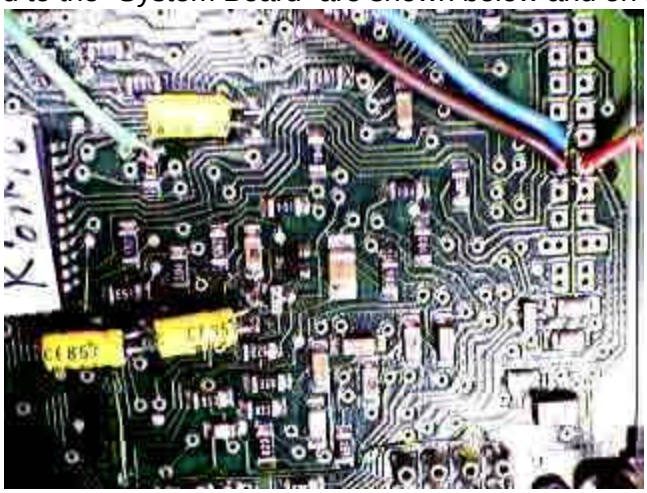
Modification of Bendix/King L-Series VHF Equipment for Portable Repeater Usage

Bendix/King manufacture LPH, LPI and PRC-127 handheld radios incorporate all of the necessary internal functions such as CTCSS (CG) enabled carrier operated relay (COR) decode and tracking preselection necessary to form a basic relay or conventional repeater for SAR or emergency communications. Search and Rescue (SAR) groups use relay repeaters to link two separate search teams operating on two separate frequencies, requiring two complete transceivers. Conventional repeaters use a single receiver and single transmitter to retransmit signals from one frequency to another to enhance communication range. No provision is made, however, for CW identifiers or squelch tails although each radio can be programmed to perform a transmitter timeout function for a period up to 225 seconds from the “CH 00” programming menu.

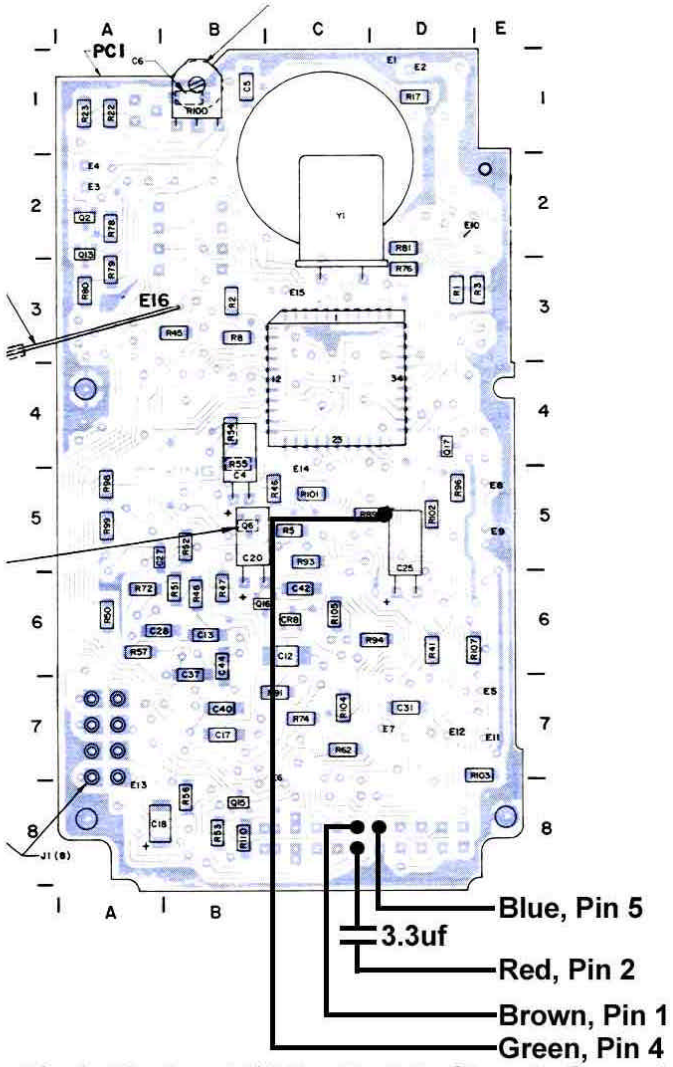
As with any repeater system not incorporating cavity duplexers, self-interference and receiver desensitization must be considered when using the system. Repeaters constructed using this document should be limited to two watts, use CTCSS (CG) receiver decoding, use separate battery packs on each radio, use input and output frequency separation of at least 1 megahertz and maintain an antenna separation of at least six feet. Radio mounted flexible antennas may be used allowing the entire system to be placed on the roof of a vehicle parked at a geographically high location.

