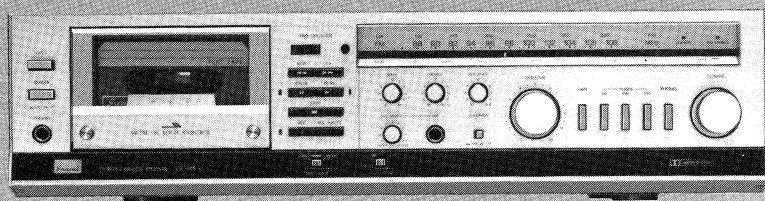


# SERVICE MANUAL

## STEREO CASSETTE RECEIVER

# SANSUI CR-M5/M5L



### • SPECIFICATIONS

#### Audio section

##### Power output

Min. RMS, both channels driven, from 40 to 20,000 Hz with no more than 0.2 % total harmonic distortion  
15 watts per channel into 8 ohms

##### Total harmonic distortion

..... less than 0.2 % at or below rated min. RMS power output

##### Frequency response (at 1 watt)

PHONO ..... 30 to 15,000 Hz,  $\pm 0.5$  dB

##### Input sensitivity and impedance (at 1 kHz)

PHONO ..... 2.5 mV/47 kilohms

##### Signal to noise ratio (short-circuit A-network)

PHONO ..... 73 dB

#### FM section

Tuning range ..... 88 to 108 MHz

##### Usable sensitivity

Mono IHF ..... 11.8 dBf (2.1  $\mu$ V)

DIN ..... 1.1  $\mu$ V

##### 50 dB quieting sensitivity

Stereo ..... 37 dBf

##### Signal to noise ratio (at 65 dBf)

Stereo ..... 68 dB

##### Distortion (at 65 dBf)

Stereo ..... less than 0.4 % at 1,000 Hz

Stereo separation ..... 40 dB at 1,000 Hz

#### AM section

##### Tuning range

MW ..... 530 to 1,605 kHz

SW ..... 3.9 to 12 MHz <CR-M5>

LW ..... 150 to 350 kHz <CR-M5L>

Usable sensitivity ..... 50 dB/m (300  $\mu$ V/m)

##### Signal to noise ratio

MW ..... 45 dB

#### Tape section

Track ..... 4-Track (2-Channel Stereo)

Wow and flutter ..... within 0.05 % WRMS

##### Frequency response (Record/Playback)

Normal Tape (LH) . . . 30 to 14,000 Hz

Metal Tape . . . . . 30 to 16,000 Hz

##### Signal to noise ratio (Record/Playback)

Metal Tape (With Dolby Noise Reduction)

..... better than 64 dB (above 5 kHz)

##### Input sensitivity (0 VU, 1,000 Hz)

MIC ..... 1.0 mV

LINE ..... 350 mV/47 kilohms

#### Others

Power voltage ..... 100/120/220/240 V (50/60 Hz)  
<CR-M5>

220/240 V (50/60 Hz) <CR-M5L>

For U.S.A. and Canada

..... 120 V (60 Hz)

Power consumption . . . 80 watts 95 VA Rated

110 watts Maximum

Dimensions . . . . . 440 mm (17-3/8") W

110 mm (4-3/8") H

344 mm (13-9/16") D

Weight . . . . . 7.1 kg (15.7 lbs.) net

8.1 kg (17.9 lbs.) packed

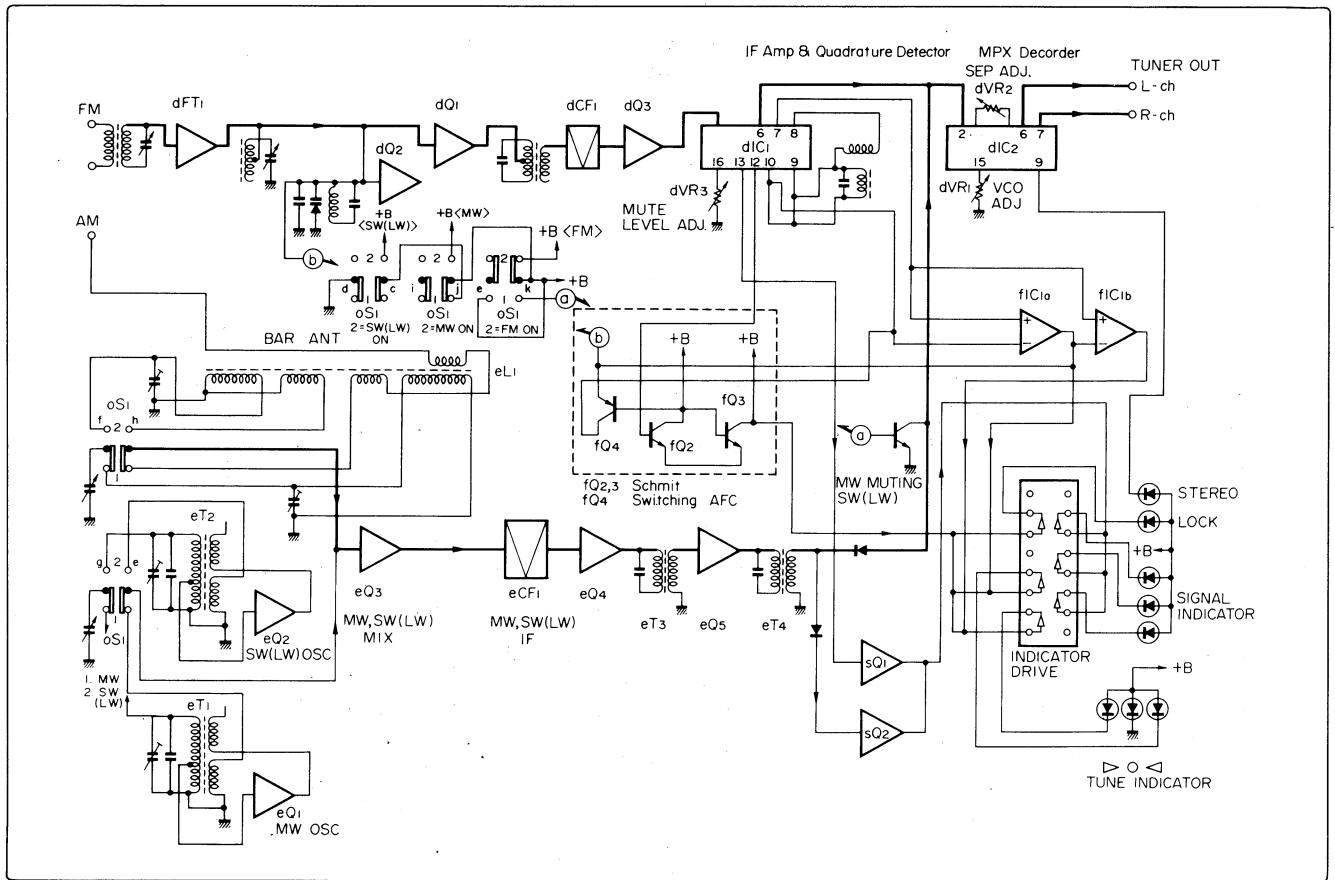
• The word "Dolby" is a trademark of Dolby Laboratories. This product is manufactured under the license from Dolby Laboratories.

\* Design and specifications subject to change without notice for improvements.

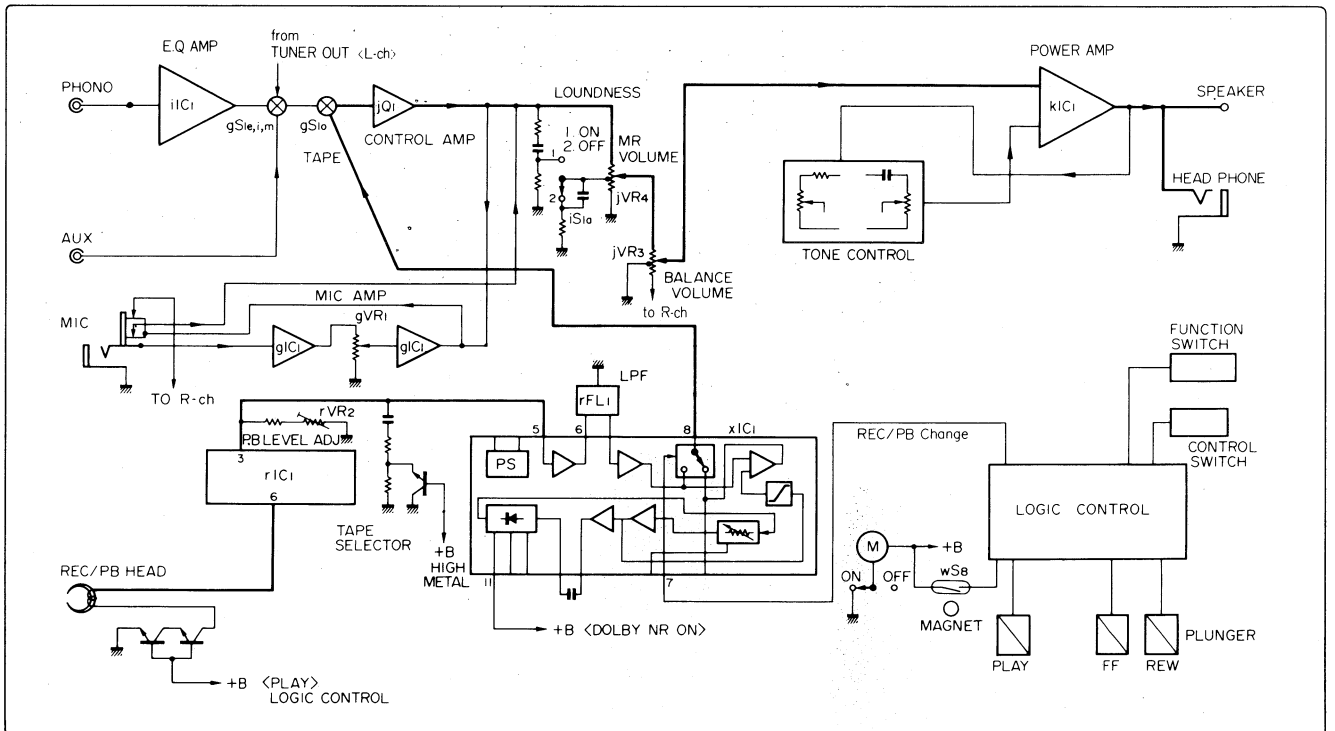
SANSUI ELECTRIC CO., LTD.

