

# Service Manual

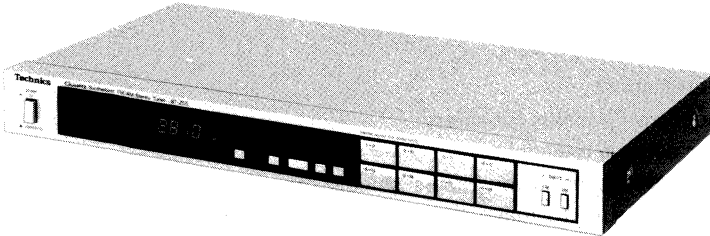
QUARTZ Synthesizer FM/AM Stereo Tuner

## ST-Z55

[EGA]

## ST-Z55(K)

[EGA]



- \* The colors of this model include silver and black.
- \* The black type model is provided with (K) in the Service Manual.

Area

\* [EGA] is available in F.R. Germany.

### TECHNISCHE DATEN

(Die technischen Daten Können infolge von Verbesserungen ohne An Kündigung geändert werden.)

(DIN 45 500)

#### ■ UKW-TUNERTEIL

Wellenbereich	87,50 ~ 108,00 MHz
Eingangsempfindlichkeit	
S/R 30 dB	1,3 $\mu$ V (75 $\Omega$ )
S/R 26 dB	1,2 $\mu$ V (75 $\Omega$ )
S/R 20 dB	0,9 $\mu$ V (75 $\Omega$ )
Nutzempfindlichkeit nach IHF	1,5 $\mu$ V (nach IHF '58)
Stereoumschaltswelle bei 46 dB nach IHF	28 $\mu$ V/75 $\Omega$
Gesamtklirrfaktor	
Mono	0,1%
Stereo	0,15%
Geräuschabstand	
Mono	70 dB (78 dB nach IHF)
Stereo	65 dB (70 dB nach IHF)
Frequenzgang	20 Hz ~ 15 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	75 dB
ZF-Dämpfung bei 98 MHz	100 dB
Ansprechdämpfung auf Nebenfrequenzen bei 98 MHz	100 dB
MW-Unterdrückung	55 dB
Übersprechdämpfung	
1 kHz	40 dB
Trägerrest	
19 kHz	-60 dB (-60 dB nach IHF)
38 kHz	-60 dB (-60 dB nach IHF)

Kanalabweichung (250 Hz ~ 6300 Hz)	$\pm$ 1,0 dB
Begrenzereinsatz	1,9 $\mu$ V
Bandbreite	
ZF-Verstärker	180 kHz
UKW-Demodulator	1000 kHz
Antennenanschluss	75 $\Omega$ (unsymmetrisch)

#### ■ MW-TUNERTEIL

Wellenbereiche	522 ~ 1611 kHz (9-kHz-Schritte)
	530 ~ 1620 kHz (10-kHz-Schritte)
Eingangsempfindlichkeit (S/R 20 dB)	20 $\mu$ V, 300 $\mu$ V/m
Trennschärfe ( $\pm$ 9 kHz)	55 dB
Spiegelfrequenz-Dämpfung bei 999 kHz	40 dB
ZF-Dämpfung bei 999 kHz	65 dB

#### ■ ALLGEMEINE DATEN

Ausgangsspannung	1,0 V (IHF)
Leistungsaufnahme	8W
Netzspannung	Wechselstrom 50 Hz/60 Hz, 220V
Abmessungen (B×H×T)	430 × 53 × 245 mm
Gewicht	2,6 kg

# Technics

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

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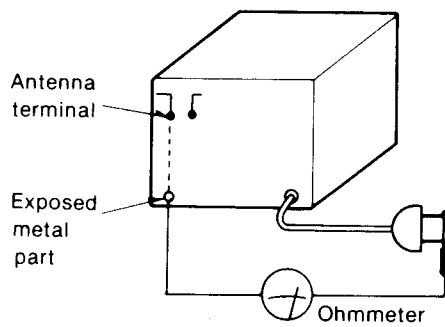
## ■ SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

### ● INSULATION RESISTANCE TEST

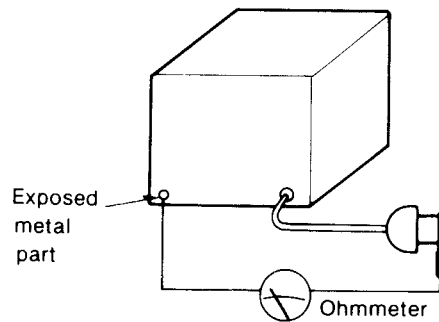
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between  $3M\Omega$  and  $5.2M\Omega$  to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

**Note:** Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance =  $3M\Omega - 5.2M\Omega$



(Fig. B)

Resistance = Approx  $\infty$

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

# Service Manual

## QUARTZ Synthesizer FM/AM Stereo Tuner

### ST-Z55/ST-Z55(K)

[PC]

- \* The colors of this model include silver and black.
- \* The black type model is provided with (K) in the Service Manual.

Area

[PC] is available in European Audio Club.

Please use this manual together with the service manual for Model No. ST-Z55(K), Order No. SD83062515C9.

## CHANGES

### ■ REPLACEMENT PARTS LIST

- Notes:**
1. Mentioned in this parts list are only those changed in Model No. ST-Z55(K) for destination [EX] area.
  2. Important safety notice:  
Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
  3. The "S" mark is service standard parts and may differ from production parts.

Ref. No.	Change of Part No.		Area	Part Name & Description	Pcs/Set	Remarks
	ST-Z55/(K) [EX]	ST-Z55/(K) [PC]				
<b>RESISTORS</b>						
R310, 311	ERD25FJ332	ERD25FJ272	[PC]	Carbon, 1/4W, 2.7k $\Omega$ , $\pm$ 5%	2	S
R312, 313	ERD25TJ333	ERD25TJ104	[PC]	Carbon, 1/4W, 100k $\Omega$ , $\pm$ 5%	2	S
<b>CAPACITORS</b>						
C309, 310	ECQM1H153KV	ECQM1H273KV	[PC]	Polyester, 50V, 0.027 $\mu$ F, $\pm$ 10%	2	
<b>TRANSFORMER</b>						
T701	SLT5K141	SLT5K145	[PC]	Power Source	1	$\Delta$
<b>SWITCH</b>						
S2	—	SSR179	[PC]	Voltage Selector	1	$\Delta$
<b>CABINET and CHASSIS PARTS</b>						
21	SGP3110-1	SGP3130	[PC]	Rear Sub Panel	1	
24	SJA138-3	RJA52Y	[PC]	AC Cord	1	$\Delta$
25	SGPTZ55-SE	SGPTZ55-SX	[PC]	Rear Panel	1	
<b>ACCESSORIES</b>						
A3	—	SJP5213-1	[PC]	Plug Adaptor	1	$\Delta$
A9	SQF11761	SQF11763	[PC]	Instruction Book	1	
<b>PACKING PART</b>						
P3	SPS3495	SPS3495-4	[PC]	Pad, Rear Side	1	

# Technics

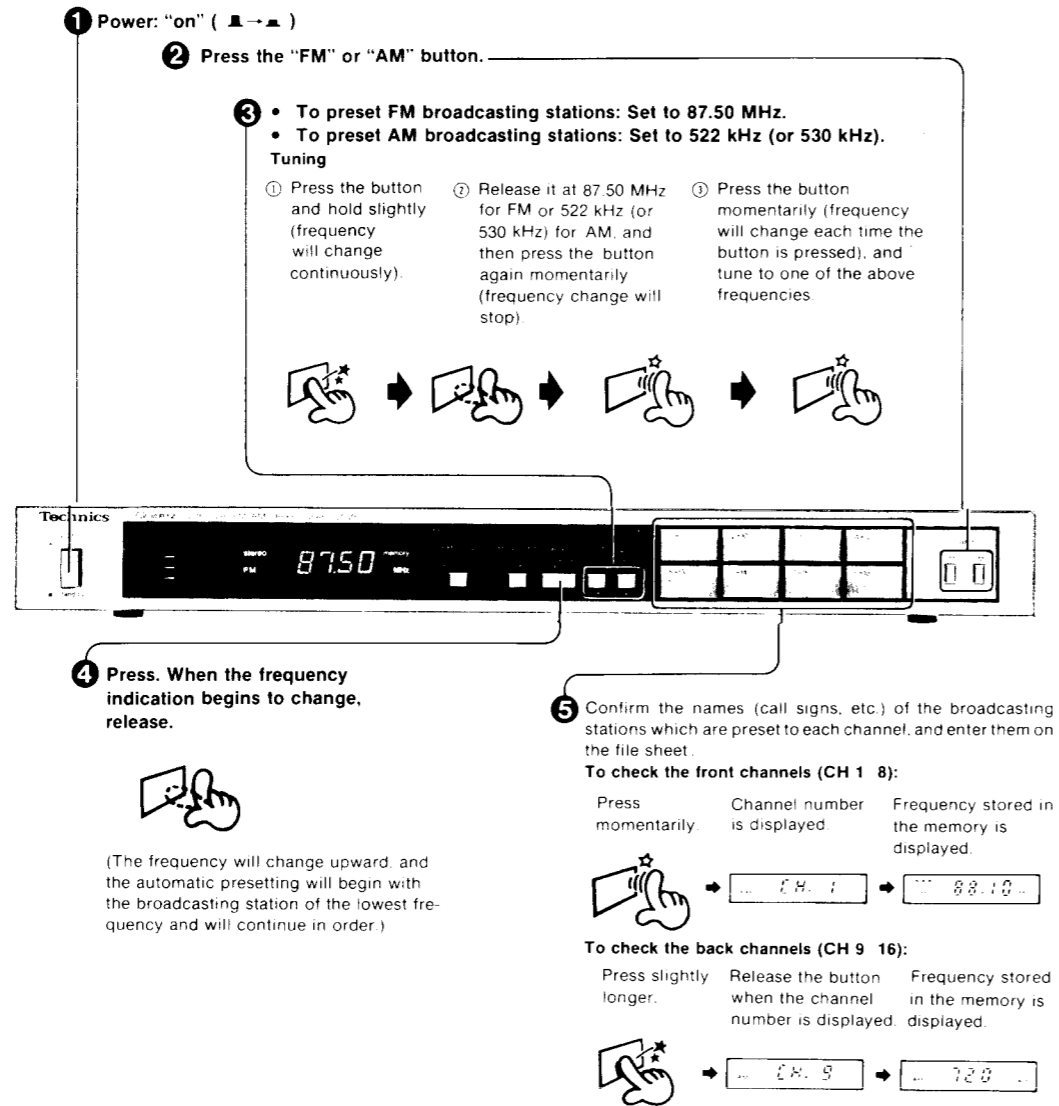
Matsushita Electric Trading Co., Ltd.  
P.O. Box 288, Central Osaka Japan

