

ST-JX320L/JX520L

SERVICE MANUAL

AEP Model



ST-JX320L



ST-JX520L

Free service manuals
Gratis schema's

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- See RM-S520 service manual issued separately for supplied remote commander RM-S520.

SPECIFICATIONS

FM tuner section


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

	(at 40 kHz deviation)
Sensitivity	at 46 dB quieting 17.3 dBf, AEP model 2 μ V (mono) G-AEP model 4 μ V (mono) 38.3 dBf, AEP model 22.5 μ V (stereo) G-AEP model 45 μ V (stereo)
Usable sensitivity	10.3 dBf, AEP model 0.9 μ V (IHF) G-AEP model 1.8 μ V (IHF) AEP model 1.6 μ V (S/N = 26 dB) G-AEP model 0.8 μ V (S/N = 26 dB)
Signal-to-noise ratio	77 dB (mono) 72 dB (stereo)
Harmonic distortion at 1 kHz	0.1% (mono) 0.25% (stereo)
Separation at 1 kHz	45 dB
Frequency response	40 Hz — 12.5 kHz +0.2 dB -0.6 dB 30 Hz — 15 kHz +0.2 dB -1.8 dB
Selectivity	at 400 kHz 67 dB

Capture ratio	1.0 dB
AM suppression ratio	ST-JX520L AEP model: 55 dB G-AEP model: 65 dB ST-JX320L: 55 dB
Image response ratio	ST-JX520L AEP model: 45 dB G-AEP model: 80 dB ST-JX320L: 45 dB
IF response ratio	90 dB
Spurious response ratio	ST-JX520L AEP model: 75 dB G-AEP model: 100 dB ST-JX320L: 75 dB
RF intermodulation	ST-JX520L AEP model: 68 dB (IHF) G-AEP model: 74 dB (IHF) ST-JX320L: 68 dB (IHF)
Output level/impedance at 75 kHz deviation	750 mV, 4.7 kilohms

— Continued on page 2 —

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[®]



AM (MW/LW) tuner section

		AM (MW)	LW
Tuning range		531 – 1,602 kHz	153 kHz – 344 kHz
Antenna		Layout-free AM antenna External antenna terminal	
Intermediate frequency		450 kHz	
Usable sensi- tivity	Layout-free AM antenna	300µV/m (at 999 or 1,000 kHz)	700µV/m (at 230 kHz)
	External antenna	30µV (at 999 or 1,000 kHz)	200µV (at 230 kHz)
Signal-to-noise ratio		50 dB (50 mV/m)	
Harmonic distortion		0.3% (at 50 mV/m, 400 Hz)	
Selectivity		35 dB	35 dB

General

System	PLL quartz-locked digital synthesizer system
Power requirements	FM stereo, FM/AM super-heterodyne tuner AEP model: 220V ac (or 240V ac adjustable by authorized Sony personnel), 50/60 Hz
Power consumption	18 watts
Dimensions	Approx. 430 x 80 x 270 mm (w/h/d) (17 x 3 1/8 x 10 1/8 inches)
Weight	including projecting parts and controls Approx. 3.3 kg (7 lbs 5 oz)

MODEL IDENTIFICATION

— Specification Label —

ST-JX320L model

SONY®
MODEL NO. ST-JX320L

FM STEREO/FM-AM TUNER

FREQUENCY RANGE : FM87.5 – 108 MHz
LW153 – 344 kHz MW531 – 1,602 kHz
IF : FM10.7 MHz AM450 kHz

AEP model: 220V ~ 50 Hz 8 W

ST-JX520L model

SONY®
MODEL NO. ST-JX520L

FM STEREO/FM-AM TUNER

FREQUENCY RANGE : FM87.5 – 108 MHz
LW153 – 344 kHz AM531 – 1,602 kHz
IF : FM10.7 MHz AM450 kHz

AEP model: 220V ~ 50 Hz 8 W

(G·AEP model)

FTZ

[IC601 (μPD 7508HC)]

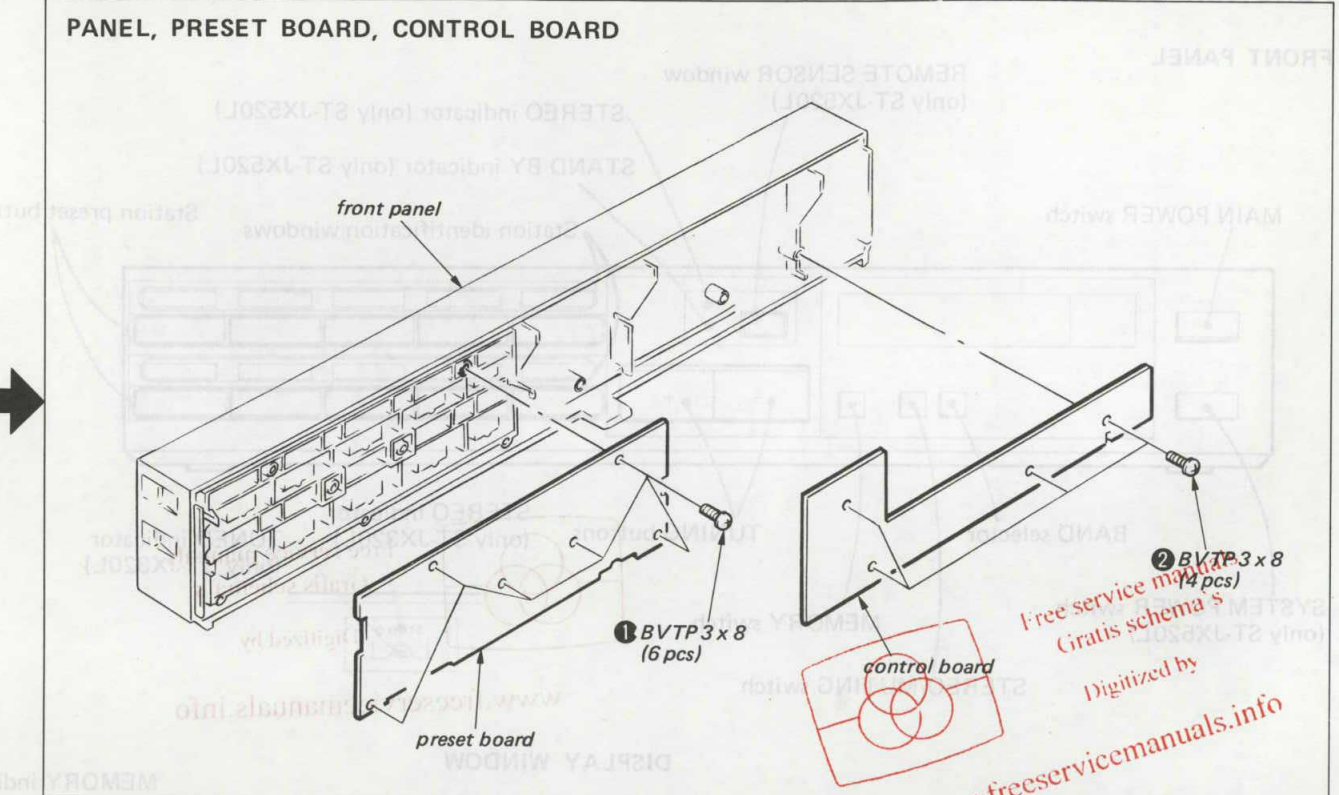
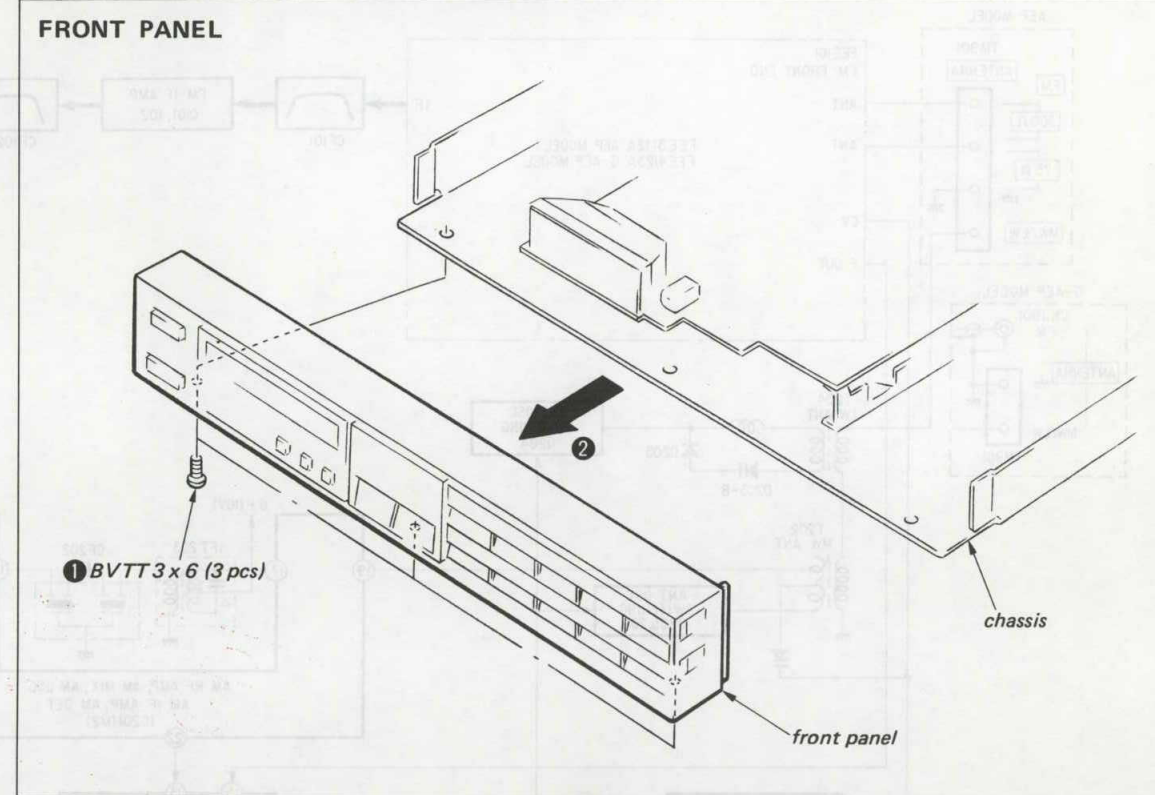
μPD7508HC is a C-MOS 4 bit microcomputer integrating a 4 bit parallel ALU, ROM, RAM, I/O port, 8 bit serial interface and 8 bit programable timer/event counter input 1-chip.

