

RLC-4 FIELD PROGRAMMING SHEETS - QUICK REFERENCE SECTION

USAGE

DESCRIPTION

VERSION 1.79

05-07-1998

000 XY	CONNECT ONE PORT X TO ANOTHER PORT Y
001 XY	MONITOR ONE PORT X FROM ANOTHER PORT Y
002 XY	DISCONNECT ONE PORT X FROM ANOTHER PORT Y
003 X	INTERROGATE WHERE A RECEIVER IS ROUTED
004 X	INTERROGATE WHERE A TRANSMITTER IS ROUTED
005 P(PORT)Y(INPUT 0-5)Z(DTMF 0-5)	PORT'S ACCESS MODE Y & Z 0=NO ACCESS 1=COR 2=PL 3=COR&PL 4=CORORPL 5=ALWAYS ACTIVE (HF)
006 X	RECALL A PORT'S ACCESS MODE - RECALL RX & DTMF DECODER CONDITIONS
007 P(PORT),M(0-1),C(0-1),U(0-1)	RECALL / CONFIGURE DTMF MUTE FOR A SELECTED PORT M=MUTE C=COVER TONE U=MUTE BYPASS 1=ON
888	COMMAND DESCRIPTIONS - ***NOT CURRENTLY USED***
009	RECALL ENTIRE CONTROLLER'S CROSSPOINT
010 XXXYYYYYY	RE-PROGRAM COMMAND NAMES XXX=CMD# Y=NEW NAME 1 TO 6 DIGITS
011 XXX	INTERROGATE INFORMATION ON A COMMAND NAME BY NUMBER
012 YYYYYY	RECALL INFORMATION ABOUT A COMMAND NAME BY NAME
013 P(PORT)CL	SET CDR & PL ACTIVE LEVELS C=COR L=PL 0=ACTIVE LOW 1=ACTIVE HIGH P00=DEFAULT
814..819	COMMAND DESCRIPTIONS - ***NOT CURRENTLY USED***
020 XXY,YY,YYY,YYYY	PROGRAM A SELECTED TIMER X=SELECTED TIMER PORT # - Y=VALUE TO BE PROG. 00-03 = MESSAGE START TIMER PORT 1-4 / 10MS 001-999 - DEFAULT = 050 04-07 = COURTESY BEEP DELAY TIMER PORT 1-4 / 10MS 001-999 - DEFAULT = 100 08-11 = TRANSMITTER HANG TIMER PORT 1-4 / 10MS 001-999 - DEFAULT = 200 (2 SEC.) 12-15 = DTMF MUTE TIMER PORT 1-4 / 10MS 001-999 - DEFAULT = 100 (1 SEC.) 16 = I/O POLLING TIMER 10 MS N/A - DEFAULT = 100 (1 SEC.) 17 = RBI-1 DELAYED SEND TIMER 10 MS 001-999 - DEFAULT = 100 (1 SEC.) 18 = INTERNAL DVR TIMER - AUTOMATICALLY SET BY THE CONTROLLER 19-22 = MINI HANG TIMER TX PORT 1-4 / 10 MS 001-999 - DEFAULT = 050 (1/2 SEC) 23-26 = KEYUP DELAY TIMER PORT 1-4 / 10 MS 001-999 - DEFAULT = 050 (1/2 SEC) 40-43 = IMPOLITE ID TIMER PORT 1-4 / 1 SEC. 001-999 - DEFAULT = 020 (20 SEC.) 44-47 = INITIAL ID TIMER PORT 1-4 / 1 SEC. 001-999 - DEFAULT = 600 (10 MIN.) 48-51 = PENDING ID TIMER PORT 1-4 / 1 SEC. 001-999 - DEFAULT = 540 (9 MIN.) 53-55 = TIMEOUT TIMERS RX PORT 1-4 / 1 SEC 001-999 - DEFAULT = 180 (3 MIN.) 56-59 = DIAL TONE TIMER PORT 1-4 / 1 SEC. 001-999 - DEFAULT = 008 (8 SEC.) 60-63 = PREACCESS TIMER PORT 1-4 / 1 SEC. 001-999 - DEFAULT = 008 (8 SEC.) 64-68 = USER TIMERS 00-04 (START WITH C022 STOP WITH C023) (SEE APPENDIX D) 69-72 = DTMF INTERDIGIT TIMER PORT 1-4 / 1 SEC 001-999 - DEFAULT = 005 (5 SEC.) 73 = REVERSE PATCH RING TIMER / 1 SEC. 001-999 - DEFAULT = 010 (10 SEC.) 74 = DVR START RECORDING TIMER / 1 SEC. 001-999 - DEFAULT = 010 (10 SEC.) 75-78 = RE-ENABLE KEYUP DELAY PORT 1-4 / 1 SEC. 000-999 - DEFAULT = 060 (60 SEC.)
021 XX	RECALL A TIMER VALUE & RECALLS THE TIME REMAINING UNTIL THE TIMER EXPIRES
022 XX,Y,YY,YYY,YYYY	START A SELECTED TIMER - INSERT A ONE TIME CHANGE OF TIMER VALUE
023 XX	STOP A SELECTED TIMER - SEE COMMAND C020 FOR TIMERS
