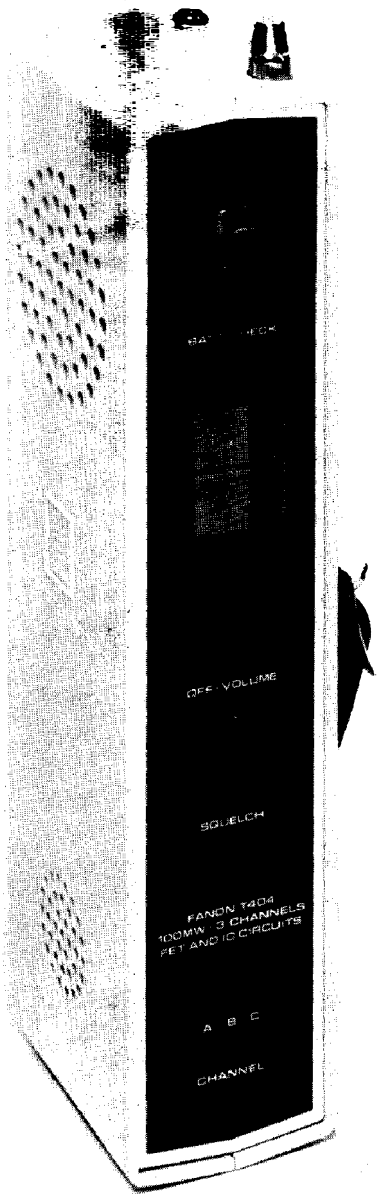
OWNER'S MANUAL

FANON



MODEL T404
CITIZENS BAND
TRANSCEIVER

SPECIFICATIONS

MODEL T404

GENERAL

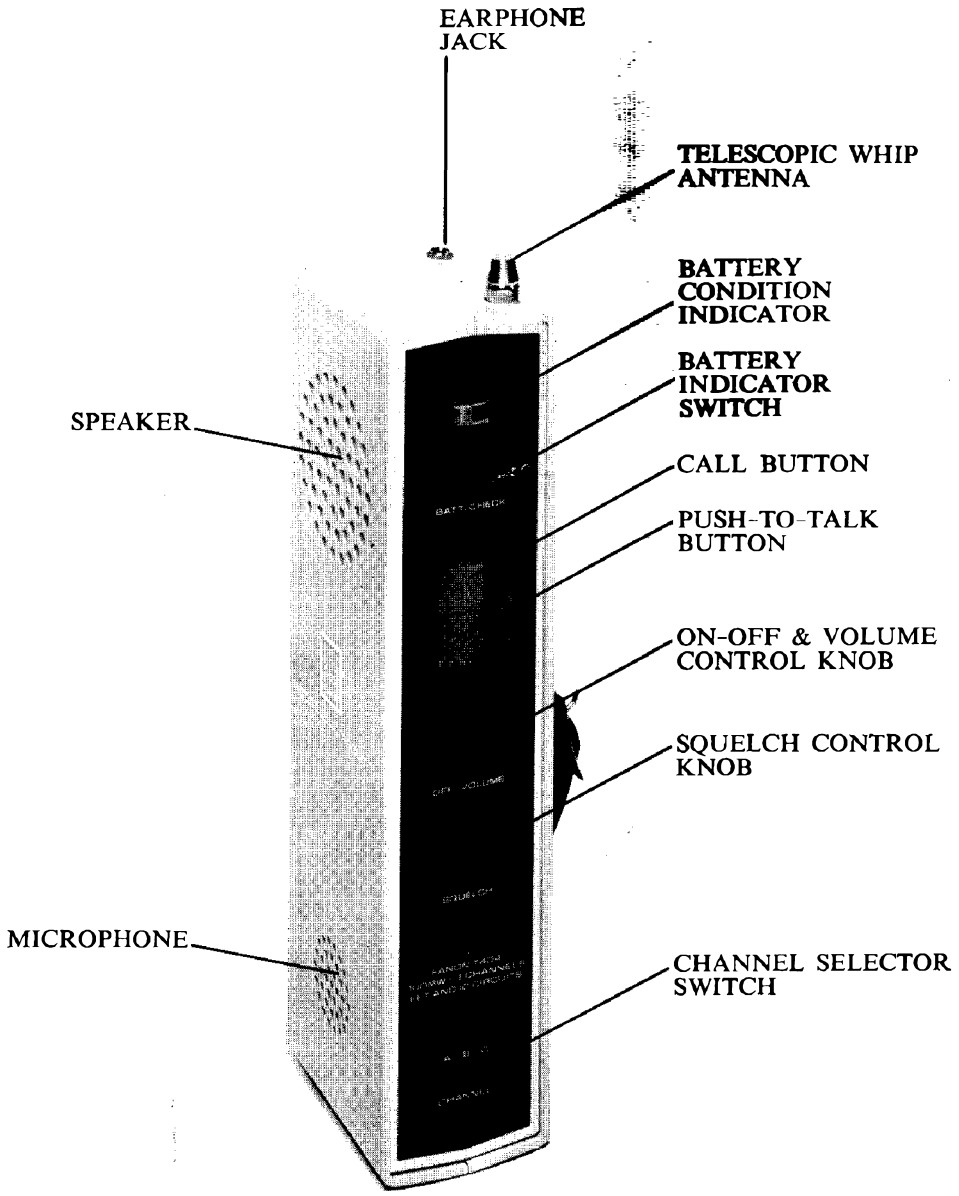
* FET - 1
* Transistor - 8
* Integrated Circuit - 1
* Diode - 5
* Self - contained speaker - 2¼″ - 8 ohms voice coil
* Self - contained separate microphone
* Battery condition indicator
* Battery indicator switch
* Built - in telescopic whip antenna
* Ceramic filter - 1
* Operates from 12 V DC batteries
* 3 channel selector
* Off - on volumue control
* Squelch control
* Call button
* Earphone jack
* Push - to - talk button
* Cabinet Dimensions: 2″ (W) × 9⅜″ (H) × 3″ (D)
* Weight: 1.5 lbs.

