



SERVICE MANUAL

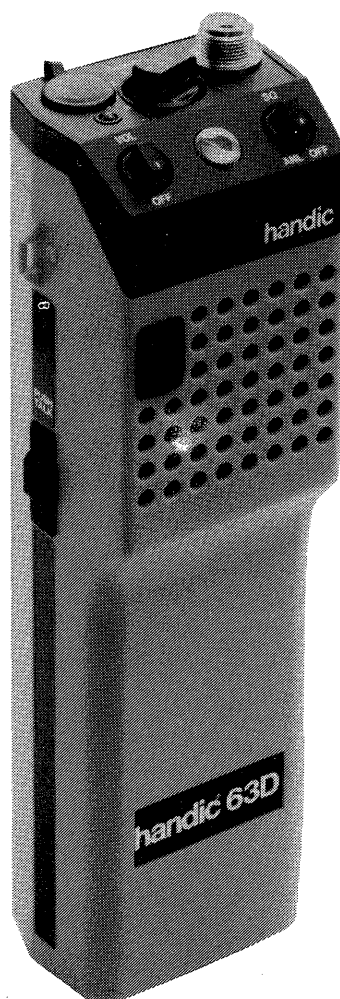
FOR

handic[®] 63D

CITIZEN'S BAND TRANSCEIVER

HANDHELD TYPE

6 CHANNELS 3 WATT



GENERAL

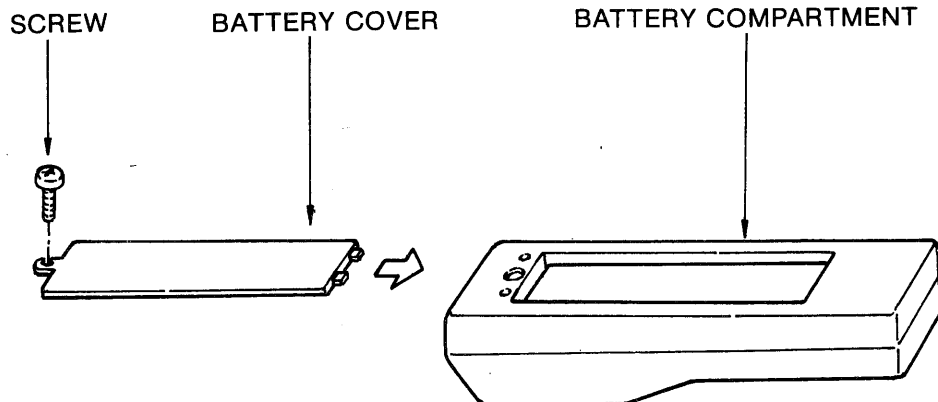
Receiving System	Crystal controlled superheterodyne
Channels	Any 6 in CB band. Supplied with channel 15 crystals ("A" position)
Frequency Coverage	26.965 to 27.405 MHz with appropriate crystals
Power Requirements	12—12.5 V DC, 8 "AA" Cells with 2 dummy batteries or 10 NiCd batteries, negative ground only
Speaker	Dynamic type (8 Ohms)
Semiconductors	15 transistors, 10 diodes and 2 thermistors
Dimension	75 Wx50 Dx255 H.mm

TRANSMITTER

Final Power Input	3 watt
RF Power Output	1.5 watt
Modulation	90—100%
Emission Type	A3
Frequency Tolerance	0.005%
Antenna Impedance	50 ohms (SO-239 type receptacle)
Current Drain	500 mA with 100% modulation
AMC Range	20 dB 50—100% modulation at 2500 Hz

RECEIVER

Sensitivity	0.6 μ V for 10 dB (S+N)/N
Selectivity	35 dB at ± 10 kHz
Adjacent Channel Rejection	40 dB
Audio Power	0.7 W 10% at 1000 Hz
Signal-to-noise Ratio	45 dB
Intermediate Frequency	455 kHz
Squelch Sensitivity	Threshold less than 0.7 μ V
Current Drain	22 mA with minimum output



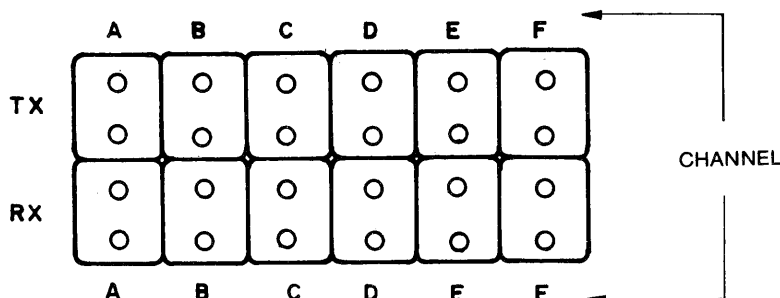
BATTERY INSTALLATION

The battery compartment in the rear cover will take 10 battery cells. If dry batteries are used 8 cells are required. The remaining two subcompartments are bridged over with the enclosed two metal "dummy batteries". When rechargeable batteries of NiCd-type are used the 10 cells will fill the battery compartment without any dummy batteries.

1. Detach the battery cover after loosening the screw at the lower part of the rear cover.
2. Install the eight battery cells with two dummy batteries (or the ten NiCd-cells). Put the cells into place in the compartment as shown.

CRYSTAL INSTALLATION

You can operate on any six of the CB radio channels by installing suitable crystals in each internal crystal socket. Crystal sockets are located inside the case, on the printed circuit board. Remove the screw at the back cover. The cabinet and take off the back cover. Transmitting crystals are plugged into sockets marked TX and receiving crystals into sockets RX. Be careful to plug crystals in correct sockets. In the sockets for channel A there should be one TX and one RX crystal for the same channel etc. The receiving crystal is in most cases marked with a frequency which is 0.455 MHz lower than the transmitting frequency for the same channel.



UNIVERSAL CONNECTOR

The 5-pole DIN standard connector in the bottom of the cabinet suits the hand ic Universal Cassette, which automatically switches between the different functions. If other connections are made, please note the following:

1. Earphone or external loudspeaker: Connect to pins 2 and 3. Also connect pin 1 to pin 4 to make the batteries to supply power.

