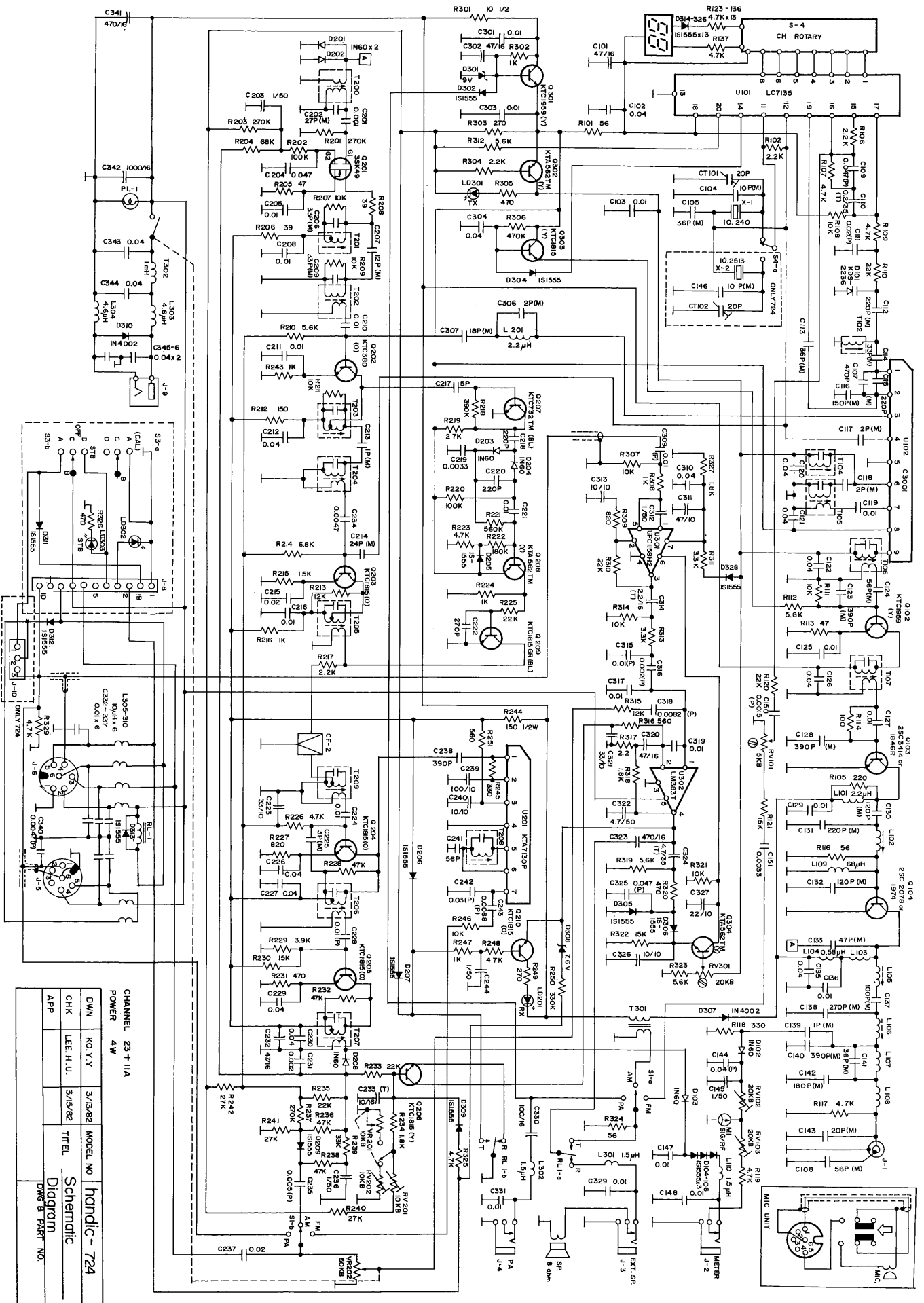


# Service manual



## handic 724 CB Mobile Transceiver

**handic**  
electronic ab



CHANNEL 23 T 11A  
POWER 4W

MODEL NO. **hordic-724**

APP. **Diagram**

DWG. NO. **5 PART NO.**

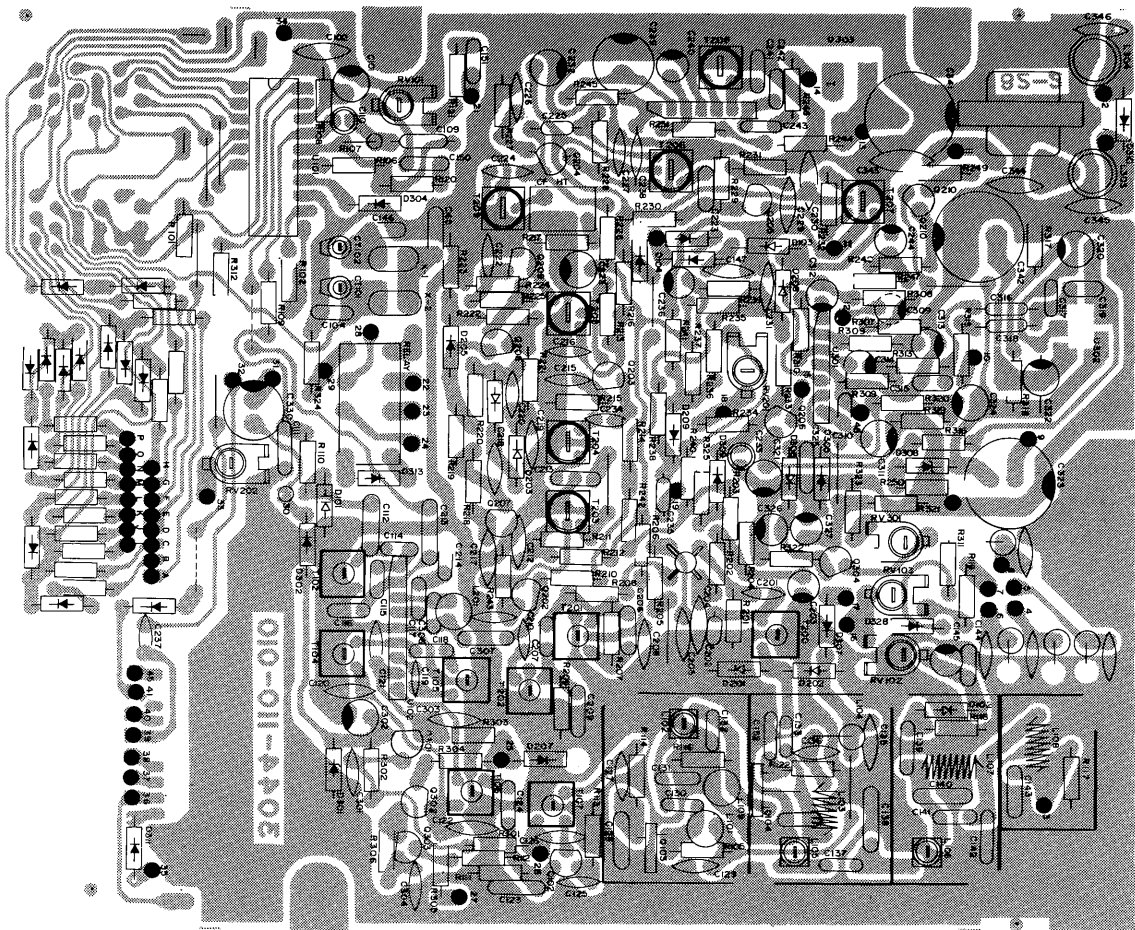
DATE **3/13/82**

CHK. **LEE H. U.**

APP. **3/16/82**

TITLE **Schematic**

DWG. NO. **5 PART NO.**



## PLL and transmitter adjustment

Required measurement equipment:

30 MHz frequency counter, 50 ohms output power meter, 13,8 V DC power source (minimum 2 A, audio frequency generator, FM deviation meter.

