

SERVICE MANUAL

FISHER

FM-2100

STEREO TUNER



WORLD LEADER IN HIGH QUALITY STEREO

SPECIFICATIONS

FM TUNER SECTION

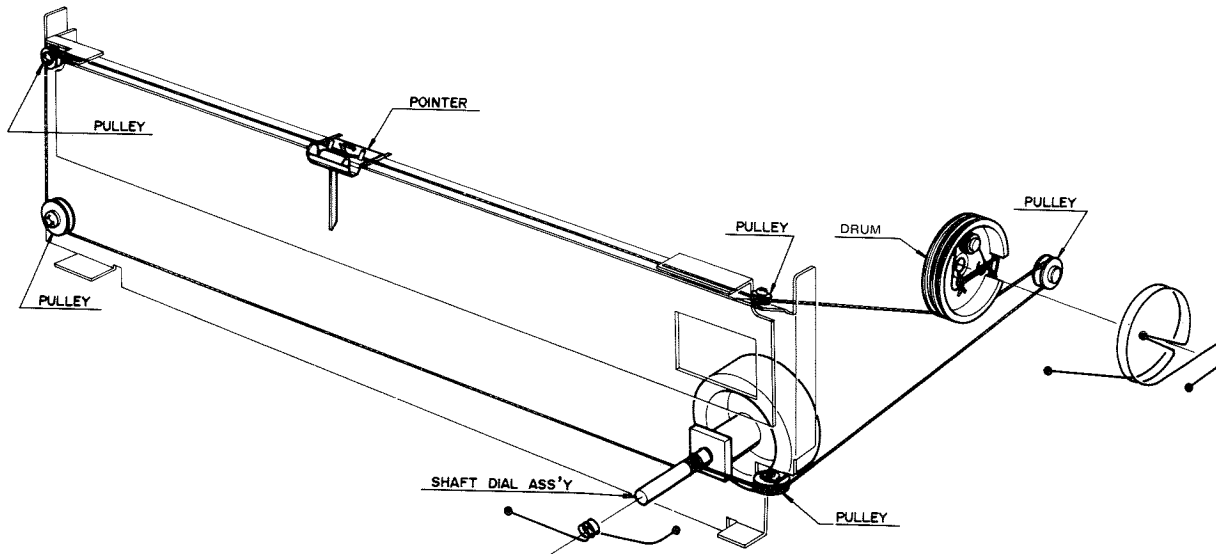
Frequency Range	88-108MHz
Usable Sensitivity	Mono 2.8 μ V Stereo 7 μ V
50dB Quieting Sensitivity	Mono 5 μ V Stereo 65 μ V
Signal/Hum + Noise (1mV at Ant.)	Mono 65dB Stereo 60dB
Signal/Hum + Residuals (1mV at Ant)	Mono 65dB Stereo 60dB
THD (1mV at Ant.)	Mono 0.5% Stereo 0.8%
AM Suppression (30% 400Hz AM)	55dB
Spurious Response (fe + 1/2 FIF)	50dB
Alternate Channel Selectivity	60dB
Image Response	50dB
IF Rejection (Unbalanced)	70dB
Capture Ratio	2dB
Stereo Separation at:	
100Hz	25dB
1000Hz	35dB
10000Hz (Hi-Blend (Off/On))	25dB
19kHz Suppression	60dB
38kHz Suppression	55dB
SCA Suppression	55dB
Spurious MPX Triggering:	
9.5kHz pilot carrier	\pm 200kHz
4.75kHz pilot carrier	\pm 200kHz
2.375kHz pilot carrier	\pm 200kHz

Audio at Rated Output	\pm 2dB
Minimum deviation required to trigger stereo beacon	6.7kHz
Stereo Trigger Sensitivity	5 μ V
Muting Threshold	30 μ V
Audio Frequency response Deviation from STD De-Emphasis 50Hz - 15kHz	Mono \pm 3dB Stereo \pm 3dB
Stereo Channel Balance	\pm 3dB
Dial calibration error	\pm 250kHz
Oscillator drift, warmup and \pm 10% line voltage change (88 - 108MHz)	\pm 60kHz
Maximum antenna signal for 0.5% THD	3V