Printed in Japan  
831000500 'A, TN

## HOW TO OPERATE

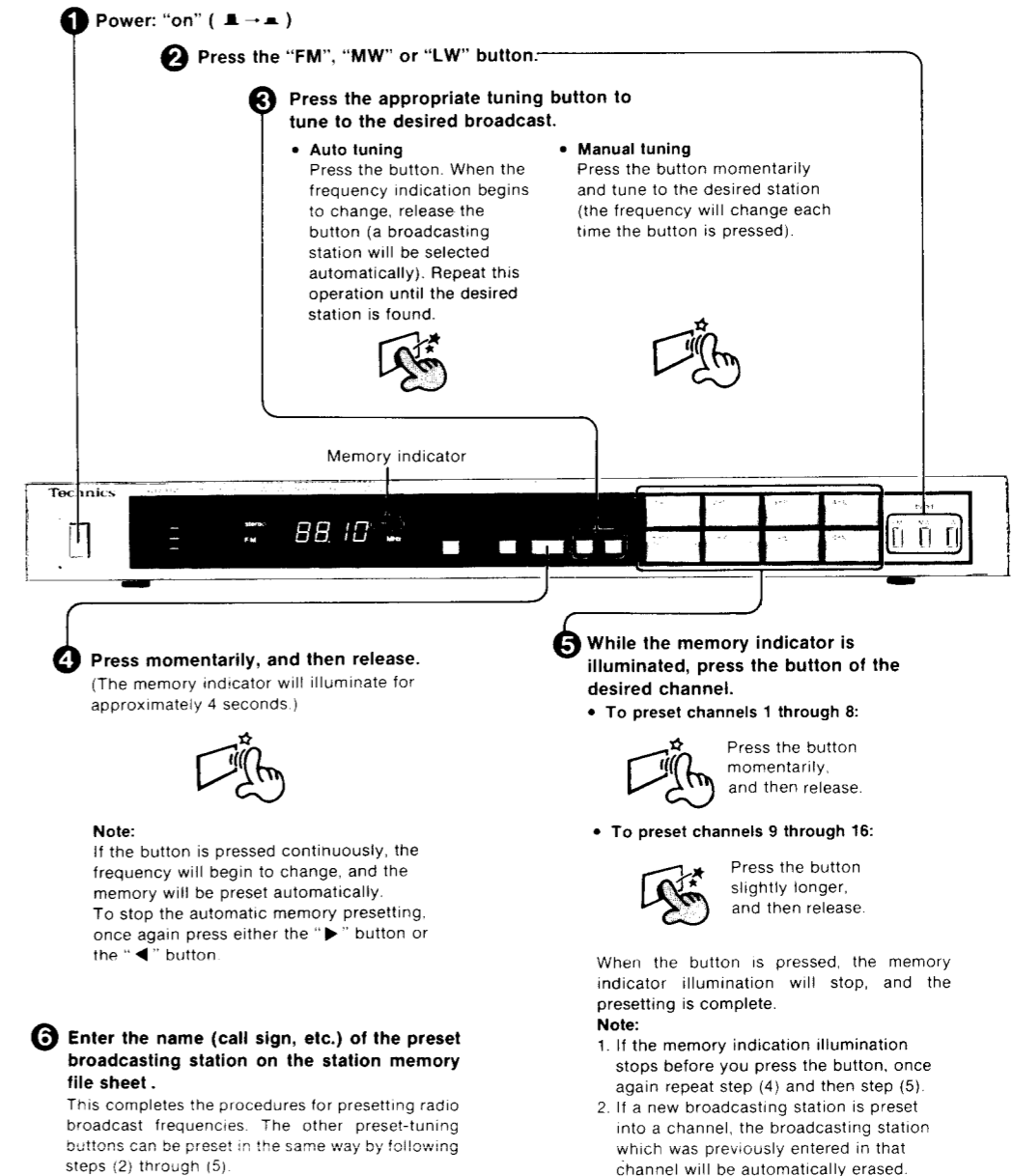
### Automatic memory presetting

Beginning at the frequency indicated by the digital display, the FM broadcasting stations and AM broadcasting stations will be automatically preset to "channels" 1 through 8 for FM and 9 through 16 for AM, respectively. Note that in mountainous or remote areas, broadcasting stations which have weak broadcasting signals cannot be automatically preset into the memory.



### Manual memory presetting

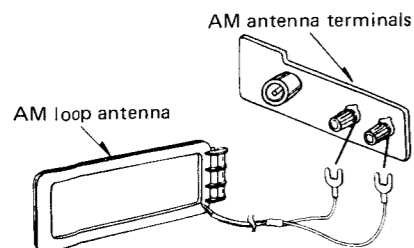
Stations can be freely preset to any desired channel.



### How to use the AM loop antenna

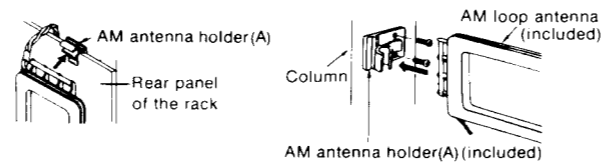
This unit includes a highly sensitive loop antenna for AM broadcast reception. If this antenna is not installed, AM broadcast will not be received. No outdoor antenna is necessary unless this unit is used in an area where signals are especially weak. (Connect the AM loop antenna even when an outdoor antenna is used.)

1. Connect the AM loop antenna to the AM antenna terminals located on the rear panel of the unit.



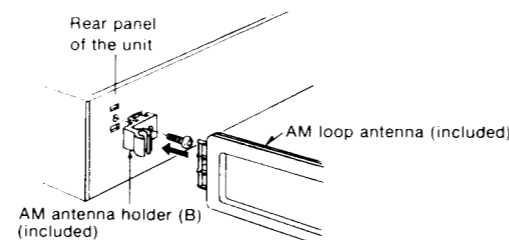
2. Find the height and direction of the antenna where reception is best and then fix it vertically to the wall, rack, etc.

- 1) When attaching the antenna to a wall, column or rack.



- 2) When attaching the antenna to the unit.

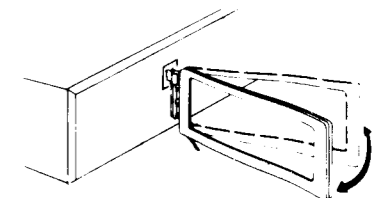
This type of installation may cause impaired reception or result in signal noise. If possible, attach the antenna to the rack, a wall, or a column.



