



DB-4030 DUPLEXER

IMPORTANT: TO MAINTAIN MAXIMUM ISOLATION USE DOUBLE SHIELDED OR SOLID OUTER CONDUCTOR COAXIAL CABLE FROM THE DUPLEXER TO THE TX AND RX CHASSIS.

General

Model DB-4030 duplexer is designed for use with duplex stations operating in the 30-50 MHz band. This model is primarily designed to provide minimum insertion loss and maximum isolation when used in systems having a frequency separation of 500 KHz or more. Under certain conditions, it is also suitable for multiplexing two transmitters, two receivers or two push-to-talk stations into a common antenna.

Field Tuning

The duplexer is factory-tuned to the exact operating frequencies and shipped ready for immediate installation. No further field tuning or adjustment is required. If it becomes necessary to change the operating frequencies of the duplexer it may be returned to the factory for re-tuning or may be field-tuned if the following equipment is available:

1. A signal generator (50 ohms) capable of producing a signal at the transmitter and receiver frequencies.
2. A receiver tuned to the desired lower frequency signal.
3. A receiver tuned to the desired higher frequency signal.
4. Two 50 ohm pad.

Field Tuning Procedure

1. Connect equipment as shown in Figure 2.
2. See Figure 1 for location of lower frequency and higher frequency cavities in the duplexer.
3. Tune the signal generator to the desired lower frequency. Tune each high frequency cavity for minimum signal into receiver #1 (Clockwise on tuning screw decreases resonant frequency of cavity.)
4. Lock tuning screw shaft nut after tuning each cavity.
5. Tune the signal generator to the desired higher frequency. Tune each lower frequency cavity for minimum signal into receiver #2.

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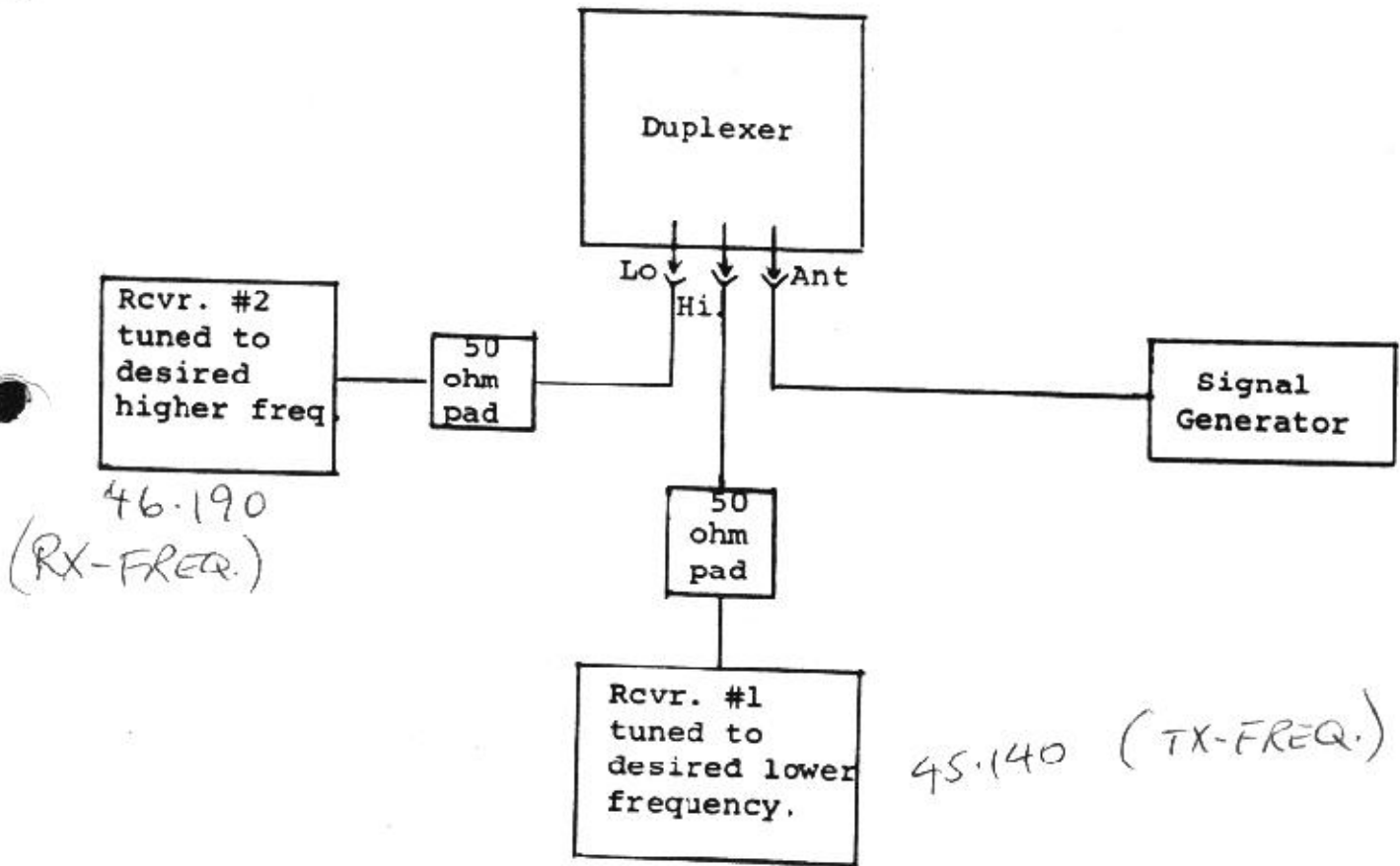


