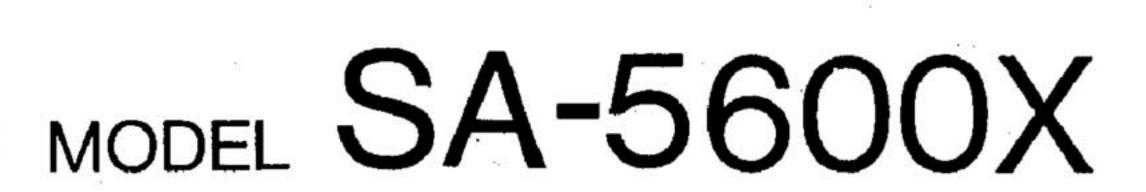
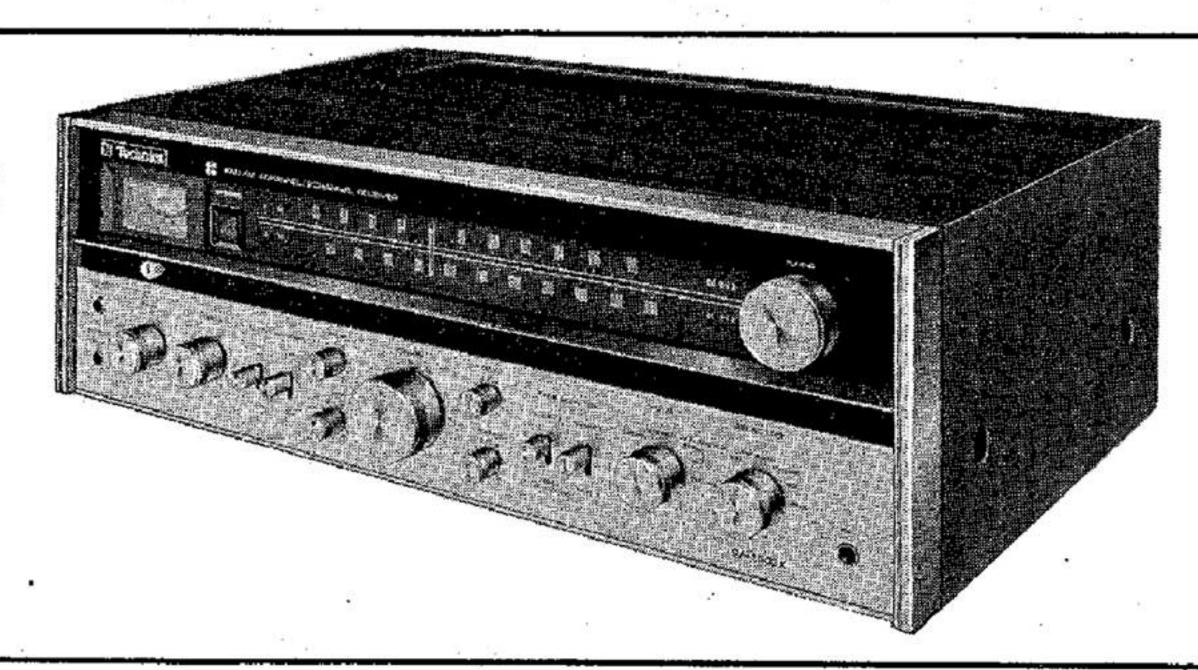
Service Manua HI-FI COMPONENTS (Components)





FM/AM 4 CHANNEL/2 CHANNEL RECEIVER





MONO

0.3%

TECHNICAL SPECIFICATIONS (IHF) Specifications are subject to change without notice for further improvement.

