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Service bulletin

Bulletin # 2009
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Part affected: Controller board 229-47-329
Products affected RT9150, RT9450 with software version 40k...
At issue: Reports of link disconnect

This field service bulletin deals with field reports that under certain circumstances the link would disconnected in the middle of a conversation.

Background information

Starting with software versions 40k... a new feature called link diagnostic was incorporated. This feature checks every 3 minutes that the link is operational provides an alarm in the case of a link failure. It also prevents the C.O. from locking up in the presence of interfering signals.

With the diagnostic feature enabled at both ends, the Sub will transmit an ID every three minutes to keep the C.O. online. If the C.O. does not receive an ID for 3 consecutive three minute periods, it will disconnect to prevent the system from becoming locked up. The diagnostic feature can be activated or deactivated via the setup program. Diagnostics operates only under the new protocol which is also selectable.

Disconnect experienced during an Internet connection with diagnostic enabled (new protocol)

Under conditions of high line noise level, such as is the case during an Internet connection, together with a low signaling deviation, it is possible that the ID is missed repeatedly by the C.O. and cause a disconnect.

Tests have shown that the FSK tone deviation must be slightly higher than the average data noise level to be reliably detected.

For optimum connection speed the deviation of the average data noise should be under +-2 kHz deviation. This can be adjusted with the Tx line level pot at the controller board.

The FSK signaling tone deviation should be minimum +-3kHz. The FSK tone level can be verified at the Sub in techmode. (Enter techmode #123, turn on Tx *41, turn on FSK tone *31) The tone level is fixed and should it require adjustment it must be done by changing resistor R101 on the controller board.

Typical values of R101 for an RT9450 UHF radio:

Deviation	Value
1kHz	390K
2kHz	180K
3kHz	120K
4kHz	82K

Disconnect experienced during a voice call with diagnostic disabled (new protocol)

Operating under the new protocol and with the diagnostics feature disabled at the C.O., with versions 40ks - 40z3 a software bug causes the link to disconnect after 9 minutes. With versions 40kq and 40kr the link disconnect happens after 3.5 minutes. If link diagnostics is to be turned off with these software releases, the only remedy for this problem is to operate under the old protocol.

Summary

If diagnostics is required, select the new protocol and ensure that the FSK tone deviation is > 3kHz.
 If diagnostics is to be turned off, select the old protocol.

	<u>Diagnostic enabled</u>	<u>Diagnostic disabled</u>
New protocol	OK, keep FSK dev >3kHz	causes disconnect
Old protocol	N/A	OK