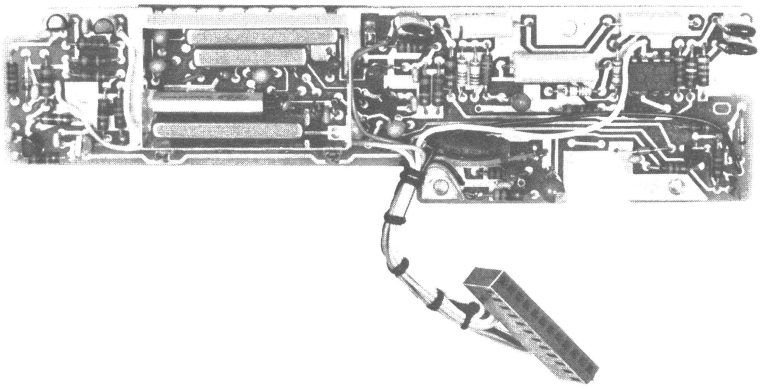
MOBILE RADIO

MAINTENANCE MANUAL

CHANNEL GUARD ENCODERS/DECODERS 19D430101G1-G3
TONE REJECT FILTER 19D430101G4

Maintenance Manual LBI30782 A
DATAFILE FOLDER - DF5047

CHANNEL GUARD 19D430101G1-4



SPECIFICATIONS *

Used With	Century II Combinations
Tone Frequencies	71.9 Hz to 210.7 Hz (EIA, UK) 71.9 Hz to 136 Hz (CEPT)
Frequency Stability	±0.5%
Temperature Range	-30°C to +60°C (-22°F to +140°F)
Power Requirements	+8.5 VDC, 25 mA

*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.

GENERAL ELECTRIC

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ILLUSTRATIONS

WARNING

Although the highest DC voltage in the unit is supplied by the vehicle battery, high current may be drawn under short circuit conditions. These currents can possibly heat metal objects such as tools, rings, watchbands, etc. enough to cause burns. Be careful when working near energized circuits.

GENERAL ELECTRIC COMPANY • MOBILE COMMUNICATIONS DIVISION
WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502 U.S.A.

GENERAL ELECTRIC* U.S.A.

DESCRIPTION

Channel Guard 19D430101G1-4 is a continuous tone encoder/decoder for operation on tone frequencies in the 71.9 Hz to 210.7 Hz range. The encoder provides tone-coded modulation to the transmitter. The decoder operates in conjunction with the receiver to inhibit all calls that are not tone coded with the proper Channel Guard frequency.

The Channel Guard circuitry consists of discrete components for the Encode disable, PTT switch, and receiver mute switch; four thick-film integrated circuit modules consisting of Decode Module U1001, Encode Module U1002, Frequency Switchable Selective Amplifier (FSSA) AR1001, plug-in Versatone Network FL1001 and monolytic IC U3001 in the tone reject filter.

Four groups of the Channel Guard board are available. The group 1 board provides single-tone encode/decode capability. The group 2 board (Option 2613) is for single-tone encode only applications. The group 3 board (Option 2614) is for single-tone decode only applications. Option 2615 is a tone reject filter.

For a functional diagram of the Channel Guard Encoder/Decoder refer to the troubleshooting procedures.

Typical diagrams of the Versatone Network, Phase Inverting Amplifier, Encoder Limiter, Low Pass Filter, Decode Limiter, Amplifier and Threshold detector are provided in Figures 2 through 7. References to symbol numbers mentioned in the following text are found on the Schematic Diagram, Outline Diagram and Parts List.

OPERATION

A Channel Guard MONITOR switch located on the microphone hookswitch, controls the operation of the Channel Guard decode circuitry. When the switch is moved to the MON position, the Channel Guard decode function is disabled, allowing all calls to be heard. The encode function is controlled by the PTT switch and is enabled only when the PTT switch is operated. All transmitted calls are tone coded with the Channel Guard frequency.

CIRCUIT ANALYSIS

Frequency Switchable Selective Amplifier

Frequency Switchable Selective Amplifier (FSSA) AR1001 is a highly stable active bandpass filter for the 71.9 Hz to 210.7 Hz frequency range. The selectivity of the filter is shifted across the bandpass frequency range by switching Versatone Networks in the filter circuit (See Figure 1).

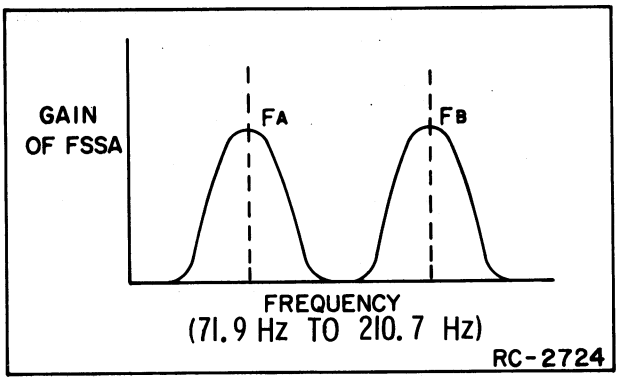


Figure 1 - Gain vs Frequency

In Figure 1, the gain of the FSSA is shown as a function of the tone frequency. The Tone Frequency is determined by the Tone Network connected in the FSSA circuit. When Tone Network A is in the circuit, the maximum gain occurs at FA. When Tone Network B is in the circuit, the maximum gain occurs at FB.

Tone Network

Versatone Network FL1001 is a precision resistor network with associated switching transistors. A typical Versatone Network is shown in Figure 2. Pins 3, 4 and 5 of the network are connected to ground.

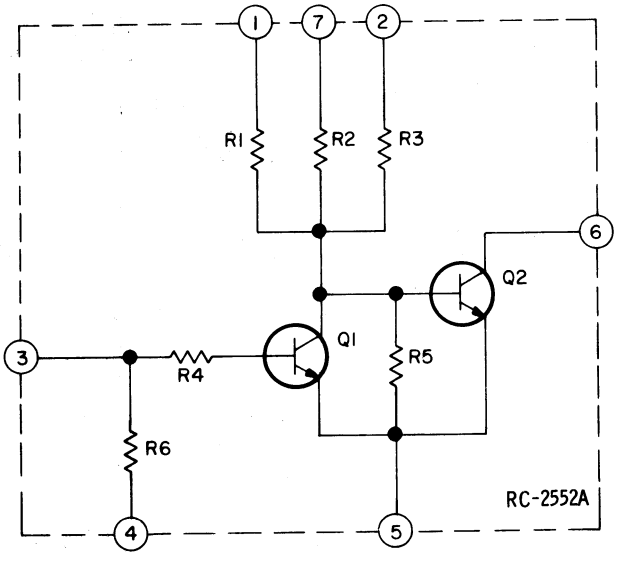


Figure 2 - Typical Versatone Network

Encode

When PTT switch is operated the Channel Guard encode tone is generated by coupling the output of FSSA bandpass filter AR1001 back to its input through a phase

inverting amplifier circuit and a limiter circuit. The output of the FSSA is coupled from AR1001-1 to the input of the phase inverting amplifier at U1002-9. A typical phase inverting amplifier circuit is shown in Figure 3.

