

Service Manual

Tuner

QUARTZ Synthesizer AM/FM Stereo Tuner
(ST-G40)

QUARTZ Synthesizer LW/MW/FM Stereo Tuner
(ST-G40L)

ST-G40

ST-G40L

Color

(K)...Black Type
(S)...Silver Type



Color	Areas
(K) (S)	[EX]...Continental Europe. (ST-G40/G40L)
(K) (S)	[EK]...United Kingdom. (ST-G40L)
(K) (S)	[EB]...Belgium. (ST-G40L)
(K) (S)	[EH]...Holland. (ST-G40)
(K) (S)	[EF]...France. (ST-G40L)
(K) (S)	[XA]...Asia, Oceania, Latin America, Middle Near East and Africa. (ST-G40)
(K) (S)	[PA]...For East PX. (ST-G40)
(K) (S)	[PE]...European Military. (ST-G40)

SPECIFICATIONS

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz
Sensitivity	1.5 μ V (IHF, usable)
S/N 30 dB	1.3 μ V (75 Ω)
S/N 26 dB	1.2 μ V (75 Ω)
S/N 20 dB	0.9 μ V (75 Ω)
IHF 46 dB stereo quieting sensitivity	28 μ V/75 Ω
Total harmonic distortion	
MONO	0.09%
STEREO	0.2%
S/N	
MONO	72 dB (80 dB, IHF)
STEREO	65 dB (73 dB, IHF)
Frequency response	4 Hz~18 kHz, +0.5 dB~-1.5 dB
Alternate channel selectivity	
normal \pm 400 kHz	65 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	55 dB
IF rejection at 98 MHz	90 dB
Spurious response rejection at 98 MHz	80 dB
AM suppression	55 dB
Stereo separation	
1 kHz	50 dB
10 kHz	40 dB

Carrier leak	
19 kHz	-55 dB (-60 dB, IHF)
38 kHz	-40 dB (-45 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	\pm 1.0 dB
Limiting point	0.85 μ V
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75 Ω (unbalanced)

■ AM TUNER SECTION (ST-G40)

Frequency range	
(For Europe)	522 kHz~1611 kHz (9 kHz-step) 530 kHz~1620 kHz (10 kHz-step)
(For Saudi Arabia and others)	531 kHz~1602 kHz (9 kHz-step) 530 kHz~1600 kHz (10 kHz-step)
Sensitivity (S/N 20 dB)	20 μ V, 300 μ V/m
Selectivity at 999 kHz (\pm 9 kHz)	50 dB
Image rejection at 999 kHz	40 dB
IF rejection at 999 kHz	60 dB

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Panasonic Tokyo Office
Matsushita Electric Trading Co., Ltd.
6th Floor, World Trade Center Bldg.,
No. 4-1, Hamamatsu-cho 2-Chome, Minato-ku,
Tokyo 105, Japan

ST-G40/G40L

■ AM TUNER SECTION (ST-G40L)

Frequency range	
MW	522 kHz~1611 kHz (9 kHz-step) 530 kHz~1620 kHz (10 kHz-step)
LW	155 kHz~353 kHz (9 kHz-step) 153 kHz~351 kHz (-2 kHz shift)
Sensitivity (S/N 20 dB)	
MW	20 μ V, 300 μ V/m
LW	50 μ V
Selectivity (\pm 9 kHz)	
MW (at 999 kHz)	50 dB
LW (at 254 kHz)	50 dB
Image rejection	
MW (at 999 kHz)	40 dB
LW (at 254 kHz)	40 dB
IF rejection	
MW (at 999 kHz)	60 dB
LW (at 254 kHz)	35 dB

■ GENERAL

Output voltage	0.3V (0.6V IHF)
Power consumption	9W
Power supply	
For United Kingdom and Australia	AC 50 Hz/60 Hz, 240V
For continental Europe	AC 50 Hz/60 Hz, 220V
For others	AC 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	
	430 × 64 × 241 mm (16-30/32" × 2-17/32" × 9-1/2")
Weight	
	2.2 kg (4.84 lb.)

Note:

Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Note:

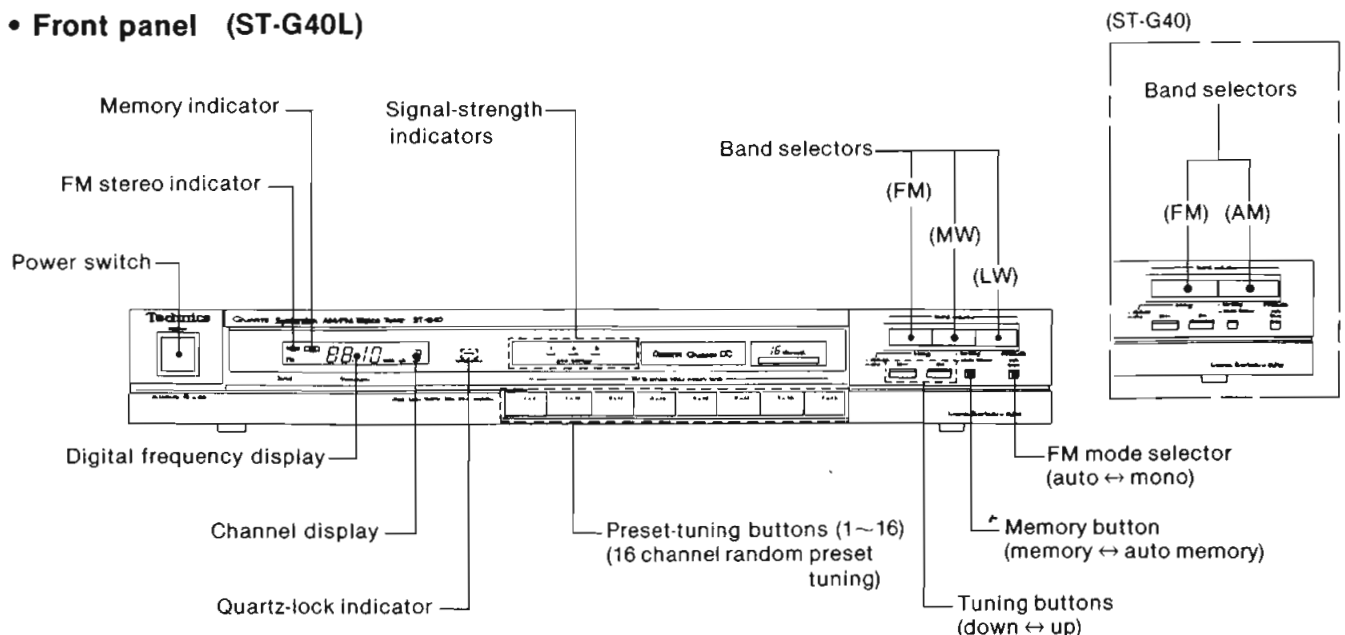
Specifications are subject to change without notice. Weight and dimensions shown are approximate.

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■ LOCATION OF CONTROLS

• Front panel (ST-G40L)



QUARTZ Synthesizer AM/FM Stereo Tuner

QUARTZ Synthesizer LW/MW/FM Stereo Tuner

ST-G40 ST-G40L

DEUTSCH

- This booklet contains the specifications and adjusting procedures for ST-G40/G40L, written in German, French and Spanish.
- File this manual together with the ST-G40/G40L service manual (Order No. HAD8602346C8).
- Das vorliegende Büchlein enthält die technische Daten und Justierverfahren für den ST-G40/G40L in deutscher, französischer und spanischer Sprache.
- Bewahren Sie das Büchlein zusammen mit der Bedienungsanleitung für des ST-G40/G40L auf (Bestell-Nr. HAD8602346C8).
- Cette brochure contient les spécifications et les procédures de mises au point pour le ST-G40/G40L, écrites en allemand, en français et en espagnol.
- Classer ce manuel en meme temps qu'avec le manuel de service du ST-G40/G40L (N° d'ordre: HAD8602346C8).
- Este librito contiene la especificaciones y procedimientos de ajuste para ST-G40/G40L, escritos en alemán, francés y español.
- Guardar este manual juntamente con el manual de servicio de ST-G40/G40L (Pedido N° HAD8602346C8).

DEUTSCH

■ TECHNISCHE DATEN (Die technischen Daten können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)

■ UKW-TUNERTEIL

Wellenbereich	87,50 ~ 108,00 MHz
Eingangsempfindlichkeit	1,5 μ V (nutzbar nach IHF)
S/R 30 dB	1,3 μ V (75 Ω)
S/R 26 dB	1,2 μ V (75 Ω)
S/R 20 dB	0,9 μ V (75 Ω)
Stereumschaltsschwelle bei 46 dB nach IHF	28 μ V/75 Ω
Gesamtklirrfaktor	
Mono	0,09%
Stereo	0,2%
Geräuschabstand	
Mono	72 dB (80 dB nach IHF)
Stereo	65 dB (73 dB nach IHF)
Frequenzgang	4 Hz ~ 18 kHz (+0,5 dB ~ -1,5 dB)
Trennschärfe bei Störsender	
normal \pm 400 kHz	65 dB
Einfangverhältnis	1,0 dB
Spiegelfrequenz-Dämpfung bei 98 MHz	55 dB
ZF-Dämpfung bei 98 MHz	90 dB
Ansprehdämpfung auf Nebenfrequenzen bei 98 MHz	80 dB
MW-Unterdrückung	55 dB
Übersprechdämpfung	
1 kHz	50 dB
10 kHz	40 dB
Trägerrest	
19 kHz	-55 dB (-60 dB nach IHF)
38 kHz	-40 dB (-45 dB nach IHF)
Kanalabweichung (250 Hz ~ 6300 Hz)	\pm 1,0 dB
Begrenzereinsatz	0,85 μ V
Bandbreite	
ZF-Verstärker	180 kHz
UKW-Demodulator	1000 kHz
Antennenanschluß	75 Ω (unsymmetrisch)

■ MW-TUNERTEIL (ST-G40)

Wellenbereiche	
(für Europa, Südafrika und Australien)	522 kHz ~ 1611 kHz (9-kHz-Schritte) 530 kHz ~ 1620 kHz (10-kHz-Schritte)
(für Saudi-Arabien und die übrigen Länder)	531 kHz ~ 1602 kHz (9-kHz-Schritte) 530 kHz ~ 1600 kHz (10-kHz-Schritte)
Eingangsempfindlichkeit (S/R 20 dB)	20 μ V, 300 μ V/m
Trennschärfe bei 999 kHz (\pm 9 kHz)	50 dB
Spiegelfrequenz-Dämpfung bei 999 kHz	40 dB
ZF-Dämpfung bei 999 kHz	60 dB

■ MW-TUNERTEIL (ST-G40L)

Wellenbereiche	
MW	522 kHz ~ 1611 kHz (9-kHz-Schritte) 530 kHz ~ 1620 kHz (10-kHz-Schritte)
LW	155 kHz ~ 353 kHz (9-kHz-Schritte) 153 kHz ~ 351 kHz (-2 kHz shift)
Eingangsempfindlichkeit (S/R 20 dB)	
MW	20 μ V, 300 μ V/m
LW	50 μ V
Trennschärfe (\pm 9 kHz)	
MW (bei 999 kHz)	50 dB
LW (bei 254 kHz)	50 dB
Spiegelfrequenz-Dämpfung	
MW (bei 999 kHz)	40 dB
LW (bei 254 kHz)	40 dB
ZF-Dämpfung	
MW (bei 999 kHz)	60 dB
LW (bei 254 kHz)	35 dB

■ ALLGEMEINE DATEN

Ausgangsspannung	0,3V (0,6V IHF)
Leistungsaufnahme	9W
Netzspannung	
Für Kontinentaleuropa	Wechselstrom 50 Hz/60 Hz, 220V
Für andere Länder	Wechselstrom 50 Hz/60 Hz, 110V/127V/220V/240V

Abmessungen (B×H×T)	430 × 64 × 241 mm
Gewicht	2,2 kg

Bemerkung:

Der Gesamtklirrfaktor wurde mit einem digitalen Rauschspektrometer (Anlage H.P. 3045) gemessen.

■ MESSUNGEN UND JUSTIERUNGEN

AM/FM (ST-G40)

LW/MW/FM (ST-G40L)

Einstellungen der Bedienelemente und zu verwendende Geräte.

- MW/UKW-Meßsender (MW/UKW-MS)
- Stereo-Modulator
- Verzerrungs-Analysator
- Oszilloskop
- Elektronische Wechselstrom- und Gleichstrom-Voltmeter (EVM)
- Frequenzzähler
- Drosselspule (100µH)
- Widerstand (100kΩ)
- Keramischer Kondensator (200 pF)

Anmerkung: Für T201 (AM (MW) ZFT), L203 (MW-OSZ,-Spule) und L251 (LW-Antennenspule), werden justiert Ersatzteil geliefert.
Den Kern dieses Teils daher nicht drehen.

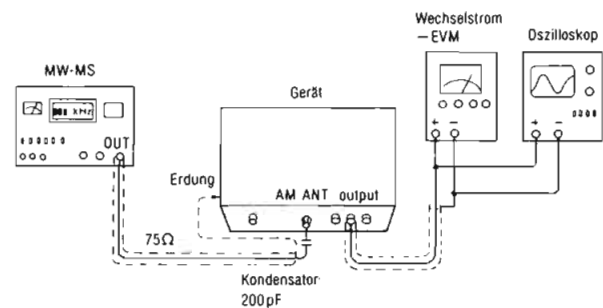
AM (MW)-HF-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "AM (MW)" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf 612kHz einstellen.
4. L202 auf maximale Ausgangsleistung abgleichen.
5. Die Radiofrequenzanzeige und den Meßsender auf 1503kHz einstellen.
6. CT201 auf maximale Ausgangsleistung abgleichen.
7. Die Schritte 3.~6. wiederholen.