024 Y(SPEED)	SET UP THE CONTROLLERS RS-232 SERIAL BAUD RATE Y=300-9600
025 SS,SS..EE	DVR - RECORD A MESSAGE ON THE SMALL DVR SS=START SLOT NUMBER EE=END SLOT (OPTIONAL)
026 S,SS,SS..SS	DVR - PLAYBACK A SMALL DVR MESSAGE S=SINGLE 0-9 SS=SINGLE 00-34 SS..SS=MULTI 00-34
027 SS,SS..EE	DVR - ERASE SMALL DVR MESSAGE SS=SLOT TO ERASE SS(START)..EE(END)=MULTI-EE(OPTIONAL)
828	COMMAND DESCRIPTIONS - ***NOT CURRENTLY USED***
829	COMMAND DESCRIPTIONS - ***NOT CURRENTLY USED***
030 YY....YY	SEND A CW MESSAGE
031 YY....YY	SEND A DTMF SEQUENCE OUT PORT 4
032 Y.....Y	SEND A SERIAL MESSAGE OUT THE RLC-3 PORT
033 P(PORT)F(0-1)	PTT ENABLE OR DISABLE 0=PTT LINE OFF 1=PTT LINE ON (DEFAULT)
034	RECALL WHICH PTT LINES ARE ENABLED
035	REMODEL RESET THE CONTROLLER
836	COMMAND DESCRIPTIONS - ***NOT CURRENTLY USED***
037 P,PP,PPP,PPPP	SET AUDIO ROUTING VARIABLE FOR COMMANDS INSIDE A MACRO
038	KILL ALL VOICE/CW RESPONSES FOLLOWING THIS COMMAND IN MACRO
039	RECALL THE PORTS IN THE CURRENT AUDIO ROUTING VARIABLE
040 LLLDDDXXXX	SEND ONE TONE CHORD L=LENGTH 10MS 000-6000 / D=DELAY 10MS 000-6000 / X=TONE (0350 HZ) 60 SECONDS MAX TIME FOR TONE LENGTH AND DELAY LENGTH
041 P(PORT)Y(0-3)	COURTESY BEEP ENABLE/DISABLE FOR SELECTED PORT 0=NEVER 1=ONLY RPT. 2=& EVEN LINKS
042 P(PORT)YY(WPM)	SET CW SPEED FOR A SELECTED PORT Y=05-50 WPM
043 PXXXX	SET CW TONE CHORD FREQUENCY FOR A SELECTED PORT P=PORT X=(0000-9999 HZ)
044 PXXXXYYYY	SET UP DTMF REGENERATE PARAMETERS P=PORT X=DTMF LENGTH Y=PAUSE
045 EEE(000-100),ZZZ	SET / RECALL EVENT MACRO ASSIGN Y=EVENT NUMBER (SEE EVENT TABLE) Z=COMMAND NUMBER
046	DEFAULT EVENT TRIGGER ACTION MACRO
047 EEE(000-100)Y(0-1)	EVENT MACRO ENABLE/DISABLE 0=OFF 1=ON
848	COMMAND DESCRIPTIONS - ***NOT CURRENTLY USED***
049 PXXXX	SET LINK ACCESS TONE FREQUENCY X= TONE NUMBER DEFAULT=1064 HZ
050 SS(01-06).P.P(PORTS)	SET UP DEFAULT AUDIO ROUTING VARIABLES SSO=CLEAR DEFAULT / AUDIO NOT TO BE SENT ANYWHERE 01-04 CMDS ENT FROM RECEIVERS 05=SERIAL 06=AUTOMATIC MACRO / EVENT TRIGGER
051	START DIAL-TONE DTMF DIGIT SENT WILL KILL DIAL TONE ON THAT PORT (SEE CMD 020)
852	COMMAND DESCRIPTIONS - ***NOT CURRENTLY USED***
053 WWXXXXZZZ...ZZ	PROGRAM A SINGLE COMMAND MACRO SEQUENCE W=MACRO X=COMMAND Z=DATA CMD USES
054 XXX	RECALL MACRO CONTENTS M=MACRO#, N=# OF CMDS, C=CMD, D=DIGITS OF DATA, ? PERCENTAGE FILLED
055 XXX	DELETE MACRO
056 WWXXXXZZZ...ZZ	APPEND A COMMAND TO A MACRO SAME ENTRY TYPE AS C053
057 XXXYYY	COPY A MACRO X=SOURCE Y=DESTINATION
058 XXXYY	DELETE A COMMAND IN A MACRO X=MACRO # - Y= # OF COMMAND IN THE MACRO
059 XXXYYZZZDDD	INSERT A COMMAND IN A MACRO X=MACRO # - Y=NEW COMMAND LOCATION WITHIN THE MACRO Z=NEW COMMAND # FOR INSERT D=DATA FOR THE COMMAND
060 XYZQ	SERIAL PORT'S U/L CASE & LINEFEED XO=U CASE 1=U/L CASE Y=1 LF ON 0=LF OFF 0111=DEFAULT Z=1 SUPPRESS SERIAL BY DTMF 0=SEND SERIAL FROM DTMF Q=1 QUEUED SERIAL 0= SEND BEFORE CONT.