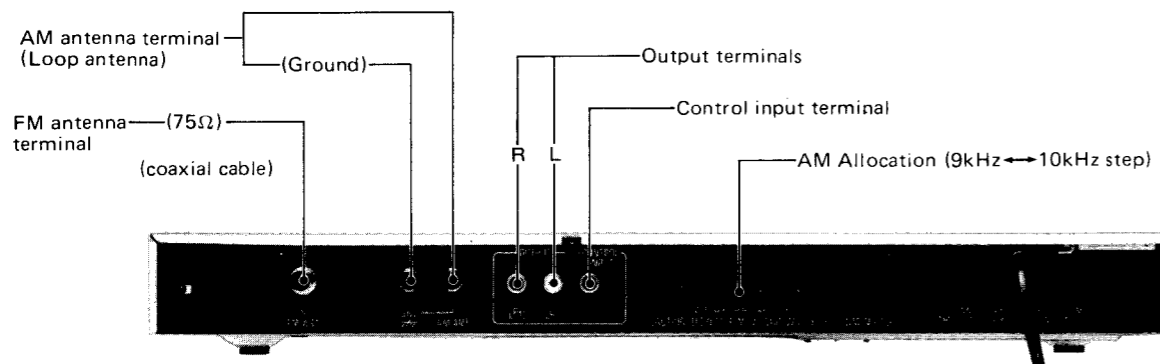
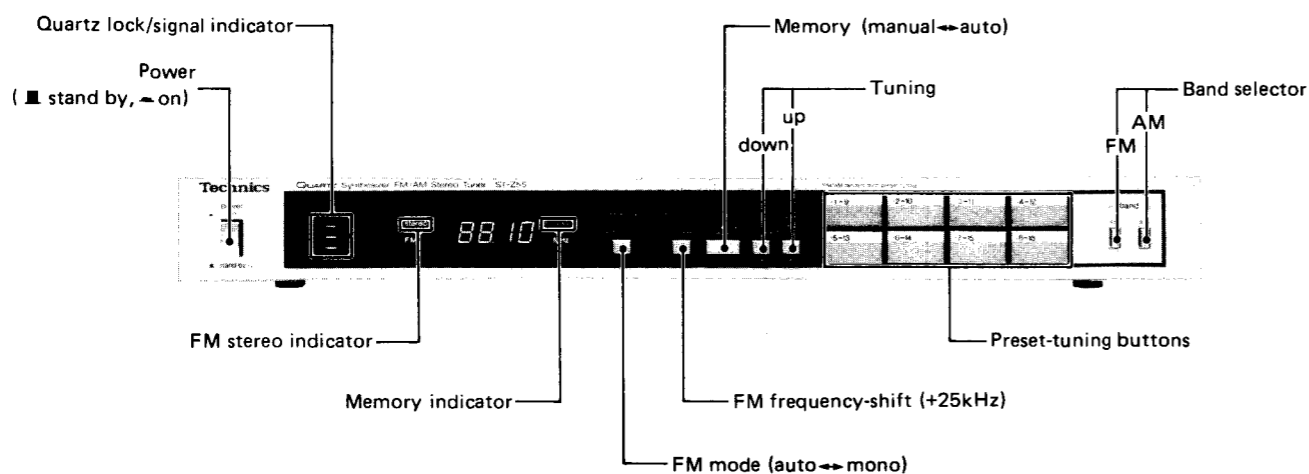
Pay attention to the following points when attaching the antenna.

- 1) Do not attach it horizontally (to do so would impair reception).
- 2) Do not attach it close to metal surfaces (to do so would result in noise).
- 3) Do not attach it close to power cords, speaker wires, etc. (to do so would result in noise).
- 4) Do not attach it close to a tape deck (when the tape deck is being used, chirping or beeping sounds may be received).

3. Move the antenna toward the right or left to find the point of best reception.



## LOCATION OF CONTROLS



## DISASSEMBLY INSTRUCTIONS

When repairing the FM front-end pack, replace it with the adjusted pack for repair.

### How to remove the printed circuit board

1. Remove the 4 setscrews (1 ~ 4 in Fig. 1) of the cabinet.
2. Move the cabinet in the direction of the arrow A in Fig. 1.
3. Remove the 5 setscrews (5 ~ 7 in Fig. 1 and 8, 9 in Fig. 2) of the front panel and the 8 setscrews (10 ~ 14 in Fig. 2 and 15 ~ 18 in Fig. 3) of the printed circuit board or rear panel.
4. Pressing the 2 claws on the right and left sides of front panel in the direction of arrow B (Fig. 4), remove the front panel along with the P.C.B. in the direction of arrow C (Fig. 4).

(Raise the printed circuit board when repairing.)

### How to remove the front sub-panel

1. Remove the printed circuit board. (Refer to "How to remove the printed circuit board".)
2. Remove the set screw (18 in Fig. 4) which fastens the bracket of FL. Next, remove the bracket by pushing it in the direction of arrow D with a screwdriver.
3. The claws projected (at 9 portions) from the front sub-panel are engaged with the front panel. Disengage the claws from by screwdriver or the like to remove the front sub-panel. (See Fig. 5)