1	2006, 7.02. (1.0. 2007) (1.0. 7.0. 10. 10. 10. 10. 10. 10. 10. 10. 10.
 -	OFOTION
	SECTION
 -	5

Music p	ower:
	operation
	Balanced Tra

Transformeriess operation 1 kHz RMS (continuous) power:

4 CH operation (Each ch. driven)

(All ch. driven)

2 CH Balanced Transformeriess (Each ch. driven) (Both ch. driven) 20 Hz~20 kHz RMS (continuous) power:

4 CH operation all ch. driven 2 CH Balanced Transformerless operation Both ch. driven Power bandwidth (all ch. driven 8Ω): Frequency response: PHONO AUX

Residual hum & noise: Input sensitivity & impedance:

S/N (IHF, A): Tone control:

REC OUT: Damping factor: Load impedance:

Loudness control:

4 CH (4~16Ω)

AUX, PLAYBACK MIC PHONO AUX

BASS TREBLE

PHONO

Balanced Transformerless

108W (4 Ω) 108W (8 Q) 22.5W/22.5W/22.5W/22.5W (4 Ω)

15W/15W/15W/15W (8Ω) $14W + 14W + 14W + 14W (4\Omega)$ $11W + 11W + 11W + 11W (8\Omega)$

41W/41W (8Ω) $31W + 31W (8\Omega)$

 $8.5W + 8.5W + 8.5W + 8.5W (8\Omega)$ $25W + 25W (8\Omega)$ 7Hz~30kHz, -3dB RIAA standard curve ±1 dB

10Hz~50kHz, +0dB -3dB 1.5mV 2mV/50 k Ω.

180mV/40 k Ω $3mV/50k\Omega$ 70dB 90 dB

50 Hz, +10 dB -10 dB 10 kHz, +10 dB -10 dB 50 Hz, +10 dB 180mV 30 (8 \O)

(8~16 Q)

180mV

55dB

80dB

50dB

55dB

50 Hz +10dB

30 bei 8Ω

+10dB, -10dB bei 50Hz

+10dB, -10dB bei 10kHz

Total harmonic distortion: Intermodulation distortion:

FM TUNER SECTION Frequency range: FM sensitivity (IHF): Alternate channel selectivity: Harmonic distortion:

S/N: Frequency response: Image rejection (at 98 MHz): IF rejection (at 98 MHz):

Spurious response rejection (at 98 MHz): Capture ratio: AM suppression:

Stereo separation (at 1 kHz): Leak carrier (19 kHz, 38 kHz): AM TUNER SECTION Frequency range:

Sensitivity: Selectivity: Image rejection (at 1000 kHz): IF rejection (at 1000 kHz):

Power consumption: Power supply: Dimensions (WxHxD): Weight:

60dB 60 dB 1.8dB 50 dB 40dB 50 dB 520~1610 kHz 20 µV 25 dB 40dB 40dB

0.5% 0.7%

1.9 MV

65dB

0.4%

65dB

55 dB

270W

10.9 kg (24 lb.)

88~108 MHz

88~108MHz

STEREO

50/60 Hz 110/120/220/240V

430 ×146 ×385mm (16 1/6"×5 3/1" ×15 5/2")

20 Hz~13 kHz, ±1 dB

TECHNISCHE DATEN (DIN 45 500) Änderungen vorbehalten

VERSTÄRKERTEIL Musikleistung:

4-Kanal Betrieb $4\times27W$ (4 Ω) Transformatorlos Ausgeglichen Betrieb 2×54W (8Ω)

Nennleistung 1 kHz: 4-Kanal Betrieb Alle Kanäle in Betrieb $4\times14W$ (4 Ω) $4\times11W$ (8 Ω) Transformatorios Ausgeglichen Betrieb Beide Kanäle in Betrieb $2\times31W$ (8 Ω)

Nennleistung 20 Hz~20 kHz: 4-Kanal Betrieb Alle Kanäle in Betrieb $4\times8.5W(8\Omega)$ Transformatorios Ausgeglichen Betrieb Beide Kanäle in Betrieb 2×25W (8Ω) Klirrfaktor:

Nennleistung, bei 1000 Hz 4Ω 0.5% Nennleistung, bei $40\sim14000\,\mathrm{Hz}\,4\Omega$ 3.0% 10Hz~25kHz -3dB Leistungsbandbreite (Alle Kanäle in Betrieb 4Ω): 10Hz~50kHz, -3dB Frequenzgang: Eingangs-Empfindlichkeit und-Impedanz: PHONO $2mV/50k\Omega$ AUX 180mV/40kΩ MIC $3mV/50k\Omega$ Tonband-Cinchbuches: **PLAYBACK** 180mV/40kΩ