061 P(PORTS)
062 XXXYYZ,ZZ,ZZZ
DISCONNECT ALL PORTS FROM A RADIO PORT
CHANGE THE BEGINNING OF COMMAND NAMES X=FIRST CMD IN RANGE Y=LAST CMD IN RANGE
XXX,YYY=UNDO

063
064
065
066..072
COMMAND DESCRIPTIONS ~~***NOT CURRENTLY USED***~~
COMMAND DESCRIPTIONS ~~***NOT CURRENTLY USED***~~
RESTORE THE AUDIO ROUTING VARIABLE (UNDO 037 AND 038)(MUST BE USED WITHIN A MACRO.)
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~

073 P(PORTS),X(O-1),T(O-1)C(1-6)
074
075 P(PORT),XYZIF(O-1)
SET / RECALL PORTS WITH PREACCESS REQUIREMENT X=ENABLE/DISABLE T=PREACC TONE C=ACCESS CODE
ALLOW ACCESS TO A PORT THAT REQUIRES PREACCESS
SET / RECALL STOP ACCESS CONDITIONS O=STOP ACCESS X=CMD EXEC Y=CMD INVALID
Z=WHEN COR DROPS AFTER DTMF ENTERED I=WHEN DTMF INTERDIGIT EXPIRES F=WHEN FORCE EXECUTION DIGIT IS
PRESSED

076 P(PORT)
077 P(PORT)
078 P(PORT 1-5)CTE
079 P(PORT 1-5)
080 XXXD..D
081..084
085 P(PORT)Y(O-1)
086
087..089
090 Y,Y..Y
091 Y,Y..Y
092
093 Y,Y..Y
094 Y,Y..Y
095 Y,Y..Y
096 O-1,XX(OO-64),Y(O-1)
RECALL STOP ACCESS CONDITIONS
ISOLATE A PORT FROM THE REST OF THE SYSTEM
SET THE COMMAND ENTRY FUNCTIONS S=SERIAL IS "I", C=CHAIN, T=TIME, E=NEW DIGIT O=OFF
RECALL THE COMMAND ENTRY SETUP FOR A PORT PORT-S=SERIAL C=CHAIN T=TIME E=DIGIT
EXECUTE COMMAND BY NUMBER X=CMD TO EXECUTE D=DATA TO GO WITH X CMD TO EXECUTE
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~
ENABLE/DISABLE IDING A PORT O=ID OFF - 1=ID ON
RECALL WHICH PORTS HAVE IDs ENABLED
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~
READ WHETHER INPUT LINE IS HIGH OR LOW Y=INPUT LINE# (1-3)
EXECUTE INPUT LINE HIGH OR LOW MACRO Y=INPUT LINE# (1-3)
COMMAND DESCRIPTIONS ~~***NOT CURRENTLY USED***~~
TURN OUTPUT LINE ON Y=OUTPUT LINE# (1-4)
TURN OUTPUT LINE OFF Y=OUTPUT LINE# (1-4)
RECALL WHETHER OUTPUT LINE IS ON OR OFF Y=INPUT LINE# (1-4)
CONTROL/RECALL EXTENDED OUTPUT LINES O=OFF XX=RECALL YO=OUTPUT LINE OFF
I/O BOARD 1 LINE 6=LATCH 7=CLOCK 8=DATA H/L
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~

097..099
100 Y,Y..Y
101 YZ
READ ANALOG INPUT LINE Y=INPUT LINE# (1-3)
SET RESOLUTION FOR ANALOG INPUT Y=INPUT LINE# (1-3) Z=#(O-3)DIGITS
AFTER DECIMAL POINT