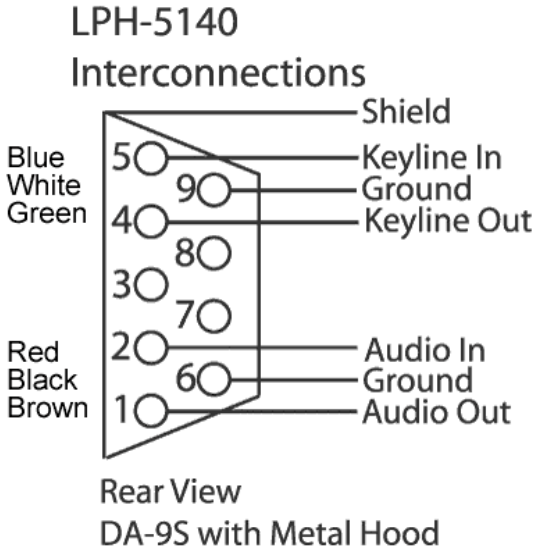
The modifications described herein are all performed on the “System Board” which is the circuit board located immediately behind and mounted to the radio front cover. Interconnecting cables are constructed using 6-Wire shielded cable (P/N 910-1611) and wired to 9-Pin D-Sub connectors (P/N 276-1537 and 276-1538) with metal shells (P/N 276-1508) available mail order from www.radioshack.com. Relay or conventional repeater configuration is accomplished by connecting the appropriate interconnecting cable between the transceivers. Cable diagrams are shown on Page 3 of this document.

The wires connected to the “System Board” are shown below and on Page 2:

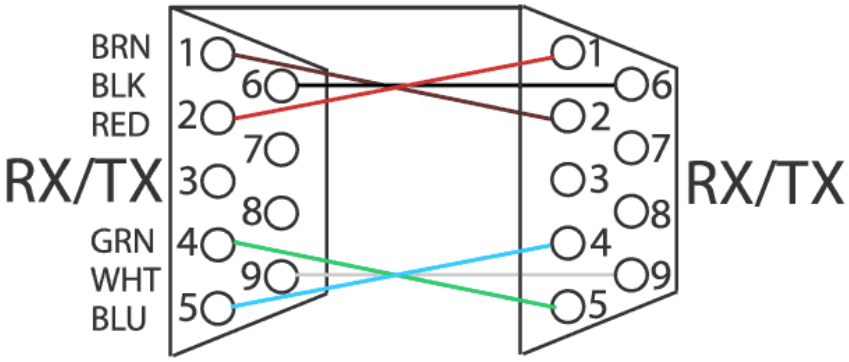


Not shown is the 3.3uf coupling capacitor that has been wired in-line on the red lead.



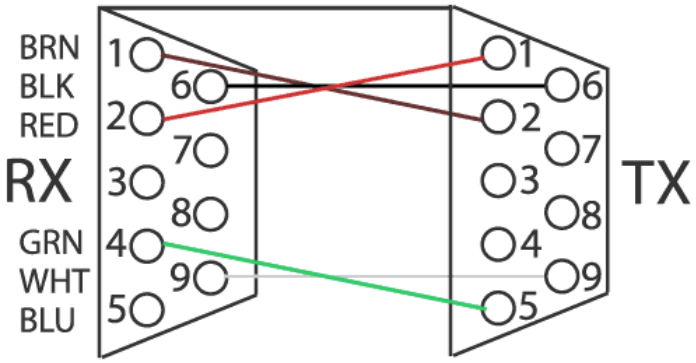


Bi-Directional Repeater
Cable Interconnections



Rear View
DA-9P with Metal Hood

Normal Repeater
Cable Interconnections



Rear View
DA-9P with Metal Hood