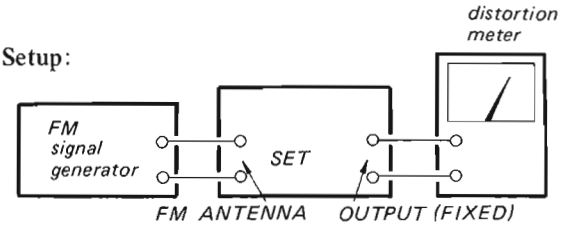
SECTION 3
ELECTRICAL ADJUSTMENTS

FM stereo signal
Carrier frequency: 98 MHz Deviation: main channel 400 Hz, 33.75 kHz deviation (45 %) sub-channel 38 kHz, 33.75 kHz deviation (45%) pilot 19 kHz, 7.5 kHz deviation (10 %)

FM monaural signal
Carrier frequency: 98 MHz Modulation: 400 Hz, 75 kHz deviation (100 %)

DISCRIMINATOR TRANSFORMER ADJUSTMENT

Setup:



FM Signal Generator Setting:
Carrier frequency: 98 MHz
Modulation: 400 Hz, 75 kHz deviation (100 %)
Output level: 1 mV (60 dB)

Procedure:

1. Primary-Side
   1) Set the MODE switch to MONO.
   2) Set the SELECTIVITY switch to AUTO.
   3) Tune the set to 98 MHz and adjust the primary-side core (white) of IFT201 for minimum reading on the distortion meter.

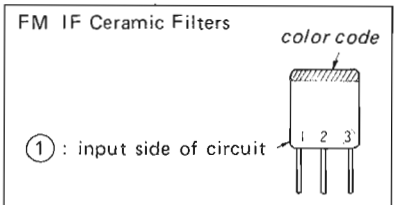
2. Secondary-Side
   1) Set the SELECTIVITY switch to NARROW.
   2) Detune the set.
   3) Adjust the secondary-side core (blue) of IFT202 for zero center on the TUNING meter.

3. Repeat the above steps 1 and 2 several times.

CAUTION

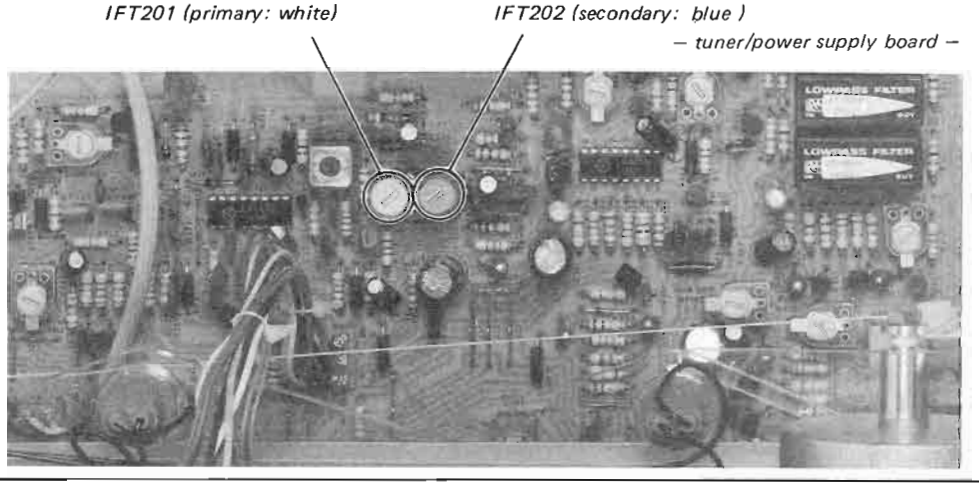
The ceramic filters (CF201, 202, 203 in the FM IF circuit are selected according to their specified center frequencies and color-coded as shown.
Check the color code of the filters to identify the same center frequency when replacing any of these filter.

FM IF Ceramic Filters



Color	Specified Center Frequency
black	10.64 MHz
blue	10.67 MHz
red	10.70 MHz
orange	10.73 MHz
white	10.76 MHz

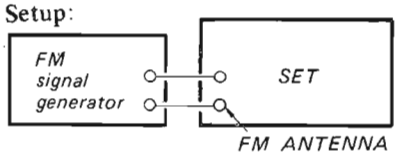
Note: If the color code of new ceramic filter is different from that of used one, be sure to adjust the secondary side core (IFT202 blue) of discriminator transformer.