Anmerkung:

Der Antenneneingang-Signalpegel muß so niedrig wie möglich und frei von automatischer Verstärkungsregelung (AGC) sein.

ZUSTAND DES MW-MESSENDERS
Modulation..... 30%
Modulationsfrequenz..... 400 Hz



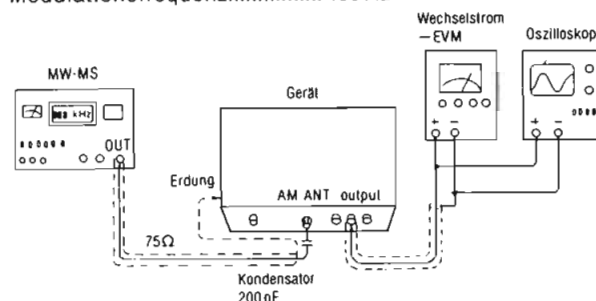
LW-HF-JUSTIERUNG (Nur ST-G40L)

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "LW" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf 155kHz einstellen.
4. L252 auf maximale Ausgangsleistung abgleichen.
5. Die Radiofrequenzanzeige und den Meßsender auf 353kHz einstellen.
6. CT251 auf maximale Ausgangsleistung abgleichen.
7. Die Schritte 3.~6. wiederholen.

Anmerkung:

Der Antenneneingang-Signalpegel muß so niedrig wie möglich und frei von automatischer Verstärkungsregelung (AGC) sein.

ZUSTAND DES MW-MESSENDERS
Modulation..... 30%
Modulationsfrequenz..... 400 Hz



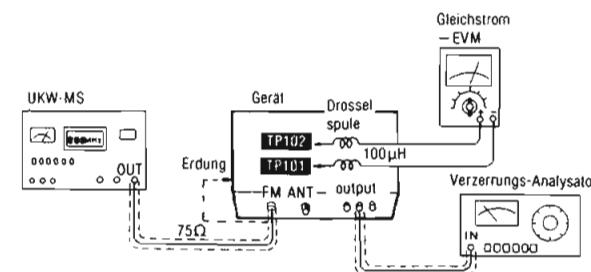
UKW-MONO-VERZERRUNGS-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "FM (UKW)" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf **100,10MHz** einstellen.
4. Den Kern von **T101** so justieren, daß die im Signalzustand gemessene Spannung **0mV** im 300mV-Bereich beträgt.
5. **T102** so justieren, daß der Verzerrungsfaktor des linken Kanals minimal wird.
6. Schritte 4 und 5 einige Male wiederholen.
7. Überprüfen, daß die Verzerrungsfaktor des linken und rechten Kanals fast gleich sind.

Anmerkung:

Für die Justierung ist ein Schraubendreher aus Kunststoff zu verwenden.

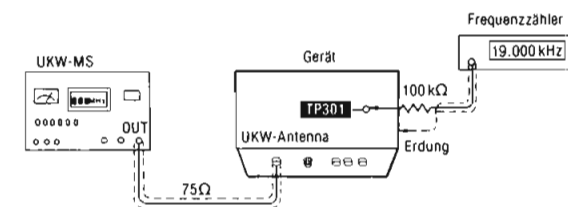
ZUSTAND DES UKW-MESSENDERS
Modulation..... 100%
Modulationsfrequenz..... 1kHz
Ausgangspegel 66dB



MPX-SGO-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Den UKW-Betriebsart-Wahlschalter indie "FM" Position stellen.
3. Radio und Meßsender auf **100,1 MHz** einstellen.
4. **VR302** auf **19,00kHz ± 0,03kHz** auf der Frequenzzähleranzeige justieren.

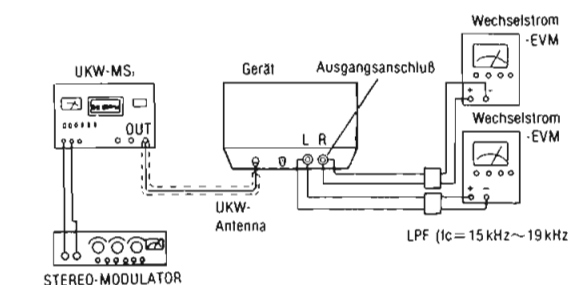
ZUSTAND DES UKW-MESSENDERS
Modulation..... 0% (MONO)
Ausgangspegel 66dB



TRENNUNGS-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "FM" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf **100,10MHz** einstellen.
4. **VR301** so justieren, daß der R-Ausgang minimal ist, wenn der Stereomodulator im L-Betriebszustand (Linker Kanal moduliert) ist.

ZUSTAND DES UKW-MESSENDERS
Modulation..... "L" oder "R" Betriebsart
45%, Pilotsignal 10%.
Modulationsfrequenz..... 1kHz, Pilot (19kHz)
Ausgangspegel 66dB



FRANÇAIS

■ CARACTERISTIQUES (Sujet à changement sans préavis)

(DIN 45 500)

■ SECCION PARA SINTONIZADOR FM

Gama de frecuencias 87,50~108,00 MHz
Sensibilidad 1,5 µV (IHF, utilizable)
Señal a ruido 30 dB 1,3 µV (75Ω)
Señal a ruido 26 dB 1,2 µV (75Ω)
Señal a ruido 20 dB 0,9 µV (75Ω)
Sensibilidad de acallamiento estéreo de 46 dB IHF 28 µV/75Ω

Distorsión armónica total
MONO. 0,09%
ESTEREO 0,2%

Relación de señal a ruido
MONO. (MONO) 72 dB (80 dB, IHF)
ESTEREO (STEREO) 65 dB (73 dB, IHF)

Respuesta de frecuencia 4 Hz~18 kHz, +0,5 dB~-1,5 dB
Selectividad alternada de canal normal ±400 kHz 65 dB

Relación de captura 1,0 dB
Rechazo de imagen a 98 MHz 55 dB
Rechazo de F.I. a 98 MHz 90 dB
Rechazo de respuesta espuria a 98 MHz 80 dB
Supresión AM 55 dB

Separación estereofónica
1 kHz 50 dB
10 kHz 40 dB

Fuga de onda portadora
19 kHz -55 dB (-60 dB, IHF)
38 kHz -40 dB (-45 dB, IHF)

Equilibrio de canales 250 Hz~6 300 Hz ±1,0 dB
Punto de limite 0,85 µV

Ancho de banda
Amplificador FI 180 kHz
Demodulador FM 1000 kHz
Bornes de antena 75Ω (no equilibrado)

■ SECCION PARA SINTONIZADOR AM (ST-G40)

Gama de frecuencias
(Para países europeos, Africa del Sur y Australia)
522 kHz~1611 kHz (pasos de 9 kHz)
530 kHz~1620 kHz (pasos de 10 kHz)

■ MESURAGES ET REGLAGES

A.M./M.F. (ST-G40)

LW/MW/M.F. (ST-G40L)

Positionnements des commandes et équipement utilisé

- Générateur de signaux M.F. et A.M. (AM et FM-SG)
- Modulateur stéréophonique
- Analyseur de distorsion
- Oscilloscope
- Voltmètre électronique à C.A. et C.C. (EVM)
- Compteur de fréquence
- Bobine d'amortissement d'arrêt (100µH)
- Résistance (100kΩ)
- Condensateur céramique (200pF)

Nota: Pour T201 (A.M.) F.I., L203 (bobine oscil. de MA) et L251 (bobine ANT LW), des éléments réglés sont fournis. Aussi, ne pas tourner les noyaux de ces pièces.

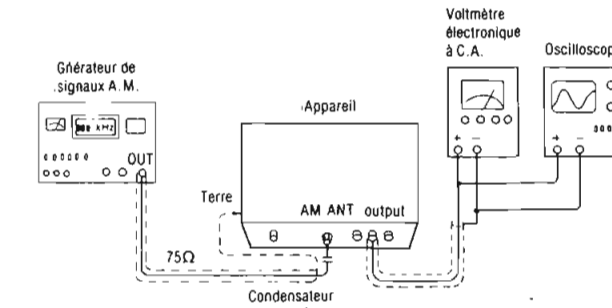
REGLAGE DE RE-AM (MW)

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "AM (MW)".
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **612kHz**.
4. Régler **L202** pour une sortie maximale.
5. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **1503kHz**.
6. Régler **CT201** pour une sortie maximale.
7. Répéter les étapes 3.~6.

Nota:

Le niveau d'entrée d'antenne doit être aussi bas que possible étant libéré de la commande automatique de gain.

CONDITION DU GENERATEUR DE SIGNAUX A.M.
Modulation..... 30%
Fréquence de modulation 400Hz



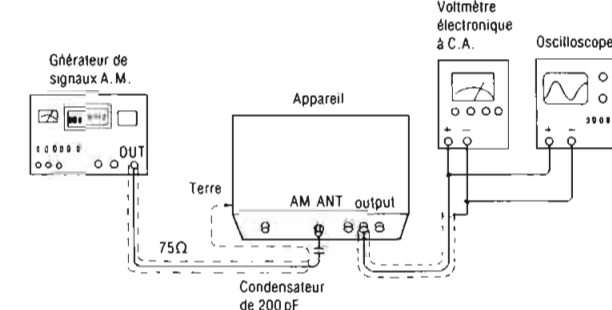
REGLAGE DE RE-LW (ST-G40L seulement)

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "LW".
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **155kHz**.
4. Régler **L252** pour une sortie maximale.
5. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **353kHz**.
6. Régler **CT251** pour une sortie maximale.
7. Répéter les étapes 3.~6.

Nota:

Le niveau d'entrée d'antenne doit être aussi bas que possible étant libéré de la commande automatique de gain.

CONDITION DU GENERATEUR DE SIGNAUX A.M.
Modulation..... 30%
Fréquence de modulation 400Hz



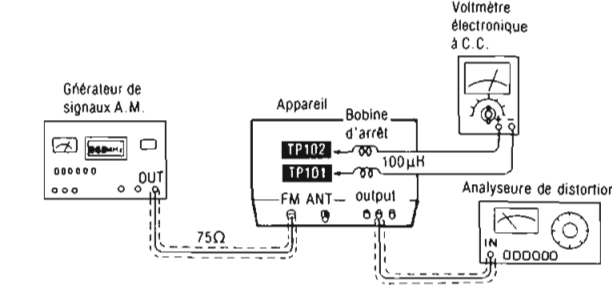
REGLAGE DE DISTORSION MONOPHONIQUE M.F.

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "FM" (M.F.).
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **100,10MHz**.
4. Régler le noyau de **T101** de telle sorte que la tension mesurée sur le mode de signaux soit de **0mV** dans une plage de 300mV.
5. Ajuster **T102** de telle que le facteur de distorsion du canal de gauche soit minimisé.
6. Répéter les étapes 4 et 5 quelques fois.
7. S'assurer que les facteurs de distorsion du canal de gauche et du canal de droite soient sensiblement les mêmes l'un par rapport à l'autre.

Nota:

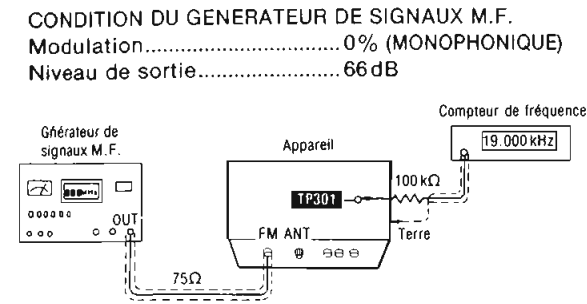
Le tournevis de réglage utilisé devra être fait en résines.

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation..... 100%
Fréquence de modulation 1kHz
Niveau de sortie..... 66dB



**REGLAGE MULTIPLEX DE L'OSCILLATEUR
COMMANDÉ PAR VARIATION DE TENSION**

1. Le raccordement de l'équipement d'essai est montré sur la figure.
2. Régler l'appareil sur la position "FM".
3. Régler le cadran radio et le générateur de signaux sur **100,1 MHz**.
4. Ajuster **VR302** pour **19,00 kHz ± 0,03 kHz** sur le compteur de lecture de fréquences.

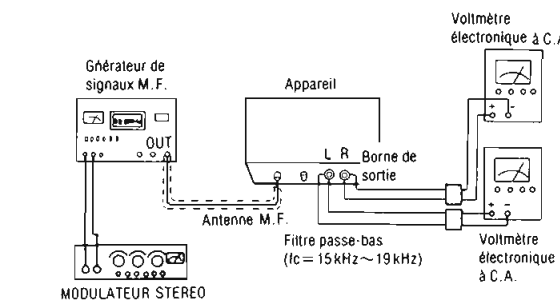


REGLAGE DE SEPARATION

1. La connexion de l'équipement d'essai est montrée sur l'illustration.
2. Régler l'appareil sur la position "FM" (M.F.).
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **100,10 MHz**.
4. Ajuster **VR301** de telle sorte que la sortie de droite soit minimisée lorsque le modulateur stéréo est sur le mode "G" (modulation du canal de gauche).

