

#1004 B

TO: CL Distributors, Representatives and Service Organizations

SUBJECT: Direct Pickup - Cause and Reduction Of:

Problem: (See Figure 1) Receivers located in master antenna equipped buildings in a strong signal area may exhibit leading ghosts or smear on the local station (See Note 1).

These ghosts may be caused by arrival of two time difference signals at the tuner. The desired signal travels through the amplifier, distribution equipment and cable to the receiver (path A). The second signal arrives directly at the receiver (path B), picked up by any one, or more, of several means; unshielded cable between tuner and outlet box; unshielded RF tubes and leads in receiver; and through the braid of single shielded coaxial lead-in cable.

Recommendations: In Addition to supplying the receivers with the strongest possible signal from the system, (at least 3,000 uv across 72 ohms), the following corrective measures should be taken. They will minimize, if not eliminate entirely, the effects of direct pickup.

1. Disconnect system lead-in from antenna terminals of receiver.
2. Place a length of shielded loom (Jerrold L-20) over the 300 ohm line inside the receiver (from antenna terminal to tuner). (for sets with elevator transformers (RCA, Philco) see Figure 3.)
3. Place tube shields on any unshielded front end tube (RF amplifier, mixer).

NOTE: Tune receiver to channel with strongest direct pickup. Any picture now obtained should be very snowy in appearance.

4. A matching transformer (Jerrold T-372) can be mounted in one of several ways depending on the make and type of set (see figure 2.)
 - a. Mount transformer inside rear cover, screwing directly to chassis.
 - b. Mount transformer on rear cover or wood frame of chassis.
 - c. Mount transformer directly on the tuner.
 - d. The best location can also be determined by grounding the transformer at different locations, with the coax lead-in disconnected from the system.

The shielded 300 ohm line in the receiver (Step #2) should be connected directly to the 300 ohm terminals of the transformer.

- A. Ground the shielded loom at the rear of the chassis as well as at the tuner.

- Connect one end of coaxial lead-in to 72 ohm terminal of transformer. Leave other end (tap off outlet) disconnected. If no transformer is used, connect coax to antenna terminals of receiver keeping exposed center conductor and braid pigtail short as possible.

NOTE: Use double shielded lead-in cable (JEL-102) in cases of severe pickup to reduce pickup through shield.

- Ground the shield of the lead-in cable to the chassis. A jiffy cable clamp can be screwed into any convenient hole on rear of chassis. An inch of vinyl jacket can be removed and the exposed braid clamped to the chassis. (refer to figure 2 in cases of transformerless chassis)

NOTE: If a picture is now obtained, representing the total direct pickup on lead-in cable and chassis, it should be snowy. (similar to 50 microvolt reception.)

- Check the signal level at the tap off outlet for the recommended level (at least 3,000 uv across 72 ohms).
- Connect the lead into the outlet.

A clean picture should now be obtained in almost every case if procedure has been carefully followed.

OTE 1: Picture with direct pickup ghost may look clean or smeary depending on transmission path conditions. Ghost may appear positive or negative (reversed image, black appears white) depending on the relative phase of the two signals.

OTE 2: In severe pickup areas, pickup may occur on riser cables or trunk lines as well as on leads to receivers. It is recommended that:

1. All equipment be well grounded.
2. Double shielded cable be used throughout the system.
3. On new construction all cable be installed in conduit. Cable can then be single shield.

OTE 3: In unusual cases*, direct pickup may be so severe that the amount of receiver shielding required would be too costly and impractical. In such cases, the only solution will be conversion of the channel in trouble to a vacant channel. Crystal-controlled Jerrold VHF converters for almost any combination of channel conversions, are available on special order.

These may be due to a combination of factors such as proximity to transmitter, single shielded cable installed without conduit, increased transmitter ERP, etc.

