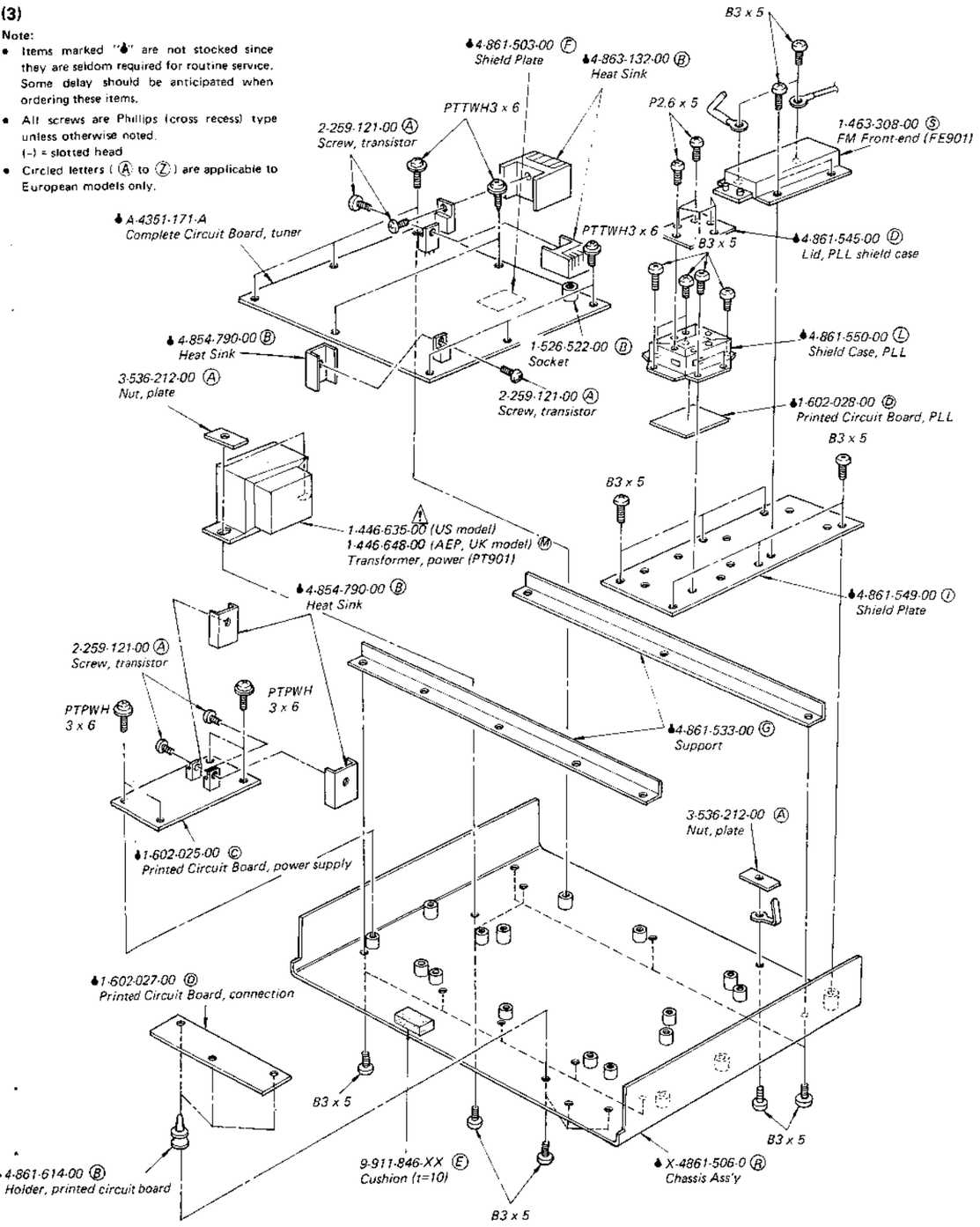


Note: The components identified by sha
⚠ are critical for safety. Repl
part number specified.

