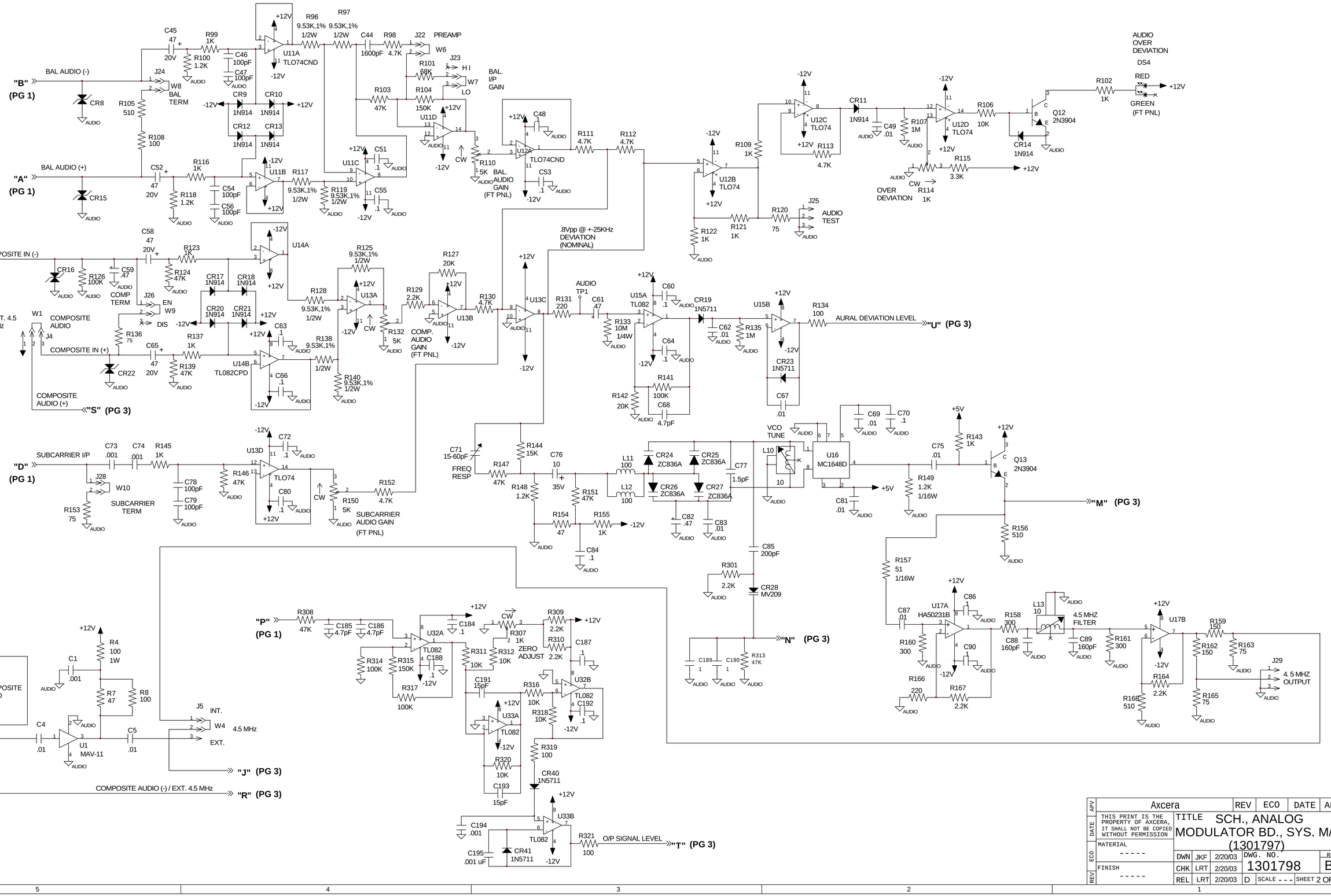
J41C
VIS IF I/P
AUR IF O/P
VIS. IF O/P
AUR IF I/P
+12VDC_C4
-12VDC_C1
COMBINED IF O/P
10MHZ I/P
913289
J12
VIS IF I/P
W7
"WA" (PG3)
* EXTERNAL CABLE ASSY.
J18
AUR IF O/P
W9
"WC" (PG3)
* EXTERNAL CABLE ASSY.
J13
VIS IF O/P
W8
"WB" (PG3)
* EXTERNAL CABLE ASSY.
"F" (PG 3)
"G" (PG 3)
+12VDC_C4
-12VDC_C1
"V" (PG 3)
"W" (PG 3)
"H" (PG 3)
"K" (PG 3)
"P" (PG 2)
SYNC STRETCH CUT-IN
SYNC STRETCH MAGNITUDE
WHITE CLIP
SYNC CLIP
MAN. BIAS
VIDEO GAIN (FT PNL)
PRE VIDEO DELAY
POST VIDEO DELAY
VIDEO LOSS
OVER MOD
10MHz PRESENT (FT PNL)
GREEN (FT PNL)
RED
GREEN
SW1 WT11L2SV-1QE (FT PNL)
U2A LT1229CS8
U2B LT1229CS8
U3A LT1229CS8
U3B LT1229CS8
U4A LT1229CS8
U4B LT1229CS8
U5A TLO74
U5B TLO74
U5C TLO74
U5D TLO74
U6A LM319N
U6B LM319N
U7 MC7805CT
U8 MC145151DW2
U9 C01100-10.00MHz
HE721C0510
Q1 2N3906
Q2 2N3904
Q3 2N3904
Q4 2N3906
Q5 BS170
Q7 2N3904
Q8 BS170
Q9 BS170
Q10 2N3906
Q11 BS170
VR1 1N4733A 5.1V
CR1 1N914
CR2 1N914
CR3 1N914
CR4 1N914
CR5 1N914
CR6 1N5711
CR7 1N914
GD1
GD2
GD3
GD4
L1 47
L2 10
L3 15
L4 27
L5 .47uH
L6 .47uH
L7 .47uH
L8 2.7
L9 .27uH
R1 1K
R2 3.3K
R3 2.2K
R5 1K
R6 1K
R9 1.5K
R10 3.3K
R11 5K
R12 10K
R13 330
R14 47
R15 47
R16 39
R17 4.7K
R18 33
R19 500
R23 75
R24 75
R25 2.2K
R26 75
R27 2.2K
R28 2.2K
R29 2.2K
R30 2.2K
R31 2.2K
R32 2.2K
R33 2.2K
R34 2.2K
R35 75
R36 2.2K
R37 470
R38 470
R39 2.2K
R40 INFINITY
R41 2.2K
R43 2.2K
R44 150
R45 220
R46 2.2K
R47 1K
R48 1K
R49 220
R50 220
R51 220
R52 1K
R53 200
R54 1K
R55 150
R56 1K
R57 47K
R58 500 CW
R59 10K
R60 4.7K
R61 200
R62 1K
R63 200
R64 100
R65 1K
R66 10K
R67 5K
R68 220
R69 47K
R70 0
R71 4.7K
R72 10K
R73 10K
R74 1K
R75 100
R76 10K
R77 2.2M
R78 2.2M
R79 100K
R80 1.2K
R81 2.2K
R82 10K
R83 2.2K
R84 1K
R85 510
R86 510
R87 4.7K
R88 1K
R90 1K
R91 47K
R92 2.2K
R93 470
R94 10K
R95 2.7K
R299 100
R300 75
R302 1K
R305 2.21K 1/10W 1%
R306 1K 1/10W 1%
C1 .01 uF
C2 .01 uF
C3 .01 uF
C6 .1
C7 .1
C8 .1
C9 .1
C10 270pF
C11 220pF
C12 .1
C13 240pF
C14 220pF
C15 .1
C16 .47
C17 47 20V
C18 .1
C19 .01
C20 1
C21 .001
C22 .001
C23 .1
C24 47 20V
C25 9-35pF
C26 0
C27 47 20V
C28 .1
C30 .001
C31 .01
C32 .1
C33 .1
C34 .47
C35 4.7
C36 .1
C37 100pF
C38 .1
C39 .1
C40 .1
C41 .1
C42 .1
C43 .1
C180 270pF
C181 1.8-10pF
C182 .1
C183 .1
C29 100pF
+12V BD
-12V BD
+5V BD
+12V
-12V
+5V
VIDEO
CW
NOTES:
1) ALL RESISTORS ARE 1/8W UNLESS OTHERWISE NOTED.
2) ALL CAPACITORS ARE uF UNLESS OTHERWISE NOTED.
3) ALL INDUCTORS ARE IN uH UNLESS OTHER WISE NOTED.
4) ALL IC'S ARE SURFACE MT EXCEPT MC7805CT, LM317T AND LM337T.
5) ALL TRANSISTORS ARE SURFACE MT.
6) ALL PASSIVE COMPONENTS ARE SURFACE MOUNT EXCEPT: SWITCHES, VARIABLE CAPS, COILS, POTS, MV209 , MVAM108, DIPPED MICA CAPS, LEDS, CONNECTORS.
7) J1 IS A 96 PIN DIN.
8) VIA 3, 4, 5, & 6 CONNECTS IF GND TO MAIN GND.
9) VIA 1 & 2 CONNECTS VID GND TO MAIN GND.
10) VIA 7 & 8 CONNECTS AUDIO GND TO MAIN GND.
11) W7 CONNECTS J12-J14.
12) W8 CONNECTS J13-J17.
13) W9 CONNECTS J18-J21.
14) W10 CONNECTS J19-J20.
R21, R22, R37 & R38 WERE 1K. C25 WAS 0ohm. U25 & U26 WERE MAV-11. R217, R218, R230 & R236 WERE 100 OHM.R170 WAS 200 OHM. J41 WAS J1. ADDED R299 - R3021, C181 - C195, U131-U133, CR40, CR41, VIA 1 & VIA 2. ADD +12V @ R71, R74 CONN. REM. U22 PIN 12 TO PIN 13 CONN. REM. SW10-1 TO SW11-8 CONN. CONN SW10-1 TO U22-13. DEL R220 & R237. ADDED NOTE *EXTERNAL CABLE ASSY. FOR W7-W10 CONN. JKF
B0 20110968 9/3/03 LRT
Axcera
REV ECO DATE APV
THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION
TITLE SCH., ANALOG MODULATOR BD., SYS. M/N (1301797)
MATERIAL -----
FINISH -----
DWN JKF 2/20/03
CHK LRT 2/20/03
REL LRT 2/20/03
DWG. NO. 1301798
REV B0
D
SCALE ---
SHEET 1 OF 3

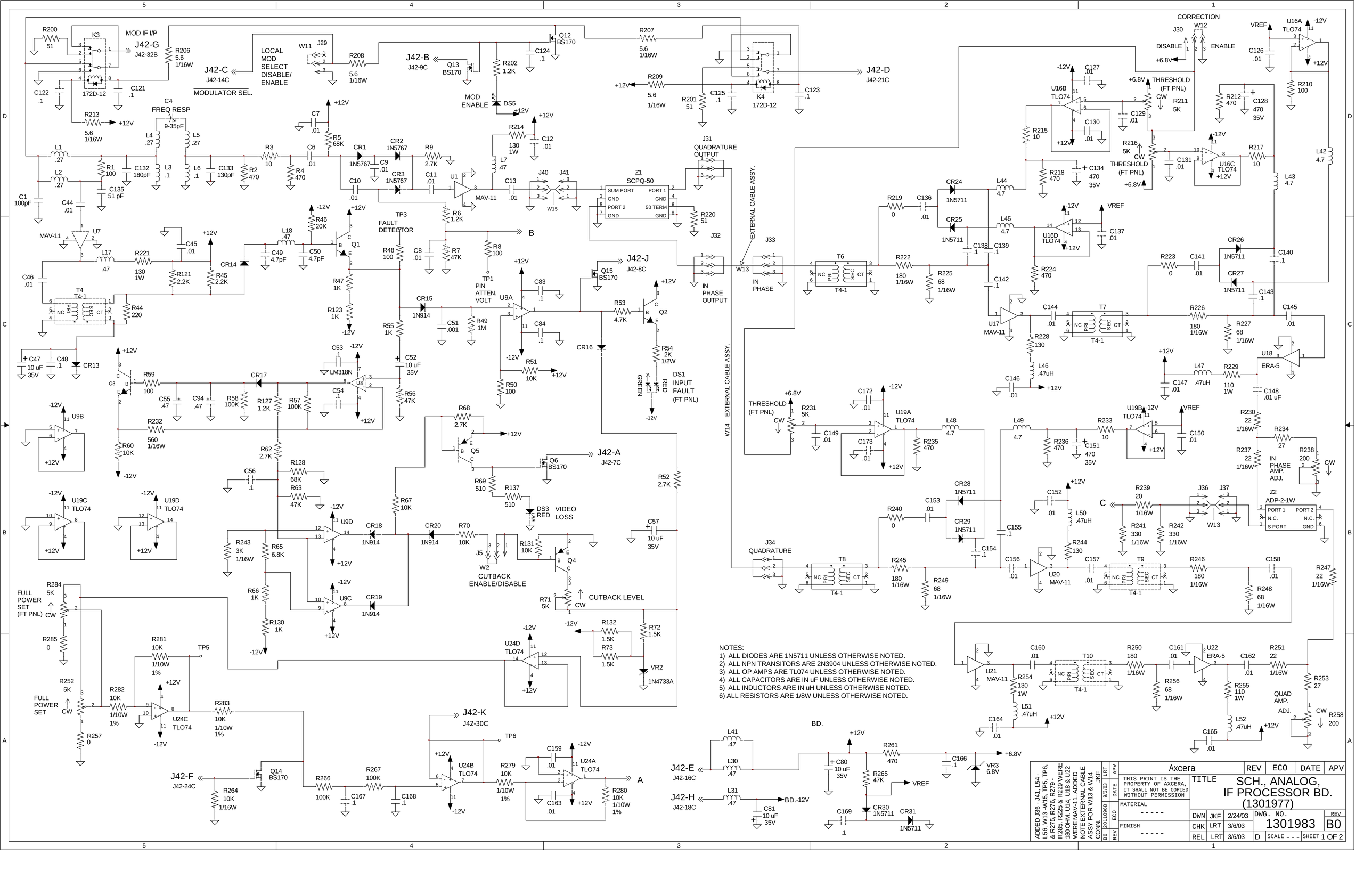


APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., ANALOG MODULATOR BD., SYS. M/N (1301797)		
ECO	MATERIAL -----	DWN	JKF	2/20/03	DWG. NO. 1301798 REV B0
REV	FINISH -----	CHK	LRT	2/20/03	
		REL	LRT	2/20/03	D SCALE --- SHEET 2 OF 3

LAST USED
C195
CR41
DS7
FL1
HR1
J41
K2
L41
Q26
R321
SW12
T4
TP3
U33
VIA2
VR2
W11
Y1
Z2

"N" (PG 2)
"M" (PG 2)
"H" (PG 1)
"WA" (PG 1)
* EXTERNAL CABLE ASSY.
"J" (PG 1)
"F" (PG 1)
"K" (PG 1)
"WC" (PG 1)
"WB" (PG 1)
"G" (PG 1)
LOW=TOO HIGH
LO=TOO LOW
LOW=TOO HIGH
AUR LEVEL (FT PNL)
AURAL PULSE ADJ.
AUR IF O/P
VIS IF I/P
VIS IF O/P
DS5 AUR UNLOCK (FT PNL)
DS6 VIS. UNLOCK (FT PNL)
DS7 ALT IF (FT PNL)
PLL LOCK BAL.
PLL UNLOCKED
HI=ALT IF
FREQ RESP
O/P SAMPLE (FT PNL)
IF SAMPLE
ICPM
INTERLOCK
BASEBAND AUDIO (+)
AUDIO (-)
AUR. DEV. LVL
O/P SIG. LEVEL
EXT. CW PRES.
COMP. AUD. (-)
COMP. AUD. (+)
SAP/PRO AUDIO (+)
(-)
VIDEO I/P (-)
VIDEO I/P (+)
STATION ID CNTRL
SPARE AUX.
I/O_3
I/O_4
CW IF I/P
IF CW
IF CW
913289

	Axcera	REV	ECO	DATE	APV
APV	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., ANALOG MODULATOR BD., SYS. M/N (1301797)		
DATE	MATERIAL -----	DWN	JKF	2/20/03	DWG. NO. 1301798 REV B0
ECO	FINISH -----	CHK	LRT	2/20/03	
REV		REL	LRT	2/20/03	D SCALE --- SHEET 3 OF 3


J42-G
J42-32B
MOD IF I/P
J42-C
J42-14C
LOCAL MOD SELECT DISABLE/ ENABLE
MODULATOR SEL.
J42-B
J42-9C
J42-D
J42-21C
J42-A
J42-7C
J42-J
J42-8C
J42-K
J42-30C
J42-E
J42-16C
J42-F
J42-24C
J42-H
J42-18C
EXTERNAL CABLE ASSY.
W14 EXTERNAL CABLE ASSY.
MOD ENABLE
QUADRATURE OUTPUT
IN PHASE OUTPUT
IN PHASE
FAULT DETECTOR
PIN ATTEN. VOLT
DS1 INPUT FAULT (FT PNL)
DS3 VIDEO LOSS
CUTBACK ENABLE/DISABLE
CUTBACK LEVEL
FULL POWER SET (FT PNL)
FULL POWER SET
CORRECTION
DISABLE
ENABLE
THRESHOLD (FT PNL)
IN PHASE AMP. ADJ.
QUAD AMP. ADJ.
SCPQ-50
MAV-11
TLO74
LM318N
ERA-5
ADP-2-1W
172D-12
T4-1
BD.
NOTES:
1) ALL DIODES ARE 1N5711 UNLESS OTHERWISE NOTED.
2) ALL NPN TRANSITORS ARE 2N3904 UNLESS OTHERWISE NOTED.
3) ALL OP AMPS ARE TL074 UNLESS OTHERWISE NOTED.
4) ALL CAPACITORS ARE IN uF UNLESS OTHERWISE NOTED.
5) ALL INDUCTORS ARE IN uH UNLESS OTHERWISE NOTED.
6) ALL RESISTORS ARE 1/8W UNLESS OTHERWISE NOTED.
ADDED J36 - J41, L54 - L56, W13 -W15, TP5, TP6, & R275, R276, R279 - R285. R225 & R229 WERE 130OHM. U14, U18 & U22 WERE MAV-11. ADDED NOTE EXTERNAL CABLE ASSY FOR W13 & W14 CONN. JKF
B0 20110988
Axcera
THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION
TITLE
SCH., ANALOG, IF PROCESSOR BD. (1301977)
MATERIAL
FINISH
DWN JKF 2/24/03
CHK LRT 3/6/03
REL LRT 3/6/03
DWG. NO. 1301983
REV B0
SCALE
D
SHEET 1 OF 2

LAST USED REF.