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation..... 0% (MONOPHONIQUE)
Niveau de sortie..... 66 dB

Fréquence de modulation 1 kHz, Pilot (19 kHz)
66 dB



ESPAÑOL

■ ESPECIFICACIONES (Estas especificaciones están sujetas a cualquier cambio sin previo aviso.)
(DIN 45 500)

■ SECTION SYNTONISATEUR FM

Gamme de fréquence	87,50~108,00 MHz
Sensibilité	1,5 µV (IHF utilisable)
S/B 30 dB	1,3 µV (75Ω)
S/B 26 dB	1,2 µV (75Ω)
S/B 20 dB	0,9 µV (75Ω)
Sensibilité stéréo au seuil de 46 dB, IHF	28 µV/75Ω
Distorsion harmonique totale	
MONO	0,09%
STEREO	0,2%
Signal/Bruit	
MONO	72 dB (80 dB, IHF)
STEREO	65 dB (73 dB, IHF)
Réponse de fréquence	4 Hz~18 kHz, +0,5 dB~-1,5 dB
Sélectivité alternée par canal	
normal ±400 kHz	65 dB
Taux de capture	1,0 dB
Rejection d'image à 98 MHz	55 dB
Rejection FI à 98 MHz	90 dB
Rejection de réponse parasite à 98 MHz	80 dB
Suppression AM	55 dB
Séparation stéréophonique	
1 kHz	50 dB
10 kHz	40 dB

Fuite de porteuse	
19 kHz	-55 dB (-60 dB, IHF)
38 kHz	-40 dB (-45 dB, IHF)
Equilibrage de canaux (250 Hz~6,300 Hz)	±1,0 dB
Point de limite	0,85 µV
Largeur de bande	
Amplificateur FI	180 kHz
Démodulateur FM	1000 kHz
Bornes d'antenne	75Ω (asymétrique)

■ SECTION SYNTONISATEUR AM (ST-G40)

Gamme de fréquence	
(Pour l'Europe, l'Afrique du Sud et l'Australie)	
522 kHz~1611 kHz (palier de 9 kHz)	
530 kHz~1620 kHz (palier de 10 kHz)	
(Pour l'Arabie Saoudite et les autres pays)	
531 kHz~1602 kHz (palier de 9 kHz)	
530 kHz~1600 kHz (palier de 10 kHz)	
Sensibilité (S/B 20 dB)	20 µV, 300 µV/m
Sélectivité à 999 kHz (±9 kHz)	50 dB
Réjection d'image à 999 kHz	40 dB
Réjection FI à 999 kHz	60 dB

■ SECTION SYNTONISATEUR AM (ST-G40L)

Gamme de fréquence	
PO (MW)	522 kHz~1611 kHz (palier de 9 kHz)
GO (LW)	153 kHz~351 kHz (-2 kHz shift)
Sensibilité (S/B 20 dB)	
PO (MW)	20 µV, 300 µV/m
GO (LW)	50 µV
Sélectivité (±9 kHz)	
PO (MW) (à 999 kHz)	50 dB
GO (LW) (à 254 kHz)	50 dB
Réjection d'image	
PO (MW) (à 999 kHz)	40 dB
GO (LW) (à 254 kHz)	40 dB

■ MEDICIONES Y AJUSTES

AM/FM (ST-G40)
LW/MW/FM (ST-G40L)

Posiciones de control y equipo usado

- Generador de señales de AM y FM (AM & FM-SG)
- Modulador estéreo
- Analizador de distorsiones
- Osciloscopio
- Voltímetro electrónico de CA y CC (EVM)
- Frecuencímetro
- Bobina de choque (100µH)
- Resistor (100kΩ)
- Capacitor cerámico (200 pF)

Nota: Para T201 (AM-IFT), L203 (bobina de OSC. AM) y L251 (bobina antena LO) son suministradas piezas ajustadas. Por lo tanto, no gire los núcleos de estas piezas.

AJUSTE DE AM (OM)-RF

1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "AM (OM)".
3. Colocar la puesta del indicador de radiofrecuencia y generador de señales a **612 kHz**.
4. Ajustar **L202** para salida máxima.
5. Colocar la puesta del indicador de radiofrecuencia y generador de señales a **1503 kHz**.
6. Ajustar **CT201** para salida máxima.
7. Repetir los pasos 3.~6.

Nota: El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

Réjection FI

PO (MW) (à 999 kHz)	60 dB
GO (LW) (à 254 kHz)	35 dB

■ DIVERS

Tension de sortie	0,3V (0,6V IHF)
Consommation	9W
Alimentation	
Pour l'Europe	CA 50 Hz/60 Hz, 220V
Autres	CA 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (L×H×Pr)	430 × 64 × 241 mm
Poids	2,2 kg

Remarque:

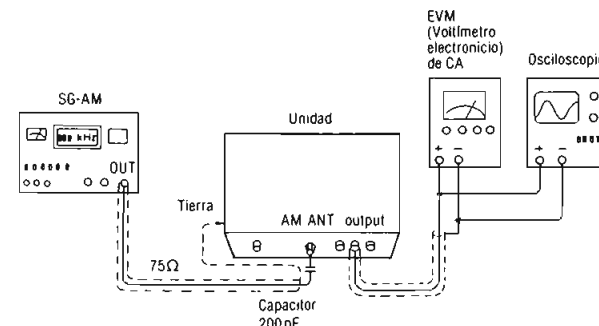
On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système H.P. 3045).

AJUSTE DE LO-RF (Sólo ST-G40L)

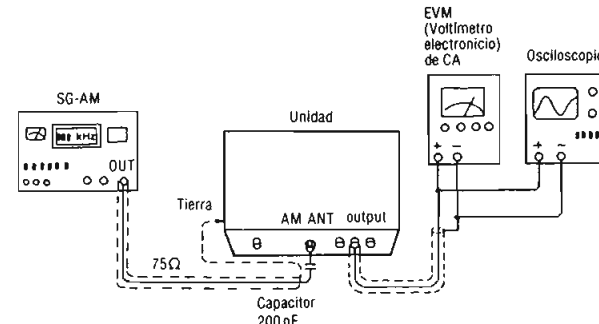
1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "LW".
3. Poner el indicador de la radio y el generador de señales en **155 kHz**.
4. Ajuste **L252** para salida máxima.
5. Poner el indicador de la radio y el generador de señales en **353 kHz**.
6. Ajuste **CT251** para salida máxima.
7. Repita los pasos 3.~6.

Nota: El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación..... 30%
Frecuencia de modulación..... 400 Hz



CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación..... 30%
Frecuencia de modulación..... 400 Hz



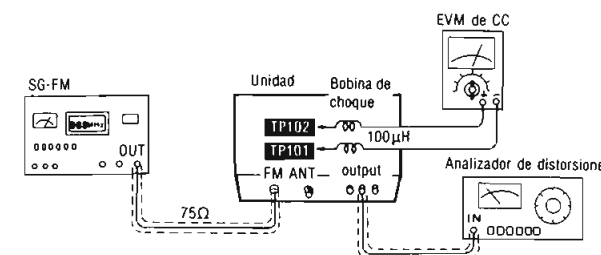
AJUSTE DE DISTORSION MONO FM

1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "FM".
3. Colocar la puesta del indicador de radiofrecuencia y generador de señales a **100,10 MHz**.
4. Ajustar el núcleo de **T101** de manera que el voltaje medido en modalidad de señal sea **0 mV**.
5. Ajustar **T102** de manera que el factor de distorsión de CH I se minimice.
6. Repetir los pasos 4 y 5 algunas veces.
7. Asegurarse de que los factores de distorsión de CH I y CH D sean casi los mismos uno con el otro.

Nota:

El destornillador de ajuste usado debe estar hecho de resina.

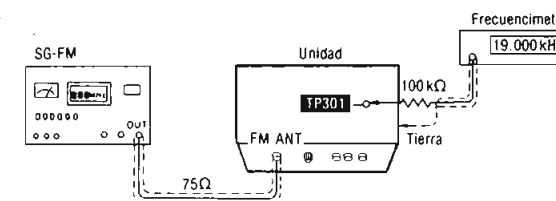
CONDICION DE GENERADOR DE SEÑALES DE FM
Modulación..... 100%
Frecuencia de modulación..... 1 kHz
66 dB



AJUSTE DE MPX VCO (OSCILADOR CONTROLADO POR VOLTAJE MPX)

1. La conexión del equipo de prueba se muestra en la figura.
2. Poner la unidad en la posición de "FM".
3. Coloque el indicador de la radio y la puesta del generador de señales en **100,1 MHz**.
4. Ajuste **VR302** para **19,00 kHz ± 0,03 kHz** en lectura de frecuencímetro.

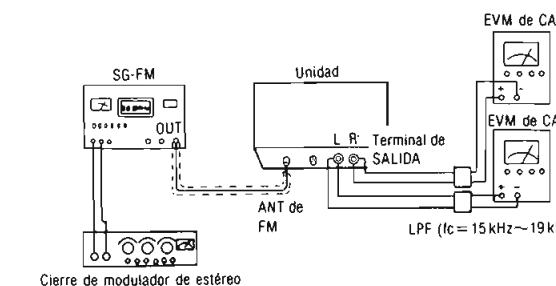
CONDICION DE GENERADOR DE SEÑALES DE FM
Modulación..... 0% (MONO)
66 dB



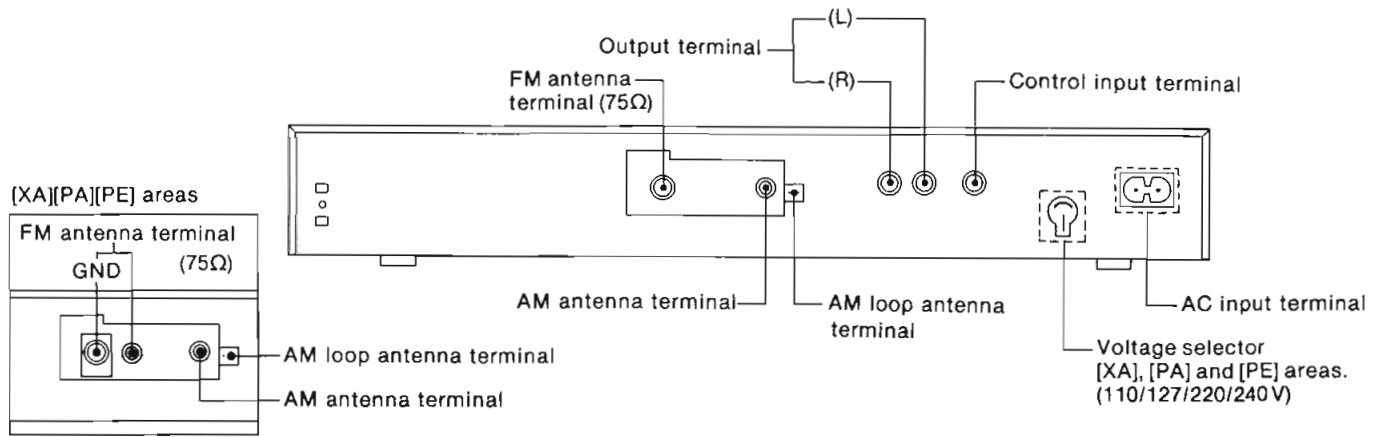
AJUSTE DE SEPARACION

1. La conexión del equipo usado se muestra en la figura.
2. Ponga la unidad en la posición "FM".
3. Colocar la puesta del indicador de radiofrecuencia y generador de señales a **100,10 MHz**.
4. Ajuste **VR301** de manera que la salida de D quede minimizada cuando el modulator de estereo esté en la modalidad I (modulación de CH I).

CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación..... Modalidad de "I" o modalidad de "D" 45%, Piloto 10%.
Frecuencia de modulación..... 1 kHz, Piloto (19 kHz)
66 dB



• Rear panel



■ TO LISTEN TO RADIO BROADCASTS

Important!

This antenna must be installed to receive AM broadcasts.
AM loop antenna (included)

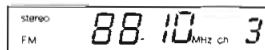
1 Turn the amplifier on, and prepare it for listening to radio broadcasts.

2 "on" (⏻)

3 Press the desired preset-tuning button.

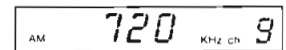
- To select the front channels (CH 1~8):

Press momentarily. → Frequency stored in the memory and channel number are displayed.



- To select the back channels (CH 9~16):

Press slightly longer → Frequency stored in the memory and channel number are displayed.



Station selection by using preset-tuning buttons:

Follow step 3 of "Memory Presettings" on page 5



FM mode selector (FM mode)

If the broadcast signal is weak, or if there is a large amount of interference in a stereo broadcast, set to the "mono" position.

Note that the FM stereo indicator will not illuminate in this position.

MEMORY PRESETTINGS

The indication **AM** used here includes both **MW** and **LW** for Model **ST-G40L**.

Important!



AM loop antenna (included)

This antenna must be installed to receive AM broadcasts.

With this unit you may preset as many as 16 radio broadcast stations: FM/AM random presetting. After broadcast stations have been preset as described below, any desired station can be quickly and easily selected by simply touching one button.

Notes:

1. For automatic presetting in areas where there are less than 16 FM stations, the remaining channels (through channel 16) will be left empty. The empty channels can be filled by using manual memory presetting.
2. If a new broadcasting station is preset into a channel, the broadcasting station which was previously entered in that channel will be automatically erased. Then reset the memory.
3. For AM broadcasts with extremely strong signal transmissions, the frequency memorized may be slightly off of the correct frequency. If this occurs, use the manual control to memorize.

Automatic memory presetting

ST-G40

The FM broadcasting stations and AM broadcasting stations will be automatically preset to "channels" 1 through 16 for FM and 9 through 16 for AM, respectively.

ST-G40L

The FM broadcasting stations, MW broadcasting stations, and LW broadcasting stations will be automatically preset in "channels" 1 through 16 for FM, 9 through 16 for MW, and 13 through 16 for LW, respectively.