19 kHz ADJUSTMENT

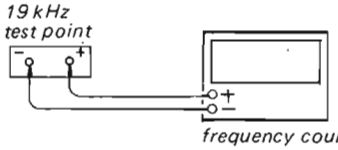
A) With Frequency Counter

Setup:



FM Signal Generator Setting:

Carrier frequency:	98 MHz
Modulation:	no modulation
Output level:	1 mV (60 dB)



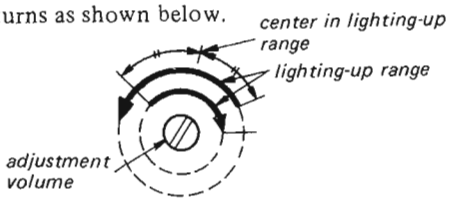
Procedure:

1. Tune the set to 98 MHz.
2. Adjust RT301 for 19 kHz ± 100 Hz on the frequency counter.

B) Without Frequency Counter

Procedure:

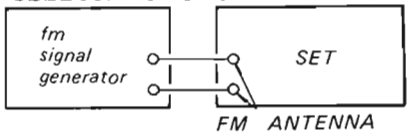
1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT301 clockwise or counterclockwise and note the lighting-up range of STEREO lamp.
3. Secure RT301 at the center in lighting-up range of both turns as shown below.



GAIN ADJUSTMENT FOR SELECTIVITY CHANGE

Setup:

MODE switch: MONO
SELECTIVITY switch : NARROW

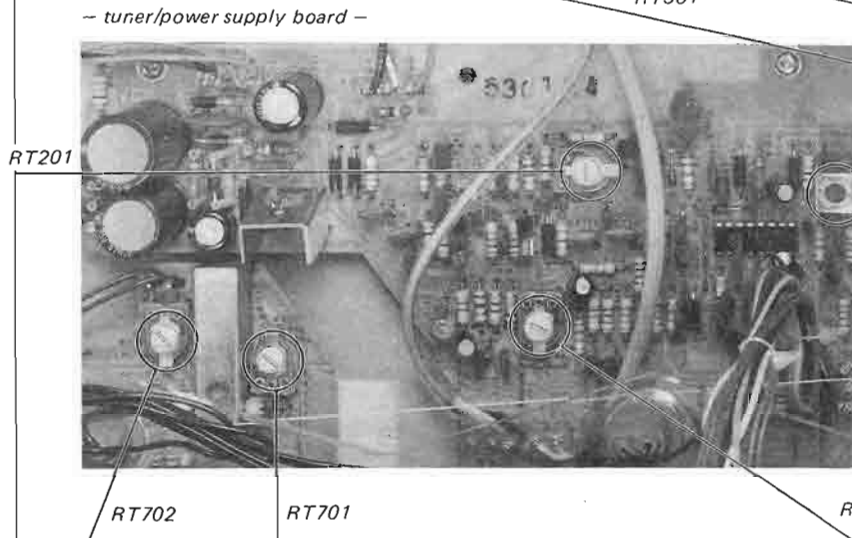


FM Signal Generator Setting:

Carrier frequency:	98 MHz
Modulation:	no modulation
Output level:	100 μV (40 dB)

Procedure:

1. Tune the set to 98 MHz.
2. Note the LEVEL meter reading.
3. Set the SELECTIVITY switch to AUTO.
4. Adjust RT201 for the same LEVEL meter reading as in step 2.



METER LEVEL ADJUSTMENT

Setup :

SELECTIVITY switch: NARROW

FM Signal Generator Setting:

Carrier frequency:	98 MHz
Modulation:	no modulation
Output level:	3.16 mV (70 dB)

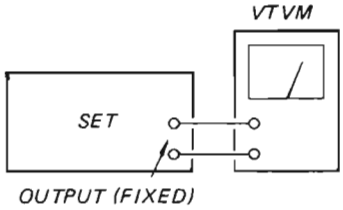
Procedure:

Tune the set to 98 MHz and adjust RT701 for the pointer deflection of '4.8' on the LEVEL meter.

CAL TONE ADJUSTMENT

Setup:

SELECTOR switch : CAL TONE



Procedure:

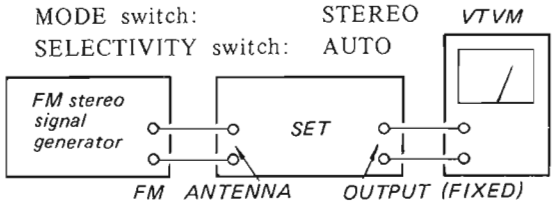
Adjust RT702 for –6 dB (0.39 V) on the VTVM.