C173
R275
W15
DS5
L56
CR31
J41
Q15
U24
TP4
VR3
K4
T10
Z2
S2

C
B
A

-12V U10B +12V
R92 220
R204 39
C69 .01
R203 470
R205 470
+12V
T5 T9-1
C70 .01
R91 2.2K
R168 6.81K 1/10W 1%
R189 1K
R116 470
CR23
U12 MAV-11
L26 .47
R269 130 1W
C68 .01
L25 .27
C170 200pF
C67 .01
R89 100
L24 .27
C65 100pF
C100 100pF
R100 10
R97 10
R98 27
O/P LEVEL
R99 200
CW
R271 5.6 1/16W
R104 10
R107 10
R272 5.6 1/16W
C73 .01
J38
J39
W14
R102 47
R105 47
R273 47
R103 500 (FT PNL) CW
R106 500 (FT PNL) CW
R274 500 (FT PNL) CW
L27 2.7
L54 2.7
L28 2.7
L55 2.7
L53 2.7
L56 2.7
C71 2-8pF
C72 2-8pF
C171 2-8pF
FREQ RESP
U10C -12V +12V
+12V
R270 130 1W
C74 .01
L29 .47
U13 MAV-11
C75 .01
U14 ERA-5
C85 .01
R109 470
R110 47
J35 IF SAMPLE (FT PNL) SMA
C86 .01
R275 110 1W
L32 .47

J42-E
J42-H
J42-A
J42-J
J42-B
J42-C
J42-E
J42-H
J42-D
J42-F
J42-K
J42-G

VIA4204

J42C
1C IF 2 UC
2C
3C
4C VIA 4204
5C
6C ALC AUTO/MAN. SW
7C MODULATION PRES.
8C INPUT FAULT
9C SELECTED IF SOURCE
10C MUTE COMMAND
11C ALC VOLTAGE
12C INTERLOCK
13C BOARD TYPE
14C IF SIGNAL SELECT
15C
16C +12VDC_C4
17C
18C -12VDC_C1
19C
20C
21C MODULATED IF INPUT
22C
23C
24C IF POWER CONTROL
25C
26C
27C
28C
29C
30C DLC VOLTAGE
31C
32C
913289

J42B
1B
2B
3B
4B
5B
6B
7B
8B
9B
10B
11B
12B
13B
14B
15B
16B +12VDC_C4
17B
18B -12VDC_C1
19B
20B
21B
22B
23B
24B
25B
26B
27B
28B
29B
30B
31B
32B MOD. IF OUTPUT
913289

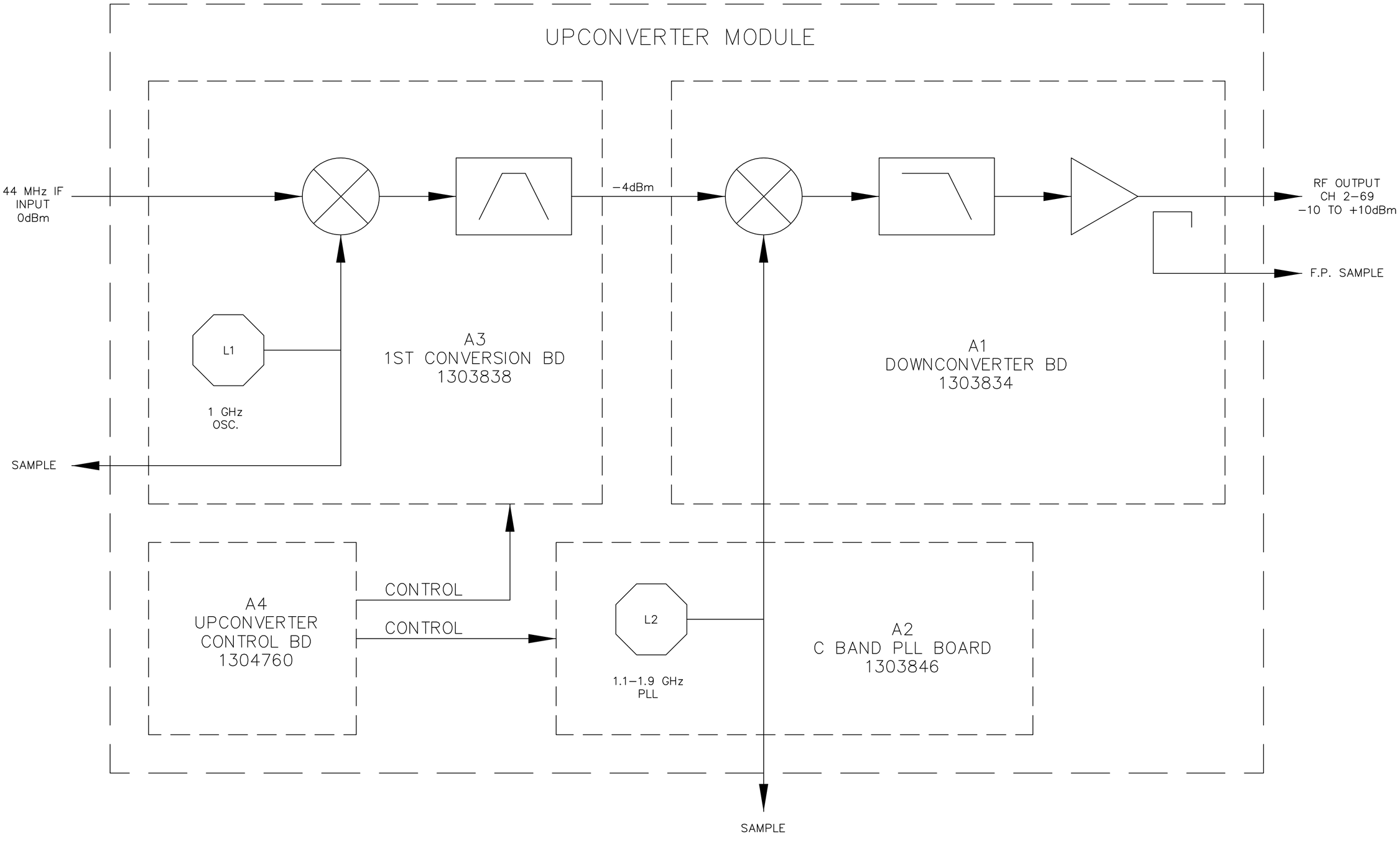
J42A
1A
2A
3A
4A
5A
6A
7A
8A
9A
10A
11A
12A
13A
14A
15A
16A +12VDC_C4
17A
18A -12VDC_C1
19A
20A
21A
22A
23A
24A
25A
26A
27A
28A VIA
29A VIA
30A
31A
32A
913289
VIA4204 1
VIA4204 1

B
R88 470
L19 4.7
CR22 1N914
U11 4N25
R79 1M
DS4 RED
GREEN MUTE (FT PNL)
R78 1.5K
R139 1.5K
+12V
-12V

(FT PNL) MANUAL GAIN
+12V
R87 5K
CW
SW1 SWW246CD7 (FT PNL)
MANUAL
AUTO
TP4 ALC VOLT.
R93 100
R94 220

C58 .47
R86 51
-12V
R82 2.2M
U10D
R85 2K 1/2W
DS2 RED
GREEN ALC FAULT (FT PNL)
+12V
-12V
R77 47K 1/16W
C59 .1
R84 2.7K
+12V
R276 47K 1/16W
U10A
R83 10K
C60 .1
-12V
R80 10K
CR21 1N914
C61 .47
R81 15K

APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., ANALOG, IF PROCESSOR BD. (1301977)		
ECO	MATERIAL -----	DWN	JKF	2/24/03	DWG. NO. 1301983 REV B0
REV	FINISH -----	CHK	LRT	3/6/03	
		REL	LRT	3/6/03	D SCALE --- SHEET 2 OF 2



REV	ECO	DATE	APV

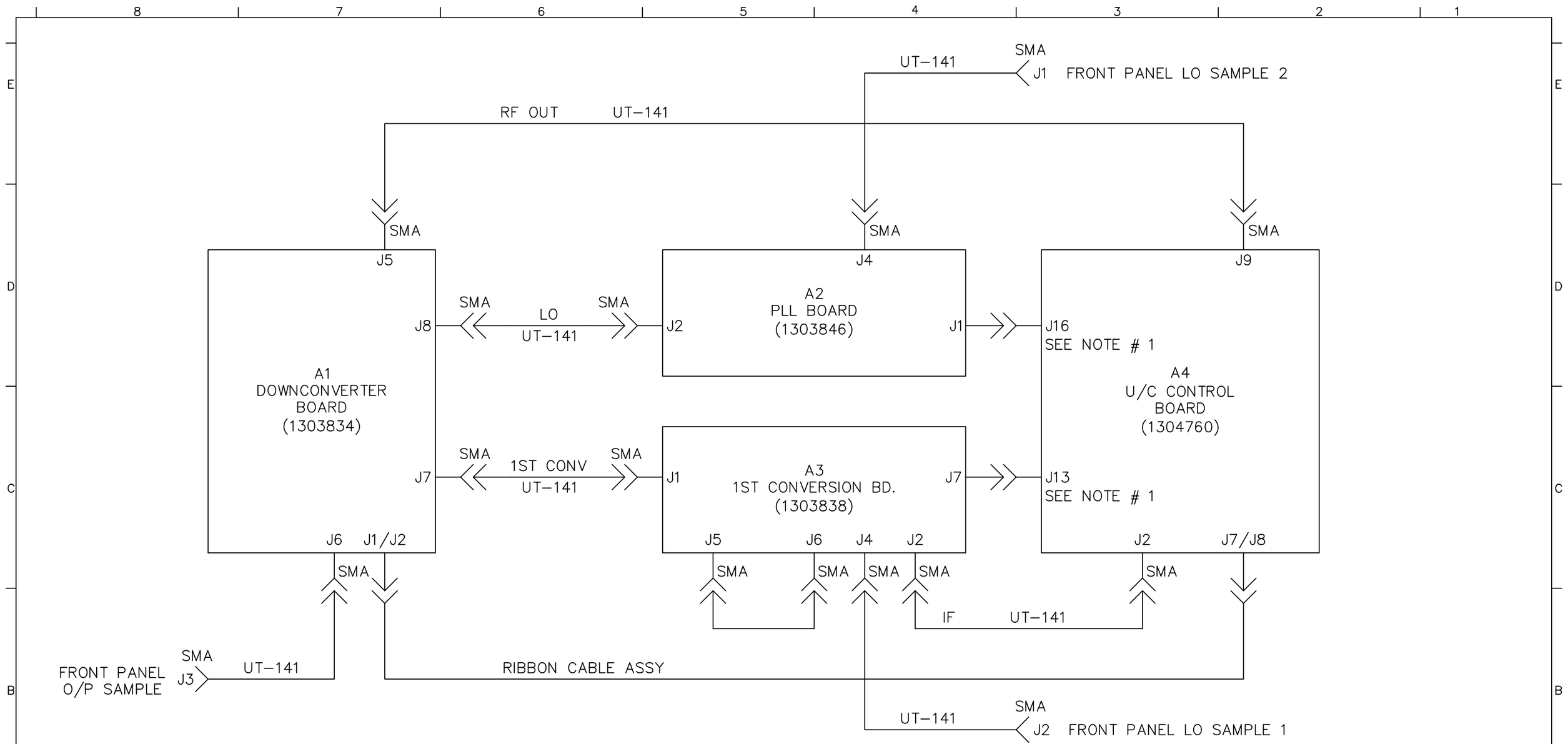
Axcera®

MATERIAL
−−−−−

FINISH
−−−−−

TITLE
B/D,
U/C ASSEMBLY,
VHF/UHF LX

			DWG. NO.	REV
DWN	RGE	5/7/04	1303830	A0
CHK	DWB	9/30/04		
REL	DWB	9/30/04	C SCALE −−−	SHEET 1 OF 1



NOTES:
1. CONNECTORS ARE BOARD TO BOARD AND NOT PART OF THE HARNESS.

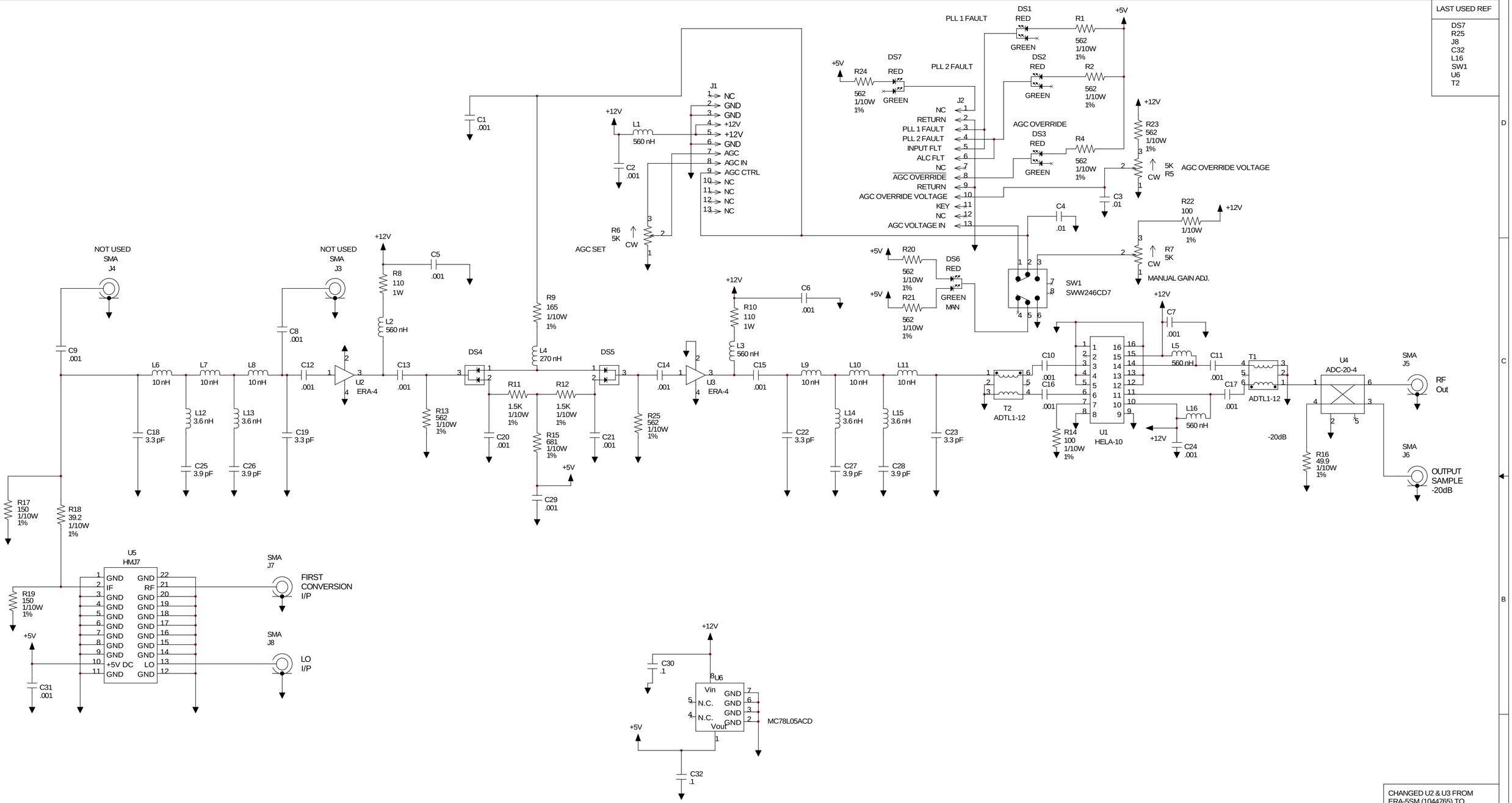
REV	ECO	DATE	APV

MATERIAL
———

FINISH
———

TITLE
I/C,
UPCONVERTER ASSY,
VHF/UHF, LX

DWN	RGE	04/06/04	DWG. NO.		REV
CHK	DWB	9/30/04	1303831		A0
REL	DWB	9/30/04	B	SCALE ———	SHEET 1 OF 1



NOTE:
1) ALL RESISTORS ARE 1/8W UNLESS OTHERWISE NOTED.
2) ALL CAPACITORS ARE IN uF UNLESS OTHERWISE NOTED.
3) ALL INDUCTORS ARE IN uH UNLESS OTHERWISE NOTED.

REV	ECO	DATE	APV
B0	20111535	10/4/04	DB
ADDED R25, CHANGED CONN. TO SW1, R22 WAS 562. JKF			
C0	20111572	11/8/04	DB
CHANGED U2 & U3 FROM ERA-5SM (1044765) TO ERA-4SM (15906249SMT). JKF			

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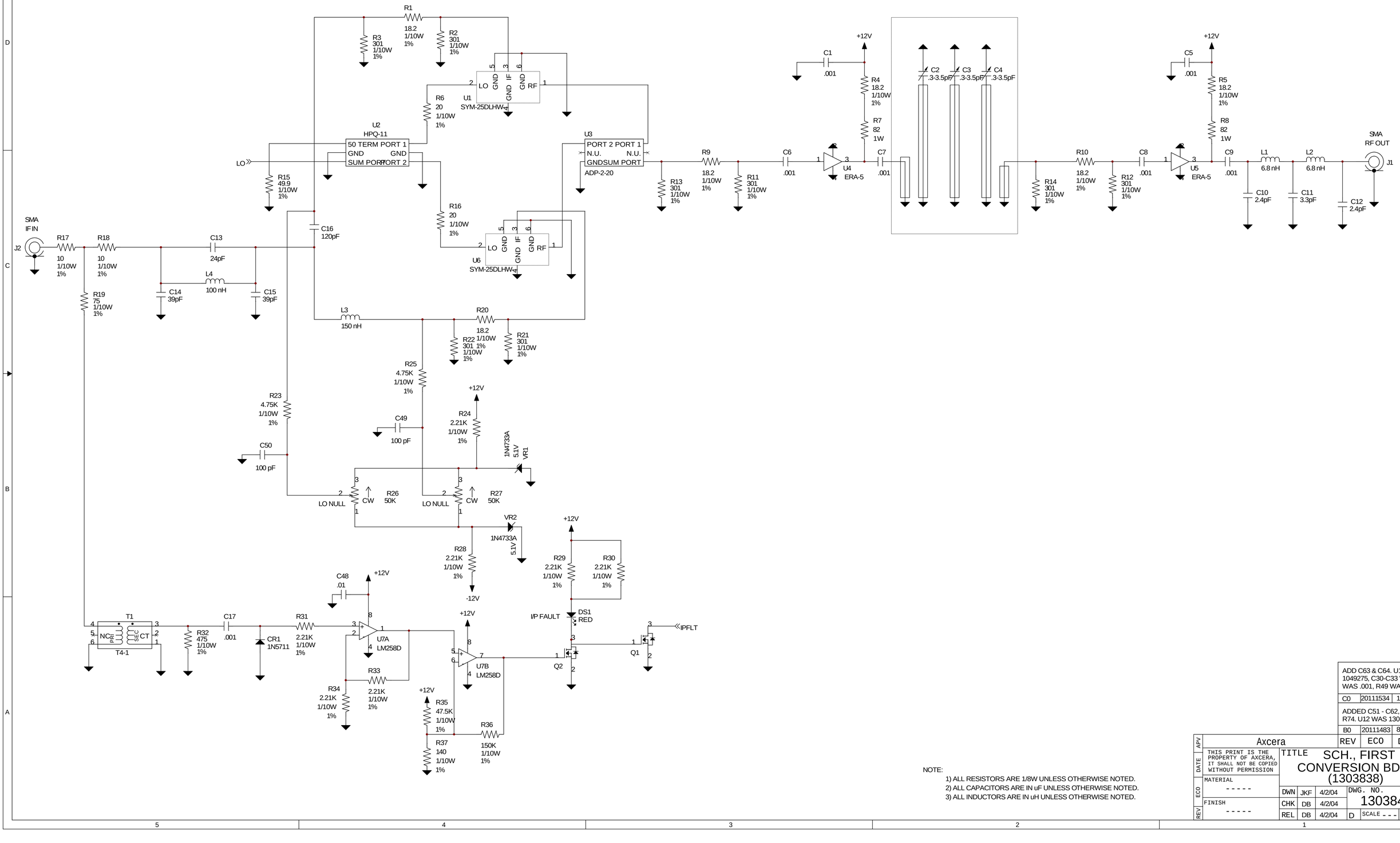
MATERIAL: -----

FINISH: -----

TITLE: PCB, DOWNCONVERTER BD. (1303834)

DWN	JKF	2/20/04	DWG. NO. 1303836 REV C0
CHK	DB	2/26/04	
REL	DB	2/26/04	D SCALE --- SHEET 1 OF 1



NOTE:

1) ALL RESISTORS ARE 1/8W UNLESS OTHERWISE NOTED.
2) ALL CAPACITORS ARE IN uF UNLESS OTHERWISE NOTED.
3) ALL INDUCTORS ARE IN uH UNLESS OTHERWISE NOTED.