Note: When AM is automatically preset, the FM stations on "channels" 9 through 16 will be replaced by the new AM stations.

1 "on" ()

2

ST-G40

"FM": for FM broadcasts
"AM": for AM broadcasts

ST-G40L

"FM": for FM broadcasts
"MW": for MW broadcasts
"LW": for LW broadcasts

Before presetting the broadcasting stations, press to select the appropriate frequency step for your locality.

3 **Set to the lowest frequency.**
Tuning Press the left button to change the frequency downward, and press the right button to change the frequency upward.

ST-G40

- **FM: 87.50 MHz** (0.05 MHz step)
- **AM: 522 kHz** (9 kHz step) **or** **530 kHz** (10 kHz step)
(For Europe, South Africa and Australia)
- **531 kHz** (9 kHz step) **or** **530 kHz** (10 kHz step)
(For Saudi Arabia and others)

ST-G40L

- **FM: 87.50 MHz** (0.05 MHz step)
- **MW: 522 kHz** (9 kHz step) **or** **530 kHz** (10 kHz step)
- **LW: 153 kHz** (9 kHz step: -2kHz shift) **or** **155 kHz** (9 kHz step)

4 **Press. When the frequency indication begins to change, release.**



The frequency will change upward, and the automatic presetting will begin with the next broadcasting station. It will continue to preset the following consecutive broadcast stations.

5 **Confirm the names (call signs, etc.) of the broadcasting stations which are preset to each channel, and enter them on the file sheet**

① Press the button and hold slightly (frequency will change continuously).



② Release it when approaching the above exact frequency, and then press the button again momentarily (frequency change will stop).



③ Press the button momentarily (frequency will change each time the button is pressed), and tune to one of the above frequencies.

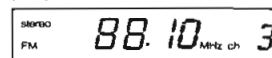


To check the front channels (CH 1~ 8):

Press momentarily.



Frequency stored in the memory and channel number are displayed.

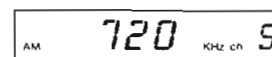


To check the back channels (CH 9~ 16):

Press slightly longer.



Frequency stored in the memory and channel number are displayed.



■ **“Most-recent” memory**

The most-recent memory is a system by which the unit “remembers” the FM or AM broadcast station last heard when this unit is turned off, and automatically tunes to that station the next time the power is turned on.

■ **“Back-up” memory**

This is the function which preserves the preset memory and most-recent memory functions. In the event of a power failure, or if the power cord of the tuner is disconnected from the electric outlet, the back-up memory will preserve the preset memory and most-recent memory functions for as long as approximately one week.

■ **To Prevent Erasing the Memory**

If the power supply is interrupted for one week or longer, the memory settings will be erased.

For example:

- 1) If the power cord is disconnected from the electric outlet,
- 2) If an audio timer is used and the timer does not operate the tuner for a week or longer,
- 3) If a power failure occurs, etc.

If any of the above occurs, the memory will have to be reset.

The memory in this unit is maintained by a capacitor. If the power supply is interrupted for a week or longer, set the power switch of the tuner to the “on” position for thirty minutes or more in order to recharge the capacitor. Then reprogram the memory (pages 4 and 5).

Manual memory presetting

Stations can be freely preset to any desired channel.



5 While the memory indicator is illuminated, press the button of the desired channel.

When the button is pressed, the memory indicator illumination will stop, and the presetting is complete.

- **To preset channels 1 through 8:**
Press the button momentarily, and then release. (Preset channel number is displayed on the channel display.)
- **To preset channels 9 through 16:**
Press the button slightly longer, and then release. (Preset channel number is displayed on the channel display.)

If the memory indication illumination stops before you press the button, once again repeat step ① and then step ③.

3 Press the appropriate tuning button to tune to the desired broadcast.

Tuning

Press the left button to change the frequency downward, and press the right button to change the frequency upward.

- **Automatic tuning**
Press the button. When the frequency indication begins to change, release the button (a broadcasting station will be selected automatically). Repeat this operation until the desired station is found.

- **Manual tuning**
Press the button momentarily and tune to the desired station. The frequency will change each time the button is pressed.

4 Press momentarily, and then release. (The memory indicator will illuminate for approximately 4 seconds.)

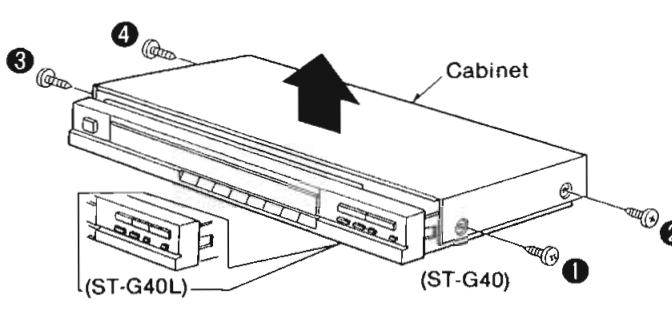
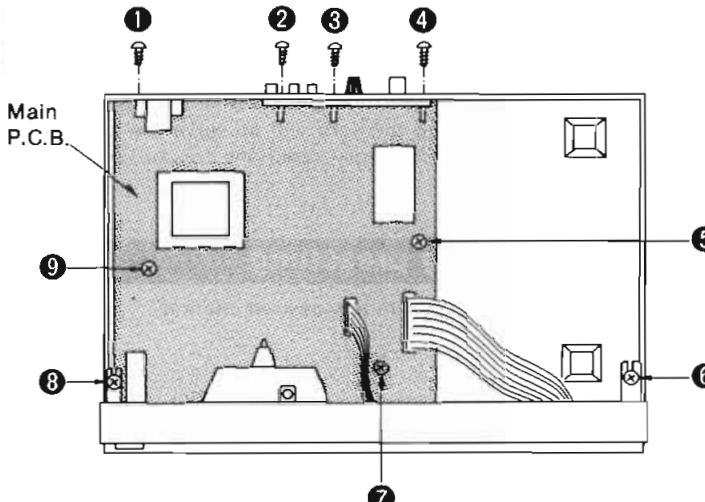
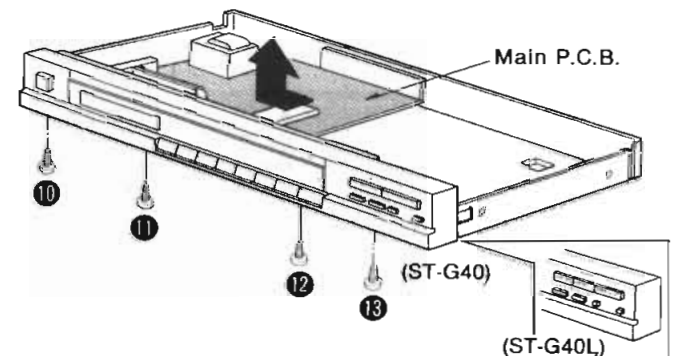
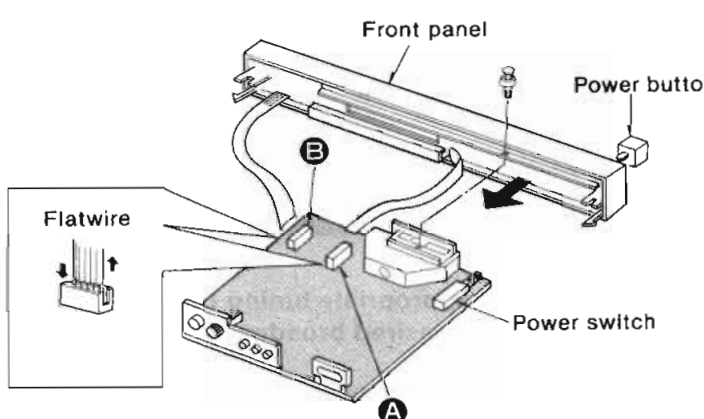
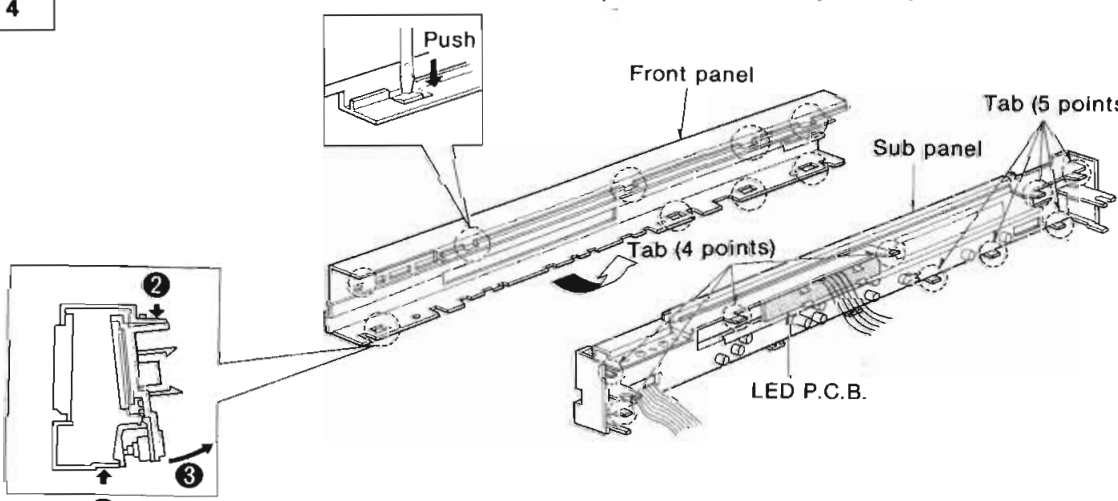
Note:

If the button is pressed continuously, the frequency will begin to change, and the memory will be preset automatically. To stop the automatic memory presetting, once again press either the “up” button or the “down” button.

6 Enter the name (call sign, etc.) of the preset broadcasting station on the station memory file sheet.

This completes the procedures for presetting radio broadcast frequencies. The other preset-tuning buttons can be preset in the same way by following steps ② through ⑤.

DISASSEMBLY INSTRUCTIONS

<p>Ref. No. 1</p>	<p>How to remove the cabinet</p>	<p>Ref. No. 2</p>	<p>How to remove the main P.C.B.</p>
<p>Procedure 1</p>	<ul style="list-style-type: none"> Remove the 4 screws. (1~4) 	<p>Procedure 1 → 2</p>	<ul style="list-style-type: none"> Remove the 9 screws. (1~9)
			
<p>Ref. No. 3</p>	<p>How to remove the front panel</p>	<ul style="list-style-type: none"> Remove the 4 screws. (10~13) 	
<p>Procedure 1 → 2 → 3</p>	<ul style="list-style-type: none"> Remove the power button. Remove the 1 Nylon rivet. Remove the 2 flatwires (A, B). 	<ul style="list-style-type: none"> Slightly pull the front panel toward you and remove the main P.C.B. 	
		<p>Ref. No. 4</p> <p>How to remove the sub panel</p> <p>Procedure 1 → 2 → 3 → 4</p> <ul style="list-style-type: none"> Push out the 9 tabs on the bottom and top side of the sub panel by used minusdriver. 	
<p>Ref. No. 4</p> <p>How to remove the sub panel</p>		<p>Procedure 1 → 2 → 3 → 4</p> <ul style="list-style-type: none"> Push out the 9 tabs on the bottom and top side of the sub panel by used minusdriver. 	

Ref. No. 5
How to remove the FM/AM (MW/LW)/Channel switch

Procedure
1 → 2 → 3 → 4 → 5

- Remove the 6 screws. (1~6)

MEASUREMENTS AND ADJUSTMENTS

**AM/FM (ST-G40)
LW/MW/FM (ST-G40L)**

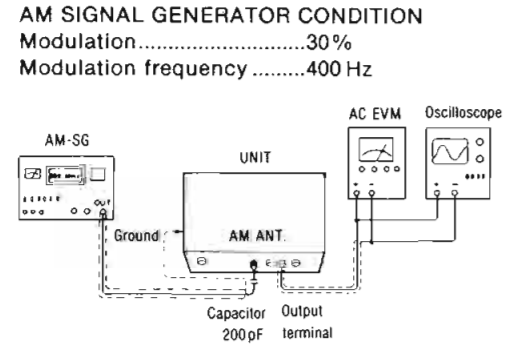
Control positions and equipment used

- AM and FM signal generator (AM and FM-SG)
- Stereo modulator
- Distortion analyser
- Oscilloscope
- AC and DC electronic voltmeter (EVM)
- Frequency counter
- Choke coil (100µH)
- Resistor (100kΩ)
- Ceramic capacitor (200pF)

Note: For T201 (AM (MW) IFT), L203 (MW OSC coil) and L251 (LW antenna coil), adjusted parts is supplied. So, do not turn the cores of this parts.

AM (MW)-RF ADJUSTMENT

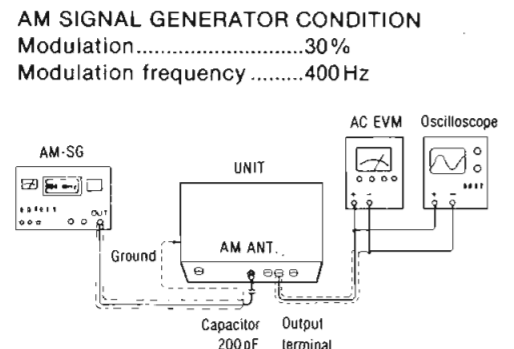
- Test equipment connection is shown in figure.
- Set the unit to "AM (MW)" position.
- Place the radio frequency display and signal generator setting to 612 kHz.
- Adjust L202 for maximum output.
- Place the radio frequency display and signal generator setting to 1503 kHz.
- Adjust CT201 for maximum output.
- Repeat steps 3.~6.