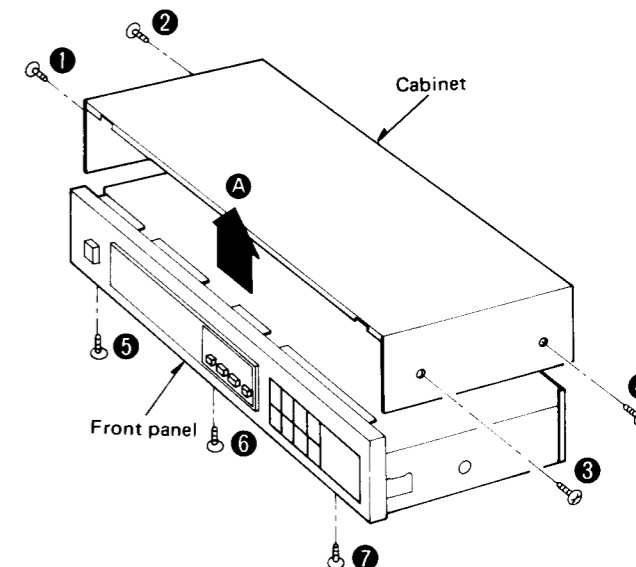


Fig. 1

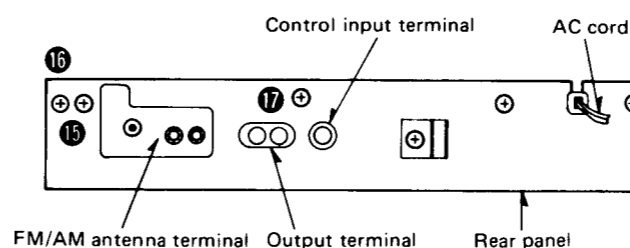


Fig. 3

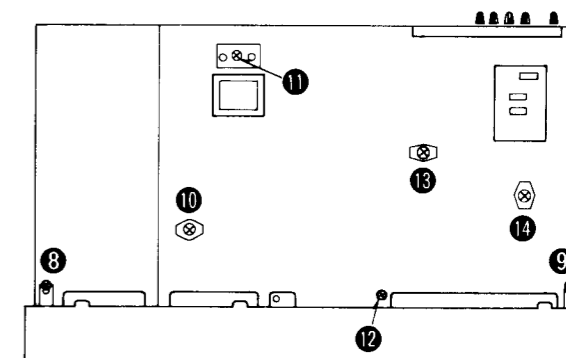


Fig. 2

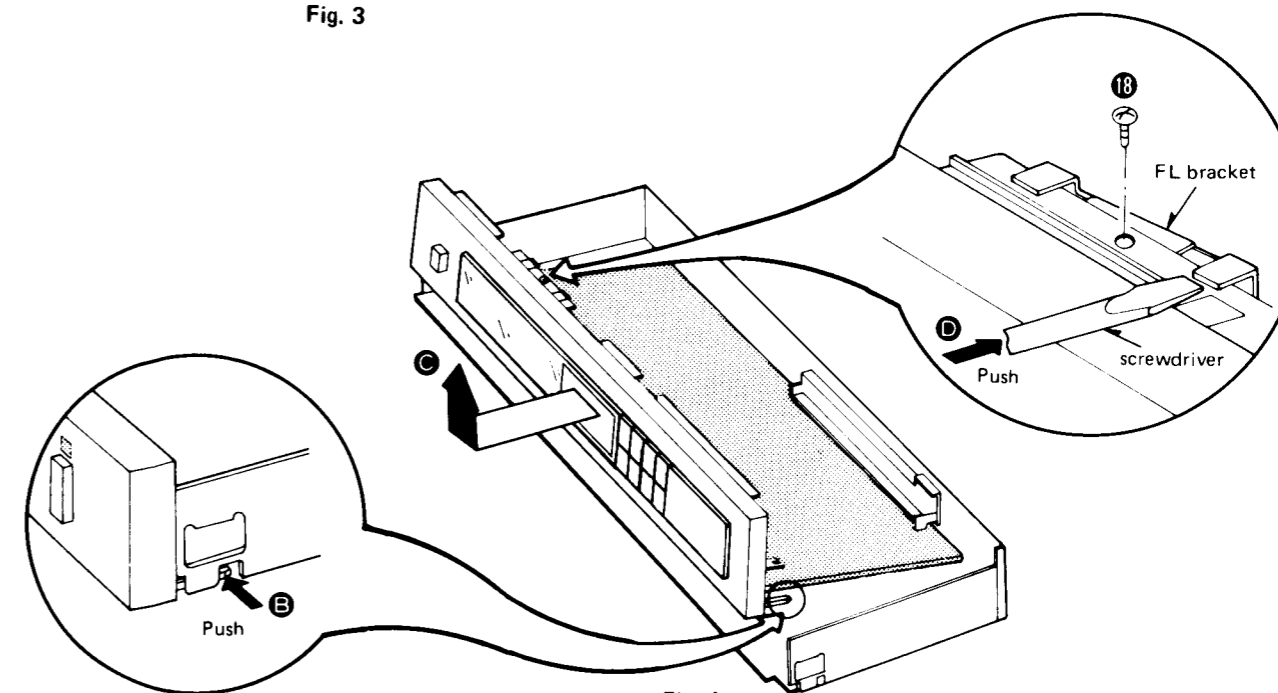


Fig. 4

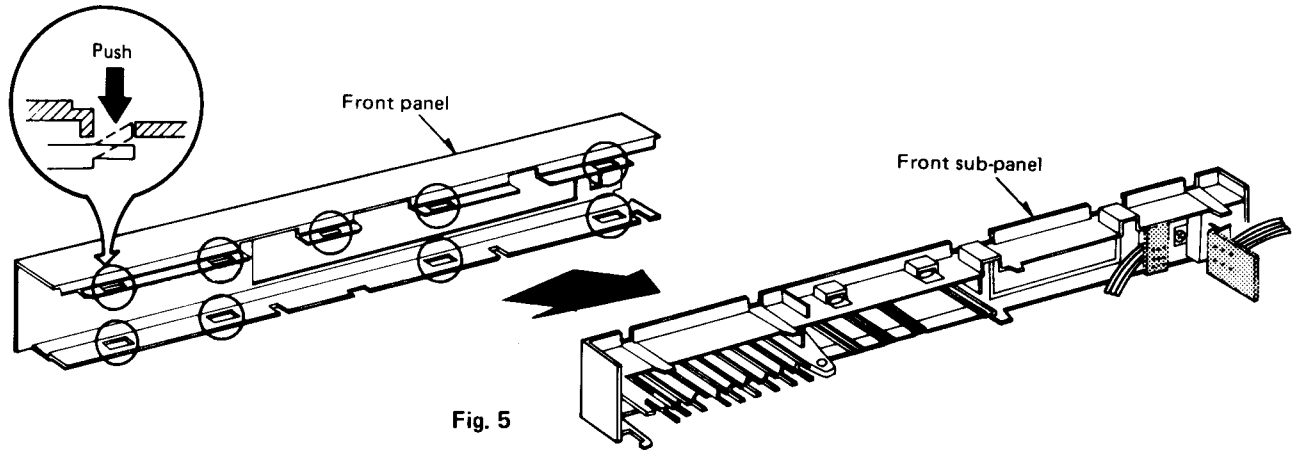


Fig. 5

## ■ MESSUNGEN UND JUSTIERUNGEN

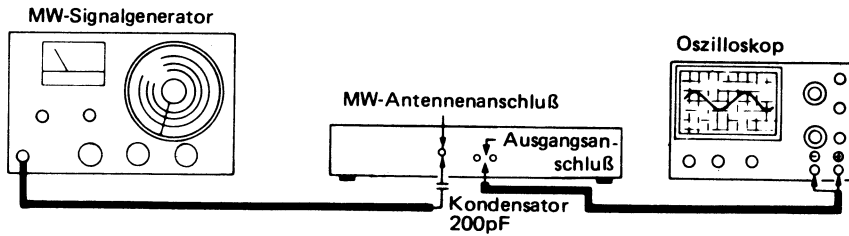
Anmerkung: Die AM-OSC-Spule (L203) und AM ZFT (T201) sind bereits justiert und benötigt daher keine Justierung.

### AM (MW)-EINSTELLUNG

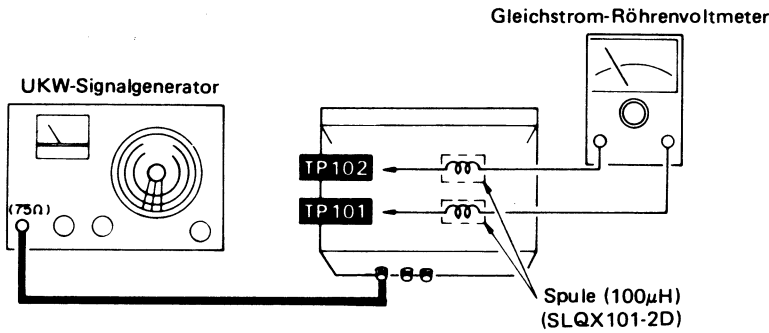
* Stellungen und zu benutzende Geräte						
1. Elektronisches Voltmeter für Wechselstrom (VTVM).		2. AM (MW)-Meßsender (AM-SG).		5. Netzspannung auf ihrem Sollwert halten.		
3. Bereichsschalter, . . . . . AM		4. AM (MW) Wellenverteilungs-Wahlschalter auf Position "9 kHz" stellen.		6. Der Ausgang des Meßsenders darf nicht höher sein als unbedingt notwendig für eine gute Ablesung.		
				7. Einen nichtmetallischen Schraubenzieher für die Einstellungen verwenden.		
AM (MW)-MESSENDER		ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG	VORBEREITUNG	ABGLEICHS-PUNKTE	ABGLEICHSVERFAHREN	
ANSCHLUSS	FREQUENZ					
AM (MW)-HF-ABGLEICH						
1	AM-MO über 200 pF Kondensator an den AM-Antennenanschluß anschließen, wie in Abb. 6 gezeigt.	612 kHz (400 Hz Modul., 30%)	612 kHz	Wechselstrom-Voltmeter oder Oszillograph über den Ausgang "OUTPUT" anschließen.	L202 (Ant. Spule)	1. Auf max. Ausgang abgleichen. 2. Den Ferritkern von L202 mit einem Schraubendreher justieren.
	2	(Schwacher Eingang.)	1503 kHz (400 Hz Modul., 30%)		1503 kHz	CT201 (Ant. Trimmer)

### FM (UKW)-EINSTELLUNG

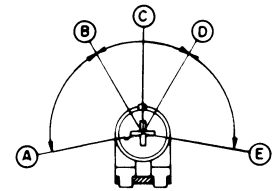
* Stellungen und zu benutzenden Geräte			* Vorbereitung des UKW-Meßoszillators (UKW-MO)			
1. UKW-Meßsender (FM-SG)			Die Normal-Eingangsleistung dieses Gerätes beträgt 60 dB (1 mV), 400 Hz, 100% Modulation. (Wegen der Dämpfung bei Verwendung von Koaxialkabeln, muß die MO-Ausgangsleistung 6 dB oder mehr betragen: d.h. wenn die Eingangsleistung 60 dB beträgt, muß der MO-Ausgang 66 dB betragen.)			
2. Klirrfaktor-Meßbrücke.						
3. Oszillograph.						
4. Elektronische Voltmeter für Wechsel- und Gleichstrom (VTVM).						
5. Signalfrequenzmesser (meßbar für 19 kHz und 108 MHz)						
6. Bereichsschalter, . . . . . FM						
7. Den UKW-Betriebsartenschalter auf die "mono"-Position stellen.						
8. Die anderen Einstellungen sind gleich wie bei der MW-Justierung.						
FM (UKW)-MESSENDER		ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG	VORBEREITUNG	ABGLEICHS-PUNKTE	ABGLEICHSVERFAHREN	
ANSCHLUSS	FREQUENZ					
UKW-HF-ABGLEICH						
3	UKW-MO an FM Antennende anschließen. (Schwacher)	100,10 MHz (400 Hz Modul., 100%)	100,10 MHz	Wechselstrom-Voltmeter oder Oszillograph über den Ausgang "OUTPUT" anschließen.	T1 (Ant. Spule)	Die Eingangsfrequenz und die Einstellungspunkte so justieren, daß der Ausgang den maximalen Wert erreicht.
	<b>ABGLEICH AUF MIN. VERZERRUNG IN STELLUNG UKW-MONO</b>					
4	UKW-MO an FM Antennende anschließen, wie in Abb. 7 gezeigt. (60 dB in den Antenneneingang anlegen.)	100,10 MHz (400 Hz Modul., 100%)	100,10 MHz	Ein Gleichstrom-Voltmeter zwischen <b>TP101</b> (-) und <b>TP102</b> (+) über eine Drossel-spule anschließen.	T101 (Diskriminator FT)	Den Kern von T101 so justieren, daß die gemessene Spannung im signallosen Zustand 0 mV im 300 mV Bereich beträgt.
				Klirrfaktor-Meßbrücke an Ausgangsklemme "OUTPUT" anschließen.	T102 (Diskriminator FT)	Kern von T102 für minimale Verzerrung der rechten und linken Kanäle justieren.
UKW-STEREO-DEKODER-ABGLEICH						
UNTER VERWENDUNG EINES ZÄHLERS			ALTERNATIV-MESSMETHODE			
6	1. Unmoduliertes Mono-Signal 100,10 MHz in das Gerät speisen.			1. Stereosignal entweder von einem Stereogenerator, oder einem Sender einspeisen.		
	2. FM mode-Schalter auf "FM auto" stellen.			2. <b>VR301</b> so einstellen, bis die Stereolampe aufleuchtet. Schleifer von <b>VR301</b> sichern, wie in Abb. 9 gezeigt.		
3. Zähler über einen Widerstand von 100k Ohm an <b>TP301</b> anschließen. (Vgl. Abb. 8)						
4. <b>VR301</b> auf 19 kHz ± 30 Hz einstellen.						
TRENNUNGS-JUSTIERUNG						
7	UKW-MO an FM Antennende anschließen. (60 dB in den Antenneneingang anlegen) (Pilot 10% Mod. Stereo-Signal)	100,10 MHz (1 kHz Modul., 100%) (L- oder R-Betrieb)	100,10 MHz	Wechselstrom-Voltmeter durch Tiefpassfilter and die "OUTPUT"-Anschlüsse des Gerätes anschließen. (fc = 15kHz - 19kHz)	VR302 (Trennungs)	1. VR302 so justieren daß der R-Ausgang minimal wird, wenn der Stereo-Modulator im L-Zustand (L-Kanal Modulation) ist.