PIN FUNCTIONS

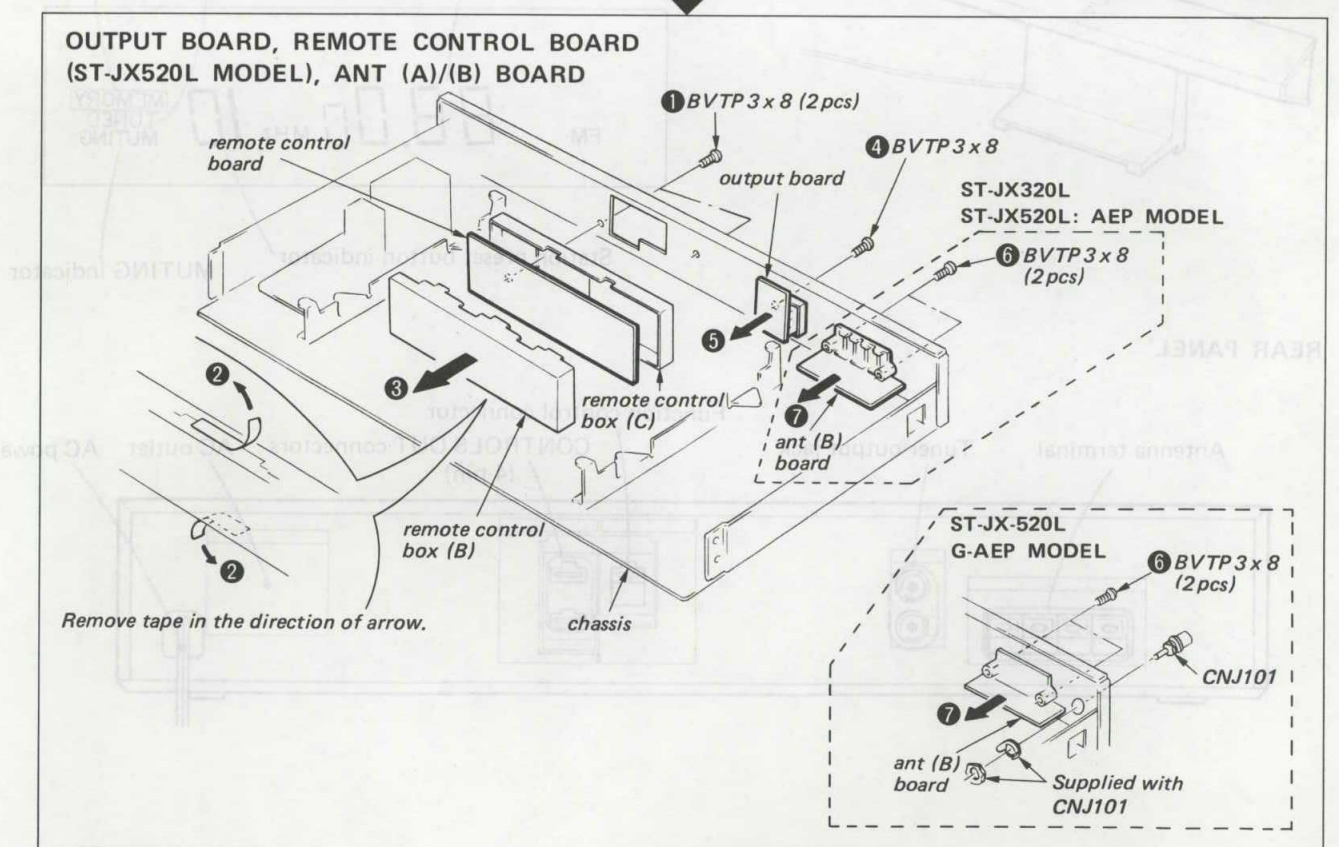
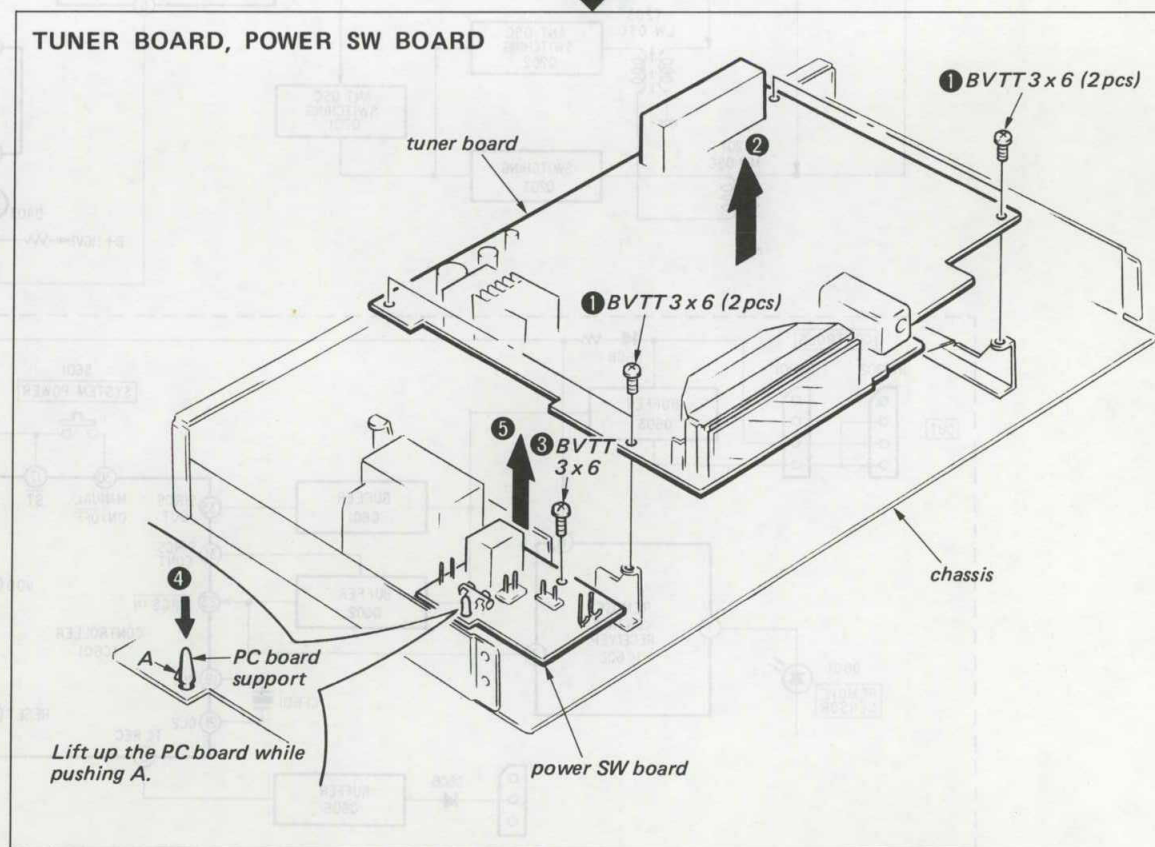
PIN NO.	PIN NAME	I/O	FUNCTION
2	RELAY	OUTPUT	Relay output pin. When the power switch is ON, this pin outputs "H".
4	RECEIVED	OUTPUT	RECEIVED LED OUTPUT pin. When remote control signal is received, this pin outputs "L".
5	STAND-BY	OUTPUT	STAND BY LED output pin. When the power switch is ON, this pin outputs "L". When remote control signal is received, this pin goes "H".
6	TC REC	INPUT	Function control signal input pin. During the record mode on the tape recorder, this pin inputs "H".
7	TC PLAY	INPUT	Function control signal input pin. Pulse signal of "H" level (⌚) is input to this pin during play mode on the tape recorder.
8	PC	INPUT	Function control signal input pin. Pulse signal of "H" level (⌚) is input to this pin when the player starts to play.
9	CD	INPUT	Function control signal input pin. Pulse signal of "H" level is input to this pin when the CD starts to play.
14	VTR REC	INPUT	Function control signal input pin. During record mode on VTR, this pin inputs "H".
15	VTR PLAY	INPUT	Function control signal input pin. Pulse signal of "H" level (⌚) is input to this pin during play mode on VTR.
17	ST	INPUT	Normally "H". This pin inputs "L" during muting mode (when the tuner operates).
18	RESET	INPUT	Reset input pin. When power switch is ON, pulse signal of "H" level (⌚) is input to this pin.
19, 21	CL1, CL2		System clock connection pin. This pin connects 4 MHz crystal frequency.
20	VDD		Power supply pin.
22	POWER ON/OFF	INPUT	When the power switch is OFF, "H" (⌚) pulse signal is input to this terminal.
23	SIRCS IN	INPUT	SIRCS signal input pin. Normally "H". When remote control signal received, serial data is input to this terminal.
27	RAMCLR		Normally "H". RAM is cleared at "L".
28	SW2		Normally "H". When function control switch is OFF, this pin goes "L".
29	SW1		When REMOTE switch is A/V, "L". When REMOTE switch is AUDIO, "H".
30	MANUAL ON/OFF		Normally "L". When SYSTEM POWER switch is ON, "H".
31	SIRCS CONT	OUTPUT	Normally "L". When SIRCS signal is output, this pin goes "H".
32	TUNE SO	OUTPUT	Normally "H". For tuner command output, serial data is output to controller (IC501).
35	SIRCS OUT	OUTPUT	SIRCS signal output pin. When data from the remote controller is input to this pin, the serial data of each operation command to each set is output from this pin.
39	GND		Ground terminal

