

# **TK-930/930(HD) service manual part no. B51-8085-00**

# **TK-931/931(HD) service manual part no. B51-8086-00**

## **Service Manual Addendum**

Due to the operational software improvements made in these radios after the printing of the above service manuals, the following features have been added or altered with respect to the original manual text. Features listed under "Additional Information " are expanded on here for clarification purposes.

### **Added Feature**

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**ACCESS TONE** When enabled, this feature sounds a short beep tone at the time system access is made on a trunking dispatch call. If the system is busy, no busy tone will sound, but if PTT is held continuously, the intercept tone will eventually sound. Access Tone provides an audible indication to the user that repeater access (handshake) is complete, and speaking can begin. It is also an alternative to the annoyance of getting repeated Busy Tones on a heavily congested system. (Note: On a mobile-initiated interconnect call, the Access Tone will sound only on the first successful handshake with an interconnect repeater. However, if all interconnect repeaters are busy, the busy tone will sound.)

To enable the Access Tone:

1. PLACE THE RADIO IN PROGRAM MODE: Turn on the power while at the same time depressing the Auxillary button. Keep the Aux.button held for 3 seconds.; then release.
2. PUSH THE SYSTEM BUTTON "UP" ONCE; WAIT 1 SECOND FOR THE DISPLAY TO CHANGE.: The revert system/group will appear .
3. TURN OFF THE POWER: Access Tone is now enabled.

To disable the Access Tone:

Repeat the above steps except, in step 2, push the system button "down" once.

This 3-step process reduces the chance that an end-user will enable or disable the Access Tone accidentally.

### **Additional Information**

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**OFF-HOOK REVERT** (pg.7, 3-3) This is a System Scan function which allows the mobile to be programmed to "revert" to the "Last Used" or "Last Call" system/group when the mic is taken off-hook during system scan. Definitions: \*Last Call: refers to the last system/group a call was "received on"

before scan resumed.

\*Last Used: refers to the last system/group a call was "transmitted on" or "selected" before scan was resumed.

- \*Additional Notes:
- i) Manually selecting a system/group at anytime will set the revert system/group in both cases.
  - ii) Going off-hook while scan is "stopped", during receive or the scan resume time period, will hold the radio on the currently displayed system/group. (Unless Interval Scan is enabled and activates.)

**INTERVAL SCAN** (pg. 7, 3-4) [Enabled through dealer programming] During System Scan and while the mic is off-hook, this feature will "automatically" resume system scan within a programmed time period following each transmission and/or reception. The main purpose of this is to automatically resume scan after inordinate long "intervals" between transmit and receive during a two-way conversation. This reduces the chance of missing call on another system. One practical example would be in the case that a calling mobile has been "forced" to manually switch to another system during a two-way conversation because of out-of-range or busy conditions. The called mobile (not knowing the calling mobile has switched systems) will automatically resume scan to "find" the new system it is being called on. This relieves the called mobile from having to physically go back on-hook to scan for the calling mobile, and then off-hook again to respond. Now, if both mobiles have Interval Scan enabled, they will in essence "search for each other" among multiple systems, thus making the most efficient use of the systems available to them. Another advantage to Interval Scan is if the mic is left off hook inadvertently, it will resume scan automatically. For Interval Scan there are three programmable time extensions for the scan resume time period. These prevent the mobile from resuming scan "too soon", as user requirements will vary.

Program Settings: "OFF"- disables Interval Scan and the mic MUST be on-hook for system scan to operate, i.e., regular system scan .

"4,8,or16 SECONDS"- enables Interval Scan .The off-hook scan resume times are:

After receiving a call : 3 secs. + interval

After transmitting :1.5 secs.+ interval

Operational Notes:

- i.) Interval scan is disabled while the mic is on hook . Regular scan the takes place.
- ii.) After receiving a call, if the PTT is pressed before scan resumes, then the currently displayed (calling) system/group will be the one the radio responds on. If the PTT is pressed after scanning resumes, then the "revert" system/group will be the response sys./grp. (see Off-hook Revert: Last Call or Last Use). This is the same as regular scan operation.
- iii.) Group Scan is also enabled during Interval Scan (just as with on-hook regular scan) since the mic hook condition is electronically on-hook.

**CALL INDICATOR** (pg.7, 3-5 Trunked operation)

As stated in the manual, selectable Group IDs and Fixed IDs can be programmed for call indicator operation upon decode (Y/N- in CAL column). The call indicator "flashes" upon decoding selectable ID's and it lights "continuously" upon decoding Fixed ID's .This visual difference indicates the type of ID decoded. Each time an ID is decoded (and the call ind. is enabled for that ID) the indicator will change to a flashing or continuous state according to it's type. Decoding ID's that have the call indicator disabled will not extinguish an already lit call indication.