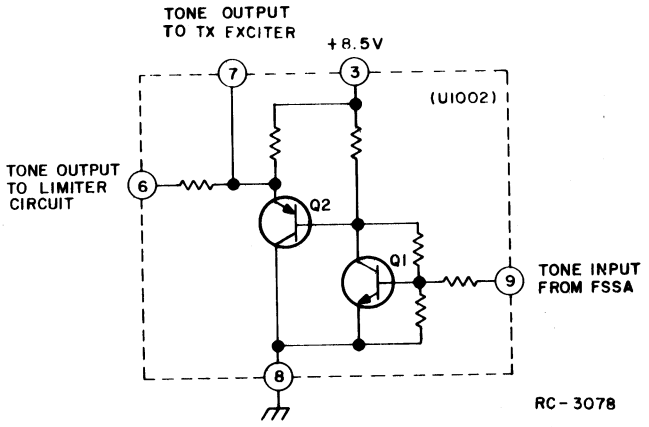


Figure 3 - Typical Phase Inverting Amplifier

Amplifier Q1 provides 180° phase shift of the tone frequency at the output of emitter follower Q2. The output of the phase inverting amplifier circuit is coupled from U1002-6 to the input of the limiter circuit at U1002-5. A typical limiter circuit is shown in Figure 4.

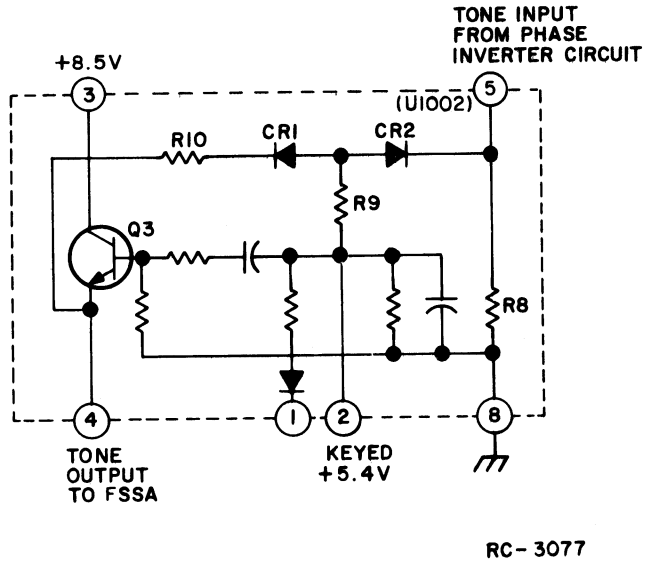


Figure 4 - Typical Encode Limiter Circuit

Limiting network CR1, CR2, R8, R9 and R10 sets the tone output coupled from U1002-4 to the input of the FSSA (AR1001-12) at 53 millivolts peak to peak.

The limiter circuit is also used as an encode switch. Keying the transmitter applies +5.4 Volts to U1002-2. This forward biases Limiter diodes CR1 and CR2 and momentarily turns Q3 on. Forward biasing CR1 and CR2 allows the circuit to oscillate. Momentarily turning Q3 on starts the circuit oscillating. The tone frequency is determined by the tone network connected in the FSSA circuit.

The tone output of the encoder circuit is taken from U1002-7 and coupled through tone output amplifier Q1002 and modulation adjustment R1015 to the audio processor on the transmitter/receiver board.

Decode

Audio, containing the correct frequency from P1006-10 (Volume Hi), is coupled to pin 1 of Decode Module U1001. Pin 1 of U1001 is the input of an active, three stage, low pass filter. The low pass filter attenuates frequencies over 210.7 Hz. A typical low pass filter is shown in Figure 5. The output of the low pass filter at U1001-15 is applied to U1001-14. U1001-14 is the input of a limiter circuit, limiting the output at U1001-13 to 55 millivolts peak to peak. A typical limiter circuit is shown in Figure 6. The output from the limiter is coupled to Pin 12 of FSSA AR1001. Since the tone is the proper frequency the FSSA will allow it to pass. The output of the FSSA is coupled from AR1001-1 to U1001-3. U1001-3 is the input to an amplifier circuit. The output of the amplifier at U1001-4 is coupled to the input of a threshold detector at U1001-6. A typical amplifier and threshold detector circuit is shown in Figure 7. When a tone is present, Q6 will conduct causing Q7 to conduct and +8.5 VDC to appear on the output of the threshold detector circuit (U1001-10).

In the decode mode, when the tone decoder in U1001 detects the channel guard

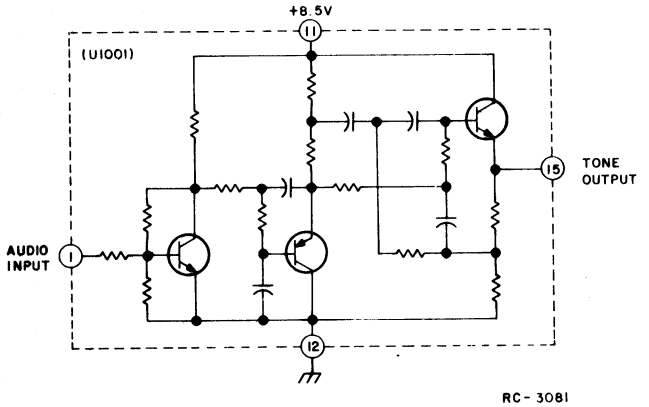


Figure 5 - Typical Low Pass Filter

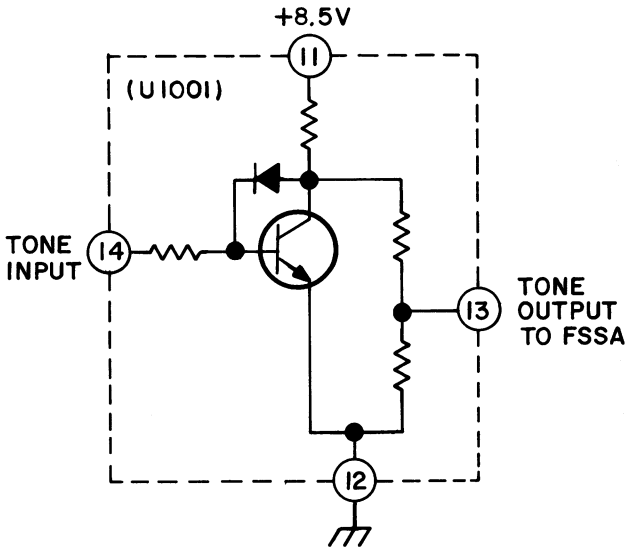


Figure 6 - Typical Decode Limiter Circuit

frequency, Q1003 turns Q1004 off. This unmutes the receiver audio. In the squelch mode, Q1004 is operating, grounding the Rx MUTE lead and muting the receiver audio.

Audio from VOL/SQ HI is connected to the tone reject filter via P1006-10. The tone reject filter is an active filter consisting of U1003 and associated circuitry. All frequencies from 70 to 210.7 Hz are rejected by the filter, while passing all other audio frequencies via P1006-1 back to the receiver audio circuits.

