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# INSTRUCTION BOOK

FOR

CAT. NO. 638-509-6

- 150-162 MHz
- 162-174 MHz
- 220-225 MHz
- 470-512 MHz

## DUPLEXER

SERIAL NO. \_\_\_\_\_  
TRANSMIT \_\_\_\_\_  
RECEIVE \_\_\_\_\_

## 638-509-6 DUPLEXER

### DESCRIPTION

This unit consists of 6 capacitively tuned coaxial resonators, with 3 in each channel in the normal configuration. The electrical specifications vary in the 4 bands in which the unit is available so they will be given separately below.

#### 150 - 162 MHz and 162-174 MHz

Greater than 75 dB rejection with 1.2 dB maximum insertion loss is provided at 2 MHz spacing. At 5 MHz spacing the insertion loss drops to 0.7 dB. The maximum power is 150 watts continuous.

#### 220 - 225 MHz

Greater than 75 dB rejection with less than 2.0 dB insertion loss is provided at 1.6 MHz spacing in this band. Maximum power is 100 watts continuous.

#### 470 - 512 MHz

75 dB or more rejection is provided here at 3 MHz spacing with 1.7 dB maximum insertion loss. Maximum power is 70 watts continuous.

### MOUNTING INSTRUCTIONS

Four holes are provided in the unit for mounting to the radio equipment or other nearby flat surface. Under no conditions should the unit be allowed to operate in a vehicle in an unsecured position. Unrestricted movement of the unit in a vehicular application could damage or detune the unit.

## TUNING INSTRUCTIONS

The unit will normally be supplied factory-tuned to the frequencies specified on the order and no adjustments should be required. The tuning instructions are furnished only for the purpose of readjustment in the event of frequency changes in the associated equipment.

The equipment required for the tuning procedure to be described is:

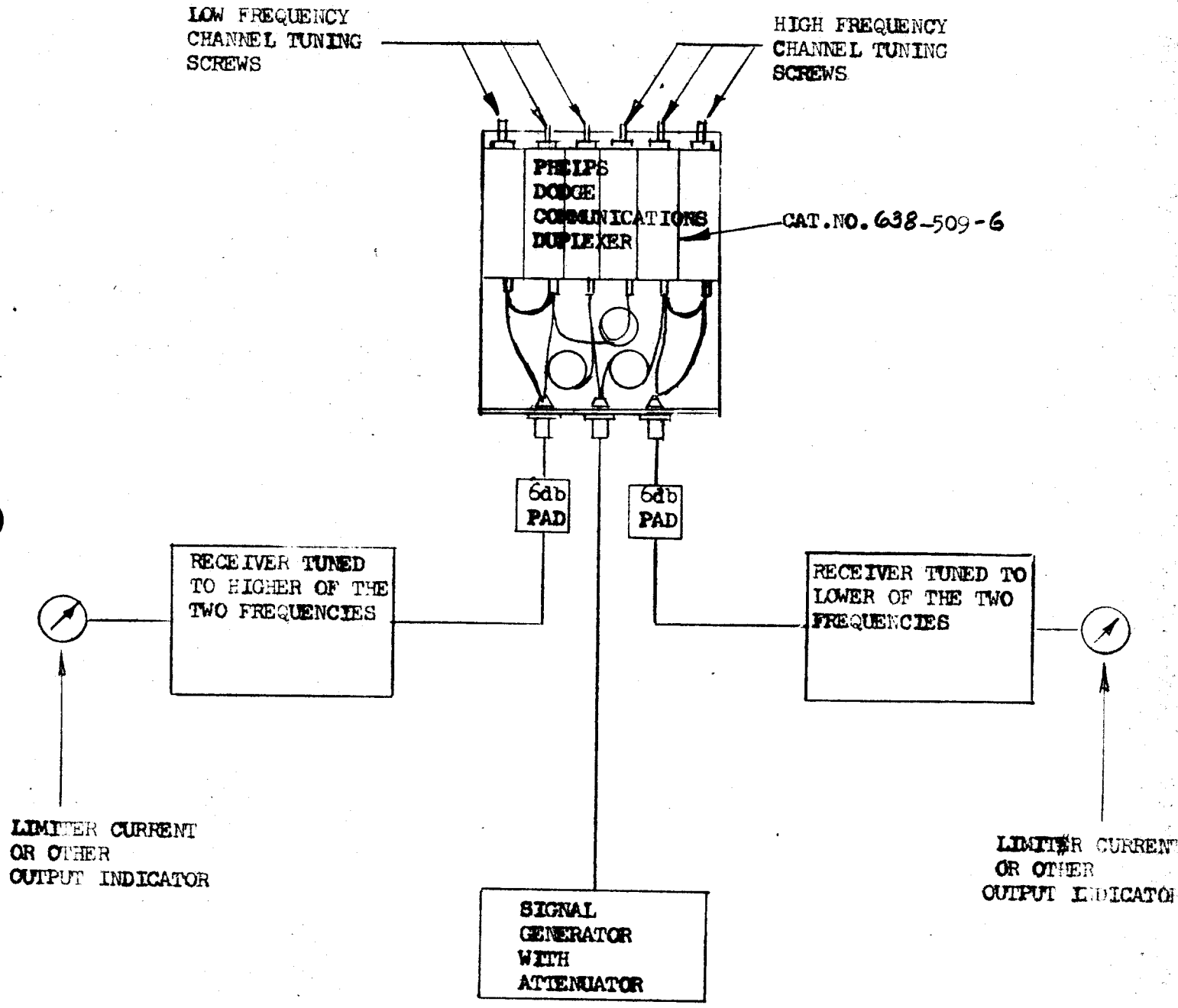
1. A 50 ohm output impedance signal generator capable of covering the desired transmit and receive frequencies and having an output attenuator.
2. A 50 ohm input receiver tuned to the desired transmitting frequency.
3. A 50 ohm input receiver tuned to the desired receiving frequency.
4. Two six dB pads.

NOTE: Separate transmitter and receiver cables to duplexer to maintain desired isolation. A minimum separation of one foot is desirable.

The diagram of Fig. 3 shows the connections to be made to the duplexer for the nulling adjustments. Note that the higher frequency receiver is connected to the duplexer terminal which normally passes the lower frequency signal and the lower frequency receiver is connected to the duplexer terminal which normally passes the higher frequency signal. The receivers are being used as null indicators in this set-up and care should be taken to see that the receivers are not overloaded. First limiter current saturation is to be avoided throughout the measuring procedure.

Tune the signal generator to the higher frequency or until the receiver connected to the lower frequency channel shows a maximum signal. Now adjust the tuning screws of the lower frequency channel for minimum signal in the receiver. The generator should now be tuned to the lower frequency or until the receiver connected to the higher frequency channel shows maximum signal. Now adjust the tuning screws of the higher frequency channel for minimum signal in the receiver. A hollow shaft nut driver in combination with a long screwdriver will make adjustment and locking of the tuning screws easier. These screws must be locked for proper operation.

The duplexer may now be placed into operation.



END OF DOCUMENT

FIGURE 1