

430B Cassette & Analog I/O

Description:

The OSI 430B is a complete analog I/O subsystem occupying only one board! The 430B can be used simply as a Kansas City Standard Cassette Interface which is fully supported by the OSI 65V PROM Monitor. Or, it can be used fully populated to contain the audio cassette interface or an RS-232 port and 8 parallel I/O lines, 2 fast 8-bit D/A converters, and an ultra-fast tracking A/D converter with an 8 channel input multiplexer.

Applications:

The 430B populated with the audio cassette interface is the fundamental mass storage of a video-based OSI 500 system. The D/A converters can be used for X,Y graphics, plotting, signal generation, music, and voice synthesis. The A/D converter can easily digitize voice and music as well as up to 8 channels of slower 8-bit information. The parallel I/O can be used independently or to supplement the other functions such as tape recorder on/off control, etc.

Specifications:

Mechanical: 8" X 10" G-10 double-sided plated through hole board with 36 I/O pins.

Audio Cassette Interface: Kansas City Standard two-tone system using a UART-based serial converter. Normally used at 300 baud, but can be used to 1,200 baud with selected tape recorders. Has mic. and aux. outputs and an ultra-wide range input.
Note: If the cassette interface is not used, a standard RS-232 port is available and is adjustable for up to 50,000 baud.

D/A Converters (2): 8-bit precision and accuracy 2V output. 300ns settling time. One converter also has an unblank one-shot for X,Y, graphics.

A/D Converter: 8-bit accuracy. -1 to +1 Volt in, one conversion per system clock cycle. Usable with signals up to 20 KHz bandwidth.

8-Channel Multiplexer: National 3705 type. Fully compatible with A/D. Can multiplex 8 inputs at over 1,000Hz!

8-Line Parallel I/O: 8 TTL compatible latched outputs. Three are used by optional 8 channel multiplexer. 8 TTL compatible inputs non latched.

Electrical: +5V at 600ma Maximum
-9V at 150ma Maximum

OHIO SCIENTIFIC

product name/number

430B/CA-6/CA-7

date

8/77

revision

B

page

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status

Production

sheet 1 of 1

OSI Model 430 Super I/O Board Parts List

(All resistors 1/4 watt)

A. Support Circuitry used by all options

- 1 - 7402
- 3 - 7404
- 1 - 7410
- 1 - 7430
- 1 - 74154
- 2 - 8T26
- 1 - 1N914
- Up to 18 bypass capacitors .1 uf or larger
- Up to 3-25 uf electrolytics

B. D/A Converters (per converter) 2 Maximum

- 1 - 1408L8 D/A Converter
- 1 - 741 type op amp (5556 recommended)
- 2 - 7475
- 2 - 1K
- 1 - 10 pf
- 1 - .01 uf or larger

C. 2 volt reference for D/A converters and A/D converter

- 1 - 2.7 volt Zener diode 1/2 watt
- 1 - 4.3 K
- 1 - 1K
- 1 - .1 uf capacitor
- 1 - NPN transistor (2N2270 or similar)

D. Unblank One Shot

- 1 - 74121
- 1 - 560 pf
- 1 - 4.7K
- 1 - 1K (2 μ seconds t.c.)