RECEIVER SECTION

- Frequency Range: ····· 26. 965 to 27. 255 MHz
- Sensitivity: ····· 1.0 μV for 10 db S/N at 1000 cps at 30% modulation
- Adjacent channel rejection:····· 26 db
- Audio distortion at 1000 cps:····· Less than 3% at 50 mW
- Squelch sensitivity:····· 0.5 μV
- Image rejection: ····· 20 db
- Audio output at 8 ohms:····· 300 mW

TRANSMITTER SECTION

- Frequency Range: ····· 26.965 to 27.255 MHz
- Power input at 12V DC:····· 100 mW
- Power output at 12V DC: ····· 60 mW
- Modulation capability:····· 100%
- Frequency tolerance: ····· ±0.005%
- Modulation distortion:····· Less than 8% at 95% Mod. at 1000 cps.


EARPHONE JACK
TELESCOPIC WHIP ANTENNA
BATTERY CONDITION INDICATOR
BATTERY INDICATOR SWITCH
SPEAKER
CALL BUTTON
PUSH-TO-TALK BUTTON
ON-OFF & VOLUME CONTROL KNOB
SQUELCH CONTROL KNOB
MICROPHONE
CHANNEL SELECTOR SWITCH

DESCRIPTION

The model T404 is a full 100 mW hand-held transceiver designed for portable three channel, two way radio communication in the Citizens Band (27 MHz).

BATTERY INSTALLATION

The detachable bottom of the transceiver is designed to house eight "AA" size (penlite) battery cells in series.

1. To Remove the bottom battery holder, loosen screw with a screw driver or coin.
2. Refer to Figure 1 and install the eight batteries in series as shown.

USING OPTIONAL NICKEL CADMIUM BATTERY PACK (MODEL NCA-1A)

The Nickel Cadmium Battery pack, (Model NCA-1A) although higher in initial cost than ordinary dry, alkaline battery cells, can be recharged hundreds of times for long-lasting economical power. They are hermetically sealed in steel cases. Refer to figure 2 for insertion of Model NCA-1A.

To charge the battery

The section titled "BATTERY CONDITION INDICATOR" on a succeeding page provides the information necessary for determining when the batteries require recharging. Plug the AC cord into battery pack and insert the other plug into any convenient 117V AC outlet. Leave charger on for at least 15 hours, if possible.

It is a good idea to recharge Nickel Cadmium batteries for a few hours when first installing them in the transceiver as they may have lost some of their charge during shipment from the factory.

