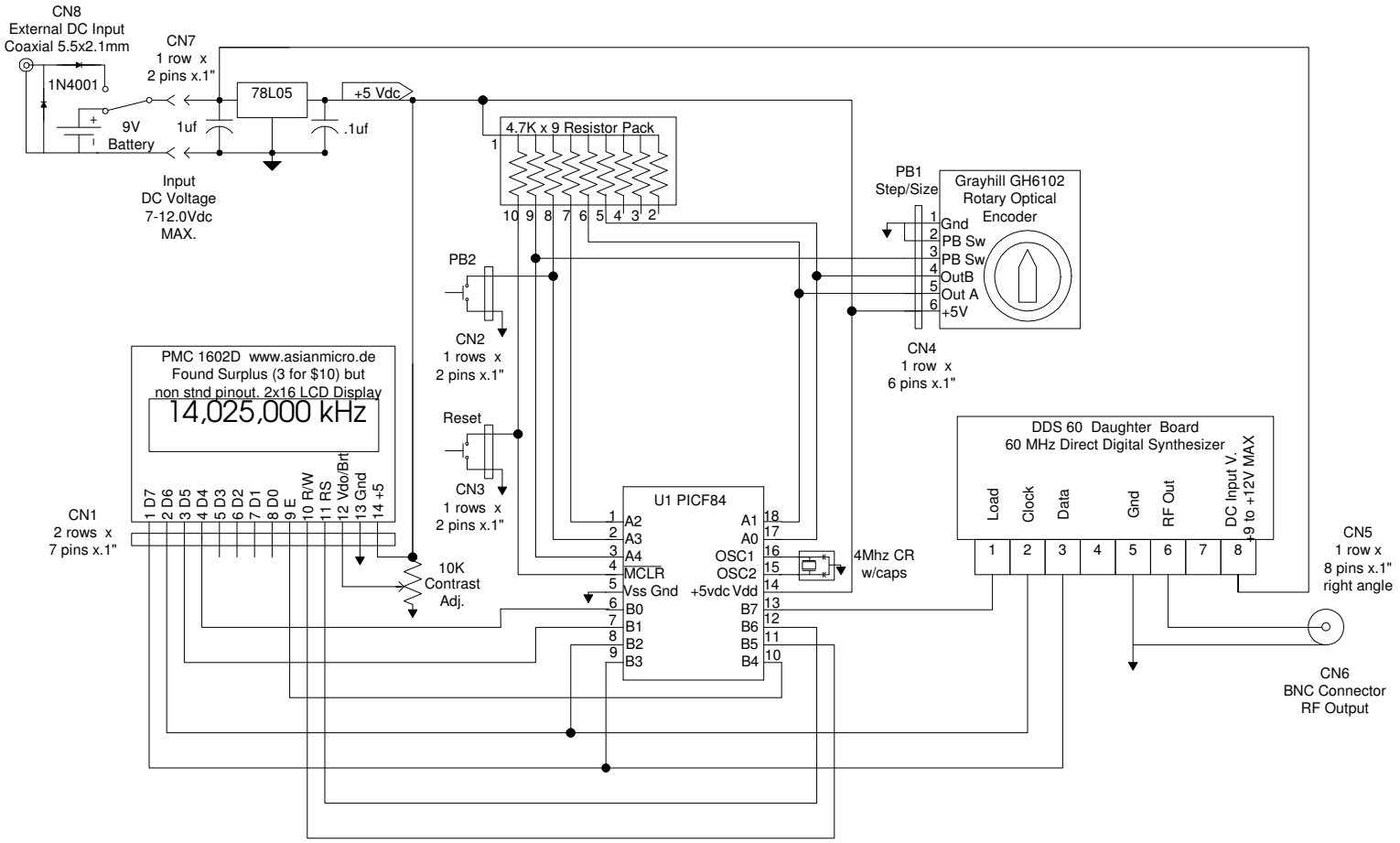
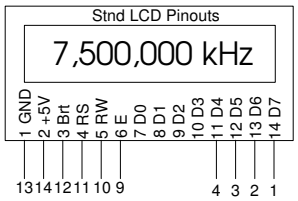