# 1. BLOCK DIAGRAM

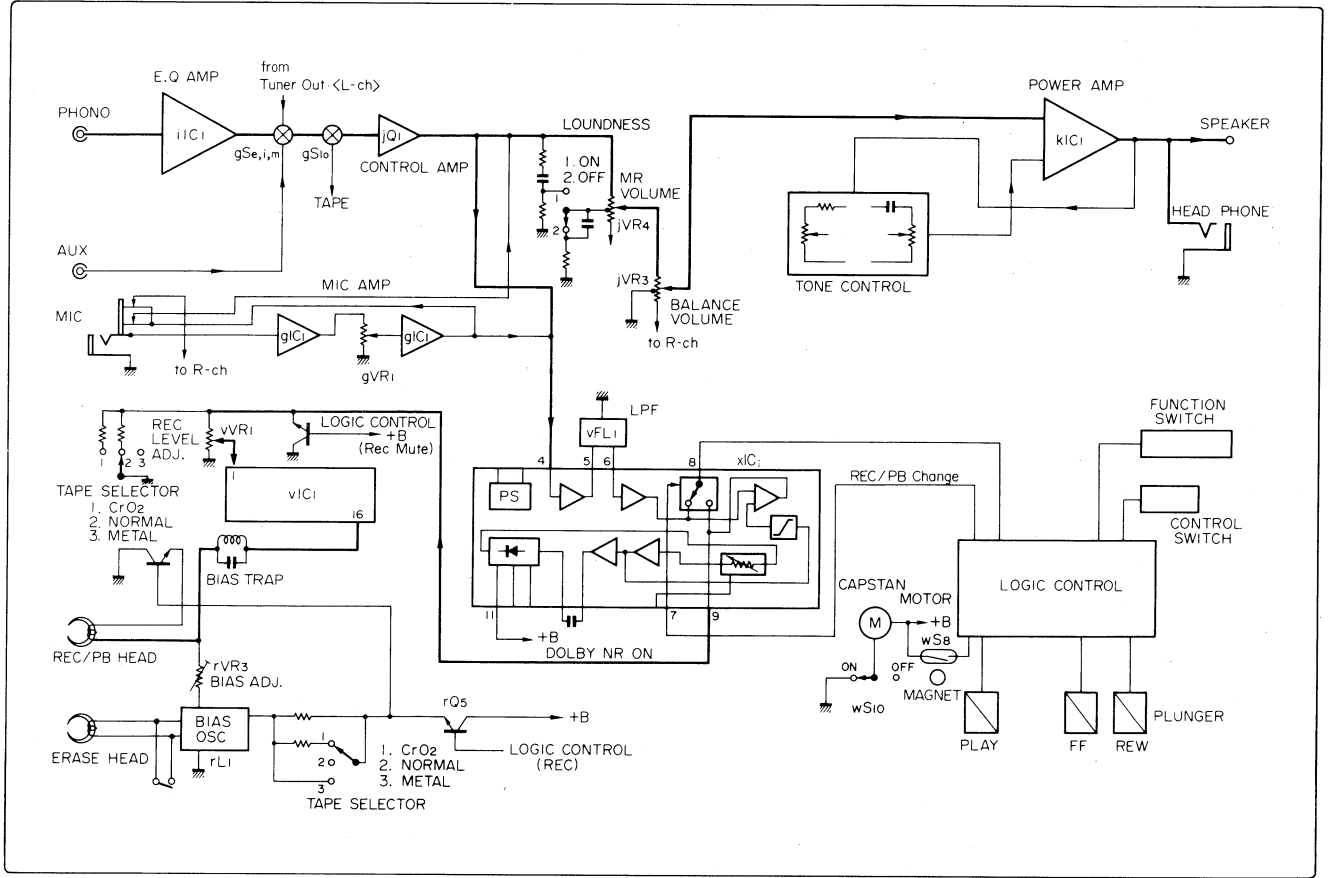
## 1-1. Tuner Section



## 1-2. Audio Section [Pre · Main Amp/Cassette (Play Operation)]

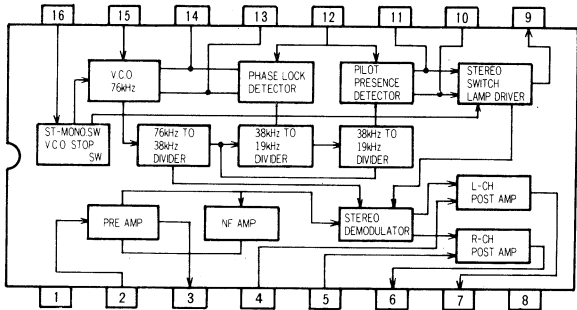


1-3. Audio Section [Pre · Main Amp/Cassette (Recording Operation)]

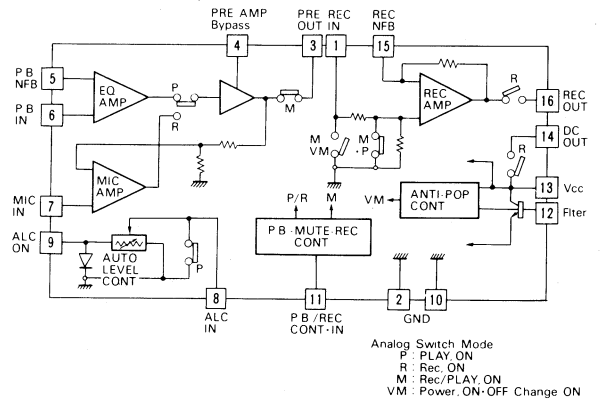


2. INTERIOR BLOCK DIAGRAM OF IC

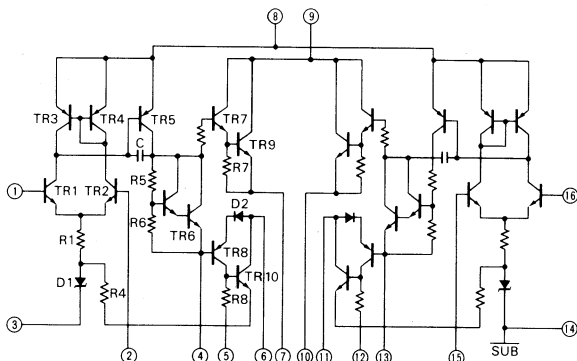
●  $\mu$ PC1161C (MPX Decoder IC)



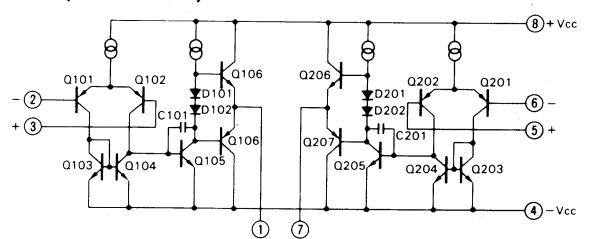
● BA5101 (PRE AMP)



● STK460 (AF · Power Amp)



● M5218L (PRE AMP)



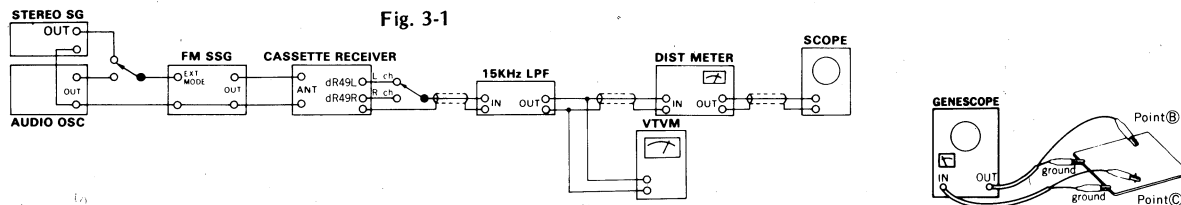
### 3. ADJUSTMENTS

#### 3-1. FM Adjustment (See Parts Location & Parts List on Page 7)

##### (1) FM IF, RF Adjustment and Dial Calibration

- Note: 1. Selector . . . . . FM  
 2. Muting . . . OFF [Between JW X(Point ⊗ ) & Earth]  
 (Between Pin No. 5 of dIC1 & Earth)]  
 3. AFC . . . OFF [Between JW 9 (Point ⊙ ) & Earth]  
 (fQ4 ON)]

Since the mechanism operations and electrical operations employed in CR-M5/M5L is similar to that of CR-M7, the explanation of these operations are omitted from this manual, therefore please refer to the page 2 ~ 5 on service manual of CR-M7.