E. A/D Converter

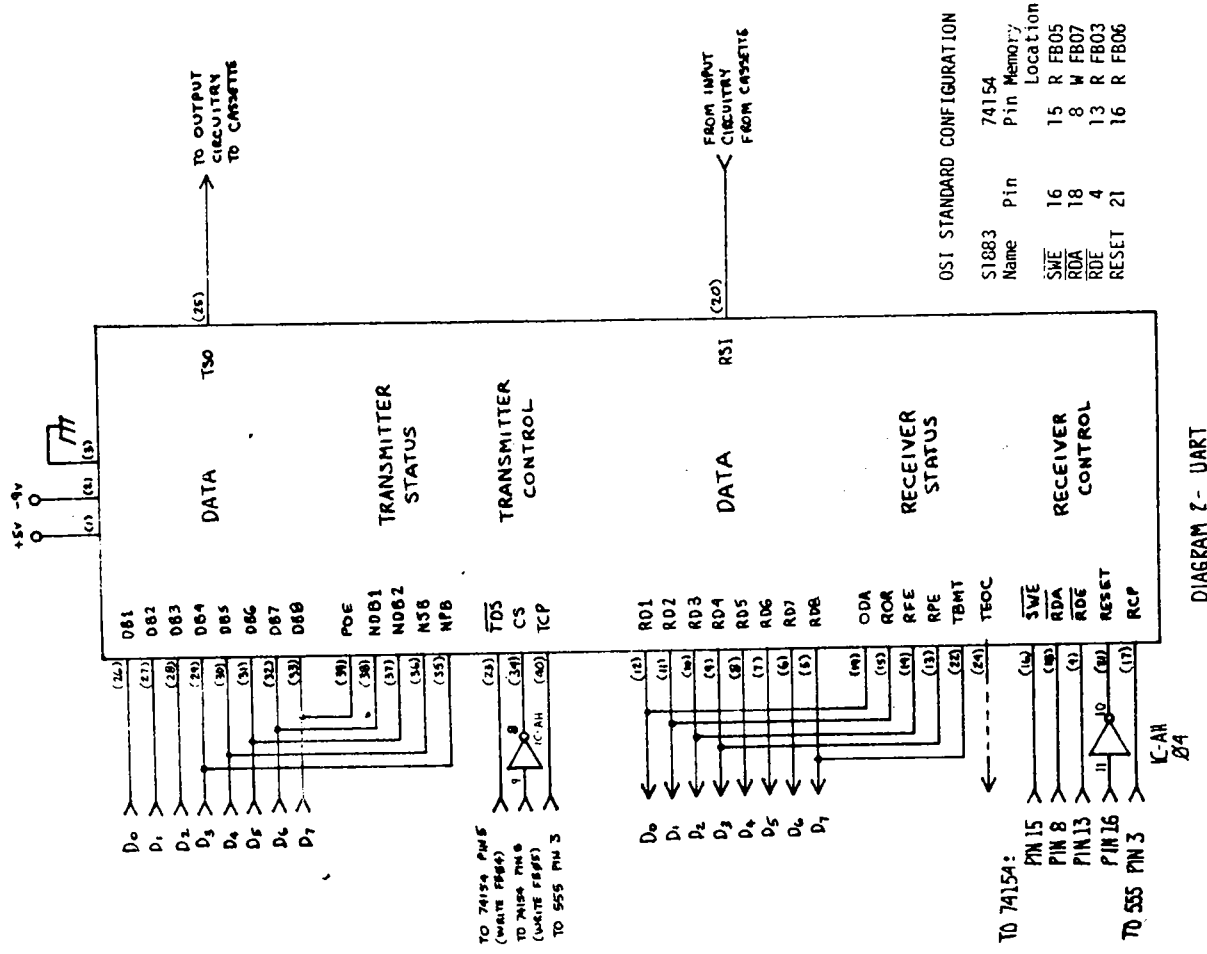
- 1 - 741 type op amp (5556 preferred)
- 1 - 311 Comparitor
- 1 - 1408L8
- 2 - 74193
- 2 - 74125
- 6 - 1K
- 1 - 2.7K
- 2 - 4.7K
- 1 - 100K to 1 Meg.
- 1 - 10 pf
- 1 - .01 uf
- 1 - 2k to 10K pot.