Fremdspannungsabstand: bei Nennleistung bei 50 mW Ausgangsleistung

Klangregler: Tiefen-Bereich Höhen-Bereich

Loudness-Regler: Dampfungsfaktor: Ausgänge Lautsprecher: 4-Kanal Betrieb

Transformatorios Ausgeglichen Betrieb

REC OUT

PHONO

PHONO

AUX

AUX

FM TUNERTEIL Empfangsbereich:

GENERAL

Antennenanschluß:

Klirrfaktor (bei =40 kHz Hub):

Selektivität bei 400 kHz: Spiegelselektion (bei 98 MHz): ZF-Festigkeit (bei 98 MHz): Verzerrungsfestigkert (bei 98 MHz): Gleich wellen-Selektion: AM-Unterdrückung:

Fremdspannungsabstand:

Stereo-Übersprechdämpfung: Pilotton-Unterdrückung: Begrenzung, Einsatzpunkt: Bandbreite: ZF-Verstärker **UKW-Demodulator**

Empfangsbereich: Empfindlichkeit: Selektivität: Spiegelselektion: ZF-Festigkeit:

AM TUNERTEIL

ALLGEMEINS

Leistungsaufnahme: Netzspannung umschaltbar: 4~16Ω Abmessungen (B×H×T): 8~16Ω Gewicht:

 300Ω (symmetrisch) 75Ω (unsymmetrisch)

Empfindlichkeit (bei ±40 kHz Hub): 1.8 μV, 30 dB Fremdspannungsabstand 300 Ω 1.5 μV. 20dB Fremdspannungsabstand 300 Ω 1.0 μV, 20dB Fremdspannungsabstand 75 Ω MONO 0.3%

STEREO 0.7% MONO 52dB STEREO 50dB 65dB 55dB 60dB 60dB 1.8dB 50dB 40dB bei 1kHz 48dB bei 19kHz, 58dB bei 38kHz 1.2 µV 350 kHz

700 kHz 520~1610 kHz 20 µV 25dB 40dB

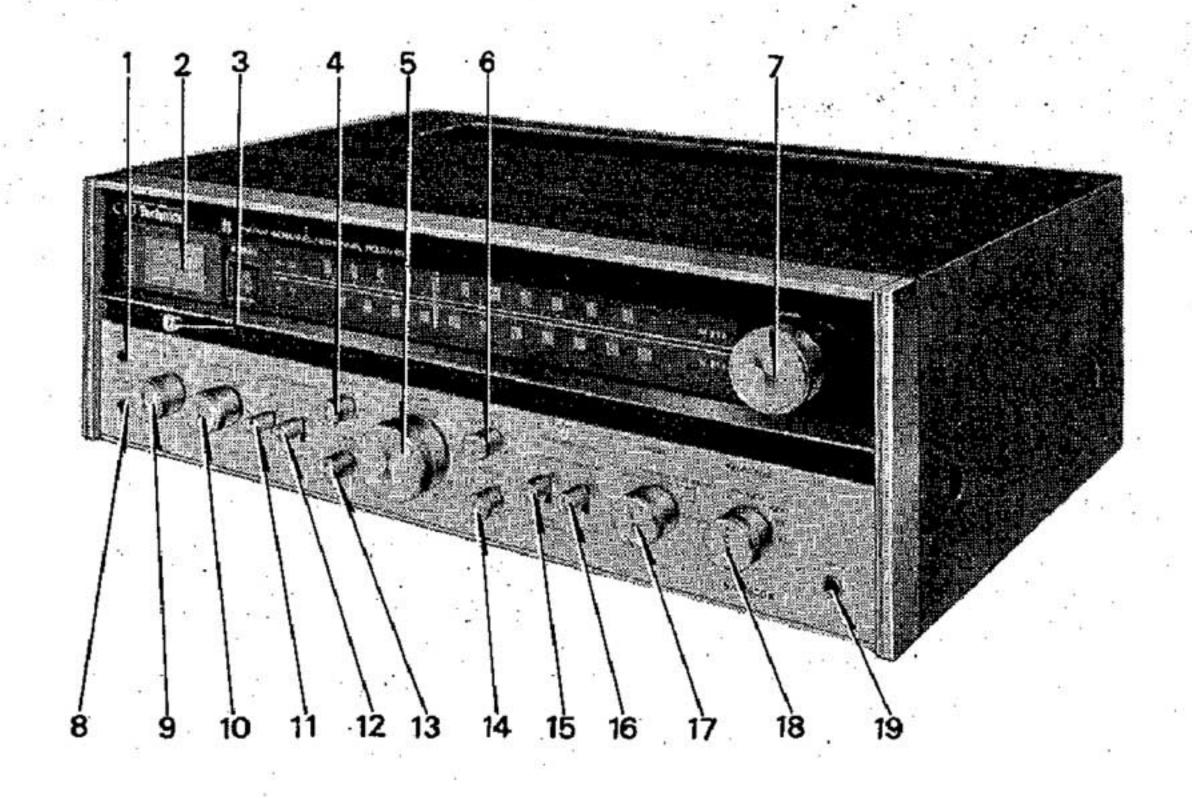
270W .50/60 Hz, 110/120/220/240 V 430×146×385mm 10.9 kg