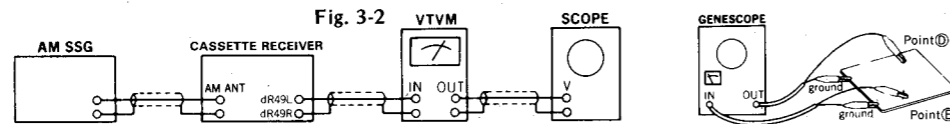
STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	IF Coil Adj.	98MHz ANT Input 20dBf (14.8dB), 1kHz (100% MOD.), FM SSG	ANT terminal 300Ω	Between Point (A) & Earth (dR28) DC Volt Meter	dT1	Max. DC Volt	
2.	Discriminator Coil Adj. In case of using Genescope	Output 90dB, Genescope	Point (B) (dTC3)	Between Point (C) & Earth (dR38)	dT2	Steep linearity of S curve. Make symmetrical S curve.	
	Discriminator Coil Adj. In case of using DC Volt Meter	① 98MHz ANT Input 13 dBf 1kHz (100% MOD.), FM SSG	ANT terminal 300Ω	dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	Tuning Knob	Max. Output	
		② 83MHz ANT Input 65dBf (59.8dB), 1kHz (100% MOD.), FM SSG	Same as above	Between Point (E) & Point (C) (dR34)	dT2	DC 0V ±30mV	Make symmetrical waveform.
3.	90MHz Dial Calibration	90MHz ANT Input 65dBf (59.8dB), 1kHz (100% MOD.), FM SSG	Same as above	dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	dL3	Max. Output	• Repeat procedures as stated in 3 and 4.
4.	106MHz Dial Calibration	106MHz ANT Input 65dBf (59.8dB), 1kHz (100% MOD.), FM SSG	Same as above	Same as above	dTC3	Same as above	
5.	90MHz RF Adj.	90MHz ANT Input Minimum value with sine wave 1000Hz (100% MOD.), FM SSG	Same as above	Same as above	dL1, dL2	Same as above	
6.	106MHz RF Adj.	106MHz ANT Input Minimum value with sine wave, 1000Hz (100% MOD.), FM SSG	Same as above	Same as above	dTC1, dTC2	Same as above	

(2) FM STEREO Adjustment

- Note: 1. Selector ..... FM  
 2. Muting . OFF [Between JW X (Point ⊗) & Earth. (Between Pin No. 5 of dIC1 & Earth)]  
 3. AFC . . OFF [Between JW9 (Point ⊙) & Earth. (fQ4 ON)]

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	PLL VCO Adj.	98MHz ANT Input 65dBf (59.8dB), FM SSG, Pilot 19kHz (9% MOD.), R or L MODE 1kHz + Pilot (100% MOD.), STEREO SG	ANT terminal 300Ω	Stereo indicator	dVR1	Light indicator	Adjust the VR within center of lighting level
	PLL VCO Adj. In case of using Freq.	98MHz ANT Input 65dBf (59.8dB), FM SSG, No MOD.	Same as above	Between dR44 Earth Freq. counter	dVR1	19kHz ± 50Hz	
2.	Separation Adj.	98MHz ANT Input 65dBf (59.8dB), FM SSG, Pilot 19kHz (9% MOD.), L MODE 1kHz + Pilot (100% MOD.), STEREO SG	Same as above	dR49L (L-ch) VTVM & SCOPE	—	Read this indication on VTVM	Confirm R → L-CH
				dR49R (R-ch) VTVM & SCOPE	dVR2	-40dB from the indication above.	
3.	Muting level Adj.	98MHz ANT Input 30dBf (24.8dB), FM SSG, Pilot 19kHz (9% MOD.), L or R MODE 1kHz + Pilot (100% MOD.), STEREO SG.	Same as above	Stereo indicator or dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	dVR3	Stereo indicator turns ON or Output Signal comes out	

3-2. AM Adjustment (See Parts Location & Parts List on Page 7)



(1) MW IF Adjustment & MW Dial Calibration

Note: BAND SELECTOR ..... MW

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	IF Coil Adj.	① Genescope Output 70dB	Point ①	Point ② (eR26)	eCF1	Shown right Waveform	
		② Same as above	Same as above	Same as above	eT3, eT4	Shown right Waveform	
2.	600kHz Dial Calibration	600kHz ANT Input 60dB 400Hz (30% MOD.) AM SSG	ANT terminal	Dial Pointer	Tuning Knob	600kHz	
				dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	eT1	Max. Output	
3.	1400kHz Dial Calibration	1400kHz ANT Input 60dB 400Hz (30% MOD.) AM SSG	ANT terminal	Dial Pointer	Tuning Knob	1400kHz	
				dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	eTC3	Max. Output	
4.	600kHz RF Adj.	600kHz ANT Input 30dB 400Hz (30% MOD.) AM SSG	ANT terminal	dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	Bar Antenna (eL1)	Max. Output	
5.	1400kHz RF Adj.	1400kHz ANT Input 30dB 400Hz (30% MOD.) AM SSG	ANT terminal	Same as above	eTC1	Max. Output	

(2) SW Dial Calibration <CR-M5>

Note: SELECTOR ..... SW

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	4MHz Dial Calibration	4MHz ANT Input 60dB 400Hz (MOD. 30%) AM SSG	AM ANT Terminal	Dial Pointer	Tuning Knob	4MHz	
				dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	eT2	Max. Output	
	12MHz Dial Calibration	12MHz ANT Input 60dB 400Hz (MOD. 30%) AM SSG	Same as above	Dial Pointer	Tuning Knob	12MHz	
				dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	eTC4	Max. Output	
2.	4MHz RF Adj.	4MHz ANT Input 30dB 400Hz (MOD. 30%) AM SSG	Same as above	dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	Bar Antenna (eL1)	Max. Output	
				12MHz RF Adj.	12MHz ANT Input 30dB 400Hz (MOD. 30%) AM SSG	Same as above	

(3) LW Dial Calibration <CR-M5L>

Note: SELECTOR ..... LW

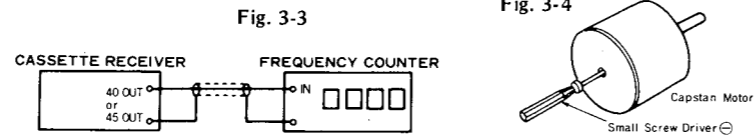
- LW Dial Calibration should be performed after MW Adjustment was.

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	170kHz Dial Calibration	170kHz ANT Input 60dB 400Hz (30% MOD.) AM SSG	ANT terminal	Dial Pointer	Tuning Knob	170kHz	
				dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	eT2	Max. Output	
2.	320kHz Dial Calibration	320kHz ANT Input 60dB 400Hz (30% MOD.) AM SSG	ANT terminal	Dial Pointer	Tuning Knob	320kHz (FM 105.5MHz)	
				dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	eTC4	Max. Output	
3.	170kHz RF Adj.	170kHz ANT Input 30dB 400Hz (30% MOD.) AM SSG	ANT terminal	dR49L (L-ch) or dR49R (R-ch) VTVM & SCOPE	Bar Antenna (eL1)	Max. Output	
4.	320kHz RF Adj.	320kHz ANT Input 30dB 400Hz (30% MOD.) AM SSG	ANT terminal	Same as above	eTC2	Max. Output	

3-3. Adjustment of Cassette Deck

1) Tape Speed Adjustment

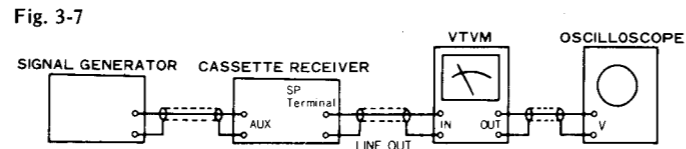
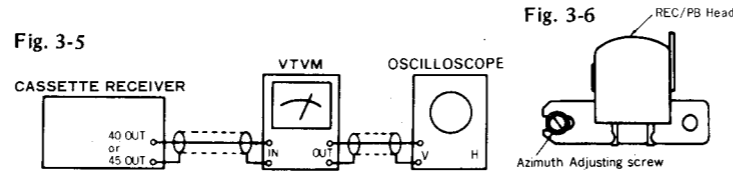
- Note: 1. Use Sansui Test Tape, SCT-S3K (3 kHz signals are recorded on the tape).  
2. Connections are shown in Fig. 3-3.



STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1.	TAPE SPEED Adj.	40 OUT (L-ch) or 45 OUT (R-ch) Frequency counter	Playback the TEST TAPE SCT-S3K.	Turn semi-variable resistor as Fig. 3-4.	3000Hz ± 45Hz	Use small screw driver. See Parts Location & Parts List on page 7.

2) Playback Adjustment

- Note: 1. Before this adjustment, clean REC/P.B. head surface.  
2. For this adjustment, use Sansui Test Tape, SCT-F10KN and SCT-L400N.  
3. Set the Dolby NR switch to be OFF.  
4. Connections are shown in Fig. 3-5 or 3-7 (In case of using SP terminal)

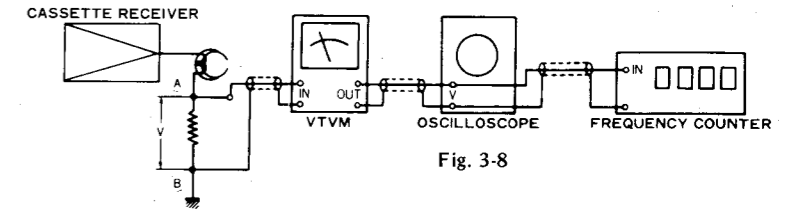


STEP	SUBJECT	INPUT SIGNAL	MEASURE OUTPUT	SETTING	ADJUSTMENT	REMARKS
1.	REC/P.B. Head Adj.	TEST TAPE SCT-F10KN	40 OUT (L-ch) or 45 OUT (R-ch) to OSCILLOSCOPE via VTVM	Playback the TEST TAPE SCT-F10KN	Adjust the azimuth adjusting screw Fig. 3-6 Max. Output on both channels.	After this adjustment, lock the screw with See Parts Location & Parts List on page 7.
2.	Playback Level Adj.	TEST TAPE SCT-L400N	Same as above	Set TAPE SELECTOR to NORMAL (LH) Position. Playback the TEST TAPE SCT-L400N.	Adjust the vVR2L (L-ch) or vVR2R (R-ch) for the reading of 580mV ± 2dB on VTVM.	See Top View on page 15.
	In case of using SP terminal	Feed 400Hz 500mV from S.G. into AUX IN TEST TAPE SCT-L400N	SP terminal to Oscilloscope via VTVM	Set TAPE SELECTOR to NORMAL (LH) Position. 1. Depress aux button. 2. Adjust the Master Volume for obtaining unclipping signal on oscilloscope. 3. Depress TAPE button, then playback the TEST TAPE SCT-L400N. 4. Confirm that both outputs between 400Hz-signal that of TEST TAPE are same level.	If not, adjust vVR2L (L-ch) or vVR2R (R-ch) Slightly until the output of test tape is the same level as that of 400Hz signal from S.G.	

3) Recording Adjustment

3)-1. Bias Adjustment

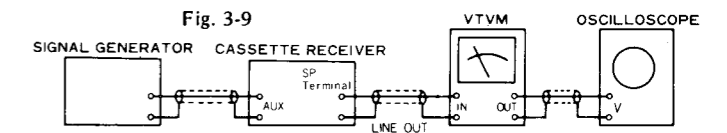
- Note: 1. For this adjustment, use Sansui Test Tape, SCT-SA.  
2. Set the Dolby NR Switch to be OFF.  
3. Connections are shown in Fig. 3-8.