AM TUNER SECTION

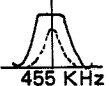
Frequency Range	535-1605kHz
IHF Usable Sensitivity (20dB)	
600kHz	400 μ V/m
1000kHz	400 μ V/m
1400kHz	400 μ V/m
Signal to Noise and Hum Ratio at 100mV/m	50dB
Image Response	40dB
IF Rejection	35dB
Selectivity \pm 10kHz	25dB
Spurious Response 455kHz to 30MHz (Limit)	50dB
Rated Output Mod. 80% 100mV/m Ant.	\pm 2dB
Volume Sensitivity	400 μ V/m

DIAL CORD STRINGING





ADJUSTMENT

AM ADJUSTMENT

Step	Adjusting circuit	Connection		SG. frequency	Position of tuning dial	Adjustment	V.T.V.M. Oscilloscope
		Input	Output				
1	IF	Connect sweep generator to VC4.	Connect oscilloscope to test point TP4.	455 KHz	Near max. capacity of VC. at position with no signal.	AM 1st 9-20970 (Red, Blue) AM DET 9-21110	
2	RF	Connect standard loop antenna to output terminal of SG. Place receiver 2 feet from loop antenna	Connect V.T.V.M. to TP4.	600 KHz (400Hz, 30% modulation)	600 KHz	AM ANT 9-21083 AM OSC 9-20700	Max.
3				1400 KHz (400Hz, 30% modulation)	1400 KHz	TC4 TC5	Max.
4	Repeat adjustments.						

1. Variable capacitor completely closed.
2. Set the dial pointer to very left line dial scale.
3. Connect sweep generator, SG, V.T.V.M. and oscilloscope.
4. Function switch to "AM".
5. Use a screwdriver with plastic grip for all adjustments.

FM ADJUSTMENT

Step	Adjusting circuit	Connection		SG. frequency	Position of tuning dial	Adjustment	V.T.V.M. Oscilloscope
		Input	Output				
1	IF	Connect sweep generator to test point TP0 through 0.01 μ F	Connect oscilloscope to test point TP1.	10.7 MHz (none modulation)	Near max. capacity of VC. at position with no signal.	IFT in FRONT END	
2	Ratio Det.		Connect oscilloscope to test point TP2.			FM DET 9-20850 (Pink) 9-20860 (Blue)	
3	RF	Connect FM SG. to FM ANT terminals.	Connect V.T.V.M. to TP1	90 MHz (400 Hz, 30% modulation)	90 MHz	TC1 TC2 TC3	Max.
4				106 MHz (400 Hz, 30% modulation)	106 MHz		Max.
5	Repeat adjustments.						