SECTION 2
DISASSEMBLY

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

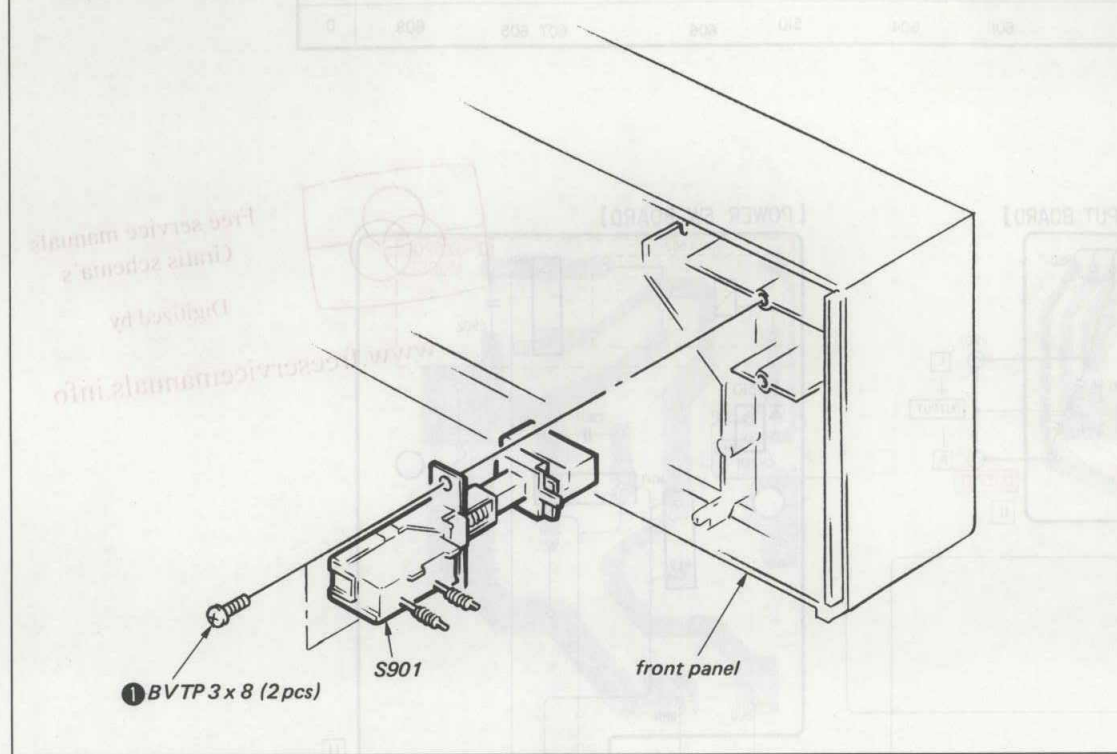


REMOVE
TOP COVER.



SECTION 3
ADJUSTMENTS

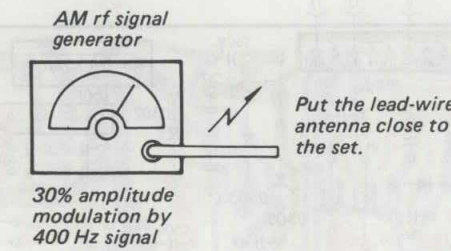
POWER SW (S901)



LW/MW SECTION

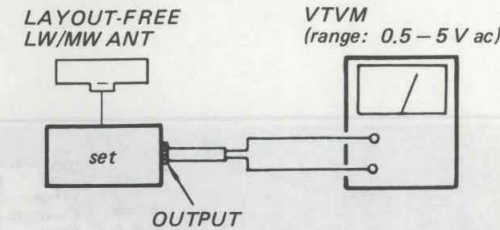
Setting:

Band Selector: LW/MW



Note:

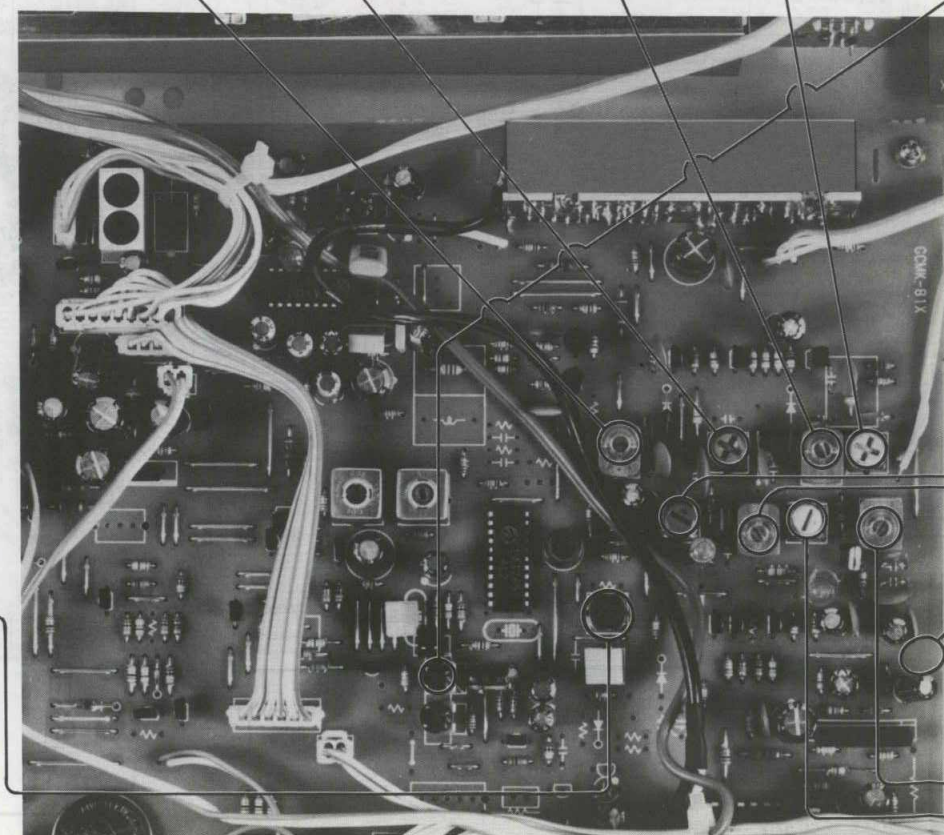
Tracking adjustment of LW section should be made earlier than that of MW section.



MW TRACKING ADJUSTMENT			
Adjust for a maximum reading on VTVM.			
1,404 kHz	603 kHz		
CT202	T202		

LW TRACKING ADJUSTMENT			
Adjust for a maximum reading on VTVM.			
310 kHz	170 kHz		
CT204	T204		

AM IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
1,404 kHz	
IFT203	

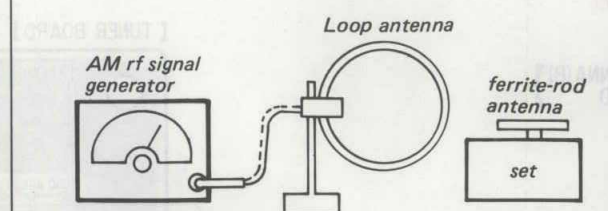


TUNED Indication Lighting Level Adjustment

Setting:

BAND SELECTOR switch: LW

Procedure:

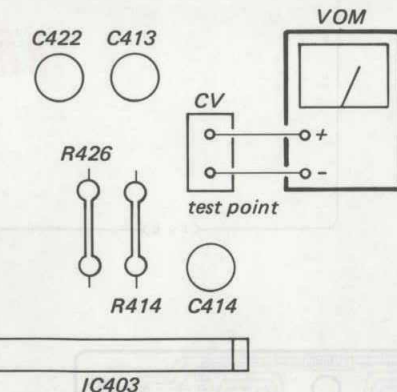


Carrier frequency: 230 kHz
Modulation: 400 Hz, 30% modulation

1. Set the loop antenna so that the AM antenna input level becomes 80µV/m.
2. Adjust RT201 so that the TUNED indicator goes on.

RT201

MW FREQUENCY COVERAGE ADJUSTMENT			
adjustment part	reading on VOM	frequency indication	
T201	1.8 ± 0.2 V	531 kHz	
CT201	22 ± 0.2 V	1,602 kHz	



LW FREQUENCY COVERAGE ADJUSTMENT		
adjustment part	reading on VOM	frequency indication
CT203	18.5 ± 0.2 V	344 kHz
T203	2.2 ± 0.2 V	153 kHz

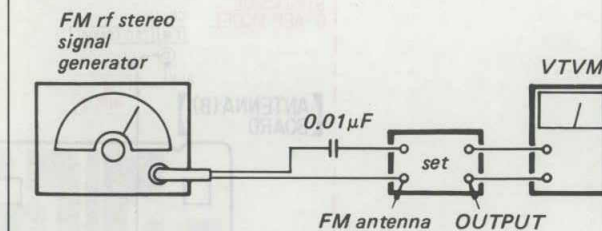
FM SECTION

FM Stereo Separation Adjustment

Setting:

STEREO/MUTING switch: ON (STEREO)

Procedure:



Carrier frequency: 98 dB
Output level: 1 mV (60 dB)
Mode: Stereo
Modulation: Audio (1 kHz): 16.25 kHz deviation (40%)
Pilot (19 kHz): 7.5 kHz deviation (20%)
Sub-channel (38 kHz): 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 RT301 for minimum reading.
R-CH	R-CH	(C)
L-CH	R-CH	(D) Adjust RT301 for minimum reading.

