

April 17, 1975

HD-1410  
Electronic Keyer

Bulletin No:  
HD-1410-1

Modifications For Use With Ten-Tec, Triton And  
Rigs With Similar Keying Requirements

It has been found that the Ten-Tec Argonaut and Triton keyin circuits require that the key-line be brought to within a few tenths of a volt of ground to operate properly, Either of the following modifications to the HD-1410 will allow it to be used with the above units:

A. If the HD-1410 is to be used exclusively with the Ten-Tec or rigs with similar requirements, R27 and D5 can be replaced with jumper wires.

This disables Q7 and eliminates the .7 volt drop due to D5.

B. If the HD-1410 is to be used both with such rigs and cathode or grid block keyed rigs, the modification shown on the attached schematic may be made. The jack labeled " Ext. Key" becomes a secondary "keyer-out" jack for use only with rigs employing a positive key line, and solid state keying circuit.

1. Refer to page 40 of assembly manual and remove the wire between jack L, lug 1 [Keyout Jack] and circuit board hole F.

2. Disconnect the remaining wire from jack L, lug 1 and connect to circuit board hole F.

3. Mount terminal strip and components as shown:

[[Shows TS 431-62 To be mounted under top screw of Jack L and bent down slightly. Connect a 4700 Ohm resistor between lugs 1 and 3 of TS 431-62. Connect base of [PN 417-801] to lug1 of TS 431-62; emitter to one lug of Jack L and the collector to the other Jack L lug]]

4. Connect wire from Lug 3 of Terminal Strip to junction of R23 and R26 on circuit board. Solder this wire to lead of R26.

Keyer Keys Continuously Or Erratically

Problems with RF causing the keyer to key continuously or erratically, particularly when using long wire or random length antenna systems, can be eliminated by connecting a .001 uF disc ceramic across the keyer output jack.

Intermittent Sidetone

In some units, if the "tone" control is turned fully clockwise [low frequency end], the sidetone will be intermittent. Turning the pot slightly counterclockwise will eliminate the condition.

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May 20, 1975

HD-1410  
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Bulletin No:  
HD-1410-2

### Service Guide

The following is a step by step procedure for servicing the HD-1410 Keyer:

#### Equipment Needed:

1 VTVM [Not a VOM or DVM]

Set controls on HD-1410 as follows:

AC Switch - ON  
Speed - Full CCW  
Volume - 1/4 CW

Set VTVM as follows:

To read DC + Voltage

### C A U T I O N

When making voltage checks in the unit, be very careful where the probe is touched as 110V AC voltage is present also.

1. The first test is to check the DC voltages for the power supply and pass transistor Q8. If any deficiencies are found in this area, they must be corrected before proceeding on.
2. The most important section in the keyer is the Dot Generator and Dash Divider, this will be checked as follows:

With the keyer shut off, connect a jumper wire from pin 8 of IC1D to ground. With the keyer set up in this manner, both the dot generator and dash divider can be checked at the same time without pushing the paddles. Turn the keyer on. Connect the ground lead of the VTVM to the chassis of the keyer.

A. Set the VTVM to a 1.5VDC range and touch the probe to pin 10 of IC2D. The meter should read about .16 and the needle should be oscillating slightly. If these results are not obtained, check Q1, Q2, C3, D1 and speed control.

B. Set the VTVM read +5VDC range and touch meter probe to pin 5 of IC4A. Reading should be .16VDC with needle oscillating slightly. Check D3 and R12, if proper results are not obtained.

C. Touch meter probe to pin 8 of IC4A. Meter needle should oscillate rapidly between 1.5 and 2.5VDC. If proper results are not obtained, first check pin 2 of IC4A. Meter needle should oscillate between 3.6 to 4VDC at half the rate of pin 8. Replace IC-4, if necessary.

D. Touch meter probe to pin13 of IC4B. Meter needle should

oscillate between .5 and 3.5VDC at 1/2 the rate of test C above. If proper results are not obtained, check pins 14 and 3 of IC-4 for 5VDC. Replace IC-4, if necessary.