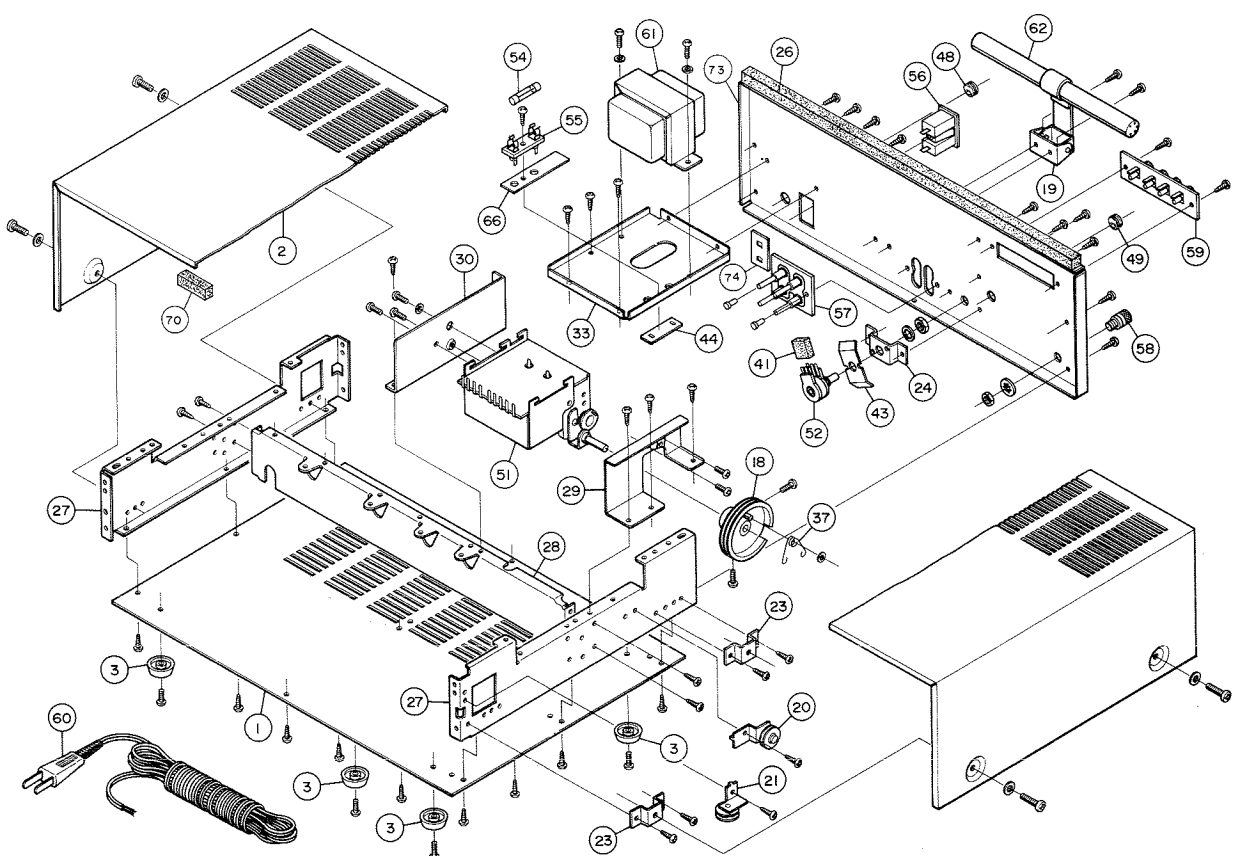
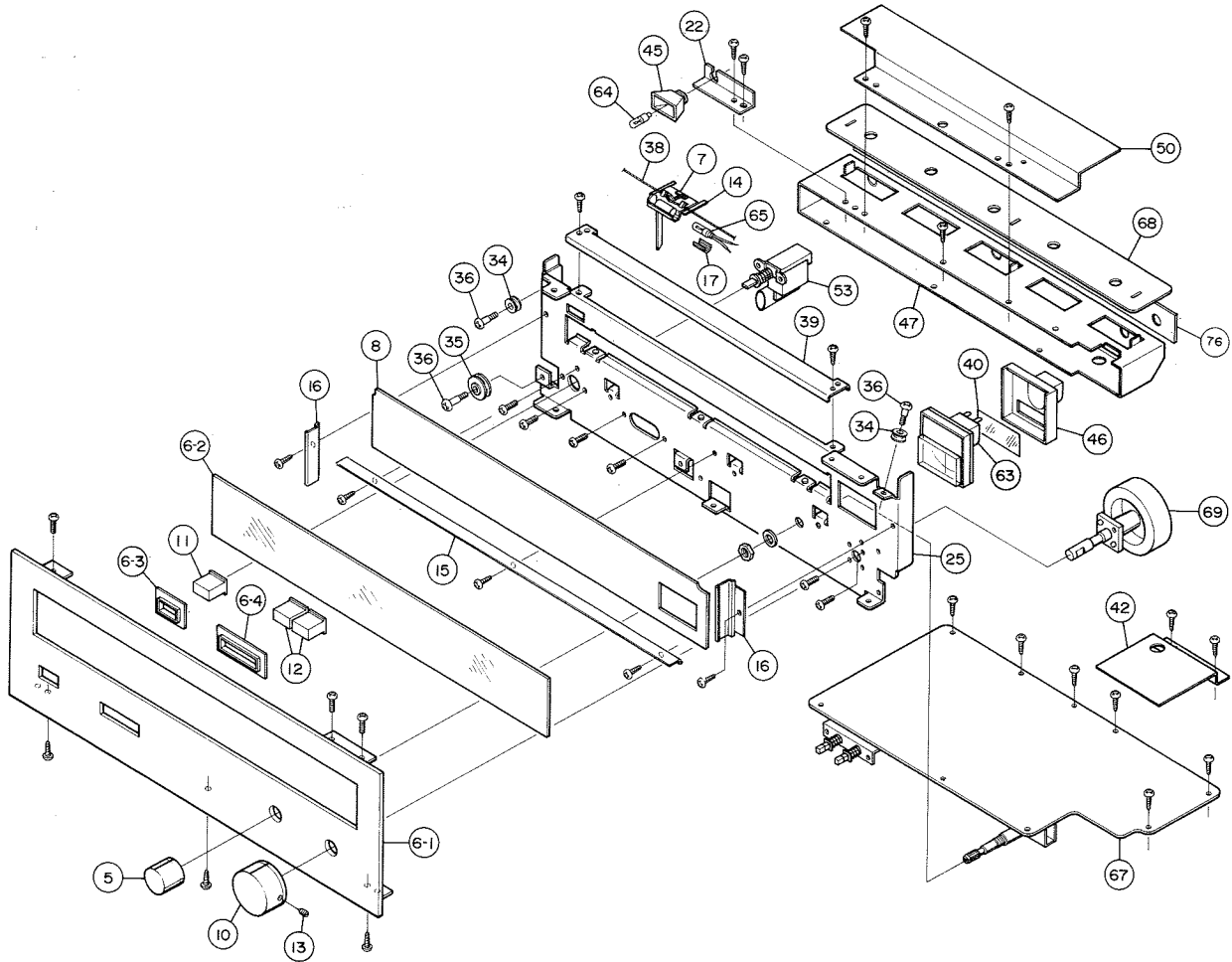
1. Variable capacitor completely closed.
2. Set the dial pointer to very left line of dial scale.
3. Connect sweep generator, FM SG, V.T.V.M. and oscilloscope. FM ANT. input impedance is 300 ohm.
4. Function switch to "FM MONO."
5. Use a screwdriver with plastic grip for all adjustments.