A | B | C | D

(3)

Note:
- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



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

SECTION 6
ELECTRICAL PARTS LIST

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

Ref. No.	Part No.	Description
		SEMICONDUCTORS
		Transistors
Q101–103	8-765-450-20	Ⓓ 2SK125
⇒ Q104–108	8-729-671-14	Ⓑ 2SC710-14
Q109–111	8-761-622-00	Ⓑ 2SC1636
⇒ Q112 ⇒ Q401–403	8-729-663-47	Ⓒ 2SC1364
Q404	8-761-622-00	Ⓑ 2SC1636
⇒ Q405–408	8-729-663-47	Ⓒ 2SC1364
⇒ Q409–411	8-729-612-77	Ⓑ 2SA1027R
⇒ Q412, 413	8-729-468-43	Ⓒ 2SA684
⇒ Q414, 415	8-729-377-12	Ⓔ 2SA771
⇒ Q416	8-729-612-77	Ⓑ 2SA1027R
Q417	8-729-634-03	Ⓑ 2SK34
⇒ Q501	8-723-304-00	Ⓔ 2SK43-4
Q801	8-729-634-03	Ⓑ 2SK34
Q802	8-760-413-10	Ⓑ 2SC1475
⇒ Q803	8-729-663-47	Ⓒ 2SC1364
⇒ Q804	8-729-377-12	Ⓔ 2SA771
⇒ Q805, 806	8-729-308-72	Ⓓ 2SC1986D-O
		ICs
IC101	8-759-812-31	Ⓕ LA1231
IC102	8-759-312-02	Ⓒ HA1202
IC103	8-759-157-70	Ⓔ μPC577H
IC104	8-759-312-02	Ⓒ HA1202
IC105	8-759-745-60	Ⓓ NJM4560D
IC106	8-757-700-00	Ⓖ CX770
IC201	8-759-312-23	Ⓗ HA11223W
IC301, 302	8-759-745-60	Ⓓ NJM4560D
IC401, 402	8-759-132-40	Ⓖ μPC324C
IC403	8-759-100-67	Ⓔ μPA67C
⇒ IC404	8-757-611-00	Ⓚ CX761A
IC405	8-759-154-44	Ⓝ μPD553C-044
IC406	8-759-240-11	Ⓑ TC4011BP
IC407	8-759-240-71	Ⓓ TC4071BP

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

Ref. No.	Part No.	Description
IC408	8-759-245-55	Ⓕ TC4555BP
IC409	8-759-143-15	Ⓕ PC14315H
IC501	8-759-205-54	Ⓚ CX554
IC502	8-759-291-25	Ⓚ TC9125P
IC503	8-759-314-57	Ⓒ HA1457
IC601	8-759-990-25	Ⓗ TMS1025N2L
IC701, 702	8-759-100-67	Ⓔ μPA67C
IC801	8-759-145-58	Ⓓ μPC4558C
		Diodes
D101–104	8-719-815-55	Ⓑ 1S1555
D401–407	8-719-815-55	Ⓑ 1S1555
D408	8-719-910-40	Ⓑ MV104V
D409	8-719-920-30	Ⓑ MV203V
D410–414	8-719-815-55	Ⓑ 1S1555
⇒ D415	8-719-910-78	Ⓑ HZ7C2L
⇒ D416	8-719-913-02	Ⓑ HZ30-2L
D417	8-719-912-00	Ⓑ MV12N
D418	8-719-815-55	Ⓑ 1S1555
D501–503	8-719-815-55	Ⓑ 1S1555
D801	⚠ 8-719-510-10	Ⓒ S1RB10
D802	⚠ 8-719-511-20	Ⓒ S1VB20
D803	⚠ 8-719-510-10	Ⓒ S1RB10
D804	⚠ 8-719-200-02	Ⓑ 10E2
⇒ D805	8-719-913-02	Ⓑ HZ30-2L
		COILS
L101	1-407-189-XX	Ⓑ 8.2μH, microinductor
L102–109	1-407-165-XX	Ⓑ 47μH, microinductor
L501, 502	1-407-169-XX	Ⓐ 100μH, microinductor
		TRANSFORMERS
IFT101	1-404-250-00	Ⓓ Discriminator
IFT102	1-403-899-00	Ⓑ IFT

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

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

Ref. No.	Part No.		Description
IFT103	1-404-250-00	Ⓓ	Discriminator
PT901	⚠ 1-446-635-00		Power (US model)
	⚠ 1-446-648-00	Ⓜ	Power (AEP, UK model)

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted. 50WV or less are not indicated except for electrolytics and tantalums. p : μμF, elect : electrolytic
Common capacitors are omitted. Refer to the lists on pages 40 and 41 for their part numbers.