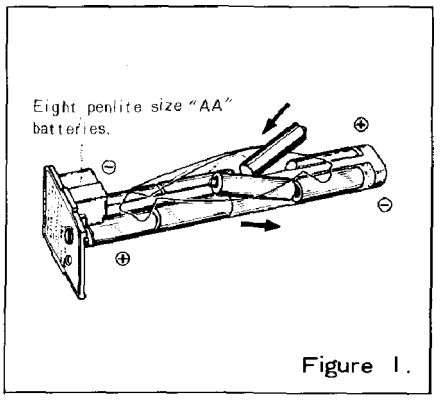


Figure 1.

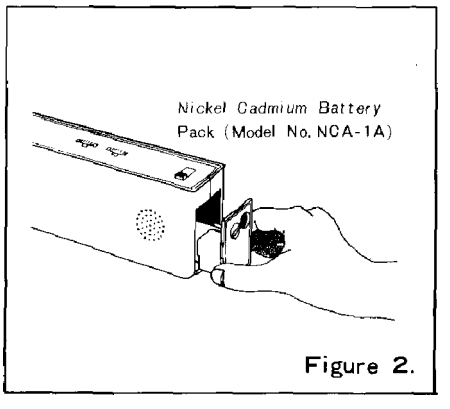


Figure 2.

OPERATION AND CONTROLS

1. Extend the telescoping whip antenna to its full length.
   Avoid bending the slim, top section of the antenna when extending or collapsing it.
2. Turn volume control up-ward to switch the unit "ON". Turn the squelch control to the fully "open" position initially (down-ward), and increase volume until background noise is heard. Turn Channel Selector to desired channel.
   (Remember, the unit is originally supplied with crystals for operation on channel 15 only, usually in the A position).
3. To transmit, hold unit so that the grille (microphone) is 5 inches away from your lips Fully depress the Push-to-talk button. Speak clearly at a normal level. When you have completed your message, release button.
   NOTE: When one unit is transmitting, it is not possible for this unit to hear any message directed to it. Do not, therefore, attempt to talk until the other station has finished transmitting.
4. The squelch circuit in the receiver section of the transceiver is used to eliminate annoying background noise when no signals are present.
   To adjust the SQUELCH control properly during reception, turn up VOLUME until background noise is heard (no signals should be present). Rotate the SQUELCH slowly up-ward until the background noise just disappears, then rotate slightly further. At this point, the receiver will be quiet between transmissions, but a transmitted signal will overcome the squelch action and be heard.
   Do not advance the control too far or some of the weaker signals will not be heard. If you wish to receive extremely weak signals or disable the squelch circuit, simply turn the control to the fully downward position.

CHANNEL SELECTOR SWITCH

Your transceiver is equipped to transmit and receive on three channels, channel 15 (27.135 MHz) and two other optional channels.
Position A represents Channel 15 (27.135 MHz) and positions B and C, any channels as desired.

EARPHONE JACK

Plug an earphone into the jack marked EAR.
This will cut off the main speaker in the unit, enabling private listening.
The plugged-in earphone will not affect the built-in microphone during transmitting.

HOW TO USE THE ALERT SYSTEM

This system provides for the sending of an alert tone which precedes the communication.

Operate the system as follows:

(1) Turn unit "on", and increase volume until background noise is heard.

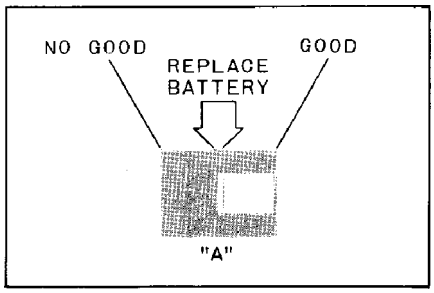
(2) To transmit the call signal, depress the call button.
The call tone will be heard at the companion unit every time the call button is depressed.

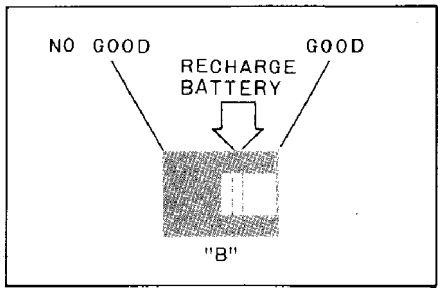
BATTERY CONDITION INDICATOR

To check the battery voltage simply switch the unit "on" and push battery the indicator switch.