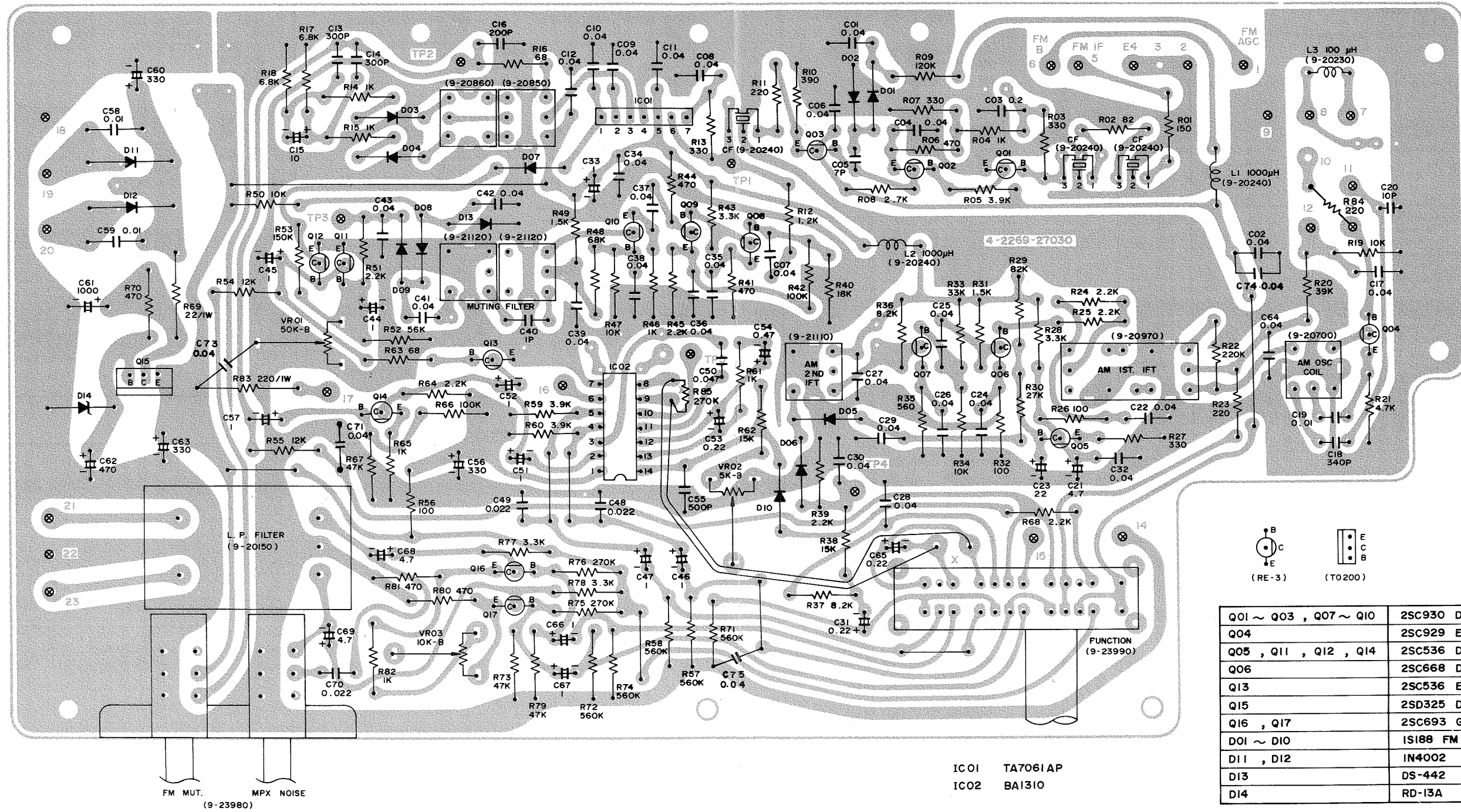
FM MPX ADJUSTMENT

Step	Adjusting circuit	Connection		Position of tuning dial	Adjustment	
		Input	Output			
1	PLL IC FO (19KHz) Adjustment	None	Connect Frequency counter or synchroscope to TP5.		Adjust VR202 (50K) so that 19KHz may be indicated on the frequency counter or synchroscope.	
2	FM STEREO Signal Separation	Connect FM stereo SG to FM ANT terminals. 19 KHz signal ON. Main channel, sub channel signal ON. Add 1000 Hz signal from L Ch.	Connect V.T.V.M to output terminal (R channel).	Near max. capacity of VC. at position with no signal	VR203 (10K-B)	V.T.V.M. Min.
		Connect FM stereo SG to FM ANT terminals. 19 KHz signal ON. Main channel, sub channel signal ON. Add 1000 Hz signal from R Ch.	Connect V.T.V.M. to output terminal (L channel)			
3	Repeat steps 1, 2. Set at position with max. channel separation.					

1. Variable capacitor completely closed.
2. Connect FM stereo SG and V.T.V.M.
3. Function switch to "FM AUTO".
4. Use a screw-driver with plastic grip for all adjustments.