Ref. No.	Part No.				
C107, 109, C120	1-161-323-00	Ⓐ	0.001		
C124	1-121-651-00	Ⓑ	10	16V	elect
C125–127	1-161-315-00	Ⓐ	220p		
C128, 129	1-161-314-00	Ⓐ	180p		
C134	1-123-232-00	Ⓑ	4.7	50V	elect (nonpolarized)
C143	1-121-651-00	Ⓑ	10	16V	elect
C144, 145	1-161-315-00	Ⓐ	220p		
C147	1-123-232-00	Ⓑ	4.7	50V	elect (nonpolarized)
C155	1-123-230-00	Ⓑ	2.2	50V	elect (nonpolarized)
C213	1-123-320-00	Ⓑ	100	16V	elect
C301, 351	1-121-651-00	Ⓑ	10	16V	elect
C302, 352	1-130-125-00	Ⓑ	0.016	100V	polyethylene
C308, 358	1-123-231-00	Ⓑ	3.3	50V	elect (nonpolarized)
C413–416	1-161-315-00	Ⓐ	220p		
C506, 507	1-101-884-00	Ⓐ	56p		
C801, 802	⚠ 1-102-394-00	Ⓑ	0.01/0.01	250V	(dual type)
C803, 804	⚠ 1-123-509-00	Ⓒ	2200	35V	elect
C806, 807	⚠ 1-102-394-00	Ⓑ	0.01/0.01	250V	(dual type)
C808	⚠ 1-123-516-00	Ⓒ	470	50V	elect
C809	⚠ 1-123-512-00	Ⓑ	47	50V	elect
C811, 812	⚠ 1-102-394-00	Ⓑ	0.01/0.01	250V	(dual type)
C813	⚠ 1-123-489-00	Ⓒ	2200	16V	elect
C814	⚠ 1-123-487-00	Ⓑ	470	16V	elect

Ref. No.	Part No.				
C816	⚠ 1-121-726-00	Ⓑ	0.47	50V	elect
C901, 902	⚠ 1-130-267-00	Ⓒ	0.022 (AEP, UK model)	250V	film

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on last page for their part numbers.

Ref. No.	Part No.				
R125	⚠ 1-247-109-00	Ⓐ	120	¼W	carbon (nonflammable)
R162, 163	1-214-747-00	Ⓐ	5.6k	¼W	metal oxide (1%)
R164, 201	1-214-785-00	Ⓐ	220k	¼W	metal oxide (1%)
R205	⚠ 1-247-109-00	Ⓐ	120	¼W	carbon (nonflammable)
R207, 208	1-214-743-00	Ⓐ	3.9k	¼W	metal oxide (1%)
R301, 351, R302, 352	1-214-757-00	Ⓐ	15k	¼W	metal oxide (1%)
R304, 354	1-214-765-00	Ⓐ	33k	¼W	metal oxide (1%)
R305, 355, R306, 356	1-214-741-00	Ⓐ	3.3k	¼W	metal oxide (1%)
R308, 358, R309, 359	1-214-765-00	Ⓐ	33k	¼W	metal oxide (1%)
R310, 360	1-214-723-00	Ⓐ	560	¼W	metal oxide (1%)
R311, 361	1-214-749-00	Ⓐ	6.8k	¼W	metal oxide (1%)
R312, 362	1-214-755-00	Ⓐ	12k	¼W	metal oxide (1%)
R482	⚠ 1-247-079-00	Ⓐ	4.7	¼W	carbon (nonflammable)
R803, 804	⚠ 1-247-079-00	Ⓐ	4.7	¼W	carbon (nonflammable)
R810	⚠ 1-247-079-00	Ⓐ	4.7	¼W	carbon (nonflammable)
R901	⚠ 1-202-725-00		3.3M (US model)	½W	composition
RT101	1-224-550-21	Ⓑ	220-B, adjustable; 60dBf		
RT102	1-224-252-XX	Ⓑ	10k-B, adjustable; narrow level		
RT103	1-224-255-XX	Ⓑ	100k-B, adjustable; narrow separation		
RT104	1-224-254-XX	Ⓑ	47k-B, adjustable; normal separation		
RT201	1-224-255-XX	Ⓑ	100k-B, adjustable; 19kHz cancel		