Note: Antenna input level must be as low as possible being free from AGC.

LW-RF ADJUSTMENT (ST-G40L only)

- Test equipment connection is shown in figure.
- Set the unit to "LW" position.
- Place the radio frequency display and signal generator setting to 155 kHz.
- Adjust L252 for maximum output.
- Place the radio frequency display and signal generator setting to 353 kHz.
- Adjust CT251 for maximum output.
- Repeat steps 3.~6.



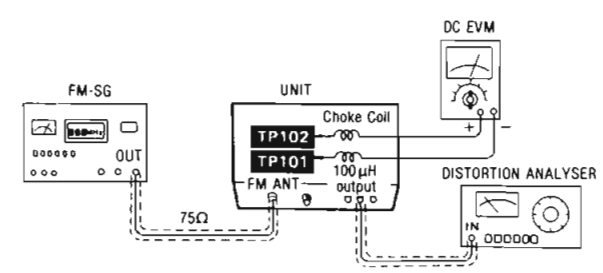
Note: Antenna input level must be as low as possible being free from AGC.

FM MONO DISTORTION ADJUSTMENT

- Test equipment connection is shown in figure.
- Set the unit to "FM" position.
- Place the radio frequency display and signal generator setting to 100.10 MHz.
- Adjust T101 core so that voltage measured in signal mode is 0mV in 300mV range.
- Adjust T102 so that the distortion factor of Lch is minimized.
- Repeat steps 4 and 5 a few times.
- Make sure that the distortion factors of Lch and Rch are nearly the same with each other to minimum.

Note: The adjusting screwdriver used should be made of resin.

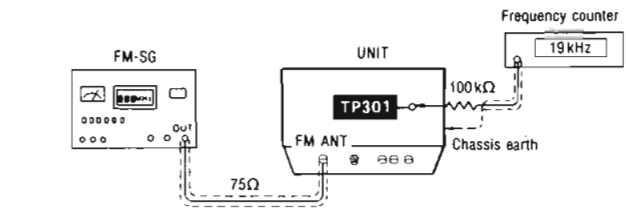
FM SIGNAL GENERATOR CONDITION
Modulation.....100%
Modulation frequency.....1kHz
Output level.....66dB



MPX VCO ADJUSTMENT

- Test equipment connection is shown in figure.
- Set the unit to "FM" position.
- Place the radio dial and signal generator setting to 100.1 MHz.
- Adjust VR302 for 19.00 kHz ± 0.03 kHz on frequency counter reading.

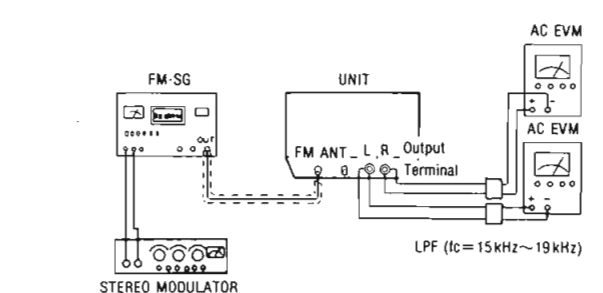
FM SIGNAL GENERATOR CONDITION
Modulation.....0% (monaural signal)
Output level.....66dB



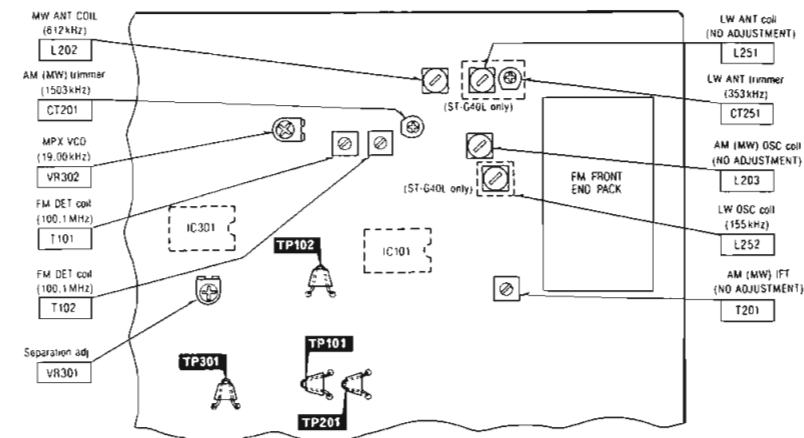
SEPARATION ADJUSTMENT

- Test equipment connection is shown in figure.
- Set the unit to "FM" position.
- Place the radio frequency display and signal generator setting to 100.10 MHz.
- Adjust VR301 so that R output is minimized when stereo modulator is in "L" (Lch modulation) mode.

FM SIGNAL GENERATOR CONDITION
Modulation....."L" mode or "R" mode 45%, Pilot 10%
Modulation frequency.....1 kHz, Pilot (19 kHz)
Output level.....66dB



Adjustment Points



HOW TO REPLACE IC'S (Small outline type)

Replacing procedure		Cautions
1	Reduce the amount of solder on each pin of the integrated circuit by use of a solder sucker.	<ul style="list-style-type: none"> Recommended toolSpecial soldering iron * H605M and H-130. * H605E and H-130. Do not touch the soldering iron to the area for a long time. It may otherwise cause removal of the print foil. When shifting the pin upward, do the job quickly while the solder is melting. If the solder is hard, it may cause removal or breakage of the print foil. When using a pencil type soldering iron. 1. Completely remove the solder from each IC pin by use of solder sucker. 2. Raise each pin by means of an eyeletter, hold the pliers then remove IC package from P.C.B.
2	Melt the solder on the pin (one electrode) with the soldering iron.	
3	While the solder is melting, shift the pin upward by the soldering iron to remove it from the foil.	
4	Remove each pin from the foil according to the above-mentioned procedure.	

* Special soldering iron (Refer to Technical Information, ORDER NO. GAD84115476T8)

H-605 Spot Heater (hot-air solder iron)

This device that uses hot air to melt solder was developed to remove Flat-Package ICs, RHCs and chip parts.

- H-605M (For 120V power source)
- H-605E (For 200V/220V/240V power source)

H-617 Twin Nozzle (for spot heater)

Special nozzle for the removal of RHCs and chip resistors. (Nozzle diameter: 1.0mm × 2)

H-130 Slim Pencil Solder Iron

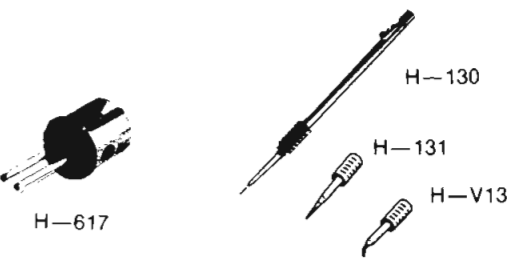
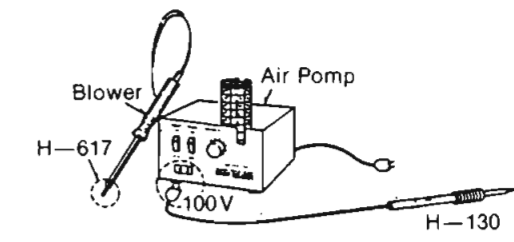
An ultrasmall ceramic heater solder iron is extremely handy for soldering chip parts, RHCs, ICs etc., to high-density circuit boards.

- Features:
- Rated power: 100V, 15W
 - Max. temp.: 400°C
 - Heater: ceramic (long life)
 - Insulation resistance: 100MΩ
 - Length: 178mm
 - Weight: 16g (not including cord)

H-131, H-V13 Cap Bits

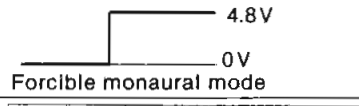
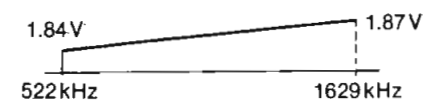
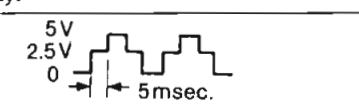
Solder tip for the slim pencil Solder Iron and is composed of a bit holder and a corrosion resistance solder tip. Permits changing of solder tips even while still hot.

- Solder tip: 0.3mm



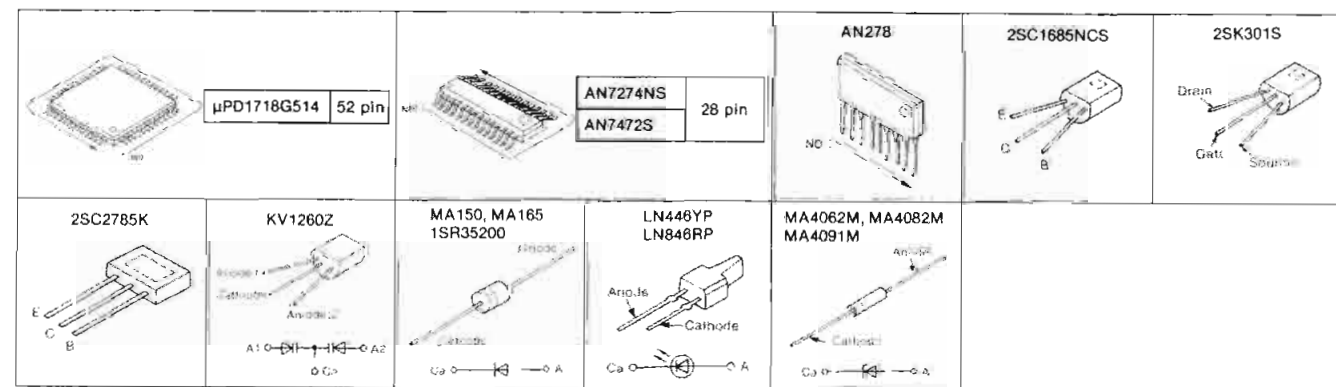
FUNCTION OF TERMINAL (IC901: μ PD1718G514)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL			
1~4	OUTPUT	LCD4~LCD1	Segment signal output for LCD display.			
5	OUTPUT	COM2	Common of LCD.			
6		COM1				
7	INPUT	V _{DD}	Power supply terminal.			
8	INPUT	FM	Input for FM OSC output frequency divided to 1/32 or 1/33 by pre-scaler.			
9	INPUT	AM	Input for AM OSC output.			
10	—	GND	Ground terminal.			
11	OUTPUT (ST-G40L only)	EO1	Error output of PLL. The frequency is output as a result of comparison between crystal frequency and FM or AM (MW/LW) station frequency.			
12	OUTPUT	EO2				
13	INPUT	CE	Power supply detection. "H" input with it connected to home-use power outlet socket. H → 4V, L → 0V			
14	—	NC	Not used in this unit.			
15	OUTPUT	X1	Connecting terminal for crystal oscillator.			
16	INPUT	X2	The crystal connected is at 4.5MHz.			
17	INPUT	SD	Station detection. 1. Signal received → H 2. NO signal → L			
18	INPUT	REMOTE	Remote control input terminal.			
19	OUTPUT	FM	"H" output in FM mode.			
20	OUTPUT	LW. FM MONO	Forcible monaural selection.			
21~24	INPUT	K3~K0	Input terminal for key return signal from external key matrix.			
25~28				PB3~PB0	Output terminal for key source signal data.	
29~31						PC3~PC1
32						
33	V _{DD}					
34~52		LCD23~LCD5				
This is the output terminal to eliminate shock noise due to unlocking at PLL. <Muting output> 1. Pin 13 (CE) is L → H or H → L. 2. Power switch "off". 3. Frequency change. (up/down, FM ↔ AM) 4. FM IF selection.						