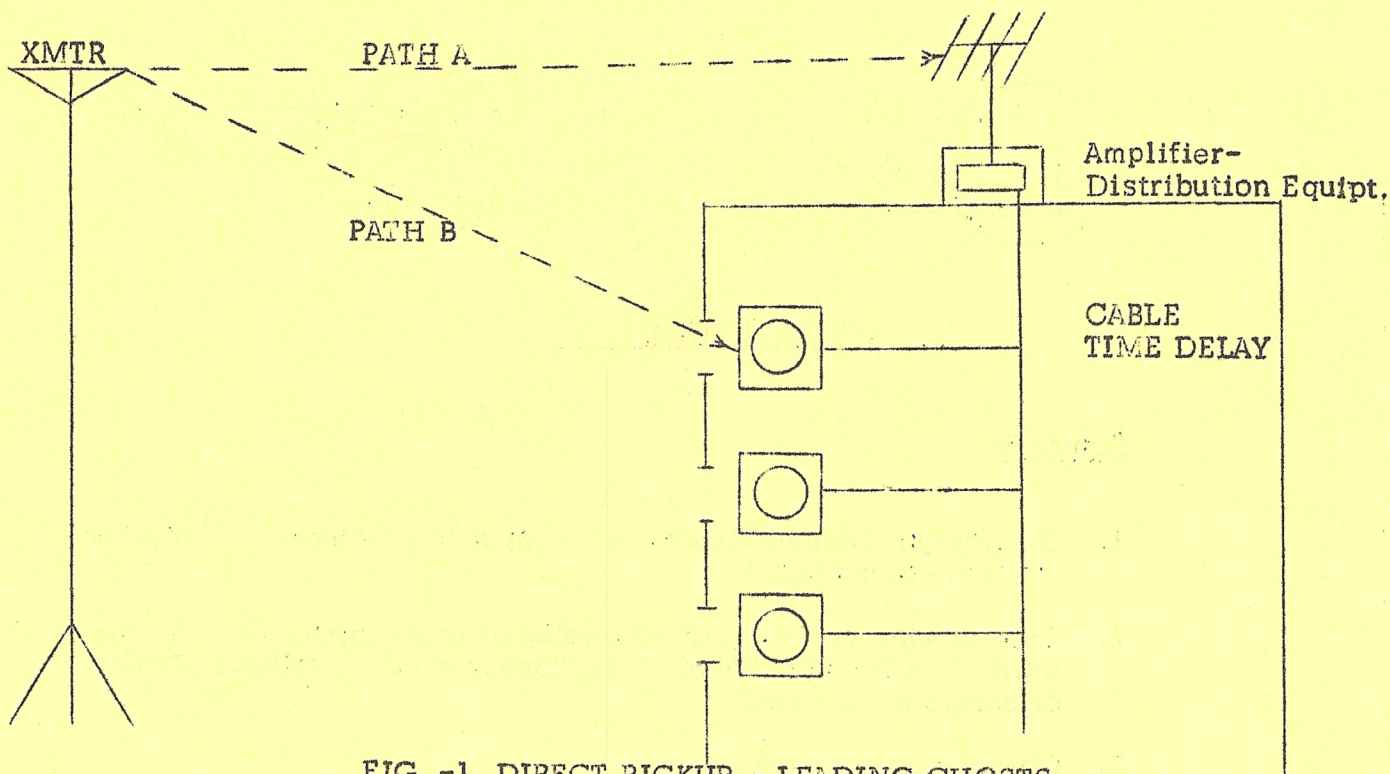


FIG. -1 DIRECT PICKUP - LEADING GHOSTS

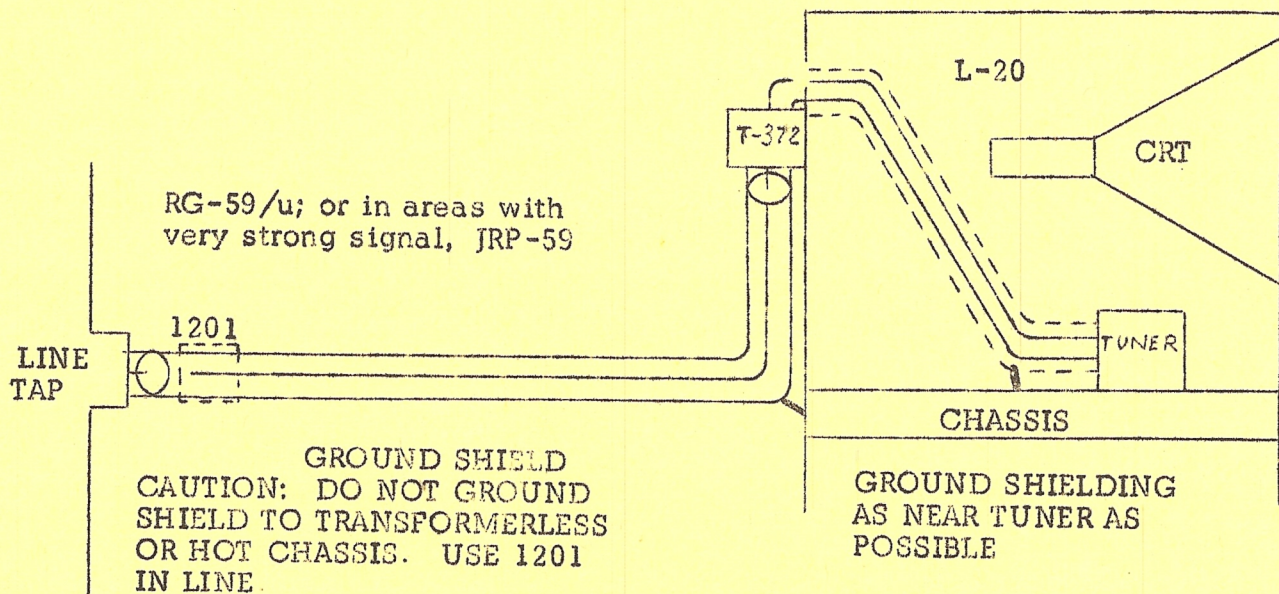


FIG. -2 REDUCTION OF DIRECT PICKUP

Shielding of Models Containing Elevator Matching Transformers



TUNER INPUTS

Figure 3

1. Change pin connections at tuner input to 75 ohms. (Check for correct ground pin.)
2. Run coaxial lead-in cable directly to tuner input. A C-81 installed on the backboard of the receiver will facilitate proving or servicing the set.
3. Observe step 7, page 2.