102-COMMAND-SEE BELOW
SET CONVERSION RATIO FOR ANALOG INPUT

COMMAND	DESCRIPTION	RESOLUTION	FORMAT:
102 Y N WWWW M ZZZZ	GENERAL FORM		C 101 IS THE DEFAULT COMMAND NAME.
102 Y 1 0460 0 0440	TEMPERATURE	1 DEGREE F (0)	Y - IS THE ANALOG INPUT NUMBER (1-4)
102 Y 1 0273 0 0227	TEMPERATURE	1 DEGREE C (0)	N IS 1 FOR NEGATIVE, 0 FOR POSITIVE FOR THE FOLLOWING NUMBER
102 Y 0 0000 0 0005	(0)0 TO 5 VOLTS	1 VOLT (0)	W IS THE READING WITH A 0 VOLT INPUT WITH LEADING 0s IF NECESSARY-
102 Y 0 0000 0 0050	(1)0 TO 5 VOLTS	1/10 VOLT (1)	M IS 1 FOR NEGATIVE, 0 FOR POSITIVE FOR THE FOLLOWING NUMBER
102 Y 0 0000 0 0500	0 TO 5 VOLTS	1/100 VOLT (2)	Z IS THE READING WITH A 5 VOLT INPUT TO THE PROCESSOR WITH LEADING
102 Y 0 0000 0 0025	0 TO 25 VOLTS	1 VOLT (0)	0s IF NECESSARY. IF THE VOLTAGE DIVIDER ON THE I/O BOARD IS
102 Y 0 0000 0 0250	0 TO 25 VOLTS	1/10 VOLT (1)	TURNED ON, THIS IS THE READING WITH A 25 VOLT INPUT.
102 Y 0 0000 0 2500	0 TO 25 VOLTS	1/100 VOLT (2)	
102 Y 0 0000 0 0100	0 TO 100 %	1 PERCENT (0)	
102 Y 0 0000 0 0360	0 TO 360 DEG	1 DEGREE (0)	

103 YNWWWW
104 YLNWWWW
105 YWWW
106
107
108 Y
109
110 XX
111
112 XX,ORYYY...YYYY
113 XX,ORYYY...YYYY
114
115
116 IIIAAD...D OR O
117 YYY...YYYY
118
119 SS(OO-19)N..N
120 SS(OO-19)
121 S(O-9),N..N
122 S(O-9)
123..127
128 P(PORT)Y(O-1)
129
130 PCCC,&DDD OR CCC
131 PCCC,&DDD OR CCC
132
133 O
1 XX(RINGS)Y....Y
2 XX(RINGS)N....N
134
135
136 XXXYYYY
137
138

CALIBRATE AN ANALOG INPUT Y2=RESET
SET AN ANALOG ALARM L:0=ALARM LOW 1=ALARM HIGH
SET ANALOG ALARM HYSTERESIS
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~
RECALL ANALOG LINES IN ALARM
RECALL ANALOG LINE CONFIGURATION Y,W,Z,CALIBRATE,LO,L1,HYSTERESIS,LO ON/OFF, L1 ON/OFF
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~
CONFIGURE THE AUTOPATCH OO=DISABLE THE AUTOPATCH 10=ENABLE WITH NO READ BACK 11=ENABLE THE
AUTOPATCH WITH NUMBER READBACK TO DIAL
OFF HOOK PATCH TIMER RESET
MANUAL OFF HOOK 053xxx03018
NORMAL FORWARD DIAL X=AUTODIAL SLOT (OO-99) OR Y=11 DIGIT PHONE # 053xxx02255
FORWARD DIAL WITH NO LONG DISTANCE CHECKING X=AUTODIAL SLOT OR Y=11 DIGIT
PHONE # 010xxx**3
053xxx03018
HANG UP THE AUTOPATCH
HANG UP FROM ONLY PORTS THAT ARE CONNECTED AND THAT CAN HEAR AUTOPATCH
SET AND RECALL PREDIAL DIGITS AND TIMING I=INITIAL DELAY 10MS A=AFTER PREDIAL 10MS
D=ANY UP TO 3 DIGITS FOR PREDIAL
FORWARD DIAL WITH NO LONG DISTANCE CHECKING OR PREDIAL Y=11 DIGIT
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~
SET ALLOWED PREFIX SLOT S=SLOT # N=AREA CODE/PREFIX #=WILDCARD DIGITS
RECALL ALLOWED PREFIX SLOT
SET NUISANCE NUMBER SLOT S=SLOT # N=AREA CODE/PREFIX #=WILDCARD DIGITS
RECALL NUISANCE NUMBER SLOT
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~
SET HALF-FULL DUPLEX MODE FOR A PORT Y: 1= HALF DUPLEX 0= FULL DUPLEX
RECALL ALL HALF DUPLEX PORTS
BLOCK / RECALL COMMAND EXECUTION FROM PORT C=CMD RANGE LOW# D=CMD RANGE HIGH#CCC=RECALL
ALLOW / RECALL COMMAND EXECUTION FROM PORT C=CMD RANGE LOW# D=CMD RANGE HIGH#CCC=RECALL
COMMAND DESCRIPTIONS ~~***NOT CURRENTLY USED***~~
DISABLE REVERSE PATCH MODE
RING OVER THE AIR MODE AFTER XX RINGS Y=PORTS
CONTROL MODE 9 SECONDS TO ENTER ACCESS CODE N..N AND 134(DTMF "ABCD" WILL HAVE TO BE RENAMED)
ACCESS REVERSE PATCH CONTROL MODE (FOR THE CONTROLLERS INTERNAL USE - MODE 2)
ANSWER A REVERSE AUTOPATCH OVER THE AIR (MUST BE RINGING TO ANSWER)
REVERSE AUTOPATCH RING X=RING LENGTH Y=TONE 1 FREQ 0660 HZ
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~
COMMAND DESCRIPTION ~~***NOT CURRENTLY USED***~~