If the batteries being used are dry cells, replacement is necessary as the meter pointer is on the center position. (see "A").

If nickel cadmium batteries are being used, recharge the batteries as soon as the pointer falls slightly below the maximum points (see "B").





INSERTING NEW CRYSTALS

1. Remove the battery holder, and remove the crystal compartment cover on the right side of the unit.
2. Figure 3 shows the location of the crystals for each channel. Optional crystal may be ordered from your dealer.
3. Insert the new matched pair of crystals into the sockets.
   Each crystal will be marked with the channel (1-23), transmit or receiver (T or R), and frequency. Make sure the transmitter (T) and receiver (R) crystals are installed in their correct sockets. If the crystals are reversed, the unit will transmit on one frequency and receive on another, both of which will be outside the citizens band, resulting in illegal operation.
4. Replace the battery holder and crystal compartment cover. The unit is now ready for operation.

CITIZENS BAND FREQUENCY CHART

CHANNEL		TRANSMIT CRYSTALS (MHz)	RECEIVE CRYSTALS (MHz)
U.S.A.	CANADA		
1	Do not use	26.965	26.510
2	〃	26.975	26.520
3	〃	26.985	26.530
4	4	27.005	26.550
5	5	27.015	26.560
6	6	27.025	26.570
7	7	27.035	26.580
8	8	27.055	26.600
9	9	27.065	26.610
10	10	27.075	26.620
11	11	27.085	26.630
12	12	27.105	26.650
13	13	27.115	26.660
14	14	27.125	26.670
15	15	27.135	26.680
16	16	27.155	26.700
17	17	27.165	26.710
18	18	27.175	26.720
19	19	27.185	26.730
20	20	27.205	26.750
21	21	27.215	26.760
22	22	27.225	26.770
23	Do not use	27.255	26.800

Receive crystal is 455 KHz lower in frequency than transmit crystal.
Channel 23 is shared with class C Radio Control.

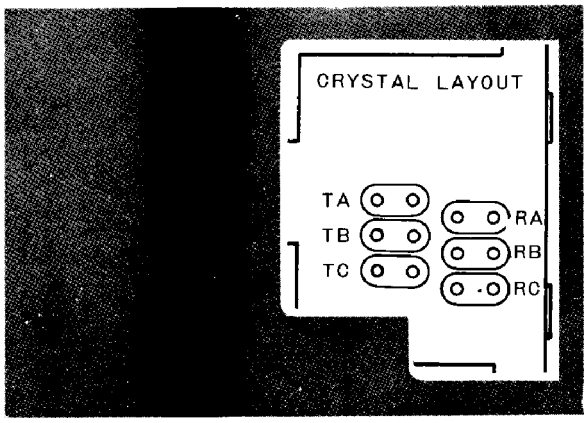


Figure 3.

ACCESSORY

Ask your dealer about optional carrying case, Model CAT-1.

