

DB4022 and DB4029

(450-512 MHz and 806-960 MHz)

Band Pass / Band Reject Cavity

Tuning Instructions

PRODUCT DESCRIPTION

The DB4022 cavity is designed for use in the 450-512 MHz band when the transmit and receive frequencies are separated by 3 or 5 MHz. The DB4029 cavity is designed for use in the 806-960 MHz band. Transmit and receive frequencies for the DB4029 are minimally separated by 24 MHz.

Each cavity is a quarter-wave band-pass cavity with a separate notching adjustment. The band-pass characteristic is tuned by an adjustable center conductor and the band-reject characteristic is tuned by a notching adjustment.

FIELD TUNING

The cavities are factory-tuned to the operating frequencies and shipped ready for immediate installation. No further field tuning or adjustment is required. However, should it become necessary to change the operating frequency of a cavity, it may be returned to the factory for retuning or it can be field-tuned if the following equipment is available:

1. A signal generator (50 ohm) capable of producing a signal at the transmitter and receiver frequencies.
2. A receiver tuned to the desired receive frequency.
3. A receiver tuned to the desired transmit frequency.
4. One 50 ohm pad.

FIELD TUNING PROCEDURE

Tuning the unit as a High Frequency Pass – Low Frequency Reject Cavity:

Note: Tune the bandpass adjustment to pass a higher frequency and the notching adjustment to reject a lower frequency (see Figure 1)

1. Connect the equipment as shown in Figure 2.
2. On each cavity, loosen the hex nut that locks the threaded tuning rod (see Figure 1).
3. Pre-tune the notching adjustment as follows. Note: The notching adjustment tool *must be nonmetallic*.
 - a. Turn the notching adjustment clockwise until the screw bottoms out.
 - b. Turn the notching adjustment counterclockwise nine (9) turns.
4. Tune the signal generator to the desired higher frequency.

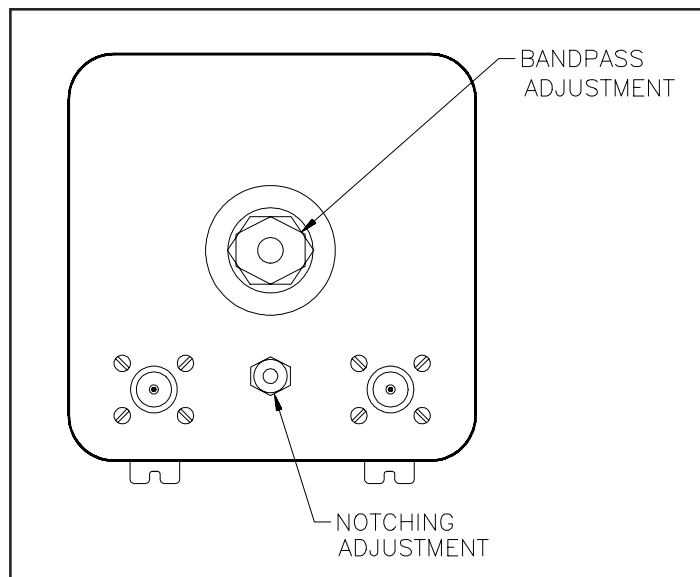


Figure 1 - Adjustment Screws

5. Tune the band-pass adjustment of the cavity while observing the limiter reading of receiver number 1. Tune for a maximum limiter reading. (Turn the tuning screw clockwise to decrease the resonant frequency of the cavity.)
6. Lock the tuning screw shaft nut after tuning the cavity.
7. Disconnect receiver number 1 and connect receiver number 2.
8. Tune the signal generator to the desired lower frequency.
9. Tune the notching adjustment of the cavity for a minimum signal into receiver number 2.
10. The cavity is now tuned.