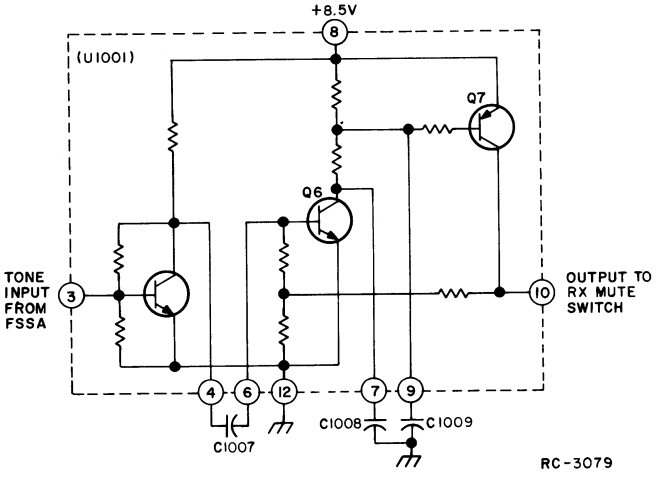


Figure 7 - Typical Amplifier & Threshold Detector Circuit

STANDARD TONE FREQUENCIES (Hz)				
71.9	88.5	107.2	131.8	162.2
74.4	91.5	110.9	136.5	167.9
77.0	94.8	114.8	141.3	173.8
79.7	97.4	118.8	146.2	179.9
82.5	100.0	123.0	151.4	186.2
85.4	103.5	127.3	156.7	192.8
				203.5
				210.7

Encode Disable

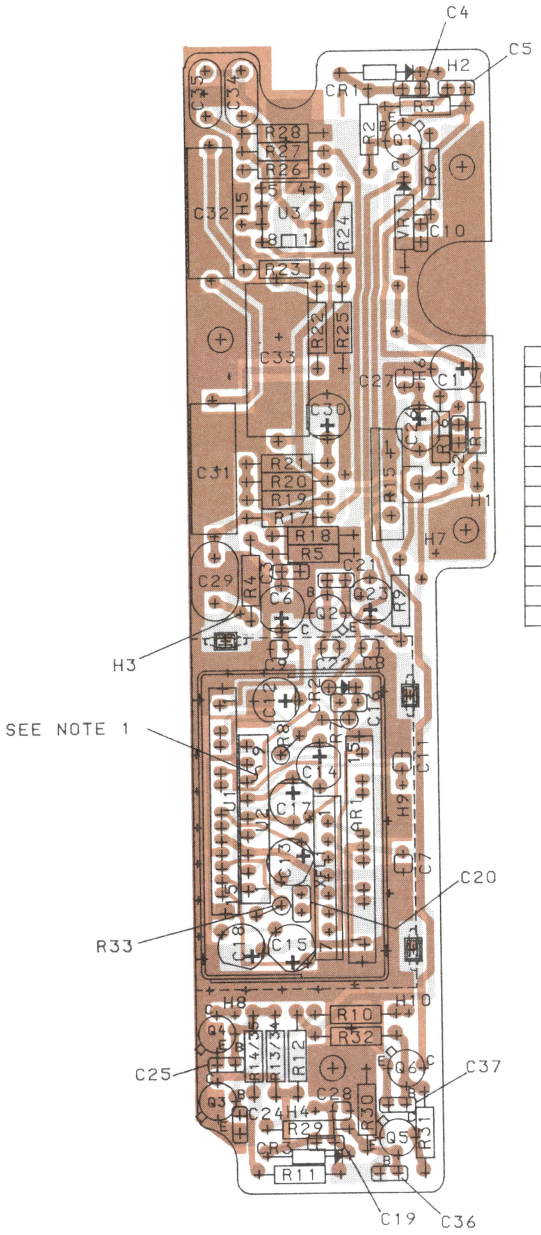
SERVICE HINT

The Encode Disable circuit has been incorporated as a maintenance aid for the serviceman. This circuit disables the Channel Guard encode circuit and allows the serviceman to make transmitter distortion and modulation checks without removing the cover from the radio.

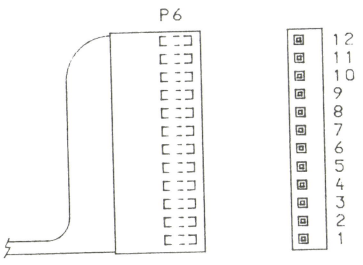
The Encode Disable circuit consists of Q1005 and Q1006. To disable the encode circuit, a positive voltage (+8.5 to 14 VDC) is applied to molex connector P910-5 at the rear of the radio. This is accomplished by temporarily jumpering P910-5 (ENC DISABLE) to P910-11 (A+). This positive voltage is applied to the base of Q1005 through the Interconnect/Multi-Frequency board, turning on both Q1005 and Q1006. When turned on, Q1006 applies +8.5 VDC to the base of PTT Switch Q1001, forcing it off. With Q1001 off, the operating voltage for the encoder IC U1002 and Encode Tone Output Stage transistor Q1002 is removed, preventing any tone output.

CAUTION

When using the Encode Disable circuit do not remove the microphone from mic hanger or place the CG MON Switch or the desk microphone in MON position. This will short the 8.5 Volt regulator to ground through the hookswitch, resulting in damage to the equipment.



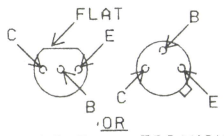
(19D430233, Rev. 2)
(19A138093, Sh. 1, Rev. 1)
(19A138093, Sh. 2, Rev. 1)



CONNECTION CHART

FROM	TO	WIRE	TERMINATION	GR.5	GR.6	GR.7	GR.8
H1	P6-8	SF24-R	ITEM 3	1	1	1	1
H2	P6-3	SF24-BR	ITEM 3	1	1		
H3	P6-10	SF24-BL	ITEM 3	1		1	1
H4	P6-5	SF24-G	ITEM 3	1	1	1	
H5	P6-1	SF24-W	ITEM 3	1		1	1
H6	P6-11	SF24-O	ITEM 3	1	1		
H7	P6-9	SF24-BK	ITEM 3	1	1	1	1
H8	P6-4	SF24-Y	ITEM 3	1		1	
H9	H10	DA		1		1	