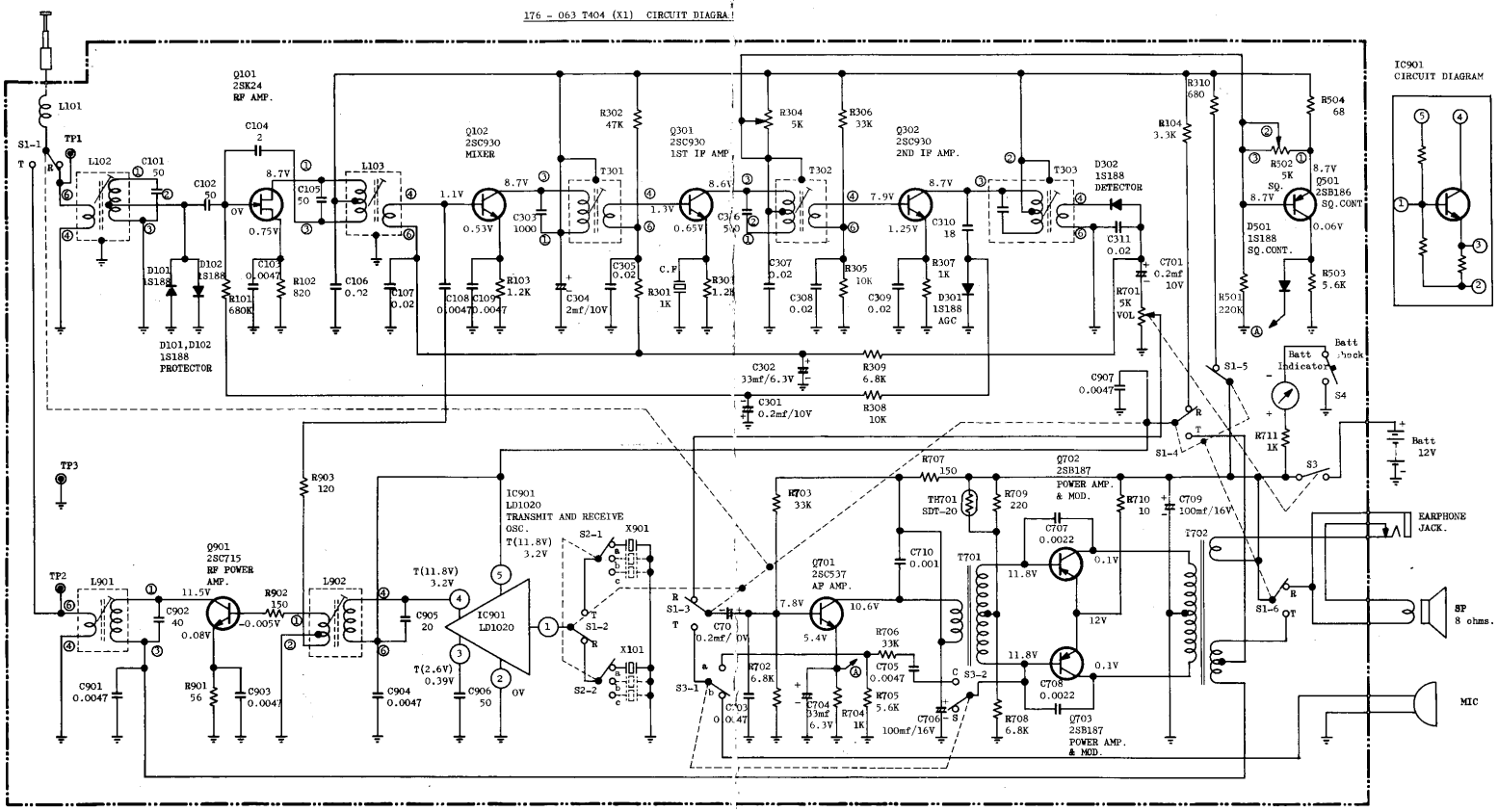
CAUTION

For service, remove NCA-1A battery pack before separating cabinet halves.

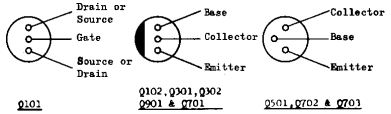
NOTICE TO SERVICEMAN

Use extreme caution when opening cabinet. The antenna must be clear of the hole so the cabinet section can be moved freely.