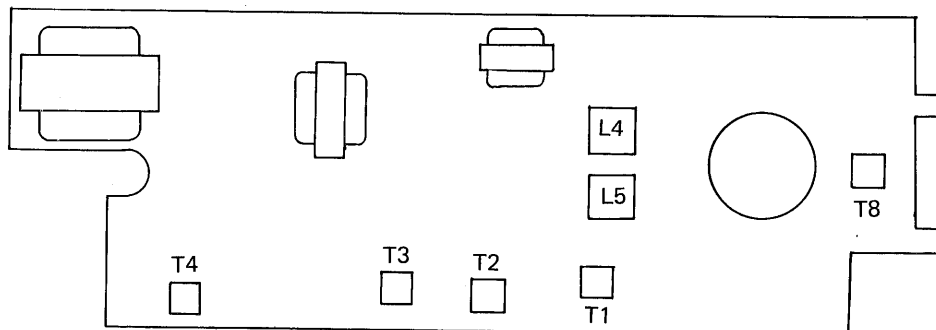
2. External power supply: Positive lead to pin 4, negative to pin 2. Also connect pin 3 to pin 5 to get the built-in loudspeaker to function.
3. Recharge of NiCd cells: A battery charger of currentlimiting type for 50 mA at 14.5 V is connected with the positive lead to pin 1 and the negative to pin 2.

GENERAL ALIGNMENT

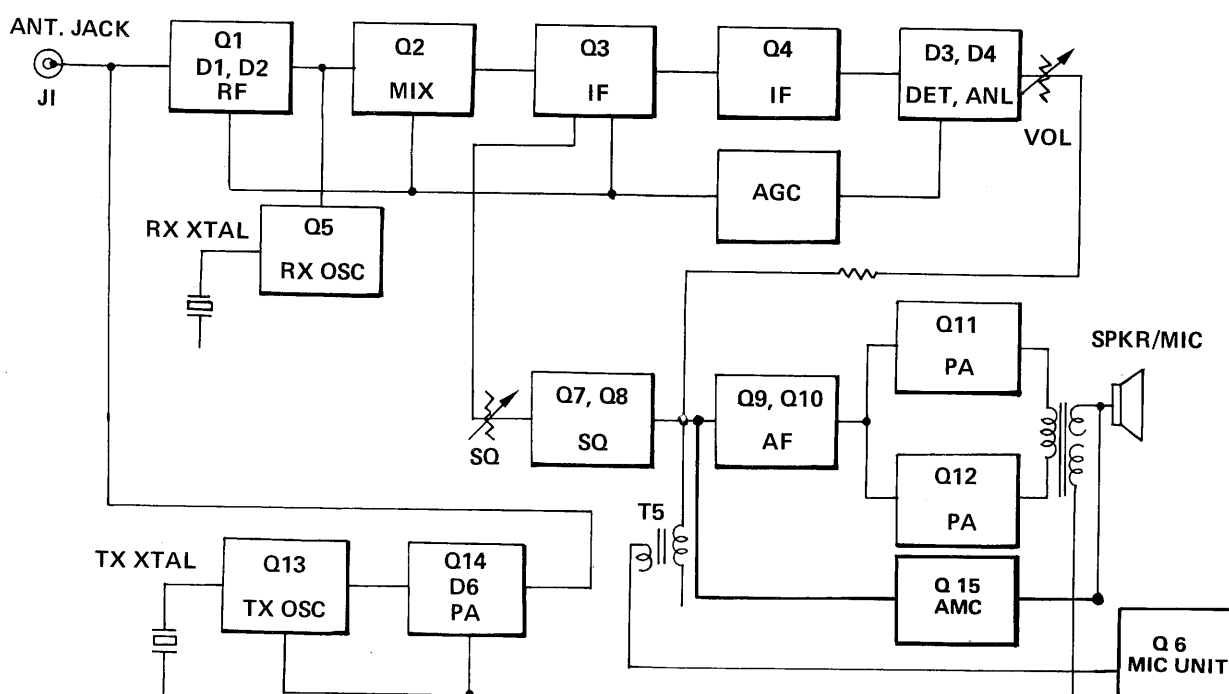
Test equipment required

- | | |
|--|--|
| 1. RF standard signal generator (S.S.G.) | 7. Frequency counter |
| 2. AF signal generator | 8. DC power supply |
| 3. V.T.V.M. (AC) | 9. 500 mA DC ammeter |
| 4. V.T.V.M. (DC) | 10. 8 Ω dummy load |
| 5. Oscilloscope | 11. RF power meter with 50 Ω dummy load |
| 6. Monitor receiver | 12. Radiation (Field strength) meter |