139 C SS OR 000 SETUP RBI-1 / RLC - ICOM 900/901 INTERFACE 000= DEFAULT FOR THE RBI-1
C=CONNECTOR 1-4 SS=SET UP CODE - BAND OFFSET TX/RX
28MHZ=00 50MHZ=05 140-160MHZ=10 220MHZ=15 430-440MHZ=20 1200MHZ=25
OFFSET 100KHZ=30 500KHZ=35 600KHZ=40 1MHZ=45 1.6MHZ=50 1.7MHZ=55 5MHZ=60 12MHZ=65
20MHZ=70
TRANSCIVE ENABLE=85 RECEIVE ONLY=90 DISABLE MODULE=95

140 O OR1, TURN RADIO POWER ON/OFF, SET POWER AND OFFSET FORMAT 0=TURN RADIO POWER OFF
1P OR 1PF 1=TURN RADIO POWER OFF 1P=TURN RADIO ON AND SET TRANSMIT POWER 1PF=TURN RADIO ON SET POWER AND SELECT
OFFSET FORMAT F0= -, +, S, -20 (0-3) F1= -20, -, S, + (0-3)

141 SS(00-38)E(0-1)D(0-1) RBI-1 OR RLC-ICM SET PL, ENCODE, DECODE FF=PL TONE / 01=67.0, 02=71.9, 03=74.4, 04=77.0,
05=79.7, 06=82.5, 07=85.4, 08=88.5, 09=91.5, 10=94.8, 11=97.4, 12=100.0, 13=103.5, 14=107.2, 15=110.9,
16=114.8, 17=118.8, 18=123.0, 19=127.3, 20=131.8, 21=136.5, 22=141.3, 23=146.2, 24=151.4, 25=156.7,
26=162.2, 27=167.9, 28=173.8, 29=179.9, 30=186.2, 31=192.8, 32=203.5, 33=210.7, 34=218.1, 35=225.7,
36=233.6, 37=241.8, 38=250.3 E=ENCODE 0=OFF / 1=ON D=DECODE 0=CARRIER SQUELCH / 1=ON

142 XXX(1-44)XXX,F,0, or MM RBI-1 OR RLC-ICM SET FREQUENCY X=FREQUENCY 10FM=29XXFO F=OPTIONAL SKGCH 0=OPTIONAL OFFSET
XXX=29-129MHZ MM=OPTIONAL MEMORY CHANNEL ALREADY PRESET IN THE RADIO (MM-THIS COMMAND IS NOT SUPPORTED BY THE RLC-ICM)

143 RBI-1 OR RLC-ICM RECALL FREQUENCY AND OFFSET OR MEMORY

144 X(0-7),Y(0-1) RBI-1 CONTROL / SET OUTPUT LINES X=RECALL OUTPUT LINE 1-8 Y=1 ON / 0=OFF

~~145..149~~ ~~COMMAND DESCRIPTIONS~~ ***NOT CURRENTLY USED***

150..166 EXECUTE AN INTERNAL MACRO (MACROS 150 - 166 ARE UTILIZED AS ASSIGNED MACROS - SEE BELOW)

167..249 EXECUTE A USER MACRO

ERROR MESSAGE NUMBERS

00 - COMMAND LENGTH NOT MATCHED	10 - INVALID DATA VALUE ENTERED
01 - TOO FEW DATA DIGITS ENTERED	11 - COMMAND DOESN'T EXIST
02 - TOO MANY DATA DIGITS ENTERED	12 - BAD AUTOPATCH NUMBER
03 - INVALID NUMBER OF DATA DIGITS ENTERED	13 - GENERAL AUTOPATCH ERROR
04 - EXECUTION BLOCKED FROM THIS PORT	14 - USER REQUESTED DISABLED
05 - USER LEVEL TO LOW TO EXECUTE THIS COMMAND	15 - DVR IS BUSY
06 - THIS MACRO IS RESERVED FOR INTERNAL USE	16 - MACRO IS FULL
07 - COMMAND EXECUTED OK	17 - RESERVED
08 - INTERNAL ERROR JUST OCCURRED	18 - RESERVED
09 - NESTED MACRO DEPTH LIMIT REACHED	19 - RESERVED