STEP	SUBJECT	INPUT SIGNAL	MEASURE OUTPUT	SETTING	ADJUSTMENT	REMARKS
1.	Recording Bias Adj.	TEST TAPE SCT-SA	Between A & B points of earth vR7L (L-ch) and vR7R (R-ch). VTVM oscilloscope Frequency counter.	Lead the TEST TAPE SCT-SA Depress REC/PLAY and PAUSE buttons.  1. Set tape selector to METAL Position.  2. Set tape selector to CrO <sub>2</sub> position.  3. Set tape selector to NORMAL (LH) Position.	1. Adjust vVR3L (L-ch) and vVR3R (R-ch) for reading of 9.0mV between A & B in Fig. 3-8 on both channels.	See Top View page 15.  2. Confirm the indication on VTVM shows 5.0mV.  3. Confirm the indication on VTVM shows 3.0mV.
2.	Bias Frequency Check	Same as above	Same as above	Load the TEST TAPE SCT-SA Set tape selector to NORMAL (LH) Position.		Confirm that the Frequency Counter shows 85kHz ± 10kHz.

3)-2. Rec Level & Frequency Response Adjustment

- Note: 1. Connections are shown in Fig. 3-9.  
2. Set the Dolby NR switch to be OFF.



STEP	SUBJECT	INPUT SIGNAL	MEASURE OUTPUT	SETTING	ADJUSTMENT	REMARKS
1.	REC Level Adj.	Feed 1kHz 350mV from S.G. into AUX IN.	SP terminal to Oscilloscope via VTVM	Load the TEST TAPE SCT-SA Set TAPE SELECTOR to CrO <sub>2</sub> position. 1. Depress Aux button. 2. Adjust the Master Volume for obtaining unclipping signal on Oscilloscope. 3. Depress TAPE button then record the 1kHz signal. 4. Playback the 1kHz signal. 5. Confirm both outputs of the 1kHz signal and AUX. output will be same level.	If not, adjust vVR1L (L-ch) or vVR1R (R-ch) slightly until the output of recorded tape 1kHz is the same level as that of the signal 1kHz 350mV from S.G.	See Top View on page 15.

STEP	SUBJECT	INPUT SIGNAL	MEASURE OUTPUT	SETTING	ADJUSTMENT	REMARKS
2.	Frequency Response Adj.	Feed 10kHz 35mV (—20VU) from S.G. to into AUX IN.	SP terminal Oscilloscope via VTVM	Load the TEST TAPE SCT-SA Set TAPE SELECTOR to CrO <sub>2</sub> Position. 1. Depress Aux button. 2. Adjust the Master Volume for obtaining unclipping signal on oscilloscope. 3. Depress TAPE button then record the 10kHz signal. 4. Playback the 10kHz signal. 5. Confirm both, outputs the 10kHz signal and AUX output levels equal.	If not, adjust vVR3L (L-ch) or vVR3R (R-ch) slightly until the output of recorded tape 10kHz is the same level as that of the signal 10kHz 35mV from S.G.	

◆ List of Sansui Test Tape

Name of TEST TAPE	Recorded Frequency	Description
SCT-F40	40 Hz	Playback Frequency Response Check
SCT-F1K	1kHz	High Frequency Equalization Check
SCT-F10k	10 kHz	REC/PB Head Adjustment
SCT-L400N	400 Hz	Playback Level and Indicator Level Adjustment
SCT-S3K	3 kHz	Speed Check and Wow & Flutter Check
SCT-LH NORMAL (LH)		Recording Bias Adjustment
SCT-SA HIGH (CrO <sub>2</sub> )		REC/PB Level Adjustment
SCT-CS Fe-Cr		Frequency Response Check

◆ Tape Selector Position

NORMAL Position		HIGH Position	
FUJI	FL, FXI	FUJI	FX II
MAXELL	UL, UD, XLI	MAXELL	XL II
TDK	D, AD, OD	TDK	SA
SCOTCH	TARTAN CRYSTAL MASTER 120	SCOTCH	MASTER 70
SONY	AHF, BHF, CHF Low-Noise	SONY	JHF
		AGFA	STEREO CHROM
		BASF	SCR
		METAL Position	
AGFA	SUPER SUPER COLOR SUPER FERRO DYNAMIC	MAXELL	MX
		TDK	MA-R, MA
		SCOTCH	Metafine
BASF	LN Super LH I	SONY	METALLIC

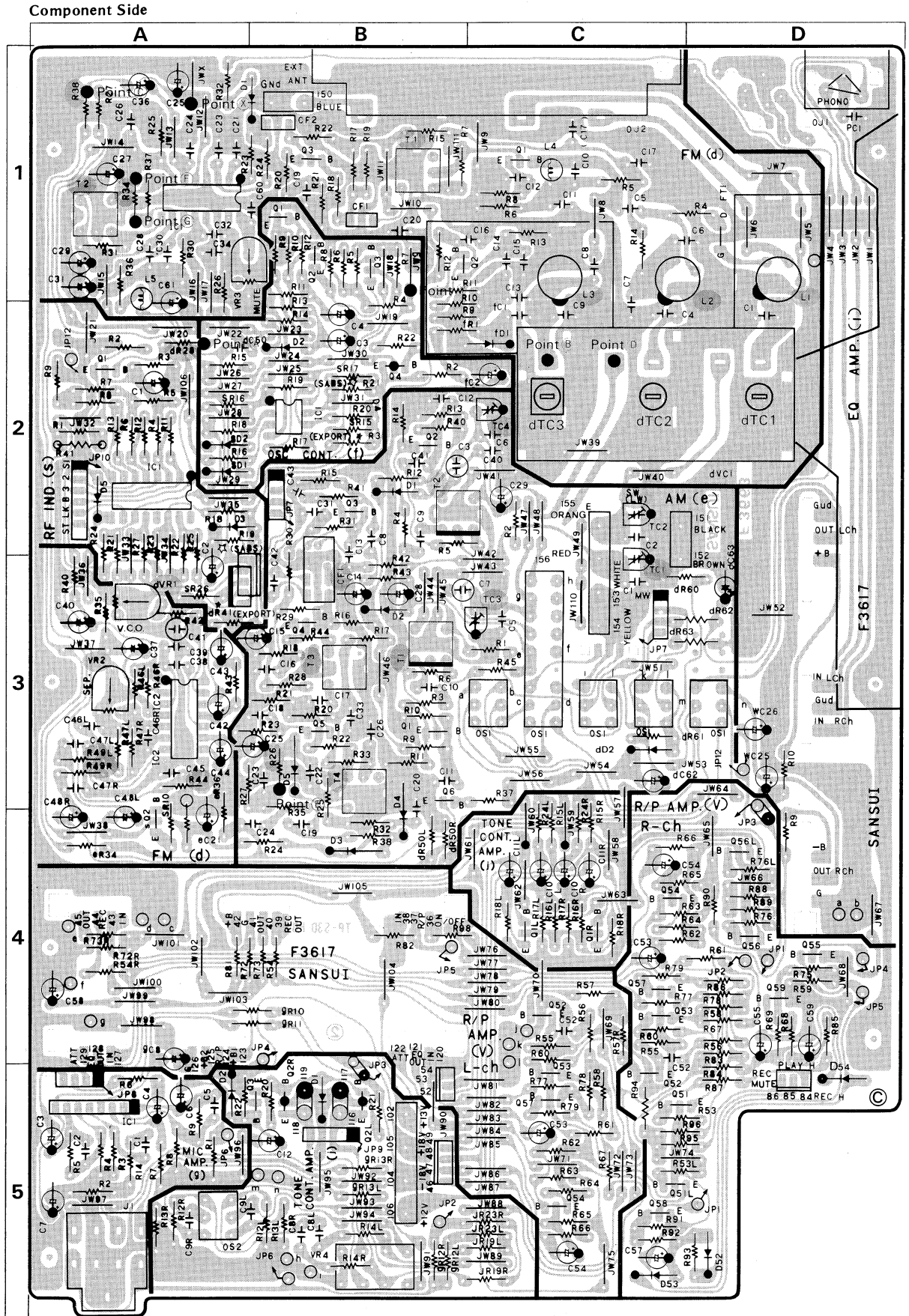
• Abbreviations

Equipment		Others	
AM FM Generator Oscilloscope	Genescope	Antenna	ANT.
AM Standard Signal Generator	AM SSG	Modulation	MOD.
FM Standard Signal Generator	FM SSG	Total Harmonic Distortion	T.H.D.
FM Stereo Generator	Stereo SG		
Oscilloscope	Scope		
Audio Oscillator	Audio Osc.		
Distortion Meter	Dist. Meter		

# 4. PARTS LOCATION & PARTS LIST

4-1. F-3617 Tuner Circuit Board (Stock No. 00654501 = CR-M5/00654505 = CR-M5L)

• Since some of capacitors and resistors are omitted from parts lists in this Service Manual, refer to the Common Parts List for capacitors & resistors, which was appended previously to Sansui Manual.