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

Ref. No.	Part No.		Description
RT202	1-224-251-XX	Ⓑ	4.7k-B, adjustable; 76kHz
RT301, 351	1-224-253-XX	Ⓑ	22k-B, adjustable; level
RT401, 402	1-224-251-XX	Ⓑ	4.7k-B, adjustable; 40dBf, 20dBf
RT403	1-224-253-XX	Ⓑ	22k-B, adjustable; muting range
RV301, 351	1-226-133-00	Ⓓ	10k/10k-B, variable; OUTPUT LEVEL

SWITCHES

Ref. No.	Part No.		Description
S301, 351	1-552-430-00	Ⓑ	Slide, de-emphasis
S403–416	1-552-539-00	Ⓑ	Pushbutton, down, STEP/STOP, up, SELECTIVITY, MUTING MODE, MEMORY, preset
S901	⚠ 1-552-974-00		Rotary, POWER (US model)
	⚠ 1-552-975-00	Ⓔ	Rotary, POWER (AEP, UK model)

LAMPS

Ref. No.	Part No.		Description
PL901	1-518-331-81	Ⓑ	6V 35mA, POWER
PL902–920	1-518-169-XX	Ⓑ	4.5V 40mA, preset, signal indicator, NARROW, MUTING, AUTO, MONO, STEREO, NORMAL

CONNECTORS

Ref. No.	Part No.		
♦ CN406	1-560-064-00	Ⓑ	6p
♦ CN409	1-560-060-00	Ⓐ	2p
♦ CN410	1-560-075-00	Ⓑ	6p
♦ CN411	1-560-074-00	Ⓑ	5p
♦ CN501	1-560-070-00	Ⓑ	5p
♦ CN502	1-508-878-00	Ⓐ	3p
♦ CN601	1-560-060-00	Ⓐ	2p
♦ CN602	1-560-062-00	Ⓑ	4p
♦ CN603	1-560-064-00	Ⓑ	6p
♦ CN801	1-560-060-00	Ⓐ	2p
	1-560-070-00	Ⓑ	5p