E. Touch the meter probe to pin 12 of IC3C. Meter needle should oscillate from 1.6 TO 3.4VDC. If proper results are not obtained, check pin 13 of IC3C for 5VDC. Replace IC3C, if necessary.

3. Output circuitry: Since the jumper is already installed in the bit generator and dashes are being produced, we'll use this same approach for checking the output circuitry.

A. Touch the meter probe to the [C] of Q4. Meter needle should swing between .2VDC and 2.8VDC. If proper results are not obtained, check resistor R24. Replace Q4.

B. Touch the meter probe to the [C] of Q5. Meter needle should oscillate between .3VDC and .8VDC. If proper results are not obtained, check R25. Replace Q5.

C. Touch meter probe to point [J] or keyer output jack. Meter needle should oscillate from .3VDC to .8VDC. If proper results are not obtained, check or replace D4.

D. Repeat the same procedure for Q6, Q7 and D5.

4. Tone oscillator circuit. Jumper will still be connected to pin 8 of IC1D.

A. Touch meter probe to pin 4 of IC5D. Needle should oscillate between .6 and 1.4VDC. If proper results are not obtained, check C5, C6, tone control. Replace IC-5.

B. Touch meter probe to [C] of Q3. Meter needle should Oscillate between 4.3 and 4.7VDC. If proper results are not obtained, check C7, R21. Replace Q3.

5. Paddle control and memory logic: Shut off the keyer and unsolder the jumper wire from pin 8 of IC1D.

A. Turn the keyer on and with the VTVM check the logic levels for IC-1, IC-2 and IC-3 as shown on the schematic. With both paddles released the logic levels will be reversed.

B. Memory bit problems can only be in IC-5, R3, R4, C1 and C2.

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May 20, 1975

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Bulletin No:  
HD-1410-3

Keyer Keys Continuously Or Erratically

In the next run, a .005MFD [5000pF, PN 21-57] will be added across the Keyer output jack.

This supersedes the information in Bulletin No: HD-1410-1

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HD-1410  
Electronic Keyer

Bulletin No:  
HD-1410-4

No Dots Or Dashes

If the unit has no dots or dashes output, but has a tone in the "hold" mode, check the installation of Q2. The customer apparently tries to twist the transistor so that the flat of the transistor will align with the flat screened on the board. This will cause the base & collector leads to short.

The manual is being changed to clarify the installation of this transistor.

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JUNE 24, 1976

HD-1410  
Electronic Keyer

Bulletin No:  
HD-1410-5

RFI

RFI in the keyer coming through the power supply can be eliminated by installing two .005UFD/1.6KV capacitors [PN 21-44] across the AC line to the ground.

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July 9, 1976

HD-1410  
Electronic Keyer

Bulletin No:  
HD-1410-6

Wrong Type Of Round Knob

Some kits were shipped with round knobs [PN 462-932] that will not accept the knob bushing. Although these knobs will fit onto the control shafts, the knob pointer may not align properly.

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September 23, 1977

HD-1410  
Electronic Keyer

Bulletin No:  
HD-1410-7

Keyer Locks On Some Bands

++++Info not yet available++++

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July 24, 1978

HD-1410  
Electronic Keyer

Bulletin No:  
HD-1410-8

No Dashes; Tone And Dots Okay

Check for a possible foil bridge between pins 8 and 9 or between pin 8 and ground of the Dash Reset circuit, IC2 [PN 443-1]. The bridge is usually too small to see without a magnifier. The bridge usually can be removed by scraping the area around pins 8 and 9 with a knife or other similar object.

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May 8, 1980

HD-1410  
Electronic Keyer

Bulletin No:  
HD-1410-9

Sidetone Not Loud Enough

++++Info not yet available++++

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Thats everything I hold up to 1985 that covers the HD-1410 Electronic Keyer