LEAD IDENTIFICATION
FOR Q1-Q6



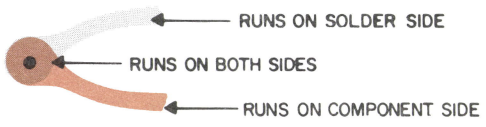
OR

IN-LINE TRIANGULAR

TOP VIEW

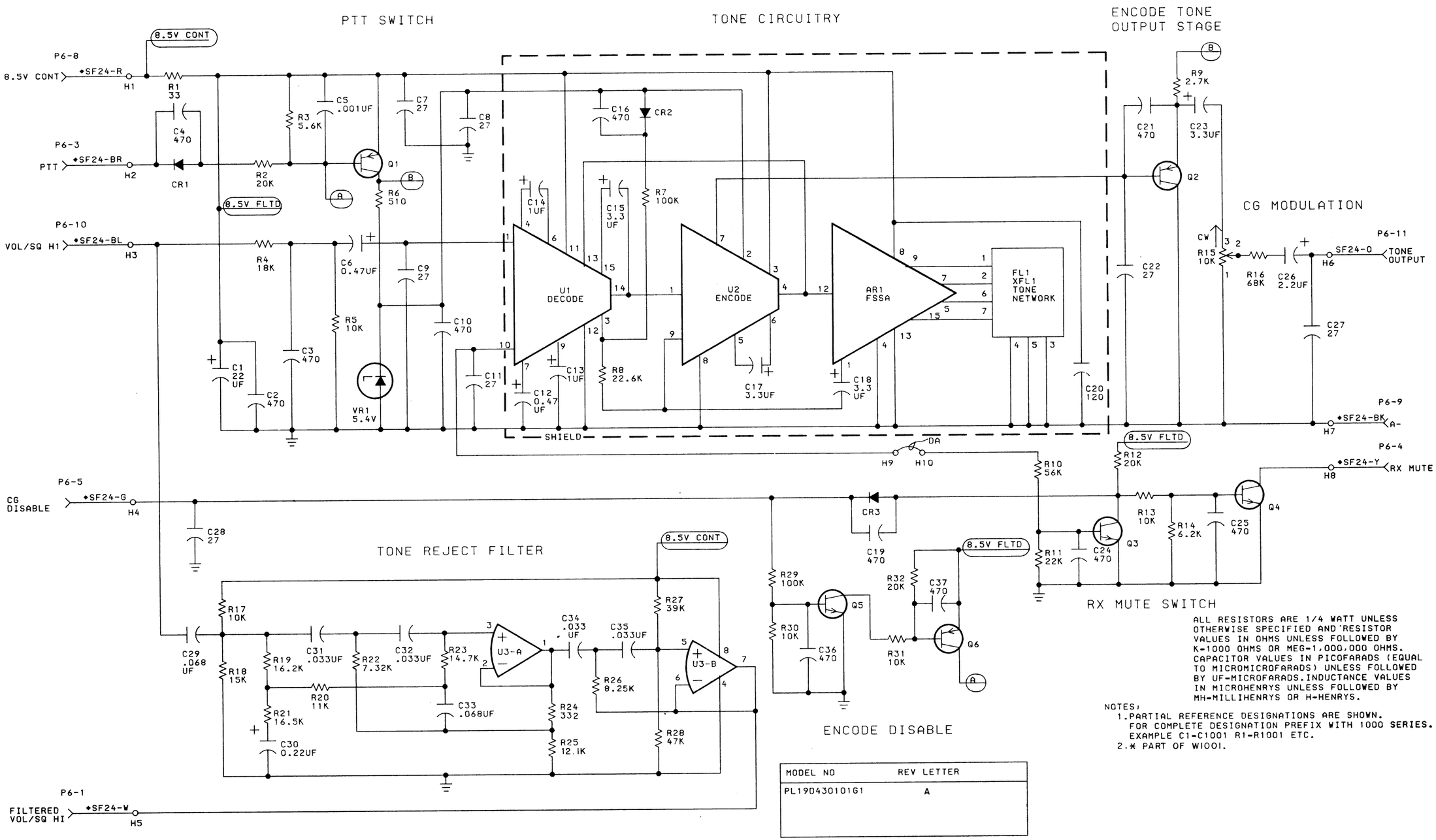
LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

NOTES:
1. U2 CAN BE INSTALLED BACKWARDS. ORIENT WITH PINS OFFSET AS SHOWN.
2. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION, PREFIX WITH 1000 SERIES. EXAMPLE: C1-C1001, R1-R1001...,ETC.



OUTLINE DIAGRAM

CHANNEL GUARD 19D430101G1-G4



ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K-1000 OHMS OR MEG-1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF-MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH-MILLIHENRYS OR H-HENRYS.

NOTES;
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH 1000 SERIES. EXAMPLE C1-C1001 R1-R1001 ETC.
2. * PART OF W1001.

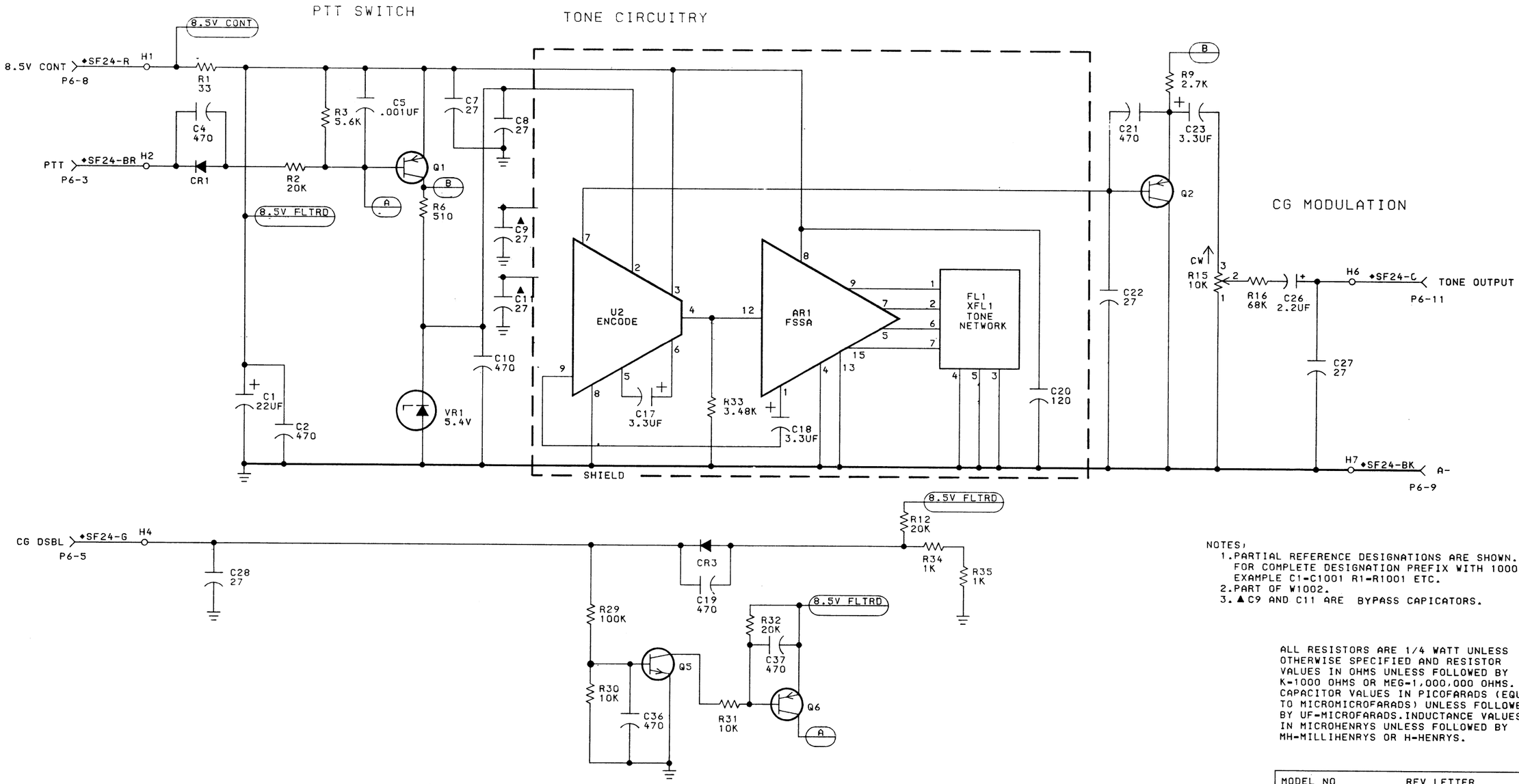
MODEL NO	REV LETTER
PL19D430101G1	A

(19D430104, Rev. 2)