## Parts List

Parts No.	Stock No.	Description
•IC		
gIC	46147700	M5218L
•Transistor		
jQ1	07194801 or 03059501 or 03068301	2SC1815 2SC945 2SC2320
jQ2	07194701 or 07197001 or 03012701	2SA1015 2SA733A 2SA999
jQ3	07194801 or 03059501 or 03068301	2SC1815 2SC945 2SC2320
•Diode		
jD1	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
jD2	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
jC10	46034600	1 $\mu$ F 50V E.L.
jC11	46034800	2.2 $\mu$ F 50V E.L.
jVR4	46035600	Variable Resistor 150k $\Omega$ x 2 (B) Volume
•Transistor		
eQ1	03057901	2SC930
eQ2	03057901	2SC930
eQ3	03057901	2SC930
eQ4	03057901	2SC930
eQ5	03057901	2SC930
eQ6	03059501 or 07194801 or 03068301	2SC945 2SC1815 2SC2320
•Diode		
eD1	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
eD2	03117600 or 46086000 or 46092700	1S2473 1S1588 US1035
eD3	46078300 or 07225500	1K60LF 1N60
eD4	46078300 or 07225500	1K60 1N60
eD5	46078300 or 07225500	1K60 1N60
eC6	00396000	7pF 50V, C.C. <CR-M5>
eTC1	46095500 or 46162700	11pF Trimmer Capacitor 10pF Trimmer Capacitor
eTC2	46095500 or 46162700 46095600 or 46162800	11pF Trimmer Capacitor <CR-M5> 10pF Trimmer Capacitor <CR-M5> 20pF Trimmer Capacitor <CR-M5L> 20pF Trimmer Capacitor <CR-M5L>
eTC3	46095600 or 46162800	20pF Trimmer Capacitor 20pF Trimmer Capacitor
eTC4	46095500 or 46162700 46095600 or 46162800	11pF Trimmer Capacitor <CR-M5> 10pF Trimmer Capacitor <CR-M5> 20pF Trimmer Capacitor <CR-M5L> 20pF Trimmer Capacitor <CR-M5L>
eCF1	07250500	Ceramic Filter 455 kHz
eL1	46147500 46147300	Bar Antenna (MW/SW), <CR-M5> Bar Antenna (MW/LW), <CR-M5L>
eT1	42206300	AM OSC Coil
eT2	46147200 42206000	SW OSC Coil <CR-M5> LW OSC Coil <CR-M5L>
eT3	42306100	AM IF Coil
eT4	42305000	AM IF Coil
oS1	46134100	Push Switch, selector
oS6	07248101	Push Switch, loudness
oJ1	07249000	2P Terminal, phono
oJ2	46118200	4P Terminal, antenna

Parts No.	Stock No.	Description
oJ4	46133900	Mic Jack (with Switch)
•Transistor		
sQ1	03059501 or 07194801 or 03068301	2SC945 2SC1815 2SC2320
sQ2	03059501 or 07194801 or 03068301	2SC945 2SC1815 2SC2320
•IC		
sIC1	03611900	MSM4050RS
•Diode		
sD1	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
sD2	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
sD3	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
sD5	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
•Transistor		
vQ51	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
vQ52	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
vQ53	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
vQ54	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
vQ55	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
vQ56	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
vQ57	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
vQ58	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
vQ59	07194801 or 03068301 or 03059501	2SC1815 2SC2320 2SC945
•Diode		
vD52	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
vD53	03117600 or 46086000 or 46092700	1S2473D 1S1588 US1035
VC54	46034600	1 $\mu$ F 50V E.L.
•Transistor		
fQ1	03059501 or 07194801 or 03068301	2SC945 2SC1815 2SC2320
fQ2	03059501 or 07194801 or 03068301	2SC945 2SC1815 2SC2320
fQ3	03059501 or 07194801 or 03068301	2SC945 2SC1815 2SC2320
fQ4	07197001 or 03012701	2SA733A 2SA999
•IC		
fIC1	03607700	NJM4558D

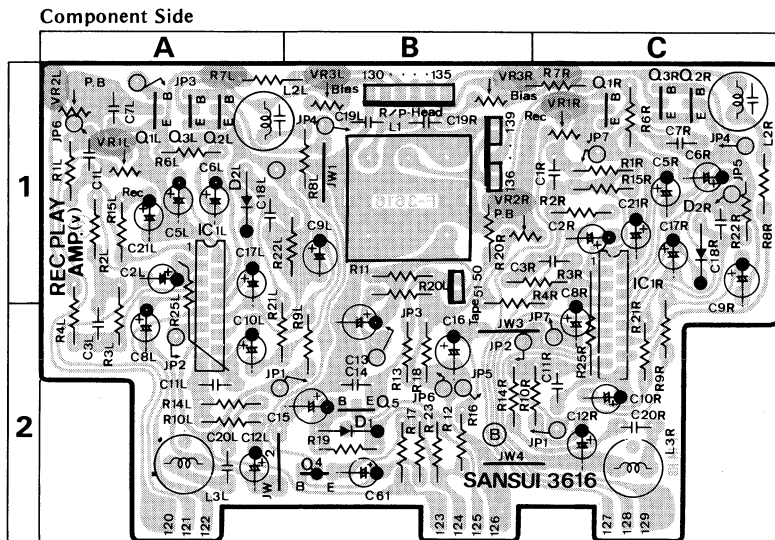
to be continued ▶

Parts List <F-3617>

Parts No.	Stock No.	Description
●Diode		
fD1	07299300	1S2236
fD2	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035
●Transistor		
dQ1	03063401	2SC1674
dQ2	03069501	2SC668
dQ3	03069501	2SC668
●FET		
dFT1	03703700	2SK 120-1
	or 03703701	2SK 120-2
●IC		
dIC1	46052600	μPC1208
dIC2	03609900	μPC1161C
●Diode		
dD1	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035

Parts No.	Stock No.	Description
dD2	03117600	1S2473D
	or 46086000	1S1588D
	or 46092700	US1035
dVC1	07224200	Variable Capacitor C752J413
dCF1	09106410	Ceramic Filter 10.7 MHz
dCF2	09106410	Ceramic Filter 10.7 MHz
dL1	42007200	FM RF Coil
dL2	42103400	FM RF Coil
dL3	42204000	FM OSC Coil
dL4	46174300	Peaking Coil 2.2μF
dL5	46174100	Peaking Coil 1.1μF
dT1	42359300	FM IF Coil
dT2	46077600	FM Detector Coil
dVR1	07218000	Semi Variable Resistor, 6.8kΩ (B), V.C.O. adj.
dVR2	07241700	Semi Variable Resistor, 200kΩ (B), S.E.P. adj.
dVR3	07241600	Semi Variable Resistor, 100kΩ (B), muting level adj.

4-2. F-3616 Play & Rec Amp Circuit Board (Stock No. 00654401 = CR-M5/M5L)

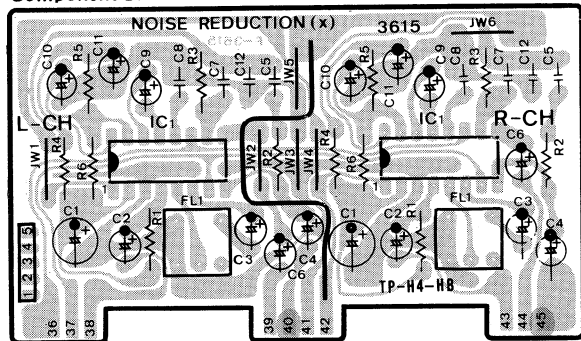


Parts List

Parts No.	Stock No.	Description
●Transistor		
vQ1	07194801	2SC1815
	or 03068301	2SC2320
	or 03059501	2SC945
vQ2	03067401	2SC1845
vQ3	03067401	2SC1845
vQ4	03010901	2SA992
	or 07299001	2SA970
	or 46056501	2SA1016
	or 46134200	2SD1111
●IC		
viC1	46128300	BA5101
●Diode		
vd2	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035
vc7	46137800	680pF 50V C.C.
vl1	46128700	Osc Block BO-31
vl2	42904400	Bias Trap
vl3	46090800	Coil 4.7mH
vvr1	07261900	Semi Variable Resistor 10kΩ, rec level adj.
vvr2	07239500	Semi Variable Resistor 100kΩ (B), P.B. level adj.
vvr3	07262200	Semi Variable Resistor 100kΩ (B), bias adj.

4-3. F-3615 Noise Reduction Circuit Board

Component Side (Stock No. 00654301 = CR-M5/M5L)

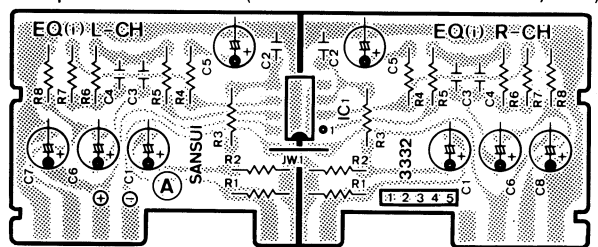


Parts List

Parts No.	Stock No.	Description
●IC		
xiC1	46128200	TA7629P
xFL1	46128800	Dolby Filter

4-4. F-3332 Equalizer Amp Circuit Board

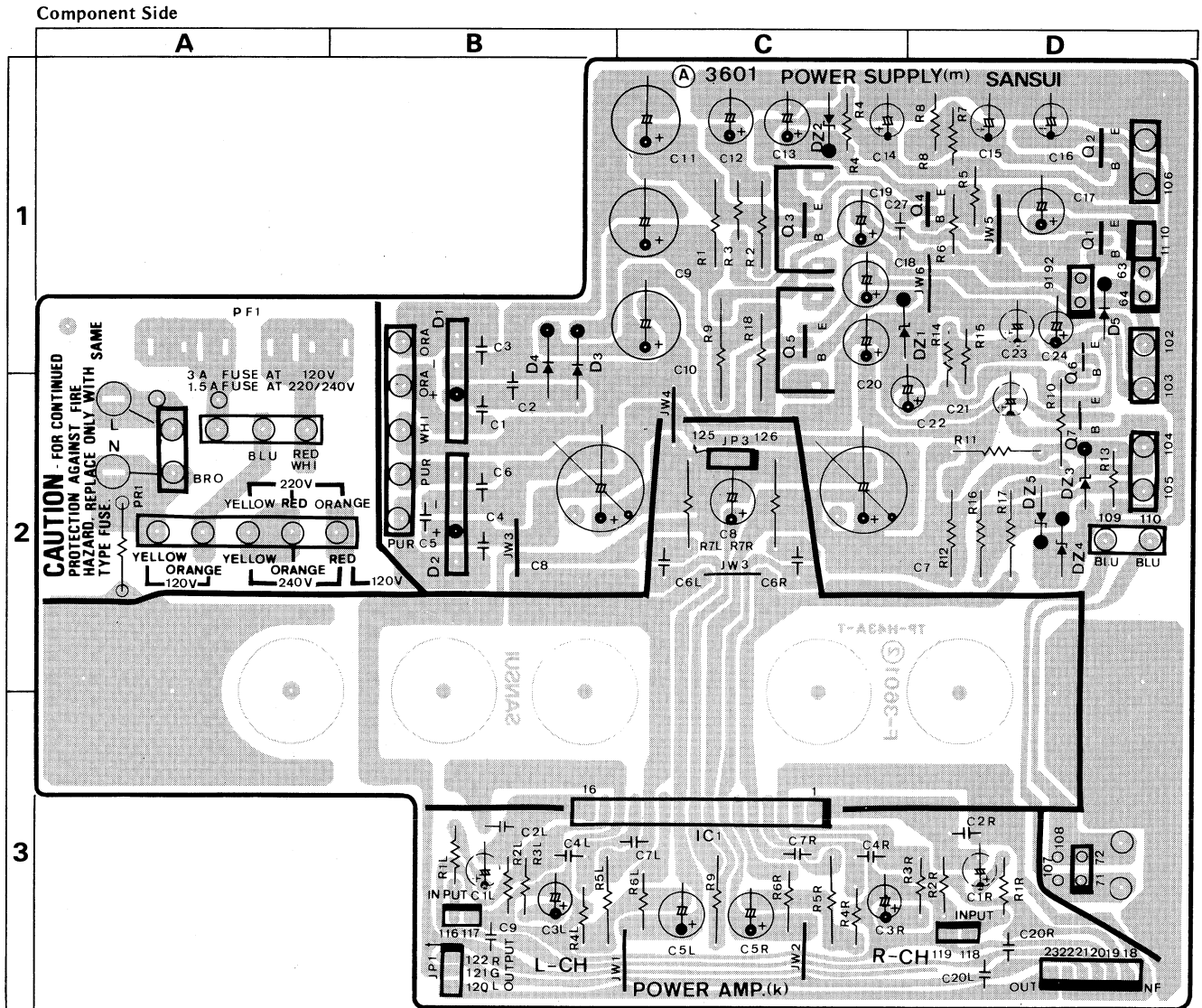
Component Side (Stock No. 00655301 = CR-M5/M5L)



