SGC

High Power ADSP² Installation
Generic – Any Transceiver
Catalog Number 70-12

This document describes procedures that could result in voiding of the warranty of your radio.

If these procedures are not precisely and properly carried out, it could result in a radio that does not work or is damaged.

Furthermore, while reasonable efforts have been made to assure the accuracy of this information, it is possible that there are some errors, or that your radio is of a slightly different version than the one used for testing and thus, differences may exist. You are expected to take total responsibility for your own actions.

It is assumed that anyone following suggestions made in this document is already thoroughly familiar with the technologies and techniques involved and possesses the necessary skill and knowledge to make their own judgment as to the appropriateness and validity of the information.

If you choose to do the installation outlined, you do so at your own risk. You are solely responsible for any damage, voiding of warranty, or other harm that may come about by following these procedures. It is <u>very strongly recommended</u> that, if you maintain your own radio, you thoroughly familiarize yourself with the transceiver service manual. If you don't have one, get one!

CAUTION: Soldering and desoldering of very small Surface Mount Components may be required to perform this installation

IMPORTANT NOTE: Support for the ADSP² board will be provided by SGC exclusively by email. Please write to <u>sgc@sgcworld.com</u> for assistance if needed.

1. Technical Specifications

Specification	Low Audio	High Audio
Size	1.7 X 1.475"	2.645 X 1.475"
Weight	0.6 oz	1.1 oz
Audio Limits		
Min Input	10 mv RMS	100 mv RMS
Max Input	150 mv RMS	5 volt RMS
Max Output	.5 v RMS	9 v RMS
Power Output		5 Watts RMS
Current Consumption		
idle	80 mA	110 mA
full out	80 mA	500 mA
	X1	X2
Noise Reduction	13 dB	26 dB
Time Delay	6.5 ms	13 ms
Tone Rejection	-50 dB	-65 dB
Filters (3dB Bandwidth)		
Voice	300-2100 Hz	
CW Wide	400-900 Hz	
CW Narrow	600-700 Hz	
Out of Band Rejection	-45 dB	

2. Preparation

The ADSP^2 installation provides you with an unprecedented ADSP capability, far beyond what you can find on most amateur radio transceivers.

Every possible effort has been made to provide you with a simple, easy to use product. One where you can concentrate on your communication and not on fiddling with knobs. SGC's ADSP^2 will give you years of service improving your ability to communicate.

☐ ***Prepare your work area***

☐ ***Assemble your tools and parts***

> ADSP^2 board
> ADSP^2 switch assembly
> Double-stick tape for mounting the board
> Tools for disassembling your transceiver
> soldering iron suitable for working with Surface Mount Devices

3. Install the ADSP^2 Board

☐ ***Open your transceiver***

☐ ***Remove the backing from the double-stick foam tape and attach the ADSP^2 assembly into a convenient location***

☐ ***Connect the ADSP^2 into the signal path***

The following connections will be made between connector J2 on the ADSP^2 board and the transceiver:
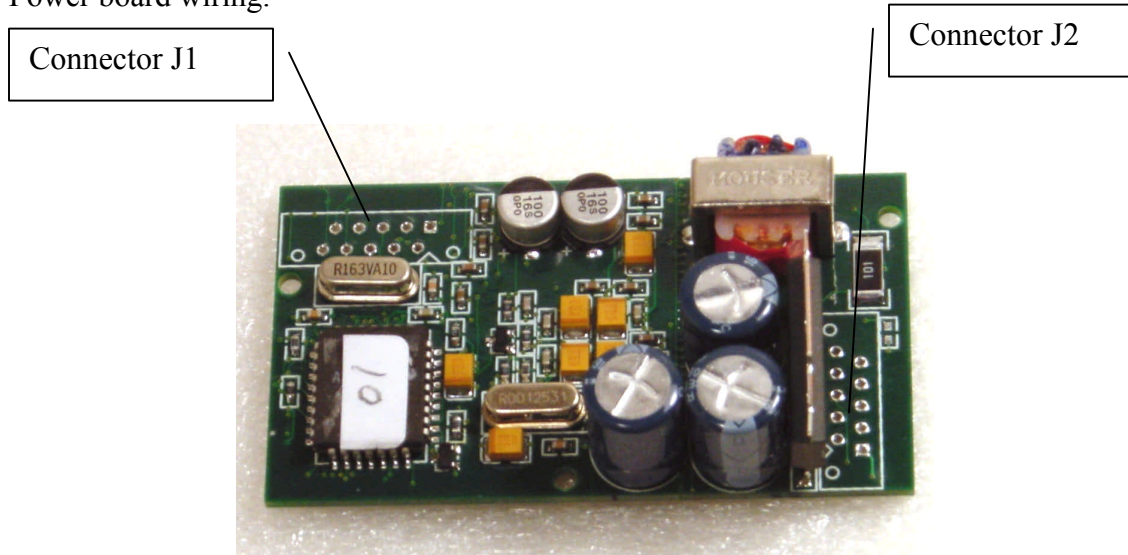
Pin 2 to 12V DC
Pin 6 to DC ground

Pin 10 to audio in to the ADSP²
Pin 1 to the audio out from the ADSP²

The board (shown below) has two connectors on it, J1 and J2. J1 is not used for any Hi Power board wiring.