G. Audio Tape Interface 300 Baud

- 1 - S1883 UART or equivalent
- 1 - 555 Timer
- 2 - .01 uf
- 1 - .01 uf (high quality)
- 2 - 10K
- 2 - 10K pot.
- 5 - 1K
- 1 - 7404
- 1 - 7476
- 1 - 100K
- 1 - .005 uf
- 1 - .001 uf
- 1 - .1 uf
- 1 - 50 pf
- 1 - 4.3K
- 2 - 1N914
- 1 - 100 ohms
- 1 - CA3130 op amp
- 1 - 74123
- 1 - 7474

F. Auxilary Parallel I/O

- 2 - 7475
- 2 - 74125



OST STANDARD CONFIGURATION

74154	Pin	Memory Location
S1883	Name	74154
SWE	16	R FB05
RDA	18	8 W FB07
RDE	4	13 R FB03
RESET	21	16 R FB06

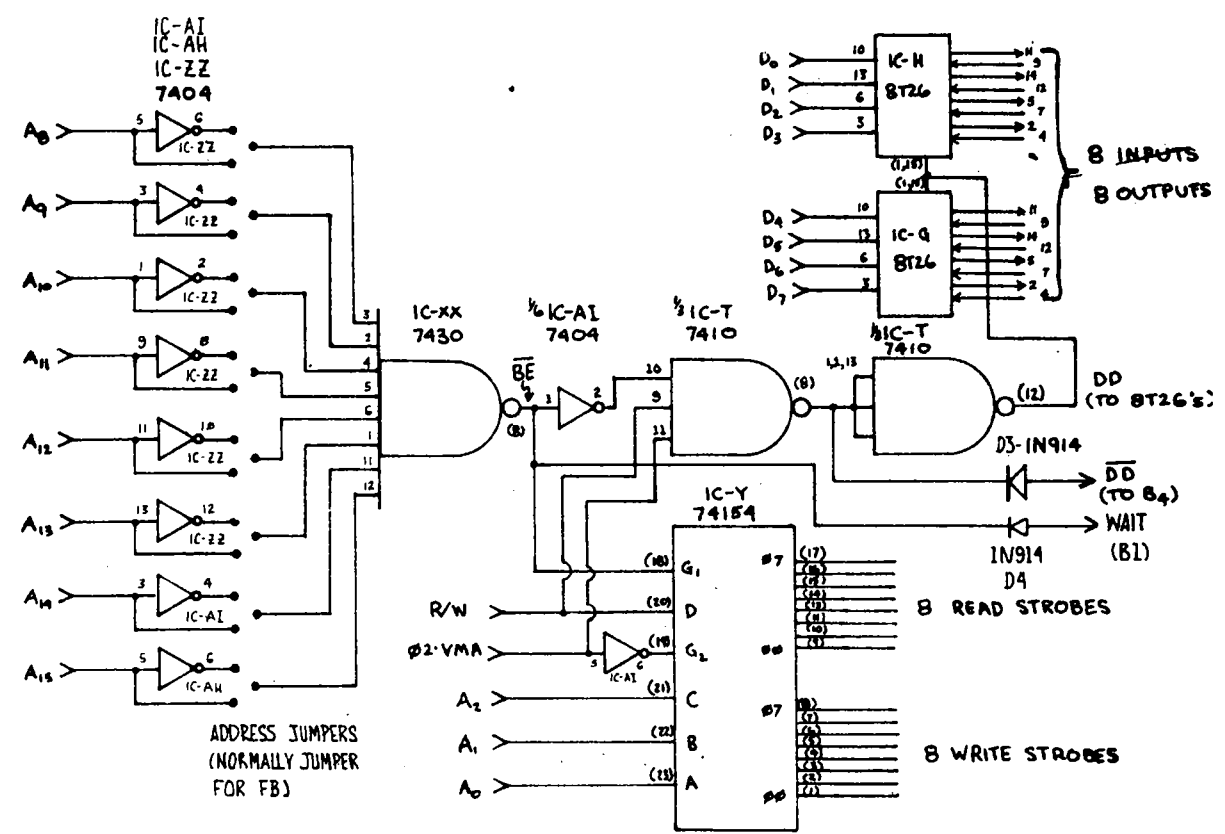


DIAGRAM 1 - ADDRESS DECODER AND DATA BUFFER

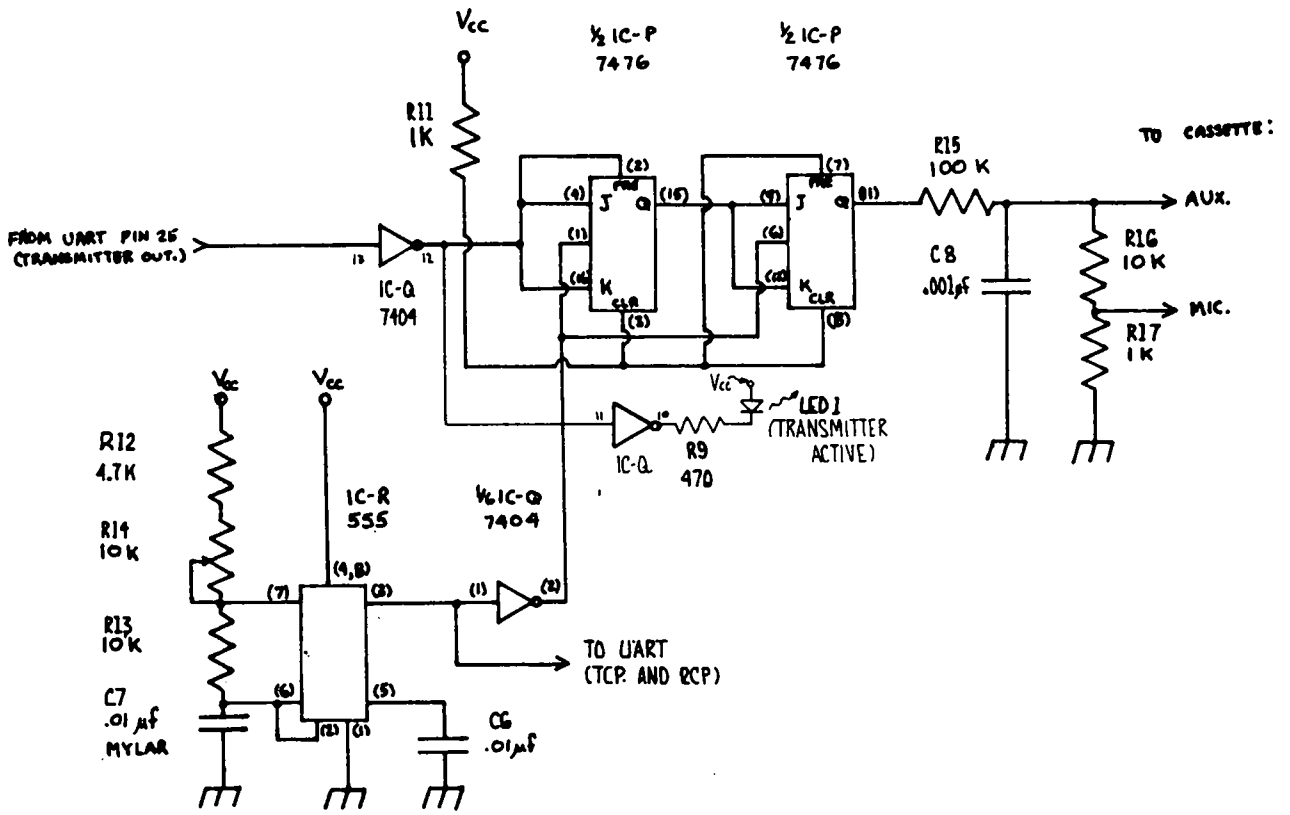
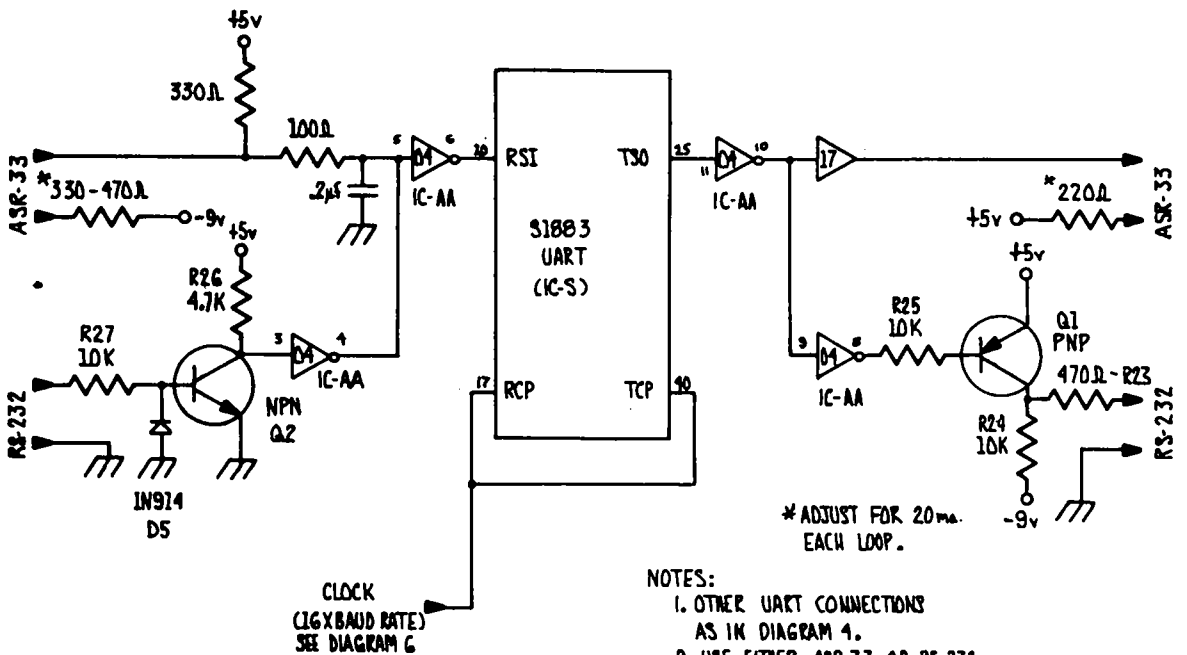