Parts List

Parts No.	Stock No.	Description
●IC		
iiC1	07208900	NJM4558D-X
iC1	46034800	2.2μF 50V E.L.

4-5. F-3601 Power Amp & Power Supply Circuit Board (Stock No. 00653301 = CR-M5/M5L)

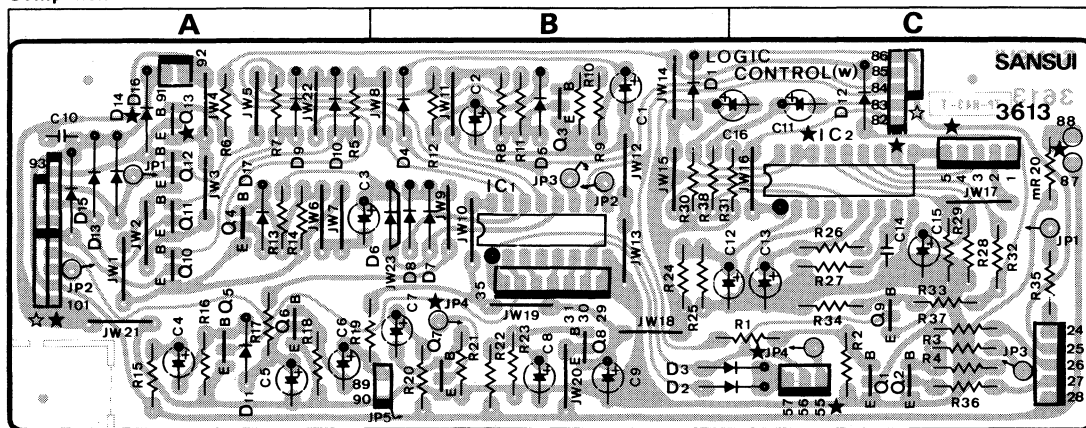


Parts List

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
●IC			●Zener Diode		
kIC1	46129400	STK460	mDZ1	03163300	RD15E-B
kR6	07253600	0.33Ω 5W Ce.R.	mDZ2	03164100	RD6.8E-B
●Transistor			mDZ4	03164500	RD18E-B
mQ3	07287101	2SD1147	mDZ5	03164500	RD18E-B
mQ4	07194801	2SC1815	mR1	00179600	12Ω 1W N.I.R.
	or 03068301	2SC2320	mC7	46147600	El. Capacitor 4700μF 35V
	or 03059501	2SC945	mC8	46147600	El. Capacitor 4700μF 35V
mQ5	03083901	2SD313AL	mPL1	04006600	Pilot Lamp 8V 150mA
●Diode			pF1	07188600	Fuse 2A 125V <CR-M5>
mD1	03117000	RB-152		07188500	Fuse 1.5A 250V <CR-M5>
mD2	03117000	RB-152		07184700	Fuse 1A 250V <CR-M5L>
mD3	03117700	10E-2			
mD4	03117700	10E-2			

4-6. F-3613 Mechanism Control Circuit Board (Stock No. 00654101 = CR-M5/M5L)

Component Side



Parts List

Parts No.	Stock No.	Description
•Transistor		
wQ1	07194801	2SC1815
	or 03068301	2SC2320
	or 03059501	2SC945
wQ2	07194801	2SC1815
	or 03068301	2SC2320
	or 03059501	2SC945
wQ5	07194801	2SC1815
	or 03068301	2SC2320
	or 03059501	2SC945
wQ6	07194801	2SC1815
	or 03068301	2SC2320
	or 03059501	2SC945
wQ8	03085201	2SD438
wQ10	46134200	2SD1111
wQ11	46134200	2SD1111
wQ12	46134200	2SD1111
•IC		
wIC1	46129200	M54410P
	or 46129300	BA843

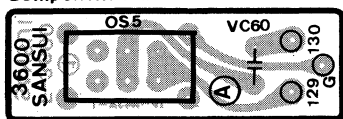
Parts No.	Stock No.	Description
•Diode		
wD1	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035
wD7	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035
wD8	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035
wD9	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035
wD10	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035
wD11	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035
wD13	03117700	10E-2
wD14	03117700	10E-2
wD15	03117700	10E-2
wD17	03117600	1S2473D
	or 46086000	1S1588
	or 46092700	US1035

• Note: The circuit boards, F-3600, F-3602, F-3603, F-3604, F-3609, F-3610, F-3612, F-3614, F-3618, F-3619 & F-3620 are not supplied as the assembled. However, the individual parts on the circuit board are provided by orders.

4-7. F-3600 Beat Cancel Switch Circuit Board

(CR-M5/M5L)

Component Side

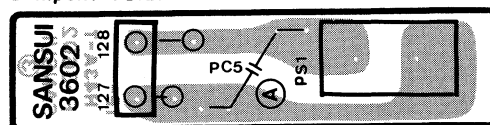


Parts List

Parts No.	Stock No.	Description
oS5	11102800	Slide Switch, beat cancel

4-8. F-3602 Power Switch Circuit Board (CR-M5/M5L)

Component Side



Parts List

Parts No.	Stock No.	Description
pC5	07269400	0.033μF 300V M.P. <CR-M5>
	07195800	0.033μF 250V M.P. <CR-M5L>
pS1	46085800	Push Switch, power <CR-M5>
	07259500	Push Switch, power <CR-M5L>



### 5. EXPLODED VIEWS & PARTS LIST

• Though every parts included in mechanism ass'y is numbered in exploded view, part unlisted in the parts list are not supplied.

- ① ~ ②⑤
- ②⑥ ~ ⑤⑦
- ⑤⑧ ~ ⑦⑦

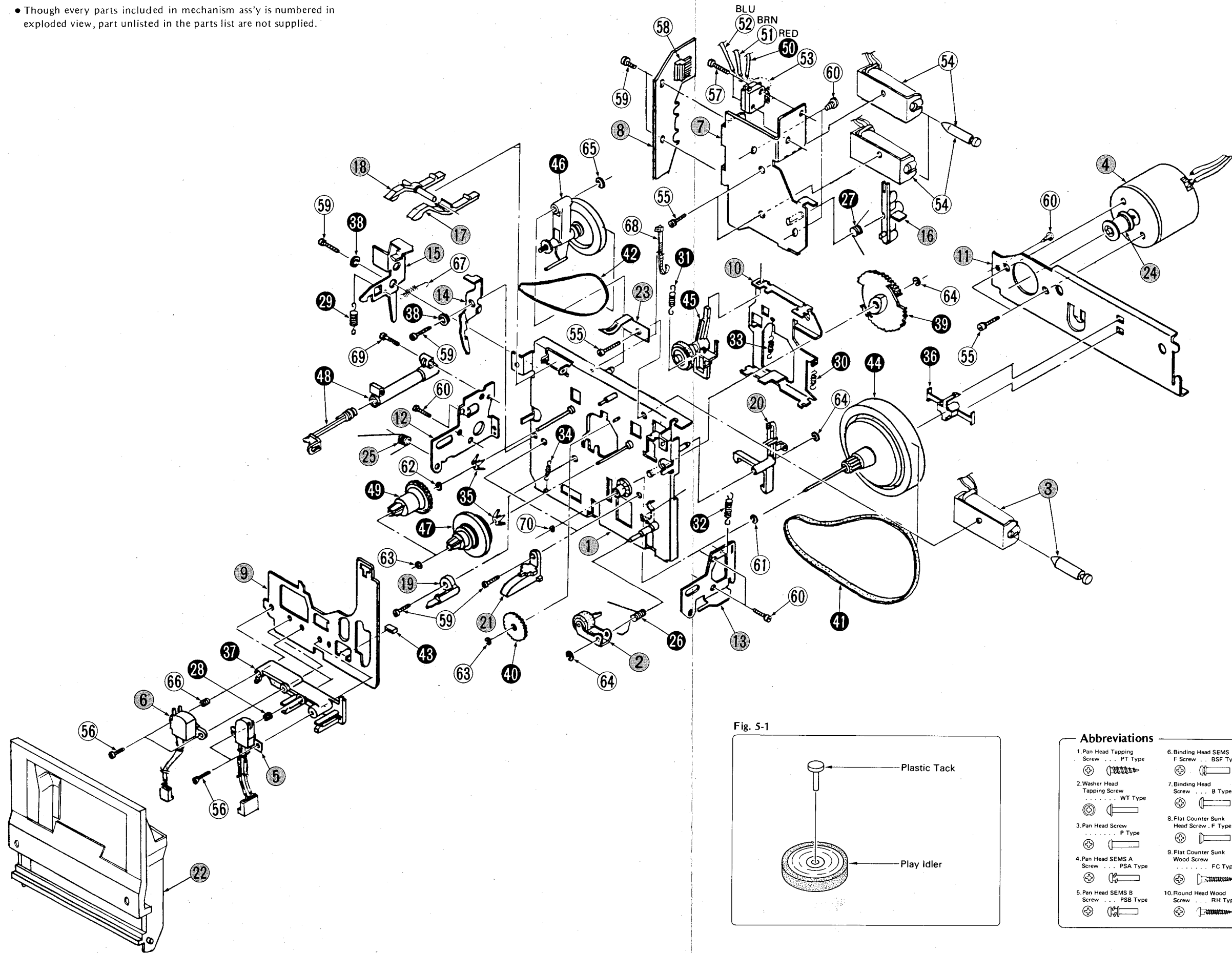
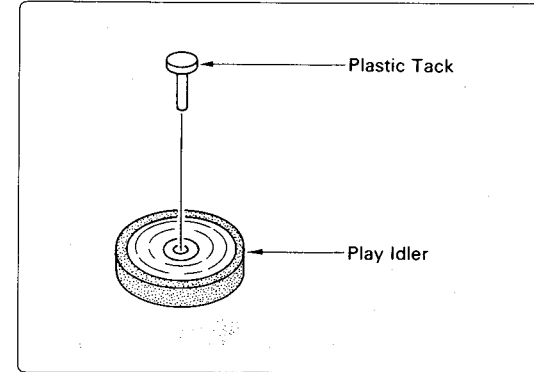