REV	ECO	DATE	APV
C0	20111534	10/4/04	DB
B0	20111483	8/12/04	DB

ADD C63 & C64. U14 WAS 1049275, C30-C33 WAS .47, C45 WAS .001, R49 WAS 121. JKF

ADDED C51 - C62, L7, L8, R73 & R74. U12 WAS 1303726. JKF

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TITLE: SCH., FIRST CONVERSION BD., LX (1303838)

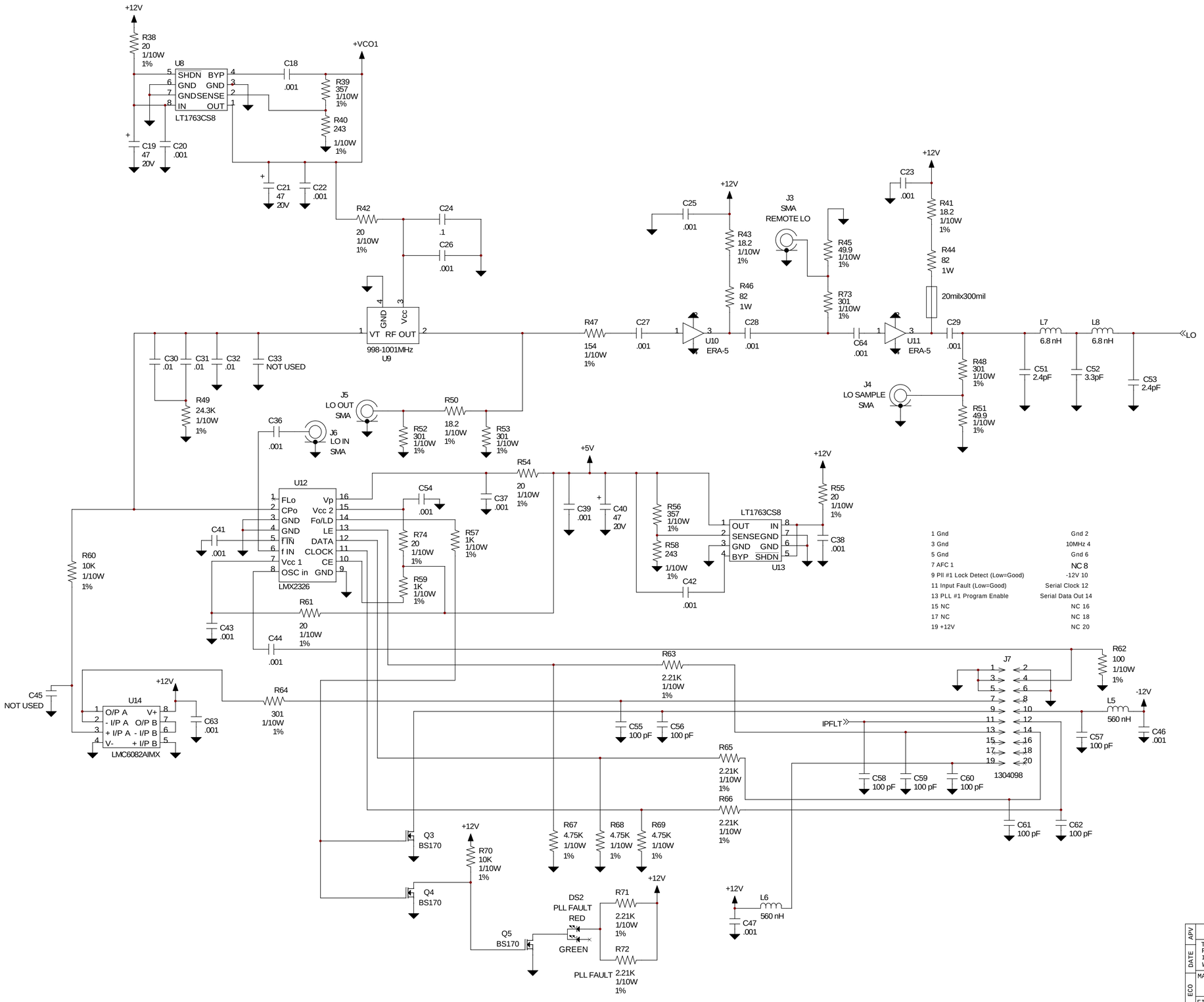
MATERIAL: - - - - -

FINISH: - - - - -

DWN	JKF	4/2/04	
CHK	DB	4/2/04	
REL	DB	4/2/04	

DWG. NO. 1303840 REV C0

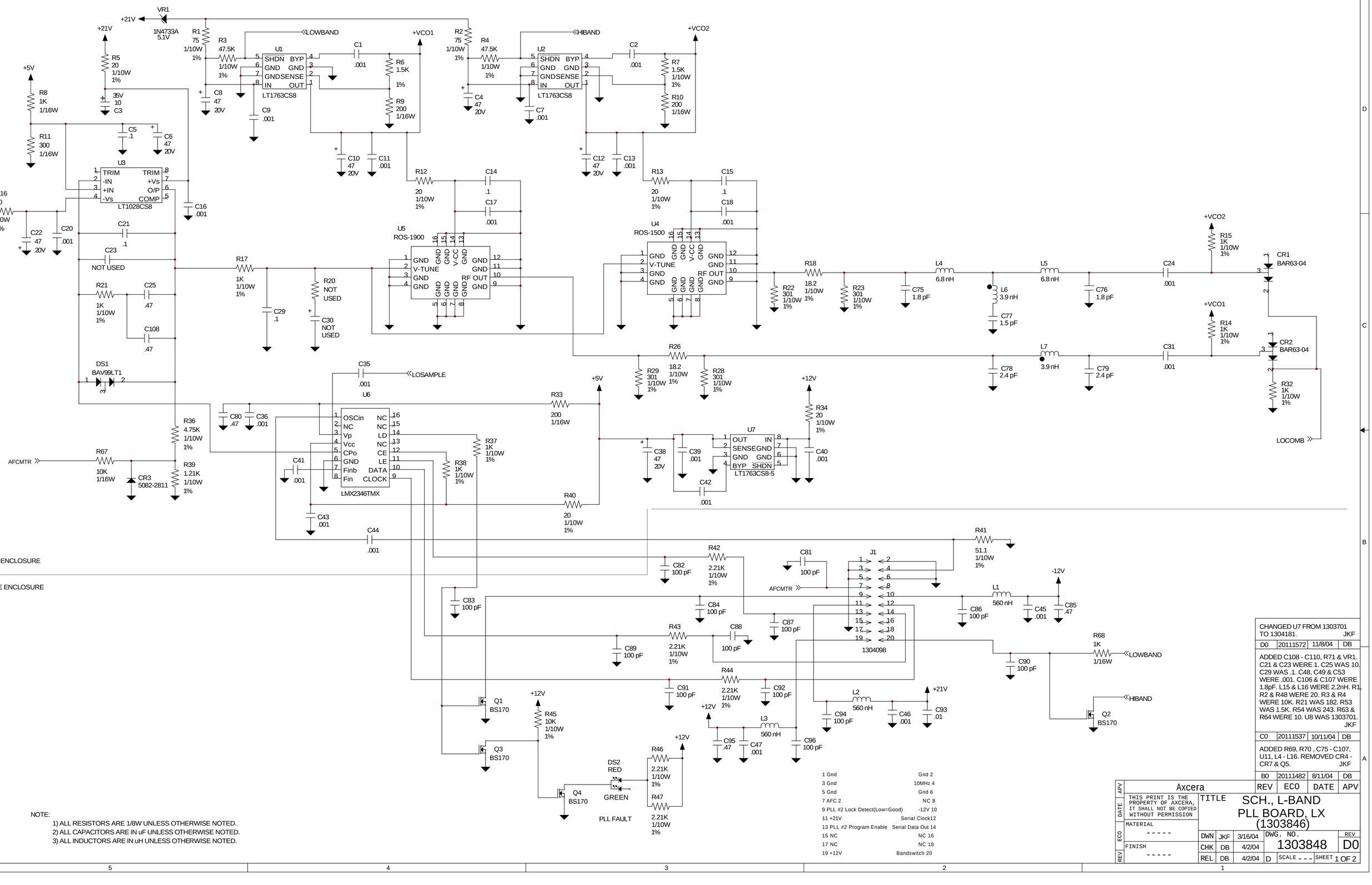
D SCALE - - - SHEET 1 OF 2



LAST USED REF

L8
U14
C64
J7
R74
Q5
DS2
VR2
CR1
T1

APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., FIRST CONVERSION BD., LX (1303838)		
ECO	MATERIAL -----	DWN	JKF	4/2/04	DWG. NO. 1303840 REV C0
	FINISH -----	CHK	DB	4/2/04	
REV		REL	DB	4/2/04	D SCALE --- SHEET 2 OF 2



NOTE:

1) ALL RESISTORS ARE 1/8W UNLESS OTHERWISE NOTED.
2) ALL CAPACITORS ARE IN uF UNLESS OTHERWISE NOTED.
3) ALL INDUCTORS ARE IN uH UNLESS OTHERWISE NOTED.

REV	ECO	DATE	APV
		CHANGED U7 FROM 1303701 TO 1304181. JKF	
D0	20111572	11/8/04	DB
		ADDED C108 - C110, R71 & VR1. C21 & C23 WERE 1. C25 WAS 10. C29 WAS .1. C48, C49 & C53 WERE .001. C106 & C107 WERE 1.8pF. L15 & L16 WERE 2.2nH. R1, R2 & R48 WERE 20. R3 & R4 WERE 10K. R21 WAS 182. R53 WAS 1.5K. R54 WAS 243. R63 & R64 WERE 10. U8 WAS 1303701. JKF	
C0	20111537	10/11/04	DB
		ADDED R69, R70 , C75 - C107, U11, L4 - L16. REMOVED CR4 - CR7 & Q5. JKF	
B0	20111482	8/11/04	DB

Axcera

TITLE: SCH., L-BAND PLL BOARD, LX (1303846)

MATERIAL: - - - - -

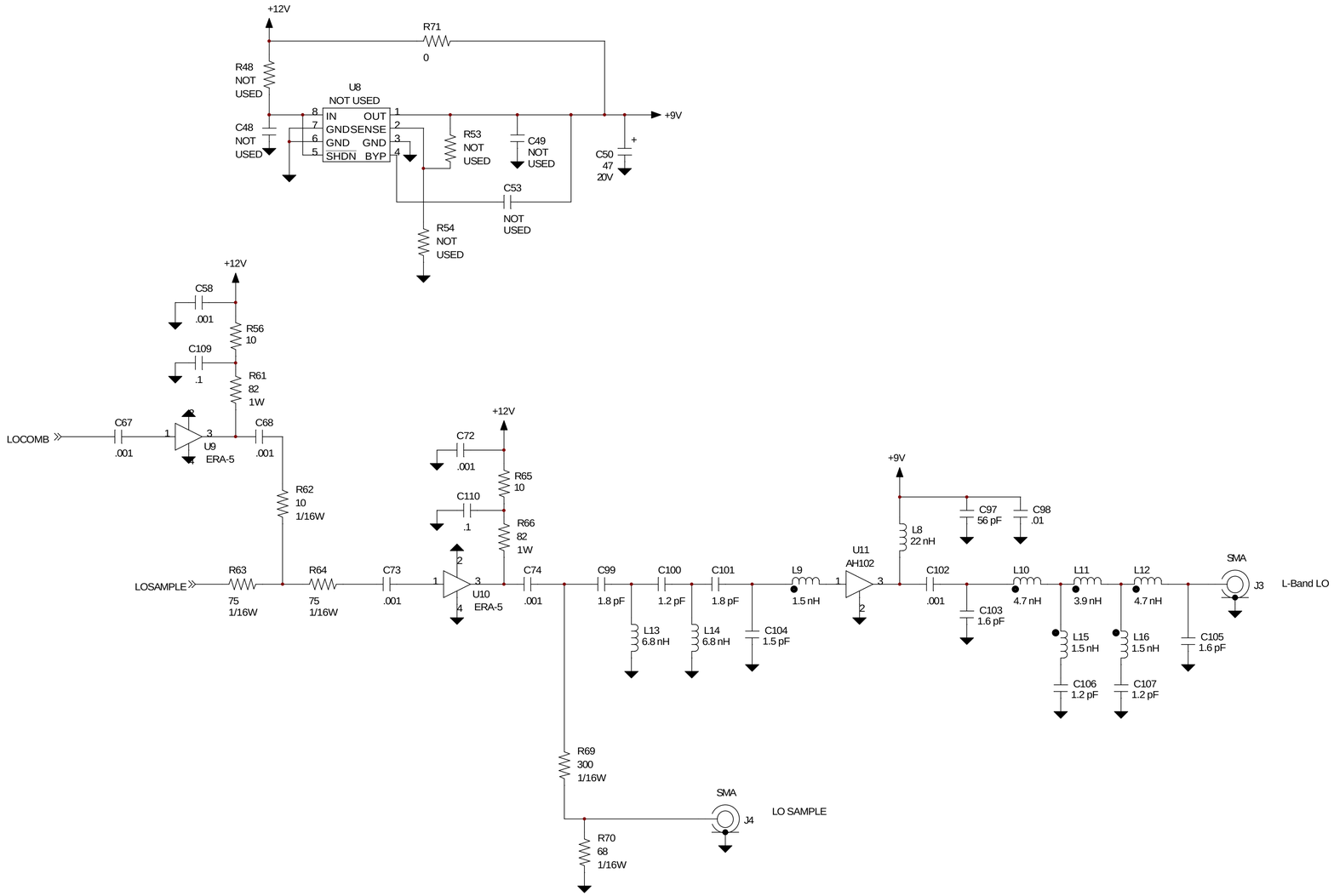
FINISH: - - - - -

DWN	JKF	3/16/04	
CHK	DB	4/2/04	
REL	DB	4/2/04	

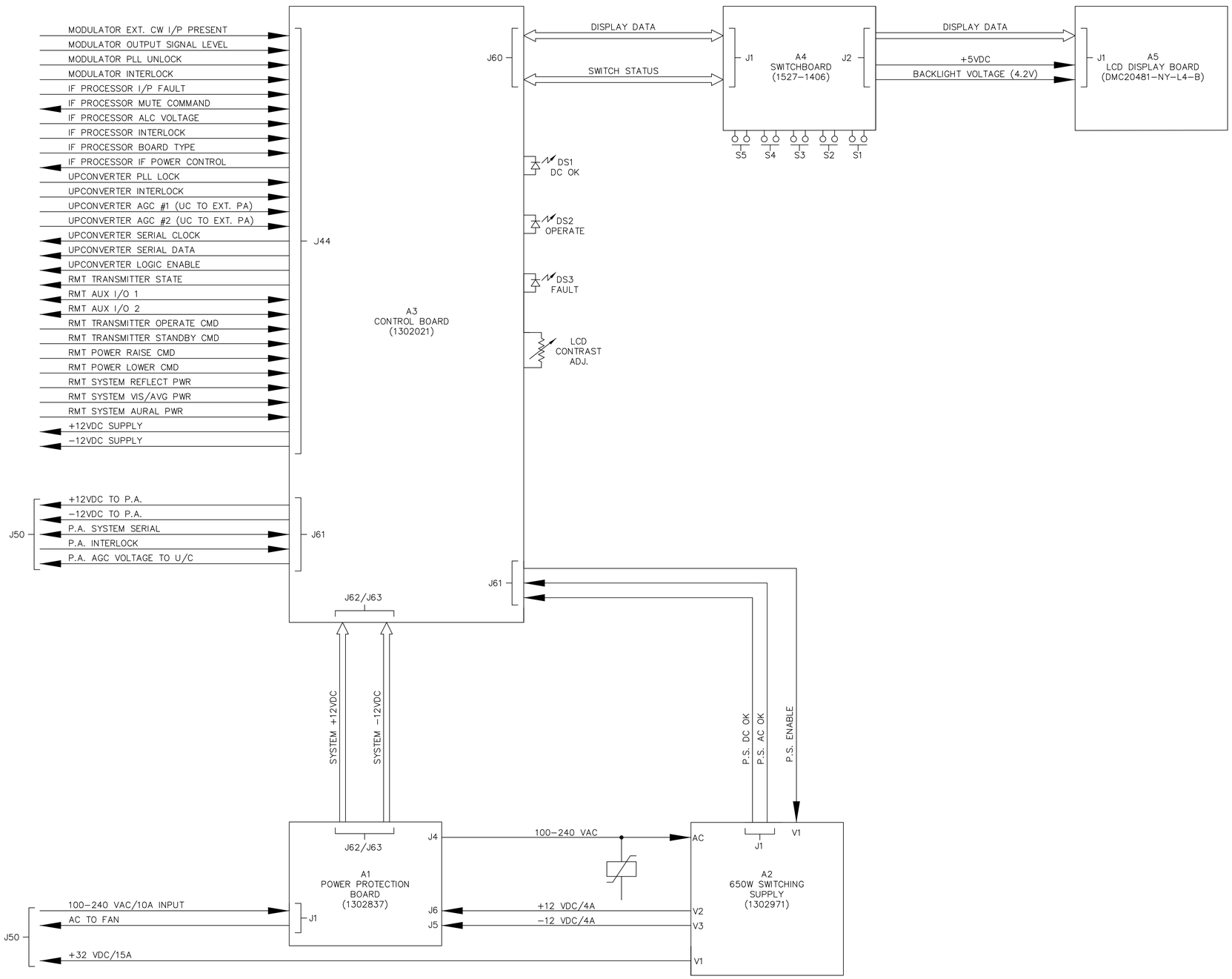
DWG. NO. 1303848 REV D0

D SCALE - - - SHEET 1 OF 2

LAST USED REF
C110
L16
U11
R71
J4
Q4
CR3
DS2
VR1



APV	Axcera		REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., L-BAND PLL BOARD, LX (1303846)			
ECO	MATERIAL -----	DWN	JKF	3/16/04	DWG. NO.	REV
		CHK	DB	4/2/04	1303848	D0
REV	FINISH -----	REL	DB	4/2/04	D	SCALE --- SHEET 2 OF 2