**Abb. 6 (MW-Justierung)**



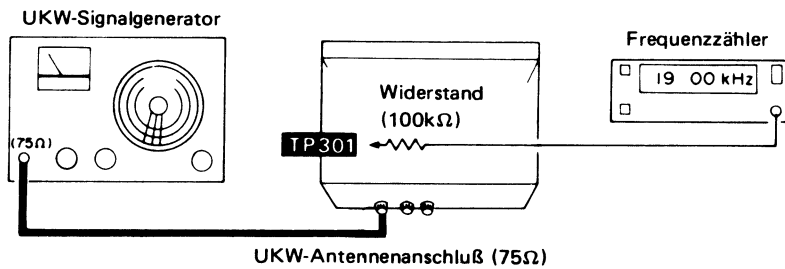
**Abb. 7 (Justierung der UKW-Offset)**



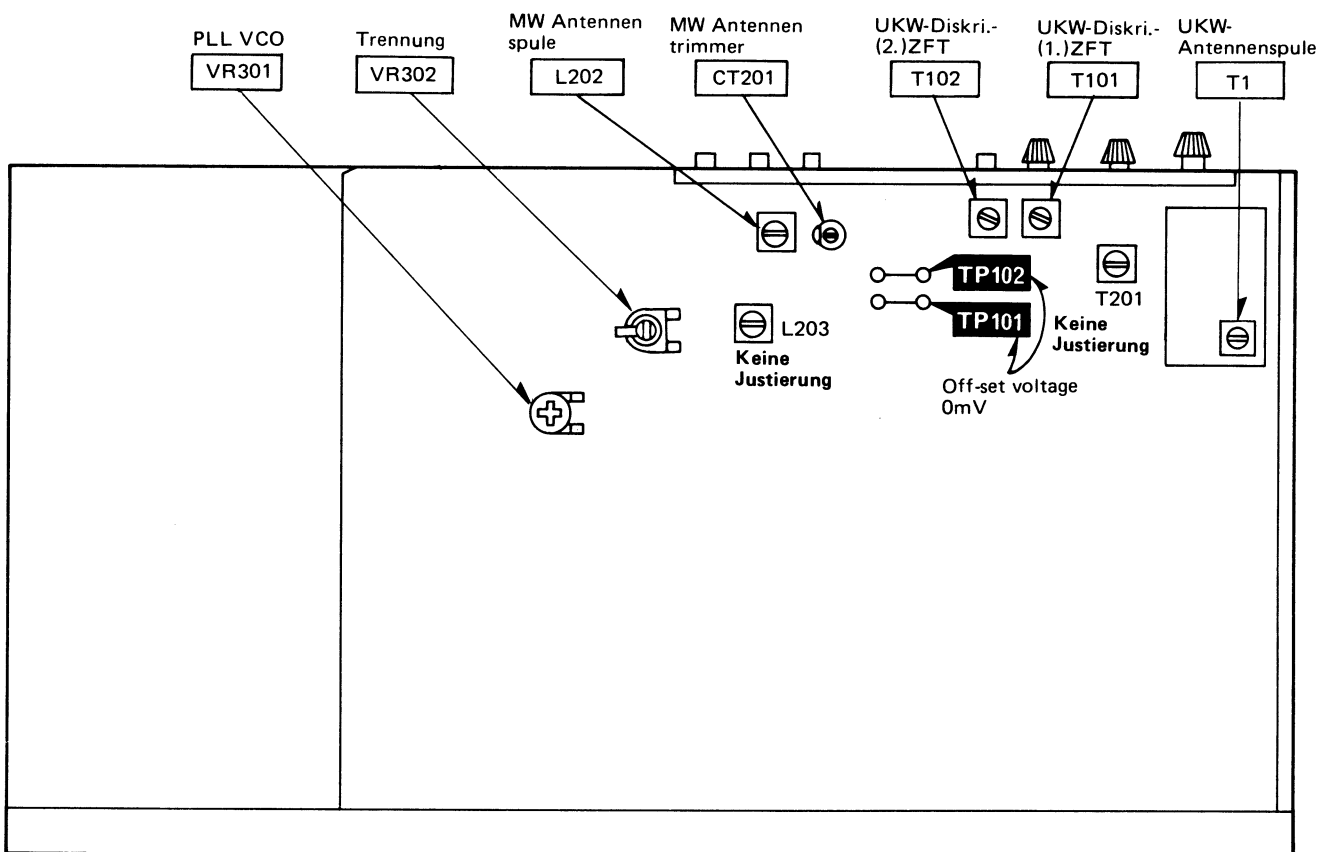
VR301

- (A) - (B) (D) - (E) : Stereo AUS-Position
- (B) - (D) : Stereo EIN-Position (Anzeige leuchtet)
- (C) : Punkt der Pilot-Schaltung justieren.