ALIGNMENT POSITION



BLOCK DIAGRAM



TRANSMITTER SECTION ALIGNMENT

1. Connect the equipment as shown in Figure 4.
2. Perform the alignment procedure described in Table 1.

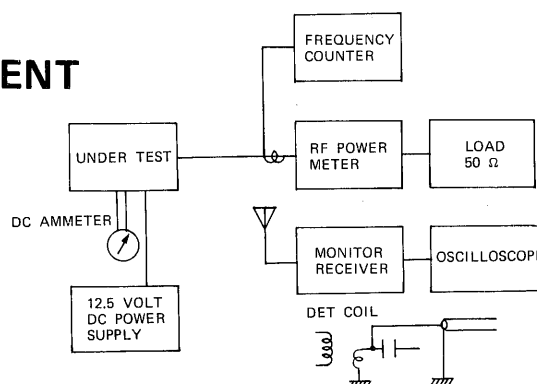


FIGURE 4

TRANSMITTER SECTION ALIGNMENT CHART

Step	Control Setting	Test Equipment Setting	Power Supply Voltage	Adjust	Remarks
1	CH: A position 27.135 MHz	Power meter (50 Ω): to EXT. ANT. Jack 500 mA ammeter: in series with lead between modulation winding of T7 and collector of Q14 Monitor receiver: connect an oscillo- scope and set the frequency to 27.135 MHz	Supply voltage: 12.5 volts		
2	Press the P.T.T. SW	"	"	T8	Max. power output
3	"	"	"	L4, 5	Peak on the power meter and dip on the ammeter to get max. output at EXT. ANT. Jack
4	"	Power meter (50 Ω): to EXT. ANT. Jack 500 mA ammeter: in series with lead between modulation winding of T7 and collector of Q14	Vary supply voltage from 15 to 9 volts	T8	If no output adjust T8 to assure output at both voltage extremes
5	"	Audio frequency generator: to SC 3 (or talk into Microphone)	Reset the supply voltage to 12.5 volts		Check modulation
6					Repeat steps 2 to 4
7	CH: A position Press the P.T.T. SW	Couple the frequency counter as shown in Figure 4	Supply voltage 12.5 volts		Check the trans- mitting frequency

TABLE 1

RECEIVER SECTION ALIGNMENT

1. Connect the equipment as shown in Figure 5.
2. Perform the alignment procedure described in Table 2.

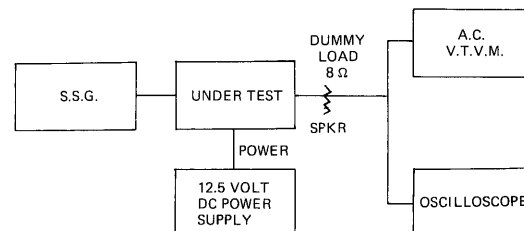


FIGURE 5

RECEIVER SECTION ALIGNMENT CHART

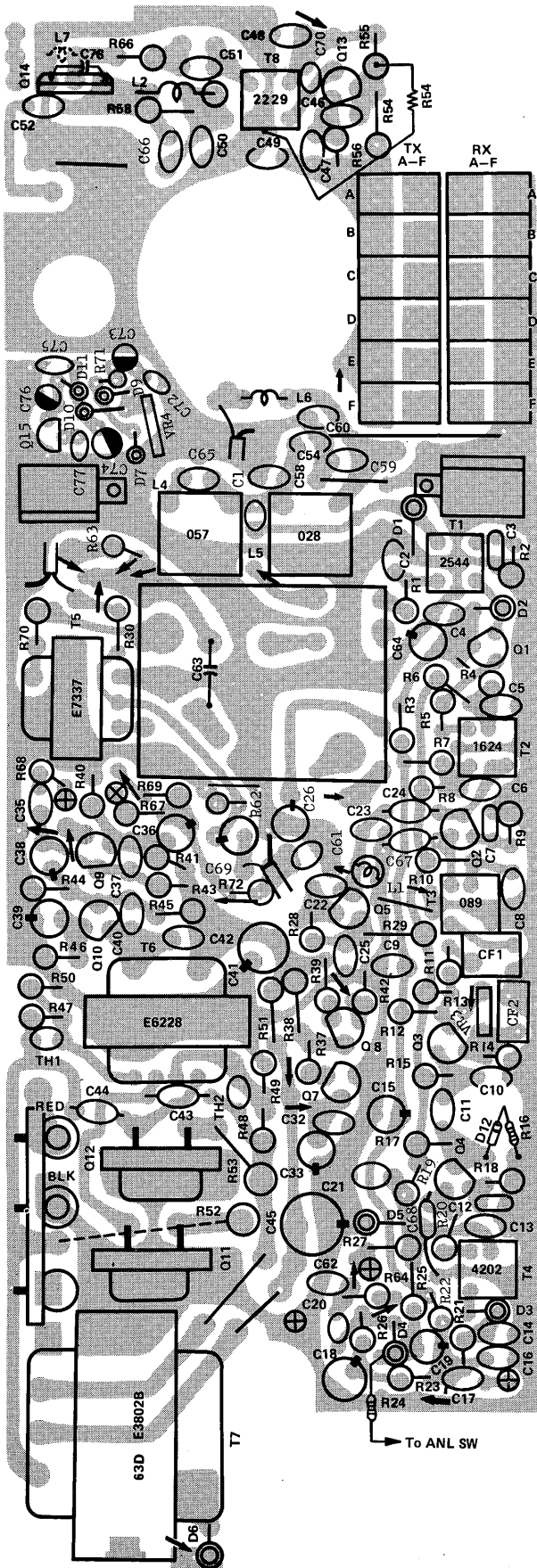
Step	Control Setting	Test Equipment Connector	Signal Generator Setting/Supply	Adjust	Remarks
1	Volume control: Max. (Rotate clockwise fully) SQ control: Min. (Rotate anticlockwise fully) CH: A position 27.135 MHz	V.T.V.M.: Parallel with 8 Ω dummy load connected to EXT. DC/SPKR Jack Signal generator: through 100 pF to the base of Q2 2SC371(O)	Freq.: 455 kHz MOD.: 1 kHz 30% Supply volts 12.5 volts	T3, 4	Max. output on voltmeter
2	"	V.T.V.M.: Paralled with 8 Ω dummy load connected to EXT. SPKR Jack Signal generator: to EXT. ANT. Jack	Freq.: 27.135 MHz Mod.: 1 kHz 30%	T1	Max. S/N Ratio
3	"	"		T2	Max. output on voltmeter
4					Repeat steps 2 to 3
5	Volume control: adjust for desired audio level SQ control: Min. (Rotate anticlockwise fully)	V.T.V.M.: Parallel with 8 Ω dummy load or across speaker to EXT. DC/SPKR Jack Signal generator to EXT. ANT. Jack	Freq.: 27.135 MHz Mod.: 1 kHz output: 500 μ V	VR3	Adjust so squelch just opens