Figure 2

Note: Lo and Hi refer to the pass frequency inputs, transmitter or receiver, depending upon which is the lower or higher frequency.

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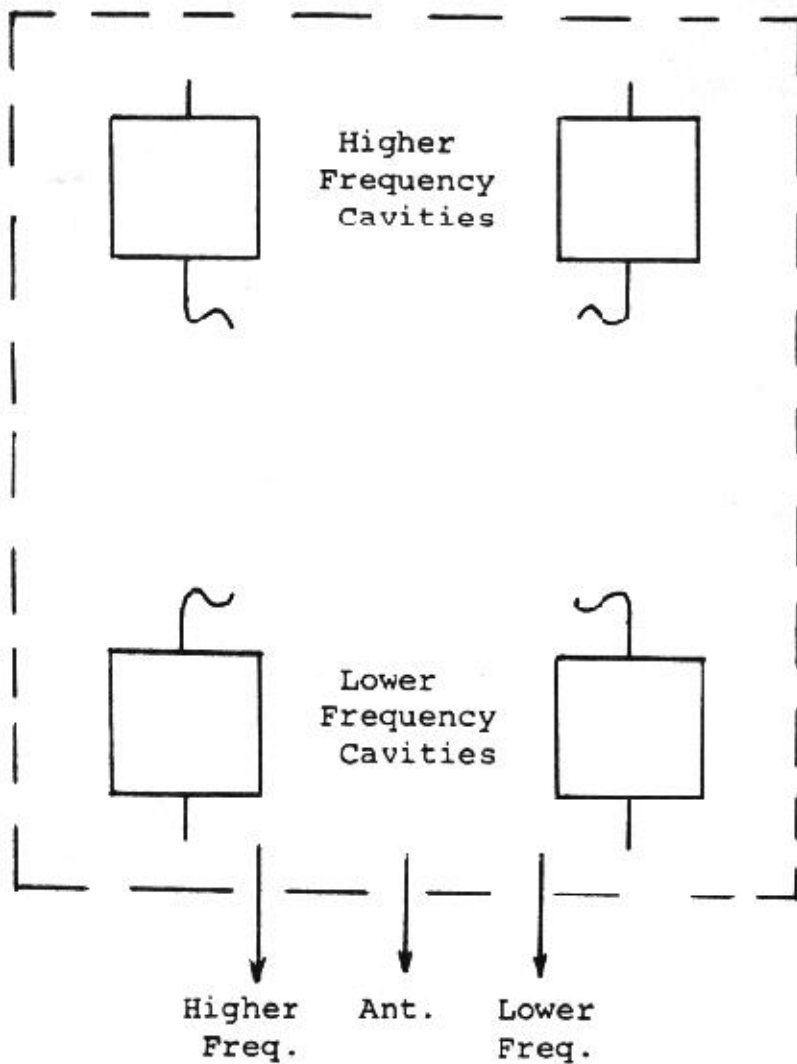


Figure 1. Duplexer Layout

BAND-REJECT DUPLEXER

30-50 MHz

DB-4030

DB-4032

Model DB-4030 and DB-4032 are designed for use with duplex systems operating in the 30-50 MHz band. These models include the use of quarter-wave helical resonators interconnected in a band-reject configuration with double shielded cable. Both models are temperature compensated and will provide powers up to 150 watts - even at the extremes of the temperature range. The compact size of these duplexers is made possible by use of the high performance helical resonators. Both models include the cabinet.

Model DB-4030 is a 4-cavity duplexer with two cavities in the transmitter section, two in the receiver section. The duplexer is generally suitable for use with most tube type and/or solid state type stations when the transmit and receive frequencies are separated by 1.5 MHz or more.