DIAGRAM 4- AUDIO CASSETTE TRANSMITTER



* ADJUST FOR 20ma. EACH LOOP.

NOTES:

1. OTHER UART CONNECTIONS AS IN DIAGRAM 4.
2. USE EITHER ASR-33 OR RS-232.
3. ASR-33 SHOWN FOR REFERENCE ONLY. IT IS NOT IMPLEMENTED ON 430 BOARD.

DIAGRAM 3 - ASR-33 AND RS-232 INTERFACE

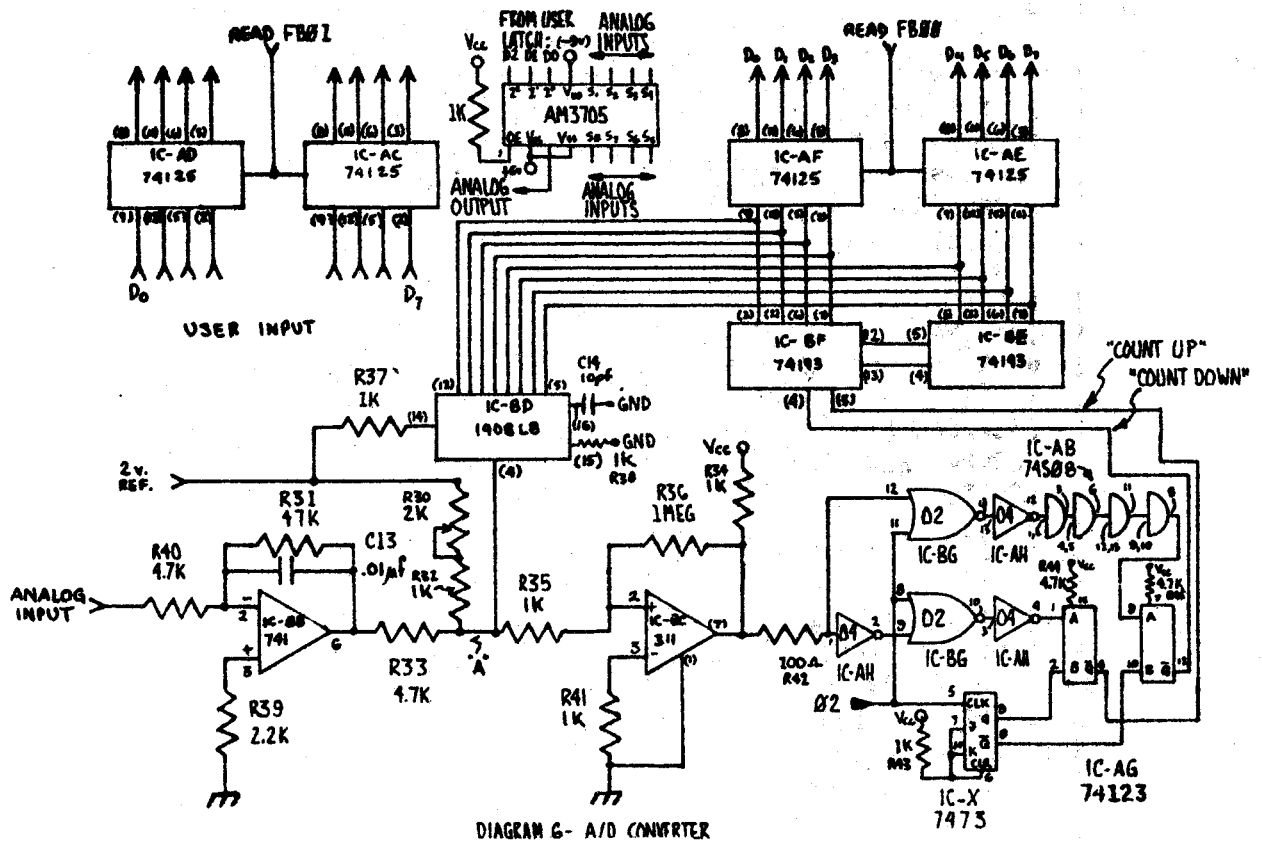


DIAGRAM 6- A/D CONVERTER

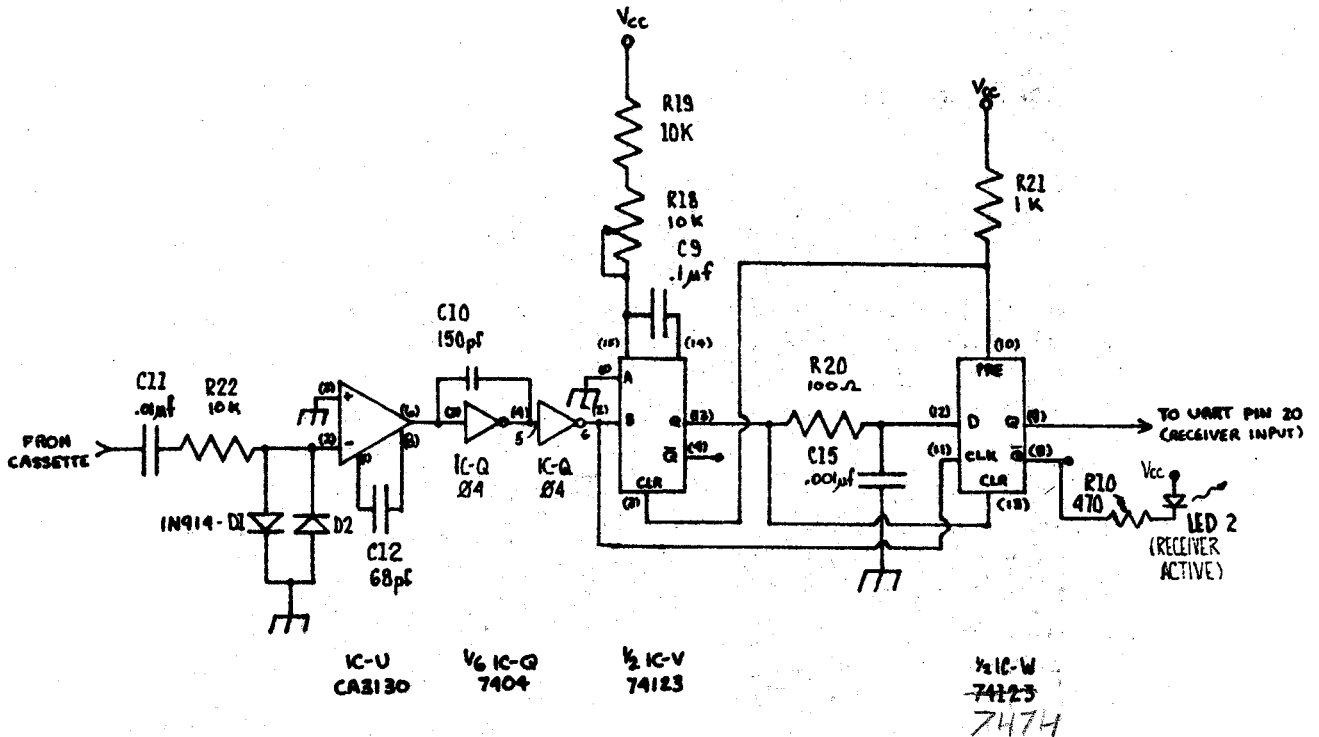


DIAGRAM 5- AUDIO CASSETTE RECEIVER