TABLE 2

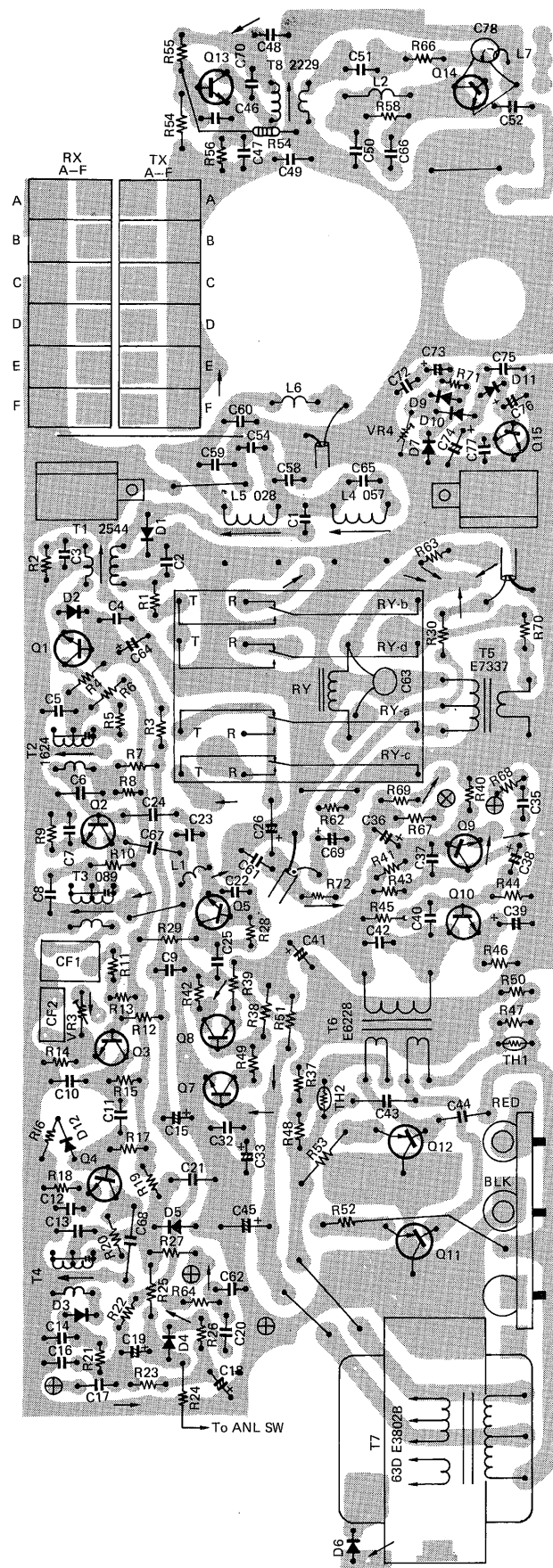
NOTE: Keep the input signal from S.S.G. as low as possible in alignment step 1 to 4.