REV	ECO	DATE	APV

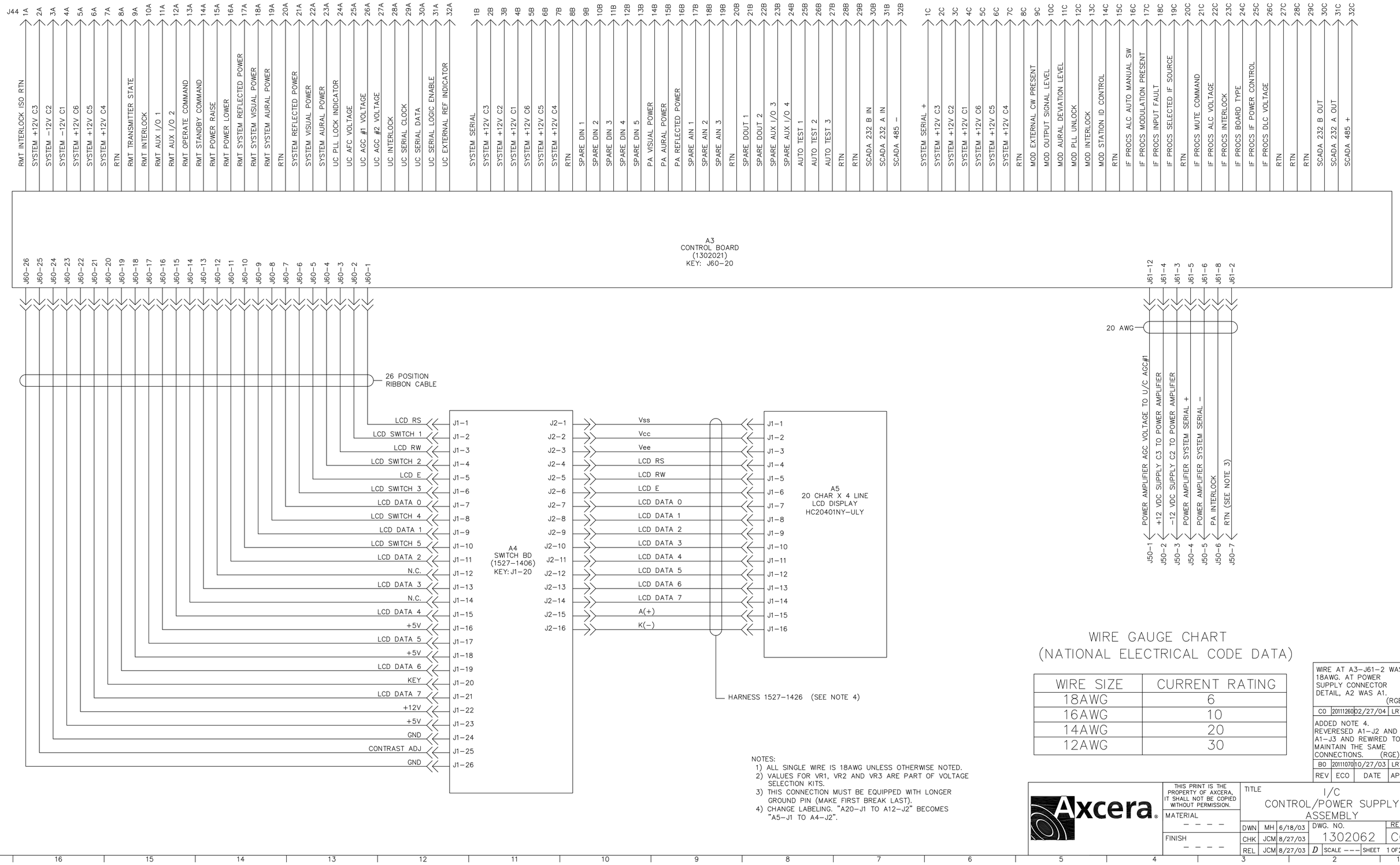
Axcera

MATERIAL
−−−−−

FINISH
−−−−−

TITLE
B/D,
CONTROL/POWER SUPPLY
ASSEMBLY, INNOVATOR LX

			DWG. NO.	REV.
DWN	RGE	1/28/04	1303889	A0
CHK	JCM	2/2/04		
REL	JCM	2/2/04	D SCALE −−−	SHEET 1 OF 1



WIRE GAUGE CHART
(NATIONAL ELECTRICAL CODE DATA)

WIRE SIZE	CURRENT RATING
18AWG	6
16AWG	10
14AWG	20
12AWG	30

NOTES:
1) ALL SINGLE WIRE IS 18AWG UNLESS OTHERWISE NOTED.
2) VALUES FOR VR1, VR2 AND VR3 ARE PART OF VOLTAGE SELECTION KITS.
3) THIS CONNECTION MUST BE EQUIPPED WITH LONGER GROUND PIN (MAKE FIRST BREAK LAST).
4) CHANGE LABELING. "A20−J1 TO A12−J2" BECOMES "A5−J1 TO A4−J2".

REV	ECO	DATE	APV
C0	20111260	02/27/04	LRT

WIRE AT A3−J61−2 WAS 18AWG. AT POWER SUPPLY CONNECTOR DETAIL, A2 WAS A1. (RGE)

REV	ECO	DATE	APV
B0	20111070	10/27/03	LRT

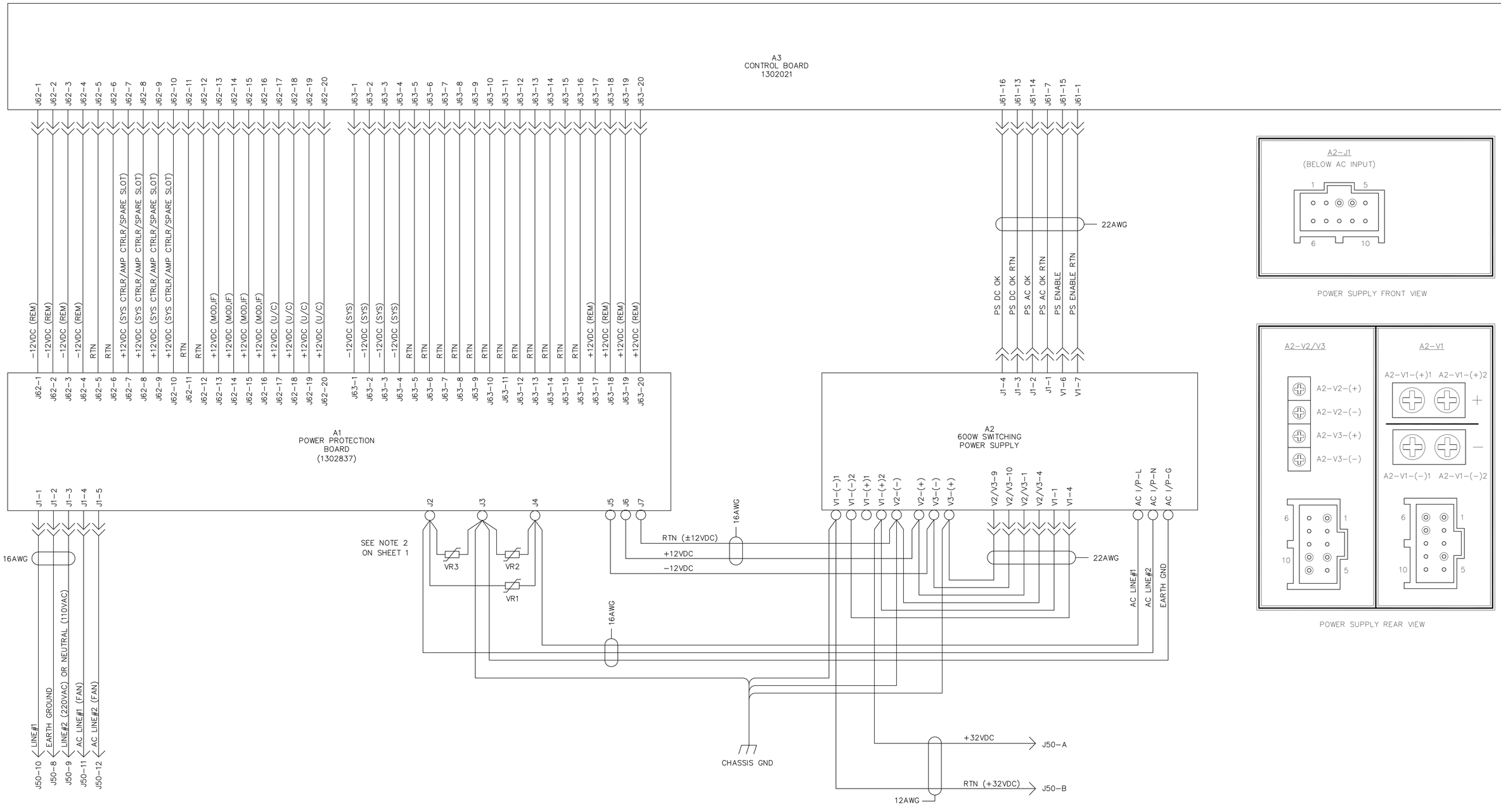
ADDED NOTE 4. REVERESED A1−J2 AND A1−J3 AND REWIRED TO MAINTAIN THE SAME CONNECTIONS. (RGE)

MATERIAL − − − −

FINISH − − − −

TITLE I/C CONTROL/POWER SUPPLY ASSEMBLY

DWN	MH	6/18/03	DWG. NO. 1302062 REV C0
CHK	JCM	8/27/03	
REL	JCM	8/27/03	D SCALE −−− SHEET 1 OF 2



REV	ECO	DATE	APV

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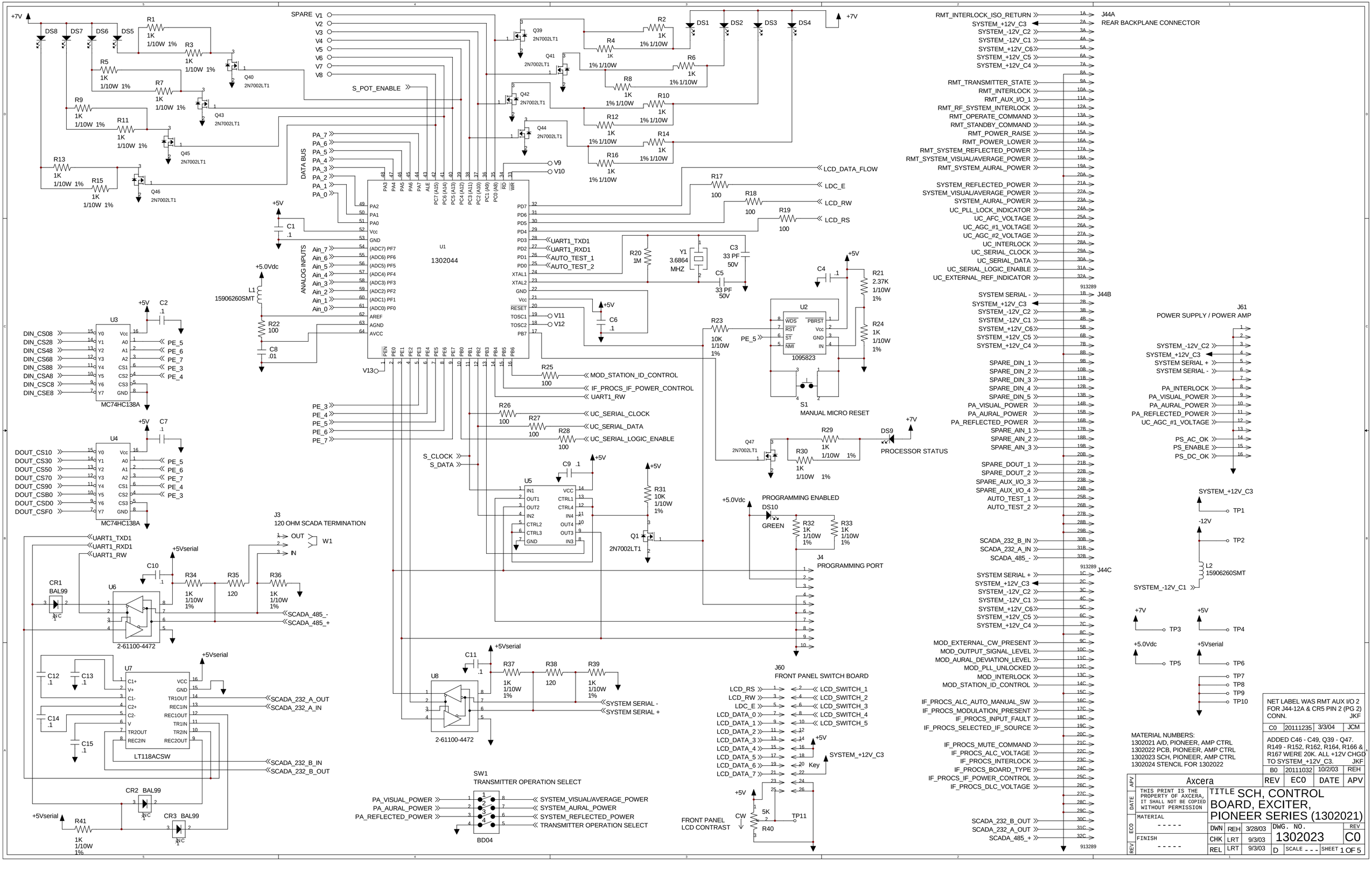
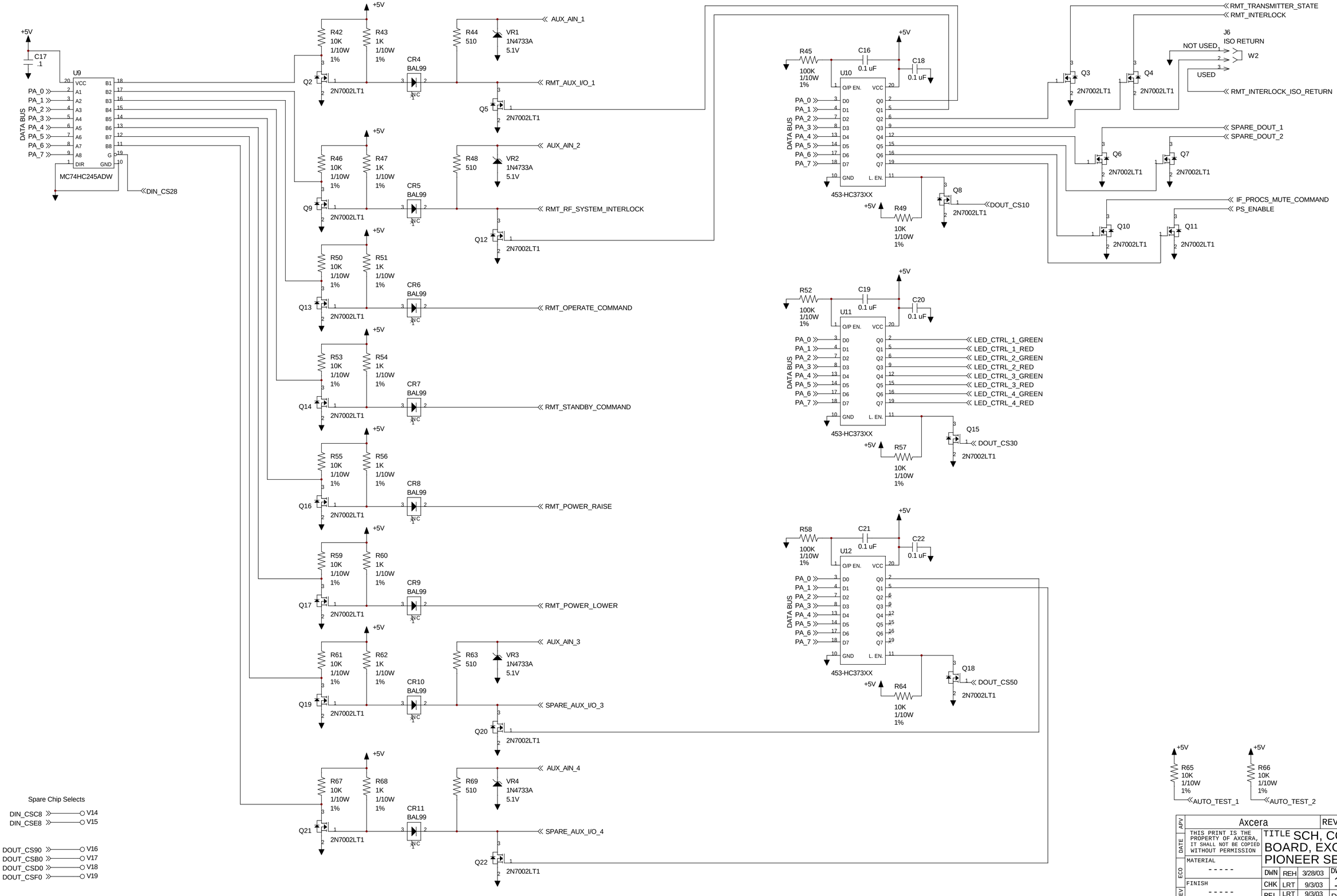
MATERIAL — — — —

FINISH — — — —

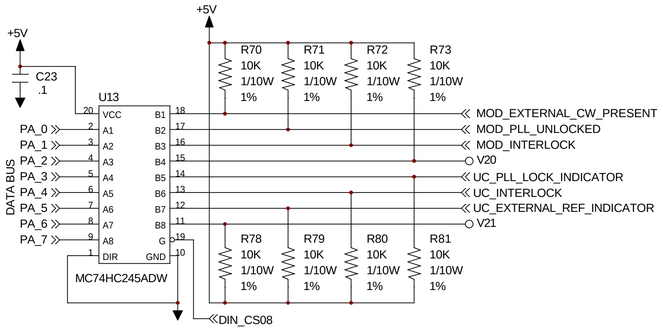
TITLE I/C
CONTROL/POWER SUPPLY ASSEMBLY

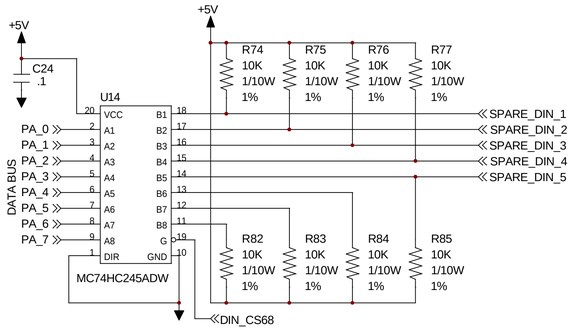
DWN	MH	6/18/03	DWG. NO. 1302062 REV C0
CHK	JCM	8/27/03	
REL	JCM	8/27/03	D SCALE --- SHEET 2OF2