MATSUSHITA ELECTRIC MATSUSHITA ELECTRIC TRADING CO., LTD.

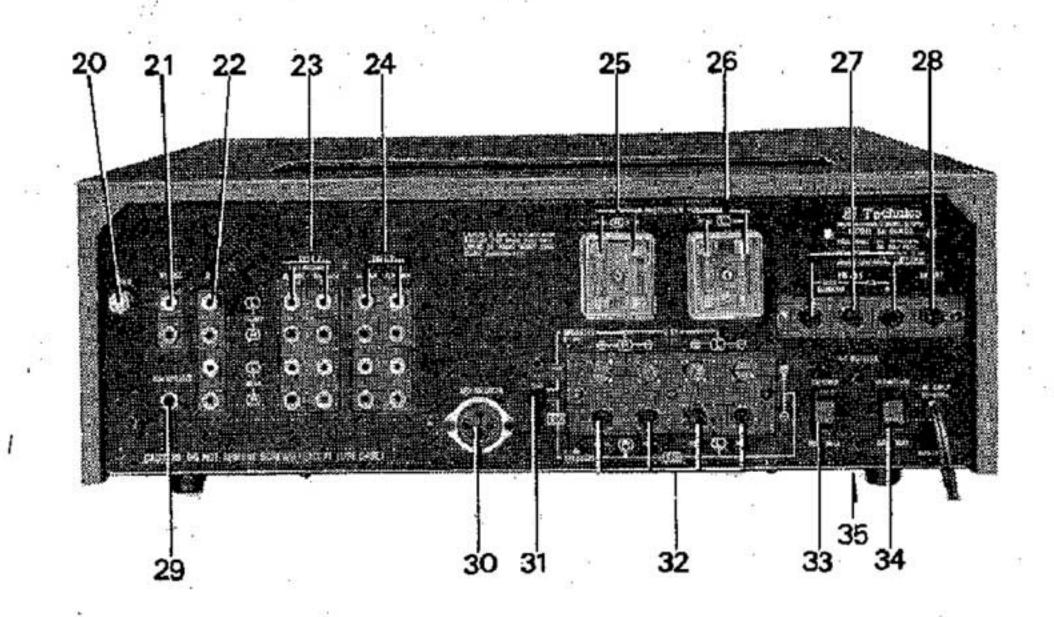
P. O. Box 288, Central Osaka, Japan

40dB

LOCATION OF CONTROLS



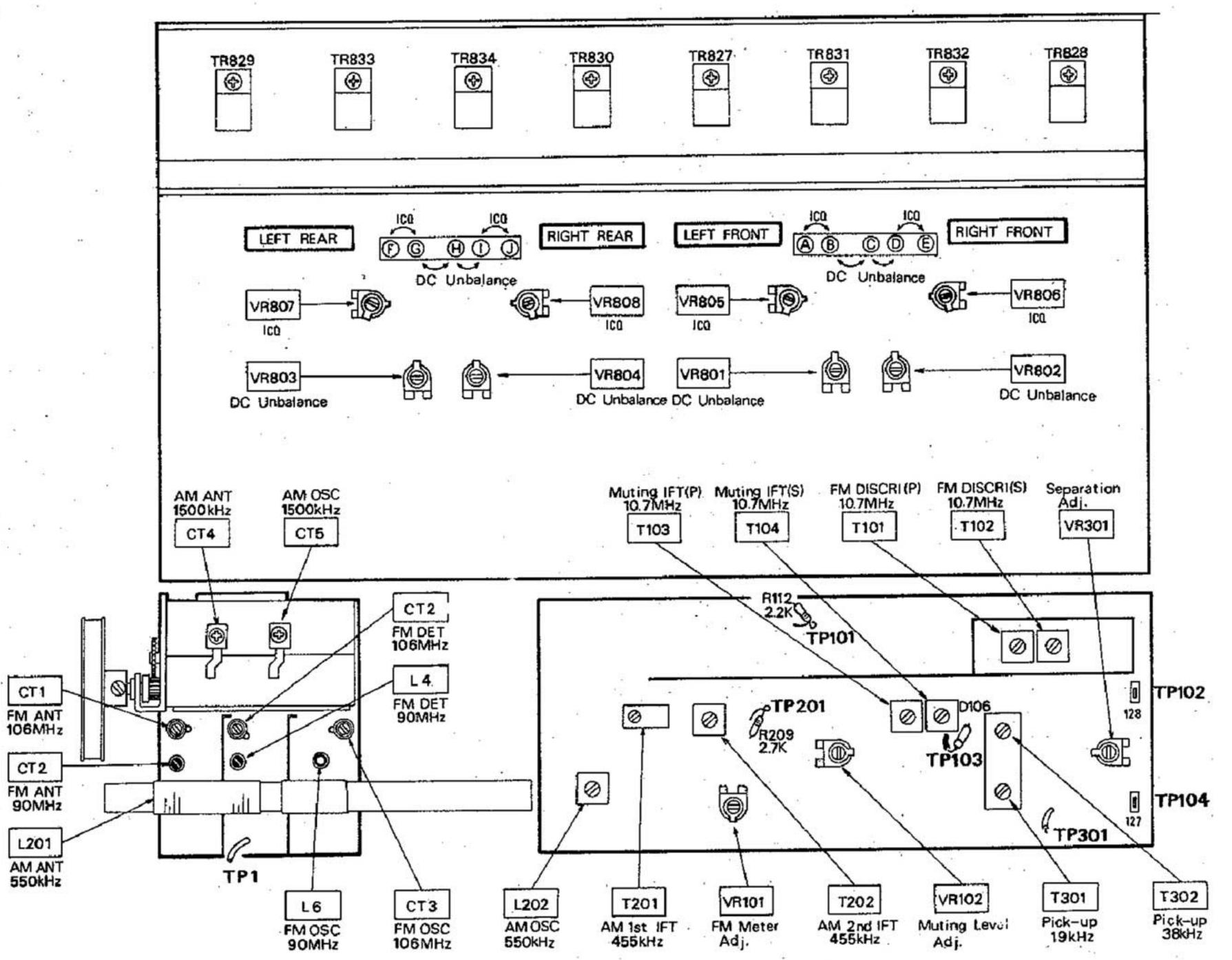
- HEADPHONES JACK Front Channel
 SIGNAL STRENGTH METER
 POWER SOURCE SWITCH (S901)
 LEFT FRONT LEVEL CONTROL (VR601)
 MAIN VOLUME CONTROL (VR701)
 RIGHT FRONT LEVEL CONTROL (VR602) TUNING CONTROL
 HEADPHONES JACK Rear Channel BASS CONTROL (VR703) MUTING SWITCH (S101) 13. LEFT REAR LEVEL CONTROL (VR603)
 14. RIGHT REAR LEVEL CONTROL (VR604)
 15. 4CH TAPE MONITOR SWITCH TAPE 1 (S403)
 16. 4CH TAPE MONITOR SWITCH TAPE 2 (S404)
 17. MODE SWITCH (S402)
 18. SELECTOR SWITCH (S401)
- 20. GROUND TERMINAL 21. PHONO INPUT TERMINALS 2 Channel AUX INPUT TERMINALS 4 Channel E BALANCER CONNECTION SOCKET TRANSFORMER LESS SWITCH (S801) AC POWER OUTLET Switched AC POWER OUTLET Unswitched VOLTAGE SELECTOR SWITCH (S902)