PRINTED CIRCUIT BOARD

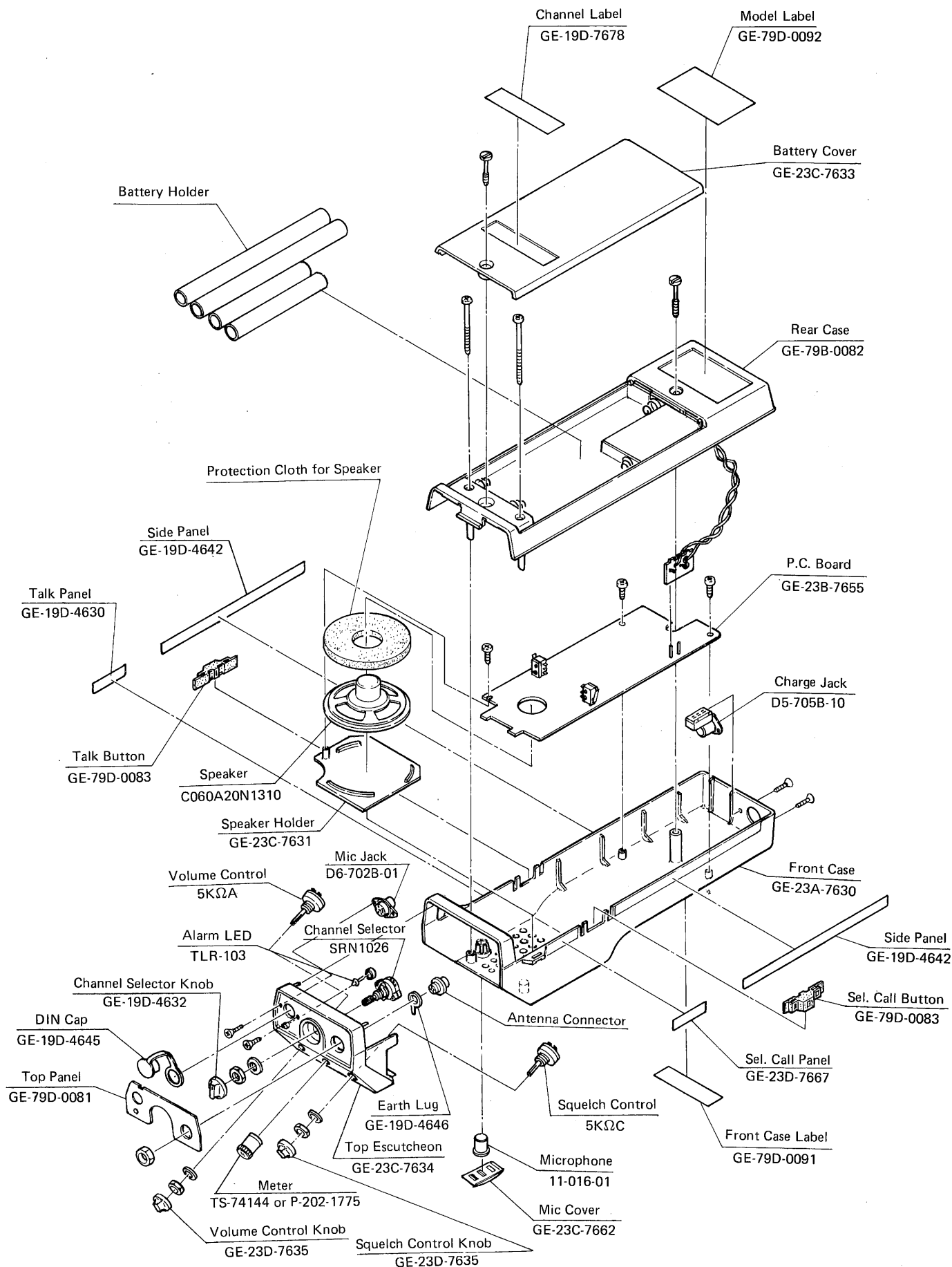
TOP VIEW



BOTTOM VIEW



EXPLODED VIEW



TROUBLE SHOOTING

Symptom	Possible cause
1) Does not receive	A) Defective crystals. B) Faulty local oscillator or faulty local oscillator circuit component. C) Defective RF amp., IF amp., CF1 or their circuit component. D) Faulty channel switch. E) Defective squelch control or faulty control circuit component F) Defective power switch volume. G) Battery weak. H) Defective push to talk switch. I) Faulty audio amplifier circuit. J) Defective speaker and/or speaker jack.
2) Does not squelch	A) Defective squelch control. B) Faulty squelch control circuit component.
3) Low sensitivity reception	A) Defective transistor Q1 or faulty RF stage amplifier circuit component. B) Defective IF amplifier or faulty IF amplifier circuit component. C) Defective local oscillator. D) Frequency not covering the correct channel. E) Weak battery and/or crystal. F) Defective external antenna.
4) Mixed reception	A) Wrong crystal for receiving frequency.
5) No sound is audible and no modulation	A) Defective speaker jack. B) Defective transistors Q11, 12 and/or defective associated circuit component. C) Defective transistor Q10 and/or defective associated circuit component. D) Defective squelch control. E) Faulty squelch control circuit component. F) Defective speaker. G) Defective audio output transformer T7. H) Defective resistor R51, R52 and R53.
6) Does not transmit.	A) Defective crystal. B) Faulty transmit oscillator or faulty transmit oscillator circuit component. C) Defective transistor Q14 and/or defective associated circuit component. D) Defective talk switch or relay. E) Weak battery.
7) Carrier is emitted but not modulation.	A) Defective microphone jack. B) Defective MIC. transformer T5. C) Defective relay D) Defective audio output transformer T7.
8) Transmit low power and low sensitivity.	A) Weak battery. B) Defective antenna connector. C) Defective antenna.

PARTS LIST

Ref. No.	Description				handic Stock Number	MFR'S Parts Number
RESISTORS						
R1	Carbon film	1 K	1/4 W	± 5 %	951477	ELR-25J-471
R2	Carbon film	270	1/4 W	± 5 %	951435	ELR-25J-271
R3	Carbon film	22 K	1/4 W	± 5 %	951757	ELR-25J-223
R4	Carbon film	220 K	1/4 W	± 5 %	951925	ELR-25J-224
R5	Carbon film	680	1/4 W	± 5 %	951477	ELR-25J-471
R6	Carbon film	220	1/4 W	± 5 %	951421	ELR-25J-221
R7	Carbon film	8.2 K	1/4 W	± 5 %	951687	ELR-25J-822
R8	Carbon film	100 K	1/4 W	± 5 %	951869	ELR-25J-104
R9	Carbon film	1 K	1/4 W	± 5 %	951533	ELR-25J-102
R10	Carbon film	220	1/4 W	± 5 %	951421	ELR-25J-221
R11	Carbon film	2.2 K	1/4 W	± 5 %	951589	ELR-25J-222
R12	Carbon film	27 K	1/4 W	± 5 %	951771	ELR-25J-273
R13	Carbon film	82 K	1/4 W	± 5 %	951855	ELR-25J-823
R14	Carbon film	1 K	1/4 W	± 5 %	951533	ELR-25J-102
R15	Carbon film	1.5 K	1/4 W	± 5 %	951561	ELR-25J-152
R16	Carbon film	4.7 K	1/4 W	± 5 %	951645	ELR-25J-472
R17	Carbon film	27 K	1/4 W	± 5 %	951771	ELR-25J-273
R18	Carbon film	220	1/4 W	± 5 %	951421	ELR-25J-221
R19	Carbon film	220	1/4 W	± 5 %	951421	ELR-25J-221
R20	Carbon film	220	1/4 W	± 5 %	951421	ELR-25J-221
R21	Carbon film	470	1/4 W	± 5 %	951477	ELR-25J-471
R22	Carbon film	10 K	1/4 W	± 5 %	951701	ELR-25J-103
R23	Carbon film	10 K	1/4 W	± 5 %	951701	ELR-25J-103
R24	Carbon film	2.2 K	1/4 W	± 5 %	951589	ELR-25J-222
R25	Carbon film	82 K	1/4 W	± 5 %	951981	ELR-25J-474
R26	Carbon film	10 K	1/4 W	± 5 %	951701	ELR-25J-103
R27	Carbon film	470	1/4 W	± 5 %	951435	ELR-25J-271
R28	Carbon film	150 K	1/4 W	± 5 %	951897	ELR-25J-154
R29	Carbon film	1 K	1/4 W	± 5 %	951533	ELR-25J-102
R30	Carbon film	100	1/4 W	± 5 %	951309	ELR-25J-470
R31	Not used					
R32	Not used					
R33	Not used					
R34	Not used					
R35	Not used					
R36	Not used					
R37	Carbon film	4.7 K	1/4 W	± 5 %	951645	ELR-25J-472
R38	Carbon film	6.8 K	1/4 W	± 5 %	951673	ELR-25J-682
R39	Carbon film	3.3 K	1/4 W	± 5 %	951421	ELR-25J-221
R40	Carbon film	10 K	1/4 W	± 5 %	951701	ELR-25J-103
R41	Carbon film	100 K	1/4 W	± 5 %	951869	ELR-25J-104
R42	Carbon film	470	1/4 W	± 5 %	951477	ELR-25J-471
R43	Carbon film	4.7 K	1/4 W	± 5 %	951645	ELR-25J-472
R44	Carbon film	10 K	1/4 W	± 5 %	951701	ELR-25J-103
R45	Carbon film	47 K	1/4 W	± 5 %	951813	ELR-25J-473
R46	Carbon film	220	1/4 W	± 5 %	951421	ELR-25J-221
R47	Carbon film	180	1/4 W	± 5 %		ELR-25J-181
R48	Carbon film	180	1/4 W	± 5 %		ELR-25J-181
R49	Carbon film	6.8 K	1/4 W	± 5 %	951673	ELR-25J-682