**Abb. 9 (Justierung der UKW-MPX-VCO)**



**Abb. 8 (Justierung der UKW-MPX-VCO)**

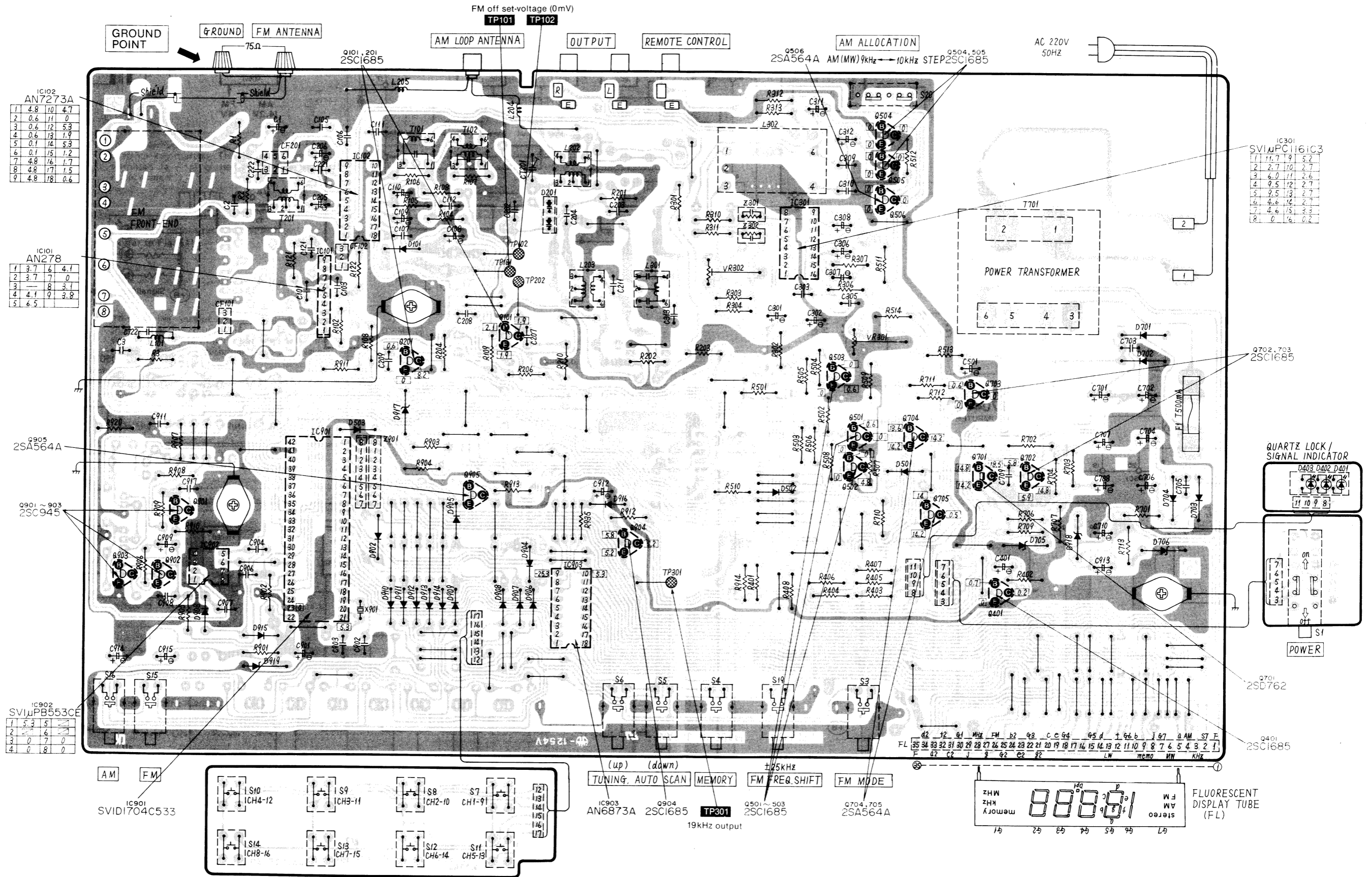


Front panel



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

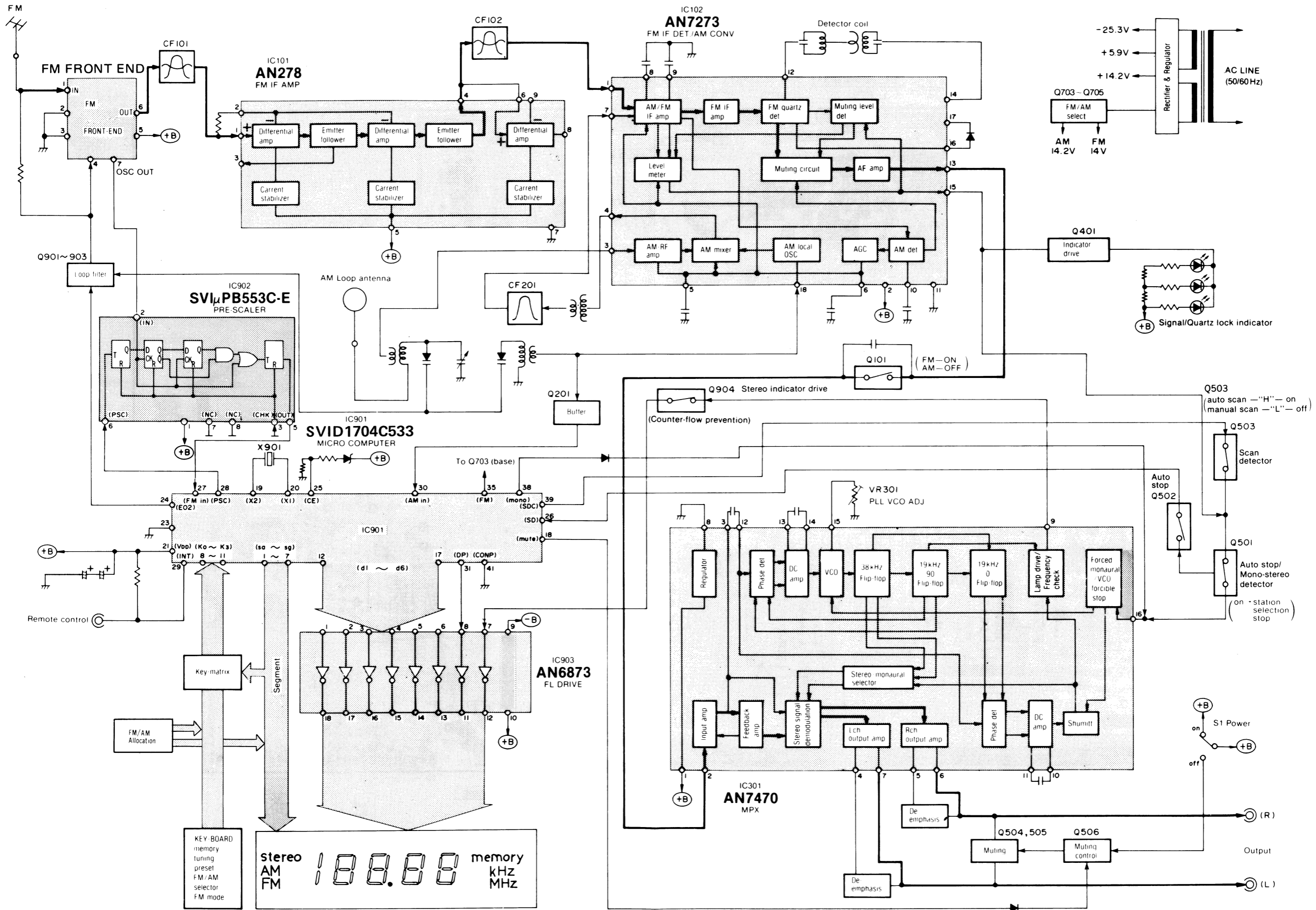
Ground (Earth) lines





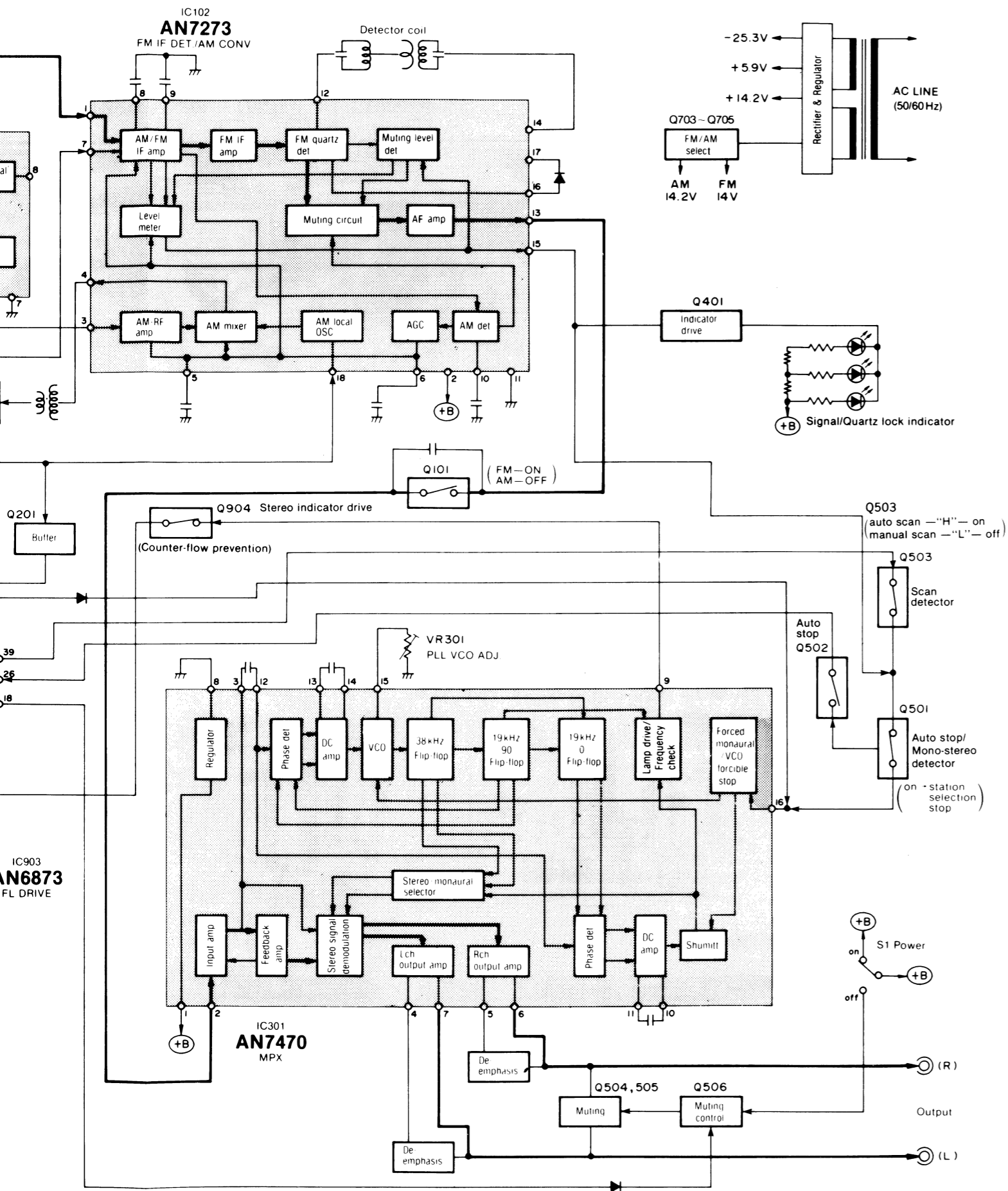


■ BLOCK DIAGRAM

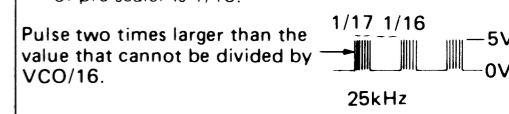

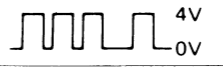
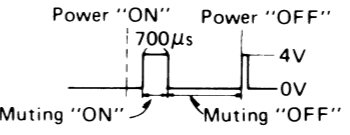
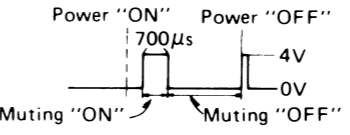
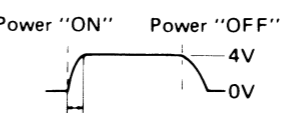


■ FUNCTION

Pin No.	Mark
1	Sa
2	Sb
3	Sc
4	Sd
5	Se
6	Sf
7	Sg
8	K0
9	K1
10	K2
11	K3
12	D6
13	D5
14	D4
15	D3
16	D2
17	D1
18	MT
19	X2
20	X1
21	VDD
22	E01
23	GND
24	E02
25	CE
26	SD
27	FM



### FUNCTION OF TERMINAL (PLL CONTROLLER IC901)

Pin No.	Mark	Description of terminal	Pin No.	Mark	Description of terminal
1	Sa	Segment signal output terminal for display. (Refer to Fig. 11)	28	PSC	This is the terminal to deliver the frequency dividing ratio changeover output signal to the pre-scaler. The terminal continues to produce pulses at the rise of the signal applied to FM terminal (27) until the content of the inside swallow counter is 0. When the swallow counter comes to 0, the terminal level becomes low, then the frequency dividing ratio of pre-scaler is 1/16. 
2	Sb		29	INT	This is the interrupt demand signal input terminal. The signal from the control input terminal is put into this terminal, demanding for interruption, then the flow of program will be unconditionally shifted to the address No. 1.
3	Sc		30	AM	Input terminal for AM OSC output. 
4	Sd		31	Dp	2-bit input/output. Dp (31) is decimal point indication output terminal for digital indication. Lamp (32) is not used in this unit.
5	Se		32	Lamp	
6	Sf		33	IF	4-Bit output port. FM (35) is FM/AM output terminal; 5V in FM and 0V in AM. IF (33), LW (34) and AM (36) not used in this unit.
7	Sg		34	LW	
8	K0	Input terminal for key return signal from external key matrix. The output of segment terminals (a ~ g) is used as the key return signal source. 	35	FM	
9	K1		36	AM	
10	K2		37	OFF	This is 4-bit input/output port. MONO terminal (38) is the auto/mono changeover output terminal, which is 5V in auto, and 0V in mono.
11	K3		38	MONO	
12	D6	Digit signal output terminal for display. (Refer to Fig. 11)	39	SDC	SDC terminal (39) is the auto scan/manual scan changeover output terminal, which is 5V in auto scan, and 0V in manual scan.
13	D5		40	D	
14	D4		41	COMP	One-bit input/output port. (Not used in this unit.)
15	D3		42	VDP	One-bit output port. (Not used in this unit.)
16	D2	This is the output terminal to eliminate shock noise due to unlocking at PLL. When the CE terminal is at low level, the output from this terminal is at high level. 			
17	D1				
18	MT	Connecting terminal for crystal oscillator. The crystal connected is at 4.5 MHz. 			
19	X2				
20	X1				
21	VDD	Power supply terminal of the device.			
22	E01	Not used in this unit.			
23	GND	Ground terminal.			
24	E02	When the divided oscillation frequency is higher than the standard frequency, H-level output is delivered from these terminals. When it is lower, L-level (0V) output is delivered. When they coincide, it results in floating.			
25	CE	This is the selected signal input terminal of the device. When operating the device, make the level high, and when it is not used, make the level low. When this terminal is at low level, all the segment (a ~ g) and digits (D1 ~ D6) terminals are off, but the memory is held.  The device does not operate during this period.			
26	SD	This input terminal detects the reception of a broadcasting station. The voltage is 4.2V during reception, and otherwise 0V.			
27	FM	Input terminal for FM OSC output frequency-divided to 1/16 or 1/17 by pre-scaler.			