19. MICROPHONE JACK

ALIGNMENT INSTRUCTIONS

Alignment Points



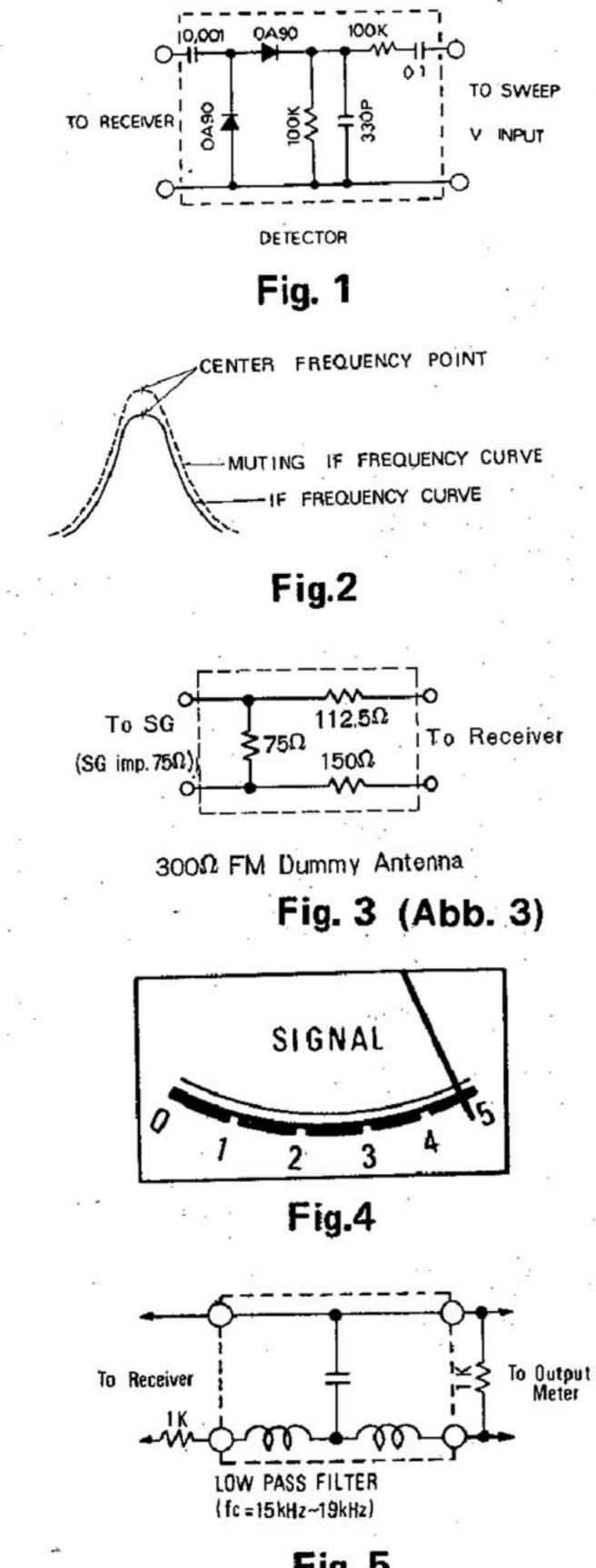



Fig. 5

	ALIGNMENT INSTRUCTIONSREAD CAREFULLY BEFORE ATTEMPTING ALIGNMENT								
	Notes: 1. Volume control								
	CIRCUIT		VTVM CONNECTION	ADJUSTMENT POINTS		NTS	REMARKS		
	MAIN AMP ALIGNMENT								
1	DC Unbalance -	Connect DC VTVM (L-Front) terminal. Connect DC VTVM (L-Rear) terminal.		VR802 (R-Front) VR801 (L-Front) VR804 (R-Rear) VR803 (L-Rear)		Make sure that DC VTVM becomes 0mV.			
2	lcq -	Connect DC VTVM (L-Front) terminal. Connect DC VTVM (L-Rear) terminal.		VR806 (R-Front) VR805 (L-Front) VR808 (R-Rear) VR807 (L-Rear) VR807 (L-Rear)		ts so that the indication comes 4 mV.			
	Notes: 1. Volume control							rce reo	
	SIGNAL GENE SWEEP GENI	ERATOR	RECEIVER DIAL SETTING (DISTANCE)	INDICATOR		ADJUSTMENT POINTS		REMARKS	
	CONNECTION	FREQUENCY	(DISTANCE)	<u> </u>	or SCOPE)				
3	High side through 0.001 µF to antenna terminal, Common to chassis.	455 kHz	Point of non-inter- ference	Connect vert. an		T201 (1st	7. PCB. 19 . 1	Adjust for maximum output.	
4	Fashion loop of several turns of wire and radiate signal into loop of receiver	(30% MOd.	550 kHz (5.5mm (¾″))	Connect meter to of set.	nnect meter to speakers terminal set.		C Coil) T Coil)	Adjust for maximum output. Adjust L201 by moving coil bobbin along ferrite core.	
5	Fashion loop of several turns of wire and radiate signal into loop of receiver	with 400 Hz)	1500 kHz (157.2mm (63/6"))	Connect meter to speakers terminal of set.		CT5 (OSC Trimmer) CT4 (ANT Trimmer)		Adjust for maximum output. Repeat steps (4) and (5).	
