

**MODEL TLN640-CDX**

(Ref. Dwgs: 63D06059S  
31H01333S)

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**GENERAL DESCRIPTION**

The Motorola Morse Identifier Module, model TLN640-CDX is a specially designed module intended for use in MSR2000 type base stations and repeaters.

The TLN640-CDX can be jumpered to operate in many modes, depending on the particular application. Refer to the detailed description and the jumper tables for information on operation and possible mode jumper configurations.

**2. DETAILED DESCRIPTION**

Refer to drawing 63D06059S. The transmission cycle of the module is initiated whenever pin 9 or pin 13 of U1 is pulsed high. A momentary high on one of these inputs sets the bi-stable U1. If pin 2 of U3 is high (a wait condition does not exist) the high at pin 1 of U3 is inverted to produce a low on U3 pin 3. The low at pin 3 of U3 is applied to pin 3 of U5 and inverted. The low-to-high transition at pin 2 of U5 is applied to pin 13 of U2 and pin 12 of U2 via C3 and R6. The transmission delay timer, U2 delays the pulse from 0 to 20 seconds (adjustable via RV51). A low-to-high transition applied to pin 3 of U1B sets the flip-flop switching pin 1 of U1B high and pin 2 of U1B low.

If JU11 is jumpered AC, a low is applied to the base of Q4, turning it off during ID transmission. If JU11 is jumpered AB then Q4 is on during the ID transmission. Normally, JU11 is jumpered AB to provide a switched low at edge connector pin 22 to disable PL (Private-Line) during transmission.

The high at pin 1 of U1B is also applied to pin 14 of U7 where it is buffered. The high at pin 15 is then applied to the bases of Q3, Q5 and Q6, turning these transistors on. The switched low at the collector of Q3 is used to turn on LED DS2 for the duration of the ID transmission. The switched low from the collector of Q5 is applied to edge connector pin 21 to provide a RPTR PTT ( Repeater Push-to-Talk) which is normally used to key the transmitter of the station.

In certain applications it may be necessary to provide a T1 OSC (Transmit 1 Oscillator) ground. The switched low at the collector of Q6 is available at pin 17 of the edge connector.

Integrated circuit U12 is an astable oscillator whose frequency is determined by potentiometer R25, and is used as a clock for the 4-bit binary counter U10 which counts from 0000 binary to 1111 binary. The outputs of U10 (pin 11, 12 and 13) control which input of U9 (pin 1, 2, 3, 4, 5, 6, 7, 9), an eight-input data selector, is connected to the output, pin 14 U9. When U10 has counted to 1111 binary, it starts again at 0000 binary and sets a carry bit at pin 15. This carry bit is connected to the clock input of U6, a 7-bit binary counter of which only 5 or 6 bits (jumper selectable by JU13 and JU3) are used. Counter U6 was originally set to zero. When the clock signal switched low, the count was updated.

The outputs of U6 are buffered by U7 to provide the 5-bit address information for the programmable read only memory (PROM) U8. When U6 has counted 16 carry bits, pin 3 switches high. If JU3 is jumpered AC, the high output is applied to pin 5 of the OR gate U4B. The high output of U4B is applied to the reset