EXPLODED VIEW

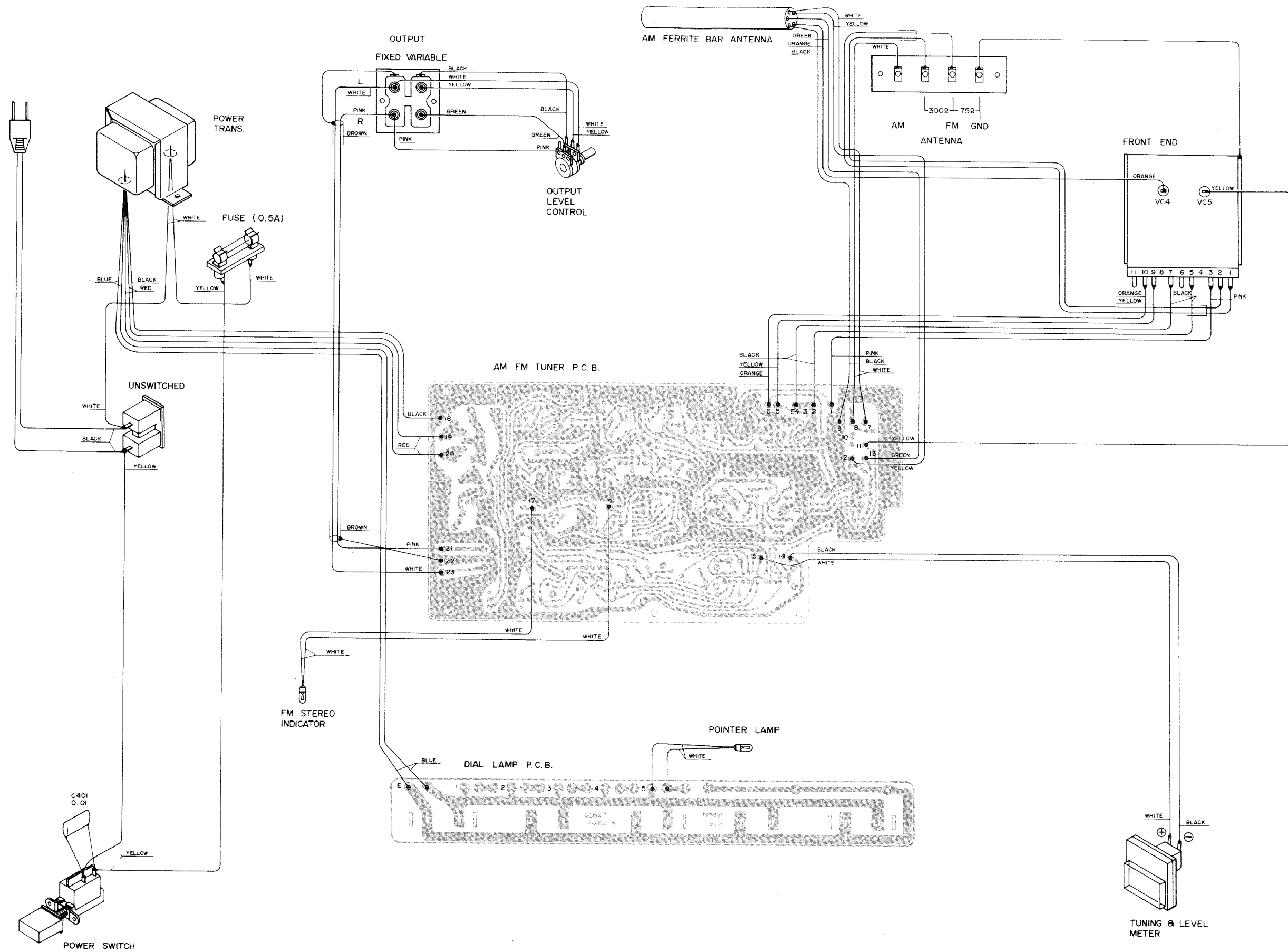




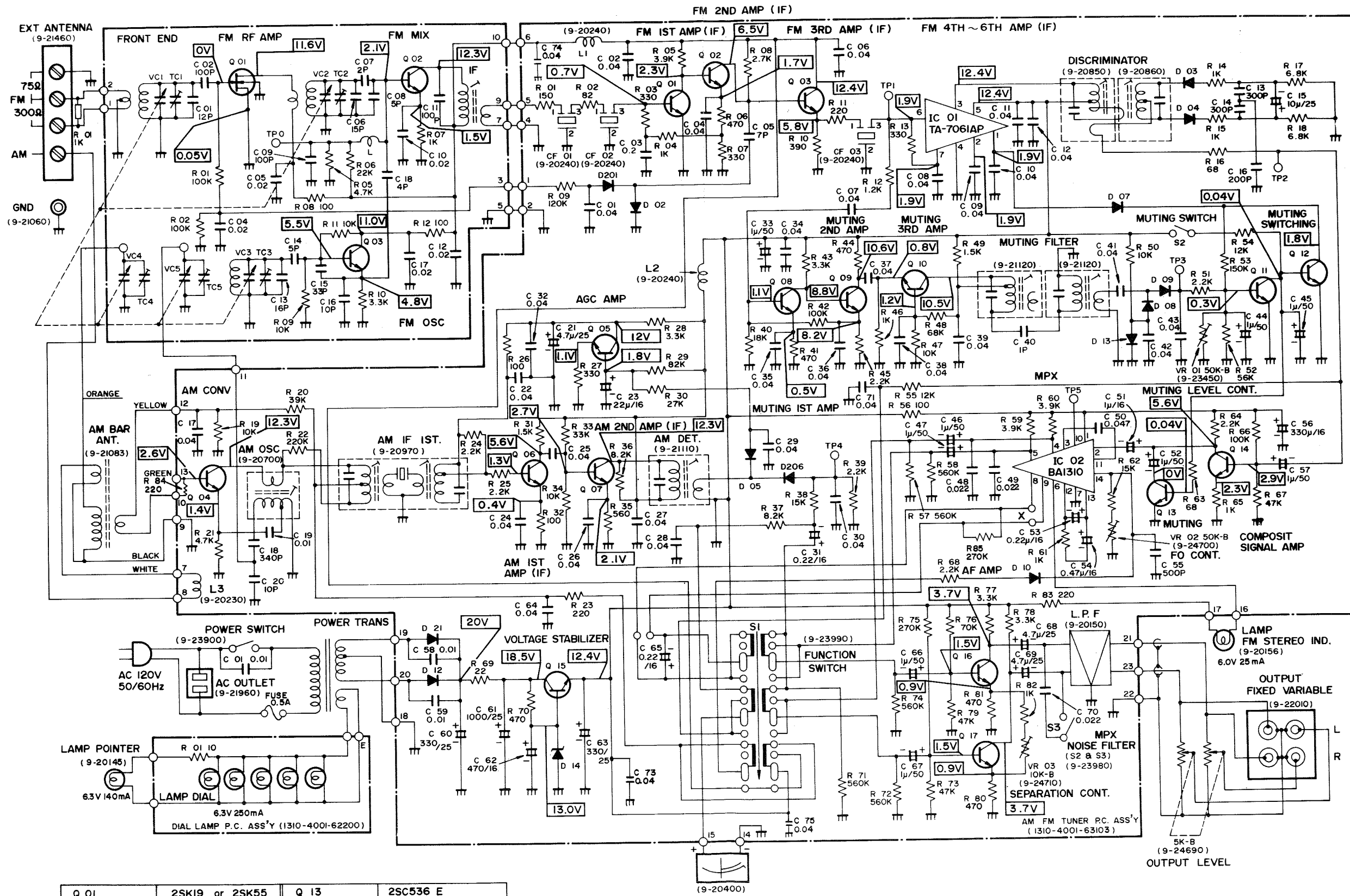
Q01 ~ Q03 , Q07 ~ Q10	2SC930 D or E
Q04	2SC929 E
Q05 , Q11 , Q12 , Q14	2SC536 D or E
Q06	2SC668 D or E
Q13	2SC536 E
Q15	2SD325 D or E
Q16 , Q17	2SC693 G
D01 ~ D10	1S188 FM I
D11 , D12	1N4002
D13	DS-442
D14	RD-13A

IC01 TA7061AP
IC02 BA1310

FM MUT. (9-23980)
MPX NOISE



SCHEMATIC DIAGRAM



Q 01	2SK19 or 2SK55	Q 13	2SC536 E
Q 02 , Q 03	2SC535	Q 14	2SC536 D or E
Q 01 ~ Q 03	2SC930 D or E	Q 15	2SD325 D or E
Q 04	2SC929 E	Q 16 , Q 17	2SC693 FU
Q 05	2SC536 D or E	D 01 ~ D 10	1S188 FM-1
Q 06	2SC668 D or E	D 11 , D 12	1N4002
Q 07 ~ Q 10	2SC930 D or E	D 13	DS-442
Q 11 , Q 12	2SC536 D or E	D 14	RD-13A



FISHER CORPORATION 11-40 45th ROAD • LONG ISLAND CITY • NEW YORK 11101

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