Clarion

SERVICE MANUAL

Closer Relations through "CLARION SERVICE MANUAL"

DATSUN AUTOMOBILE GENUINE RADIO
MODEL RN-442I

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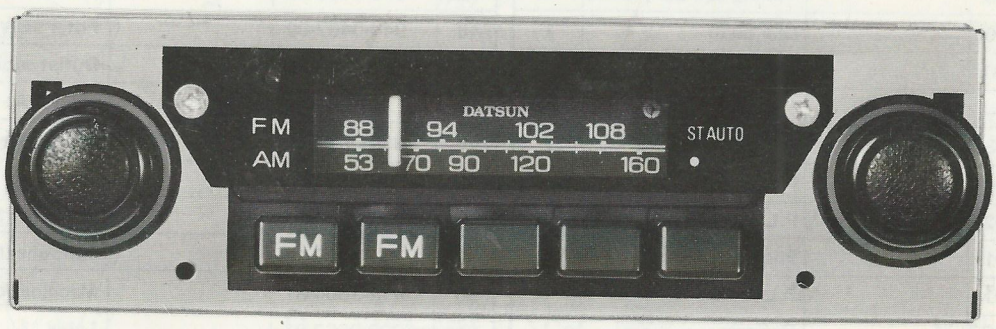


■SPECIFICATIONS:

Circuit system:	Superheterodyne
Tuning system:	Manual μ-tuning 5-push button system
Receive range:	AM 530 KHz to 1.605 KHz FM 88MHz to 108MHz
Intermediate frequency:	AM 262.5KHz FM 10.7MHz
Maximum sensitivity:	AM Less than 20dB (at 0.5W output)
Quieting sensitivity:	AM less than 30dB (at 20dB S/N) FM Less than 20dB (at 30dB S/N)
Selectivity:	AM More than 25dB (at ±10KHz detune)
A.G.C:	AM More than 45dB
A.F.C:	FM 400KHz to 800KHz
Separation:	FM More than 20dB
Fidelity:	AM 100Hz ($^{H0}_{L+3}$ ±3dB) ~ 4,000Hz($^{H-18}_{L-30}$ ±5dB) FM 100Hz($^{H0}_{L+3}$ ±3dB) ~ 7,000Hz ($^{H-18}_{L-32}$ ±5dB)
Power supply voltage:	DC 13.2V (10.8V to 15.6V) Negative ground
Load impedance:	4Ω X 2
Power output:	More than 3W X 2 (at 10% distortion) More than 5W X 2 (at max. volume)
Semiconductors:	7 ICs, 6 transistors, 2 FETs and 6 diodes
Dimensions:	160(W) X 50 (H) X 130(D)
Weight:	1.3kg

Printed in Japan 298-2517-00 RN-442I

■COMPONENTS:

RN-442I-51

	Main unit	1
922-0913-00	Parts bag	1
(722-0231-00	Hex-nut	2
(745-0430-01	Flat washer	2
922-0939-00	Parts bag	1
(380-3587-01	Knob (large)	2
(380-3588-00	Knob (small)	2
Optional parts		
PAN-077-100	Antenna ass'y	1
PAS-141-100	Antenna ass'y	1
PAS-142-100	Antenna ass'y	1
SPA-699-101	Speaker ass'y	2
(090-0080-89	Speaker	1
(301-0907-00	Sp-mounting bracket	1
335-1175-00	Ant-support	1
093-0773-00	Ant-jumper	1

■ADJUSTMENTS:

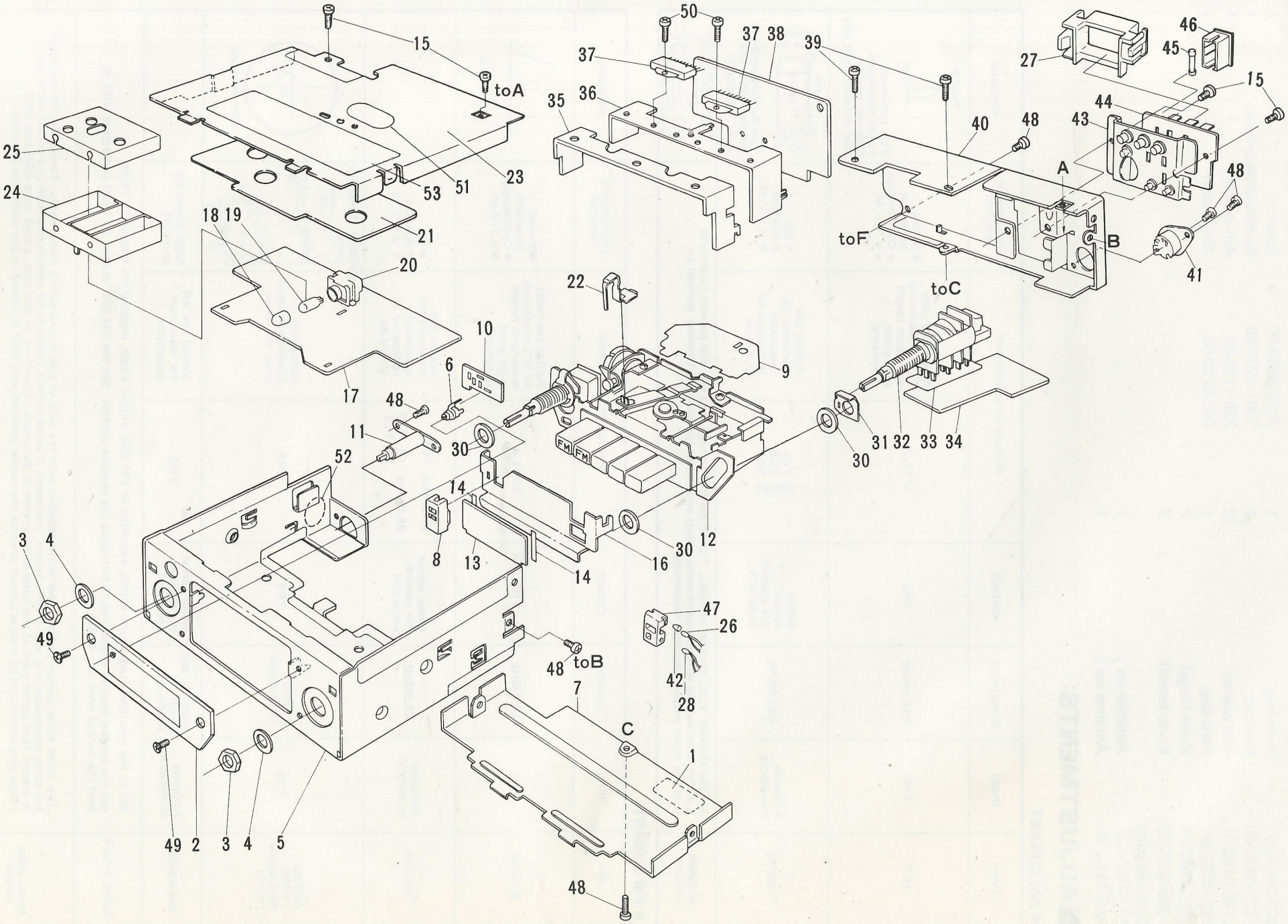
• AM CIRCUIT

Item	Input	Frequency	Output	Method of adjustment		Instruments required	Remarks
IFT	TP4	262.5KHz	TP5	IFT5,7	Adjust the core of IFT maximum waveform height with good symmetry.	• Sweep generator • Oscilloscope • V.T.V.M.	IF-curve Vol: minimum Tone: maximum Balance: center Dial pointer: right end
Tracking	Antenna receptacle	1,620KHz	Meter across the speaker voice coil	① TC4 ② TC5 ③ TC6	Adjust the trimmers for maximum indication of V.T.V.M.	• SG • Speaker • V.T.V.M	15PF, 5Ω, 65PF, to SSG (75Ω), to ANT receptacle Use dummy antenna between SSG and ANT receptacle
Antenna trimmer	Set the receiver VOL. control to max., TONE control to high, and the dial pointer to around 1,400KHz to receive white noise (hissing noise) and adjust the antenna trimmer (screw) so that the noise output becomes maximum.						Antenna trimmer