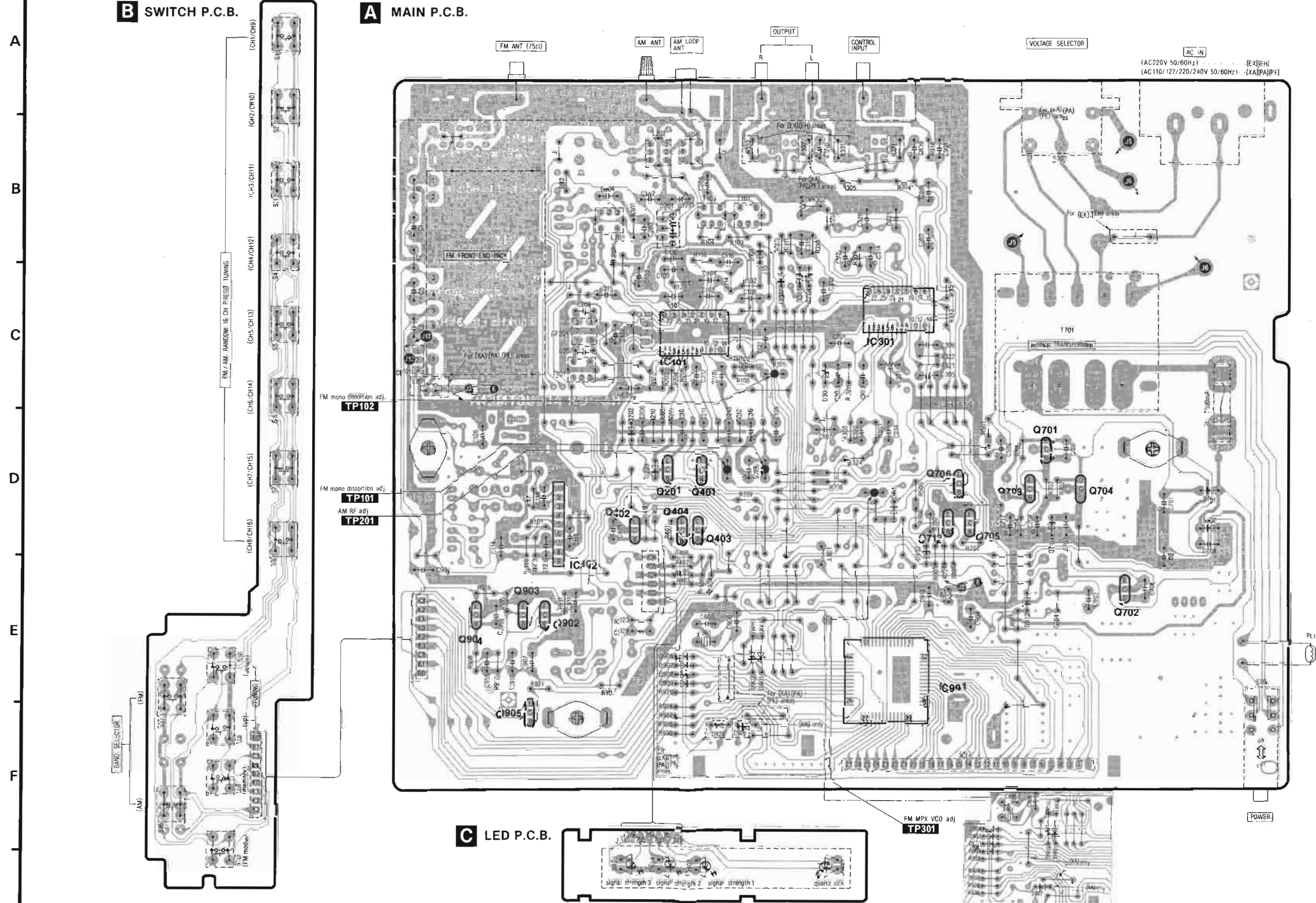


Pin No.	25	26	27	28	29
21	up	MW (AM)	CH5 /13	CH1 /9	—
22	down	LW	CH6 /14	CH2 /10	—
23	—	FM	CH7 /15	CH3 /11	memo
24	—	mode	CH8 /16	CH4 /12	—

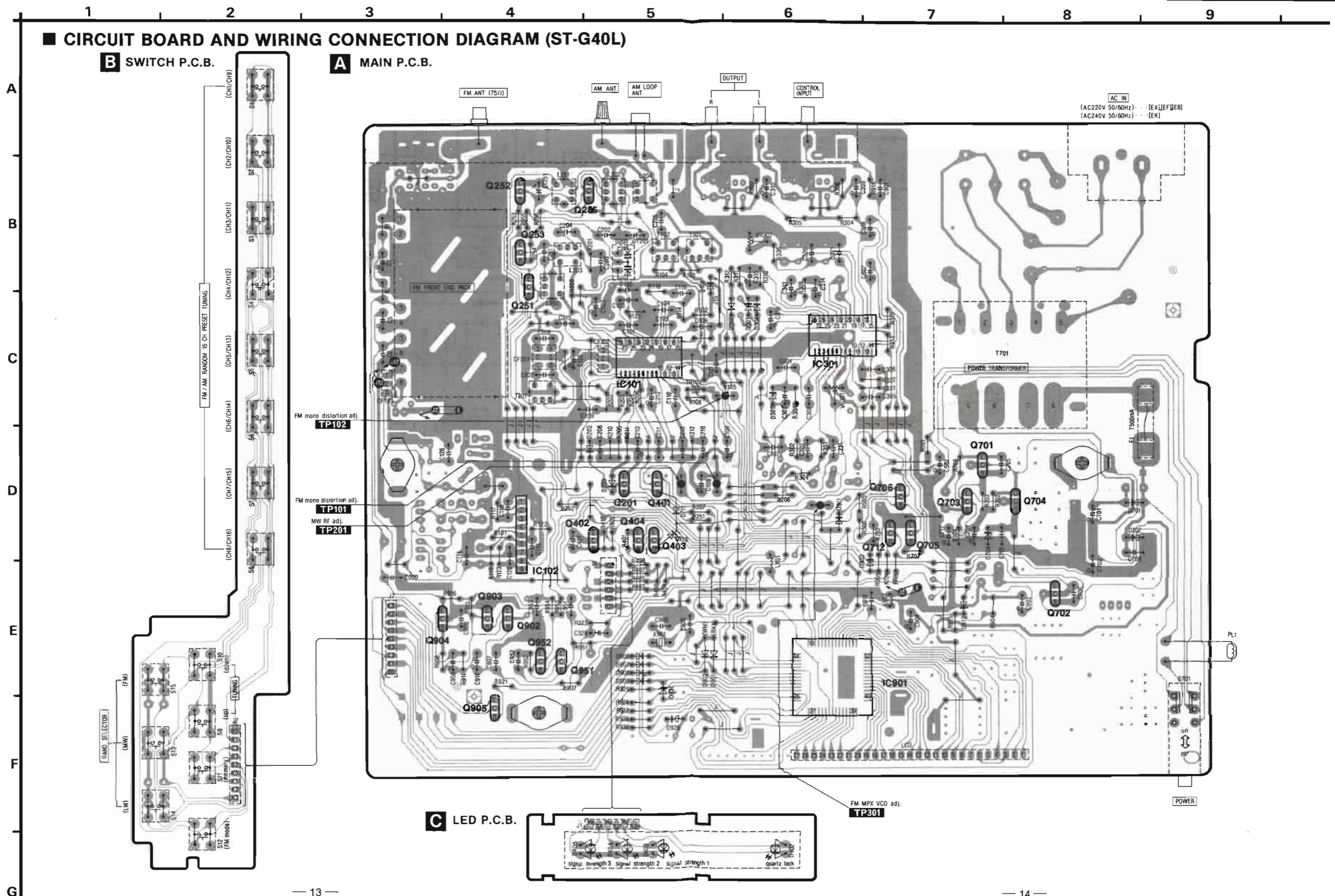
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (ST-G40)



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (ST-G40L)

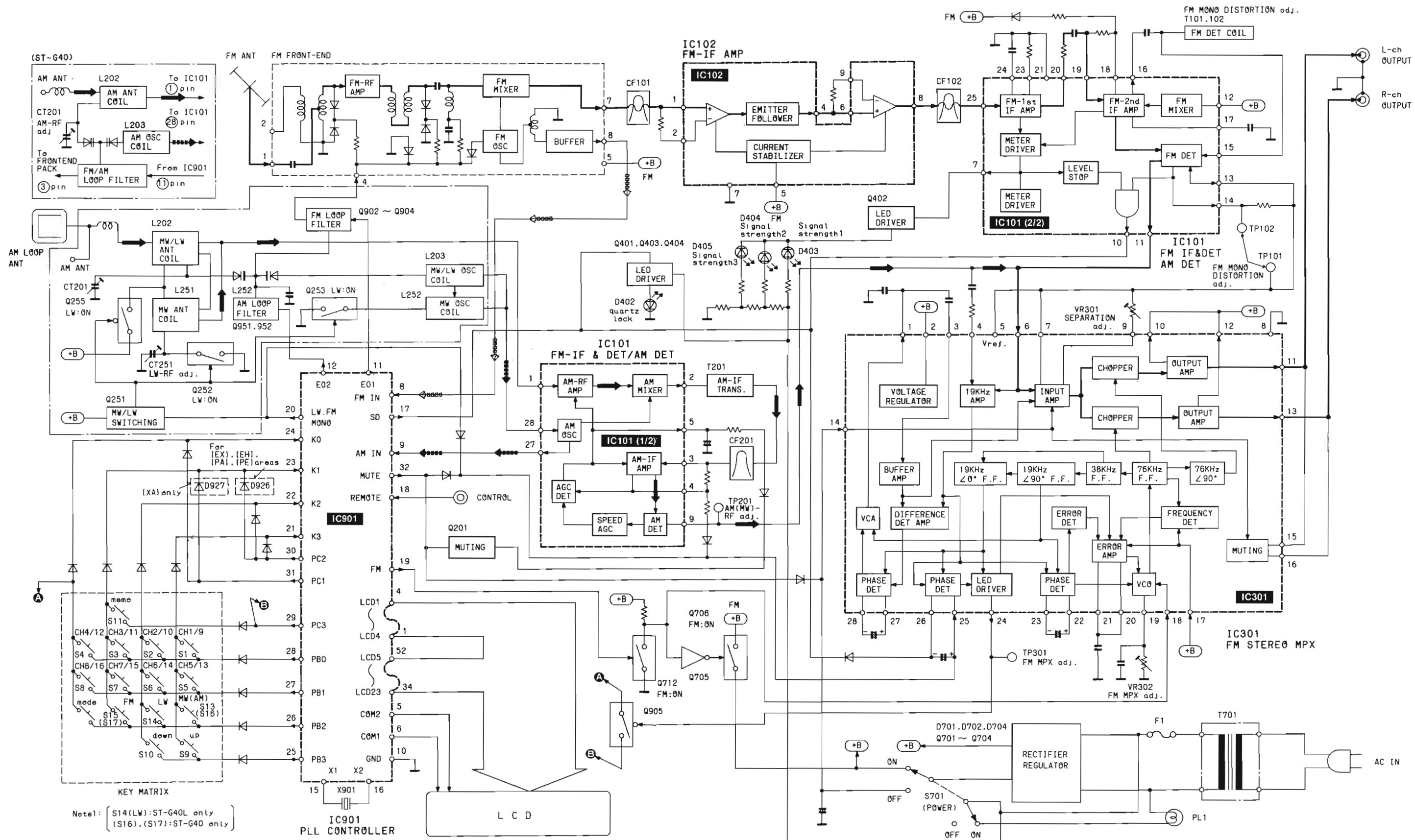


B SWITCH P.C.B.

A MAIN P.C.B.

C LED P.C.B.

AC IN
 (AC220V 50/60Hz) : [EX] [EF] [EB]
 (AC240V 50/60Hz) : [EK]

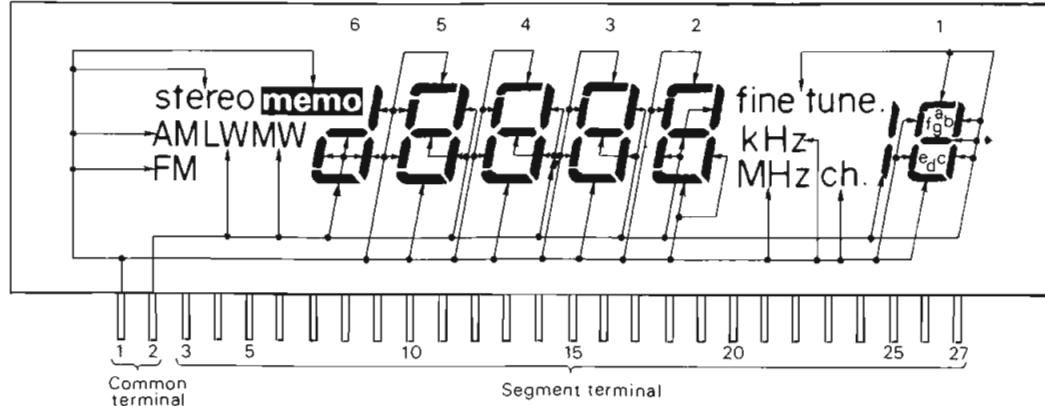


Note1: (S14(LW):ST-G40L only
(S16),(S17):ST-G40 only)

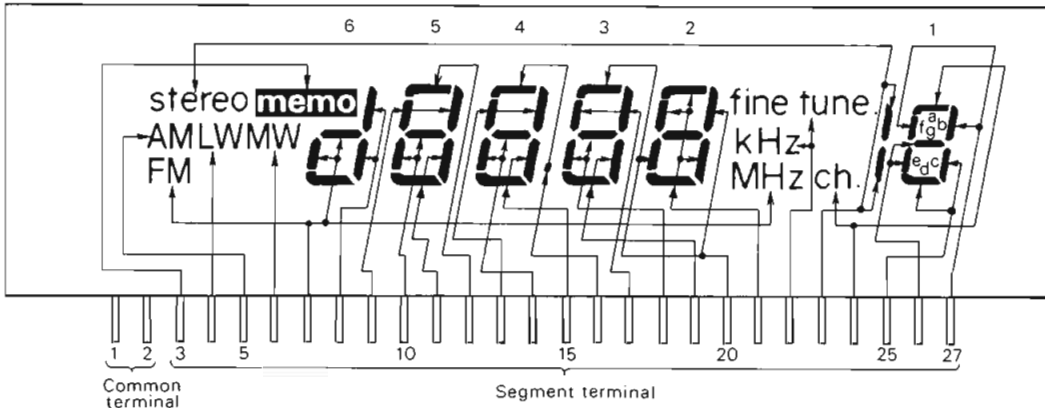
Note)
 • — FM Signal
 • □□□□ FM OSC
 • — AM Signal
 • ■■■■ AM OSC

DESCRIPTION OF LCD PANEL

COMMON



SEGMENT

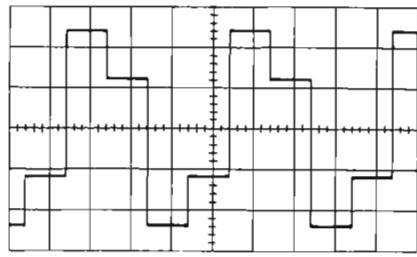


No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
COM1	COM1	—	MEMO	—	AM	—	FM, MHz	6b	5f	5e	5d	5a	4f	4e	4d
COM2	—	COM2	—	LW	—	MW	6deg	6c	5b	5g	5c	—	4b	4g	4c

No.	16	17	18	19	20	21	22	23	24	25	26	27
COM1	4a	3f	3e	3d	3a	2acdf	kHz	stereo	ch	1d	1e	1f
COM2	—	3b	3g	3c	2bc	2g	fine tune	—	1a	1c	1g	1b

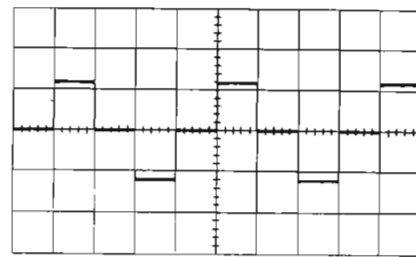
< Segment ON >

Pin ① or ② of LCD and each segment terminal.