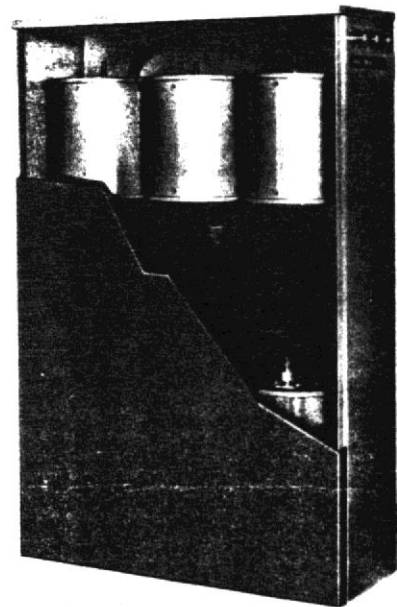
Model DB-4032 is a 6-cavity duplexer with three cavities in the transmitter section, three in the receiver section. The duplexer is generally suitable for use with most tube type and/or solid state type

stations when the transmit and receive frequencies are separated by 0.5 MHz or more.

The duplex response curves illustrate the typical isolation provided by the duplexer when operated at minimum frequency separation. Insertion loss values at minimum frequency separation are shown in the specifications. At greater separation between the transmit and receive frequencies, the rejection remains the same but the transmitter and receiver losses are reduced.

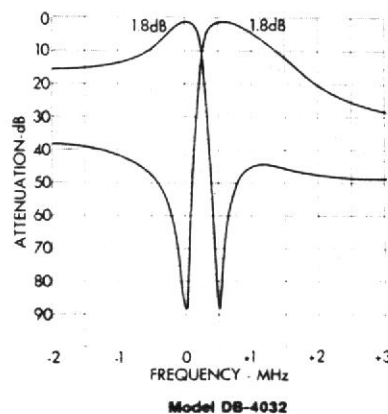
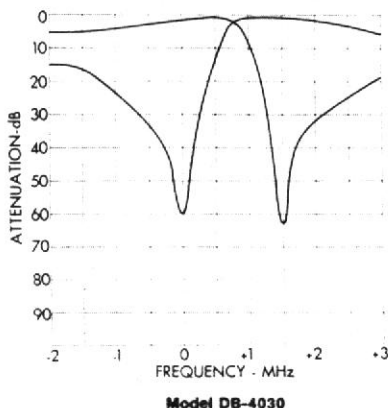
The duplexer is factory tuned to the exact operating frequencies and shipped ready for immediate installation. No further field tuning or adjustment is normally required.

COMBINING. Under certain conditions, the DB-4032 is suitable for coupling two transmitters, two receivers or two simplex stations into a common antenna when the two frequencies involved are separated by 0.5 MHz or more.



DB-4032

TYPICAL DUPLEX RESPONSE CURVES



ELECTRICAL DATA

	Model DB-4030	Model DB-4032
Frequency ranges	30-35 MHz 35-40 MHz 40-45 MHz 45-50 MHz	30-35 MHz 35-40 MHz 40-45 MHz 45-50 MHz
Frequency separation	1.5 MHz or more	0.5 MHz or more
Maximum power input (continuous duty)	150 watts	150 watts
Insertion loss - transmitter to antenna	1.5 dB	2.0 dB
Insertion loss - receiver to antenna	1.5 dB	2.0 dB
Transmitter noise suppression at receiver frequency	55 dB	80 dB
Receiver isolation at transmit frequency	55 dB	80 dB
Maximum VSWR (referenced to 50 ohms)	1.5 to 1	1.5 to 1
Temperature range	-30° to +60°C	-30° to +60°C
Number of cavity filters	4	6