Note: Oscillation Frequency: 400 Hz

FM STEREO SEPARATION ADJUSTMENT

Setup:

MODE switch: STEREO
SELECTIVITY switch: AUTO



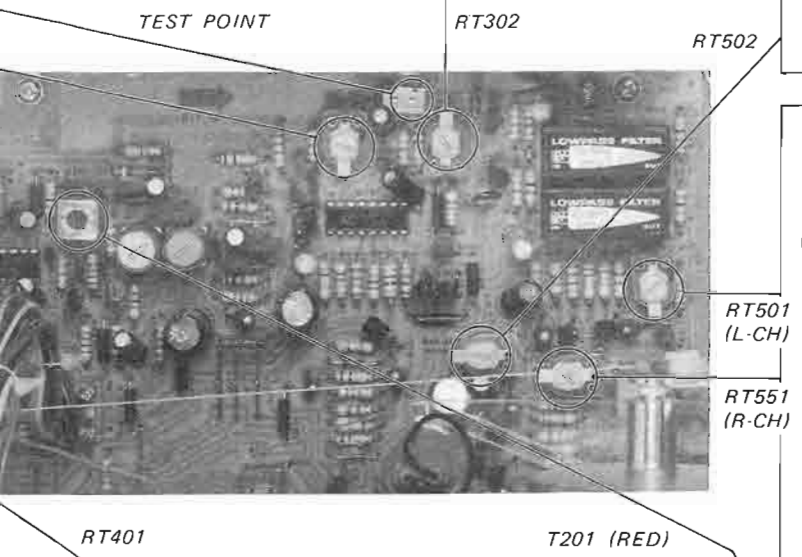
FM Stereo Signal Generator Setting:

Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Mode: Stereo
Audio (400 Hz) Mod: 33.75 kHz (45 %)
Pilot (19 kHz) Mod: 7.5 kHz (10 %)

Procedure:

FM stereo signal generator modulated channel	VTVM connection	VTVM reading
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT302 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT302 for minimum reading.

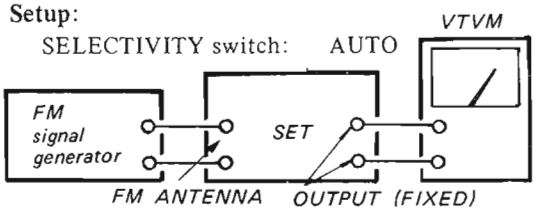
1. Difference between (Ⓐ−Ⓑ) and (Ⓒ−Ⓓ) should be less than 2 dB. If not, readjust RT302.
2. Set the SELECTIVITY switch to NARROW.
3. Adjust RT502 so that both separations Ⓐ−Ⓑ and Ⓒ−Ⓓ are in the same value and maximum.



OUTPUT LEVEL ADJUSTMENT

Setup:

SELECTIVITY switch: AUTO



FM Signal Generator Setting:

Carrier frequency: 98 MHz
Modulation: 400 Hz, 75 kHz deviation (100 %)
Output level: 1 mV (60 dB)

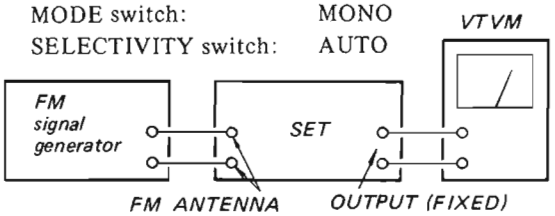
Procedure:

Adjust RT501 (L-CH) and RT551 (R-CH) for 0.775 V (0 dB) reading on the VTVM.

NARROW/NORMAL AUTO-SWITCHING LEVEL ADJUSTMENT

Setup:

MODE switch: MONO
SELECTIVITY switch: AUTO



FM Signal Generator Setting:

Carrier frequency: 98 MHz
Modulation: 400 Hz, 75 kHz deviation (100 %)
Output level: 100 μV (40 dB)

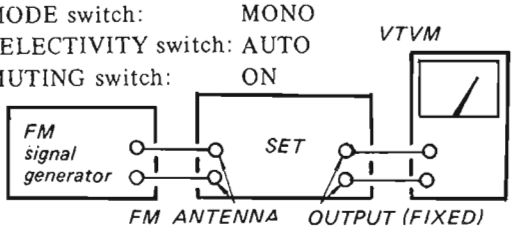
Procedure:

1. Tune the set to 98 MHz.
2. Adjust RT401 so that the lamp indication is changed from NORMAL to NARROW at the moment when the output of FM signal generator is changed to 30 dB (31.6 μV).

MUTING RANGE ADJUSTMENT

Setup:

MODE switch: MONO
SELECTIVITY switch: AUTO
MUTING switch: ON



FM Signal Generator Setting:

Carrier frequency: 98 MHz
Modulation: 400 Hz, 75 kHz deviation (100 %)
Output level: 1 mV (60 dB)

Procedure:

1. Tune the set to 98 MHz.
2. When the TUNING knob is turned counterclockwise and clockwise to detune the set from the signal, adjust T201 (RED) for 0 V reading on the VTVM at the same deflection on the TUNING meter.