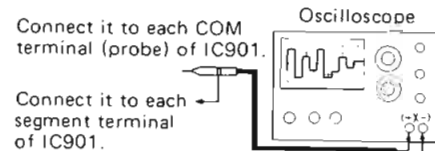
< Segment OFF >

Pin ① or ② of LCD and each segment terminal.



Each segment waveform measuring method

Note: Potential difference from COM terminal waveform is measured for each segment output waveform. So, do not connect the earth to other equipment on the oscilloscope side. If the earth is connected, IC901 will break down.



RESISTORS AND CAPACITORS

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
 - Important safety notice. Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
 - The "S" mark is service standard parts and may differ from production parts.
 - The unit of resistance is OHM (Ω). K=1000 Ω , M=1000k Ω .
 - The unit of capacitance is MICROFARAD (μ F). P=10 μ F.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity
ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Resistor Type	Wattage	Tolerance
ERD : Carbon	25 : 1/4W	F : $\pm 1\%$
ERC : Solid	S2 : 1/4W	J : $\pm 5\%$
ERO : Metal Film	S1 : 1/2W	K : $\pm 1\%$
	12 : 1/2W	

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA : Electrolytic	0J : 6.3V	1H : 50V DC	C : $\pm 0.25\mu$ F
ECCD : Ceramic	1A : 10V	1 : 125V DC	G : $\pm 2\%$
ECKD : Ceramic	1C : 16V	KC : 400V AC	J : $\pm 5\%$
ECQM : Polyester	1E : 25V		K : $\pm 10\%$
ECQP : Polypropylene	1H : 50V		Z : +80%, -20%
	1V : 35V		
	25 : 25V		

RESISTORS

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
R1	ERDS2TJ104	100K	R710	ERDS1FJ102	1K	C213	S ECKD1H223ZF	0.022	C702	ECEA1CU222	2200
R2	ERDS2TJ273	27K	R724	ERDS2TJ473	47K	C214	ECFTD183KXL	0.018	C704	ECEA1EU101	100
R101	ERDS2TJ272	2.7K	R725	ERDS2TJ102	1K	C215	S ECKD1H103ZF	0.01	C705, 706	S ECKD1H103ZF	0.01
R102	ERDS2TJ104	100K	R904	ERDS2J681	680	C216	ECEA0JU330	33	C707, 708	S ECKD1H103ZF	0.01
R103	ERDS2TJ822	8.2K	R905	ERDS2TJ472	4.7K	C251	ECQP1391JZ	390P	C717	ECEA1CU100	10
R104	ERDS2TJ182	1.8K	R907	ERDS2TJ102	1K	C301	S ECKD1H103ZF	0.01	C901	S ECKD1H103ZF	0.01
R105	ERDS2TJ684	680K	R908	ERDS2TJ123	12K	C302	S ECQM1H102JZ	0.001	C902	ECEA0JU332	3300
R108	ERDS2TJ333	33K	R910	ERDS2TJ561	560	C303	ECEA1AU101	100	C904	ECEA0JU471	470
R114	ERDS2TJ101	100	R913	ERDS2TJ273	27K	C305, 306	S ECQM1H153JZ	0.015	C905	S ECCD1H330KC	33P
R117	ERDS2TJ391	390	R915	ERDS2TJ103	10K	C307, 308	ECEA1EU3R3	3.3	C906	S ECCD1H080CC	6P
R118	ERDS2TJ221	220	R916	ERDS2TJ682	6.8K	C309, 310	ECEA1CU100	10	C907	S ECKD1H103ZF	0.01
R119	ERDS2TJ122	1.2K	R918	ERDS2TJ102	1K	C313	ECEA1HUR47	0.47	C908	S ECQM1H223JZ	0.022
R121	ERDS2TJ392	3.9K	R921	ERDS2TJ473	47K	C314, 315	ECEA1HUR22	0.22	C909	S ECKD1H103ZF	0.01
R122, 123	ERDS2TJ331	330	R926, 927	ERDS2TJ472	4.7K	C316	ECEA1CU100	10	C910	ECEA25M4R7R	4.7
R201	ERDS2TJ104	100K	R928, 929	ERDS2TJ472	4.7K	C320, 321	ECFTD223KXL	0.022	C912	S ECKD1H103ZF	0.01
R202	ERDS2TJ222	2.2K	R930	ERDS2TJ472	4.7K	C328	ECQP1391JZ	390P	C951	S ECKD1H103ZF	0.022
R203	ERDS2TJ473	47K	R951	ERDS2TJ102	1K	C328	S ECKD1H471KB	470P	C952	ECEA1HU010	1
R204	ERDS2TJ563	56K	R952	ERDS2TJ332	3.3K	C401	ECEA1CU100	10	C953	S ECQM1H223ZF	0.022
R205	ERDS2TJ124	120K	R953	ERDS2TJ123	12K	C502	ECEA1HUR22	0.22	C955	ECEA1HUR47	0.47
R206	ERDS2TJ101	100	R954	ERDS2TJ102	1K	C701	ECEA1CU102	1000			
R207	ERDS2TJ104	100K	R955	ERDS2TJ822	8.2K						
R208	ERDS2TJ273	27K									
R209	ERDS2TJ102	1K									
R210	ERDS2TJ274	270K									
R211	ERDS2TJ222	2.2K									
R212	ERDS2TJ473	47K									
R251	ERDS2TJ473	47K									
R252, 253	ERDS2TJ182	1.8K									
R254	ERDS2TJ223	22K									
R256	ERDS2TJ103	10K									
R301	ERDS2TJ471	470									
R302	ERDS2TJ563	56K									
R303	ERDS2TJ393	39K									
R304, 305	ERDS2TJ684	680K									
R306, 307	ERDS2TJ104	100K									
R309	ERDS2TJ102	1K									
R310, 311	ERDS2TJ274	270K									
R312	ERDS2TJ274	270K									
R313	ERDS2TJ103	10K									
R315	ERDS2TJ393	39K									
R321, 322	ERDS2TJ224	220K									
R323	ERDS2TJ473	47K									
R324	ERDS2TJ564	560K									
R336	ERDS2TJ123	12K									
R401	ERDS2TJ271	270									
R402	ERDS2TJ222	2.2K									
R403	ERDS2TJ331	330									
R404	ERDS2TJ101	100									
R405	ERDS2TJ151	150									
R406	ERDS2TJ330	33									
R407	ERDS2TJ331	330									
R408	ERDS2TJ561	560									
R410	ERDS2TJ472	4.7K									
R501	ERDS2TJ103	10K									
R505, 506	ERDS2TJ155	1.5M									
R702	ERDS2TJ182	1.8K									
R703	ERDS2TJ222	2.2K									
R704, 705	ERDS2TJ822	8.2K									
R707	ERDS2TJ473	47K									
C1	ECEA1EU3R3	3.3	C110	S ECQM1H104JZ	0.1	C203	S ECCD1H150KC	15P			
C2	S ECKD1H103ZF	0.01	C114	S ECKD1H103ZF	0.01	C204	ECQP1471JZ	470P			
C5	ECEA1CU470	47	C116	S ECQM1H102JZ	0.001	C205, 206	S ECKD1H103ZF	0.01			
C101	S ECQM1H223JZ	0.022	C118, 119	S ECKD1H103ZF	0.01	C207	S ECCD1H080CC	8P			
C102	ECEA0JU101	100	C120	S ECKD1H103ZF	0.01	C208	S ECCD1H680KC	68P			
C103	S ECQM1H102JZ	0.001	C121	ECFTD223KXL	0.022	C209	S ECKD1H103ZF	0.01			
C104, 105	S ECKD1H103ZF	0.01	C122	ECEA0JU471	470	C210	ECEA0JU330	33			
C106	S ECCD1H070CC	7P	C126	S ECKD1H103ZF	0.01	C211	S ECKD1H103ZF	0.01			
C107	S ECCD1H101K	100P	C130	S ECCD1H180KC	18P	C212	ECEA1HUR47	0.47			
C108	ECEA0JU101	100	C202	S ECQM1H473JZ	0.047						
C109	ECEA1HUR22	0.22									
C203	S ECCD1H150KC	15P									
C204	ECQP1471JZ	470P									
C205, 206	S ECKD1H103ZF	0.01									
C207	S ECCD1H080CC	8P									
C208	S ECCD1H680KC	68P									
C209	S ECKD1H103ZF	0.01									
C210	ECEA0JU330	33									
C211	S ECKD1H103ZF	0.01									
C212	ECEA1HUR47	0.47									

Change of Parts List (ST-G40 from ST-G40L)

Ref. No.	Change of Part No.		Description
	ST-G40L [EK]	ST-G40 [EX, EH, XA, PA, PE]	
RESISTORS			
R251	ERDS2TJ473	—	(Deletion)
R252, 253	ERDS2TJ182	—	(Deletion)
R254	ERDS2TJ223	—	(Deletion)
R256	ERDS2TJ103	—	(Deletion)
R306, 307	ERDS2TJ104	—	(Deletion)
R331, 332	—	ERDS2TJ104	(Addition) 100K Ω
R911	—	ERDS2TJ102	(Addition) 1K Ω
R912	—	ERDS2TJ822	(Addition) 8.2K Ω
R951	ERDS2TJ102	—	(Deletion)
R952	ERDS2TJ332	—	(Deletion)
R953	ERDS2TJ123	—	(Deletion)
R954	ERDS2TJ102	—	(Deletion)
R955	ERDS2TJ822	—	(Deletion)
CAPACITORS			
C203	ECCD1H150KC	ECCD1H180KC	18 μ F
C251	ECQP1391JZ	—	(Deletion)
C305, 306	ECQM1H153JZ	ECQM1H223JZ	[PA, PE] 0.022 μ F
		ECQM1H153JZ	[other] 0.015 μ F
C911	—	ECKD1H103ZF	(Addition) 0.01 μ F
C951	ECKD1H223ZF	—	(Deletion)
C952	ECEA1HU010	—	(Deletion)
C953	ECQM1H223JZ	—	(Deletion)

■ SCHEMATIC DIAGRAM

Note 1:

- S1~S8 : Preset tuning switch.
[S1—CH 1/9, S2—CH 2/10, S3—CH 3/11, S4—CH 4/12]
[S5—CH 5/13, S6—CH 6/14, S7—CH 7/15, S8—CH 8/16]
- S9, S10 : Tuning switch.
[S9 —down (tuning to lower frequency.)]
[S10—up (tuning to higher frequency.)]
- S11 : Memory switch.
memory ↔ auto memory
- S12 : FM mode selector.
auto ↔ mono
- S13~S15 : Band selector.
(ST-G40L only) (S13—MW, S14—LW, S15—FM)
- S16, S17 : Band selector.
(ST-G40 only) (S16—AM, S17—FM)
- S701 : Power switch in "on" position. (power)
- S702 : Voltage selector.
(ST-G40 [XA][PA][PE] areas only)

• Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester. All voltage values shown in circuitry are DC voltage in FM signal (no signal) reception modes.

* Figures in () stand for DC voltage in AM (MW) signal reception mode.

* Figures in () stand for DC voltage in LW signal reception mode.

* Figures in □ stand for muting mode.

- Positive voltage lines.
- AF signal.
- FM signal □ FM OSC
- AM signal ■ FM OSC

Important safety notice.

Components identified by △ mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

Part No.	Original Part No.	Suppliment Part No.
D901, D902	MA150	MA162A

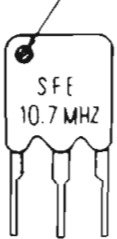
Note 2:

• Use of ceramic filters in pairs

The ceramic filters (CF101, CF102) for FM-IF circuit are available in two ranks.

For this machine, be sure to use the ceramics of the same rank in a pair. At repairing and replacement, pay close attention to the diode (D901, D902) for use as different diode must be used depending on each rank of the ceramic filters.