Ref. No.	Description					handic Stock Number	MFR'S Parts Number
R50	Carbon film	6.8 K	1/4 W	± 5 %		951673	ELR-25J-682
R51	Carbon film	220	1/4 W	± 5 %		951421	ELR-25J-221
R52	Carbon film	2.2	1/2 W	± 10 %		954102	ELR-25K-2R2
R53	Carbon film	2.2	1/2 W	± 10 %		954102	ELR-25K-2R2
R54	Carbon film	2.2 K	1/4 W	± 5 %		951589	ELR-25J-222
R55	Carbon film	10 K	1/4 W	± 5 %		951729	ELR-25J-153
R56	Carbon film	100	1/4 W	± 5 %		951365	ELR-25J-101
R57	Not used						
R58	Carbon film	1 K	1/2 W	± 10 %		954123	ELR-25K-471
R59	Not used						
R60	Not used						
R61	Not used						
R62	Carbon film	220	1/4 W	± 5 %		951393	ELR-25J-151
R63	Carbon film	15 K	1/4 W	± 5 %		951729	ELR-25J-153
R64	Carbon film	10 K	1/4 W	± 5 %		951701	ELR-25J-103
R65	Not used						
R66	Carbon film	10	1/4 W	± 5 %		951197	ELR-25J-100
R67	Carbon film	100 K	1/4 W	± 5 %		951869	ELR-25J-104
R68	Carbon film	150 K	1/4 W	± 5 %		951897	ELR-25J-154
R69	Carbon film	10 K	1/4 W	± 5 %		951701	ELR-25J-103
R70	Carbon film	2.2	1/4 W	± 5 %		951085	ELR-25J-2R2
R 71	Carbon film	1 K	1/4 W	± 5 %			
R 72	Carbon film	120	1/4 W				
R 73	Carbon film	22	1/2 W				

CAPACITORS

C1	Ceramic	10 pF		± 0.5 pF	990239	FC-50
C2	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C3	Mylar	0.01 μ F		± 20 %	990099	
C4	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C5	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C6	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C7	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C8	Ceramic	0.04 μ F		- 20 - + 80 %	990491	MC-100
C9	Ceramic	0.04 μ F		- 20 - + 80 %	990491	MC-100
C10	Ceramic	100 p		± 10 %	990491	MC-100
C11	Ceramic	100 pF		± 10 %	990295	FC-70
C12	Mylar	0.01 μ F		± 20 %	990099	
C13	Ceramic	0.04 μ F		- 20 - + 80 %	990491	MC-100
C14	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C15	Electrolytic	4.7 μ F	16 WV	- 10 - + 75 %	990561	CE04W1C4R7
C16	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C17	Ceramic	0.04 μ F		- 20 - + 80 %	990491	MC-100
C18	Electrolytic	3.3 μ F	16 WV	- 10 - + 75 %	990554	CE04W1C3R3
C19	Electrolytic	1 μ F	50 WV	- 10 - + 75 %	990008	CE04W1H010
C20	Mylar	0.022		- 10 - + 75 %	990008	CE04W1H010
C21	Ceramic	0.1 μ F		- 10 - + 80 %	990498	MMC-135
C22	Ceramic	100 pF		± 10 %	990295	FC-70
C23	Ceramic	47 pF		± 5 %	990274	FC-60
C24	Ceramic	5 pF		± 0.5 pF	990218	FC-50
C25	Ceramic	0.04 μ F		- 20 - + 80 %	990491	MC-100
C26	Electrolytic	1 μ F	50 WV	± 20 %	990113	
C27	Not used					
C28	Not used					
C29	Not used					

Ref. No.	Description				handic Stock Number	MFR'S Parts Number
C30	Not used					
C31	Not used					
C32	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C33	Electrolytic	1 μ F	50 WV	- 10 - + 75 %	990008	CE04W1H010
C34	Not used					
C35	Not used					
C36	Electrolytic	1 μ F	50 WV	- 10 - + 75 %	990008	CE04W1H010
C37	Ceramic	150 pF		$\pm$ 20 %	990309	FC-80
C38	Electrolytic	1 μ F	50 WV	- 10 - + 75 %	990008	CE04W1H010
C39	Electrolytic	10 μ F	16 WV	- 10 - + 50 %	990036	CE04W1C100
C40	Ceramic	100 pF		$\pm$ 20 %	990309	FC-80
C41	Electrolytic	47 μ F	16 WV	- 10 - + 50 %	990043	CE04W1C470
C42	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C43	Ceramic	0.001 μ F		- 20 - + 80 %	990463	MC-60
C44	Ceramic	0.001 μ F		- 20 - + 80 %	990463	MC-60
C45	Electrolytic	100 μ F	16 WV	- 10 - + 50 %	990050	CE04W1C101
C46	Ceramic	22 pF		$\pm$ 5 %	990253	FC-50
C47	Ceramic	100 pF		$\pm$ 10 %	990295	FC-70
C48	Ceramic	0.01 μ F		- 20 - + 80 %	990477	MC-70
C49	Ceramic	0.01 μ F				
C50	Ceramic	0.04 μ F		- 20 - + 80 %	990491	MC-100
C51	Ceramic	390 pF		$\pm$ 20 %	990365	FC-100
C52	Ceramic	82 pF		$\pm$ 5 %	990274	FC-60
C53	Not used					
C54	Ceramic	22 pF		$\pm$ 5 %	990253	FC-50
C55	Not used					
C56	Not used					
C57	Not used					
C58	Ceramic	220 pF		$\pm$ 20 %	990323	FC-80
C59	Ceramic	180 pF		$\pm$ 20 %	990316	FC-80
C60	Ceramic	22 pF		$\pm$ 5 %	990253	FC-50
C61	Ceramic	0.01 μ F		$\pm$ 0.5 pF	990239	FC-50
C62	Ceramic	0.001 μ F		- 20 - + 80 %	990491	MC-100
C63	Ceramic	0.1 μ F		- 20 - + 80 %	990498	MMC-135
C64	Electrolytic	1 μ F	50 WV	- 10 - + 75 %	990008	CE04W1H010
C65	Ceramic	15 p		$\pm$ 0.5 pF	990239	FC-50
C66	Ceramic	33 pF		$\pm$ 5 %	990267	FC-50
C 67	Ceramic	50 pF				
C 68	Ceramic	100 pF				
C 69	Ceramic	150 pF				
C 70	Ceramic	15 pF				
C 71	Ceramic	0.01 μ F				
C 72	Ceramic	0.001 μ F				
C 73	Tantal	1 μ F				
C 74	Tantal	10 μ F				
C 75	Ceramic	0.04 μ F				
C 76	Tantal	0.1 μ F				
C 77	Ceramic	0.001 μ F				