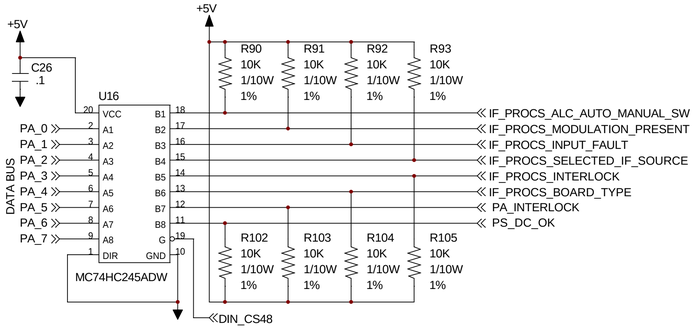

+7V
DS8
DS7
DS6
DS5
R1 1K 1/10W 1%
R3 1K 1/10W 1%
R5 1K 1/10W 1%
R7 1K 1/10W 1%
R9 1K 1/10W 1%
R11 1K 1/10W 1%
R13 1K 1/10W 1%
R15 1K 1/10W 1%
Q40 2N7002LT1
Q43 2N7002LT1
Q45 2N7002LT1
Q46 2N7002LT1
SPARE V1
V2
V3
V4
V5
V6
V7
V8
S_POT_ENABLE
Q39 2N7002LT1
Q41 2N7002LT1
Q42 2N7002LT1
Q44 2N7002LT1
R2 1K 1% 1/10W
R4 1K 1% 1/10W
R6 1K 1% 1/10W
R8 1K 1% 1/10W
R10 1K 1% 1/10W
R12 1K 1% 1/10W
R14 1K 1% 1/10W
R16 1K 1% 1/10W
DS1
DS2
DS3
DS4
+7V
DATA BUS
PA_7
PA_6
PA_5
PA_4
PA_3
PA_2
PA_1
PA_0
V9
V10
LCD_DATA_FLOW
LDC_E
LCD_RW
LCD_RS
R17 100
R18 100
R19 100
+5V
C1 .1
ANALOG INPUTS
Ain_7
Ain_6
Ain_5
Ain_4
Ain_3
Ain_2
Ain_1
Ain_0
U1
1302044
PA2
PA1
PA0
Vcc
GND
(ADC7) PF7
(ADC6) PF6
(ADC5) PF5
(ADC4) PF4
(ADC3) PF3
(ADC2) PF2
(ADC1) PF1
(ADC0) PF0
AREF
AGND
AVCC
PD7
PD6
PD5
PD4
PD3
PD2
PD1
PD0
XTAL1
XTAL2
GND
Vcc
RESET
TOSC1
TOSC2
PB7
UART1_TXD1
UART1_RXD1
AUTO_TEST_1
AUTO_TEST_2
R20 1M
Y1 3.6864 MHZ
C3 33 PF 50V
C5 33 PF 50V
+5V
C6 .1
+5.0Vdc
L1 15906260SMT
R22 100
C8 .01
V13
V11
V12
R23 10K 1/10W 1%
R25 100
R26 100
R27 100
R28 100
MOD_STATION_ID_CONTROL
IF_PROCS_IF_POWER_CONTROL
UART1_RW
UC_SERIAL_CLOCK
UC_SERIAL_DATA
UC_SERIAL_LOGIC_ENABLE
PE_3
PE_4
PE_5
PE_6
PE_7
S_CLOCK
S_DATA
U5
IN1
OUT1
OUT2
IN2
CTRL2
CTRL3
GND
VCC
CTRL1
CTRL4
IN4
OUT4
OUT3
IN3
C9 .1
R31 10K 1/10W 1%
Q1 2N7002LT1
+5V
C4 .1
U2
WDS
RST
ST
NMI
PBRST
Vcc
GND
IN
1095823
R21 2.37K 1/10W 1%
R24 1K 1/10W 1%
PE_5
S1
MANUAL MICRO RESET
Q47 2N7002LT1
R29 1K 1/10W 1%
R30 1K 1/10W 1%
DS9
PROCESSOR STATUS
+7V
+5.0Vdc
PROGRAMMING ENABLED
DS10
GREEN
R32 1K 1/10W 1%
R33 1K 1/10W 1%
J4
PROGRAMMING PORT
J60
FRONT PANEL SWITCH BOARD
LCD_RS
LCD_RW
LDC_E
LCD_DATA_0
LCD_DATA_1
LCD_DATA_2
LCD_DATA_3
LCD_DATA_4
LCD_DATA_5
LCD_DATA_6
LCD_DATA_7
LCD_SWITCH_1
LCD_SWITCH_2
LCD_SWITCH_3
LCD_SWITCH_4
LCD_SWITCH_5
Key
SYSTEM_+12V_C3
FRONT PANEL LCD CONTRAST
CW
5K
R40
TP11
U3
DIN_CS08
DIN_CS28
DIN_CS48
DIN_CS68
DIN_CS88
DIN_CSA8
DIN_CSC8
DIN_CSE8
MC74HC138A
PE_5
PE_6
PE_7
PE_3
PE_4
U4
DOUT_CS10
DOUT_CS30
DOUT_CS50
DOUT_CS70
DOUT_CS90
DOUT_CSB0
DOUT_CSD0
DOUT_CSF0
C2 .1
C7 .1
J3
120 OHM SCADA TERMINATION
OUT
IN
W1
UART1_TXD1
UART1_RXD1
UART1_RW
+5Vserial
C10 .1
R34 1K 1/10W 1%
R35 120
R36 1K 1/10W 1%
CR1 BAL99
U6
2-61100-4472
SCADA_485_-
SCADA_485_+
U7
LT118ACSW
C12 .1
C13 .1
C14 .1
C15 .1
SCADA_232_A_OUT
SCADA_232_A_IN
SCADA_232_B_IN
SCADA_232_B_OUT
CR2 BAL99
CR3 BAL99
R41 1K 1/10W 1%
C11 .1
R37 1K 1/10W 1%
R38 120
R39 1K 1/10W 1%
U8
2-61100-4472
SYSTEM SERIAL -
SYSTEM SERIAL +
SW1
TRANSMITTER OPERATION SELECT
PA_VISUAL_POWER
PA_AURAL_POWER
PA_REFLECTED_POWER
SYSTEM_VISUAL/AVERAGE_POWER
SYSTEM_AURAL_POWER
SYSTEM_REFLECTED_POWER
TRANSMITTER OPERATION SELECT
BD04
RMT_INTERLOCK_ISO_RETURN
SYSTEM_+12V_C3
SYSTEM_-12V_C2
SYSTEM_-12V_C1
SYSTEM_+12V_C6
SYSTEM_+12V_C5
SYSTEM_+12V_C4
RMT_TRANSMITTER_STATE
RMT_INTERLOCK
RMT_AUX_I/O_1
RMT_RF_SYSTEM_INTERLOCK
RMT_OPERATE_COMMAND
RMT_STANDBY_COMMAND
RMT_POWER_RAISE
RMT_POWER_LOWER
RMT_SYSTEM_REFLECTED_POWER
RMT_SYSTEM_VISUAL/AVERAGE_POWER
RMT_SYSTEM_AURAL_POWER
SYSTEM_REFLECTED_POWER
SYSTEM_VISUAL/AVERAGE_POWER
SYSTEM_AURAL_POWER
UC_PLL_LOCK_INDICATOR
UC_AFC_VOLTAGE
UC_AGC_#1_VOLTAGE
UC_AGC_#2_VOLTAGE
UC_INTERLOCK
UC_SERIAL_CLOCK
UC_SERIAL_DATA
UC_SERIAL_LOGIC_ENABLE
UC_EXTERNAL_REF_INDICATOR
J44A
REAR BACKPLANE CONNECTOR
913289
J44B
SYSTEM SERIAL -
SYSTEM_+12V_C3
SYSTEM_-12V_C2
SYSTEM_-12V_C1
SYSTEM_+12V_C6
SYSTEM_+12V_C5
SYSTEM_+12V_C4
SPARE_DIN_1
SPARE_DIN_2
SPARE_DIN_3
SPARE_DIN_4
SPARE_DIN_5
PA_VISUAL_POWER
PA_AURAL_POWER
PA_REFLECTED_POWER
SPARE_AIN_1
SPARE_AIN_2
SPARE_AIN_3
SPARE_DOUT_1
SPARE_DOUT_2
SPARE_AUX_I/O_3
SPARE_AUX_I/O_4
AUTO_TEST_1
AUTO_TEST_2
SCADA_232_B_IN
SCADA_232_A_IN
SCADA_485_-
J44C
MOD_EXTERNAL_CW_PRESENT
MOD_OUTPUT_SIGNAL_LEVEL
MOD_AURAL_DEVIATION_LEVEL
MOD_PLL_UNLOCKED
MOD_INTERLOCK
MOD_STATION_ID_CONTROL
IF_PROCS_ALC_AUTO_MANUAL_SW
IF_PROCS_MODULATION_PRESENT
IF_PROCS_INPUT_FAULT
IF_PROCS_SELECTED_IF_SOURCE
IF_PROCS_MUTE_COMMAND
IF_PROCS_ALC_VOLTAGE
IF_PROCS_INTERLOCK
IF_PROCS_BOARD_TYPE
IF_PROCS_IF_POWER_CONTROL
IF_PROCS_DLC_VOLTAGE
SCADA_232_B_OUT
SCADA_232_A_OUT
SCADA_485_+
J61
POWER SUPPLY / POWER AMP
SYSTEM_-12V_C2
SYSTEM_+12V_C3
SYSTEM SERIAL +
SYSTEM SERIAL -
PA_INTERLOCK
PA_VISUAL_POWER
PA_AURAL_POWER
PA_REFLECTED_POWER
UC_AGC_#1_VOLTAGE
PS_AC_OK
PS_ENABLE
PS_DC_OK
SYSTEM_+12V_C3
TP1
-12V
TP2
L2
15906260SMT
SYSTEM_-12V_C1
+7V
TP3
+5V
TP4
+5.0Vdc
TP5
+5Vserial
TP6
TP7
TP8
TP9
TP10
NET LABEL WAS RMT AUX I/O 2 FOR J44-12A & CR5 PIN 2 (PG 2) CONN. JKF
C0 | 20111235 | 3/3/04 | JCM
ADDED C46 - C49, Q39 - Q47. R149 - R152, R162, R164, R166 & R167 WERE 20K. ALL +12V CHGD TO SYSTEM_+12V_C3. JKF
B0 | 20111032 | 10/2/03 | REH
MATERIAL NUMBERS:
1302021 A/D, PIONEER, AMP CTRL
1302022 PCB, PIONEER, AMP CTRL
1302023 SCH, PIONEER, AMP CTRL
1302024 STENCIL FOR 1302022
Axcera
REV | ECO | DATE | APV
THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION
MATERIAL
FINISH
TITLE SCH, CONTROL BOARD, EXCITER, PIONEER SERIES (1302021)
DWN REH 3/28/03
CHK LRT 9/3/03
REL LRT 9/3/03
DWG. NO. 1302023
REV C0
D
SCALE - - -
SHEET 1 OF 5

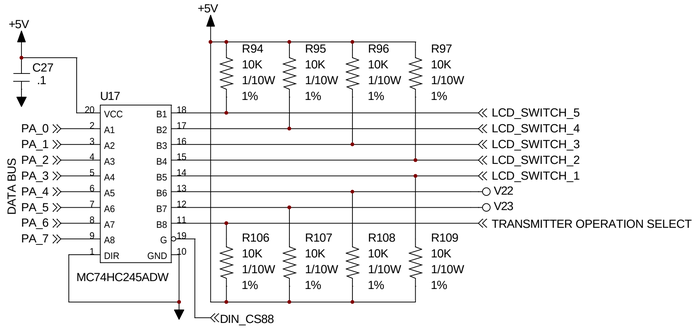


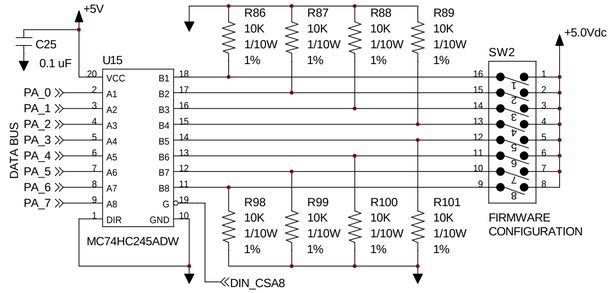
APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE SCH, CONTROL BOARD, EXCITER, PIONEER SERIES (1302021)			
ECO	MATERIAL -----	DWN	REH	3/28/03	DWG. NO. 1302023 REV C0
REV	FINISH -----	CHK	LRT	9/3/03	
		REL	LRT	9/3/03	D SCALE - - - SHEET 2 OF 5



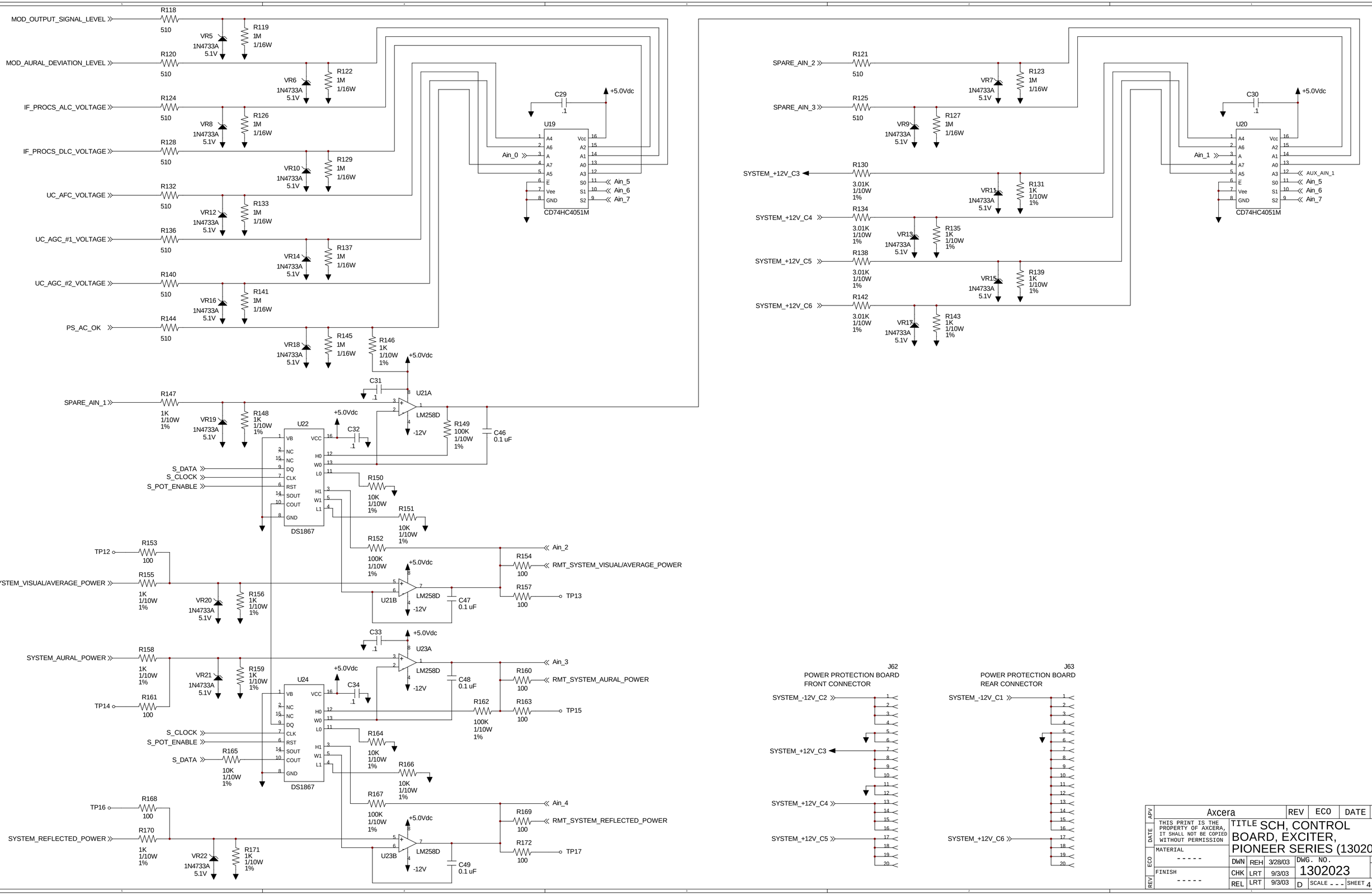






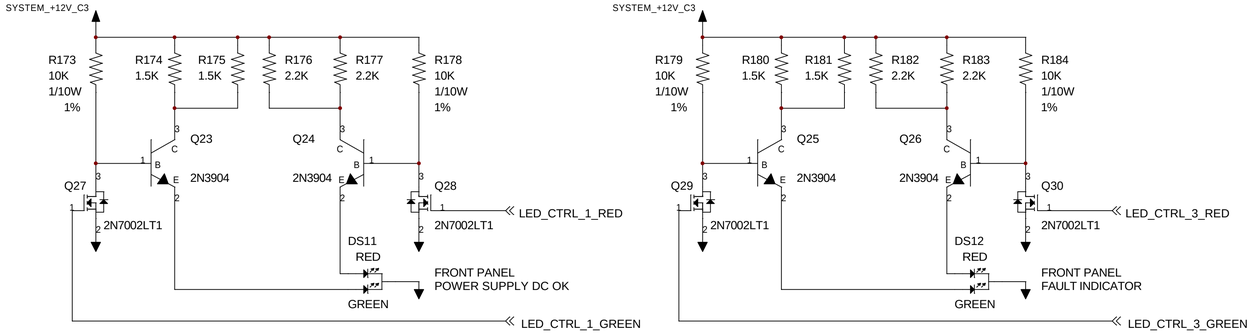


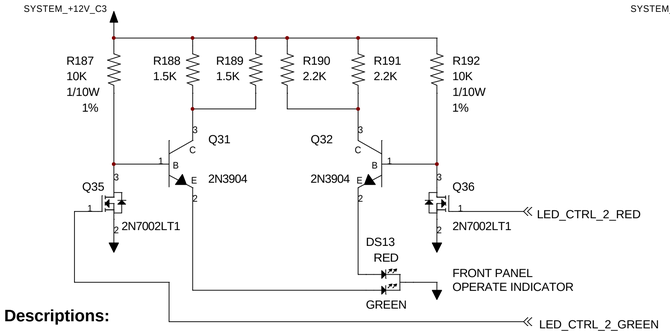
APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE SCH, CONTROL BOARD, EXCITER, PIONEER SERIES (1302021)			
ECO	MATERIAL -----	DWN REH 3/28/03	DWG. NO. 1302023	REV C0	
REV	FINISH -----	CHK LRT 9/3/03			
		REL LRT 9/3/03	D	SCALE - - -	SHEET 3 OF 5