AUTOMATIC MACRO NUMBERS

150 - TEMPORARY MACRO USED BY THE CONTROLLER (INTERNAL USE ONLY)	159 - PORT 1 COURTESY BEEP
151 - PORT 1 INITIAL ID	160 - PORT 2 COURTESY BEEP
152 - PORT 2 INITIAL ID	161 - PORT 3 COURTESY BEEP
153 - PORT 3 INITIAL ID	162 - PORT 4 COURTESY BEEP
154 - PORT 4 INITIAL ID	163 - PORT 1 PREACCESS MACRO
155 - PORT 1 PENDING ID	164 - PORT 2 PREACCESS MACRO
156 - PORT 2 PENDING ID	165 - PORT 3 PREACCESS MACRO
157 - PORT 3 PENDING ID	166 - PORT 4 PREACCESS MACRO
158 - PORT 4 PENDING ID	

EVENT TRIGGER ACTION TABLE

000 - RESET MESSAGE	034 - PORT INACTIVE PORT 2	068 - I/O ANALOG LOW ALARM #4
001 - INITIAL ID PORT 1	035 - PORT INACTIVE PORT 3	069 - I/O ANALOG HIGH ALARM #1
002 - INITIAL ID PORT 2	036 - PORT INACTIVE PORT 4	070 - I/O ANALOG HIGH ALARM #2
003 - INITIAL ID PORT 3	037 - ANY CONNECTED RX ACTIVE 1	071 - I/O ANALOG HIGH ALARM #3
004 - INITIAL ID PORT 4	038 - ANY CONNECTED RX ACTIVE 2	072 - I/O ANALOG HIGH ALARM #4
005 - PENDING ID #1 PORT 1	039 - ANY CONNECTED RX ACTIVE 3	073 - I/O ANALOG ALARM TO NORMAL #1
006 - PENDING ID #1 PORT 2	040 - ANY CONNECTED RX ACTIVE 4	074 - I/O ANALOG ALARM TO NORMAL #2
007 - PENDING ID #1 PORT 3	041 - ALL CONNECTED RX INACTIVE 1	075 - I/O ANALOG ALARM TO NORMAL #3
008 - PENDING ID #1 PORT 4	042 - ALL CONNECTED RX INACTIVE 2	076 - I/O ANALOG ALARM TO NORMAL #4
009 - COURTESY BEEP COMMAND SLOT PORT 1	043 - ALL CONNECTED RX INACTIVE 3	077 - TIME OUT PORT 1
010 - COURTESY BEEP COMMAND SLOT PORT 2	044 - ALL CONNECTED RX INACTIVE 4	078 - TIME OUT PORT 2
011 - COURTESY BEEP COMMAND SLOT PORT 3	045 - ERROR CODE 00	079 - TIME OUT PORT 3
012 - COURTESY BEEP COMMAND SLOT PORT 4	046 - ERROR CODE 01	080 - TIME OUT PORT 4
013 - COR ACTIVE PORT 1	047 - ERROR CODE 02	081 - TIME OUT CLEAR PORT 1
014 - COR ACTIVE PORT 2	048 - ERROR CODE 03	082 - TIME OUT CLEAR PORT 2
015 - COR ACTIVE PORT 3	049 - ERROR CODE 04	083 - TIME OUT CLEAR PORT 3
016 - COR ACTIVE PORT 4	050 - ERROR CODE 05	084 - TIME OUT CLEAR PORT 4
017 - COR INACTIVE PORT 1	051 - ERROR CODE 06	085 - USER TIMER 00 EXPIRED
018 - COR INACTIVE PORT 2	052 - ERROR CODE 07	086 - USER TIMER 01 EXPIRED
019 - COR INACTIVE PORT 3	053 - ERROR CODE 08	087 - USER TIMER 02 EXPIRED
020 - COR INACTIVE PORT 4	054 - ERROR CODE 09	088 - USER TIMER 03 EXPIRED
021 - PL ACTIVE PORT 1	055 - ERROR CODE 10	089 - USER TIMER 04 EXPIRED
022 - PL ACTIVE PORT 2	056 - ERROR CODE 11	090 - DTMF COVER TONE
023 - PL ACTIVE PORT 3	057 - ERROR CODE 12	091 - BEFORE PATCH OFF HOOK
024 - PL ACTIVE PORT 4	058 - ERROR CODE 13	092 - AFTER PATCH ON HOOK
025 - PL INACTIVE PORT 1	059 - I/O INPUT LINE LOW #1	093 - REVERSE PATCH ANSWERED
026 - PL INACTIVE PORT 2	060 - I/O INPUT LINE LOW #2	094 - REVERSE PATCH PASSWORD OK
027 - PL INACTIVE PORT 3	061 - I/O INPUT LINE LOW #3	095 - COMMAND ENTERED FROM REVERSE PATCH
028 - PL INACTIVE PORT 4	062 - I/O INPUT LINE HIGH #1	096 - 30 SECONDS UNTIL PATCH TIMEOUT
029 - PORT ACTIVE PORT 1	063 - I/O INPUT LINE HIGH #2	097 - 20 SECONDS UNTIL PATCH TIMEOUT
030 - PORT ACTIVE PORT 2	064 - I/O INPUT LINE HIGH #3	098 - 10 SECONDS UNTIL PATCH TIMEOUT
031 - PORT ACTIVE PORT 3	065 - I/O ANALOG LOW ALARM #1	099 - PATCH TIME OUT
032 - PORT ACTIVE PORT 4	066 - I/O ANALOG LOW ALARM #2	100 - PATCH DIALING COVER TONE
033 - PORT INACTIVE PORT 1	067 - I/O ANALOG LOW ALARM #3	