Tuning the unit as a Low Frequency Pass – High Frequency Reject Cavity:

Note: Tune the bandpass adjustment to pass a lower frequency and the notching adjustment to reject a higher frequency (see Figure 1)

1. Connect the equipment as shown in Figure 3.
2. On each cavity, loosen the hex nut that locks the threaded tuning rod (see Figure 1).

continued



continued

3. Pre-tune the notching adjustment by turning the notching adjustment clockwise until the screw bottoms out. Note: The notching adjustment tool *must be nonmetallic*.
4. Tune the signal generator to the desired lower frequency.
5. Tune the band-pass adjustment of the cavity while observing the limiter reading of receiver number 2. Tune for a maximum limiter reading. (Turn the tuning screw clockwise to decrease the resonant frequency of the cavity.)
6. Lock the tuning screw shaft nut after tuning the cavity.
7. Disconnect receiver number 2 and connect receiver number 1.
8. Tune the signal generator to the desired higher frequency.
9. Tune the notching adjustment of the cavity for a minimum signal into receiver number 1.
10. The cavity is now tuned.

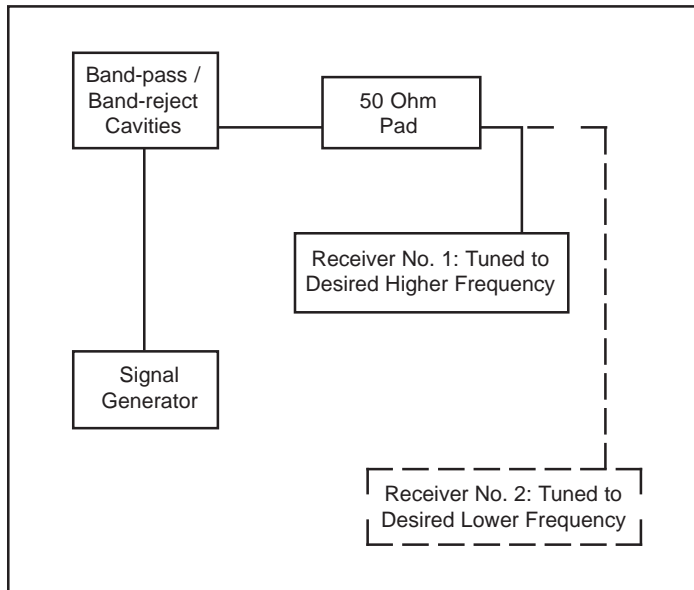


Figure 2

Field Tuning for High Frequency Pass / Low Frequency Reject

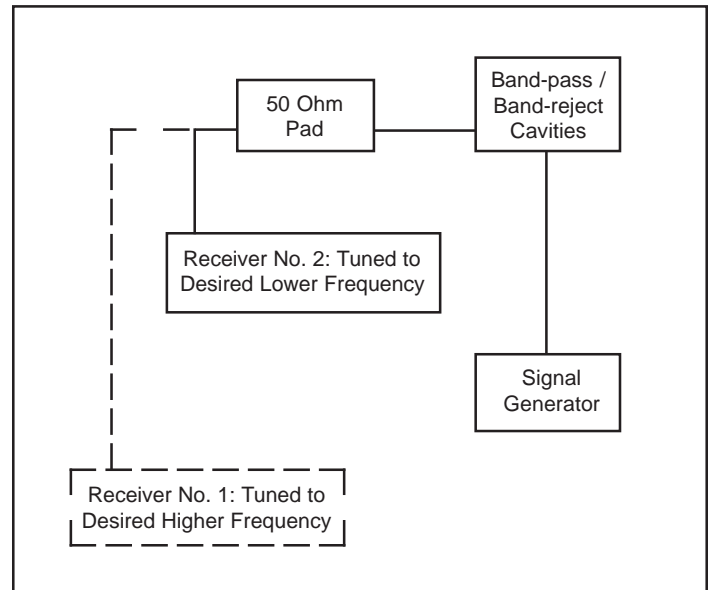


Figure 3

Field Tuning for Low Frequency Pass / High Frequency Reject



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