				FM-IF ALIG	NMENT	1			
6			Point of non-inter- ference.	Connect DC VTV and TP104.	M between TP102	T102 (FM	DISCRI IFT) (S)	Make sure that VTVM becomes OV.	
7	High side through 0.001 µF to TP 1. Common to chassis	10.7 MHz (400kHz Sweep)	Point of non-inter- ference.	Connect vert. and detector to TP 10 Refer to figure 1				Confirm center frequency.	
В	High side through 0.001 µF to TP 1. Common to chassis.	10.7 MHz (400kHz Sweep)	Point of non-inter- ference.	Connect vert. am	p. of scope to		iting IFT) (P) iting IFT) (S)	Adjust for maximum sharp and proper linearity. Adjust to center frequency as step 7. Refer to figure 2.	
ĺ			1.4	FM-RF ALIG	NMENT				
9	Connect to FM antenna terminal through FM dumm antenna. (Refer to fig 3)	90 MHz (100% Mod. with 400 Hz)	90 MHz [20.7mm (27/32")]	Output meter acr terminals.	ross speaker	L6 (FM O L4 (FM D L2 (FM A	ET Coil)	Adjust for maximum output.	
,	Connect to FM antenna terminal through FM dummy antenna. (Refer to fig. 3)	106 MHz (100% Mod. with 400 Hz)	106 MHz [147.2mm (525/2")]	Output meter acr terminals.	oss speaker	CT2 (FM	OSC Trimmer) DET Trimmer) ANT Trimmer)	Adjust for maximum output. Repeat steps (9) and (10).	
	* Use six cornered a	alignment tool for a	ligning FM OSC coil (L6).				· · · · · · · · · · · · · · · · · · ·		
			MUT	ING LEVEL	ALIGNMENT				
	Note: Muting swi	tchON							
	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) Output 28 dB	98 M Hz	Output meter or speaker terminals	20170 F F F F F F F F F F F F F F F F F F F	VR102 (N	luting Level)	Adjust so that output can be obtained.	