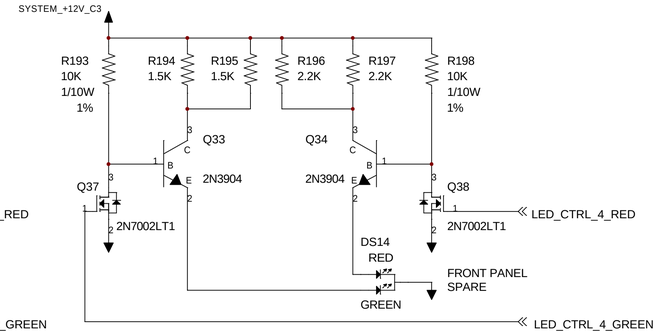

MOD_OUTPUT_SIGNAL_LEVEL
MOD_AURAL_DEVIATION_LEVEL
IF_PROCS_ALC_VOLTAGE
IF_PROCS_DLC_VOLTAGE
UC_AFC_VOLTAGE
UC_AGC_#1_VOLTAGE
UC_AGC_#2_VOLTAGE
PS_AC_OK
SPARE_AIN_1
R118 510
R119 1M 1/16W
R120 510
R122 1M 1/16W
R124 510
R126 1M 1/16W
R128 510
R129 1M 1/16W
R132 510
R133 1M 1/16W
R136 510
R137 1M 1/16W
R140 510
R141 1M 1/16W
R144 510
R145 1M 1/16W
R146 1K 1/10W 1%
R147 1K 1/10W 1%
R148 1K 1/10W 1%
VR5 1N4733A 5.1V
VR6 1N4733A 5.1V
VR8 1N4733A 5.1V
VR10 1N4733A 5.1V
VR12 1N4733A 5.1V
VR14 1N4733A 5.1V
VR16 1N4733A 5.1V
VR18 1N4733A 5.1V
VR19 1N4733A 5.1V
C29 .1
+5.0Vdc
U19
CD74HC4051M
Ain_0
Ain_5
Ain_6
Ain_7
C31 .1
U21A
LM258D
-12V
R149 100K 1/10W 1%
C46 0.1 uF
U22
DS1867
S_DATA
S_CLOCK
S_POT_ENABLE
C32 .1
R150 10K 1/10W 1%
R151 10K 1/10W 1%
R152 100K 1/10W 1%
TP12
TP13
TP14
TP15
TP16
TP17
R153 100
R154 100
R155 1K 1/10W 1%
R156 1K 1/10W 1%
R157 100
SYSTEM_VISUAL/AVERAGE_POWER
RMT_SYSTEM_VISUAL/AVERAGE_POWER
VR20 1N4733A 5.1V
U21B
C47 0.1 uF
Ain_2
C33 .1
U23A
C48 0.1 uF
SYSTEM_AURAL_POWER
R158 1K 1/10W 1%
R159 1K 1/10W 1%
R160 100
R161 100
R162 100K 1/10W 1%
R163 100
RMT_SYSTEM_AURAL_POWER
VR21 1N4733A 5.1V
U24
C34 .1
Ain_3
R164 10K 1/10W 1%
R165 10K 1/10W 1%
R166 10K 1/10W 1%
R167 100K 1/10W 1%
R168 100
R169 100
R170 1K 1/10W 1%
R171 1K 1/10W 1%
R172 100
SYSTEM_REFLECTED_POWER
RMT_SYSTEM_REFLECTED_POWER
VR22 1N4733A 5.1V
U23B
C49 0.1 uF
Ain_4
SPARE_AIN_2
SPARE_AIN_3
R121 510
R123 1M 1/16W
R125 510
R127 1M 1/16W
VR7 1N4733A 5.1V
VR9 1N4733A 5.1V
C30 .1
U20
AUX_AIN_1
Ain_1
SYSTEM_+12V_C3
SYSTEM_+12V_C4
SYSTEM_+12V_C5
SYSTEM_+12V_C6
R130 3.01K 1/10W 1%
R131 1K 1/10W 1%
R134 3.01K 1/10W 1%
R135 1K 1/10W 1%
R138 3.01K 1/10W 1%
R139 1K 1/10W 1%
R142 3.01K 1/10W 1%
R143 1K 1/10W 1%
VR11 1N4733A 5.1V
VR13 1N4733A 5.1V
VR15 1N4733A 5.1V
VR17 1N4733A 5.1V
J62
POWER PROTECTION BOARD
FRONT CONNECTOR
J63
POWER PROTECTION BOARD
REAR CONNECTOR
SYSTEM_-12V_C2
SYSTEM_-12V_C1
Axcera
REV
ECO
DATE
APV
THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION
TITLE SCH, CONTROL BOARD, EXCITER, PIONEER SERIES (1302021)
MATERIAL
FINISH
DWN REH 3/28/03
CHK LRT 9/3/03
REL LRT 9/3/03
DWG. NO. 1302023
REV C0
D
SCALE - - -
SHEET 4 OF 5

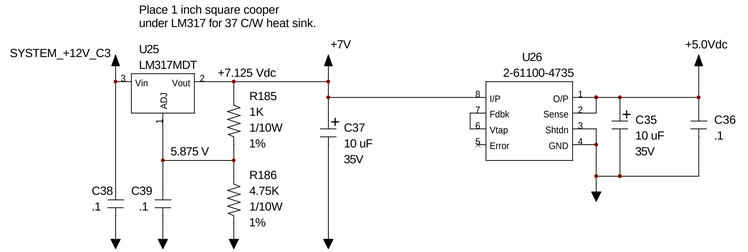
LAST USED REF.

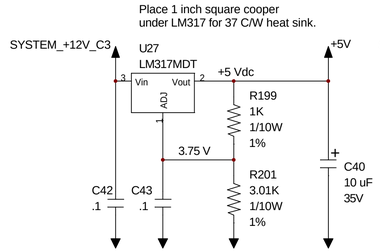
R202
C49
Q47
DS14
U28
VR22
J63
TP17
V23
SW2
CR11
W2
Y1
L2
S1

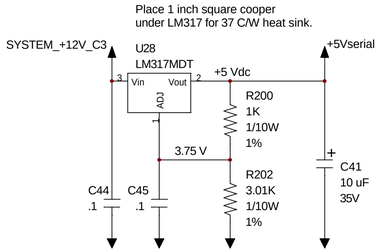












Circuit Descriptions:

PAGE 1:

U1 is an Atmel Atmega128 microcontroller. This part is in-circuit programmed using the serial programming port. When the microcontroller is held in reset by either the programming port or the external watchdog IC, a transistor inverts the reset signal while serial programming lines are connected to U1 through analog switch U5.

U2 is a watchdog IC used to hold the microcontroller in reset if the supply voltage is less than 4.21 Vdc; (1.25 Vdc < Pin 4 (IN) < Pin 2 (Vcc)). The watchdog momentarily resets the microcontroller if Pin 6 (!ST) is not clocked every second. A manual reset switch is provided but should not be needed.

Diodes DS1 through DS8 are used for display of auto test results. A test board is used to execute self test routines. When the test board is installed, Auto_Test_1 is held low and Auto_Test_2 is allowed to float at 5 Vdc. This is the signal to start the auto test routines.

U3 and U4 are used to selectively enable various input and output ICs found on page 2 and 3 of the schematic.

U1 has two serial ports available. In this application, one port is used to communicate with transmitter system components where U1 is the master of a RS-485 serial bus. The other serial port is used to provide serial data I/O where U1 is not the master of the data port. A dual RS-232 port driver IC and a RS-485 port driver is also in the second serial data I/O system. The serial ports are wired such that serial data input can come through one of the three serial port channels. Data output is sent out through each of the three serial port channels.

Switch SW1 is used to select either transmitter operation or exciter driver operation. When the switches of SW1 are on, transmitter operation is selected and the power monitoring lines of the transmitter's power amplifier are routed to the system power monitoring lines.

PAGE 2:

Digital output latches are used to control system devices. Remote output circuits are implemented using open drain FETs with greater than 60 Volt drain to source voltage ratings.

Remote digital inputs are diode protected with a 1 Kohm pull-up resistor to 5Vdc. If the remote input voltage is greater than about 2 volts or floating, a FET is turned on and a logic low is applied to the digital input buffer. If the remote input voltage is less than the turn on threshold of the FET (about 2 Vdc), a logic high is applied to the digital input buffer.

Four of the circuits on page two are auxiliary I/O connections wired for future use. They are wired similar to the remote digital inputs but include a FET for digital output operation. To operate these signals as an input, the associated output FET must be turned off. These circuits are also connected to an analog input multiplexer IC.

PAGE 3:

Several ICs are used as input buffers to allow the microcontroller to monitor various digital input values. Most digital inputs use a 10 Kohm pull-up resistor. The buffer IC used for data transfer to the display is wired for read and write control.

PAGE 4:

Each analog input is expected to be between 0 and 5 Vdc. If a signal exceeds 5.1 Vdc, a 0.225 Watt zenor diode clamps the signals voltage. Most signals are calibrated at their source however two dual serial potentiometer ICs are used to calibrate four signals. For these four circuits, the input value is divided in half before it is applied to an op-amp. The serial potentiometer is used to adjust the input signal between 80 and 120% of the input signal. Serial data to the second serial potentiometer is transferred through the first IC. The wiper position of the digital potentiometer circuit is used to set the gain of the op-amp. Lower digital values for the wiper setting increases the gain of the op-amp. If N= 0, gain = 6.0. If N = 255, gain = 3.00. If Vin = 1.0 at spare_Ain_1 and N = 128, U21A out = 4.0V with gain = 4.

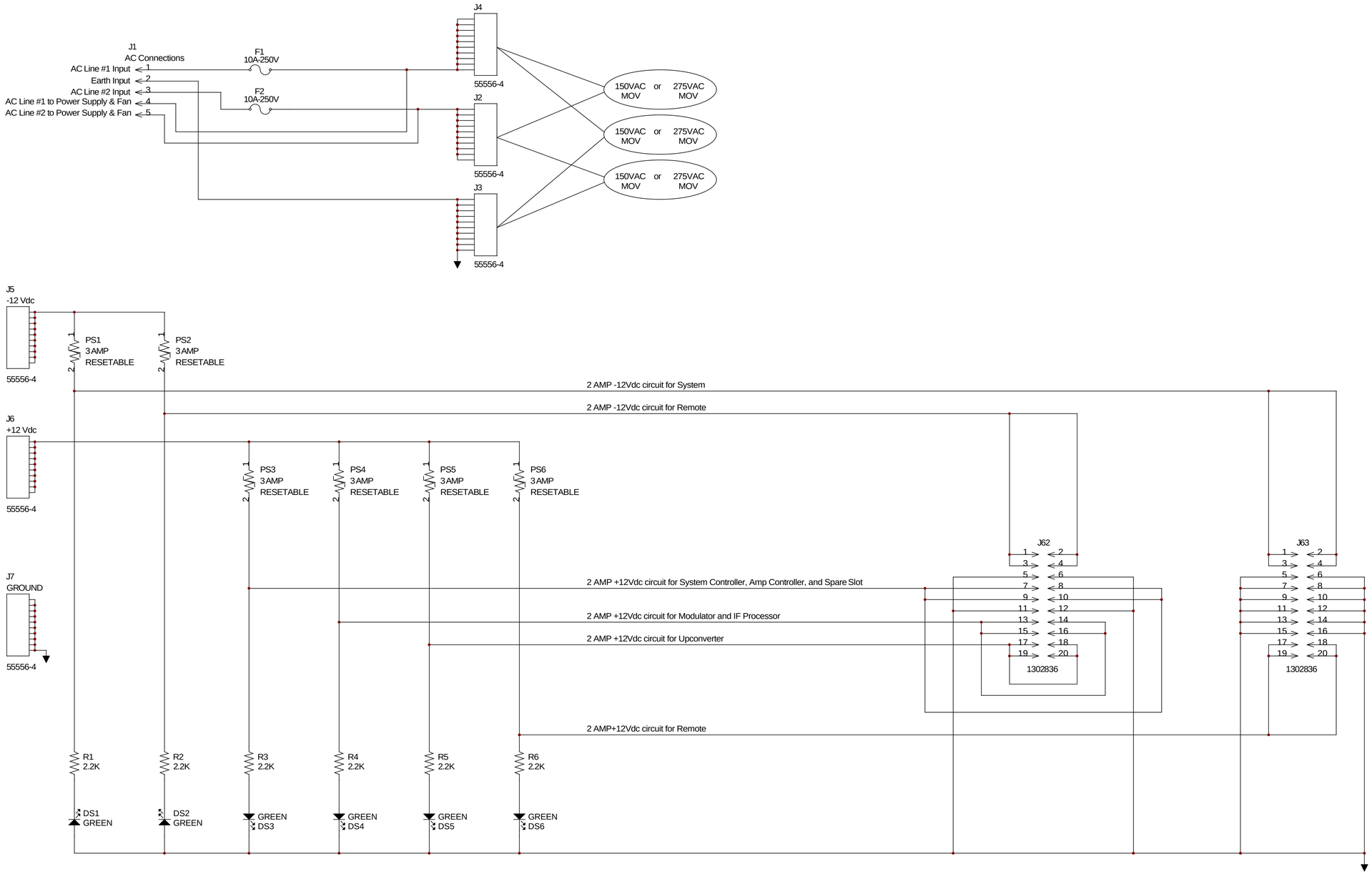
Two 20 position connectors are used to provide power to the backplane. J62 and J63 get power from the power supply after a nominal 3 amp resettable fuse. The Raychem polyswitch resettable fuses may open on a current as low as 2.43 amps at 50C, 3 amps at 25 C or 3.3 amps at 0C.
They definately will open when the current is 4.86 amps at 50C, 6 amps at 20C, or 6.6 amps at 0C. Trace widths of these circuits are 0.140" (designed for maximum current).

PAGE 5:

Each of the four LED circuits drive a dual element common cathode LED. To make a good amber color, the current applied to the green element is slightly greater than the red element.

Several voltage regulators are used to power the board. Seven volts is typically applied to board LEDs and to the input of a precision 5.0 volt regulator. The 5.0 volt regulator is used for analog circuits and the microcontroller analog reference voltage. Another two 5 volt regulator circuits are used for most other board circuits.

APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE SCH, CONTROL BOARD, EXCITER, PIONEER SERIES (1302021)			
ECO	MATERIAL -----	DWN REH 3/28/03	DWG. NO. 1302023	REV C0	
REV	FINISH -----	CHK LRT 9/3/03			
		REL LRT 9/3/03	D	SCALE ---	SHEET 5 OF 5



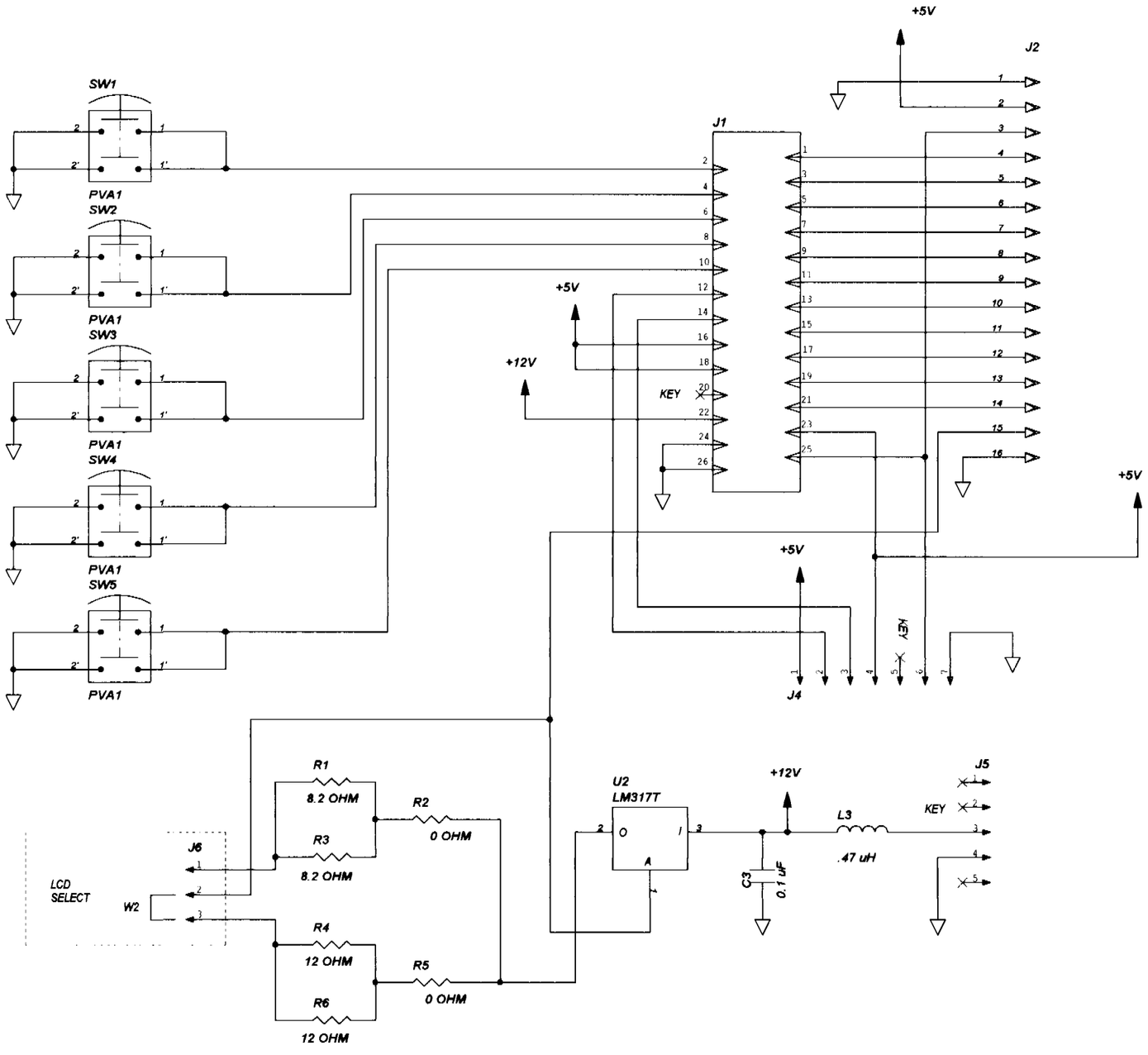
Circuit Design Notes:

1. Track widths of 0.140 inch minimum top and bottom of board shall be used to connections to J1, J2, J3, J4.
2. Track widths of 0.140 inch minimum top of board shall be used to connections to J5 and J6.
3. Track widths of 0.065 inch minimum shall be used to connections to J62 and J63.
4. Track widths of 0.020 inch minimum shall be used to connections between LEDs and resistors.
5. Board BOM needs the following items added to those exported from Orcad:

Part Number	Qty	Description
102071	4	Fuse Clip, PC BD Mnt., 15 Amp

MATERIAL NUMBERS:
1302837 PIONEER, POWER PROTECTION
1302838 PCB, PIONEER, PWR PROTECT
1302839 SCH, PIONEER, PWR PROTECT
1302840 STENCIL FOR 1302838

APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE SCH, PIONEER, PWR PROTECT (1302837)			
ECO	MATERIAL -----	DWN REH 5/29/03	DWG. NO. 1302839		REV AO
	FINISH -----	CHK REH 5/29/03			
REV		REL REH 5/29/03	D	SCALE - - -	SHEET 1 OF 1



DELETED C1, C2, L1, L2, U1, J3, & W1. MOVED W2 FROM J6-1,-2 TO J6 -2,-3. JKF

REV	ECN	DATE	APV
3	8603	11/7/96	RAS
AT J2 W2 WAS W1. (TMY)			
2	8424	9/29/96	JCM
SWITCHED PINS 1 & 2 OF U2. (TMY)			
1	8368	8/27/96	RAS

ITS CORPORATION

MATERIAL ---

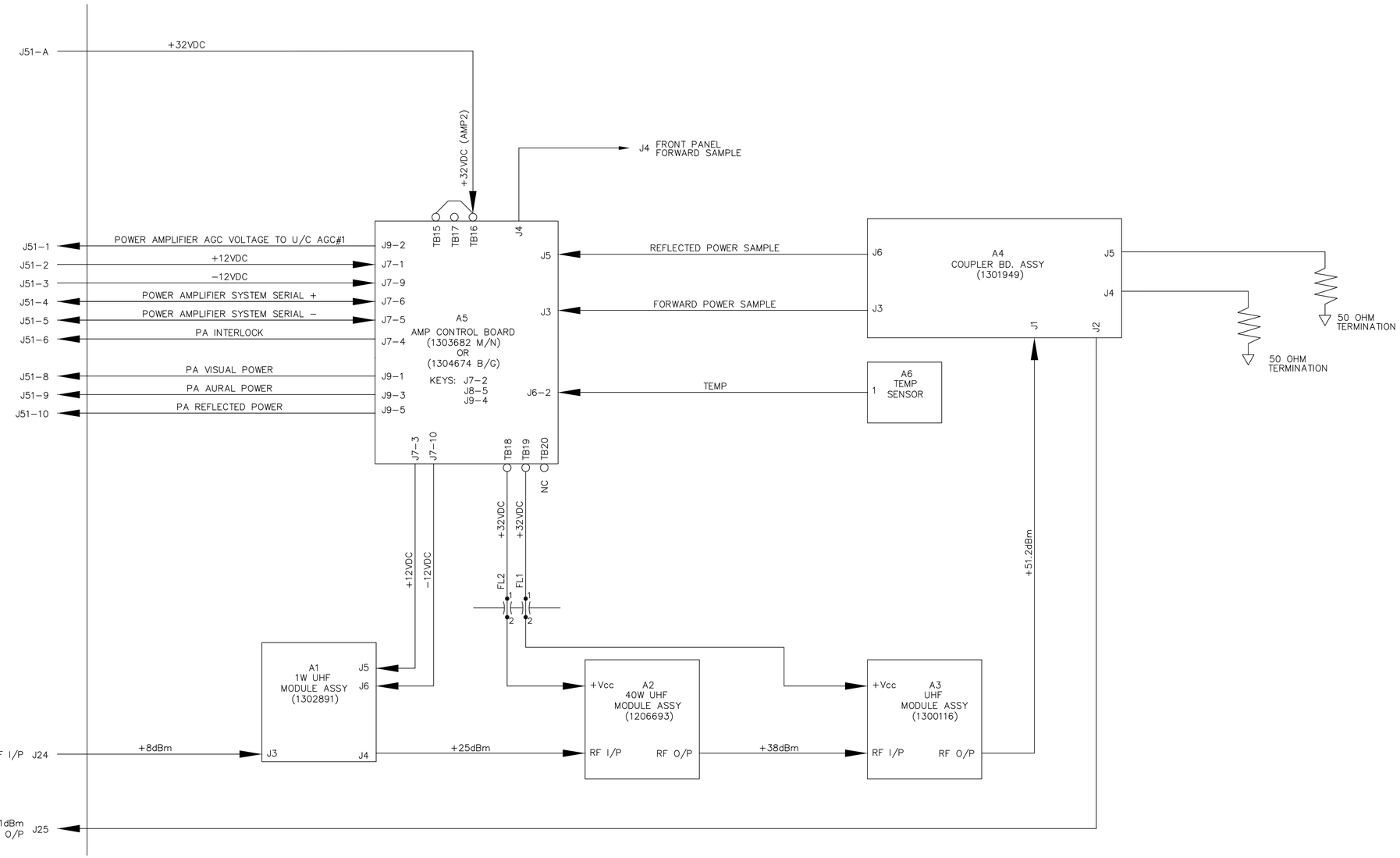
FINISH ---

TITLE SCHEMATIC SWITCH BOARD (1527-1406)

DWN	DLM	6/3/96	
CHK	RAS	6/14/96	
REL	RAS	6/14/96	

DWG. NO. 1527-3406 REV 3

B SCALE --- SHEET 1 OF 1



NOTE:
1. ALL POWER LEVELS ARE PK-SYNC +10% AURAL. FOR DTV LEVELS, SUBTRACT 3dBm.