CW CODE TABLE

00	0
01	1
02	2
03	3
04	4
05	5
06	6
07	7
08	8
09	9
10	A
11	B
12	C
13	D
14	E
15	F
16	G
17	H
18	I
19	J
20	K
21	L
22	M
23	N
24	O
25	P
26	Q
27	R
28	S
29	T
30	U
31	V
32	W
33	X
34	Y
35	Z
36	/
37	.
38	?
39	AR
40	SPACE
41	PAUSE

TX & RX AUDIO

JUMPERS

J2, J11, J12, J13

1,2	AUDIO PATH COMPLETE
3	GROUND
4	+10 VOLT

AUDIO ADJUSTMENT

RECEIVER:

ADJUST THE "RX" POT FOR EACH PORT, CHECKING THE SIGNAL ON J1 SO THAT ALL RECEIVER INPUTS ARE SET TO THE SAME LEVEL OF 1 VOLT PEAK-TO-PEAK. (J1 IS A 10 PIN CONNECTOR NEAR THE TONE LEVEL ADJUSTMENTS)

TRANSMITTER:

AFTER RX ADJUSTMENT, ADJUST THE "TX" POTS ON ALL CONNECTED TRANSMITTERS TO OBTAIN THE DESIRED DEVIATION. (TRANSMITTERS SHOULD NOT NEED ANY ADDITIONAL

ADJUSTMENTS AFTER AT LEAST 1 RECEIVER IS SET UP)

TONE GENERATOR:

USE CMD D40 TO GENERATE A TEST TONE. ADJUST THE "TONE" POTS FOR EACH PORT FOR 1.5 KHZ DEVIATION.

DTMF GENERATOR

ADJUST THE "DTMF" POT FOR PORT FOUR FOR ABOUT 3.0 KHZ DEVIATION.

DTMF CODE TABLE

00	DIGIT 0
01	DIGIT 1
02	DIGIT 2
03	DIGIT 3
04	DIGIT 4
05	DIGIT 5
06	DIGIT 6
07	DIGIT 7
08	DIGIT 8
09	DIGIT 9
10	DIGIT A
11	DIGIT B
12	DIGIT C
13	DIGIT D
14	DIGIT *
15	DIGIT #
16	<PAUSE>

RADIO PORT PIN-OUT

1,6,8,9	GROUND
2	PL INPUT (ACTIVE H/L)
3	PTT (ACTIVE LOW 150MA)
4	AUDIO OUT (600 OHM)
5	AUDIO IN (10K OHM)
7	CDR INPUT (ACTIVE H/L) (CDR 10K 4MA ^ TO GND)

RADIO PORT

DE-EMPHASIZED

(SPEAKER AUDIO)

JUMPERS

(REMOVE THE JUMPER ACROSS THE TWO PINS)

J7	PORT 1
J8	PORT 2
J9	PORT 3
J10	PORT 4

(FOR DISCRIMINATOR AUDIO PLACE THE JUMPER ACROSS THE TWO PINS)

RS232 SIGNALS AND

INTERFACING MODEM

COMPUTER TO CONTROLLER:
USE A STRAIGHT-THROUGH CABLE (NOT A NULL MODEM CABLE OR ADAPTER) WITH AT LEAST * PINS CONNECTED

CONTROLLER TO MODEM:
USE A NULL MODEM CABLE OR A NULL MODEM ADAPTER

DB25 TO DB9

8	1	CARRIER DETECT
3	*	2 RECEIVE DATA
2	*	3 TRANSMIT DATA
20	4	DATA TERM. READY
7	*	5 GROUND
6	6	DATA SET READY
4	7	REQUEST TO SEND
5	8	CLEAR TO SEND
22	9	RING INDICATOR

CONTROLLER- COMPUTER - OR MODEM

DB9	-DB9	DB25	-DB9	DB25
PIN 2	2	3	3	2
PIN 3	3	2	2	3
PIN 5	5	7	5	7

MODEM DEFAULTS

AT&F = FACTORY DEFAULTS
ATSO=3 = AUTO ANSWER 3RD RING OR (ATSO=X NO. RINGS)
ATSO=0 = AUTO ANSWER OFF
AT&KO = DISABLE FLOW CONTROL
ATED = DISABLE LOCAL ECHO
ATQ1 = STOP MODEM RESULT CODES
AT&W = STORE MODEM SETTINGS