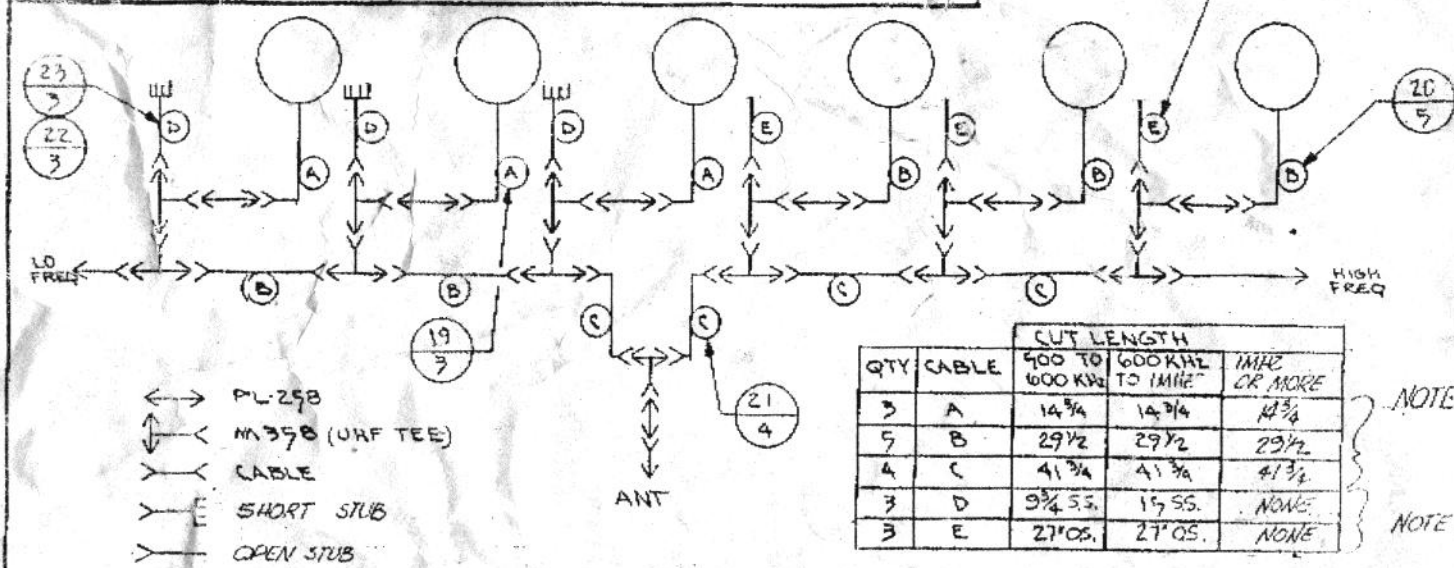
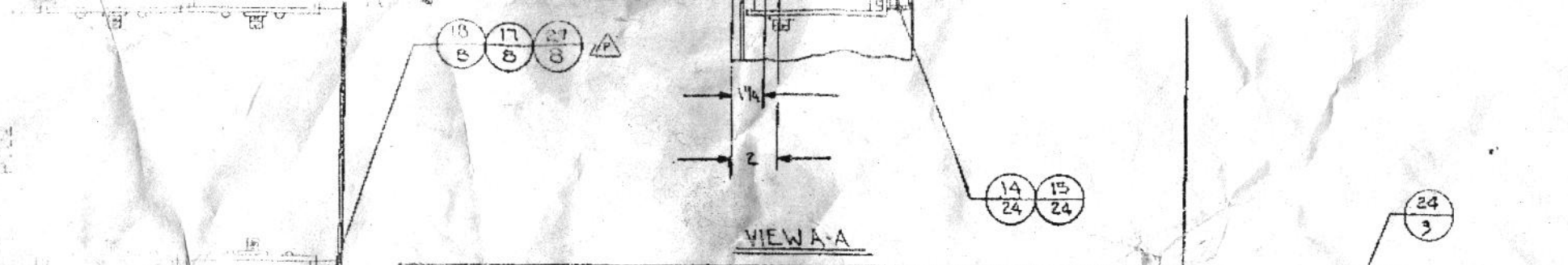
MECHANICAL DATA

	Model DB-4030	Model DB-4032
Cabinet dimensions:		
Height	30"	30"
Width	19.250"	19.250"
Depth	7.380"	7.380"
Connector terminations	UHF female	UHF female
Finish	Decibel Brown	Decibel Brown
Net Weight	67 lbs.	75 lbs.
Shipping Weight	77 lbs.	90 lbs.

ORDERING INFORMATION

DB-4030 Duplexer 30-50 MHz
DB-4032 Duplexer 30-50 MHz

Exact Frequency of the transmitter and the receiver must be specified.



QTY	CABLE	CUT LENGTH		
		500 TO 600 KHZ	600 KHZ TO 1 MHz	1 MHz OR MORE
3	A	14 3/4	14 3/4	14 3/4
5	B	29 1/2	29 1/2	29 1/2
4	C	41 3/4	41 3/4	41 3/4
3	D	9 1/2 SS.	15 SS.	NONE
3	E	27' OS.	27' OS.	NONE

NOTE 2
NOTE 3

MATERIAL			FINISH	HEAT TREAT WEIGHT		
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED			TITLE DUPLEXER ASSEMBLY DB4032	DECIBEL PRODUCTS, INC. DALLAS, TEXAS		
FRAC.	DEC.	ANG.				
± 1/64	± .005	± 30'				
SCALE 1:4	NO REQ'D	DRAWN D. PERRY DATE 10-9-69		SIZE	DRAWING NUMBER	ISSUE
NEXT ASSY.		CHECKED R.C. TROTT DATE 12-4-69		C	040020-001 024	G
		APPROVED F.O. SHIPLEY DATE 12-9-69				

2.5 ON EACH END.
R ON ONE END.
K ASSEMBLY
BUCTIONS
DIP-000
EXCEPT WITH 500 TO 600 KHZ SEPERATION.
600 TO 1 MHz
1 MHz OR MORE