L-CH Stereo separation: (A) - (B)

R-CH Stereo separation: (C) - (D)

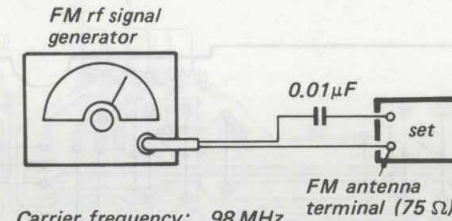
The separations of both channels should be equal.

FM Discriminator Alignment

Setting:

BAND SELECTOR switch: FM

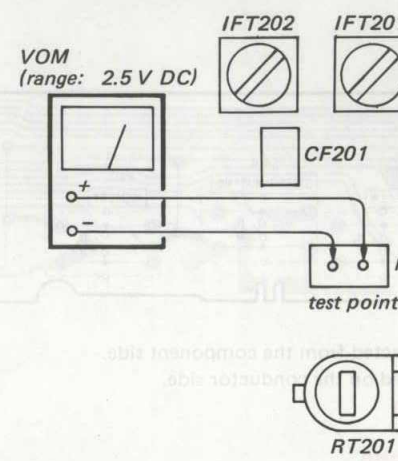
Procedure:



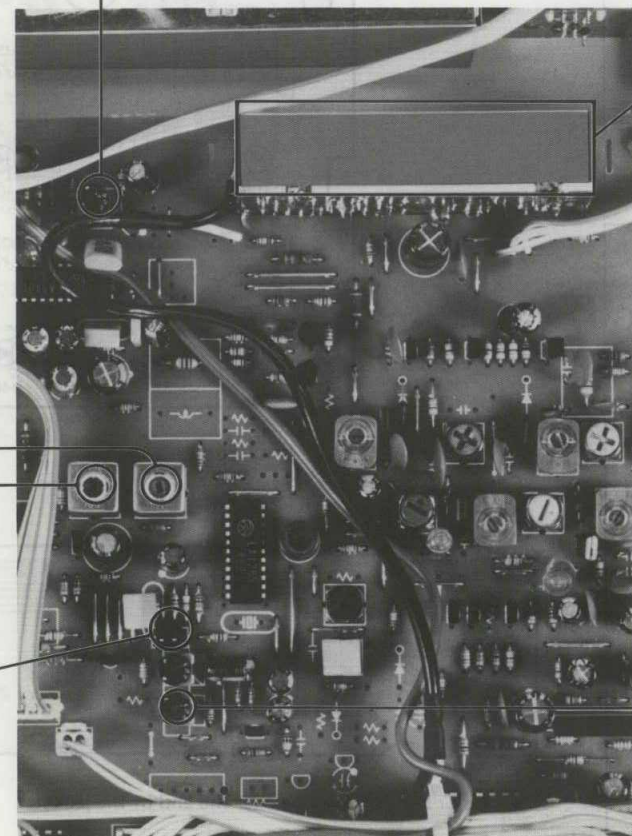
Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Modulation: 1 kHz, 40 kHz deviation (100%)

1. Tune the set to 98 MHz.
2. Adjust IFT201 for a 0 V reading on the VOM. ... NULL Adjustment
3. Adjust IFT202 for a minimum reading on the distortion meter ... Distortion Adjustment.

Note: When the ceramic filter is replaced, these adjustments should be made.



RT301

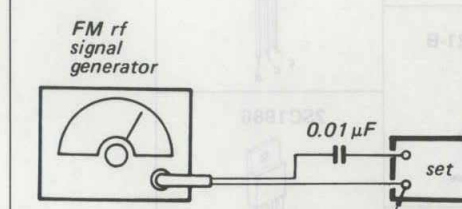


TUNED Indication Lighting Level Adjustment

Setting:

STEREO/MUTING switch: OFF

Procedure:

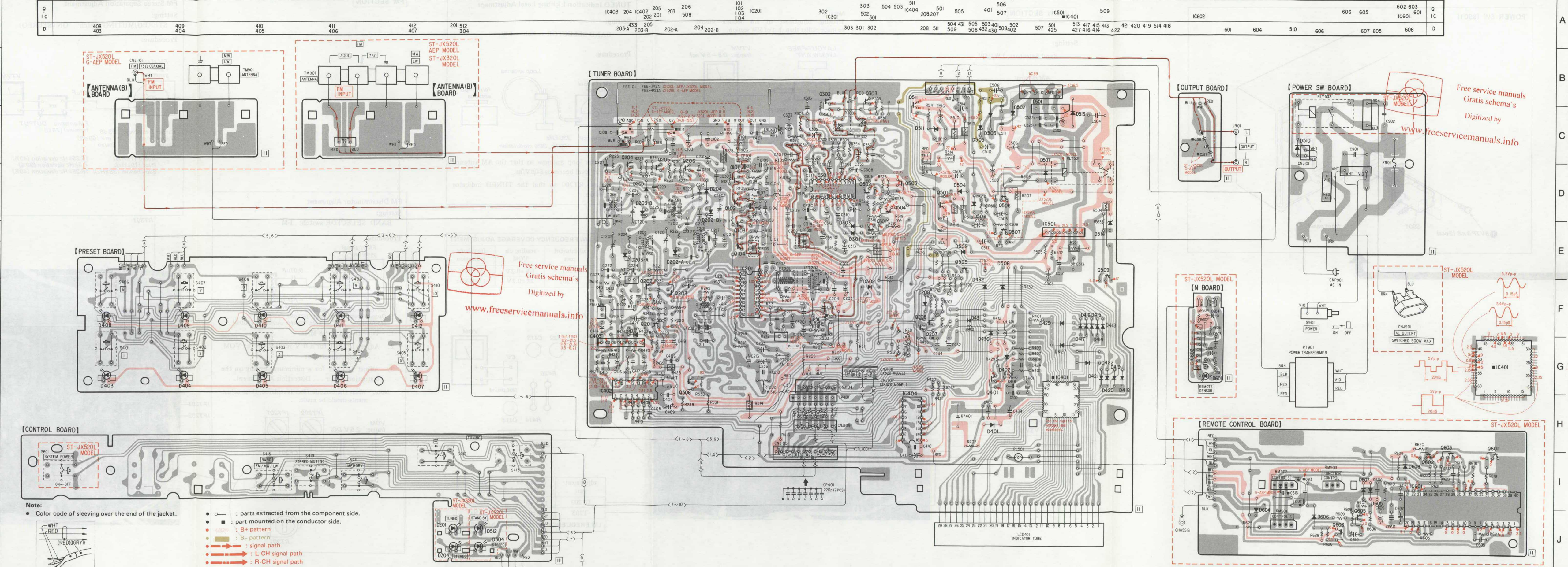


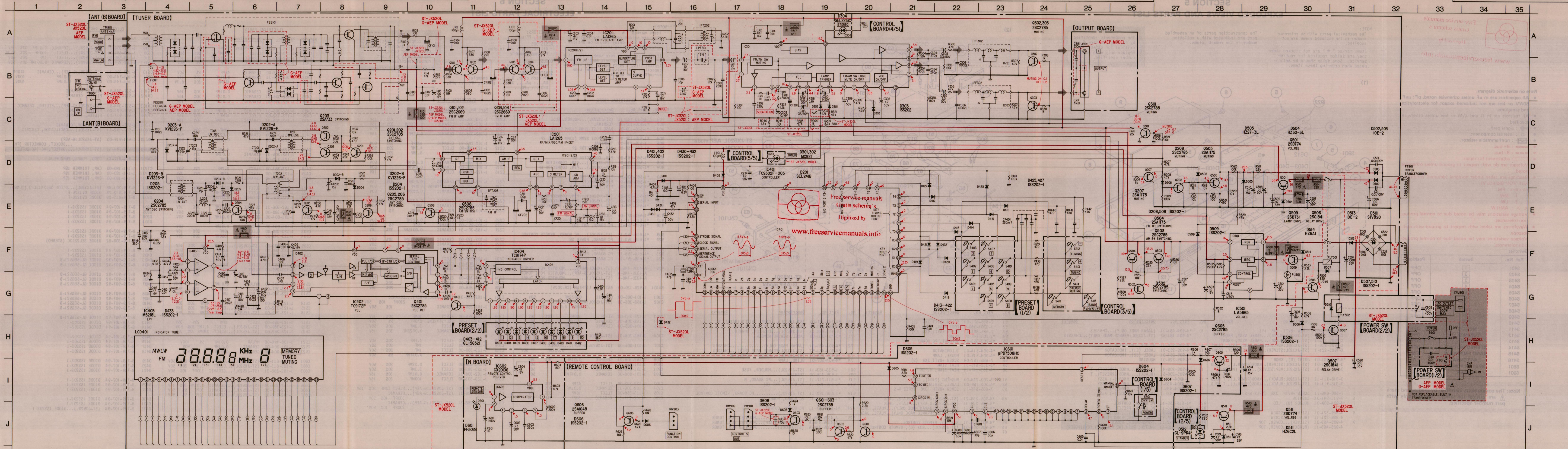
Carrier frequency: 98 MHz
Modulation: 1 kHz, 40 kHz deviation (100%)
Output level: 10µV (20 dB)