IF UNABLE TO DISABLE THE MODEMS FLOW CONTROL, SHORT PINS 4 AND 5 TOGETHER AND PINS 6, 8 AND 20 TOGETHER THIS SHOULD FOOL THE FLOW CONTROL

THE CONTROLLERS LINEFEEDS TO THE MODEM MAY HAVE TO BE TURNED OFF. THE CONTROLLER DEFAULTS SENDING BOTH CR & LF AT THE END OF EACH LINE. (USE CMD D60)

SERIAL DOWNLOADS

IF MORE THAN A DOZEN COMMANDS OR SO ARE DOWNLOADED, THE RLC-4 MAY GET WAY BEHIND, OR EVEN GET LOST. THIS DOES NOT AFFECT THE COMMANDS THAT ARE BEING SENT TO THE RLC-4 IN ANY WAY - JUST THE RESPONSES. IF YOU NEED TO KNOW WHAT THE RESPONSES ARE CHANGE THE ASCII TRANSFER SETTINGS ON YOUR COMMUNICATIONS SOFTWARE TO INSERT A 1.5 SECOND DELAY AFTER EACH LINE (LONGER FOR SLOW BAUD RATES, SHORTER FOR FAST BAUD RATES) THIS WILL GIVE THE RLC-4 TIME TO SEND THE RESPONSES BACK WITHOUT OVERFLOWING THE QUEUE.

TO TURN LOWER CASE AND LINEFEEDS ON ENTER D60111 BEFORE THE DOWNLOAD.

A POPULAR CHOICE IS TO USE A TERMINAL PROGRAM SUCH AS PROCOMM, TELIX ETC. WHICH ALLOWS USE OF PROMPT STRINGS. THE PROGRAM WAITS FOR THE PROMPT STRING SUCH AS "DTMF>" BEFORE THE NEXT LINE IS SENT TO THE CONTROLLER, THUS NO CAUSE TO INSERT A PAUSE AFTER EACH LINE THAT IS SENT.

INPUT-OUTPUT-ANALOG DB-25

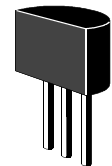
DB-PIN	LINE-#	I/O TYPE
1		GROUND
14		GROUND
2	4	ANALOG
15		GROUND
3	3	ANALOG
16		GROUND
4	2	ANALOG
17		GROUND
5	1	ANALOG
18		GROUND
6		GROUND
19		GROUND
7	3	INPUT
20		GROUND
8	2	INPUT
21		GROUND
9	1	INPUT
22		GROUND
10	4	OUTPUT
23		GROUND
11	3	OUTPUT
24		GROUND
12	2	OUTPUT
25		GROUND
13	1	OUTPUT

I/O SWITCH S2

SW 1-4 ON FOR LM335 TEMP SEN
SW 5-8 ON FOR V-DIVIDER 25V

LM335 TEMPERATURE SENSOR

THE SENSOR CONVERTS TEMPERATURE INTO VOLTAGE WHICH IS READ BY THE CONTROLLERS ADC (ANALOG-DIGITAL CONVERTER). POWERING THE SENSOR IS ACCOMPLISHED BY TURNING THE APPROPRIATE DIP SWITCH 'ON' ON THE I/O BOARD. THE POWER SWITCH MUST BE ON AND THE VOLTAGE DIVIDER SWITCH OFF FOR THE TEMPERATURE SENSOR TO WORK.



1=N/C 2=Analog 3=Ground

Pins on the LM-335

TO AVOID RFI CAUSING THE SENSOR TO GIVE ERRONEOUS READINGS, SOME CONSIDERATION SHOULD BE GIVEN TO USING SHIELDED CABLE, BY-PASS CAPACITORS ON BOTH ENDS OF THE CABLE TO BE UTILIZED, AND FERRITE BEADS.

SYSTEM RE-INITIALIZATION

METHOD #1
WITH THE POWER OFF.

PRESS AND HOLD THE INIT BUTTON ON THE MOTHER-BOARD. TURN ON THE POWER. WAIT FOR ABOUT 3 SECONDS (OR LONGER). RELEASE THE INIT BUTTON.

METHOD #2
WITH THE POWER ON.

PRESS AND HOLD BOTH THE INI AND THE RESET BUTTONS. RELEASE THE RESET BUTTON WAIT AT LEAST 3 SECONDS. RELEASE THE INI BUTTON.

LINK COMMUNICATIONS INC.
1035 CERISE ROAD
BILLINGS, MT 59101-7378

(406) 245-5002 VOICE
(800) 610-4085 ORDERS
(406) 245-4889 FAX

<http://www.link-comm.com>

EMAIL:
allan@link-comm.com
steve@link-comm.com