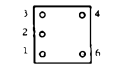
SCHEMATIC DIAGRAM



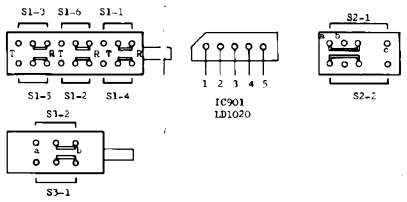
BOTTOM VIEW



Q101 — Q102,Q301,Q302 Q901 & Q701 — Q501,Q702 & Q701



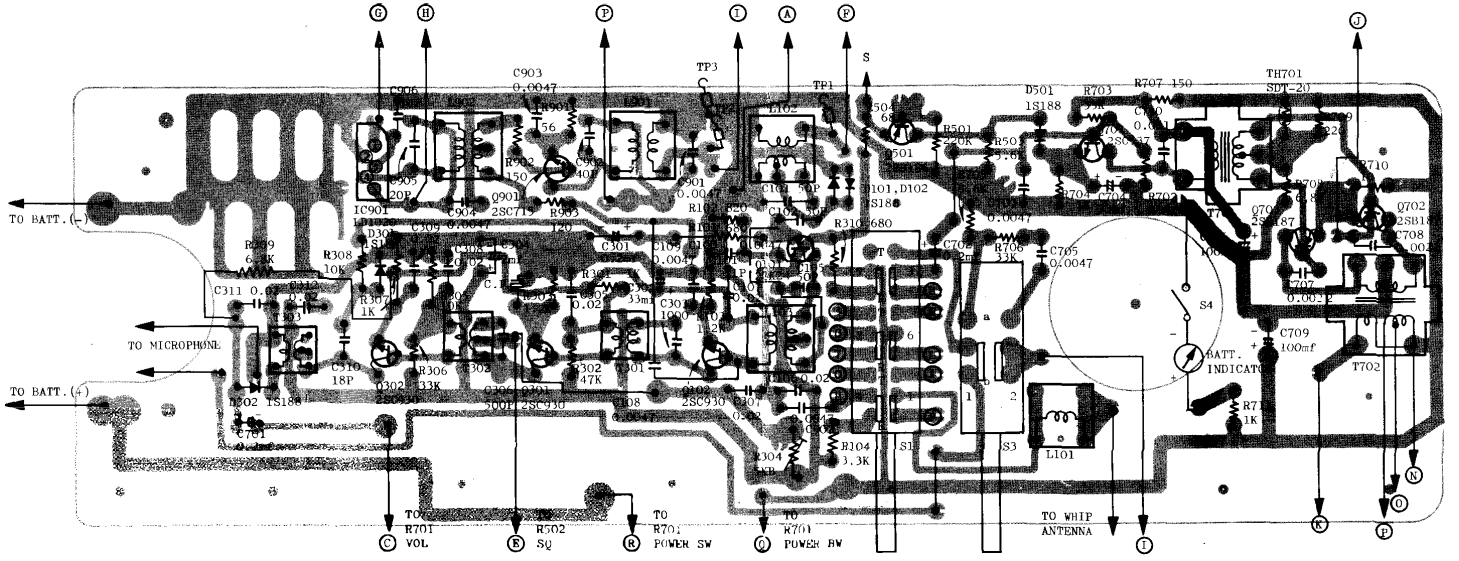
L101,L102,L103,T301 T302,T303,L901 & L902



NOTES:
1. All resistance values are in ohm, K=1,000 ohms.
2. All capacitance values less than 1.0 are in "mfd" and greater than 1.0 are in "pfd" unless otherwise specified.
3. All voltage are measured from the common negative ground (-) to respective terminals of transistors and integrated circuit (IC) with V.T.V.M. under no signal condition, and transmit position under no mod, squelch off.