1. Tune the set to 98 MHz.
2. Adjust RT202 so that the TUNED indicator goes on.

ST-JX 320L/JX520L ST-JX 320L/JX520L

4-1. MOUNTING DIAGRAM





SECTION 5

EXPLODED VIEWS AND PARTS LIST

NOTE:

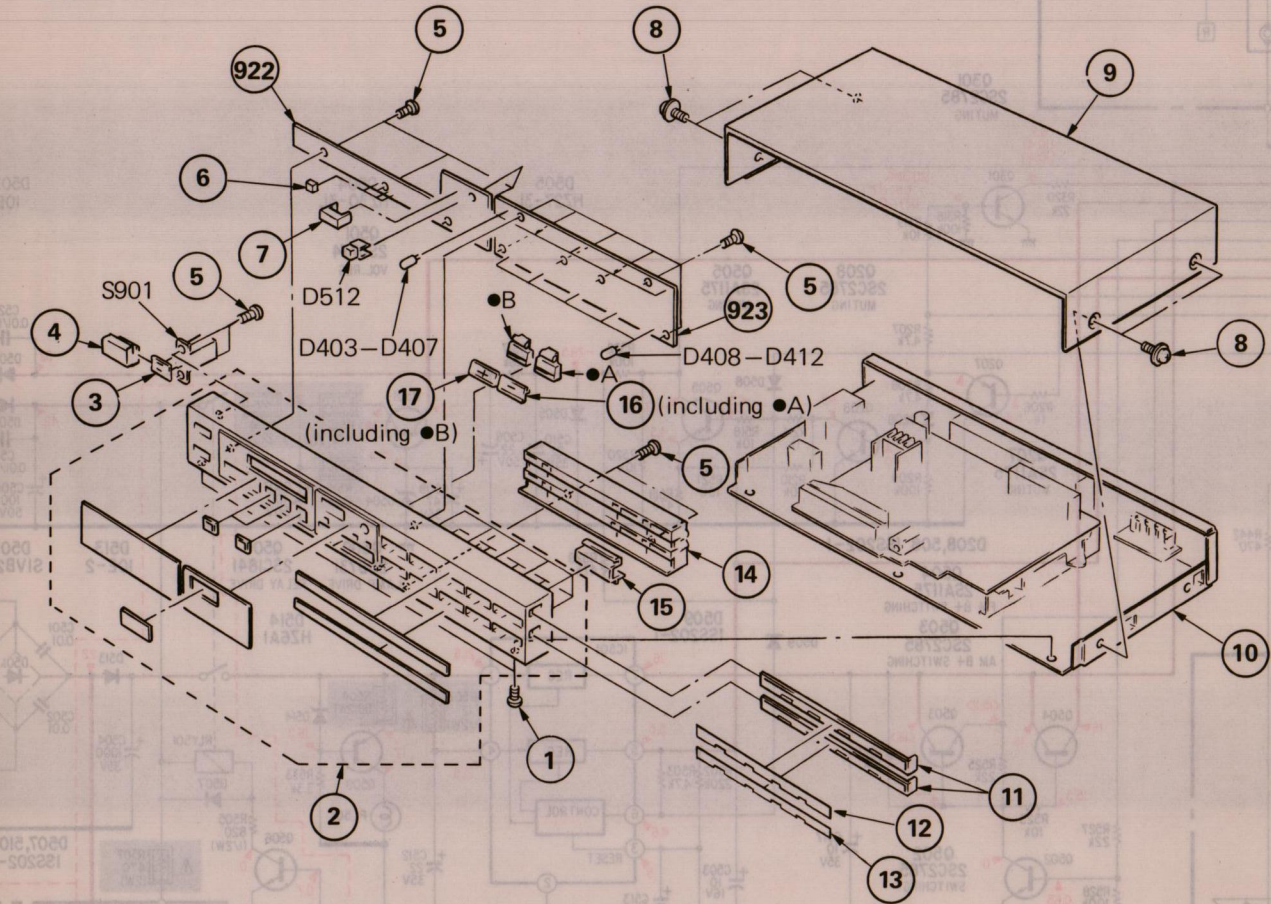
The mechanical parts with no reference number in the exploded views are not supplied.

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

The construction parts of an assembled part are indicated with a collation number in the remark column.

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

(1)



No.	Part No.	Description	Remarks
1	7-685-871-01	SCREW +BVT 3X6 (S)	
2	X-4905-215-1	(ST-JX520L:BLACK)...PANEL ASSY, FRONT	
3	X-4905-220-1	(ST-JX320L:BLACK)...PANEL ASSY, FRONT	
4	X-4905-216-1	(ST-JX520L:AEP:SILVER)...PANEL ASSY, FRONT	
5	X-4905-221-1	(ST-JX320L:SILVER)...PANEL ASSY, FRONT	
6	*4-902-831-01	JOINT (G), KNOB	
7	3-318-911-01	(ST-JX320L:SILVER)...KNOB (POWER.L), T MOLD	
8	3-318-911-31	(ST-JX520L:AEP:SILVER)...KNOB (POWER.L), T MOLD	
9	3-318-911-12	(ST-JX320L:BLACK)...KNOB (POWER.L), T MOLD	
10	3-318-911-41	(ST-JX520L:BLACK)...KNOB (POWER.L), T MOLD	
11	4-905-216-01	HOLDER, INDICATOR	
12	*4-905-253-01	LABEL (E1), INDICATOR	
13	*4-905-254-01	LABEL (E2), INDICATOR	
14	*4-905-226-01	HOUSING	
15	4-905-208-41	(SILVER)...KNOB (PRESET), T	
16	4-905-208-51	(BLACK)...KNOB (PRESET), T	
17	X-4904-436-1	(SILVER)...KNOB (-) ASSY	
18	X-4904-438-1	(BLACK)...KNOB (-) ASSY	
19	X-4904-435-1	(SILVER)...KNOB (+) ASSY	
20	X-4904-437-1	(BLACK)...KNOB (+) ASSY	
21	7-685-646-71	SCREW +BVT 3X8 TYPE2 N-S	
22	9-911-841-XX	CUSHION	
23	*4-904-509-01	HOLDER (B), LED	
24	4-889-321-01	(SILVER)...SCREW	
25	4-889-321-11	(BLACK)...SCREW	
26	4-905-463-01	(SILVER)...COVER, TOP	
27	4-905-463-11	(BLACK)...COVER, TOP	

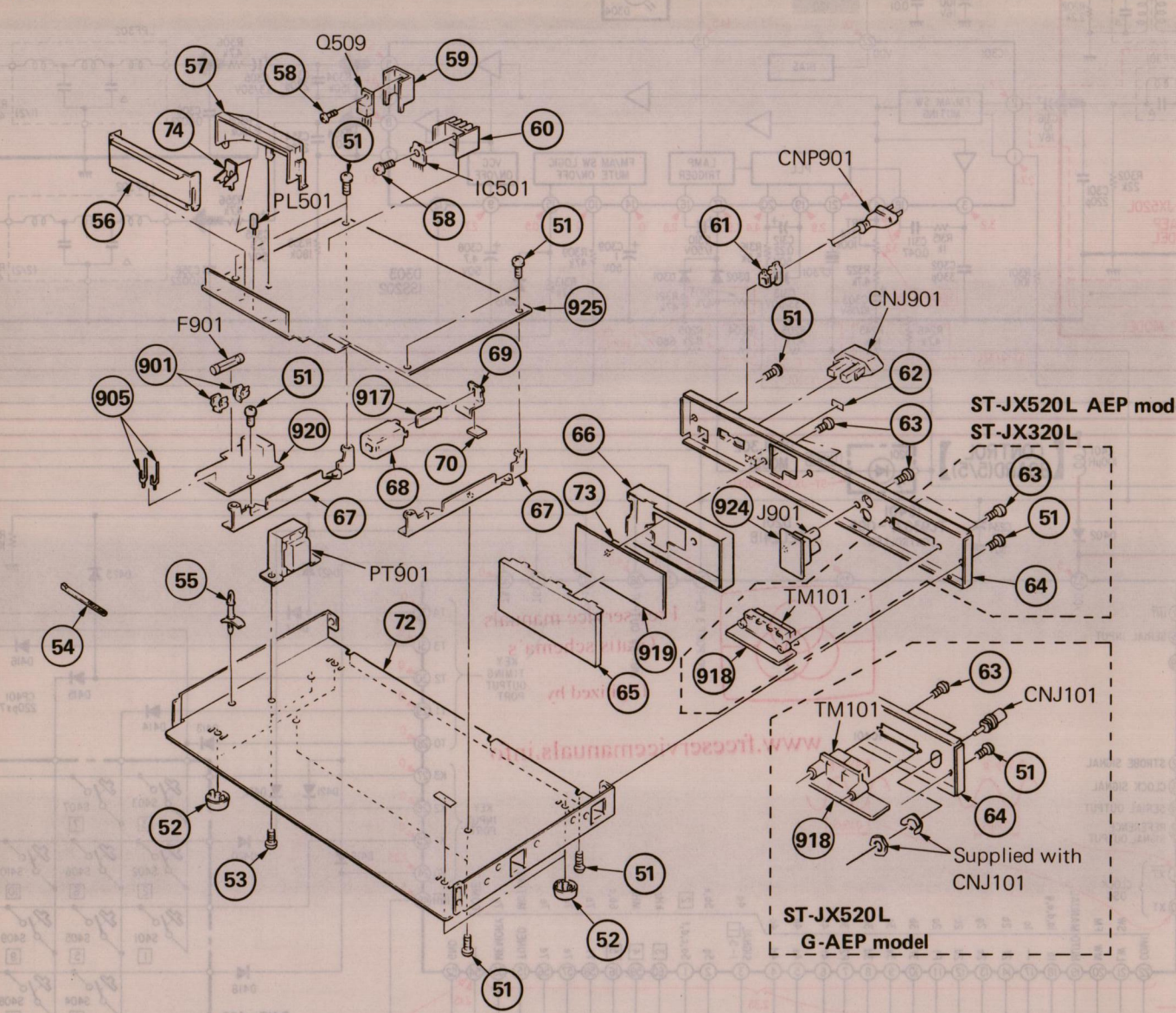
Note on schematic diagram:

- All capacitors are in μF unless otherwise noted. pF: μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- Signal path.
- Internal component.
- Nonflammable resistor.
- B+ bus.
- B- bus.
- Adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with VOM (50 k Ω /V).
- no mark: FM
- () : MW
- [] : LW
- < > : AM/LW
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with respect to ground with oscilloscope.
- Voltage variations may be noted due to normal production tolerances.
- Switches

Ref. No.	Switch	Position
S401	1	OFF
S402	2	OFF
S403	3	OFF
S404	4	OFF
S405	5	OFF
S406	6	OFF
S407	7	OFF
S408	8	OFF
S409	9	OFF
S410	10	OFF
S411	MEMORY	OFF
S412	TUNING	OFF
S413	TUNING	OFF
S414	STEREO MUTING	OFF
S415	BAND FM/MW/LW	FM
S416	ANTENNA	A
S601	SYSTEM POWER	OFF
S901	POWER	OFF

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

(2)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	7-685-871-01	SCREW +BVT 3X6 (S)		68	*4-342-117-00	(ST-JX520L)...CASE, SHIELD (MAIN), R	
52	X-3701-069-00	FOOT ASSY, M.F		69	*4-886-921-00	(ST-JX520L)...LID, SHIELD CASE	
53	7-685-881-01	SCREW +BVT 4X8 (S)		70	9-911-838-XX	(ST-JX520L)...CUSHION, RUBBER	
54	*3-701-748-00	CLAMP		71	*3-701-030-00	LABEL, SERIAL NUMBER	
55	*3-703-353-04	SUPPORT, PC BOARD		72	*4-904-481-11	(JAPAN MADE ONLY).....CHASSIS	
56	*4-904-514-01	ILLUMINATOR		73	*4-904-481-52	(ST-JX320L:FRANCE MADE ONLY)...CHASSIS	
57	*4-904-515-01	HOUSE, LAMP		74	*4-905-259-01	(ST-JX520L)...HOLDER, CONNECTOR	
58	7-685-752-04	SCREW +BVT 3X8 (S)		74	*4-904-507-01	BLIND, LAMP	
59	*3-312-615-31	HEAT SINK		901	1-533-183-11	(ST-JX520L)...HOLDER, FUSE	
60	*4-363-147-11	HEAT SINK, H.PIN		905	1-535-416-00	TERMINAL	
61	3-703-244-00	BUSHING (2104), CORD		917	*1-611-717-11	(ST-JX520L)...PC BOARD, N	
62	*4-302-759-00	LABEL, SERIAL NUMBER		918	*1-616-154-11	PC BOARD, ANT (B)	
63	7-685-646-71	SCREW +BVT 3X8 TYPE2 N-S		919	*1-616-152-11	(ST-JX520L)...PC BOARD, REMOTE C	
64	*4-905-238-21	(ST-JX520L:AEP).....PLATE, JACK		920	*1-616-153-11	PC BOARD, POWER SW	
	*4-905-238-31	(ST-JX520L:G-AEP).....PLATE, JACK		924	*1-616-157-11	PC BOARD, OUTPUT	
	*4-905-238-51	(ST-JX320L:JAPAN MADE ONLY).....PLATE, JACK		925	A-4335-445-A	(ST-JX520L:AEP).....MOUNTED PCB, TUNER	
	*4-905-238-61	(ST-JX320L:FRANCE MADE ONLY).....PLATE, JACK			A-4335-446-A	(ST-JX520L:G-AEP).....MOUNTED PCB, TUNER	
65	*4-907-614-01	BOX (B), REMOTE CONTROL			A-4335-448-A	(ST-JX320L).....MOUNTED PCB, TUNER	
66	*4-905-256-01	(ST-JX520L)...BOX (C), REMOTE CONTROL					
67	*4-905-255-01	FRAM					

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D433	8-7 19-107-94	DIODE 1SS202-1
D501	8-7 19-511-20	DIODE S1VB20
D502	8-7 19-200-02	DIODE 10E2
D503	8-7 19-200-02	DIODE 10E2
D504	8-7 19-913-03	DIODE HZ30-3L
D505	8-7 19-922-73	DIODE HZ27-3L
D506	8-7 19-107-94	(ST-JX520L)...DIODE 1SS202-1
D507	8-7 19-107-94	(ST-JX520L)...DIODE 1SS202-1
D508	8-7 19-107-94	DIODE 1SS202-1
D509	8-7 19-107-94	DIODE 1SS202-1
D510	8-7 19-107-94	(ST-JX520L)...DIODE 1SS202-1
D511	8-7 19-910-68	(ST-JX520L)...DIODE HZ6C2L
D512	8-7 19-300-82	(ST-JX520L)...DIODE SEL2213C(STAND BY)
D513	8-7 19-200-02	(ST-JX520L)...DIODE 10E2
D514	8-7 19-992-61	DIODE HZ6A1
D601	8-7 19-110-32	(ST-JX520L)...DIODE PH302B(REMOTE SENSOR)
D604	8-7 19-107-94	(ST-JX520L)...DIODE 1SS202-1
D605	8-7 19-107-94	(ST-JX520L)...DIODE 1SS202-1
D606	8-7 19-107-94	(ST-JX520L)...DIODE 1SS202-1
D607	8-7 19-107-94	(ST-JX520L)...DIODE 1SS202-1
D608	8-7 19-107-94	(ST-JX520L)...DIODE 1SS202-1
F901 A	1-532-237-00	(ST-JX520L)...FUSE, TIME-LAG
FEE101	1-463-613-11	(ST-JX520L:AEP,ST-JX320L) ...FRONT END, FM (FEE-3112A)
FEE101	1-463-641-11	(ST-JX520L:G-AEP) ...FRONT END, FM (FEE-4123A)
IC201	8-759-801-81	IC LA1265
IC301	8-759-801-80	IC LA3401
IC401	8-759-204-24	IC TC9302F-005
IC402	8-759-202-63	IC TC9172P
IC403	8-759-600-02	IC M5218L
IC404	8-759-202-07	IC TC9174P
IC501	8-759-801-79	IC LA5665
IC601	8-759-103-97	(ST-JX520L)...IC UPD7507HC-020
IC602	8-752-010-60	(ST-JX520L)...IC CX20106
IFT201	1-404-339-00	TRANSFORMER, DISCRIMINATOR
IFT202	1-404-338-00	TRANSFORMER, DISCRIMINATOR (FM)
IFT203	1-404-535-11	COIL (WITH IFT)
J901	1-507-912-11	JACK, PIN 2P (OUTPUT)
L101	1-408-575-00	MICRO INDUCTOR 100UH
L102	1-408-575-00	(ST-JX520L:G-AEP)...MICRO INDUCTOR 100UH
L201	1-408-920-00	MICRO INDUCTOR 4.7MMH
L202	1-408-579-00	MICRO INDUCTOR 220UH
L401	1-408-575-00	MICRO INDUCTOR 100UH
LCD401	1-806-874-11	INDICATOR, L-CRYSTAL LT5056
LPF301	1-235-266-00	(ST-JX520L:G-AEP)...FILTER, LOW PASS
LPF302	1-235-221-00	FILTER, LOW PASS
PL501	1-518-511-00	LAMP, PILOT
PT90 A	1-448-222-11	TRANSFORMER, POWER
Q101	8-729-201-96	TRANSISTOR 2SC380TM-Y
Q102	8-729-201-96	TRANSISTOR 2SC380TM-Y
Q103	8-729-201-96	(ST-JX520L:G-AEP)...TRANSISTOR 2SC380TM-Y