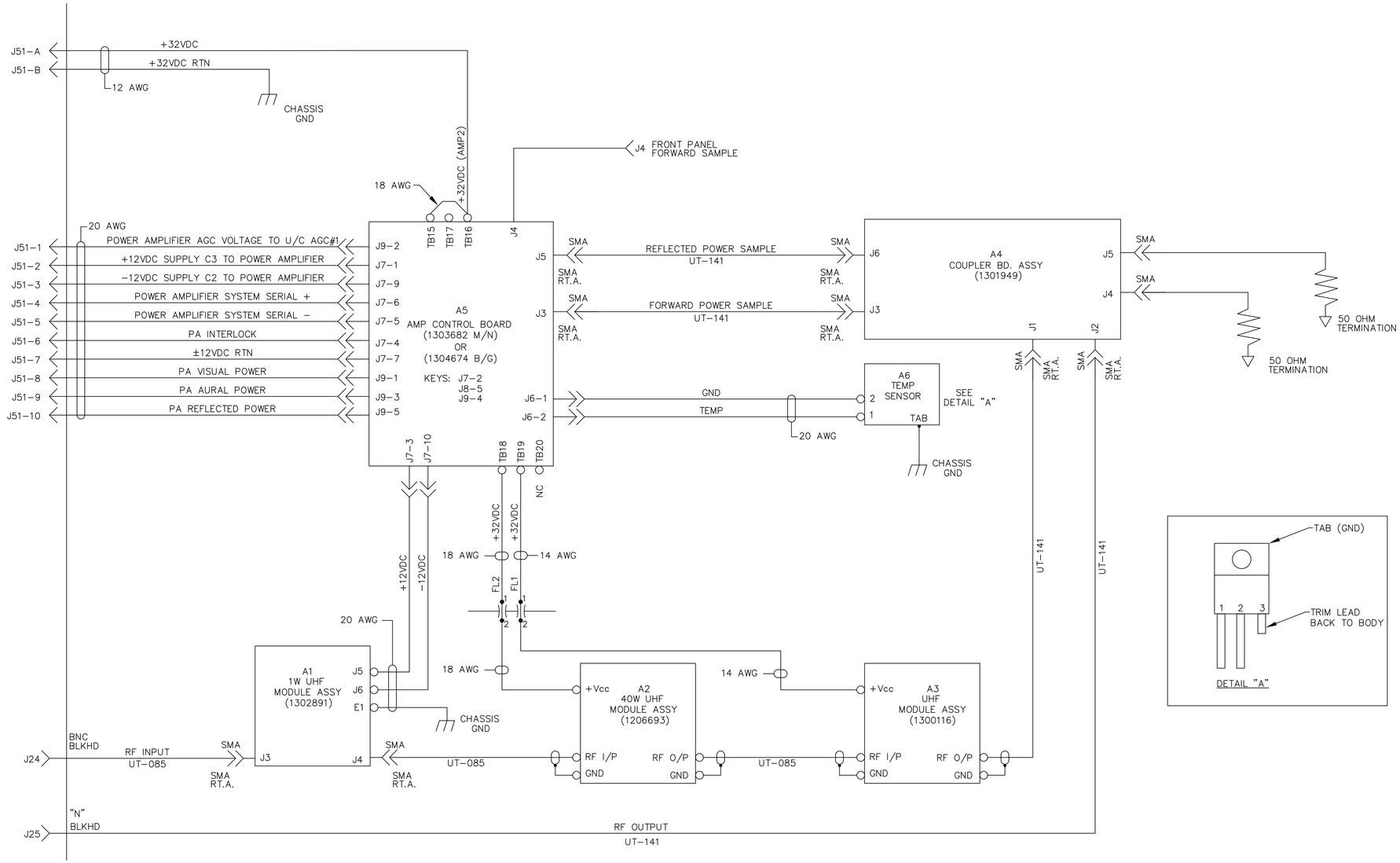
REV	ECO	DATE	APV
A5 WAS 1301962. (RGE)			
C0	20111356	12/15/04	REH
AT A4, REVERSED J3 AND J6. (RGE)			
B0	20111245	5/7/04	LRT

MATERIAL

FINISH

TITLE
B/D
PA ASSEMBLY, 100W
LX SERIES

DWN	RGE	01/16/04	DWG. NO. 1303850 REV C0
CHK	LRT	1/16/04	
REL	LRT	1/16/04	D SCALE --- SHEET 1 OF 1



NOTE:
1. ALL WIRE IS 18AWG UNLESS OTHERWISE NOTED.

REV	ECO	DATE	APV
		A5 WAS 1301962. (RGE)	
C0	20111356	12/15/04	REH
		AT A4, REVERSED J3 AND J6. WIRE AT A5-J7-7 WAS 18 AWG. (RGE)	
B0	20111245	5/7/04	LRT

Axcera

MATERIAL

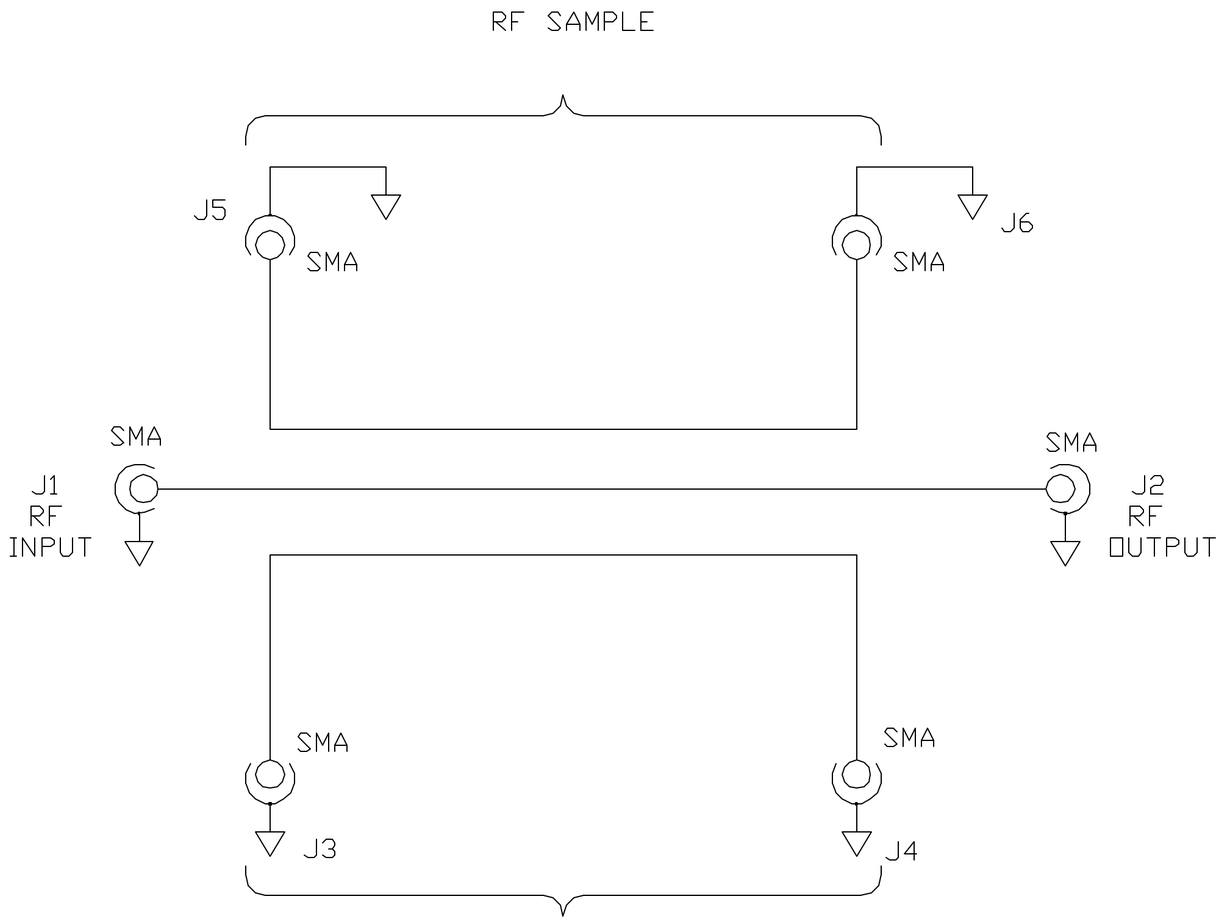
FINISH

TITLE
I/C,
PA ASSEMBLY, 100W
LX SERIES

DWN	RGE	01/13/04	
CHK	LRT	1/16/04	
REL	LRT	1/16/04	

DWG. NO. 1303814 REV C0

D SCALE --- SHEET 1 OF 1



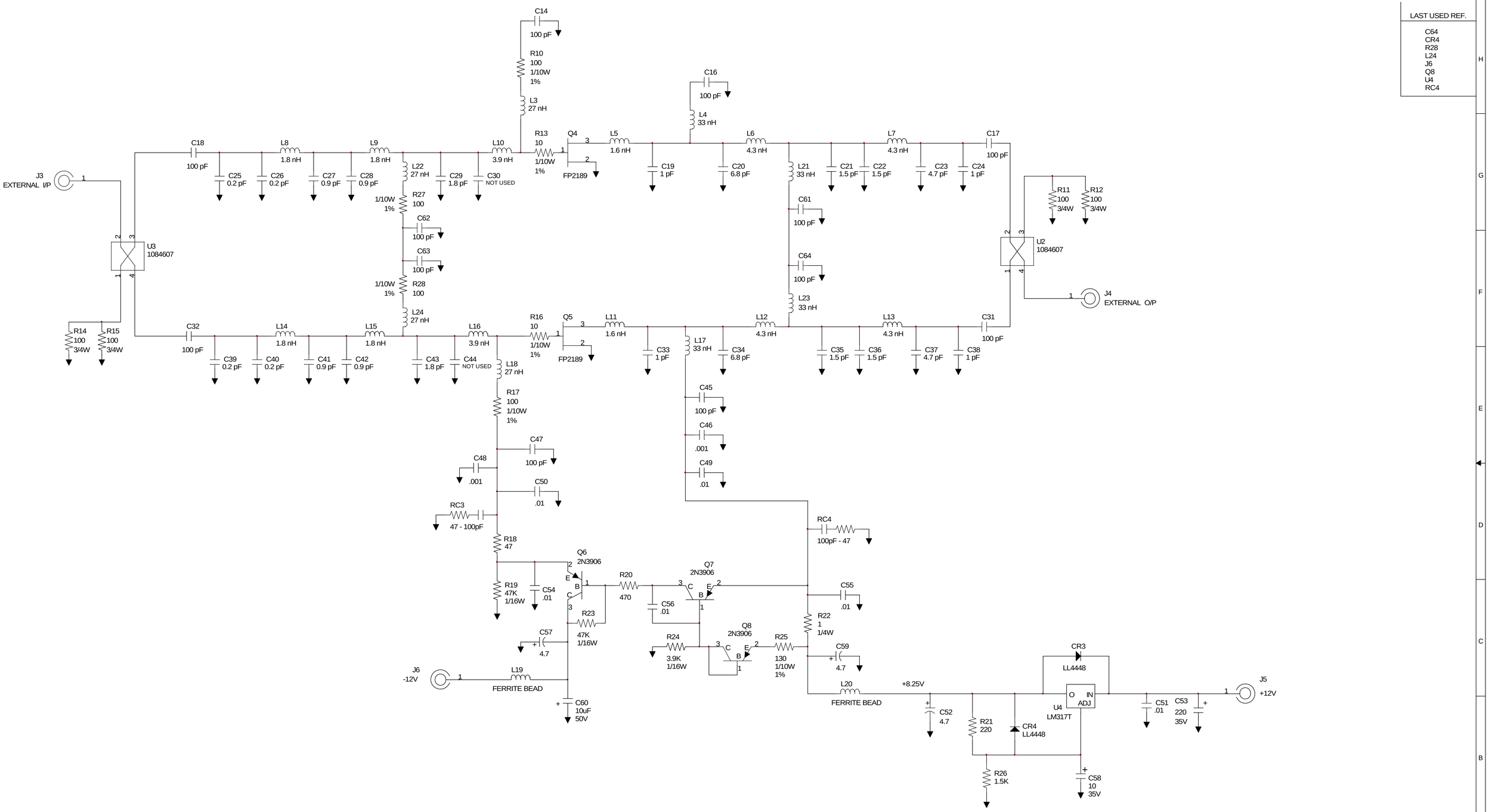
REV	ECO	DATE	APV

MATERIAL — — — —

FINISH — — — —

TITLE
SCHEMATIC
DIRECTIONAL COUPLER
BOARD

DWN	MH	8/11/03	DWG. NO. 1303152	REV A0
CHK	JCM	8/25/03		
REL	JCM	8/25/03	B SCALE — — —	SHEET 1 OF 1



LAST USED REF.

C64
CR4
R28
L24
J6
Q8
U4
RC4

APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., 1 WATT UHF AMPLIFIER (1302761)		
ECO	MATERIAL -----	DWN	JKF	5/12/03	DWG. NO. 1302762 REV A0
REV	FINISH -----	CHK	LRT	9/3/03	
		REL	LRT	9/3/03	D SCALE --- SHEET 1 OF 1

NOTE:
1) ALL RESISTORS ARE 1/8W UNLESS OTHERWISE NOTED.
2) ALL CAPACITORS ARE IN uF UNLESS OTHERWISE NOTED.
3) ALL INDUCTORS ARE IN uH UNLESS OTHERWISE NOTED.

Serial Address
MC74VHC245DT
CD74HC4051M
1302044
2-61100-4472
1095823
453-HC373XX
MC74VHC245DT
LT1076-ND
2N7002LT1
MHZ
MOSFET
LMC6035
PROGRAMMING ENABLED
ENABLED
DC OK
TEMP
MOD OK
MANUAL MICRO RESET
SERIAL PROGRAMMING PORT
AURAL CIRCUIT DISABLE
FIRMWARE CONFIGURATION
Off Board Wired Connections

(See note on sheet 3)
Power Supply at MUX
Aural Power
Visual / Avg Power
Reflected Pwr
Amp Current 3 at MUX
Amp Current 2 at MUX
Amp Current 1 at MUX
Temperature at MUX
Amp Current FLT
Temperature FLT
Power Supply High FLT
Power Supply Low FLT
Reflected Power FLT
Fault Alert
Amp 1 Disable CTRL

(1.6V = -12V OK)
(2.72V = -12V missing)
(-.7V = +12V missing)
12V / 4.01

J7: +12 Vdc Supply, Key, +12 Vdc to Amp, Device Present, System Serial -, System Serial +, Ground, Ground, -12 Vdc to Amp, -12 Vdc Supply
J8: Device ID1, Device ID2, Device ID3, Device ID4, Key, Device ID5, Device ID6, Device ID7, Device ID8, PS Ctrl
J1: PWM_A - DC, PWM_A, PWM_B, KEY, PB7, PF2, SPI_IN, SPI_OUT, SPI_CLK, SPI_SS

C6, C8, C11, C12, C15, C18 - C22, C25 - C28, C43, C45, C47, C59, C61 & C63 WERE .01uF. C44, C46, C48, C60, C62, C64, C94, C98, C102 & C107 WERE .1uF. JKF

C0	20111538	10/11/04	REH

PG 1) ADD R206 FROM U1.19 TO U1.20 ADD R207 FROM U8.19 TO U8.20. ADD R208 FROM U2.2 TO GROUND. PG 2) REMOVE C55, C56,C57. CHANGE E15 THRU E20 TO TB15 THRU TB20 (NEW P/N 1304505). PG 3). REMOVE CR22, CR23, CR25, CR27, CR32, CR34. CHANGE R126, R139, R153 FROM 2.2K TO 0 OHMS. ADD R209 FROM U22A.2 TO GROUND. ADD R210 BETWEEN U22A.1 AND U22A.2. (CR)