MISCELLANEOUS

Ref. No.	Part No.		Description
CF101–103	1-527-405-00	Ⓒ	Filter, ceramic

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

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

Ref. No.	Part No.		Description
CF104–106	1-527-344-91	Ⓒ	Filter, ceramic
CF107	1-527-405-00	Ⓒ	Filter, ceramic
CNJ301,351, CNJ302,352	1-507-567-00	Ⓑ	Jack, 1p; L OUTPUT, R OUTPUT
CNJ501,502	1-507-456-00	Ⓑ	Jack, 1p
CNP901	⚠ 1-534-817-XX	Ⓓ	Cord, power (AEP model)
	⚠ 1-534-986-XX		Cord, power (US model)
	⚠ 1-551-884-00	Ⓔ	Cord, power (UK model)
CP901	⚠ 1-231-326-11		Encapsulated Component (US model)
CR401	1-527-522-00	Ⓓ	Ceramic, osc
FD601	1-519-172-00	Ⓛ	Fluorescent Display-tube
FE901	1-463-308-00	Ⓢ	FM Front-end
LPF101	1-231-422-00	Ⓐ	Filter, low-pass
LPF301,351	1-231-421-00	Ⓐ	Filter, low-pass
RY401	1-515-297-00	Ⓕ	Relay, reed
TM901	1-536-528-00		Terminal Plate, ANTENNA (US model)
	1-536-611-00	Ⓔ	Terminal Plate, ANTENNA (AEP, UK model)
VS901	⚠ 1-552-963-00	Ⓓ	Voltage Selector (AEP, UK model)
X501	1-527-551-00	Ⓔ	Crystal, osc
♦	A-4351-171-A		Complete Circuit Board, tuner
♦	A-4394-177-A		Complete Circuit Board, power supply
	1-526-522-00	Ⓑ	Socket
♦	1-535-115-00	Ⓐ	Terminal Pin, 2p
♦	1-535-116-00	Ⓐ	Terminal Pin, 3p
♦	1-535-117-00	Ⓐ	Terminal Pin, 4p
♦	1-535-118-00	Ⓐ	Terminal Pin, 5p
♦	1-535-122-00	Ⓐ	Terminal Pin, 9p
	1-535-149-11	Ⓐ	Jumper Lead, 30mm
♦	1-602-025-00	Ⓒ	Printed Circuit Board, power supply
♦	1-602-026-00	Ⓒ	Printed Circuit Board, display
♦	1-602-027-00	Ⓒ	Printed Circuit Board, connection
♦	1-602-028-00	Ⓒ	Printed Circuit Board, PLL
♦	1-602-029-00	Ⓒ	Printed Circuit Board, output (L)
♦	1-602-030-00	Ⓒ	Printed Circuit Board, output (R)
♦	1-602-031-00	Ⓒ	Printed Circuit Board, control
♦	1-602-032-00	Ⓒ	Printed Circuit Board, switch

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

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

ACCESSORIES AND PACKING MATERIALS

Part No.	*Description*
X-4861-505-5	Sheet Ass'y, memory (US model)
X-4861-505-6 Ⓗ	Sheet Ass'y, memory (AEP, UK model)
1-501-161-00 Ⓕ	FM Ribbon Antenna
1-506-305-00	Plug, FP-33 (US model)
1-551-315-00 Ⓗ	Cord, connection; RK-112
3-701-620-00 Ⓐ	Bag, plastic; for accessories
3-701-630-00 Ⓐ	Bag, plastic; for instruction manual
3-770-676-11 Ⓚ	Manual, instruction (AEP, UK model)
3-770-676-21	Manual, instruction (US model)
3-794-233-21	Separate Sheet, consumer products (US model)
4-809-251-00 Ⓐ	Bag, plastic; for set
4-852-949-00 Ⓒ	Cushion
4-861-552-00 Ⓒ	Carton