SEMICONDUCTORS			
Q1	Transistor	silicon	2SC1923(R)
Q2	Transistor	silicon	2SC1923(R)
Q3	Transistor	silicon	2SC1815(O)
Q4	Transistor	silicon	2SC1815(O)
Q5	Transistor	silicon	2SC1815(O)
Q6	Not used		
Q7	Transistor	silicon	2SC1815(GR)
Q8	Transistor	silicon	2SA495(O)
Q9	Transistor	silicon	2SC1815(GR)
Q10	Transistor	silicon	2SC1815(GR)
Q11	Transistor	germanium	2SB324(H)
Q12	Transistor	germanium	2SB324(H)
Q13	Transistor	silicon	2SC1364
Q14	Transistor	silicon	2SC1018
Q15	Transistor	silicon	2SC1815(GR)
D1	Diode	silicon	1S1555
D2	Diode	germanium	1N60
D3	Diode	germanium	1N60
D4	Diode	germanium	1N60
D5	Diode	Zener 7.0 V	EQA01-07(S)
D6	Diode	silicon	SIB0102
D7	Diode	germanium	1N60
D8	Diode	L.E.D.	TLR-103
D9	Diode	germanium	1N60
D10	Diode	Zener 5.6 V	
D11	Diode	silicon	IS1555
TH1	Thermistor		M-90
TH2	Thermistor		M-90

COILS/TRANSFORMERS/FILTER			
L1	Microinduktor	2.2 uH	LF42R2K
L2	R.F.C.	0.84 uH	4LNC-027
L3	Not used		
L4	T NET coil		8SNF-057
L5	π NET coil		10PNP-028
L6	R.F.C.		4LNC-092
L7	Microinductor	10uH	LF1-100K
T1	ANT coil		113CN2544
T2	RF coil		1624B
T3	IF coil		7SS1-089
T4	IF coil		4202
T5	MIC. transformer		E7337
T6	Input transformer		E6228
T7	Output transformer		E2802B
T8	TX OSC. coil		74XN-2229A02
CF-1	Ceramic filter		LF-A6
CF-2	Ceramic filter		BFU-455L

VOLUMES			
VR 1	Volume control	5 K(A)	V12M4-1S-SJ
VR 2	Semi fixed volume	10 K	-15FHT5K
VR 3	Squelch control	5 K(A)	P6S2A
VR 4	Semi fixed	2.2 K	V12M4-1N
			-15FHA5K
			P6S2A

SWITCHES			
SW 1	Channel switch		SRN-1026N
SW 2	Micro switch	sel. call	SS-5GL
SW 3	Micro switch	Push talk	SS-5GL

MISCELLANEOUS		
	Relay	NF-4-12V
	Electret Mic. unit	11-016-01
	Meter	TS74144
	Speaker	CO60A2ON1310
	Crystal socket	SB-101B-10
	Antenna connector	Y-R
	Mic. jack 6 pin DIN	D6-702B-01
	Ext. batt. jack 5 pin DIN	D5-705B-10
	Speaker holder	
	Mic. cover	
	Front case label	
	Side panel	
	Talk panel	
	Sel. call panel	
	Front case	
	Rear case	
	Rear case label	
	Battery terminal	
	Rear case screw	
	Battery cover	
	Channel label	
	Battery screw	
	Top escutcheon	
	Top panel	
	DIN cap	
	VR knob	
	CH knob	
	Talk knob	
	Shoulder strap	
	3P connector	
	Battery terminal pin	
	Micro sw. holder	
	Heat sink	2SB324
	Heat sink	2SC1018

SELECTIVE CALL

If **handic** PTRM selective call unit is used then selective call operation is possible. It is constructed to fit into the cabinet.

handic PTRM should be hold in place by using 2-side adhesive tape between the tuning forks and the front cabinet.

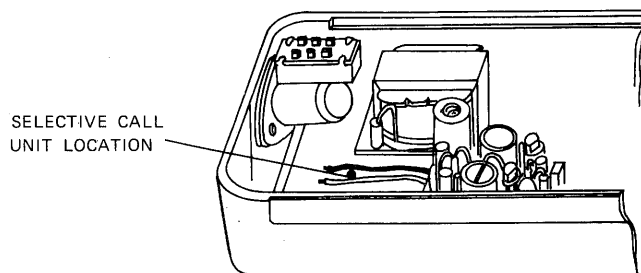


FIGURE 6

WIRING

Solder the wires from **handic** PTRM as follows :

SOLDER LIKE THIS

1. BRN wire to SC-1 on the P.C. Board.
2. RED wire to SC-2 on the P.C. Board.
3. ORG wire to SC-3 on the P.C. Board.
4. YEL wire to SC-4 on the P.C. Board.
5. GRN wire to SC-5 on the P.C. Board.
6. BLU wire to center terminal of Selective Call switch.
7. RED wire from LED to SC-2 on the P.C. Board.
8. WHT wire from LED to solder pin on PTRM.

