GENERAL ELECTRIC RAILROAD RADIO COMBINATIONS

ADJUSTMENT, OPERATION AND MAINTENANCE

After the system has been installed, there are a few checks and system adjustments required before placing the transmitter-receiver in service. DO NOT TRY TO TOUCH-UP TUNING CONTROLS AFFECTING THE ALIGNMENT OF THE UNITS, as each unit has been factory aligned to the specified frequency before shipment. Operation will only be degraded if touch-up is attempted. Complete ALIGNMENT PROCEDURES are included in the Instruction Book if modifications are made or evidence of misalignment is present.

ADJUSTMENT

TRANSMITTER ADJUSTMENT

Adjustment and alignment for both the standard and the 4-frequency transmitter are included in their respective instruction books. Refer to the unit instruction book if modifications are made or realignment is necessary.

RECEIVER ADJUSTMENT

The initial adjustment for the receiver includes zeroing the receiver to the system operating frequency, and matching the antenna transformer to the antenna. For the Receiver Initial Adjustment procedure, refer to the MAINTENANCE MANUAL for the receiver.

OPERATION

Railroad rules require that all equipment operating from a circuit be killed when the switch is pulled. Following this rule has created a problem when using transistorized radio because of the generation of high voltage transients (spikes) when the main power source is switched off. Transistor failure, due to the high voltage transients, has been an expensive and persistent problem. To meet this problem, and reduce transistor failure, the AAR Communications Section recommends the use of the circuit shown in Figure 1.

The blue POWER lamp on the Control Unit will light when power is supplied to the radio. This blue lamp stays lit all the time the equipment is on, and indicates the radio is in standby condition. When the microphone or handset push-to-talk button is depressed, plate voltage is applied to the transmitter, the white lamp on the Control Unit glows, the transmitter carrier is radiated, and the loudspeaker is muted. Upon release of the PTT button, the receiver becomes operative and the white lamp goes off.

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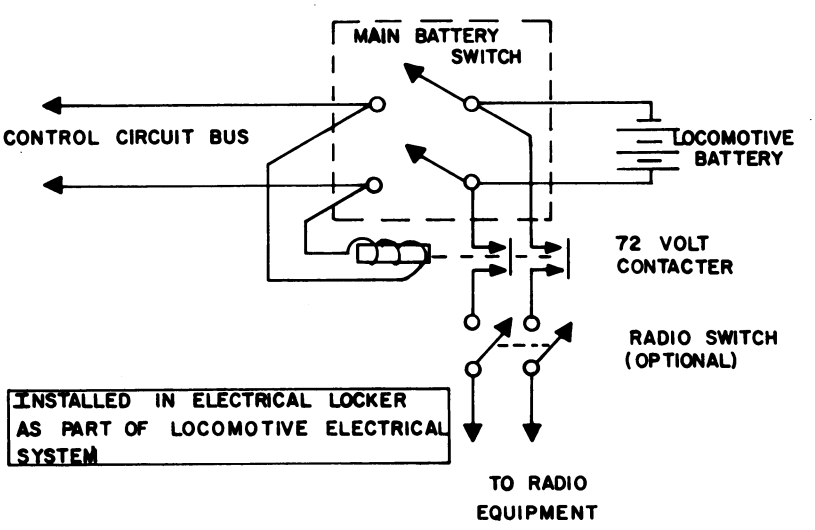

Figure 1 - Recommended Method For Connecting Railroad Radio Equipment To Battery Side of Main Battery Switch

There are two unmarked, adjustable controls on the right side of the Control Panel. The top control is for squelch adjustment, the bottom control is for volume adjustment. These controls are adjusted by the technician before the radio is installed. The volume control raises or lowers the sound level as heard from the loudspeaker or handset ear piece. The squelch adjustment is a critical adjustment for efficient operation. Essentially, its function is to mute the loudspeaker while no signal is being received.

MICROPHONE TECHNIQUE

Misuse of the microphone is probably the greatest single reason for so called "poor transmitter performance". Some attention should, therefore, be given to proper use of the microphone. When talking, the microphone or handset transmitter should be held so that the operator talks directly across it and the voice should be kept to the normal speaking level. If the operator speaks distinctly, in a normal voice, the message can be easily understood. It is to the operator's advantage to try a few calls and through practice and constructive criticism at the receiving end, develop a microphone technique that is best suited to his characteristics of speech.

MAINTENANCE

The following items should be incorporated into the maintenance program for the railroad radio system.

1. To insure good electrical continuity and high operating efficiency, routine checks should be made of all mechanical and electrical connections and parts. Connections to the voltage source should be periodically checked for tightness. Loose or poor connections to

the power source will cause excessive voltage drops and faulty operation may ensue.

2. Any deposit of corrosion, grease, or extraneous matter should be removed by an appropriate solvent.

3. Since railroad radio units are subject to constant shock and vibration, it is advisable to check for loose plugs, nuts, screws and parts, to make sure that nothing is working loose.

4. Examine the contacts of the relays. Where relay contacts carry little current, the contacts do not clean themselves and an insulating coating is apt to form. Current-carrying contacts are subject to pitting and should be burnished from time to time. When contacts become coated, remove the film with a suitable solvent applied with a non-metallic brush, such as a tooth brush. Dust and particles should be removed with a clean, dry, non-metallic brush.

5. The antenna, antenna base and all contacts should be kept clean and free from dirt and corrosion. If the antenna or its base is covered with an insulating coat or is poorly grounded, loss of radiation and a weak signal will result. Do not weld or paint the antenna or antenna base.

COMMUNICATION PRODUCTS DEPARTMENT
GENERAL ELECTRIC COMPANY
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