ELECTROLYTIC CAPACITORS

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

CAP. (μF)	RATING → : Use the high voltage rated one.					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00 Ⓐ
1.0					→	1-121-391-00 Ⓐ
2.2					→	1-121-450-00 Ⓐ
3.3	→	→	→	1-121-392-00 Ⓐ	→	1-121-393-00 Ⓐ
4.7	→	→	→	1-121-395-00 Ⓐ	→	1-121-396-00 Ⓐ
10	→	→	1-121-651-00 Ⓐ	1-121-398-00 Ⓐ	→	1-121-738-00 Ⓐ
22	→	→	1-121-479-00 Ⓐ	1-121-480-00 Ⓐ	1-121-662-00 Ⓐ	1-121-152-00 Ⓐ
33	→	→	1-121-403-00 Ⓐ	1-121-404-00 Ⓐ	1-121-652-00 Ⓑ	1-121-405-00 Ⓐ
47	→	1-121-352-00 Ⓐ	1-121-409-00 Ⓐ	1-121-410-00 Ⓐ	1-121-653-00 Ⓑ	1-121-411-00 Ⓐ
100	→	1-121-414-00 Ⓐ	1-121-415-00 Ⓐ	1-121-416-00 Ⓐ	1-121-357-00 Ⓑ	1-121-417-00 Ⓑ
220	1-121-419-00 Ⓑ	1-121-420-00 Ⓑ	1-121-421-00 Ⓐ	1-121-422-00 Ⓑ	1-121-261-00 Ⓒ	1-121-423-00 Ⓑ
330	1-121-751-00 Ⓑ	1-121-805-00 Ⓑ	1-121-521-00 Ⓒ	1-121-654-00 Ⓑ	1-121-655-00 Ⓓ	1-121-656-00 Ⓒ
470	1-121-424-00 Ⓑ	1-121-425-00 Ⓒ	1-121-426-00 Ⓒ	1-121-733-00 Ⓑ	1-121-361-00 Ⓔ	1-121-810-00 Ⓓ
1000	–	1-121-736-00 Ⓒ	1-121-245-00 Ⓓ	1-121-657-00 Ⓓ	1-121-388-00 Ⓔ	1-123-061-00 Ⓕ
2200	1-121-658-00 Ⓑ	1-121-659-00 Ⓒ	1-121-660-00 Ⓓ	1-123-067-00 Ⓕ	1-121-984-00 Ⓕ	–
3300	1-121-661-00 Ⓓ	1-123-075-00 Ⓔ	1-123-071-00 Ⓕ	–	-	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00 Ⓐ	1-123-252-00 Ⓐ	1-123-003-00 Ⓑ	1-121-168-00 Ⓑ
2.2	1-123-250-00 Ⓐ	1-123-026-00 Ⓑ	–	1-123-028-00 Ⓑ
3.3	1-121-995-00 Ⓐ	–	1-123-004-00 Ⓑ	1-123-006-00 Ⓒ
4.7	1-123-255-00 Ⓐ	1-121-246-00 Ⓑ	1-121-759-00 Ⓑ	1-123-007-00 Ⓓ
10	1-121-126-00 Ⓑ	1-121-999-00 Ⓑ	1-123-254-00 Ⓒ	1-123-008-00 Ⓓ
22	1-121-996-00 Ⓒ	1-123-253-00 Ⓒ	1-123-005-00 Ⓓ	1-123-022-00 Ⓓ
33	1-121-997-00 Ⓒ	1-121-757-00 Ⓒ	–	–
47	1-123-251-00 Ⓒ	1-121-919-00 Ⓒ	–	-
100	1-123-084-00 Ⓔ	–	–	-

CERAMIC CAPACITORS Ⓐ

CAP. (pF)	RATING 50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS Ⓐ

CAP. (μF)	RATING → : Use the high voltage rated one. 25 VOLT. PART No.	50 VOLT. PART No.	CAP. (μF)	25 VOLT. PART No.	50 VOLT. PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-020-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS Ⓐ

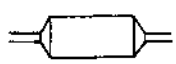
Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

TANTALUM CAPACITORS

→ : Use the high voltage rated one.