430 BOARD CONNECTIONS FOR AUDIO CASSETTE AND OPTIONAL A/D AND D/A CONVERTERS

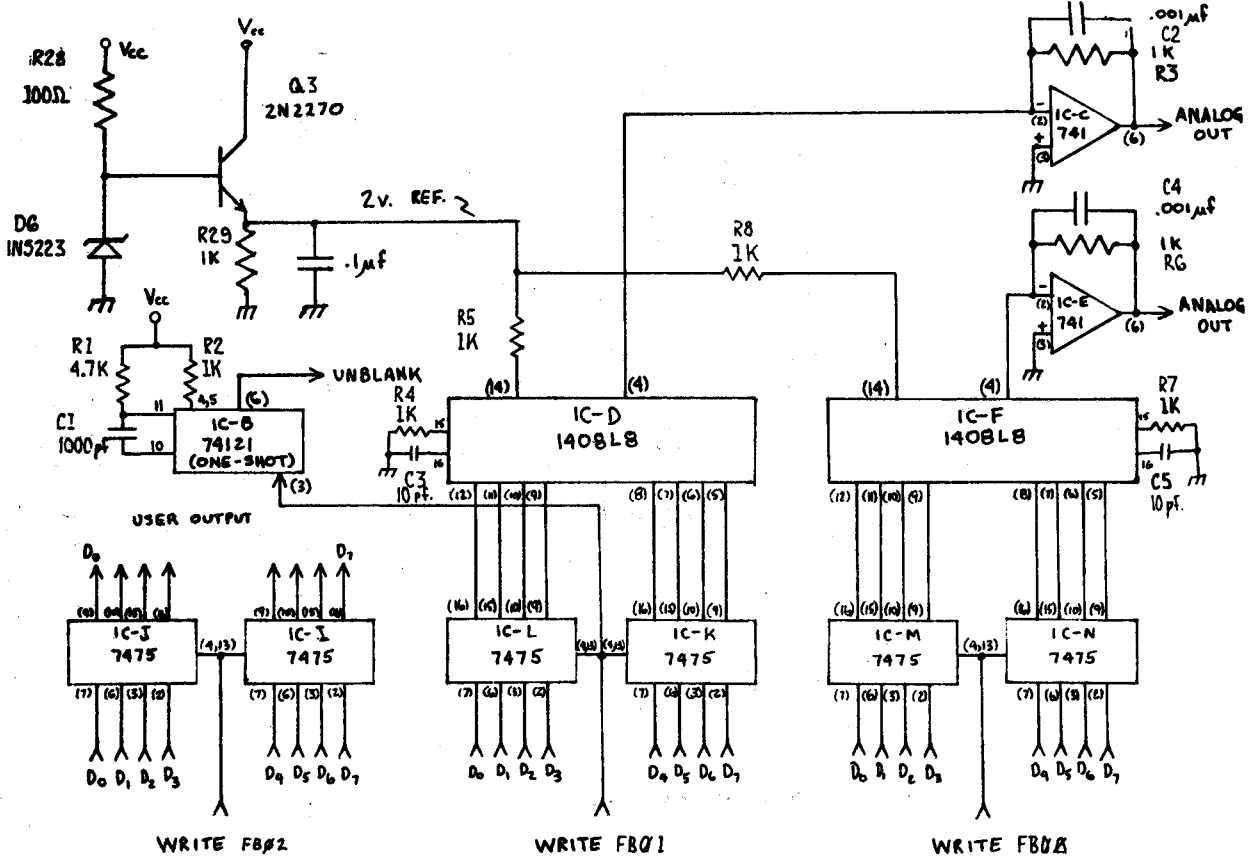
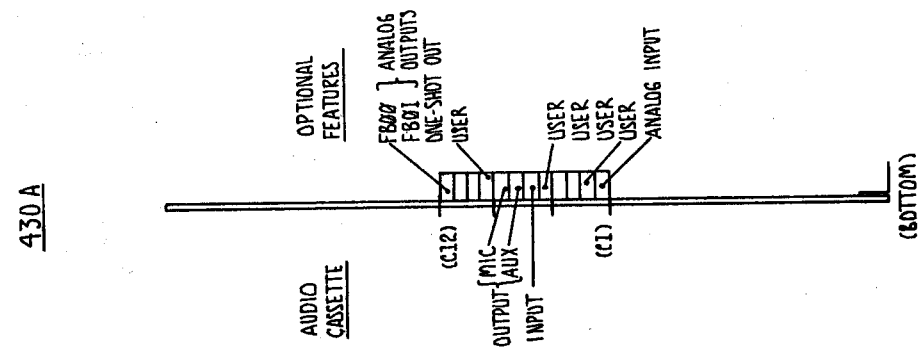
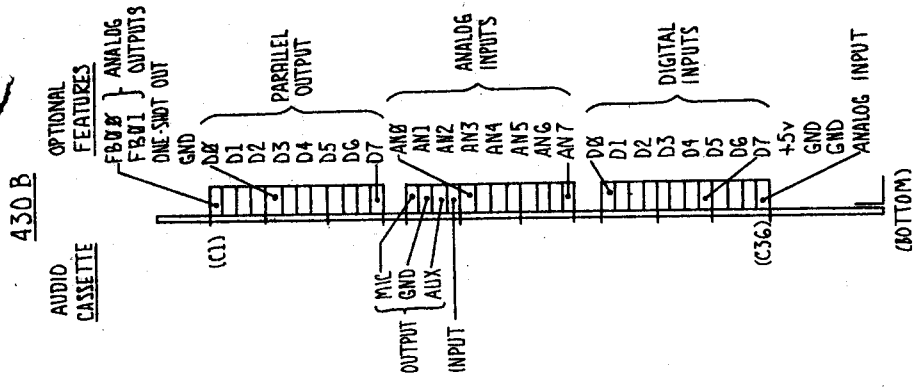


DIAGRAM 7- D/A CONVERTERS