Color marking

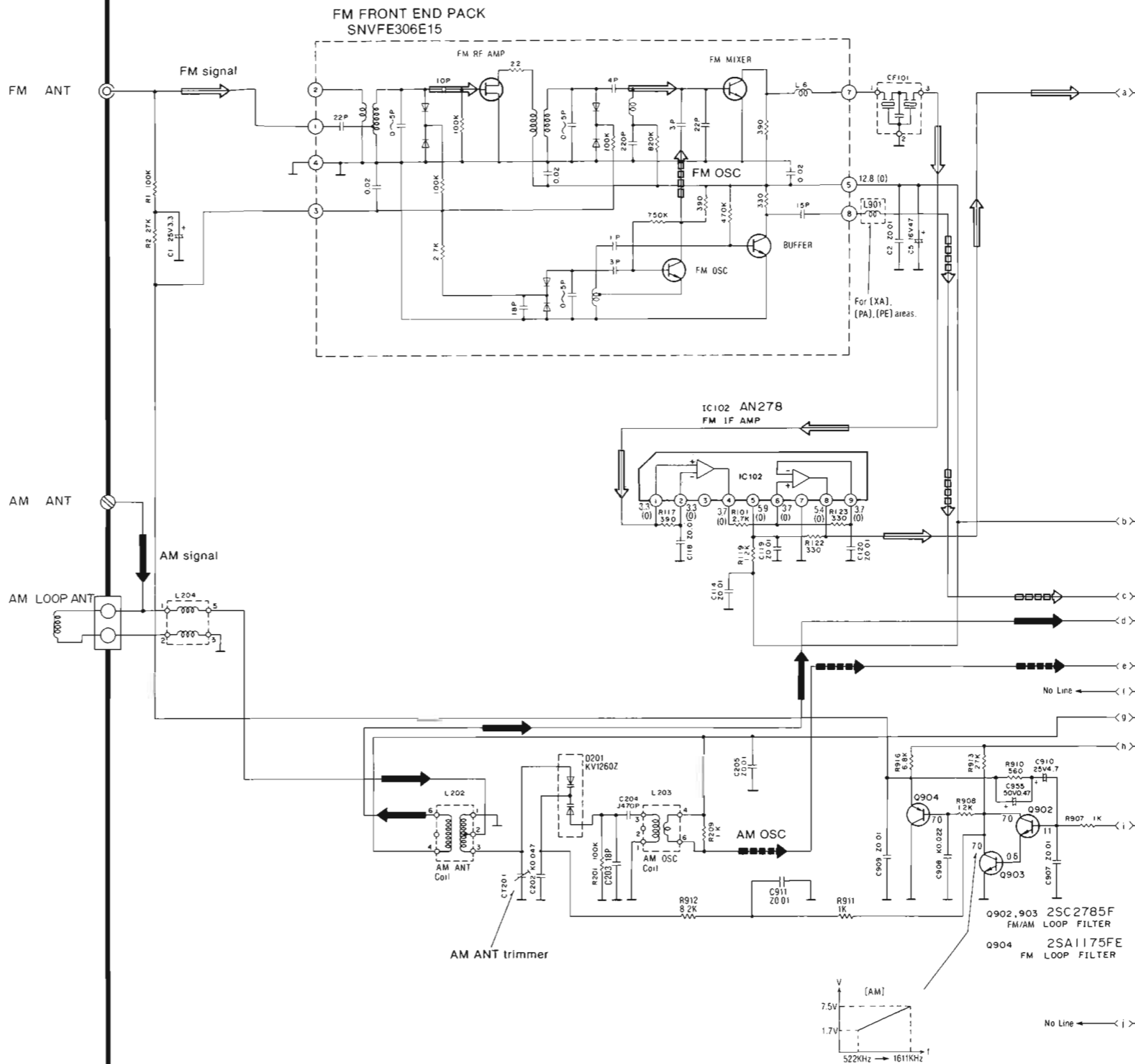


RANK (Color)	D901	D902
Black	○	×
White	×	○
Red	×	×

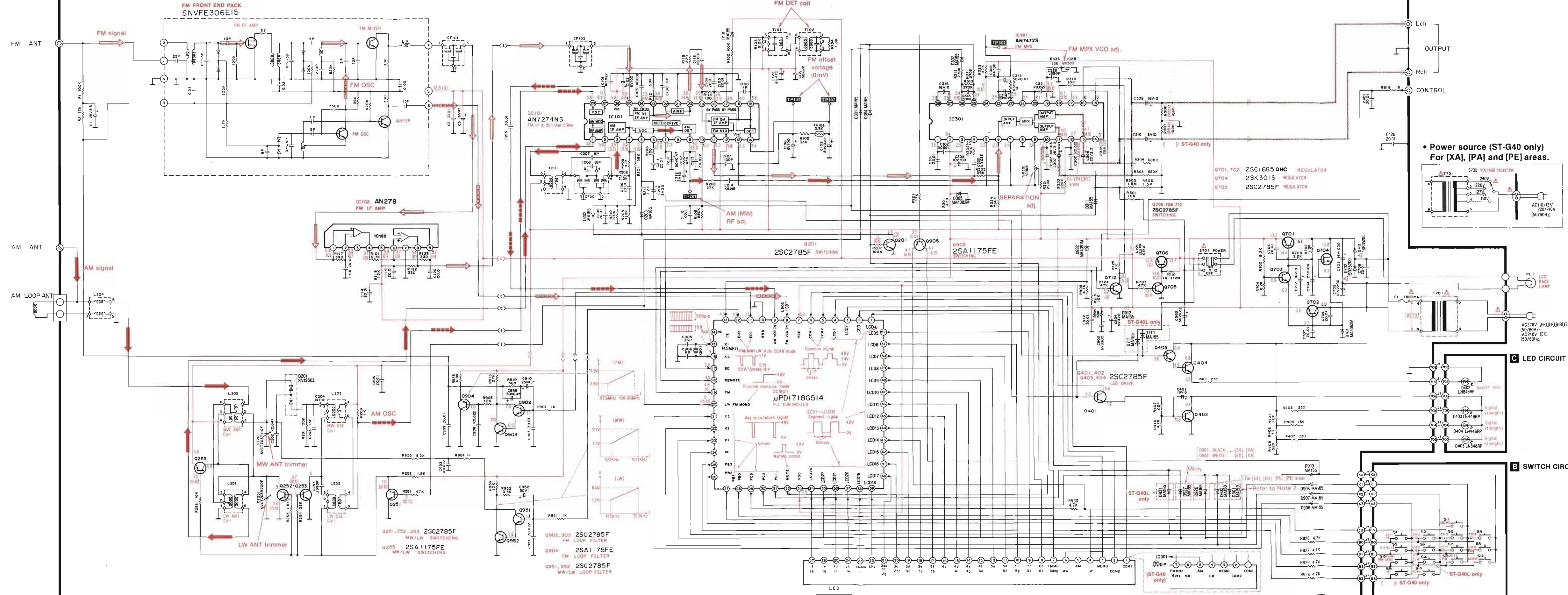
Note: ○ mark: Diode is used.
× mark: Diode is not used.

(ST-G40)

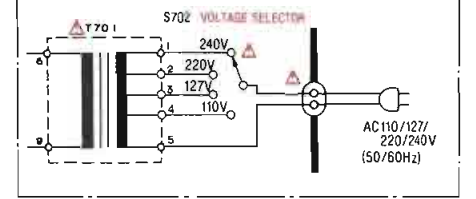
A
B
C
D
E
F
G



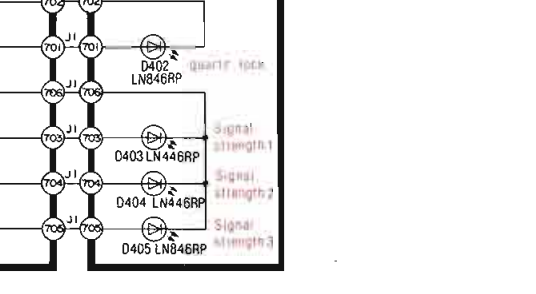
A MAIN CIRCUIT



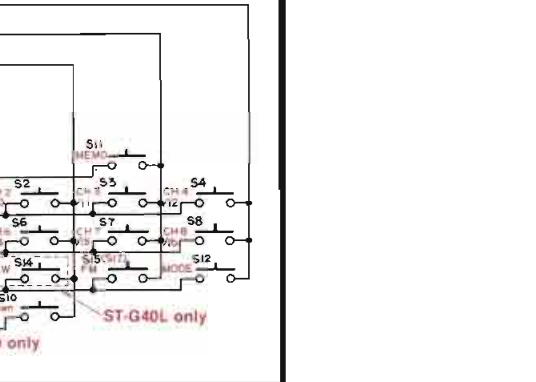
• Power source (ST-G40 only)
For [XA], [PA] and [PE] areas.



C LED CIRCUIT



B SWITCH CIRCUIT



REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
 2. Important safety notice: Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
 3. Bracketed Indications In Ref. No. columns specify the area. Parts without these indications can be used for all areas.
 4. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
INTEGRATED CIRCUITS								
IC101	AN7274NS	IC	VR301	QVNB3A00B104	Separation, 100K Ω (B)	21	SJS9236	AC Inlet
IC102	AN278	IC	VR302	QVNB3A00B103	MPX VCO, 10K Ω (B)	22	SJF8615N	Terminal Board
IC301	AN7472S	IC						
IC901	UPD1718G514	IC						
TRANSISTORS								
Q201, 251-253, 401-404, 703, 705, 706, 712, 902, 903, 951, 952	2SC2785F	Transistor						
Q255, 904, 905	2SA1175EE	Transistor						
Q701, 702	2SC1685-QNC	Transistor						
Q704	2SK301-S	Transistor						
DIODES								
D101, 202, 203, 301, 302, 304, 710, 711, 906-909, 911, 912, 926, 931	MA165	Diode						
D201	KV1260Z	Diode						
D305	MA4082M	Diode						
D402, 405	LN486RP	LED						
D403, 404	LN448YP	LED						
D701, 702	1SR35200	Rectifier						
D704	MA4062-M	Diode						
D901, 902	MA152A	Diode						
D932	MA4091-M	Diode						
COILS								
L101	ELEPK101KA	L.P.F.						
L202	SLA2B3-P	MW Antenna						
L203	SLO2B9R-P	MW OSC						
L204	SLQB20G-1P	Choke						
L251	SLA1B7R-P	LW Antenna						
L252	SLO1B5-P	LW OSC						
L902	RLQY25S5-0	Choke						
TRANSFORMERS								
T101	SLI4B520-Z	FM IFT						
T102	SLI4B521-Z	FM IFT						
T201	SLI2B104-M	AM IFT						
T701 [EK]	SLT5K175	Power Source						
T701 [other]	SLT5K171	Power Source						
CERAMIC FILTERS								
CF101	SVFE107M22-A	FM, 10.7MHz (Red)						
	SVFE107M22-D	FM, 10.65MHz (Black)						
	SVFE107M22-E	FM, 10.75MHz (White)						
CF102	SVFE107MX2-A	FM, 10.7MHz (Red)						
	SVFE107MX2-D	FM, 10.65MHz (Black)						
	SVFE107MX2-E	FM, 10.75MHz (White)						
CF201	SVFSF2450F7L	AM, 450kHz						
CRYSTAL								
X901	SVQ49V452-T	4.5MHz						
VARIABLE CAPACITORS								
CT201	SVCT203T110F	Trimmer (MW Antenna)						
CT251	SVCT203R200F	Trimmer (LW Antenna)						
THERMISTERS								
TH102	ERT02ZHL332S	3.3K Ω						

Change of Parts List (ST-G40 from ST-G40L)

Ref. No.	Change of Part No.		Part Name & Description	Pcs/Set	Remarks
	ST-G40L [EK]	ST-G40 [EX, EH, XA, PA, PE]			
TRANSISTORS					
Q251-253	2SC2785F				(Deletion)
Q255	2SA1175FE				(Deletion)
Q951, 952	2SC2785F				(Deletion)
DIODE					
D710, 711	MA165				(Deletion)
D926	MA165		[XA] only		(Deletion)
D927		MA165	[XA] only	(1)	(Addition)
D931	MA165				(Deletion)
COILS					
L202	SLA2B3-P	SLA2B1-1M	AM Antenna	(1)	
L203	SLO2B9R-P	SLO2B7-M	AM OSC	(1)	
L251	SLA1B7R-P				(Deletion)
L252	SLO1B5-P				(Deletion)
TRANSFORMERS					
T701	SLT5K175	SLT5K171	[EX, EH] Power Transformer	(1)	Δ
		SLT5K173	[other] Power Transformer	(1)	Δ
VARIABLE CAPACITOR					
CT251	SVCT203R200F				(Deletion)
FUSE					
F1	XBA2C05T80	XBA2C05TR0	250V, T500mA	(1)	Δ
SWITCHES					
S13-15	SSG13				(Deletion)
S16, 17	SSG13	SSG13	Band Selector	(2)	
S702	SSR187-1		[XA, PA, PE] only Voltage Selector		(Addition) Δ
CABINET and CHASSIS PARTS					
1	SGWTG40L-SE	SGWTG40-SE	Front Panel	(1)	
1	SGWTG40L-KE	SGWTG40-KE	Front Panel	(1)	
1-1	SGU497-1	SGU497-2	Transparent Plate	(1)	
5	SBC812-1A	SBC811-1A	Button	(1)	
5	SBC812A	SBC811A	Button	(1)	
22	SJF8615N	SJF8615N	[EX, EH] Terminal Board	(1)	
		SJF8714N	[other] Terminal Board	(1)	
23	SGPTG40L-SK	SGPTG40-SE	[EX] Rear Panel	(1)	
		SGPTG40-SH	[EH] Rear Panel	(1)	
		SGPTG40-SX	[other] Rear Panel	(1)	
25		SUS772	[PA, PE] only Spring	(1)	
ACCESSORIES					
A1	SFDAC05G02	SJA188-1	[PA, PE] AC Cord	(1)	Δ
		SFDAC05E02	[other] AC Cord	(1)	Δ
A3	SJP9009	SJP9215	[PA, PE] Plug	(1)	Δ
			[other]		(Deletion)
A4	SSA270	SSA270	[EX, EH] FM Antenna Cord	(1)	
		SSA269	[other] FM Antenna Cord	(1)	
A9	SQF12677	SQF12664	[PA, PE] Instruction Book	(1)	
		SQF12662	[other] Instruction Book	(1)	
PACKING PARTS					
P1	SPG5547	SPG5539	Carton Box	(1)	

EXPLODED VIEW