CAP. (μF)	RATING 3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
0.01					→	→	1-131-396-00 Ⓑ
0.015						→	1-131-397-00 Ⓑ
0.022						→	1-131-398-00 Ⓑ
0.033						→	1-131-399-00 Ⓑ
0.047						→	1-131-400-00 Ⓑ
0.068					→	→	1-131-401-00 Ⓑ
0.1					→	→	1-131-402-00 Ⓑ
0.15					→	→	1-131-403-00 Ⓑ
0.22					→	→	1-131-404-00 Ⓑ
0.33					→	1-131-409-00 Ⓑ	1-131-405-00 Ⓑ
0.47	–	–	–	–	1-131-412-00 Ⓑ	→	1-131-406-00 Ⓑ
0.68	–	–	–	1-131-415-00 Ⓑ	→	1-131-410-00 Ⓑ	1-131-407-00 Ⓑ
1.0	–	–	1-131-418-00 Ⓑ	–	1-131-413-00 Ⓑ	→	1-131-408-00 Ⓑ
1.5	–	1-131-421-00 Ⓑ	–	1-131-416-00 Ⓑ	→	1-131-411-00 Ⓑ	1-131-348-00 Ⓑ
2.2	1-131-424-00 Ⓑ	–	1-131-419-00 Ⓑ	–	1-131-414-00 Ⓑ	1-131-355-00 Ⓑ	1-131-349-00 Ⓑ
3.3	–	1-131-422-00 Ⓑ	–	1-131-417-00 Ⓑ	1-131-362-00 Ⓑ	1-131-356-00 Ⓑ	1-131-350-00 Ⓑ
4.7	1-131-425-00 Ⓑ	–	1-131-420-00 Ⓑ	1-131-369-00 Ⓑ	1-131-363-00 Ⓑ	1-131-357-00 Ⓑ	1-131-351-00 Ⓒ
6.8	–	1-131-423-00 Ⓑ	1-131-376-00 Ⓑ	1-131-370-00 Ⓑ	1-131-364-00 Ⓑ	1-131-358-00 Ⓒ	1-131-352-00 Ⓒ
10	1-131-426-00 Ⓑ	1-131-383-00 Ⓑ	1-131-377-00 Ⓑ	1-131-371-00 Ⓑ	1-131-365-00 Ⓒ	1-131-359-00 Ⓒ	1-131-353-00 Ⓓ
15	1-131-390-00 Ⓑ	1-131-384-00 Ⓑ	1-131-378-00 Ⓑ	1-131-372-00 Ⓑ	1-131-366-00 Ⓒ	1-131-360-00 Ⓓ	–
22	1-131-391-00 Ⓑ	1-131-385-00 Ⓑ	1-131-379-00 Ⓒ	1-131-373-00 Ⓒ	1-131-367-00 Ⓓ		
33	1-131-392-00 Ⓑ	1-131-386-00 Ⓒ	1-131-380-00 Ⓒ	1-131-374-00 Ⓓ			
47	1-131-393-00 Ⓒ	1-131-387-00 Ⓒ	1-131-381-00 Ⓓ	–			
68	1-131-394-00 Ⓑ	1-131-388-00 Ⓒ	–	–			
100	1-131-395-00 Ⓓ	–	–	–			



TANTALUM CAPACITORS

CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00 Ⓔ
0.047						1-131-274-00 Ⓔ
0.068						1-131-275-00 Ⓔ
0.1						1-131-276-00 Ⓓ
0.15						1-131-277-00 Ⓓ
0.22			–	–	1-131-262-00 Ⓓ	1-131-278-00 Ⓓ
0.33			–	–	1-131-263-00 Ⓓ	1-131-279-00 Ⓓ
0.47			1-131-169-00 Ⓓ	–	1-131-264-00 Ⓓ	1-131-280-00 Ⓓ
0.68			–	1-131-258-00 Ⓓ	1-131-265-00 Ⓓ	1-131-281-00 Ⓓ
1.0			1-131-254-00 Ⓓ	–	1-131-266-00 Ⓓ	1-131-282-00 Ⓓ
1.5		1-131-250-00 Ⓓ	–	–	1-131-267-00 Ⓓ	1-131-283-00 Ⓔ
2.2		–	–	1-131-259-00 Ⓓ	1-131-268-00 Ⓓ	1-131-284-00 Ⓔ
3.3		–	1-131-255-00 Ⓓ	–	1-131-269-00 Ⓓ	–
4.7		1-131-251-00 Ⓔ	1-131-171-00 Ⓓ	–	1-131-270-00 Ⓓ	–
6.8		–	–	1-131-260-00 Ⓓ	1-131-271-00 Ⓔ	–
10	–	–	1-131-256-00 Ⓓ	–	1-131-272-00 Ⓔ	–
15	–	1-131-252-00 Ⓓ	–	1-131-261-00 Ⓔ		
22	–	–	1-131-257-00 Ⓔ	–		
33	1-131-176-00 Ⓓ	1-131-253-00 Ⓔ	1-131-173-00 Ⓒ	–		
47	1-131-288-00 Ⓕ	1-131-174-00 Ⓓ	–	–		
100	1-131-177-00 Ⓓ					

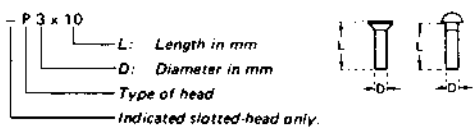
1/4 WATT CARBON RESISTORS Ⓐ

Note: Circled letter Ⓐ is applicable to European models only.

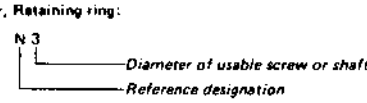
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

Sony Corporation