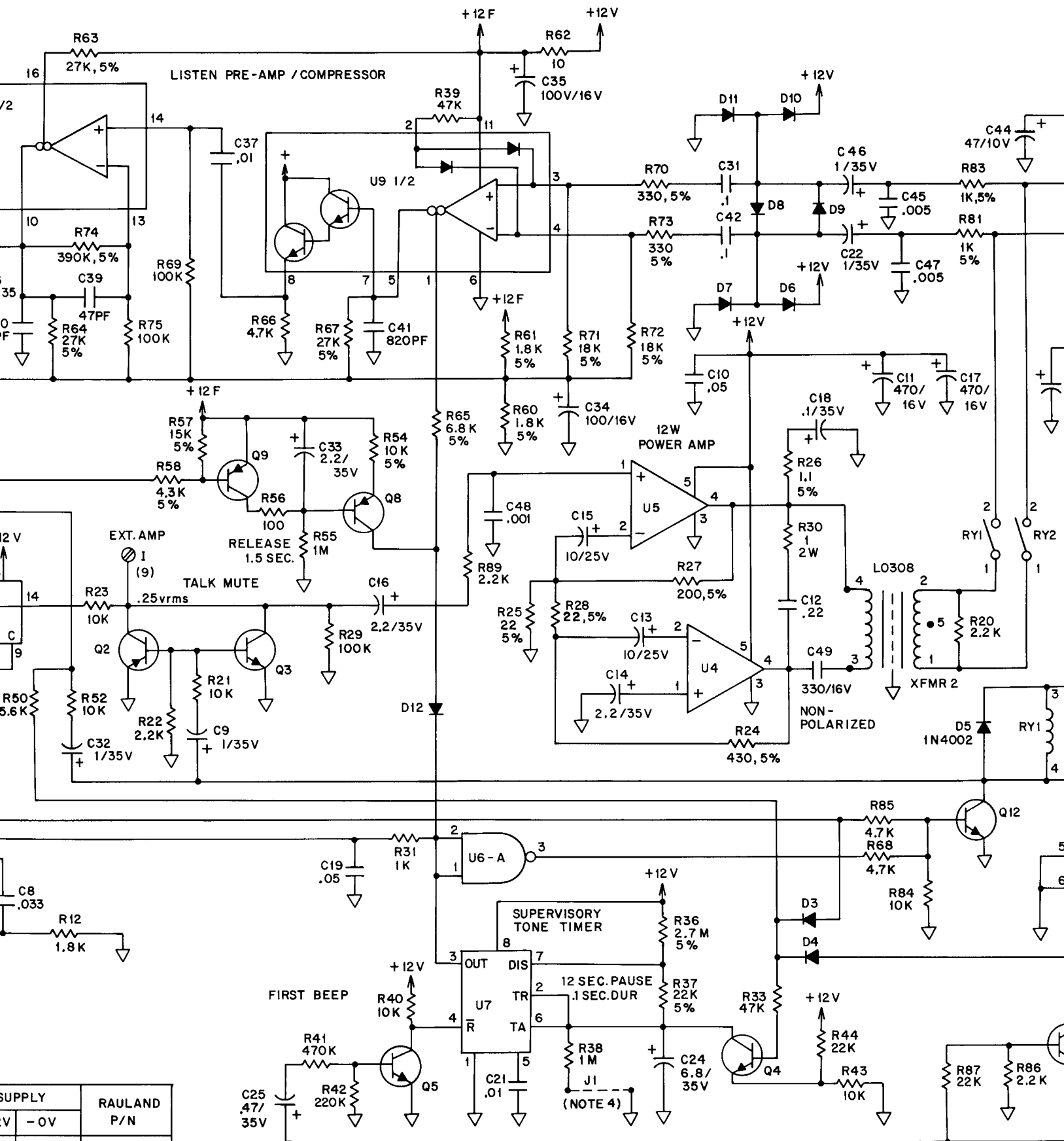


**NOTES:**

1. UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE RATED IN OHMS, ±10%, AND ARE 1/4 WATT. K=1,000 M=1,000,000
2. SYMBOLS CROSS REFERENCE:  
 ⏚=CIRCUIT COMMON (-OV); ⚙=SCREW TERMINAL
3. ALL DIODES ARE IN457A UNLESS OTHERWISE SPECIFIED.
4. J1- INSTALLED TO STOP REPEATING SUPERVISORY TONE.
5. J2- INSTALLED IF OPTIONAL D.C. TALK SUPPLY IS USED (L2) GROUND.
6. J3- REMOVED IF OPTIONAL TRIGGER SENSITIVITY IS USED. RAULAND PART NO. FOR RP3 IS RPS12A.

REF. NO.	DESCRIPTION	TYPE	PIN SUPPLY			RAULAND PART NO.
			+12F	+12V	-OV	
U1	DUAL OP AMP	LM358		8	4	ECO
U2,8	SINGLE OP AMP	741		7	4	ECO
U3	ANALOG SWITCH	4053		16	1,3,6,7,8	ECO
U4,5	6 W. POWER AMP	TDA2003		5	3	ECO
U6	SCHMITT TRIGNAND	4093		13,14	5,6,7	ECO
U7	TIMER	555		8	1	ECO
U9	DUAL OP AMP	LM13600N		11	6	ECO