SCHEMATIC DIAGRAM

CHANNEL GUARD ENCODER/DECODER 19D430101G1

Issue 2



ENCODE DISABLE

NOTES;
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH 1000 SERIES. EXAMPLE C1=C1001 R1=R1001 ETC.
2. PART OF W1002.
3. ▲C9 AND C11 ARE BYPASS CAPICATORS.

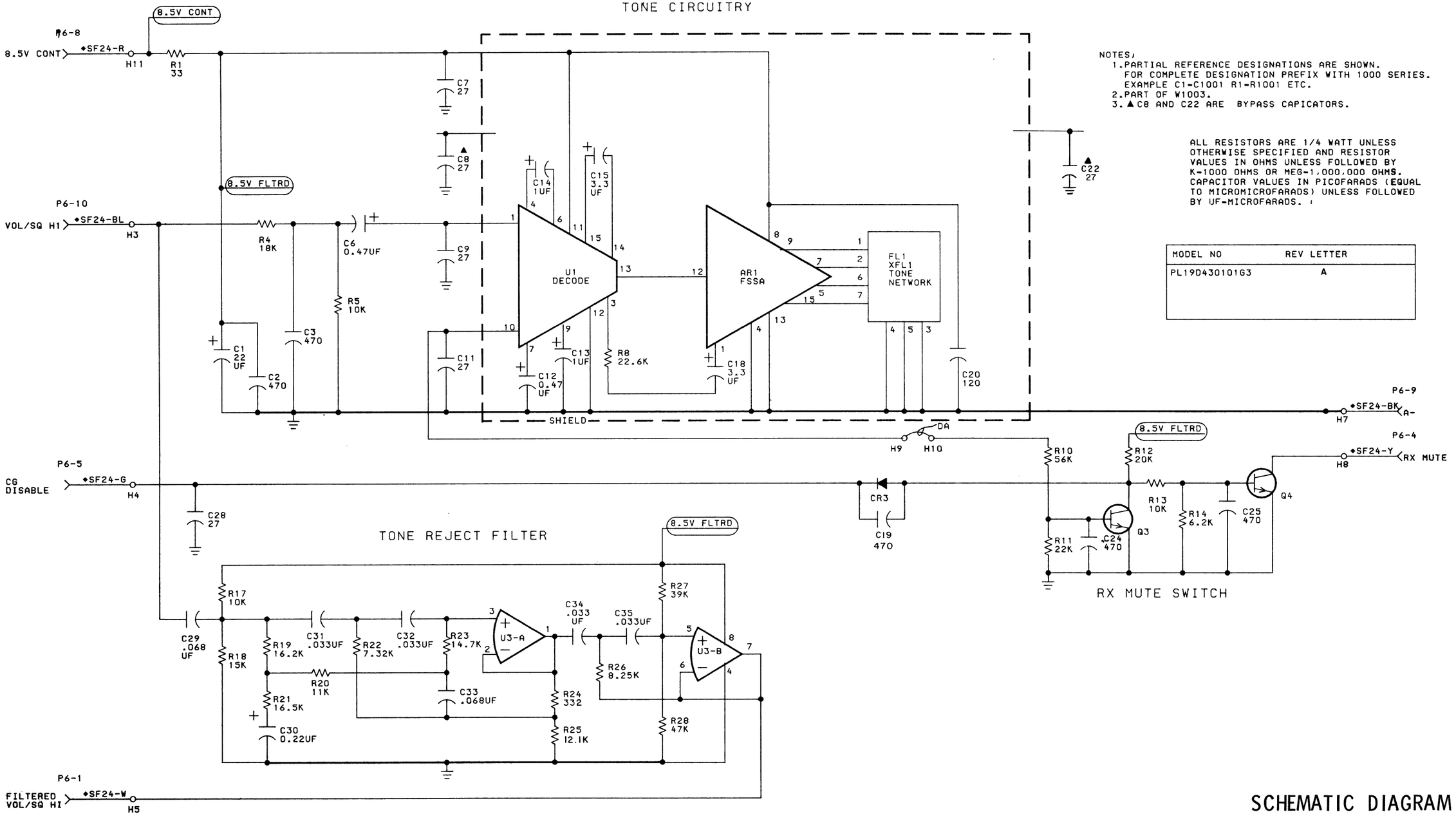
ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

MODEL NO	REV LETTER
PL19D430101G2	

SCHEMATIC DIAGRAM

CHANNEL GUARD ENCODE ONLY
19D430101G2

(19D430105, Rev. 1)



NOTES:
1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH 1000 SERIES. EXAMPLE C1=C1001 R1=R1001 ETC.
2. PART OF W1003.
3. ▲C8 AND C22 ARE BYPASS CAPICATORS.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS.

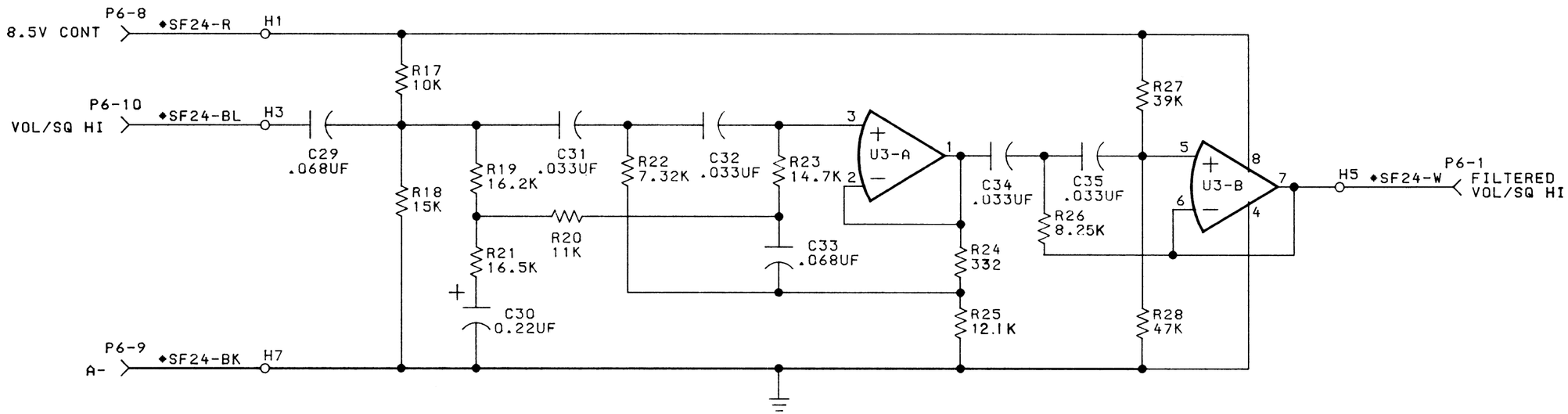
MODEL NO	REV LETTER
PL19D430101G3	A

SCHEMATIC DIAGRAM

CHANNEL GUARD DECODE ONLY
19D430101G3

(19D430106, Rev. 2)

TONE REJECT FILTER



NOTES:

1. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH 1000 SERIES, EXAMPLE: C1-C1001, R1.-R1001
2. •PART OF W1004.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K-1000 OHMS OR MEG-1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF-MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH-MILLIHENRYS OR H-HENRYS.