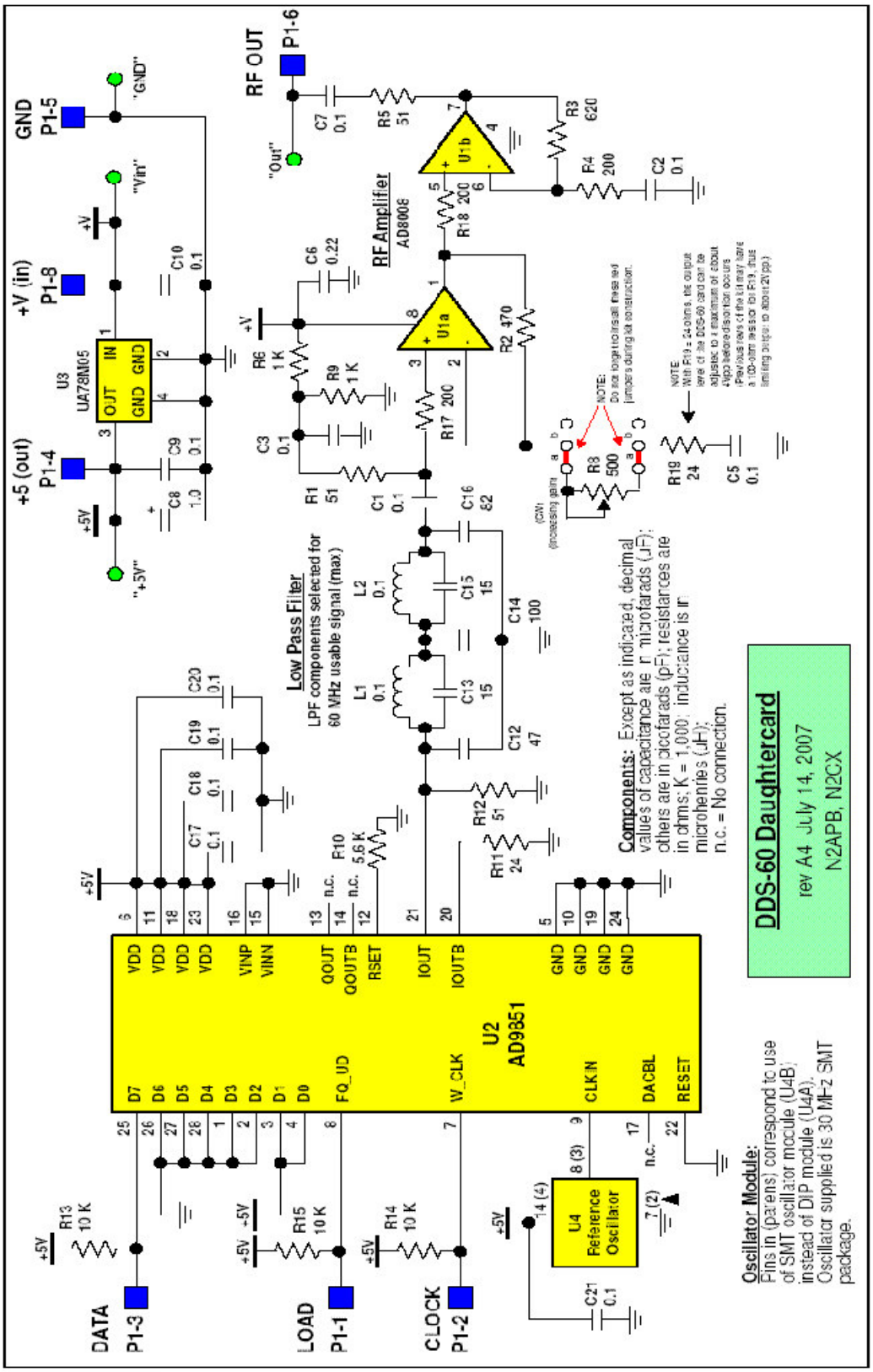
Connections from a Standard LCD display to my existing connector