• FM CIRCUIT

Item	Input	Frequency	Output	Method of adjustment		Instruments required	Remarks
S curve	TP1	10.7MHz	TP2	IFT1,4	Adjust the cores of IFT maximum waveform height with good symmetry.	• Sweep generator • Oscilloscope • V.T.V.M.	S-curve
Tracking	Antenna receptacle	87.5MHz	Meter across the speaker voice coil	87.5MHz TC3 98.0MHz ① TC2 ② TC1	Adjust the trimmers for maximum indication of V.T.V.M.	• SG • Speaker • V.T.V.M.	
<MPX> 19KHz Pilot signal (VCO)	TP3	19KHz Pilot signal	TP3	VR4	Adjust the Lissajuous figure does not move	• MPX stereo SG Oscilloscope, MPX SG, 19KHz OUT, T.P.3, MPX. IC, VR4	after adjusted
Separation	Antenna receptacle	Right or left signal (400Hz)	Meter across the speaker voice coil	VR2	Adjust the VR for maximum separation	MPX stereo SG and SSG	
SASC circuit	Set to the specified modulation (30%), assuming an FM SSG output 55dB, modulation frequency 7kHz. Set the output level to 0dBm (=0.775V) using the volume control. Set the FM SSG output to 35dB and adjust VR1 so that the output level is —3dBm.						
Noise killer circuit	The noise killer system has been perfectly adjusted with the help of special measuring instruments. Therefore, do not touch the core, semiflexed VR. etc. of this circuit. However, if pulse noise is found to be remarkably high in a actual use in car, it means that adjustment of the noise killer system is disturbed. Therefore, in this case, adjust only VR6 and VR7 Noise gets eliminated as VR6 is turned towards the center position and VR7 is turned in the clockwise direction. However do not turn these controls more than necessary. If no change occurs by adjusting these controls, bring the controls back to their original position.						

■EXPLODED VIEW:



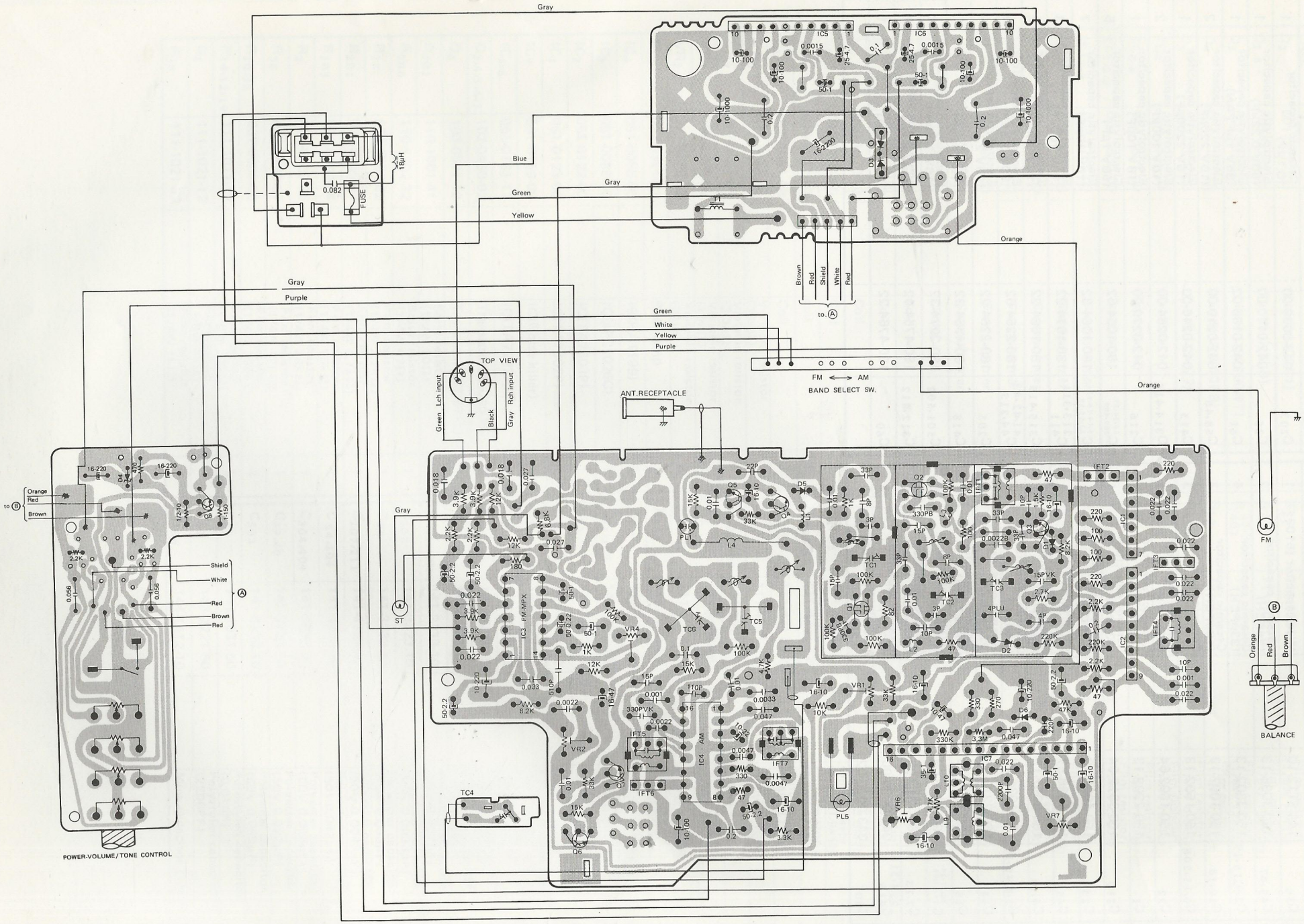
■PARTS LIST:

● Main section

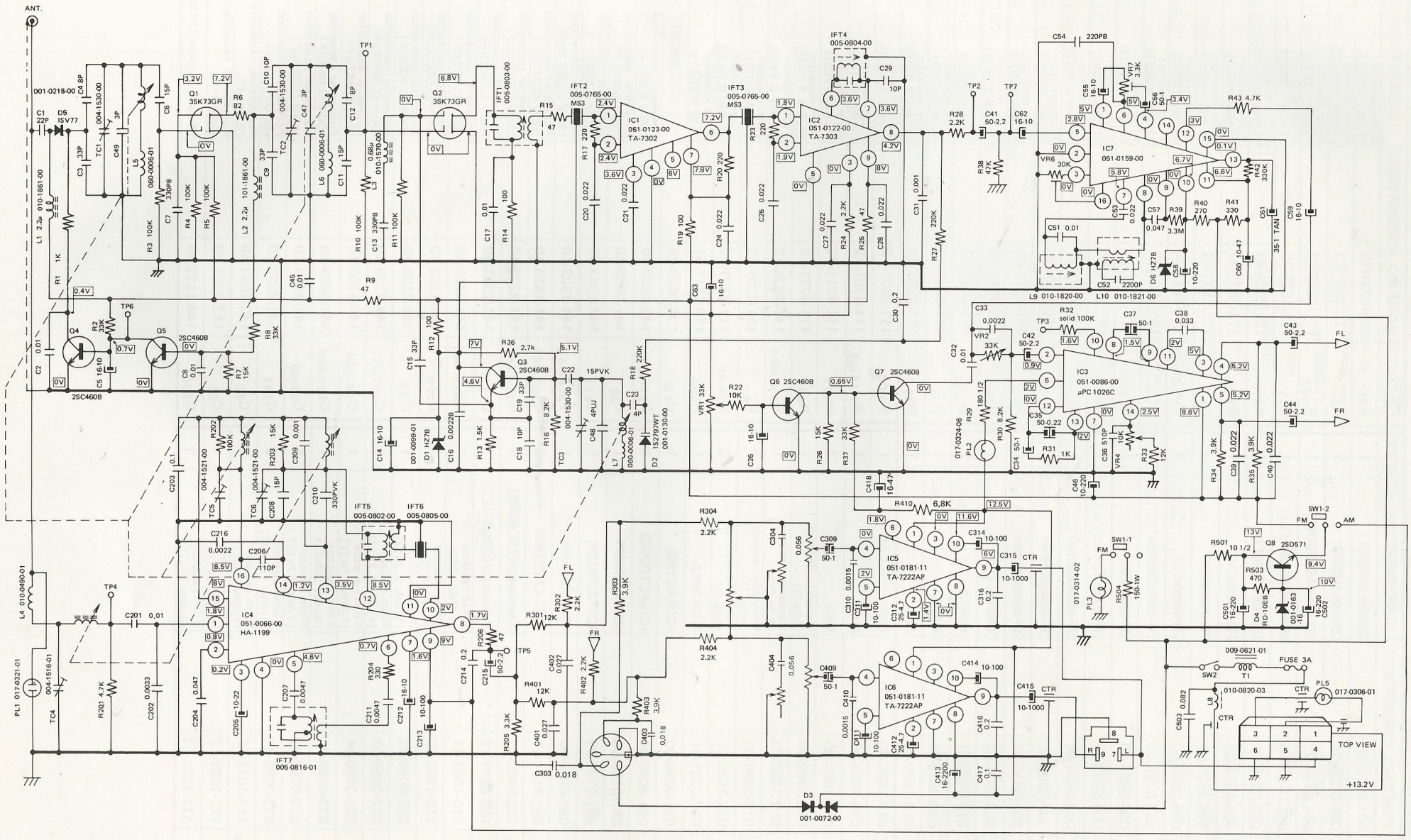
REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	286-4494-00	Set plate	1
2	373-0273-01	Dial cover	1
3	722-0231-00	Hexagon nut	2
4	745-0430-01	Flat washer	2
5	308-0917-07	Front cover	1
6	004-1516-01	Antenna trimmer	1
7	304-0307-01	Lower cover	1
8	345-2938-00	P.L holder	1
9	347-0523-00	Insulator	1
10	099-4960-00	P.W.B	1
11	092-0532-00	Antenna receptacle	1
12	937-0155-65	6 coil push button tuner	1
	013-3388-02	Band select switch	1
	680-0069-00	Push button	3
	680-0069-04	Push button (FM)	2
	012-3703-02	Variable resistor	1
	965-2160-00	Tuning coil ass'y (FM)	1
	965-2509-00	Tuning coil ass'y (AM)	1
13	372-2940-00	Dial plate	1
14	347-0753-00	Adhesive tape	2
15	731-3008-80	Taptight (M3X8)	4
16	374-0730-03	Back plate	1
17	099-5683-01	P.W.B	1
18	345-2831-02	P.L cap	1
19	017-0306-01	Pilot lamp	1
20	070-0927-01	P.L socket	1
21	347-0873-00	Reflector	1
22	376-0843-00	Dial pointer	1
23	310-0950-04	Upper case	1
24	330-6595-02	Shield case	1

REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
25	330-6596-05	Shield case	1
26	017-0314-02	Pilot lamp	1
27	335-0979-01	Receptacle	1
28	017-0324-06	Pilot lamp	1
29	745-0430-00	Flat washer	1
30	745-0451-00	Flat washer	2
31	330-6087-00	V.R stopper	1
32	012-3830-00	Variable resistor	1
33	347-0577-00	Insulator	1
34	099-5597-00	P.W.B	1
35	313-1040-00	Heat sink	1
36	330-6594-00	IC holder	1
37	051-0181-11	IC (TA7222AP)	2
38	099-5259-06	P.W.B	1
39	714-3006-81	Machine screw (M3X6)	2
40	307-0300-01	Rear cover	1
41	074-0480-00	Outlet socket	1
42	345-2830-02	P.L cap	1
43	944-0467-00	Filter ass'y	1
44	074-0572-07	Outlet socket	1
45	120-0030-02	Fuse (3A)	1
46	335-0837-00	Fuse holder	1
47	345-2831-02	P.L holder	1
48	731-3005-80	Taptight (M3X5)	6
49	731-3006-40	Taptight (M3X6)	2
50	714-3004-81	Machine screw (M3X4)	2
51	290-2567-01	Label	1
52	285-0903-06	Guide label	1
53	290-2904-04	Label	1

PRINTED WIRING BOARD:



CIRCUIT DIAGRAM:



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■PARTS LIST:

●Electrical section

REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
D_3	001-0072-00	Diode (10DC1)	1
$D_{1,6}$	001-0099-01	Diode (HZ7B)	2
D_2	001-0130-00	Diode (1S2790WT)	1
D_4	001-0163-16	Diode (RD-10EB)	1
D_5	001-0218-00	Diode (1SV77)	1
TC_4	004-1516-01	Trimmer	1
$TC_{5,6}$	004-1521-00	Trimmer	2
$TC_{1,2,3}$	004-1530-00	Trimmer	3
$IFT_{2,3}$	005-0765-00	IF-transformer	2
IFT_5	005-0802-00	IF-transformer	1
IFT_1	005-0803-00	IF-transofmrer	1
IFT_4	005-0804-00	IF-transformer	1
IFT_6	005-0805-00	IF-transformer	1
IFT_7	005-0816-01	IF-transformer	1
T_1	009-0621-01	Choke	1
L_4	010-0490-01	Coil	1
L_8	010-0820-03	Coil	1
L_3	010-1570-00	Coil	1
L_9	010-1820-00	Coil	1
L_{10}	010-1821-00	coil	1
$L_{1,2}$	010-1861-00	Coil	2
VR_6	012-3249-00	Variable resistor (30kΩ)	1
VR_7	012-3393-00	Variable resistor (3.3kΩ)	1
VR_4	012-3394-00	Variable resistor (10kΩ)	1
$VR_{2,1}$	012-3548-01	Variable resistor (33kΩ)	2
PL_1	017-0321-01	Pilot lamp	1
IC_4	051-0066-00	IC(HA1199)	1
IC_3	051-0086-00	IC(μPC1026C)	1
IC_2	051-0122-00	IC(TA7303P)	1
IC_1	051-0123-00	IC(TA7302P)	1
IC_7	051-0159-00	IC(Noise killer)	1
$IC_{5,6}$	051-0181-11	IC(TA7222AP)	2
$Q_{3,4,5,6,7}$	102-0460-02	Transistor(2SC460B)	5
Q_8	103-0571-12	Transistor(2SD57IL)	1
R_{501}	110-1001-41	Solid resistor (1/2W 10Ω)	1
R_{206}	110-4702-32	Solid resistor (1/4W 47Ω)	1
R_{28}	032-0059-02	Film resistor (1/4W 2.2kΩ)	1
R_{201}	032-0059-03	Film resistor (1/4W 4.7kΩ)	1
R_{203}	032-0059-04	Film resistor (1/4W 15kΩ)	1
R_2	032-0059-06	Film resistor (1/4W 33kΩ)	1
R_{38}	032-0059-07	Film resistor (1/4W 47kΩ)	1
$R_{10,32}$	032-0059-08	Film resistor (1/4W 100kΩ)	2
$R_{14,12,19}$	111-1011-12	Film resistor (1/8W 100Ω)	3
R_1	111-1021-12	Film resistor (1/8W 1kΩ)	1
R_{31}	111-1021-32	Film resistor (1/4W 1kΩ)	1

REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
R_{22}	111-1031-12	Film resistor (1/8W 10kΩ)	1
$R_{202}^{3,4,5,11,}$	111-1041-12	Film resistor (1/8W 100kΩ)	5
$R_{401}^{33,301,}$	111-1231-12	Film resistor (1/8W 12kΩ)	3
R_{13}	111-1521-12	Film resistor (1/8W 1.5kΩ)	1
R_{410}	111-6821-41	Film resistor (1/2W 6,8kΩ)	1
$R_{7,26}$	111-1531-12	Film resistor (1/8W 15kΩ)	2
R_{29}	111-1811-41	Film resistor (1/2W 180Ω)	1
$R_{17,20,23}$	111-2211-12	Film resistor (1/8W 220Ω)	3
$R_{304,404}^{24,302,402,}$	111-2221-12	Film resistor (1/8W 2.2kΩ)	5
$R_{18,27}$	111-2241-12	Film resistor (1/8W 220kΩ)	2
R_{40}	111-2711-42	Film resistor (1/2W 270Ω)	1
R_{36}	111-2721-12	Film resistor (1/8W 2.7kΩ)	1
R_{204}	111-3311-32	Film resistor (1/4W 330Ω)	1
R_{41}	111-3311-42	Film resistor (1/2W 330Ω)	1
R_{205}	111-3321-12	Film resistor (1/8W 3.3kΩ)	1
$R_{8,37}$	111-3331-12	Film resistor (1/8W 33kΩ)	4
R_{42}	111-3341-12	Film resistor (1/8 330kΩ)	1
R_{39}	111-3351-22	Film resistor (1/4W 3.3MΩ)	1
$R_{34,35}$	111-3921-12	Film resistor (1/8W 3.9kΩ)	2
$R_{9,15,25}$	111-4701-12	Film resistor (1/8W 47Ω)	3
R_{503}	111-4711-32	Film resistor (1/4W 470Ω)	1
R_{43}	111-4721-12	Film resistor (1/8W 4.7kΩ)	1
$R_{303,403}$	111-3921-12	Film resistor (1/8W 3.9kΩ)	2
R_6	111-8201-12	Film resistor (1/8W 82Ω)	1
$R_{16,30}$	111-8221-12	Film resistor (1/8W 8.2kΩ)	2
R_{504}	114-1511-51	Film resistor (1W 150Ω)	1
$Q_{1,2}$	124-0073-28	FET (3SK73GR)	2
$C_{31,209}$	141-1023-10	Polyester capacitor (50V 0.001μF)	2
C_{32}	141-1033-10	Polyester capacitor (50V 0.01μF)	1
C_{417}	141-1043-10	Polyester capacitor (50V 0.1μ)	1
$C_{310,410}$	141-1523-10	Polyester capacitor (50V 0.0015μF)	2
$C_{303,403}$	141-1833-10	Polyester capacitor (50V 0.018μF)	2
$C_{33,216}$	141-2223-10	Polyester capacitor (50V 0.0022μF)	2
C_{53}	141-2233-10	Polyester capacitor (50V 0.022μF)	1
$C_{401,402}$	141-2733-10	Polyester capacitor (50V 0.027μF)	2
C_{202}	141-3323-10	Polyester capacitor (50V 0.0033μF)	1
C_{38}	141-3333-10	Polyester capacitor (50V 0.033μF)	1
$C_{207,211}$	141-4723-10	Polyester capacitor (50V 0.0047μF)	2
$C_{54,204}$	141-4733-10	Polyester capacitor (50V0.047μF)	2
$C_{304,404}$	141-5633-10	Polyester capacitor (50V 0.056μF)	2
$C_{39,40}$	141-2233-10	Polyester capacitor (50V 0.022μF)	2
C_{503}	141-8233-10	Polyester capacitor (50V 0.082μF)	1
C_{51}	143-1031-50	Polystylen capacitor (0.01μF)	1
C_{52}	143-2221-50	Polystylen capacitor (2200PF)	1
C_{206}	144-1112-10	Mica capacitor (110PF)	1

REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
C_{36}	144-5112-10	Mica capacitor (510PF)	1
$C_{49,47}$	150-3096-13	Ceramic capacitor (3pFCH)	2
$C_{3,9,15,19}$	150-3302-13	Ceramic capacitor (33pFCH)	4
$C_{10,18}$	150-1007-13	Ceramic capacitor (10pFCH)	3
$C_{6,11,208}$	150-1502-13	Ceramic capacitor (15pFCH)	3
C_{22}	150-1502-64	Ceramic capacitor (15pFVK)	1
C_{1}	150-2202-13	Ceramic capacitor (22pFCH)	1
C_{210}	150-3312-64	Ceramic capacitor (330pFVk)	1
C_{23}	150-4096-13	Ceramic capacitor (4pFCH)	1
C_{48}	150-4096-57	Ceramic capacitor (4pFUJ)	1
$C_{4,12}$	150-8097-13	Ceramic capacitor (8pFCH)	2
$C_{2,8,45,17}$	160-1035-06	Ceramic capacitor (0.01μF)	4
C_{54}	160-2212-05	Ceramic capacitor (220pFB)	1
C_{16}	160-2222-05	Ceramic capacitor (0.0022μFB)	1
$C^{20,21,24,}_{25,27,28}$	160-2235-06	Ceramic capacitor (0.022μF)	6
$C_{7,13}$	160-3312-05	Ceramic capacitor (330pFB)	2
$C^{214,316,}_{416}$	043-0020-00	Ceramic capacitor (0.2μF)	3
C_{30}	043-0020-02	Ceramic capacitor (0.2μF)	1

REF. NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
C_{203}	043-0039-00	Ceramic capacitor (0.1μF)	1
C_{35}	042-0140-00	Electrolytic capacitor (50V 0.22μF)	1
C_{61}	042-0186-02	Electrolytic capacitor (35V 1μFTAN)	1
$C_{58,46}$	042-0219-00	Electrolytic capacitor (10V 220μF)	2
C_{413}	042-0246-00	Electrolytic capacitor (16V 2200μF)	1
$D_{314,414}$	042-0264-00	Electrolytic capacitor (10V 100μF)	2
C_{216}	042-0270-00	Electrolytic capacitor (16V 10μF)	1
$C^{56,34,37,}_{309,409}$	180-1054-62	Electrolytic capacitor (50V 1μF)	5
$C^{5,14,26,63,}_{62,55,59}$	180-1064-32	Electrolytic capacitor (16V 10μF)	7
$C^{213,311,}_{411}$	180-1074-22	Electrolytic capacitor (10V 100μF)	3
$C_{315,415}$	180-1084-22	Electrolytic capacitor (10V 1000μF)	2
$C^{41,42,43,}_{44,215}$	180-2254-62	Electrolytic capacitor (50V 2.2μF)	5
C_{205}	180-2264-22	Electrolytic capacitor (10V 22μF)	1
C_{418}	180-4764-32	Electrolytic capacitor (16V 47μF)	1
$C_{501,502}$	180-2274-32	Electrolytic capacitor (16V 220μF)	2
$C_{312,412}$	180-4754-42	Electrolytic capacitor (25V 4.7μF)	2
C_{60}	180-4764-22	Electrolytic capacitor (10V 47μF)	1