MODEL NO	REV LETTER
PL19D430101G4	A

(19C328833, Rev. 2)

SCHEMATIC DIAGRAM

CHANNEL GUARD REJECT FILTER
19D430101G4

PARTS LIST

VERSATONE CHANNEL GUARD
(CENTURY II)
19D430101G1-G4
ISSUE 2

SYMBOL	GE PART NO.	DESCRIPTION
		19D430101G1 ENCODE/DECODE 19D430101G2 ENCODE ONLY 19D430101G3 DECODE ONLY 19D430101G4 TONE REJECT FILTER
AR1001	19D417833G1	Selective Amplifier. Thick film hybrid.
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1001	19A134202P6	Tantalum: 22 µf ±20%, 15 VDCW.
C1002 thru C1004	19A116192P2	Ceramic: 470 pf ±20%, 50 VDCW; sim to Erie 8111-A050-W5R-471M.
C1005	19A116192P13	Ceramic: 1000 pf ±10%, 50 VDCW; sim to Erie 8121-A050-W5R-102K.
C1006	19A134202P12	Tantalum: 0.47 µf ±20%, 35 VDCW.
C1007 thru C1009	19A116114P10044	Ceramic: 27 pf ±5%, 100 VDCW; temp coef -3300 PPM.
C1010	19A116192P2	Ceramic: 470 pf ±20%, 50 VDCW; sim to Erie 8111-A050-W5R-471M.
C1011	19A116114P10044	Ceramic: 27 pf ±5%, 100 VDCW; temp coef -3300 PPM.
C1012	19A134202P12	Tantalum: 0.47 µf ±20%, 35 VDCW.
C1013 and C1014	19A134202P14	Tantalum: 1 µf ±20%, 35 VDCW.
C1015	19A134202P5	Tantalum: 3.3 µf ±20%, 15 VDCW.
C1016	19A116192P2	Ceramic: 470 pf ±20%, 50 VDCW; sim to Erie 8111-A050-W5R-471M.
C1017 and C1018	19A134202P5	Tantalum: 3.3 µf ±20%, 15 VDCW.
C1019	19A116192P2	Ceramic: 470 pf ±20%, 50 VDCW; sim to Erie 8111-A050-W5R-471M.
C1020	19A116114P7068	Ceramic: 120 pf ±5%, 100 VDCW; temp coef -750 PPM.
C1021	19A116192P2	Ceramic: 470 pf ±20%, 50 VDCW; sim to Erie 8111-A050-W5R-471M.
C1022	19A116114P10044	Ceramic: 27 pf ±5%, 100 VDCW; temp coef -3300 PPM.
C1023	19A134202P5	Tantalum: 3.3 µf ±20%, 15 VDCW.
C1024 and C1025	19A116192P2	Ceramic: 470 pf ±20%, 50 VDCW; sim to Erie 8111-A050-W5R-471M.
C1026	19A134202P7	Tantalum: 2.2 µf ±20%, 20 VDCW.
C1027 and C1028	19A116114P10044	Ceramic: 27 pf ±5%, 100 VDCW; temp coef -3300 PPM.
C1029*	19A116080P206	Polyester: 0.068 µf ±5%, 50 VDCW.
		Earlier than REV A:
	19A116080P6	Polyester: 0.068 µf ±20%, 50 VDCW.
C1030	19A134202P10	Tantalum: 0.22 µf ±20%, 35 VDCW.
C1031 and C1032	19C300075P33001G	Polyester: 033 µf ±2%, 100 VDCW; sim to GE Type 61F.
C1033	19C300075P68001G	Polyester: 0.068 µf ±2%, 100 VDCW; sim to GE Type 61F.
C1034 and C1035	19A700005P10	Polyester: 0.033 µf ±10%, 50 VDCW.
C1036 and C1037	19A116192P2	Ceramic: 470 pf ±20%, 50 VDCW; sim to Erie 8111-A050-W5R-471M.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - -
CR1001 thru CR1003	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P1006		Connector. Includes:
	19A134152P77	Shell.
	19A134152P11	Contact, electrical: sim to Molex 08-50-0113.
		- - - - - - - - - - TRANSISTORS - - - - - - - - -
Q1001 and Q1002	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q1003 thru Q1005	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q1006	19A115852P1	Silicon, PNP; sim to Type 2N3906.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1001	19A700106P27	Composition: 33 ohms ±5%, 1/4 w.
R1002	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R1003	19A700106P81	Composition: 5.6K ohms ±5%, 1/4 w.
R1004	19A700106P93	Composition: 18K ohms ±5%, 1/4 w.
R1005	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R1006	3R152P511J	Composition: 510 ohms ±5%, 1/4 w.
R1007	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R1008	19C314256P22262	Metal film: 22.6K ohms ±1%, 1/4 w.
R1009	19A700106P73	Composition: 2.7K ohms ±5%, 1/4 w.
R1010	19A700106P105	Composition: 56K ohms ±5%, 1/4 w.
R1011	19A700106P95	Composition: 22K ohms ±5%, 1/4 w.
R1012	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R1013	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R1014	3R152P622J	Composition: 6.2K ohms ±5%, 1/4 w.
R1015	19B209358P106	Variable, carbon film: approx 300 to 10K ohms ±10%, 0.25 w; sim to CTS Type X-201.
R1016	19A700106P107	Composition: 68K ohms ±5%, 1/4 w.
R1017	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R1018	19A700106P91	Composition: 15K ohms ±5%, 1/4 w.
R1019	19C314256P21622	Metal film: 16.2K ohms ±1%, 1/4 w.
R1020	19C314256P21102	Metal film: 11K ohms ±1%, 1/4 w.
R1021	19C314256P21652	Metal film: 16.5K ohms ±1%, 1/4 w.
R1022	19C314256P27321	Metal film: 7.3K ohms ±1%, 1/4 w.
R1023	19C314256P21472	Metal film: 14.7K ohms ±1%, 1/4 w.
R1024*	19C314256P23320	Metal film: 33K ohms ±1%, 1/4 w.
		Earlier than REV A:
	3R152P331J	Composition: 330 ohms ±5%, 1/4 w.
R1025*	19C314256P21212	Metal film: 12.1K ohms ±1%, 1/4 w.
		Earlier than REV A:
	3R152P103J	Composition: 10K ohms ±5%, 1/4 w.
R1026*	19C314256P28251	Metal film: 8.25K ohms ±1%, 1/4 w.
		Earlier than REV A:
	3R152P822J	Composition: 8.2K ohms ±5%, 1/4 w.
R1027	19A700106P101	Composition: 39K ohms ±5%, 1/4 w.
R1028	19A700106P103	Composition: 47K ohms ±5%, 1/4 w.
R1029	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R1030 and R1031	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R1032	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R1033	19C314256P23481	Metal film: 3.48K ohms ±1%, 1/4 w.
R1034 and R1035	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
U1001	19D417763G1	Decoder. Thick film hybrid.
U1002	19C321133G1	Encoder.
U1003	19A134511P2	Linear: Dual OP AMP; sim to LM258N, 8 Pin Minidip Package.
		- - - - - - - - - VOLTAGE REGULATORS - - - - - -
VR1001	4036887P5	Zener: 500 mw, 5.4 v. nominal.
		- - - - - - - - - - CABLES - - - - - - - - -
W1001 thru W1004		HARNESS ASSEMBLY W1001 19D430101G5 W1002 19D430101G6 W1003 19D430101G7 W1004 19D430101G8 (Includes P1006)
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XFL1001	19C320299G1	Socket: 7 contacts.
		- - - - - - - - - - MISCELLANEOUS - - - - - - -
	19B201074P304	Tap screw, Phillips POZIDRIV®: No. 6-32 x 1/4. (Panel mounting screws- Quantity 3).
	19B227839G1	Can. (Located over AR1001, FL1001).
	19B227844G1	Shield. (Located on solder side of board).
	19A116428P4	Contact, electrical: sim to AMP 86031-1 (Strip Form). (Secures shield- 3 places).
	19A129811P2	Insulator. (Located under U1002).
		ASSOCIATED ASSEMBLIES
		- - - - - - - - TONE NETWORKS - - - - - - - - -
		NOTE: When reordering give GE Part Number and specify exact frequency needed.
FL1001	19C320291G1	Thick film hybrid: 71.9-203.5 Hz.