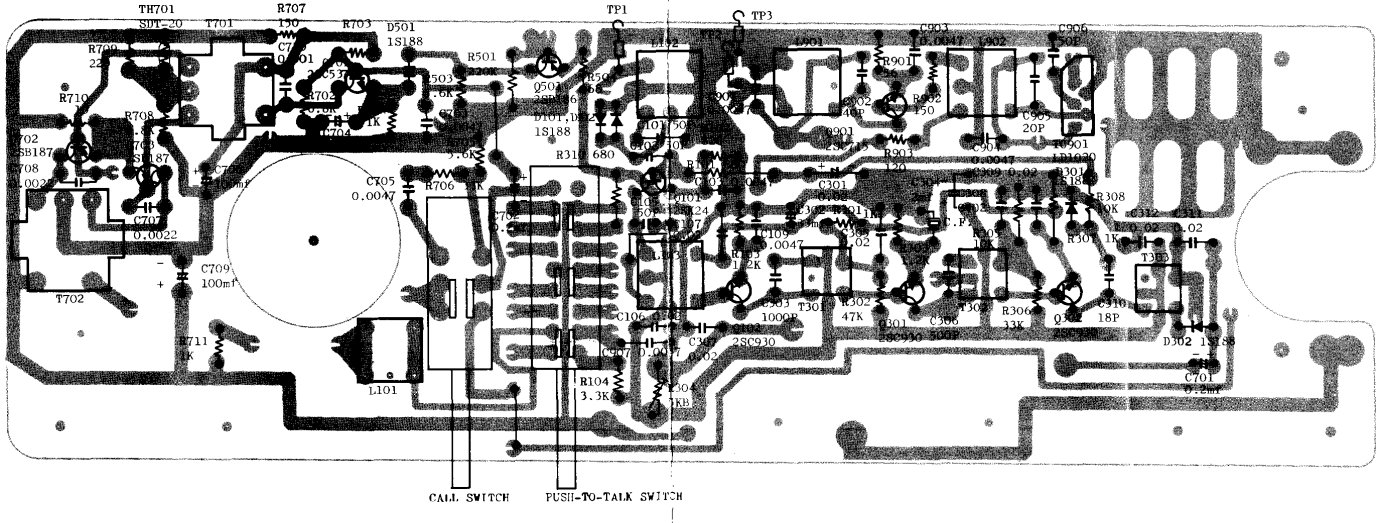
MODEL T404
ISSUE A

P.C. BOARD DIAGRAM



MODEL T404
ISSUE A

COMPONENT LAYOUT



MODEL T404
ISSUE A

REPLACEMENT PARTS LIST

Symbol No.	Description	Part No.
	SEMI CONDUCTORS	
Q101	2SK24 E FET	1002-01
Q102, 301, 302	2SC930 E Transistor	1002-02
Q901	2SC715 D 〃	1002-03
Q701	2SC537 E 〃	1002-04
Q501	2SB186 A 〃	1002-05
Q702, 703	2SB187 Red, Brown 〃	1002-06
IC901	LD1020 Integrated Circuit (IC)	1002-07
TH701	SDT-20 Thermistor	1002 08
D101, 102, 301, 302, 501	1S188 AM Diode	1002-09
C. F.	Ceramic Filter	1002-10
X901	Crystal, 27.135 MHz	1002-11
X101	Crystal, 26.680 MHz	1002-12
	COILS AND TRANSFORMER	
L101	Loading Coil	1002-13
L102, 103	RF coil	1002-14
L901	RF coil	1002-15
L902	OSC coil	1002-16
T301	IFT	1002-17
T302	IFT	1002-18
T303	IFT	1002-19
T701	IPT	1002-20
T702	OPT	1002-21
	MISCELIANEOUS	
R701	Volume control, 5KD	1002-22
R502	Squelch control, 5KD	1002-23
R304	Miniature trimmer control, 5KB	1002-24
S1	Push-to-talk switch	1002-25
S3	Call switch	1002-26
S2	Channel switch	1002 27
	Crystal socket (6used)	1002-28
	Earphone socket	1002-29
	Telescopic whip antenna	1002-30
	Battery condition indicator	1002-31
SP	Speaker, 2¼" 8 ohms	1002-32
MIC	Microphone	1002-33
	Earphone	1002-34
	Cabinet complete, right and left	1002-35

Symbol No.	Description			
	RESISTORS			
R710	10 ohm	±10%	¼W	
R901	56 ohm	〃	〃	
R504	68 ohm	〃	〃	
R903	120 ohm	〃	〃	
R707, 902	150 ohm	〃	〃	
R709	220 ohm	〃	〃	
R310	680 ohm	〃	〃	
R102	820 ohm	〃	〃	
R301, 307, 704 711	1 Kohm	〃	〃	
R103, 303	1.2 Kohm	〃	〃	
R104	3.3 Kohm	〃	〃	
R503, 705	5.6 Kohm	〃	〃	
R309, 702, 708	6.8 Kohm	〃	〃	
R305, 308	10 Kohm	〃	〃	
R306, 703, 706	33 Kohm	〃	〃	
R302	47 Kohm	〃	〃	
R501	220 Kohm	〃	〃	
R101	680 Kohm	〃	〃	
	CAPACITORS			
C706, 709	100 mfd	16V		Electrolytic
C302, 704	33 mfd	6.3V		〃
C301, 701, 702	0.2 mfd	10V		〃
C304	2 mfd	10V		〃
C104	2 pfd	±0.25 pfd	50V	Ceramic
C310	18 pfd	±10%	〃	〃
C905	20 pfd	〃	〃	〃
C902	40 pfd	〃	〃	〃
C101, 102, 105, 906	50 pfd	〃	〃	〃
C306	500 pfd	± 5%	〃	Styrol
C303	1000 pfd	〃	〃	〃
C710	0.001 mfd	±20%	〃	Mylar
C707, 708	0.0022 mfd	〃	〃	〃
C103, 108, 109, 901, 903, 904, 907, 703, 705	0.0047 mfd	〃	〃	〃
C106, 197, 305, 307, 308, 309, 311	0.02 mfd	〃	〃	〃