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

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q104	8-729-201-96	(ST-JX520L:G-AEP)...TRANSISTOR 2SC380TM-Y
Q201	8-729-606-33	TRANSISTOR 2SC2603F
Q202	8-729-606-33	TRANSISTOR 2SC2603F
Q203	8-729-173-37	TRANSISTOR 2SA733-P
Q204	8-729-606-33	TRANSISTOR 2SC2603F
Q205	8-729-606-33	TRANSISTOR 2SC2603F
Q206	8-729-606-33	TRANSISTOR 2SC2603F
Q207	8-729-173-37	TRANSISTOR 2SA733-P
Q208	8-729-245-83	TRANSISTOR 2SC2458
Q301	8-729-606-33	TRANSISTOR 2SC2603F
Q302	8-729-606-33	TRANSISTOR 2SC2603F
Q303	8-729-606-33	TRANSISTOR 2SC2603F
Q401	8-729-606-33	TRANSISTOR 2SC2603F
Q501	8-729-177-44	TRANSISTOR 2SD774-5
Q502	8-729-606-33	TRANSISTOR 2SC2603F
Q503	8-729-606-33	TRANSISTOR 2SC2603F
Q504	8-729-173-37	TRANSISTOR 2SA733-P
Q505	8-729-173-37	TRANSISTOR 2SA733-P
Q506	8-729-108-05	(ST-JX520L)...TRANSISTOR 2SC1841-PA
Q507	8-729-108-05	(ST-JX520L)...TRANSISTOR 2SC1841-PA
Q508	8-729-606-33	TRANSISTOR 2SC2603F
Q509	8-729-173-13	TRANSISTOR 2SB731
Q511	8-729-177-44	(ST-JX520L)...TRANSISTOR 2SD774-5
Q601	8-729-606-33	(ST-JX520L)...TRANSISTOR 2SC2603F
Q602	8-729-606-33	(ST-JX520L)...TRANSISTOR 2SC2603F
Q603	8-729-606-33	(ST-JX520L)...TRANSISTOR 2SC2603F
Q605	8-729-606-33	(ST-JX520L)...TRANSISTOR 2SC2603F
Q606	8-729-612-77	(ST-JX520L)...TRANSISTOR 2SA1027R
R101 A	1-247-107-00	(ST-JX520L:G-AEP)...CARBON 100 5% 1/4W
R101 A	1-247-119-00	(ST-JX520L:AEP,ST-JX320L) ...CARBON 330 5% 1/4W F
R102	1-247-831-00	CARBON 1K 5% 1/6W
R103	1-247-807-00	CARBON 100 5% 1/6W
R104	1-247-819-00	CARBON 330 5% 1/6W
R105	1-247-861-00	CARBON 18K 5% 1/6W
R106	1-247-825-00	CARBON 560 5% 1/6W
R107	1-247-819-00	CARBON 330 5% 1/6W
R108	1-247-865-00	CARBON 27K 5% 1/6W
R109	1-247-819-00	(ST-JX520L:G-AEP)...CARBON 330 5% 1/6W
R110	1-247-861-00	(ST-JX520L:G-AEP)...CARBON 18K 5% 1/6W
R111	1-247-829-00	(ST-JX520L:G-AEP)...CARBON 820 5% 1/6W
R112	1-247-819-00	(ST-JX520L:G-AEP)...CARBON 330 5% 1/6W
R113	1-247-865-00	(ST-JX520L:G-AEP)...CARBON 27K 5% 1/6W
R114	1-247-871-00	(ST-JX520L:G-AEP)...CARBON 47K 5% 1/6W
R115	1-247-865-00	(ST-JX520L:G-AEP)...CARBON 27K 5% 1/6W
R201	1-247-863-00	CARBON 22K 5% 1/6W
R202	1-249-421-11	CARBON 2.2K 5% 1/6W
R203	1-247-847-00	CARBON 4.7K 5% 1/6W
R204	1-247-831-00	(ST-JX520L)...CARBON 1K 5% 1/6W
R205	1-246-469-00	(ST-JX320L)...CARBON 680 5% 1/4W
R205	1-247-853-00	(ST-JX520L)...CARBON 8.2K 5% 1/6W
R206	1-247-831-00	CARBON 1K 5% 1/6W
R207	1-247-847-00	CARBON 4.7K 5% 1/6W
R208	1-247-847-00	CARBON 4.7K 5% 1/6W
R209	1-247-879-00	CARBON 100K 5% 1/6W
R210	1-247-855-00	CARBON 10K 5% 1/6W
R211	1-247-831-00	CARBON 1K 5% 1/6W

ST-JX320L/JX520L

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R212	1-247-831-00	CARBON	1K	5%	1/6W
R213	1-247-865-00	CARBON	27K	5%	1/6W
R214 Δ	1-247-119-00	CARBON	330	5%	1/4W F
R215	1-247-805-00	CARBON	82	5%	1/6W
R216	1-247-843-00	CARBON	3.3K	5%	1/6W
R218	1-247-855-00	CARBON	10K	5%	1/6W
R219	1-247-855-00	CARBON	10K	5%	1/6W
R220	1-247-831-00	CARBON	1K	5%	1/6W
R221	1-247-871-00	CARBON	47K	5%	1/6W
R222	1-247-887-00	CARBON	220K	5%	1/6W
R223	1-247-871-00	CARBON	47K	5%	1/6W
R224	1-247-887-00	CARBON	220K	5%	1/6W
R225	1-247-903-00	CARBON	1M	5%	1/6W
R226	1-247-879-00	CARBON	100K	5%	1/6W
R227	1-247-871-00	CARBON	47K	5%	1/6W
R228 Δ	1-247-123-00	CARBON	470	5%	1/4W F
R229	1-247-847-00	CARBON	4.7K	5%	1/6W
R230	1-247-847-00	CARBON	4.7K	5%	1/6W
R231	1-247-871-00	CARBON	47K	5%	1/6W
R232	1-247-871-00	CARBON	47K	5%	1/6W
R233	1-247-863-00	CARBON	22K	5%	1/6W
R234	1-249-421-11	CARBON	2.2K	5%	1/6W
R235	1-249-421-11	CARBON	2.2K	5%	1/6W
R237	1-247-855-00	CARBON	10K	5%	1/6W
R238	1-247-871-00	CARBON	47K	5%	1/6W
R239	1-247-879-00	CARBON	100K	5%	1/6W
R241	1-247-855-00	CARBON	10K	5%	1/6W
R242	1-247-823-00	CARBON	470	5%	1/6W
R243	1-247-863-00	CARBON	22K	5%	1/6W
R245	1-247-855-00	(ST-JX320L).....CARBON	10K	5%	1/6W
R246	1-247-847-00	(ST-JX320L).....CARBON	4.7K	5%	1/6W
R301	1-247-807-00	CARBON	100	5%	1/6W
R302	1-247-863-00	(ST-JX520L:G-AEP)...CARBON	22K	5%	1/6W
R304	1-247-883-00	CARBON	150K	5%	1/6W
R305	1-247-885-00	CARBON	180K	5%	1/6W
R306	1-247-847-00	CARBON	4.7K	5%	1/6W
R307	1-247-847-00	CARBON	4.7K	5%	1/6W
R308	1-247-831-00	CARBON	1K	5%	1/6W
R309	1-247-871-00	CARBON	47K	5%	1/6W
R311	1-247-129-00	CARBON	820	5%	1/4W
R313	1-247-847-00	CARBON	4.7K	5%	1/6W
R315	1-247-847-00	CARBON	4.7K	5%	1/6W
R316	1-247-849-00	CARBON	5.6K	5%	1/6W
R317 Δ	1-247-109-00	CARBON	120	5%	1/4W F
R318	1-247-879-00	CARBON	100K	5%	1/6W
R319	1-247-855-00	CARBON	10K	5%	1/6W
R320	1-247-863-00	CARBON	22K	5%	1/6W
R321	1-247-871-00	CARBON	47K	5%	1/6W
R322	1-247-847-00	CARBON	4.7K	5%	1/6W
R354	1-247-883-00	CARBON	150K	5%	1/6W
R355	1-247-885-00	CARBON	180K	5%	1/6W
R356	1-247-847-00	CARBON	4.7K	5%	1/6W
R357	1-247-847-00	CARBON	4.7K	5%	1/6W
R358	1-247-831-00	CARBON	1K	5%	1/6W
R401	1-247-879-00	CARBON	100K	5%	1/6W

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			
R402	1-247-871-00	CARBON	47K	5%	1/6W
R403	1-247-843-00	CARBON	3.3K	5%	1/6W
R405	1-247-879-00	CARBON	100K	5%	1/6W
R406	1-247-807-00	CARBON	100	5%	1/6W
R407	1-247-847-00	CARBON	4.7K	5%	1/6W
R408 Δ	1-247-099-00	CARBON	47	5%	1/4W F
R409	1-247-831-00	CARBON	1K	5%	1/6W
R410	1-247-831-00	CARBON	1K	5%	1/6W
R411	1-247-831-00	CARBON	1K	5%	1/6W
R412	1-247-831-00	CARBON	1K	5%	1/6W
R413	1-247-234-00	CARBON	560	5%	1/2W
R414	1-247-847-00	CARBON	4.7K	5%	1/6W
R416	1-247-819-00	CARBON	330	5%	1/6W
R417	1-247-807-00	CARBON	100	5%	1/6W
R418	1-247-843-00	CARBON	3.3K	5%	1/6W
R419	1-247-847-00	CARBON	4.7K	5%	1/6W
R420	1-247-867-00	CARBON	33K	5%	1/6W
R421	1-247-847-00	CARBON	4.7K	5%	1/6W
R422	1-247-855-00	CARBON	10K	5%	1/6W
R423	1-247-873-00	CARBON	56K	5%	1/6W
R424	1-247-871-00	CARBON	47K	5%	1/6W
R425 Δ	1-247-123-00	CARBON	470	5%	1/4W F
R426	1-247-847-00	CARBON	4.7K	5%	1/6W
R427	1-247-847-00	CARBON	4.7K	5%	1/6W
R428	1-247-879-00	CARBON	100K	5%	1/6W
R429	1-247-847-00	CARBON	4.7K	5%	1/6W
R430	1-247-831-00	CARBON	1K	5%	1/6W
R431	1-247-831-00	CARBON	1K	5%	1/6W
R432	1-247-831-00	CARBON	1K	5%	1/6W
R433	1-247-831-00	CARBON	1K	5%	1/6W
R434	1-247-823-00	CARBON	470	5%	1/6W
R435	1-247-849-00	CARBON	5.6K	5%	1/6W
R436	1-247-823-00	CARBON	470	5%	1/6W
R437	1-247-823-00	CARBON	470	5%	1/6W
R438	1-247-823-00	CARBON	470	5%	1/6W
R439	1-247-823-00	CARBON	470	5%	1/6W
R440	1-247-823-00	CARBON	470	5%	1/6W
R441	1-247-823-00	CARBON	470	5%	1/6W
R442	1-247-823-00	CARBON	470	5%	1/6W
R501 Δ	1-247-194-00	CARBON	12	5%	1/2W F
R502	1-247-887-00	CARBON	220K	5%	1/6W
R503	1-247-847-00	CARBON	4.7K	5%	1/6W
R504 Δ	1-206-481-00	METAL OXIDE	56	5%	2W F
R505	1-247-751-11	(ST-JX520L)...CARBON	820	5%	1/2W
R506	1-247-847-00	(ST-JX520L)...CARBON	4.7K	5%	1/6W
R507 Δ	1-206-656-00	(ST-JX520L)...METAL OXIDE	470	5%	2W F
R508	1-247-855-00	(ST-JX520L)...CARBON	10K	5%	1/6W
R509	1-247-879-00	(ST-JX520L)...CARBON	100K	5%	1/6W
R510 Δ	1-247-123-00	(ST-JX520L)...CARBON	470	5%	1/4W F
R511	1-249-421-11	(ST-JX520L)...CARBON	2.2K	5%	1/6W
R512	1-247-815-00	(ST-JX520L)...CARBON	220	5%	1/6W
R513 Δ	1-247-115-00	(ST-JX520L)...CARBON	220	5%	1/4W F
R514 Δ	1-247-115-00	CARBON	220	5%	1/4W F
R515 Δ	1-247-123-00	CARBON	470	5%	1/4W F
R516 Δ	1-247-143-00	CARBON	3.3K	5%	1/4W F
R517	1-247-149-00	CARBON	5.6K	5%	1/4W
R518	1-247-855-00	CARBON	10K	5%	1/6W