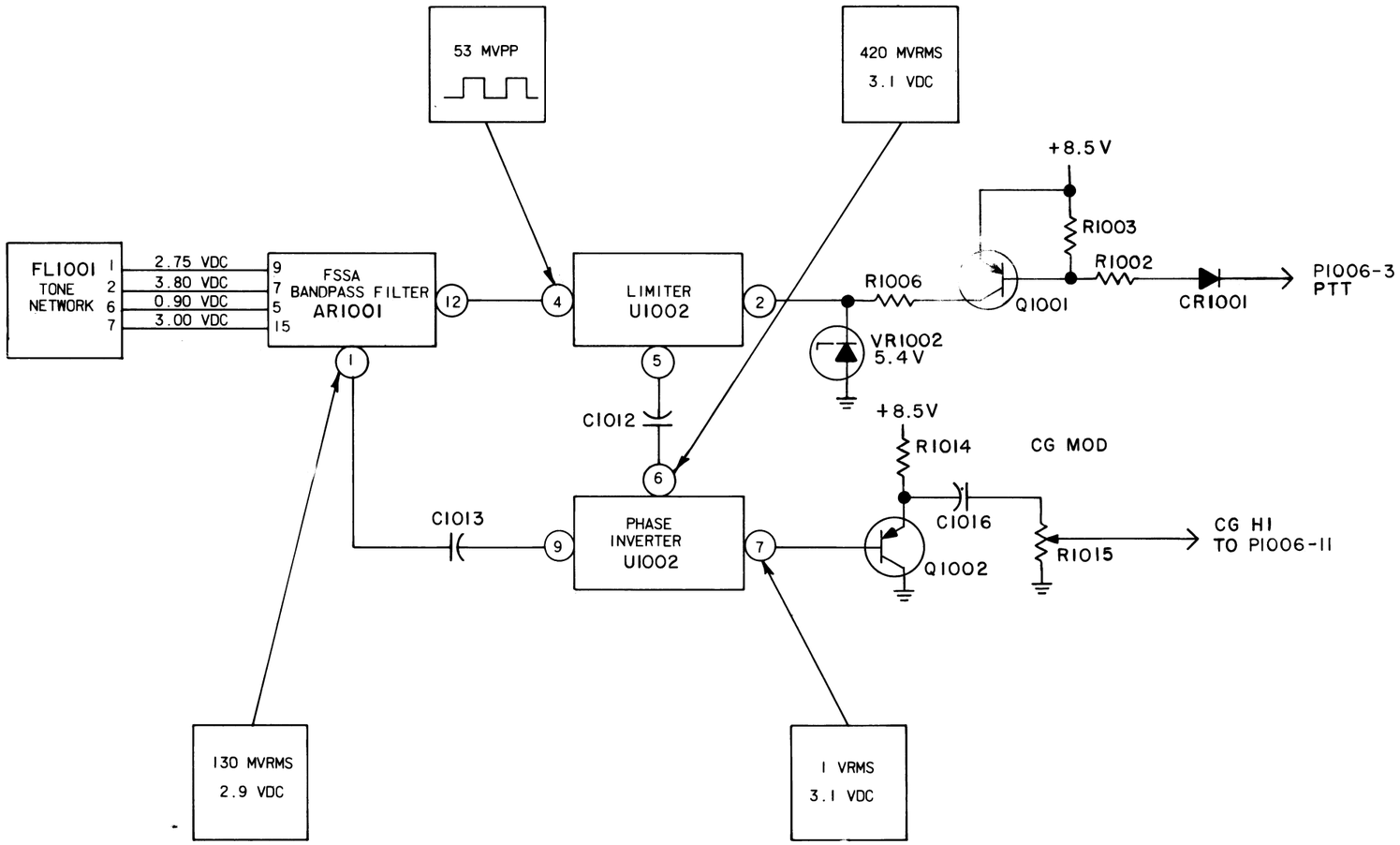
*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter," which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

REV. A - 19D430101G1, G3 and G4

To improve frequency response of tone reject filter. Changed R1024, R1025, R1026 and C1029.