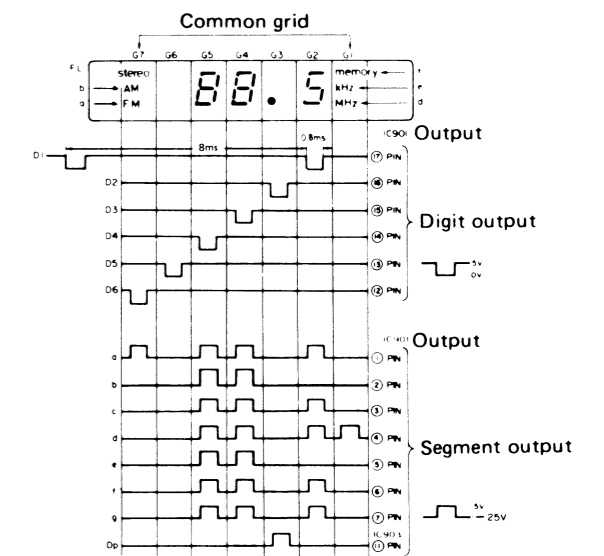
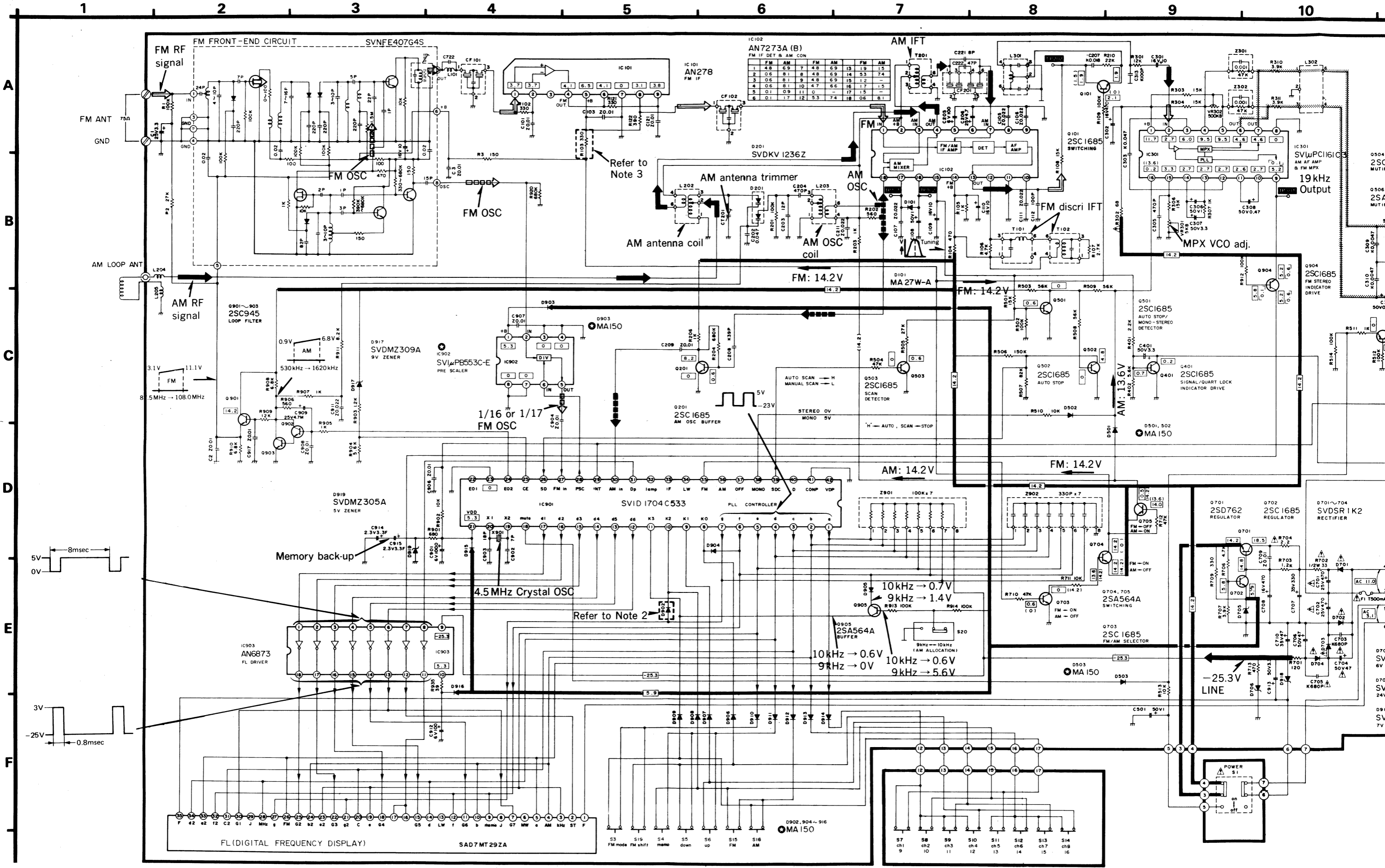
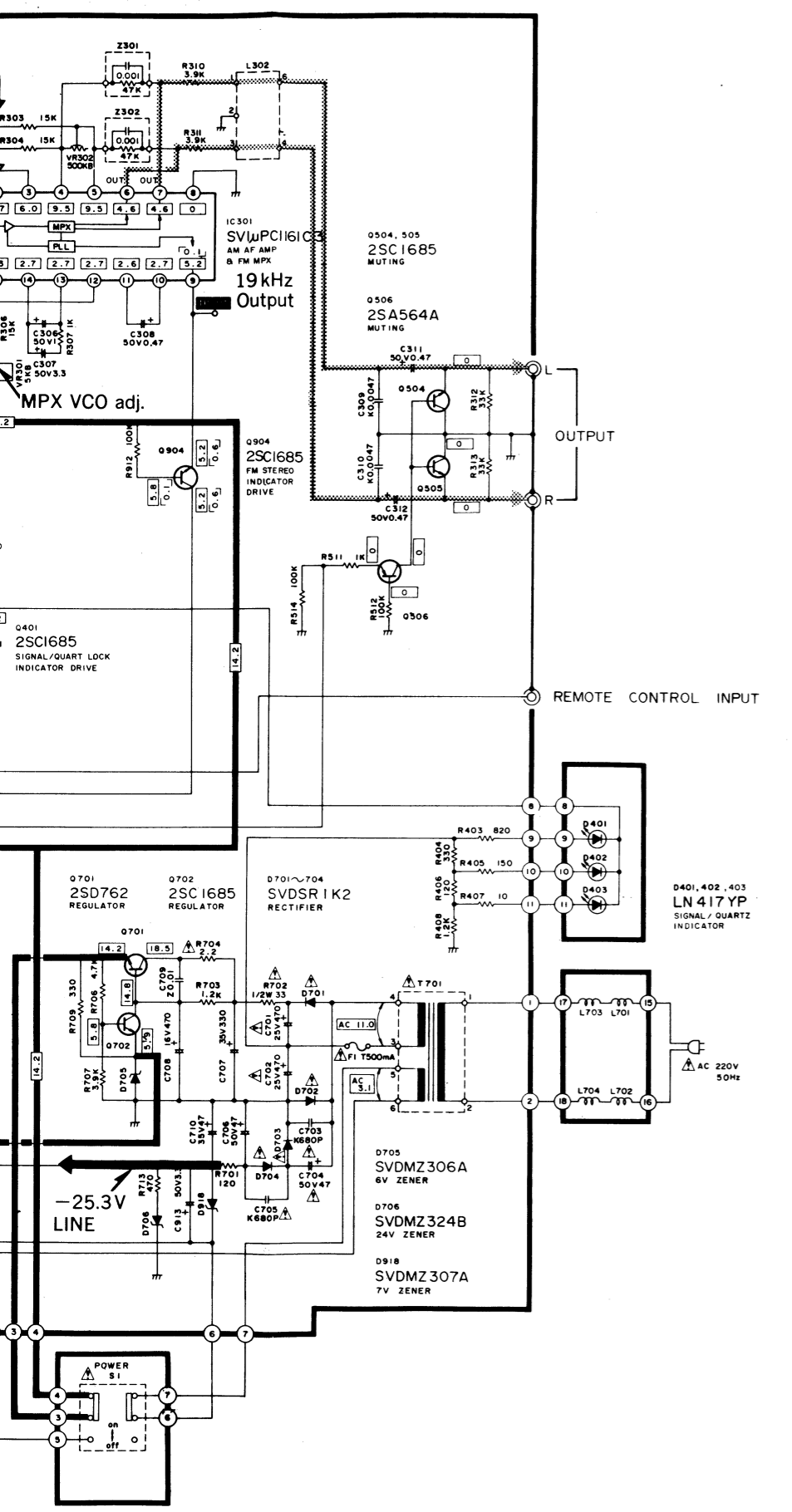


Fig. 11





**SCHEMATIC DIAGRAM**

(This schematic diagram may be modified at any time with the development of new technology.)