Fig. 5-1



## Parts List &lt;Mechanism Ass'y&gt;

Parts No.	Stock No.	Description
2	09438000	Pinch Roller Ass'y
3	09444100	Plunger Solenoid, play
4 + 24	09443500	Motor (with Pulley)
5	07556600	Rec/PB Head
6	09438200	Erase Head
16	09438300	FF/REW Plunger Arm
17	09438400	Cassette Sensor Arm
18	09438500	Rec Prevention Arm
20	09443900	Play Plunger Arm
21	09438800	Cassette Guide
22	09438900	Cassette Well
36	09440300	Flywheel Spacer
37	09440400	Head Base
38	09440500	Spacer, eject lock arm/safety arm
39	09440600	Play Gear
40	09440700	Transmission Gear
41	09440800	Capstan Belt
42	09440900	R-F Clutch Belt
43	09441000	Cushion
44	09441100	Flywheel
45	09441200	Play Idler
46	09441300	R-F Clutch Ass'y
47	09441400	Take-up Reel
48	09441500	Eject Dumper
49	09441600	Supply Reel
53	09441700	Slide Switch
54	09441800	Plunger Solenoid, FF-REW
●Spring		
23	09439000	Cassette Holder Spring
25	09439200	Cassette Well Spring
26	09439300	Pinch Roller Spring
27	09444000	FF/REW Plunger Arm Spring
28	09439500	Head Adjust Spring (Rec/PB Head)
29	09439600	Eject Arm Lock Spring
30	09439700	Assist Base Spring
31	09439800	Play Idler Spring
32	09439900	Play Plunger Arm Spring
33	09440000	Head Base Spring
34	09440100	Head Base Hold Spring
35	09440200	Back Tension Spring
66	09439100	Head Adjust Spring (Erase Head)
67	09442900	Eject Lock Arm Spring
●Screw, washer		
55	08321300	Pan Head (BSF) M2.6 x 4
56	09441900	Pan Head M2 x 13
57	09442000	Pan Head M2.6 x 15
59	00457400	Pan Head Tapping M3 x 6
60	09442200	Pan Head Tapping M3 x 4
69	09442700	Pan Head Tapping M2 x 12
61	09442300	Poly-thrust Washer M2.5 x 0.5
62	07513000	Poly-thrust Washer M2.0 x 0.13
63	09442400	Poly Washer D-1.7
64	09442500	Poly Washer D-2.6
65	09442600	Poly Washer D-3.5
70	09442100	Washer (Oil Seal)

## 6. MAIN PARTS REPLACEMENT

(See ● EXPLODED VIEWS left

● Page 15 Front View and Top View)

## A. Mechanism Ass'y

- 1) Remove Bonnet, front panel and bottom plate.
- 2) Take off pilot lamp.
- 3) Take out counter belt around counter pulley.
- 4) Loosen two screws for fixing glass with cassette lid.
- 5) Take off both F-3613 (Mechanism control board) and F-3602 (power switch board).
- 6) Plug out connector ⑩ on mechanism ass'y, and two connectors ⑪ on F-3616 (Rec/P.B. amp board), then cut off two vinyl bands for bundling wires. \*(Note: Pull it out with out moving F-3616 circuit board)
- 7) Loosen one screw on the bottom side and two screws on the bottom side of mechanism ass'y.
- 8) And the mechanism ass'y can be pulled out of the bottom side.

## B. Cassette well ⑫, play idler (Fig. 6-1)

- 1) Pull out mechanism ass'y. (See above A)
- 2) Loosen two screws fixing door bracket ⑬, to remove the door bracket and take off cassette well ⑫.
- 3) Then loosen two screws fixing mechanism cover to remove the mechanism cover.
- 4) Take off counter belt around take-up reel.
- 5) Pull out plastic tack fixing take up idler (See Fig. 6-1), and the idler can be easily removed.

## C. Capstan Motor ⑭

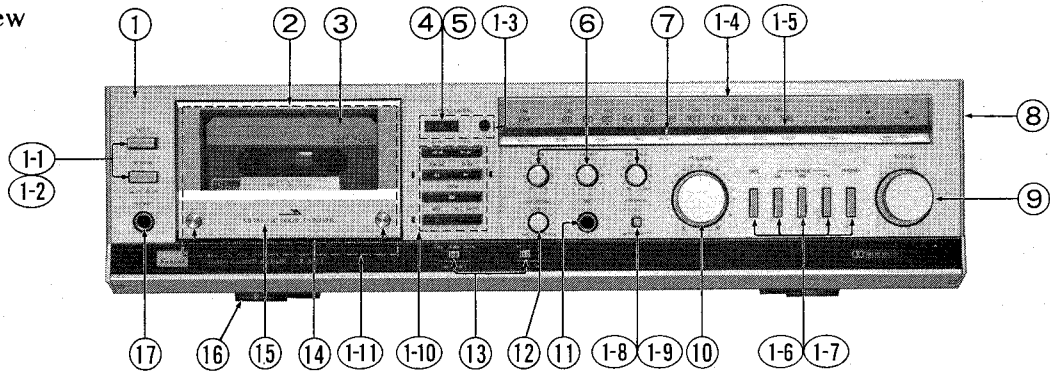
- 1) Take out mechanism ass'y. (See above A)
- 2) Loosen one screw ⑮ fixing motor bracket ⑯ and removed the bracket.
- 3) Take off R.F. clutch belt ⑰ and capstan belt ⑱.
- 4) Loosen two screws ⑲ fixing motor and the motor can be lastly.

## D. Flywheel ⑳, R.F. clutch ass'y ㉑

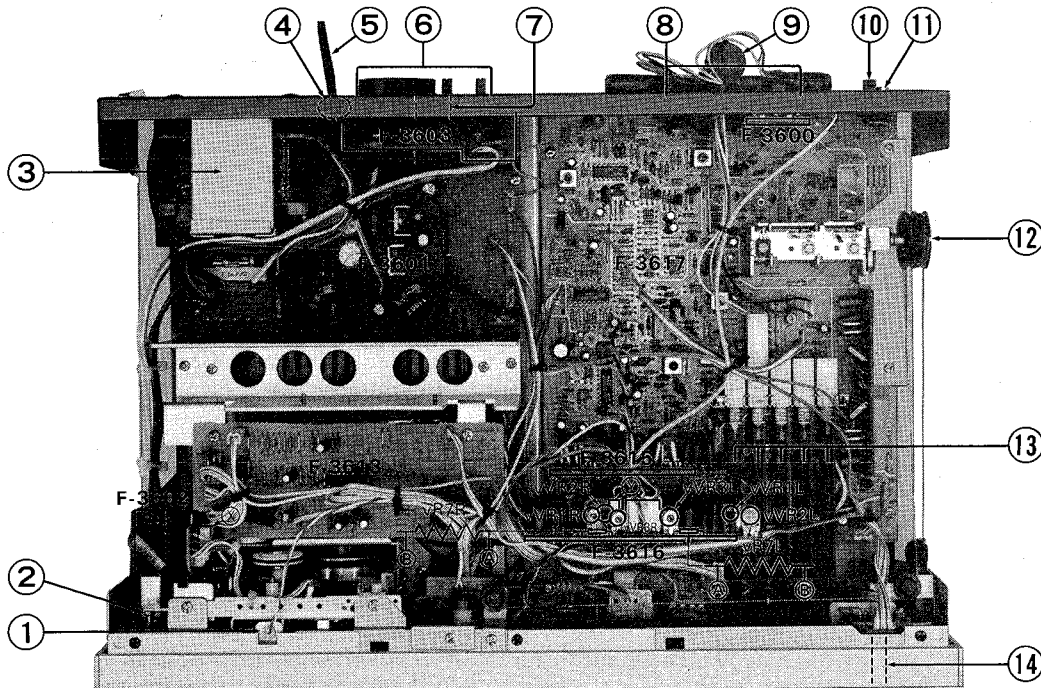
- 1) Take out mechanism ass'y.
- 2) Pull out a poly-washer ㉒ around flywheel spindle (capstan).
- 3) Remove one screws ⑳ fixing motor bracket.
- 4) Pull out motor bracket.
- 5) Take off R.F. clutch belt ㉓, and capstan belt ㉔.
- 6) Pull out flywheel from the mechanism ass'y.
- 7) Remove poly-washer ㉕ fixing R.F. clutch ass'y.
- 8) And, R.F. clutch ass'y will be off from the mechanism ass'y.