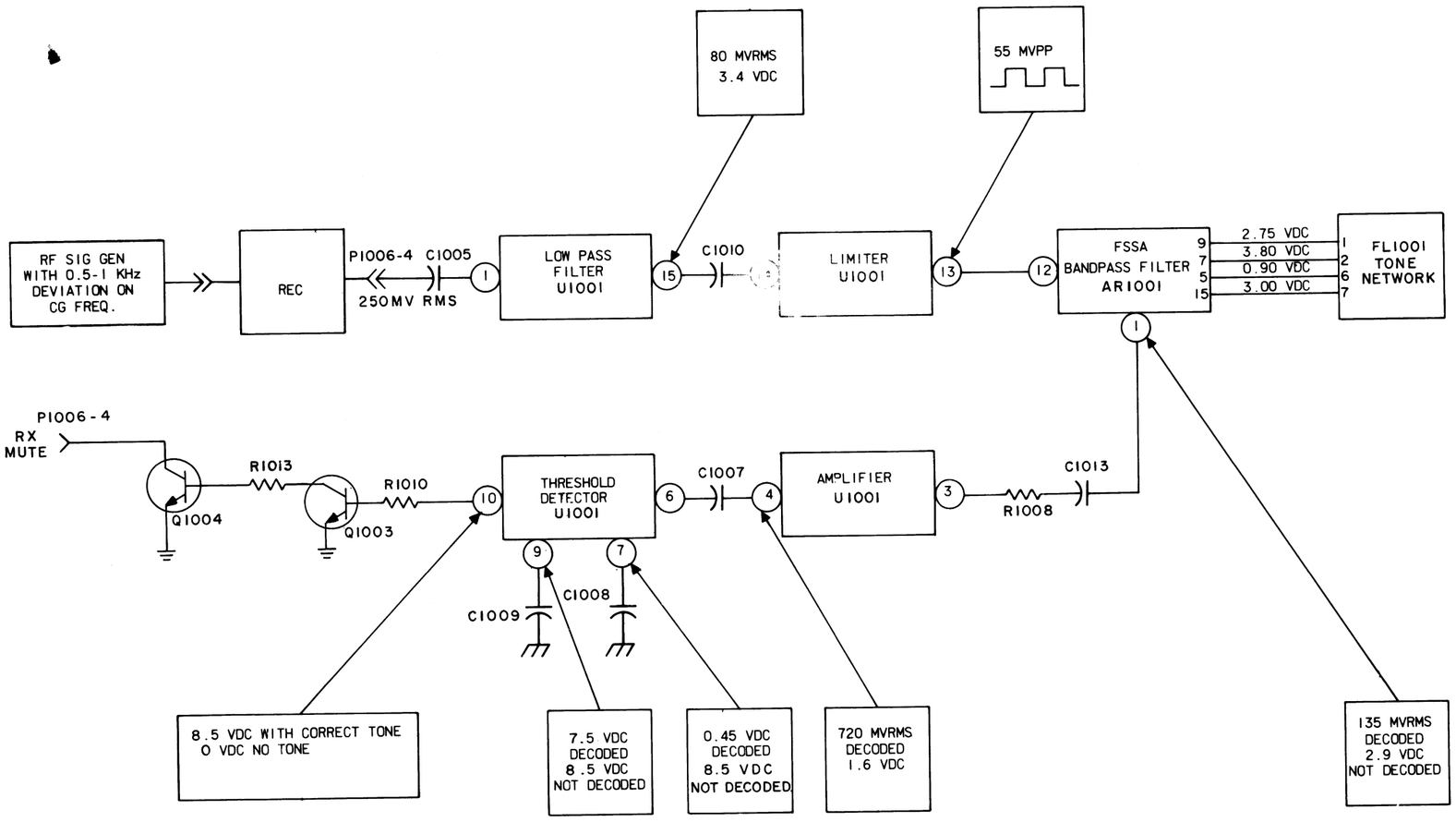
RC3768

TROUBLESHOOTING

SYMPTOM	PROCEDURE
Unit does not encode.	1. Check for 3.1 VDC at U1002-7. 2. If reading is correct, check Mod. Adj. R1015 then check the transmitter oscillator module. 3. If reading is not correct check voltage readings on connections between the tone network FL1001 and AR1001. 4. If the readings between the tone network and AR1001 are incorrect, insure good contact between the tone network and the network socket. 5. If readings are correct check voltage readings at all other points identified.

TROUBLESHOOTING PROCEDURE

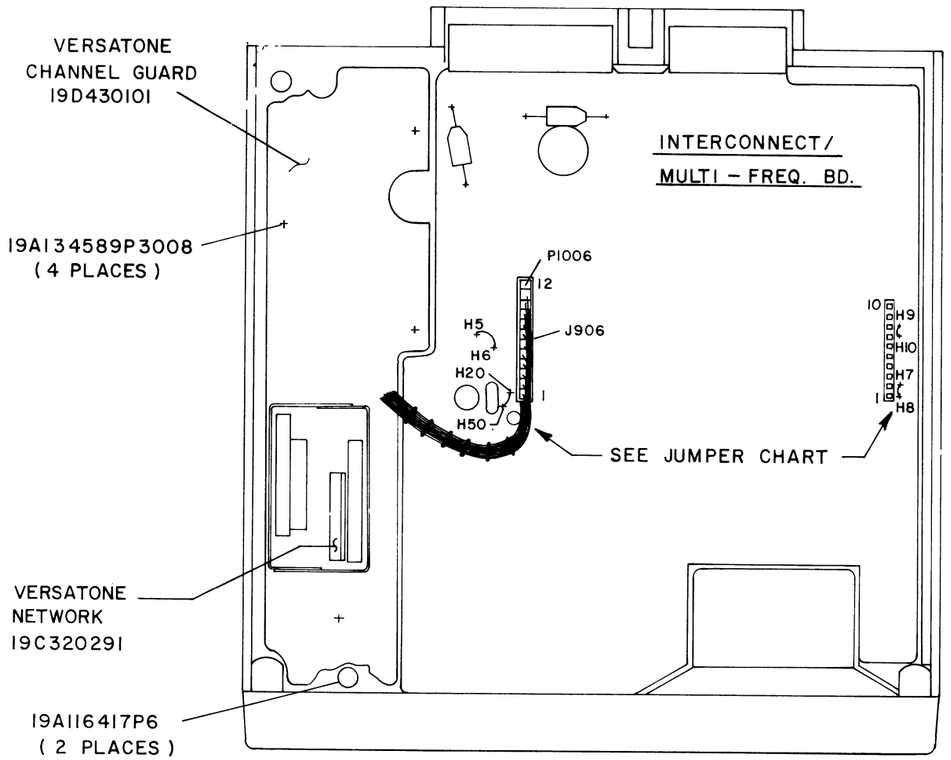
ENCODER CHANNEL GUARD 19D430101



RC3767

TROUBLESHOOTING

SYMPTOM	PROCEDURE
Unit does not decode.	1. Place switch S702 in the "MON" position and check for proper receiver operation. 2. If the receiver operates properly, set S702 to the center position. Apply the proper Channel Guard tone to the radio and check for 8.5 VDC at position U1001-10. 3. If reading is not correct check voltage readings on connections between the tone network FL1001 and AR1001. 4. If the readings between the tone network and AR1001 are incorrect, insure good contact between the tone network and the network socket. 5. If readings are correct, check voltage readings at all other points identified.



TOP VIEW – COVER REMOVED

JUMPER CHART				
DA WIRE JUMPER	ENCODER/DECODER (STD)	OPTION 2613 ENCODE ONLY	OPTION 2614 DECODE ONLY	OPTION 2615 TONE REJECT FILTER ONLY
H20 TO H50	ADD	———	ADD	ADD
H7 TO H8	DELETE	———	DELETE	DELETE

INSTALLATION INSTRUCTIONS

(19D430063, Sh. 2, Rev. 1)

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