ELECTRICAL PARTS


Ref.No.	Part No.	Description
R5 19	1-247-823-00	CARBON 470 5% 1/6W
R5 20	1-247-855-00	CARBON 10K 5% 1/6W
R5 21	1-247-807-00	CARBON 100 5% 1/6W
R5 22	1-247-879-00	CARBON 100K 5% 1/6W
R5 23	1-247-855-00	CARBON 10K 5% 1/6W
R5 24	1-247-855-00	CARBON 10K 5% 1/6W
R5 25	1-247-863-00	CARBON 22K 5% 1/6W
R5 26	1-247-855-00	CARBON 10K 5% 1/6W
R5 27	1-247-863-00	CARBON 22K 5% 1/6W
R5 28	1-247-879-00	CARBON 100K 5% 1/6W
R5 29	1-247-871-00	CARBON 47K 5% 1/6W
R5 30	1-247-879-00	CARBON 100K 5% 1/6W
R5 31	1-247-855-00	CARBON 10K 5% 1/6W
R5 32	1-247-831-00	CARBON 1K 5% 1/6W
R5 33	1-247-843-00	CARBON 3.3K 5% 1/6W
R6 01	1-247-783-00	(ST-JX520L)...CARBON 10 5% 1/6W
R6 02	1-215-476-00	(ST-JX520L)...METAL 200K 1% 1/6W
R6 03	1-247-847-00	(ST-JX520L)...CARBON 4.7K 5% 1/6W
R6 04	1-247-811-00	(ST-JX520L)...CARBON 150 5% 1/6W
R6 05	1-247-879-00	(ST-JX520L)...CARBON 100K 5% 1/6W
R6 06	1-247-831-00	(ST-JX520L)...CARBON 1K 5% 1/6W
R6 07	1-247-855-00	(ST-JX520L)...CARBON 10K 5% 1/6W
R6 08	1-247-871-00	(ST-JX520L)...CARBON 47K 5% 1/6W
R6 09	1-247-815-00	(ST-JX520L)...CARBON 220 5% 1/6W
R6 10	1-247-879-00	(ST-JX520L)...CARBON 100K 5% 1/6W
R6 17	1-247-855-00	(ST-JX520L)...CARBON 10K 5% 1/6W
R6 18	1-249-421-11	(ST-JX520L)...CARBON 2.2K 5% 1/6W
R6 19	1-247-855-00	(ST-JX520L)...CARBON 10K 5% 1/6W
R6 20	1-249-421-11	(ST-JX520L)...CARBON 2.2K 5% 1/6W
R6 21	1-247-855-00	(ST-JX520L)...CARBON 10K 5% 1/6W
R6 22	1-247-871-00	(ST-JX520L)...CARBON 47K 5% 1/6W
R6 23	1-247-855-00	(ST-JX520L)...CARBON 10K 5% 1/6W
R6 24	1-247-831-00	(ST-JX520L)...CARBON 1K 5% 1/6W
R6 25	1-247-783-00	(ST-JX520L)...CARBON 10 5% 1/6W
R6 26	1-247-847-00	(ST-JX520L)...CARBON 4.7K 5% 1/6W
R6 27	1-247-855-00	(ST-JX520L)...CARBON 10K 5% 1/6W
R6 28	1-247-855-00	(ST-JX520L)...CARBON 10K 5% 1/6W
RLY501	1-515-533-11	(ST-JX520L)...RELAY
RLY502	1-515-560-11	(ST-JX520L)...RELAY
RM901	*1-560-039-00	(ST-JX520L)...PIN, CONNECTOR (CONTROL S)
RM902	*1-560-039-00	(ST-JX520L)...PIN, CONNECTOR (CONTROL S)
RM903	*1-560-280-00	(ST-JX520L)...CONNECTOR PIN 3P (FUNCTION CONTROL)
RT201	1-228-995-00	RES, ADJ, CARBON 22K
RT202	1-228-995-00	RES, ADJ, CARBON 22K
RT301	1-228-997-00	RES, ADJ, CARBON 100K
S401	1-552-539-00	SWITCH, KEY BOARD (1)
S402	1-552-539-00	SWITCH, KEY BOARD (2)
S403	1-552-539-00	SWITCH, KEY BOARD (3)
S404	1-552-539-00	SWITCH, KEY BOARD (4)
S405	1-552-539-00	SWITCH, KEY BOARD (5)
S406	1-552-539-00	SWITCH, KEY BOARD (6)
S407	1-552-539-00	SWITCH, KEY BOARD (7)
S408	1-552-539-00	SWITCH, KEY BOARD (8)
S409	1-552-539-00	SWITCH, KEY BOARD (9)
S410	1-552-539-00	SWITCH, KEY BOARD (10)
S411	1-552-539-00	SWITCH, KEY BOARD (MEMORY)
S412	1-552-539-00	SWITCH, KEY BOARD (TUNING -)

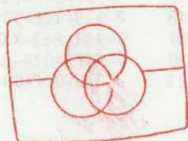
ELECTRICAL PARTS

Ref.No.	Part No.	Description
S413	1-552-539-00	SWITCH, KEY BOARD (TUNING +)
S414	1-552-539-00	SWITCH, KEY BOARD (STEREO Muting)
S415	1-552-539-00	SWITCH, KEY BOARD (BAND FM/MW/LW)
S601	1-552-539-00	(ST-JX520L)...SWITCH, KEY BOARD (SYSTEM POWER)
S901	1-553-318-41	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)
T201	1-405-927-00	COIL, MW OSC
T202	1-402-080-11	COIL, ANT (MW)
T203	1-405-914-00	COIL, LW OSC
T204	1-402-081-11	COIL, ANT (LW)
TM901	1-536-707-00	(ST-JX520L:G-AEP)...TERMINAL BOARD, PUSH 2P (MW/LW)
TM901	1-536-708-00	(ST-JX520L:AEP,ST-JX320L)...TERMINAL BOARD, PUSH 4P (ANTENNA FM/MW/LW)
XT401	1-567-125-00	VIBRATOR, CRYSTAL 7.2MHZ

ACCESSORY & PACKING MATERIAL

Part No.	Description
101	1-402-082-11 ANTENNA, FERRITE-ROD (LW/MW/SW)
102	1-501-224-00 (ST-JX320L/520L:AEP)...ANTENNA, FEEDER
103	1-506-452-11 (ST-JX520L)...ADAPTOR, PLUG
104	1-556-372-61 CORD, CONNECTION (4 CORE)
105	1-557-109-00 CORD, CONNECTION
106	3-701-630-00 BAG, POLYETHYLENE
107	3-703-895-01 (BLACK)...LABEL, COLOR
	3-703-906-01 (SILVER)...LABEL, COLOR
108	3-760-570-11 (ST-JX520L:AEP)...MANUAL, INSTRUCTION
109	3-760-570-41 (ST-JX520L)...MANUAL, INSTRUCTION
	3-760-571-11 (ST-JX320L:JAPAN MADE)
	3-760-571-91 (ST-JX320L:FRANCE MADE)
	...MANUAL, INSTRUCTION
110	4-876-352-00 SHEET, PROTECTION
111	4-905-240-01 (JAPAN MADE ONLY)...CUSHION, LOWER
	4-905-245-01 (ST-JX320L:FRANCE MADE)
	...CUSHION, LOWER
112	4-905-241-21 (ST-JX520L)...INDIVIDUAL CARTON
	4-905-241-31 (ST-JX320L:JAPAN MADE)
	...INDIVIDUAL CARTON
	4-905-244-01 (ST-JX320L:FRANCE MADE)
	...INDIVIDUAL CARTON
113	4-905-242-01 (JAPAN MADE)...CUSHION (LEFT), UPPER
	4-905-246-01 (ST-JX320L:FRANCE MADE)
	...CUSHION (LEFT), UPPER
114	4-905-243-01 (JAPAN MADE)...CUSHION (RIGHT), UPPER
	4-905-247-01 (ST-JX320L:FRANCE MADE)
	...CUSHION (RIGHT), UPPER
115	4-905-264-01 LABEL (EP1), INDICATOR
116	4-905-265-01 LABEL (EP2), INDICATOR
117	4-907-610-01 JOINT
118	8-915-122-90 CORD, CONNECTION
119	9-911-863-XX INSULATOR
120	A-4372-026-A COMMANDER ASSY
121	2-375-012-00 BAG, PROTECTION

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



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