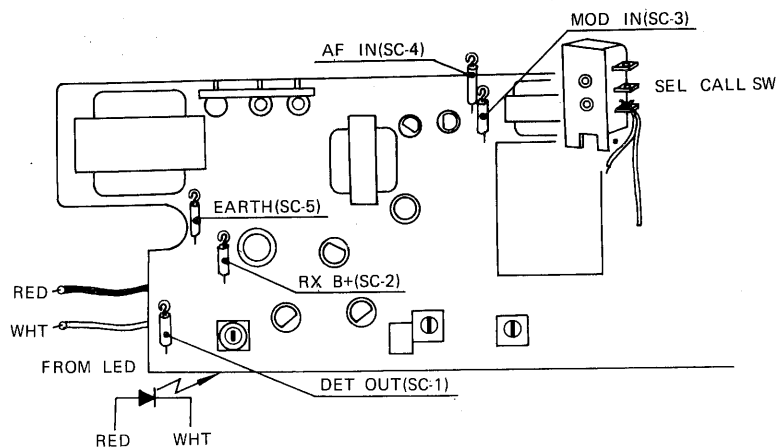
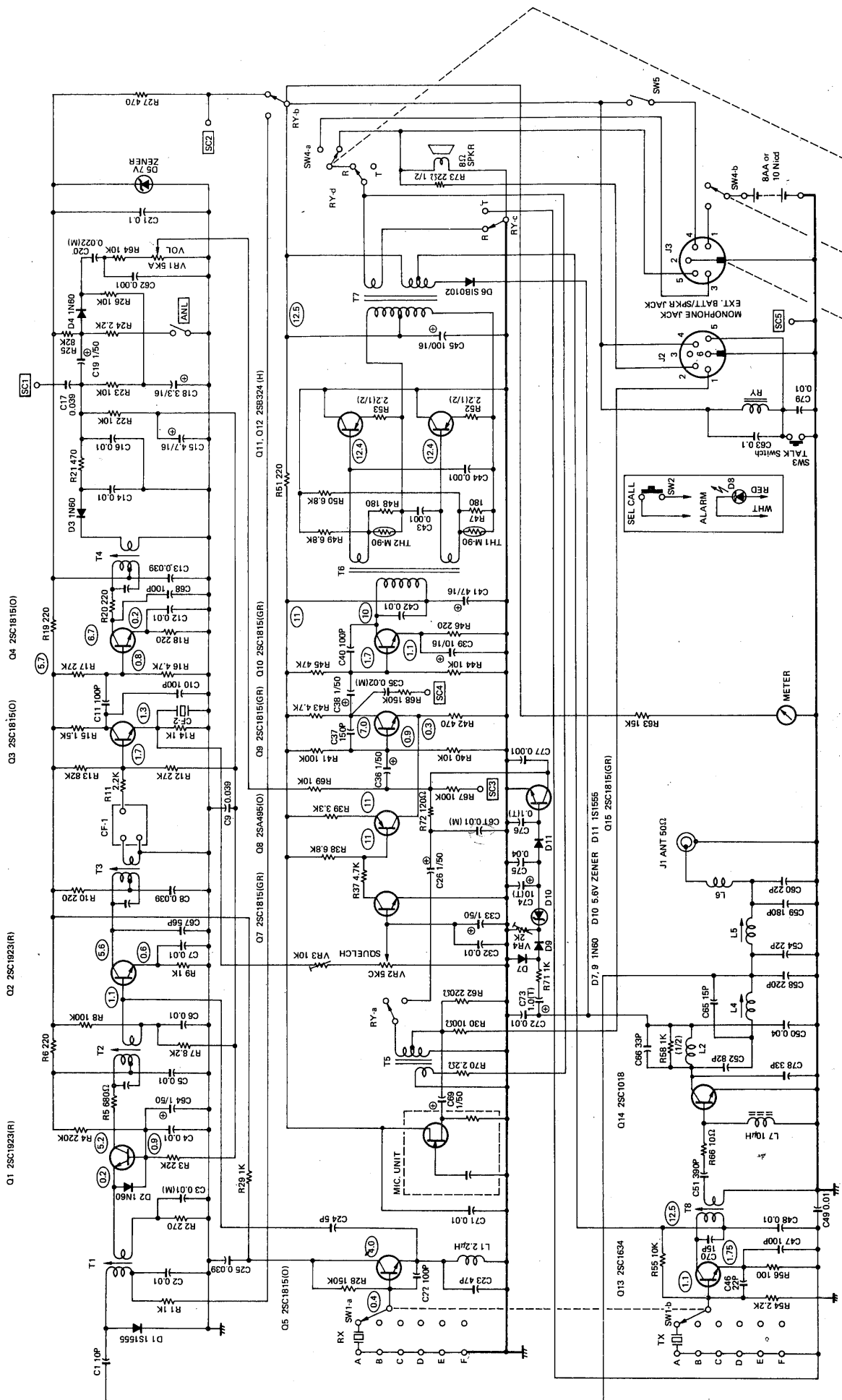


FIGURE 7

SCHEMATIC DIAGRAM



- NOTE:
1. SW1-a-b: CHANNEL SWITCH
 2. SW2: SELECTIVE CALL SWITCH
 3. SW3: PUSH TALK SWITCH
 4. SW4-a-b: EXT. POWER & SPEAKER SWITCH
 5. SW5-a-b: POWER SWITCH
 6. RESISTANCE VALUES IN OHMS K = 1000
 7. CAPACITANCE VALUES IN MF P = MMF
 8. MARKS DC VOLTAGE
 9. RATINGS OR TYPE NUMBER OF COMPONENT PARTS ARE SUBJECT TO CHANGE FOR FURTHER IMPROVEMENT WITHOUT NOTICE.

handic

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