Date	Revision/Addition/ Note	by
Feb. 25, 2009	PIC software siggen3c.hex. Not optimized for DDS-60.	GSC
Mar. 7, 2009	Version 2 with siggen3d software didn't work well. Going to try and copy circuitry from PIC EL project board, hex file is available but pinouts change on PIC. PIC Changed from 16F628 to 16F84A. Software is PEgen5.1	GSC
Mar. 8, 2009	PEgen5.1 by AA0ZZ works. Ran through calibrate and frequency by my counter +- 20hz. Software written for a 1x16 display. My surplus 2x16 works, but the display is 8 characters on Line 1 and 8 characters on line 2. Will have to change displays and the associated wiring, or rework software.	GSC
Mar. 15, 2009	Found two bytes in the software that affected display. Changed both and reassembled. Display is reading now on 1 line of a 2x16 LCD display. New software is PEgen52a. Small bug when calibrate is done. "CAL" stays on display on line 2. Finish the CAL routine then power down/power up (or reset) the device to clear the leftover text. Added "features" text from the .asm file by AA0ZZ to drawing.	GSC
Mar. 18, 2009	Added Battery, External DC input connector and battery/external power switch. Added Standard LCD and connections for refrence.	GSC
Mar. 22, 2009	U1 of the DDS60, an AD8008 has a MAX DC input of 12.0Vdc. If using an external DC input, pre-regulate to 7-12.0Vdc. Do not use raw car battery voltage. Digikey part # AD8008ARZ-ND. Package SOIC, $5.12 each.	GSC
Apr. 4, 2009	Added Reset button, Renumbered connectors. Reset works better than a power down/power up because of the residual charge on capacitors.Reloads the DDS-60 clean.	GSC

From AA0ZZ PEgen5.1.ASM file
; Features:
; VARIABLE RATE TUNING based on the speed at which the encoder is turned.
; Pressing a pushbutton switch (PIC-EL PB_1) will change the step size from
; 1Hz to 1kHz.
;
; BAND MEMORIES a pushbutton switch (PIC-EL PB_2) allows the frequency to
; be cycled around the HF ham bands.
;
; CALIBRATE MODE is entered if a pushbutton switch (PIC-EL PB_1) is pressed
; during power-on. The display is set to 10 MHz and remains fixed,
; even as adjustments are being made. If pushbutton is held pressed, then
; turning the shaft encoder will increase or decrease the value "osc" used to
; calculate the DDS control word. The basic calibrate adjustment rate is very
; low (on the order of a few cycles per turn of the encoder). A somewhat
; faster adjustment speed is available by pressing the encoder shaft down
; while turning.

; An external frequency counter on the DDS output is required to observe this
; adjustment. To exit calibrate mode, release the pushbutton and turn the
; shaft encoder one more time. The calibrated value of "osc" will then be
; stored in EEPROM memory.
;
; MOVE UP 1 MHz - Press and hold PIC-EL pushbutton PB_2 and then press and
; then press and release PIC-EL pushbutton PB_1.
;
; MOVE DOWN 1 MHz - Press and hold PIC-EL pushbutton PB_1 and then press and
; then press and release PIC-EL pushbutton PB_2.
;
; SAVE NEW START-UP FREQUENCY - Select the frequency. Then press and hold
; PIC-EL pushbuttons PB_1 and PB_2 for 2 seconds. The frequency will be
; stored in EEPROM and will be used on next start-up.

Drawn By: Gerald S. Crenshaw WD4BIS	**Date:** Mar. 18, 2009	From the bench of: Amateur Radio Station WD4BIS	Page 1 of 2
Engineer: Gerald S. Crenshaw WD4BIS	**Date:** Mar. 18 2009	**Title:** Controller for DDS-60 Ver 4 Direct Digital Synthesizer 1-60 MHZ	
Checked By: Janet G. Crenshaw WB9ZPH	**Date:** Mar. 18 2009		



Date	Revision/Addition/ Note	by
Apr. 4, 2009	Added page 2 to include DDS-60 schematic by N2ABP and N2CX	GSC

Drawn By: Gerald S. Crenshaw WD4BIS	Date: Mar. 18, 2009	From the bench of: Amateur Radio Station WD4BIS	Page 2 of 2
Engineer: Gerald S. Crenshaw WD4BIS	Date: Mar. 18 2009	Title: Controller for DDS-60 Ver 4 Direct Digital Synthesizer 1-60 MHZ Schematic	
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