- 1) Key transmitter on channels 1, 11 and 22, and adjust the PLL by tuning T102, T104, T105, T106 and T107 for maximum output power. (Not that the PLL has been carefully aligned at the factory, and therefore adjustment of these coils should be avoided, if not necessary after repair of the PLL section.)  
Modulate the transmitter on channel 11 with 1250 Hz by connecting pin 1 of microphone connector to audio generator (or feed a tone from a speaker into the microphone), and increase the level until maximum deviation is reached. Align T102 for maximum deviation, or, if there are two maximums, adjust to the minimum between them. Check the deviation on channels 1 and 22 to be within 200 Hz from the deviation on channel 11.
- 2) Adjust frequency to  $\pm 100$  Hz with CT101. Adjust channel 11A frequency to  $\pm 100$  Hz with CT101.
- 3) Adjust transmitter output with L102, L105 and L106 to maximum on channel 11. If needed, reduce the output power to 4 W by turning the core of L102 clockwise from maximum. Check the output power on channels 1 and 22 to be within 0,2 W compared with channel 11. If not, realign T104 and T105, or the whole PLL as per 1.
- 4) Adjust the modulation to 90% maximum with RV301. Adjust deviation to maximum 1,8 kHz with RV101.
- 5) Adjust the power meter of the transceiver by tuning RV102.

## Receiver adjustment

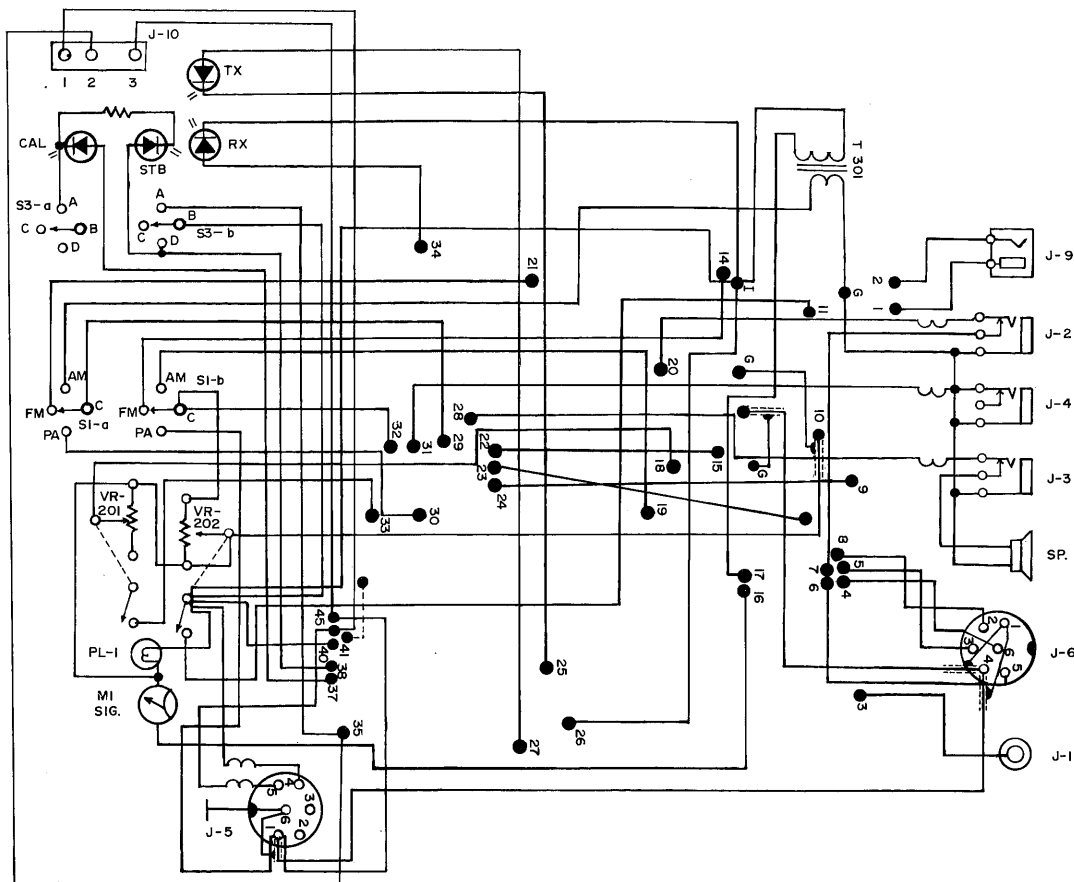
Required measurement equipment:

AM/FM signal generator, 13,8 V DC power source (minimum 500 mA).