	SIGNAL GENERATOR		RECEIVER DIAL	INDICATOR	R ADJUSTMENT POIN				
	CONNECTION	FREQUENCY	SETTING	(DISTORTION METER		REMARKS			
		FM-MONO DISTORTION ALIGNMENT							
	Note: Muting switch	Note: Muting switch OFF							
12	Connect to FM antenna terminal through FM dummy antenna.	98 MHz (100% Mod. with 400 Hz) Output 72 dB	98 MHz	Connect distortion meter to speaker terminals.	T101 (FM. DISCRI IFT)	(P) Adjust for minimum distortion.			
		SIGNAL METER ALIGNMENT							
13	Connect to FM 98 MHz (30% Mod. through FM dummy antenna. (30% Mod. with 400 Hz) Output 72 dB		Signal meter of set.	VR101 (Indicated Posit	ion) Refer to fig. 4.				
	1. Band selector								
3	19 kHz COIL and PHASE ALIGNMENT								
*0			REO MODULATOR DE and MOD. RATE	(VTVM or SCOPE)	ADJUSTMENT POINTS	REMARKS			
4	FM antenna terminal to dummy antenna.	A antenna terminal through mmy antenna. Pilot signal to ON.		Connect scope to TP 301, Common to chassis.	T301 (19 kHz Coil)	Adjust for maximum output.			
5	"	L	or R) 30% Mod.	Connect scope to speaker terminals.	T ₃₀₂ (38 kHz Coil) (Phase Alignment)	Adjust for minimum right (or left) output.			
	SEPARATION ALIGNMENT								
6	FM antenna terminal to dummy antenna.	hrough	(and R) 30% Mod.	Output meter across speaker terminals through low pass filter. (Refer to fig. 5)	VR 301 (Separation)	Adjust for minimum right (and left) output.			

■ FM-RF ALIGNMENT INSTRUCTIONS Only set for Germany

	ABGLEICHA	NWEISUNGEN	VOR DEM ABGLEICH SORGFÄLTIG DU	RCHLESEN				
MESSENDER		SKALENZEIGER- EINSTELLUNG DES	ANGEIGE	ABGLEICH	BEMERKUNGEN			
SCHALTUNG	FREQUENZ	EMPFÄNGERS (ABSTAND)						
	FM HF-ABGLEICH							
- Anschluß an den FM Antennenanschluß über die künstliche, FM Antenne. (Vgl. Abb. 3)	87.5 MHz (100% Mod. bei 400Hz)	87.5 MHz (0mm)	Output meter über Lautsprecher- schwingspule anschließen.	L ₆ (Oszillatorspule)	Auf max. Ausgang abgleichen.			
***	90 MHz (//)	90 MHz		L ₄ (Zwischenkreis) L ₂ (Antennenspule)				
*	106 MHz (//)	106 MHz (147.2 mm)		CT3 (OSZ: Trimmer) CT2 (DÉT. Trimmer) CT1 (ANT. Trimmer)	"			



- 1. S101: FM muting switch in "OFF" position. 2. S401-1~ S401-6: Selector switch in "AM" position.
- AM→FM AUTO→PHONO→MIC→AUX 3. S402-1~S402-8: Mode switch in "MONO" position. MONO STEREO MATRIX 1 (RM) MATRIX 2 **↔** 4CH DISCRETE
- 4. S403-1~S403-4: Tape monitor (TAPE 1) switch in "SOURCE" position.
- 5. S404-1~ S404-4: Tape monitor (TAPE 2) switch in "SOURCE" position.
- 6. S707-1, S701-2: Loudness switch (Only Front Channel) in "OFF" position.
- 7. S801-1, S801-2: Balanced transformer less switch in "4CH" position.
- 8. S901: Power source switch in "OFF" position.
- 9. S902-1 ~ S902-4: Voltage selector switch in "110V" position
- $110V \longrightarrow 120V \longrightarrow 220V \longrightarrow 240V$ 10. DC voltage measurements are taken with DC VTVM
- from chassis ground.
- FM/AM No signal condition FM stereo signal reception or FM muting to "ON" position.

VR101: FM Meter Adjustment

VR102: FM Muting Level Adjustment

VR301: Separation Adjustment VR601~VR604: Channel Level Control

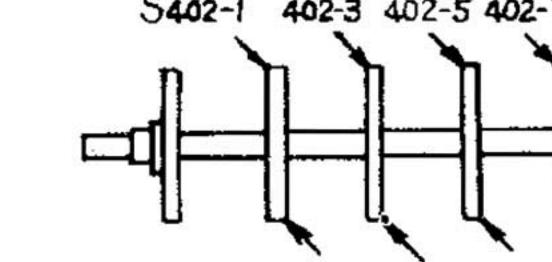
VR701-1~VR701-4: Main Volume Control

VR702-1, VR702-2: Treble Control (Only Front Channel) VR703-1, VR703-2: Bass Control (Only Front Channel)

VR801~VR804: DC Unbalance Adjustment

VR805~VR808: ICQ Adjustment





SELECTOR

