Wabtec RAILWAY ELECTRONICS

21200 Dorsey Mill Road
Germantown, MD 20876

Phone: 301-515-2000
Fax: 301-515-2100

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Summary: LCU-08 was found to be operational.
Unit Under Test: TLK-LCU-08
Wabtec P/N: 17123P
MFG Date: 05/09/04
Serial No: 0380306
SW Version: 6.1

Visual Inspection:

1. Unit has BNSF asset number.
2. Front panel with LSI/Serial connector was severely bent.
3. Internal parts looked okay.
4. Unit has been retrofitted with non-Wabtec radio and RF coax. Radio appears to be packaged by DPS Electronics and contains a Ritron DTX-PLUS DTX-454 radio.
5. Two RE labels were on the LCU enclosure; RE382 and RE470. Both REs were related to the Wabtec radio that was included in the LCU as designed. With the Wabtec radio having been replaced by an unknown party, these are not relevant.

Functional Testing:

1. Unit powered up normally with 15VDC input. Drew nominal 200mA current in idle/receive mode.
2. When connected to ILC/LSI simulator, LCU-08 communicates to test laptop over serial port.
3. Using 30dB attenuator on LCU and using 30dB attenuator on EOT located > 6 ft away, LCU-08 communicates with EOT.
4. 20 COMM tests were completed between the LCU and EOT, all 20 tests passed.
5. With 15V input, LCU was tested to verify 8W power level, measured 8.3W
6. With 15V input, LCU was tested to verify the 2W power level, measured 8.3W; this is acceptable due to updated FCC regulations since this unit was built.
7. Measured TX frequency error at tune frequency of 452.9375MHz, measured -66Hz. Level between -400Hz to +300Hz is acceptable.
8. Measured FM Deviation (1200 Hz), 2.51kHz. Value between 2.40 to 2.70kHz is acceptable. Distortion level was 1.5%, below 5% is acceptable.
9. Measured FM Deviation (1800 Hz), 2.47kHz. Value between 2.40 to 2.70kHz is acceptable. Distortion level was 2.2%, below 5% is acceptable.
10. Measured PTT low level to be at approximately 0.6V and high level at approximately 3.4V. Reached out to Ritron to determine if these are acceptable voltages for this radio configuration.

Operational Testing:

1. EOT was armed and an emergency signal was initiated from the LCU; via the simulator. EOT received the message and emergency was commanded.
2. EOT was armed and then put to Sleep, to create a No COMM situation. An emergency signal was initiated from the LCU; via the simulator. A FR No COMM warning appeared after 15 seconds and the emergency command retry continued for another 1 minute 45 seconds; for a total of 2 minutes.
3. Test above (2) was recreated. At the 1-minute mark during the emergency command retry, another emergency command signal was sent. As expected, this did not extend/restart the 2-minute timer from initial emergency command. Once the 2-minute emergency command retry was completed, another emergency command was initiated. As expected, this began another 2-minute emergency command retry cycle.