# 7. OTHER PARTS

7-1. Front View



7-2. Top View



Parts List <Front View>

Parts No.	Stock No.	Description
1	07795710	Front Panel Ass'y <CR-M5>
	07795810	Front Panel Ass'y <CR-M5L>
1-1	07778300	Push Knob, power · eject
1-2	07778400	Push Knob Guide
1-3	07773000	Counter Lens
1-4	07793500	Dial Glass
1-5	07795000	Dial Panel <CR-M5>
	07795100	Dial Panel <CR-M5L>
1-6	07778500	Push Knob TAPE, SW (LW), MW, FM, PHONO
1-7	07778600	Push Knob Guide
1-8	07828900	Push Knob, loudness
1-9	07580900	Push Knob Guide
1-10	07794000	Push Button Ass'y (with Knob Guide, indicator)
1-11	07816300	Masking Sheet, Cassette Mechanism
2	07793600	Mechanism Cover
3	07774900	Cassette Lid Glass
4	46125800	Tape Counter
5	07793400	Tape Counter Belt
6	07779910	Knob, bass · treble · balance
7	07264700	L.E.D. Ass'y (SEL 8819)
8	07786300	Bonnet
9	07780100	Knob, tuning
10	07780000	Knob, volume
11	46133900	Mic Jack
12	07779910	Knob, mic mixing
13	07775000	Slide Knob (with Masking Sheet) Dolby · Tape Selector

Parts No.	Stock No.	Description
14	07793200	Dress Screw, cassette lid
15	07793700	Dress Panel, cassette lid
16	07779800	Leg
17	46133800	Head Phone Jack

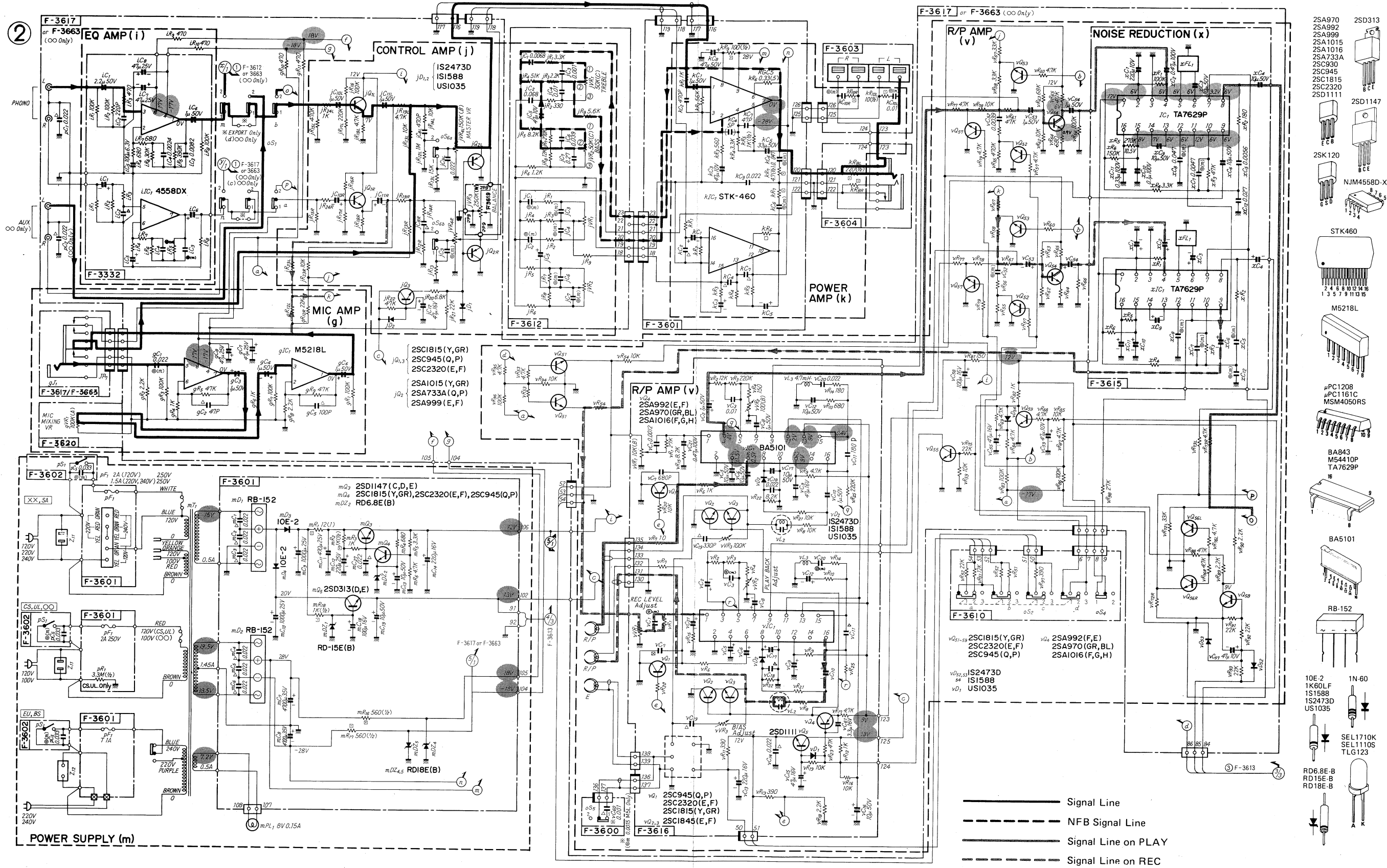
Parts List <Top View>

Parts No.	Stock No.	Description
1	04006600	Pilot Lamp
2	46128500	Eject Ass'y
3	15004801	Power Transformer <CR-M5>
	15004805	Power Transformer <CR-M5L>
4	39106000	Strain Relief <CR-M5>
	39104900	Strain Relief <CR-M5L>
5	38004700	Power Supply Cord <CR-M5>
	38004300	Power Supply Cord <CR-M5L (BS)>
	38004500	Power Supply Cord <CR-M5L (EU)>
6	46118300	Speaker Terminal
7	07189600	AC Outlet <CR-M5>
	46161000	AC Outlet <CR-M5L (EU)>
8	46118200	Antenna Terminal
9	46147500	Bar Antenna <CR-M5>
	46147300	Bar Antenna <CR-M5L>
10	22301500	GND Terminal
11	07249000	2P Terminal, phone
12	07779700	Pulley
13	07793800	Push Rod
14	46128600	Tuning Unit





8-2. Audio Section



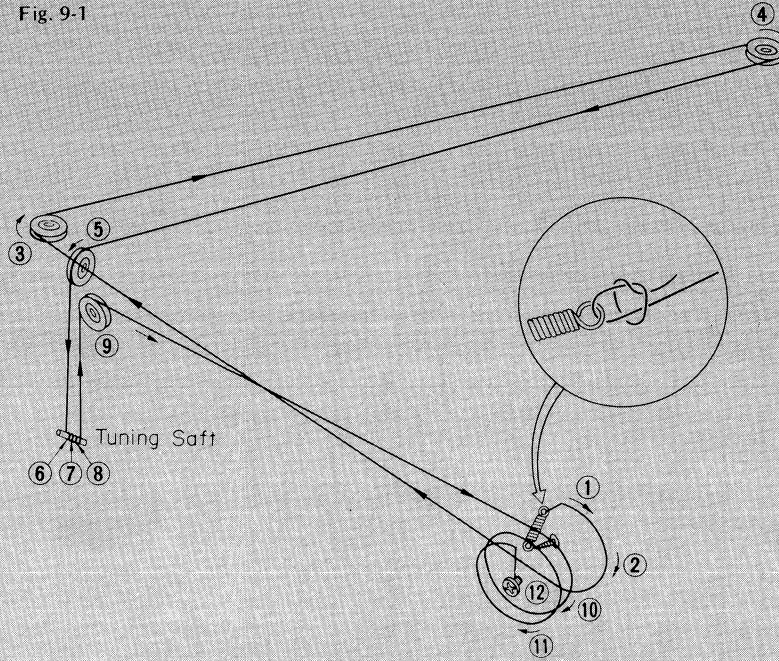


## 9. THREADING OF DIAL CORD

### 9-1. Replacement of Dial Cord

1. Knot one end of dial cord to spring of dial pulley.
  2. Close the variable capacitor completely.
  3. Thread the dial cord in numerical order from ① to ⑫ as Fig. 9-1.
  4. Tie the other end of the dial cord to pulley fixing screw in trying to put enough tension to the dial cord.
  5. After tighten the screw, lock both knots of the dial cord with paint.
- Dial Cord (0.5 mm) ..... Stock No. 60360500

Fig. 9-1



### 9-2. Attachment of Dial Pointer

1. Close the variable capacitor completely.
2. Set the dial pointer to the start point, the line at the left end of the dial scale. (Fig. 9-3)
3. Hook the dial cord on the dial pointer, and fix it with clip.
4. Confirm that the dial pointer runs smoothly on the dial scale by turning the tuning shaft.

Fig. 9-2

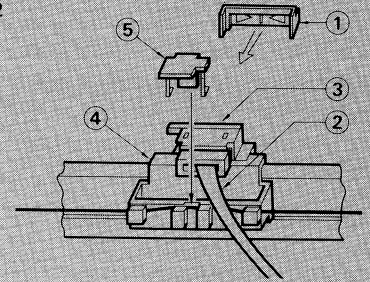
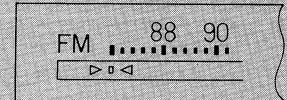


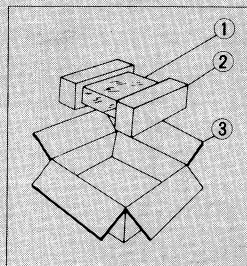
Fig. 9-3



Parts No.	Stock No.	Description
1	07647810	Dial Pointer Cap
2	07264700	Tuning Indicator LED
3	07654700	Wire Holder
4	07654810	Dial Pointer Holder
5	07654600	Clip, dial pointer holder

## 10. PACKING LIST

Parts No.	Stock No.	Description
1	91167810	Vinyl Cover
2	07795400	Styrofoam Packing
3	07794810	Carton Case <CR-M5>
	07794610	Carton Case <CR-M5L>



## 11. ACCESSORY LIST

Stock No.	Description
46094000	Operating Instruction <CR-M5>
46147000	Operating Instruction <CR-M5L>
46051700	FM Antenna

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