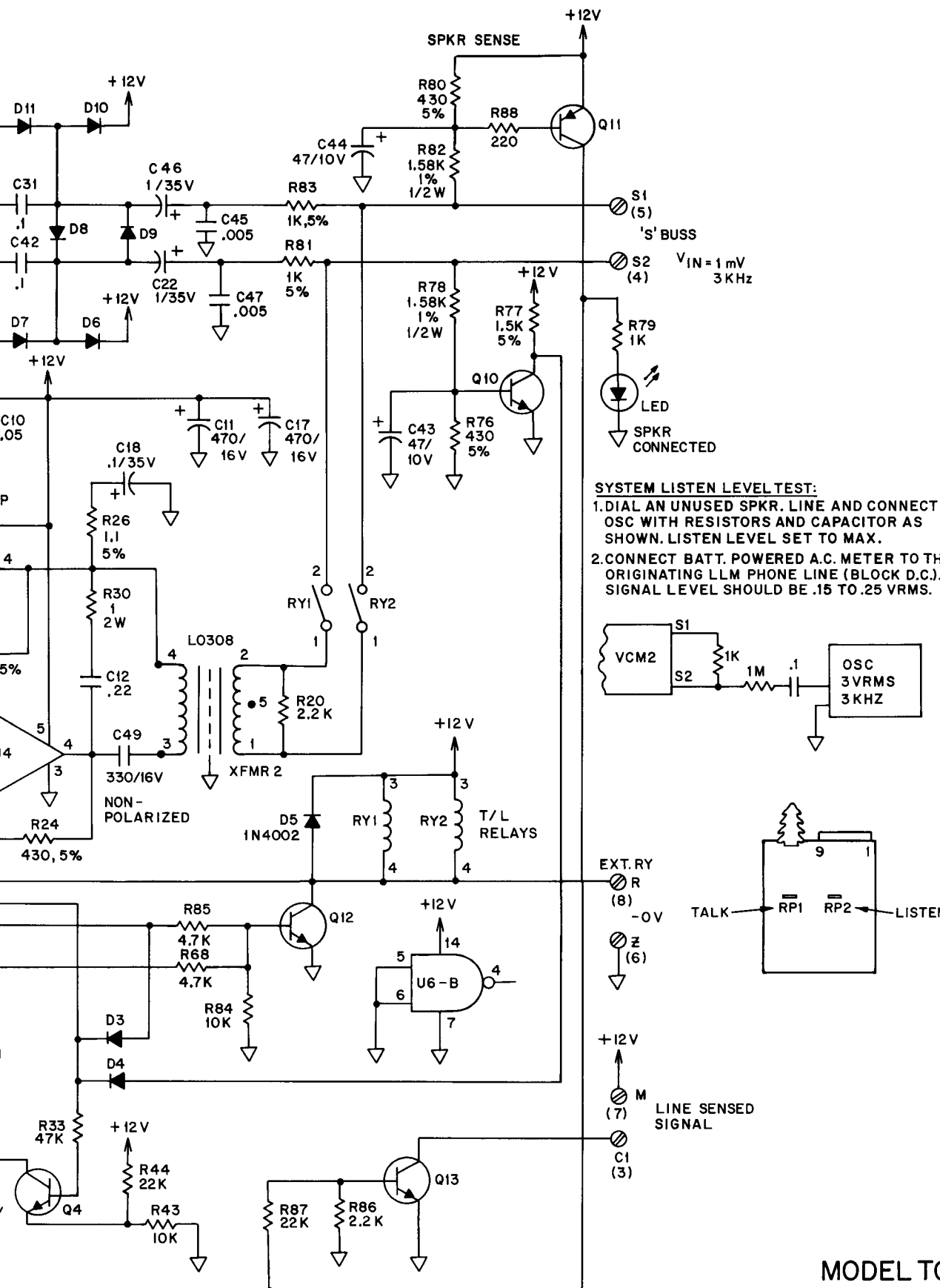


SUPPLY	RAULAND
V	P/N
4	EC0080
4	EC0013
1,3,6,7,8	EC0071
3	EC0175
14	5,6,7 EC0064
1	EC0004
6	EC0090

REF NO.	TYPE
Q1,3,4,5,7,10,13	MPS6515
Q8,9	MPS6519
Q2,6,11	MPS6517
Q12	MPSA05
Q14	MPSA55

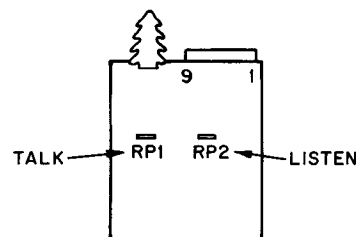
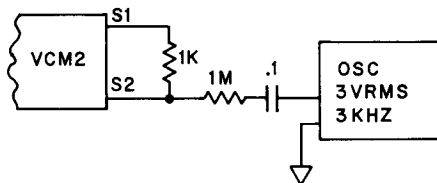
12-7-1984

ISSUE	CHANGE
A	R25, R28 WERE 36Ω. 12 & 15 OF U3 WERE REVERSED. ADDED: .2 VRMS AT "LISTEN LEVEL," .35 VRMS AT "TALK MUTE," 1.5 SEC. AT "RELEASE." ADDED SYSTEM LISTEN LEVEL TEST. R50 WAS 10 K. 1-26-86
B	MODEL TC4160 WAS MODEL TC4 12-9-87
C	ADDED DIAGRAM OF BOARD WITH RPI AND RP2. VCM WAS VCM2. 9-9-88
D	ADDED R39. R71 & R72 WERE 1.8K. R47 WAS 75K. C28 WAS 330 PF. 9-12-89



**SYSTEM LISTEN LEVEL TEST:**

1. DIAL AN UNUSED SPKR. LINE AND CONNECT OSC WITH RESISTORS AND CAPACITOR AS SHOWN. LISTEN LEVEL SET TO MAX.
2. CONNECT BATT. POWERED A.C. METER TO THE ORIGINATING LLM PHONE LINE (BLOCK D.C.). SIGNAL LEVEL SHOULD BE .15 TO .25 VRMS.



MODEL TC4160  
 VOICE CONTROL INTERCOM AMP  
 VCM  
 RAULAND-BORG CORP.  
 SKOKIE, ILL.  
 KC1472 D