- 1) In FM mode on channel 11, adjust to readable audio level with squelch in OFF position: Feed 1000 Hz, 1,2 kHz deviation, and reduce level to 1  $\mu$ V while aligning T200, T201, T202, T203, T204, T205, T209 and T206 for maximum reading on the RF meter of the transceiver. Adjust T208 for maximum audio power. Adjust T207 so that RF meter reads S2 (if the audio power thereby decreases too much, retune T207 to a higher S-reading).  
Check FM sensitivity to be 0,2  $\mu$ V at 10 dB S + N/N with 1,2 kHz deviation. Re-adjust if sensitivity is more than 0,3  $\mu$ V. Check AM sensitivity to be 0,5  $\mu$ V at 10 dB S + N/N with 30% modulation.
- 2) Check that the audio power is within 4 dB on channels 1, 11 and 22. If not, re-adjust T200, T201, and T202 to get proper balance.
- 3) Squelch in maximum position: Adjust RV201 so that the squelch is opened by a 100  $\mu$ V signal from the generator. Squelch in AUTO position: Adjust RV202 so that the squelch opens at 2  $\mu$ V.
- 4) Adjust the S-meter to S9 at 100  $\mu$ V by tuning RV203.

### NOTE:

The transceiver has been designed to keep the PTT requirements for harmonics and spurious with above alignment procedure. However, if needed, a spectrum analyser may also be used to check these datas.



### Main parts

Top cabinet	1
Bottom cabinet	1
Front panel	1
Front plate handlic 724	1
Channel knob	1
Volume/Squelch knob	2
Mounting bracket	1
Mounting screw	4
Microphone with cord and plug	1
Microphone hanger	1
Microphone jack	1
DC cord with fuse and plug	1
DC jack	1
Antenna jack	1
Selective-call jack	1
Ext. Speaker/PA/S-meter jack	3
LED channel display, 2-digit	1
LED, red: LD201	1
LED, green: LD301, 303	2
LED, white: LD302	1
Meter	1
Speaker	1
Channel switch	1
AM/FM/PA switch	1
Selective-call switch	1
Squelch potentiometer: VR201	1
Volume potentiometer: VR202	1
Trim potentiometer:	
5KB: RV101	1
10KB: RV201, 202	2
20KB: RV102, 103, 301	3

### Pcs.

### Mainparts

Transistors:	
C1959: Q102, 301	2
C3414: Q103	1
C2078: Q104	1
3SK49: Q201	1
C380: Q202	1
C1815: Q203, 204, 205, 206,	7
209, 210, 303	
C732: Q207	1
A562TM: Q208, 302, 304	3
Integrated circuits:	
LC7135: U101	1
C3001: U102	1
KTA7130: U201	1
UPC1158H: U301	1
LM383T: U302	1
Heat sink for U302	1
Diodes:	
KDS2236: D101	1
1N60: D102, 103, 201, 202, 203,	7
204, 208	
1S1555: D104, 105, 106, 205,	31
206, 207, 209, 302	
304, 305, 306, 309	
311-326, 328-330	
1N4002: D307, 310	2
Zener diode 9 V: D301	1
Zener diode 7,6 V: D308	1
Crystal 10,24 MHz	1
Crystal 10,25 MHz	1
Ceramic filter 455 kHz: CF-2	1
Ceramic trimmer 20 pF	2

### Pcs

### Main parts

Output power transformer: T301	1
RF choke coil: T302	1
Coils: T102	1
T104	1
T105	1
T106	1
T107	1
T200	1
T201	1
T202	1
T203	1
T204	1
T205	1
T206	1
T207	1
T208	1
T209	1
L101	1
L102	1
L103	1
L104	1
L105	1
L106	1
L107	1
L108	1
L109	1
L110, 301, 302, 305-310	9
(1,5 uH)	2
L303, 304 (4,6 uH)	1
Relay: RL-1	1
Emergency seccall module SCR	1

### Pcs.



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