JERROLD TECHNICAL BULLETIN

#2022

TO: All "W" Distributors, Representatives and Antenna Companies

SUBJECT: Installing Antenna Preamplifiers, Model 401A and/or 403A at Community Antenna Sites.

These preamplifiers have excellent characteristics for community antenna site installations:

> Low noise figure; 25 db minimum gain with two tubes; input and output match to 72 ohms (vswr better than 1.5 to 1); matching to 300 ohm antennas is easily accomplished by use of coaxial balun at antenna terminals; 6 mc flat-top response; stable operation; available output 0.5 volts rms, undistorted; both models weatherproof; suitable for antenna mast mounting where necessary.

The advantages of the 401A and 403A preamplifiers suggest their substitution for WPR strips at all antenna sites. The increase in available output without overload, in itself justifies the change.

Figure A illustrates a typical antenna site arrangement for three channel reception, using 401A and/or 403A preamplifiers. These units can be cascaded to provide 50 db minimum gain, equivalent to the gain available from a WPR strip. In cases of very weak antenna signals, a third preamplifier can be installed between converter and AGC amplifier as shown. PD pads of the proper values should be inserted to balance the installation and obtain the optimum operating levels.

Some typical questions raised about these preamplifiers are answered below:

1. Availability of 300 ohm inputs: - Models with 300 ohm inputs have been discontinued because of the excellent efficiency of the coaxial balun, and the desirability of using coaxial cable in community installations in preference to twinlead.

2. Should preamplifiers be mounted on the antenna mast, or installed in antenna site equipment building?

   This answer depends on the improvement in signal-to-noise ratio to be gained by antenna mounting. Certainly, where good signal strength is obtained in the antenna site building, there is no reason to sacrifice the ease of maintenance at this location, for any unnecessary db gain to be obtained by antenna mounting. However, in the case of signals on the borderline of snow, a 2 or 3 db increase in signal can make a worthwhile difference in picture quality.

Since many installations use 75 feet, or more, of JRP-11 cable between the antenna and antenna site building, antenna mounting will improve the signal-to-noise ratio, particularly at Channels 7 to 13.

3. Should 24 V or 117 V a-c power supplies be used when antenna mounting preamplifier?

   This answer depends on the length of a-c line required and on individual preference. Where a considerable length of line is involved (more than 75 feet) the use of the 24 volt supply is desirable, since the a-c can be carried on the coax with a resultant saving in cost. For shorter runs the simplicity of separate a-c and RF lines for maintenance purposes may outweigh the initial saving. In the event that 117 volt lines are run on an antenna tower or pole, approved type weatherproof service wire should be installed in accordance with electrical codes.

4. Location of High Q Traps (TLB, THB, TFM) ..... Traps in most cases will mount after the antenna preamplifier, unless interfering signal causes overload or cross modulation in the preamplifier itself. In the case of the 401A (24 V) installation, the trap should be installed after the remote power supply, where the a-c has been filtered out.

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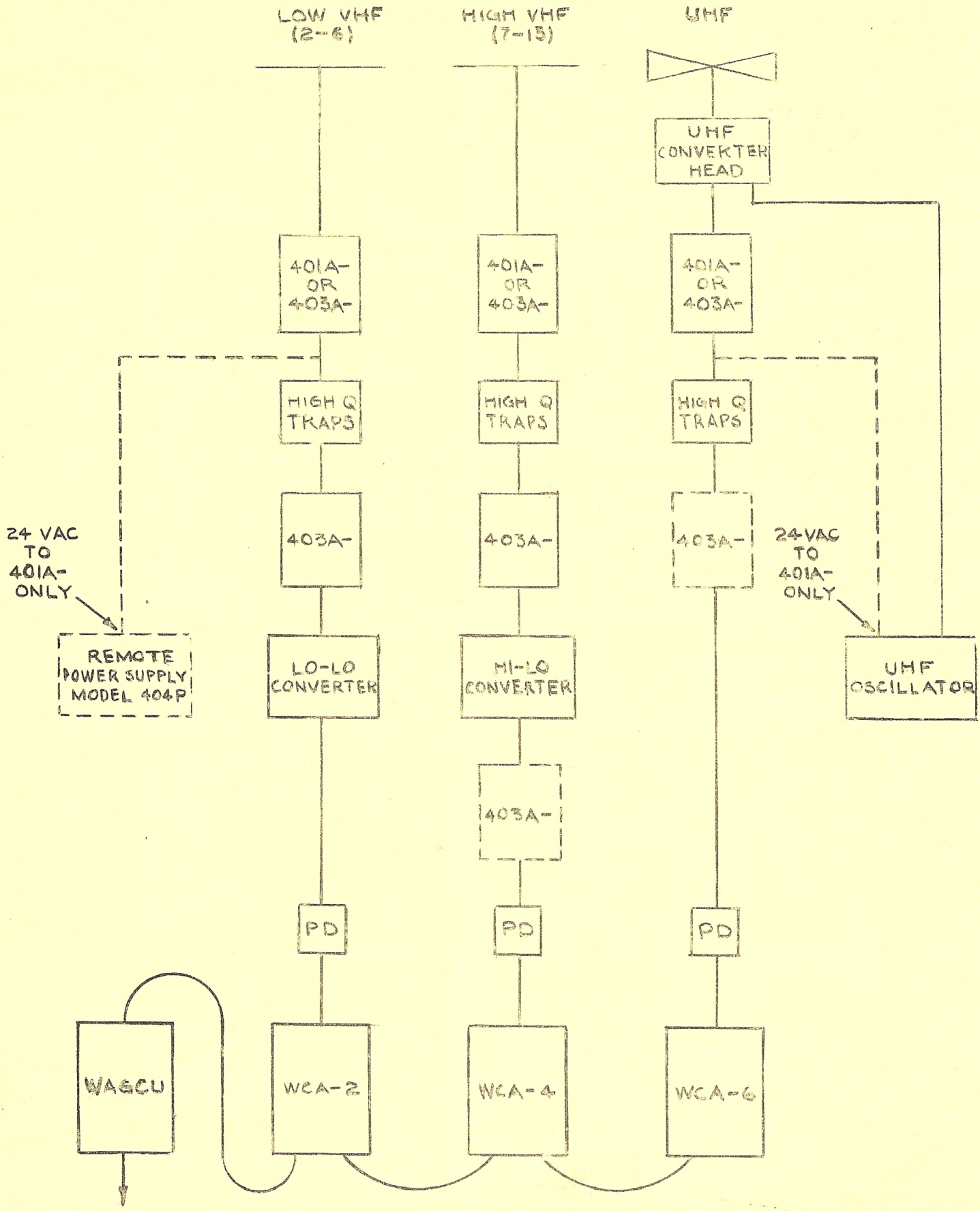

Figure A: Antenna Site Equipment Arrangement Using Antenna Preamplifiers.
(W System)