**Additional Notes:**

- i) The call indicator lights according to the above decode situations. However, the LCD system/group no.s shown during receive will not always indicate the actual calling party since it is a function of Group Scan programming and mic-hook condition.(see Group Scan, pg.7,3-9)
- ii) The call indicator resets when: the mic is taken off-hook or placed on-hook; or if PTT or any front panel button is pressed.

**PRIORITY ID CODES** (pg. 7, 3-8 ;Errata: PRIORITY OF ID CODES)

- 1. Fixed ID 1
- 2. Fixed ID 2
- 3. Selected Group ID
- 4. Other Selectable Group IDs\*
- 5. Block Decode IDs: RIC \*\*, Transmit Inhibit\*\*\*, Receive

All IDs are given a hierchal order of priority as in the list above.

All the programmed Fixed, Selected & Block IDs within each system are ALWAYS decodable regardless of System Scan, Group Scan, or on/off-hook conditions. While the mobile is receiving it's "home channel" of a particular system, it will trunk to the higher priority ID call even if it is currently "listening" to a lower priority ID call.

**FIXED IDs 1 & -2:** (optional)- Are, for example, programmed in groups of fleet mobiles so that a base station or supervisory mobile can interrupt ongoing fleet calls for priority communications. (However, fleetmobiles that are trunked out from their home channel will not receive the Fixed ID until they "return" to the systems home channel)

**GROUP IDs:** ( A minimum of one GroupID must be programmed for the System to be valid.)

- i) **SELECTED GROUP ID:**The last selected ID via the front panel Group buttons, or, via the Off-hook Revert programming; Last Call or LastUsed. (Often referred to as the "Revert Group")
- ii) **\*OTHER SELECTABLE GROUP IDs:** All Group IDs other than the currently Selected ID. These are decodable only when:
  - a.Group Scan enabled & the Mic is On-hook.
  - b.Group Scan enabled & System Scan is in progress  
(whether by regular Scan or Interval Scan)

## BLOCK IDs:

**\*\*RIC BLOCK IDs:** (optional)-Any Group ID used for interconnect must be included in this block range. Generally, there is only one RIC ID programmed per mobile) Any encode Group ID selected or Group ID decoded within this block will cause the mobile to function in the telephone interconnect mode.

**RECEIVE BLOCK IDs:** (optional)- Any ID code within this range will be decoded. This feature is not generally used unless a group of ID's are to be monitored. It is NOT necessary to program the mobiles Group IDs here.

**\*\*\*TX INHIBIT BLOCK IDs:** (optional) Decoding an ID within this block inhibits the mobiles transmitter during decoding and for a 5 second period after. The post-5 second inhibit period does not start to decrement until the mobile stops decoding the Tx Inhibit ID. If PTT is pressed during inhibit, the Busy indicator lights and Busy Tone<sup>\*Note</sup> will sound continuously unless PTT is released, or, the post-5 second inhibit period expires. Tx Inhibit IDs are programmed in mobiles to prevent them from "accessing the system" when these IDs are using the system. When Tx Inhibit IDs are decoded, the mobiles microprocessor only inhibits transmission. Decoding a Tx Inhibit ID does not effect the decoding of other IDs ( receiving calls), nor do they cause the mobile to open squelch, light call indicator, trunk out, or stop system scan. Therefore, none of a mobiles Selectable Group IDs should be included in the Tx Inhibit Block as this would be impractical since the inhibiting action would make a two-way conversation difficult. If educated of the fact, the mobile user can recognize that they are being "locked-out" by a Tx Inhibit ID, because only Busy Tone sounds during inhibit as opposed to "Busy Tone and Intercept Tone" during "busy" or "out-of-range" conditions.

*\*Note :* If Access Tone is enabled, then Busy tone is disable; the LCD Busy Indicator is the only inhibit indication in this case.

## Altered Feature

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**SYSTEM SEARCH** (pg. 8, 3-13) This feature is "dealer-enabled" in programming, and "user-activated" via the the Scan button. When the Intercept Tone sounds, because of "busy" or "out-of-range" conditions, this feature can be activated by keeping the PTT depressed while momentarily pressing the Scan button, and then releasing PTT. This feature can be activated in or out of System Scan. If activated during System Scan, System Scan is terminated at the time of activation. If the selected or revert group ID at search initiation was a dispatch ID the mobile attempts to access successive systems that have that group number also programmed as a dispatch ID. This same action is followed for RIC IDs. At each access attempt, the LCD changes to show the current System/Group (and Alphanumerics ,if applicable) and an short beep is heard in the speaker audio.