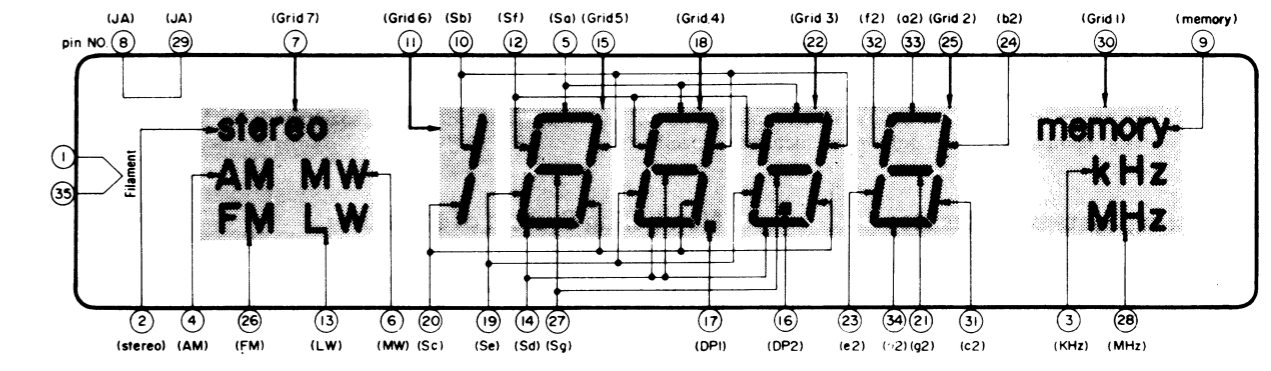
\* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement part list.

\* This is the basic circuit diagram of this unit. Note that part of the circuit is subject to change depending on the areas.

**Note 1:**

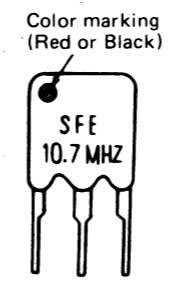
1. **S1** : Power source switch in "on" position.
2. **S3** : FM mode switch. (auto  $\leftrightarrow$  mono)
3. **S4** : Memory set switch. (manual  $\leftrightarrow$  auto memory)
4. **S5** : Tuning (down switch. (manual  $\leftrightarrow$  auto) [down : tuning to lower frequency])
5. **S6** : Tuning (up) switch. (manual  $\leftrightarrow$  auto) [up : tuning to higher frequency]
6. **S7 ~ S14** : Preset tuning switch.
  - \* With it lightly pushed (less than 0.4 sec.) and released, the 1 ~ 8 CH (front stations) are received.
  - \* With it continuously pushed (0.4 sec. or more) and released, the 9 ~ 16 CH (back stations) are received.
7. **S15** : FM selector switch.
8. **S16** : AM selector switch.
9. **S19** : FM frequency shift.
10. **S20** : AM allocation switch in "10 kHz step" position. 9 kHz  $\leftrightarrow$  10 kHz step
11. 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.
  - \* Figures in  $\square$  stand for DC voltage in FM signal (no signal) reception mode.
  - \* Figures in  $\square$  stand for DC voltage in FM stereo signal reception mode.
  - \* Figures in ( ) stand for DC voltage in AM signal reception mode.
12. Positive voltage lines AM signal lines FM signal FM IF AM signal AM IF
13. Important safety notice. Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

**Fluorescent Display Tube (FL)**



**Note 2:**

**Use of ceramic filters in pairs**  
The ceramic filters (CF101 and 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 (D902) for use as different diodes must be used depending on each rank of the ceramic filters.



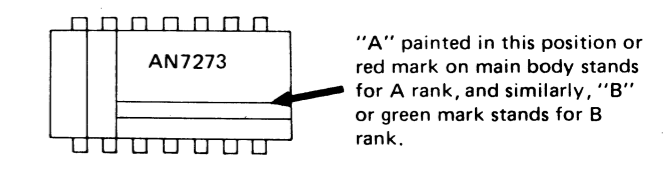
RANK (Color)	D902	CENTER FREQUENCY
Black	O	10.65 MHz
Red	X	10.70 MHz

Note: O Mark Diode is used.  
X Mark Diode is not used.

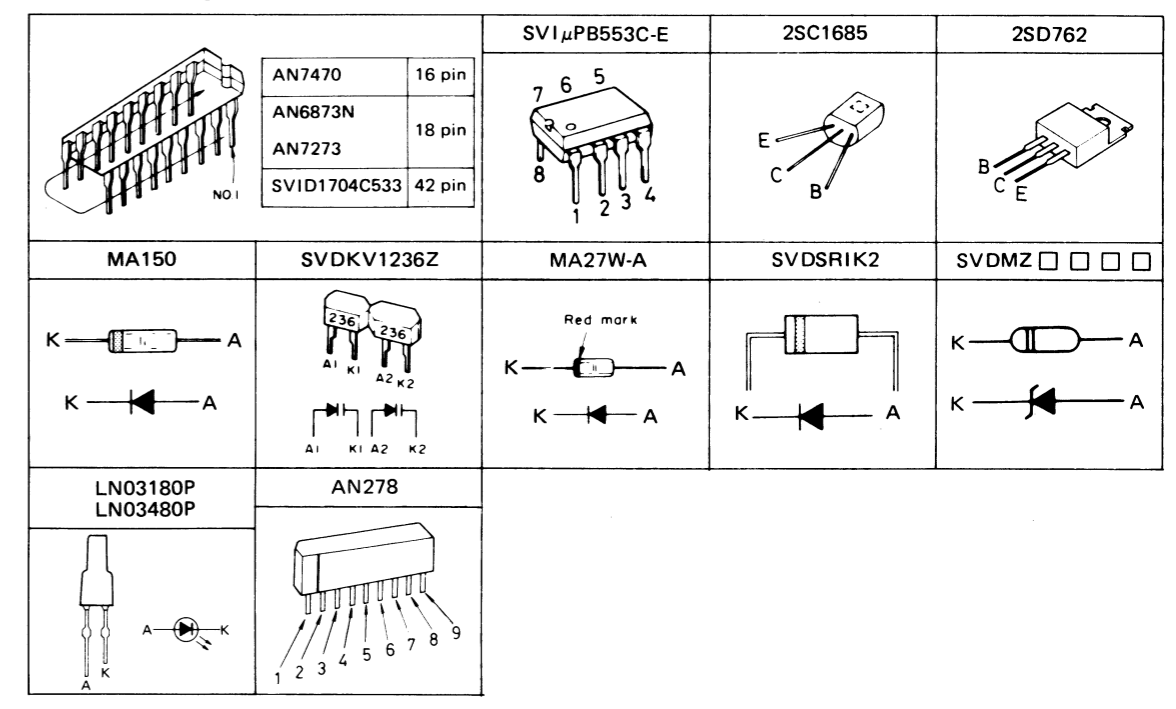
**Note 3:**

AN 7273 (IC102) is available in A rank (AN7273A) and B rank (AN7273B). Either rank can be used for this unit, but the suitable resistor must be used according to the rank as shown in the table below. So, keep this point in mind when repairing or replacing the unit.

RANK	A	B
	Ref. No.	
R103	1k $\Omega$	560 $\Omega$



**Terminal guide of transistors, IC's and diodes**







## EXPLODED VIEW

use for both  
and may differ  
of description

Description	Quantity
<b>PARTS</b>	
C Cord	(1)
Rear Panel	(1)
Foot	(4)
Spacer, Switch	(1)
Terminal Board	(1)
Bracket	(1)
Shield Cover	(1)
Pushing	(1)
Bracket	(1)
Spring, Terminal Board	(1)
Plug, Ass'y	(1)
Wiring, $\pm 3 \times 8$	(12)
Wiring, $\pm 3 \times 8$	(4)
Wiring, $\pm 3 \times 6$	(2)
Wiring, $\pm 3 \times 8$	(1)
Wiring, $\pm 3 \times 16$	(1)
Wiring with Detent, $\pm 3 \times 8$	(4)
Wiring (Silver)	(4)
Wiring (Black)	(4)
Wiring, $\pm 3 \times 10$	(2)
Wiring, $\pm 3 \times 6$	(3)
Wiring with Detent, $\pm 3 \times 8$	(1)
Spring, $\phi 3$	(2)
Pin, $\phi 3$	(4)
Pin	(1)
Board	(1)
Board, FM Indoor	(1)
Antenna	(1)
Top Antenna	(1)
Wire	(2)
Holder	(1)
Holder	(1)
Instruction Book	(1)
Polyethylene Bag	(1)
Polyethylene Bag	(1)
Panel, Front Side	(1)
Panel, Rear Side	(1)
Porton Box	(1)
Panel (Black only)	(2)

