

ISOLATORS/CIRCULATORS

INSTALLATION AND TUNING INSTRUCTIONS

When used as isolators, both single and dual models are available with a variety of load terminations for the isolated ports. Retuning of these units may be performed in the field in the 2-4 MHz bandwidth by following the instructions in CI-1026RI-1027RI. Larger bandwidth retunings are possible, but are more more difficult.

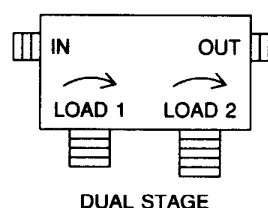
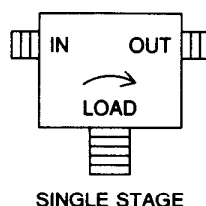


TABLE 1 - ELECTRICAL SPECIFICATIONS

| | Freq. Band (MHz) | Insertion Loss (-db) | | Isolation (-db) | |
|-----------------|---------------------|-------------------------|-----|--------------------|-----|
| | | TYP | MAX | TYP | MIN |
| SINGLE STAGE | 132-174 | 0.4 | 0.6 | 35 | 25 |
| | 406-512 | 0.3 | 0.6 | 35 | 25 |
| | 806-960 | 0.3 | 0.4 | 35 | 25 |
| DUAL STAGE | 132-174 | 0.7 | 1.0 | 75 | 50 |
| | 406-512 | 0.6 | 1.1 | 75 | 50 |
| | 806-960 | 0.55 | 0.7 | 75 | 50 |

VSWR: In/out (all units) (23 db+) 1.25:1 max.

NOTE:

Ferrite isolators are subject to certain non linearities and may conduct or generate a weak signal harmonic. For proper IM protection a low pass 2nd harmonic filter is often used between the isolator and antenna to suppress the 2nd and 3rd harmonic energy of the transmitter. The SRL AF series 2nd harmonic filters are available for this purpose.

Note: B Version of the Dual Isolators have the output & Load2 position interchanged. For B version isolators C4 & C6 are interchanged. i.e. C4 is located in the C6 position. All C4 adjustments are made on the tuning screw closet to the output.

SINCLAIR RADIO LABORATORIES

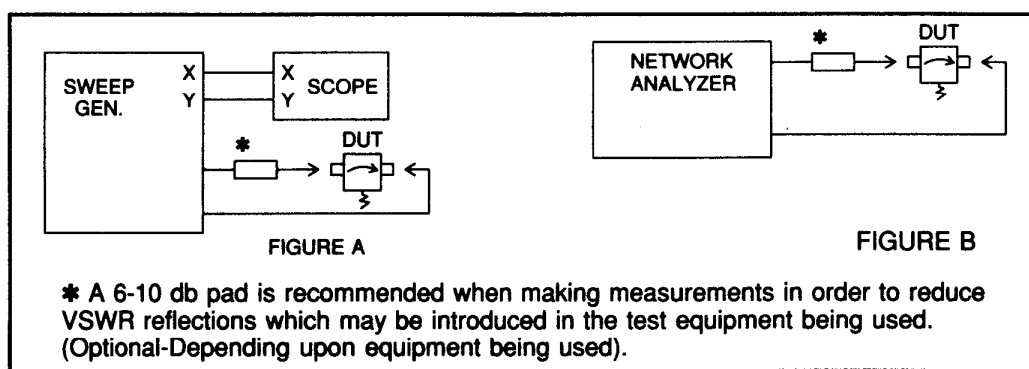
675 Ensinger Road, Tonawanda, New York 14150 (716) 874-3682 (800) 288-2763 Fax: (716) 874-4007

All isolators/circulators are factory adjusted and tuned to specifications and the exact frequency as requested by the customer and have a 2-4 MHz bandwidth. (12 MHz Bandwidth for UHF)

These units can be retuned within this bandwidth specification by adjusting tuning capacitors located at the front and rear of the units. Retuning beyond the bandwidth specification is not recommended in the field as this may require a readjustment of magnets located internally to the units.

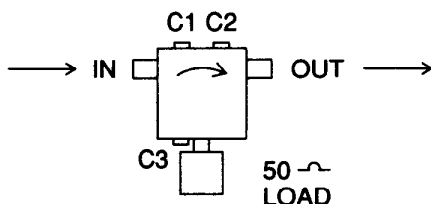
The isolators can be retuned using test setups as shown in Figures A & B or other equipment capable of measuring isolation, insertion loss, and reflected power (VSWR).

A signal source with a maximum output level of 100 MW (+20 dbm or less) is recommended. **UNDER NO CIRCUMSTANCES SHOULD A TRANSMITTER BE USED TO TUNE AS ISOLATOR.**



SINGLE STAGE ISOLATORS:

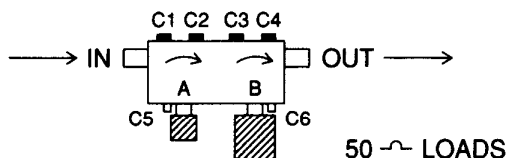
1. Connect the signal source to the input port of the isolator and monitor the output port. (The 50 Ohm load used in the system must be terminated at the isolator load port).
2. Adjust capacitors C1 and C2 for minimum insertion loss at f_0 .



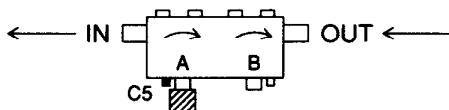
3. Reverse connections to the isolator in/out ports and adjust capacitor C3 to obtain typical isolation at f_0 ($\approx 35\text{dB}$).
4. Restore the connections as in step 1 and again adjust C1 and C2 for minimum insertion loss at f_0 .
5. Fine tune C1 and C2 for best return loss (VSWR) at both input and output ports, the readings should agree with the specifications as shown in table 1 for single isolators. (Ref. page CI-1025)

DUAL STAGE ISOLATORS:

1. Connect the signal source to the input port of the isolator and monitor the output port. (The 50 Ohm loads used in the system must be terminated at the load ports).

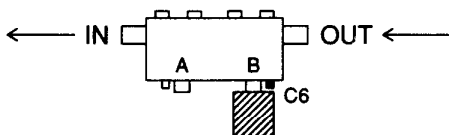


2. Adjust capacitors C1 thru C4 for minimum insertion loss at f_o .
3. Reverse the equipment in/out connections to the isolator and remove the 50 Ohm load from the isolator port B.



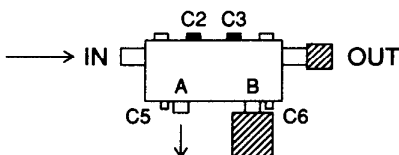
Adjust C5 to obtain maximum isolation at f_o (≈ 35 db).

4. Remove the load from port A and connect the 50 Ohm load to port B.



Adjust C6 to obtain maximum isolation at f_o (≈ 35 db).

5. Connect the signal source to the input port of the isolator and monitor the load port A. (Terminate the output port and port B with the 50 Ohm loads).



Adjust C2 and C3 for maximum isolation at f_o at load port A (This may require several minor back and forth adjustments of C2 and C3).

6. Restore all connections to step 1 and check insertion loss and isolation at f_o .
7. Optimize return loss (VSWR) at input and output ports by adjusting C1 and C4.
8. Final minor optimized adjustments may be required by adjusting C5 and C6 only for isolation.

The readings obtained should agree with the specifications as shown in table 1 for dual isolators. (Ref. PG CI-1025).