Connector J1

Connector J2

The diagram below shows the wiring for the J2 Connector:

Pin 10 Gray Audio In +

Pin 10	Gray	Audio In +
Pin 9	Yellow	Noise Select
Pin 8	Violet	Audio In -
Pin 7	Red	Filter Select
Pin 6	Black	Switch Ground
Pin 5	Black	DC Ground
Pin 4	N/C	
Pin 3	Blue	Audio Out -
Pin 2	White	12 VDC
Pin 1	Brown	Audio Out +

Pin 1 Brown Audio Out +

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The audio path should be broken at the output of the audio amplifier just before the speaker. The only requirement at this point is that a minimum of 1 volt RMS and a maximum of 10 volts RMS will appear at this point when using the High Power version of the ADSP^2. The board has coupling capacitors on its input and output.

Audio +

Audio -

to J2 Pin 8

to J2 Pin 10

to J2 Pin 1

to J2 Pin 3
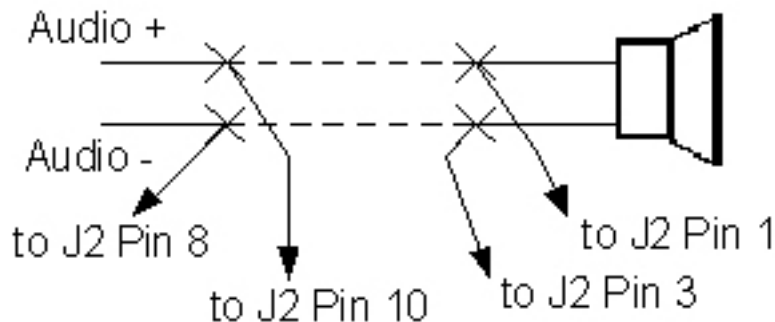
The speaker used with the ADSP2 Hi Power board must not be grounded. The positive and negative leads from the speaker must connect to Pins 1 & 3 of the J2 connector on the ADSP2 board. The speaker negative wire must not be tied to DC ground. If the speaker is tied to ground in the transceiver, then Pin 8 should be connected in its place and the speaker ground wire should be connected to Pin 3. If the speaker connection is not grounded in the transceiver, then the two wires should be taken to the ADSP board Pins 8 & 10 first and then the output from Pins 1 & 3 should be connected to the speaker as shown.

12 VDC can be taken from any point where it is convenient and the DC ground can be connected to any convenient point which is connected to the chassis ground.

☐ *Route the ADSP^2 switch assembly out of the transceiver body*

☐ **Connect the switch assembly to the switch wire connector**

☐ **Reassemble the transceiver**

4. Test your transceiver

The switch buttons are assigned to their functions according to the diagram below:
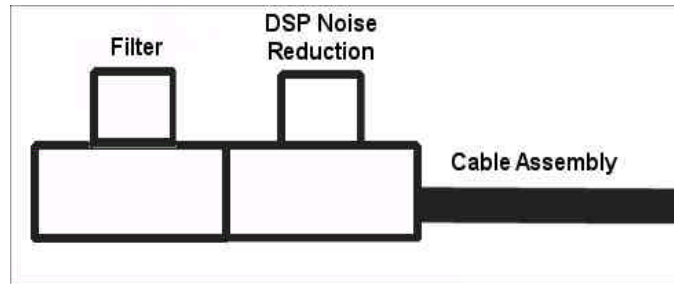
Each switch steps through its functions in order as shown below under testing.

□ *Testing the ADSP Functions*

- o Press & Release the ADSP^2 Pushbutton for Noise Reduction X1
- o Press & Release the ADSP^2 Pushbutton for Noise Reduction X2
- o Press & Release the ADSP^2 Pushbutton for No Reduction
- o Repeat several times to verify operation

□ *Testing the Filter Functions*

- o Press & Release the Filter Pushbutton for the Voice Filter
- o Press & Release the Filter Pushbutton for the Wide CW Filter
- o Press & Release the Filter Pushbutton for the Narrow CW Filter
- o Press & Release the Filter Pushbutton for No Filter
- o Repeat several times to verify operation

5. Installing the Switches

The switches may be installed in any convenient location. The specific choice of switches was made to make it easy to mount on nearly any transceiver. Some people have chosen to install their switches on the side of the unit, others have preferred the top, and some on the front. Your specific installation will determine what the best location is.

SGC welcomes any suggestions regarding these switches to improve their installation and operation.

CAUTION: Overdriving the ADSP2 module may cause distortion. Backing off the level of the input signal will avoid it.

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