B0	20111421	6/15/04	REH

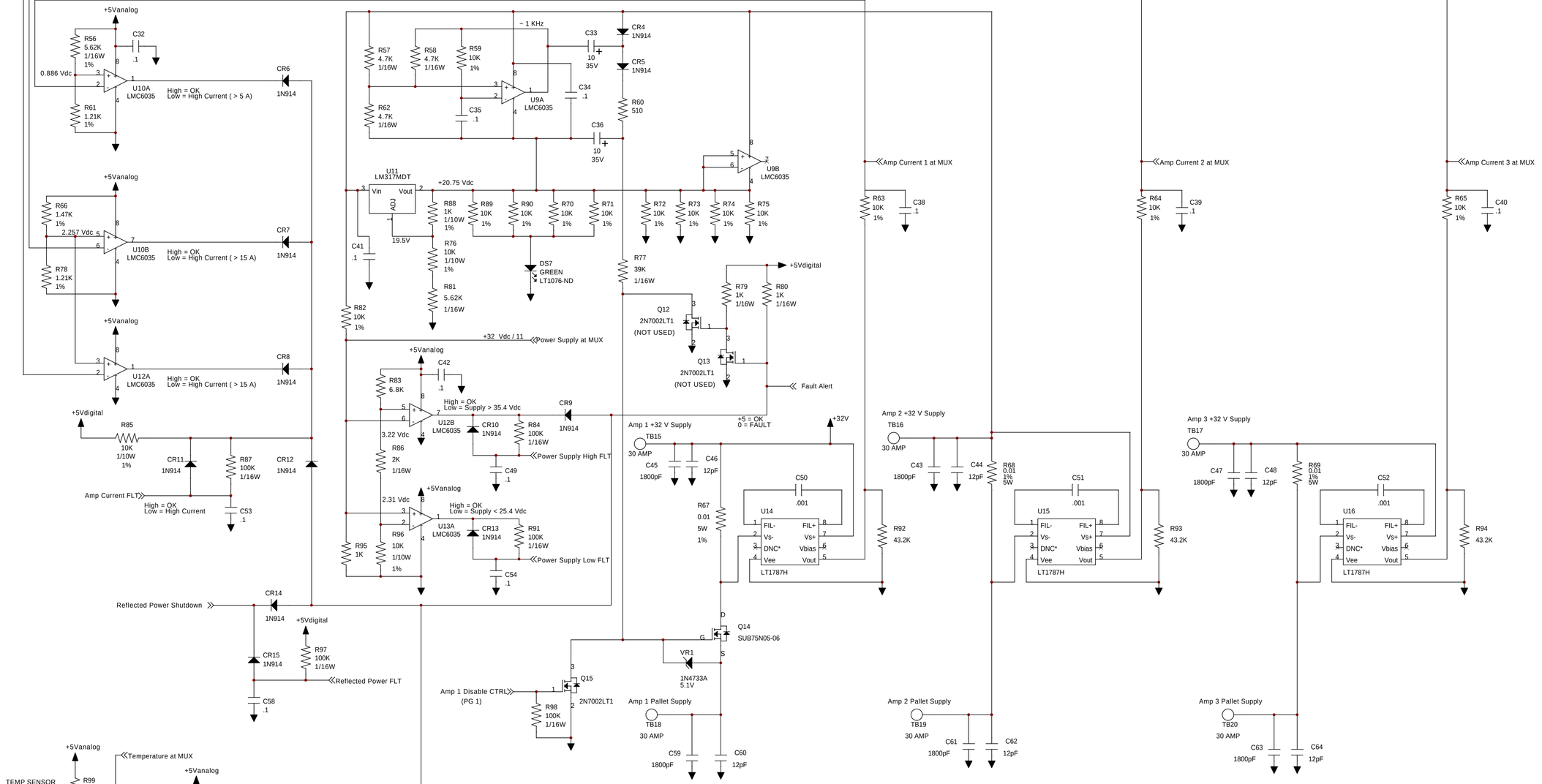
MATERIAL NUMBERS:
1303682 A/D, INNOVATOR LX, AMP CTRL
1303683 SCH, INNOVATOR LX, AMP CTRL
1303696 PCB, INNOVATOR LX, AMP CTRL
1303697 STENCIL FOR 1303696
1303698 FIRMWARE, INNOVATOR LX, AMP CTRL

MOD OK LED NOTE:

LED is red and blinking if a fault is present

1 blink means Amp Current fault
2 blinks means Temperature fault
3 blinks means +32V supply over voltage
4 blinks means +32V supply under voltage
5 blinks means Reflected Power fault
6 blinks means +12V or -12V fault

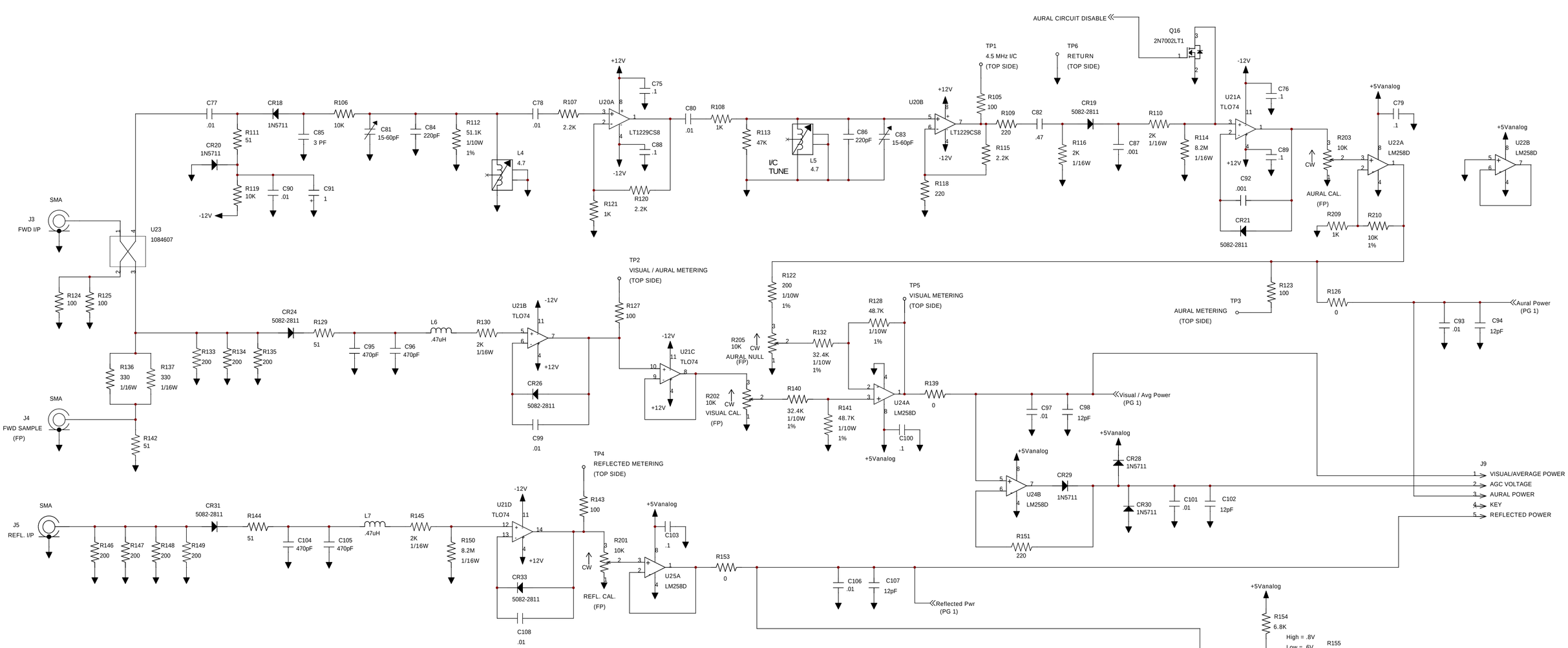
APV	Axcera	REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., AMP. CONTROL, INNOVATOR LX (1303682)		
ECO	MATERIAL -----	DWN	REH	12/16/03	DWG. NO. 1303683 REV C0
REV	FINISH -----	CHK	REH	12/16/03	
		REL	REH	12/16/03	D SCALE - - - SHEET 1 OF 3



NOTE:

A track width of 0.3 inch is needed between power input vias and sense resistors R55,R56,R57. 0.3 inch track width is also needed between the output of the sense resistors and the output vias that provide power to the amplifier pallets.

APV	Axcera		REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., AMP. CONTROL, INNOVATOR LX (1303682)			
ECO	MATERIAL - - - - -			DWN	REH	12/16/03
		DWG. NO. 1303683		CHK	REH	12/16/03
REV	FINISH - - - - -	REV C0		REL	REH	12/16/03
				D	SCALE - - -	SHEET 2 OF 3



Circuit Description

Page 1:
Upper center of page one is U4 which is the controller. This in-circuit Atmel microcontroller is operated at 3.6864 MHz. Programming of this device is performed through J2. U4 selects the desired analog channel of U3 through the settings of PA0 - PA2. PA3 of U4 is a processor operating LED that can be flashed to show continued operation.
PF1 is used to monitor the +12 Vdc supply to the board. PF4 is the selected channel of analog switch U3. PF3 and other select microcontroller pins are connected to a via for future access.

U2 is our standard serial to RS-485 driver IC. U5 is a watchdog IC used to hold the microcontroller in reset if the supply voltage is less than 4.21 Vdc; (1.25 Vdc < Pin 4 (IN) < Pin 2 (Vcc)). U5 momentarily resets the microcontroller if Pin 6 (!ST) is not clocked every second. A manual reset switch is provided but should not be needed.

Upper left corner U1 is used to determine where the amplifier control board is located. The eight inputs come from amp connector J8 and are used to set the SCADA address of the controller. Pull-up resistors set a default condition of logic high.

U6 below U1 is used to control two of the four board's status LEDs and three other circuits that are not allowed to change state during a microcontroller reset. A FET is turned on to shut current away from the LED to turn it off. U8 below U6 is used to enable different features within software. Actual use is TBD.

Page 2:

In the lower right corner are voltage regulator circuits. U17 should allow for 0.14 amps of power using its 92 C/W rating if Ta = 60C max and Tj = 125C max. 0.26 amps can be obtained from U17 if the mounting pad is 0.5 sqr. inches. The controller will not need this much current.

U18 and U19 are low drop-out voltage regulators with a tolerance greater than or equal to 1%. 100 mA is available from each device but again the controller will not need this much current.

In the upper left section are circuits with U9 and U11. U11 is used to generate a regulated voltage that is about 5 Volts less than the +32 Volt supply. When the +32 Volt supply is enabled, the circuitry around U9A is used to provide gate voltage to Q14 that is 5 volts greater than the source pin of this FET. The gate of Q14 can be turned off by any one of a few different circuits. These circuits are wired through Q12 and Q13. At this time these transistors are not installed but they may be installed to increase the shut-down time on a detected fault. Without Q12 and Q13 installed, Q14 is only turned off by the microcontroller through Q16.

U10A is used to detect high current in amplifier #1. At 0.886 Vdc, the current to amplifier #1 should be about 5.12 Amps. U10B and U12A are used to detect a high current condition in amplifier stages #2 or #3. With a 2.26 Vdc reference, high current shut down should be about 13.1 Amps.

U12B is used to detect high power supply voltage. U13A is used to indicate that the power supply voltage is less than 26 volts.

U25B on page 3 is used to detect high reflected power. U13B determines if the power supply temperature gets too hot.

Current Monitoring Sections - A 0.01 ohm 1% 5 Watt thru-hole resistor is used for monitoring the current through several sections of the amplifier. The voltage developed across this resistor is amplified for current monitoring by U14, U15, or U16. The Linear Technology LT1787HVCS8 precision high side current sense amplifier accepts a maximum voltage of 60 Vdc.
The 43.2 Kohm resistor from Pin 5 to ground sets the gain of the amplifier to about 17.28. This value is not set with much accuracy since the manufacture internal matches the resistors of this part but their actual resistance value is not closely defined. A trimming resistor is suggested to give a temperature stability of -200ppm/C but instead the microcontroller will determine the exact gain of the circuit and use a correction factor for measurements.

Page 3:

RF power detector circuits. Q16 is used by the microcontroller to disable the aural circuit of a digital transmitter or in external amplifiers where the amplifier is not to monitor visual power.

The Visual or Forward power circuit is calibrated and presented on the input of U24B pin 5. If this module has the highest detected forward power in a multi-amplifier system, it will have the highest forward power signal. This signal level into U24B pin 5 will be used to set the AGC output voltage of J9-2. If another amplifier has a higher forward power, the level into U24B pin 6 will be higher than pin5 and this amplifiers output signal will not be used to set the voltage level of J9-2.

APV	Axcera		REV	ECO	DATE	APV
DATE	THIS PRINT IS THE PROPERTY OF AXCERA, IT SHALL NOT BE COPIED WITHOUT PERMISSION	TITLE	SCH., AMP. CONTROL, INNOVATOR LX (1303682)			
ECO	MATERIAL -----	DWN	REH	12/16/03	DWG. NO. 1303683	REV C0
REV	FINISH -----	CHK	REH	12/16/03		
		REL	REH	12/16/03	D SCALE ---	SHEET 3 OF 3

Maschinell erzeugt!
Nicht manuell ändern!

Schutzvermerk nach DIN 34 beachten!
NOTE: copyright protected as in DIN 34.1

OrCAD SCHEMATIC
SN79-308
SCHEMATIC1
G:\EPROI\ORCADWSP\5379308-02\SN79-308.DSN

Detektor-
ausgang
DETECTOR OUT

X801

HF-Eingang
RF INPUT

X802

C851 *** 3)
R819 3) ***
C833 *** 3)
R816 3) ***
R818 3) ***
R800 47
V800 HSMS2800
C818 10p
R810 470k
R813 100
C800 3..10p
Z801
C819 3..10p
L801 ***
C838 100p
R821 15
R822 56
R823 15
V809 BA679
C836 10n
C837 100p
C839 5,6p
C840 100p
V810 BA679
C841 100p
L802 100nH
V811 BA679
L803 100nH
C842 10p
R835 470
R836 470
C843 10p
V812 BCX56
C844 100p
HF-Schirmgehäuse
RF COVER

R826 3,3k
R827 820
R828 820
R829 820
R830 1k
C847 100n
V806 BCW60
R831 15k
V807 4448
R824 270
R825 120
R832 820
C835 470p
C848 100n
R833 15k
V808 TL431ILP
R834 1,8k
C850 ***
Z802

R805 150
R804 150
R802 150
C802 ***
C808 6,8p
C804 15p
C805 18p
V804 MRF182 **
R801 33
C801 180p
C806 10p
C807 ***
C809 6,8p
C810 10n
C811 470p
C812 180p
C813 10u
R843 ***
R803 820
V801 4448
C814 100n
C828 470p
C803 100n
X804
32V
X803
HF-Ausgang
RF OUTPUT
Z803

R807 100
R808 500
C815 100n
R809 470
R806 1,8k
C816 100n
R812 ***
V802 6,8V
R811 1,8k
C817 220u

** 1)
R814 50

R844 ***
C821 10u
R817 820
V803 4448
C820 100n
C822 180p
C823 10n
C824 470p
R820 33
C825 6,8p
C826 6,8p
C827 ***
C829 15p
C830 18p
V805 MRF182 **
C831 10p
C832 ***
C834 180p

1)
BeO
Berylliumoxid

GAIN
CONTROL

X805

R840 3,3k
R839 10k 2)
C849 100p
C845 100p
C846 100p
V813 BCW61
R841 10k
R842 470
V814 4448
R837 10k
R838 10k
"GAIN"

* gedr. Bauelement
PRINTED COMPONENT

** Montage auf Kühlkörper
MOUNTED ON HEATSINK

*** Abgleichwert
FACTORY SET VALUE

2) R839 entfällt, wenn X805 genutzt wird
R839 IS REMOVED WHEN X805 IS USED

3) C833, C851 entfallen bei Bestückung von R816, R818 u. R819
C833, C851 ARE REMOVED WHEN R816, R818, R819 ARE INSTALLED

Leiterplattenbestückung siehe
PC BOARD LAYOUT SEE
51-5379-308-00 (1)

Zust.	Änderung	Datum	Name
02	E185	26.10.98	Sche
01		8.5.98	Sche

	Datum	Name
Bearb	22.04.98	Schenk
Gepr.		
Norm.	4.3.99	Nickel

Urspr.:

TELEFUNKEN Sendertechnik

40W-Modul UHF
40W MODULE UHF

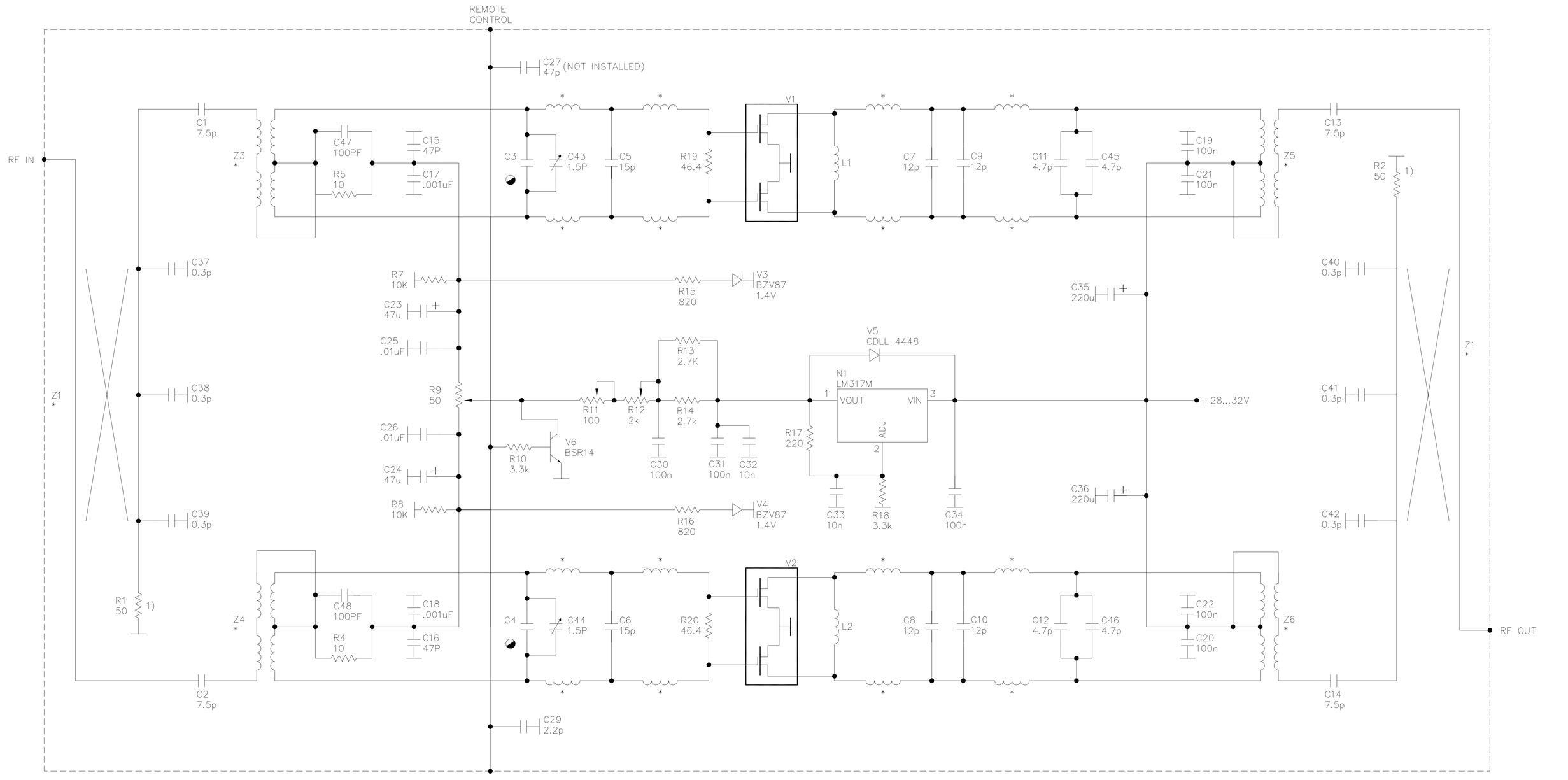
51-5379-308-00 WSP XB

Blatt 1
1 Bl.

Ers. f.:

Ers. d.:

A3L



* PRINTED COMPONENT

FACTORY SET VALUE

PC BOARD LAYOUT SEE
51-5379-309-00 (2)

REV	ECO	DATE	APV
CO	20110221	5/17/02	RE
BO	20100316	04/02/02	LRT

DELETED PTF10159 P/N FROM LDMOS. ADDED C23,C24 & C27. CDD/CR

R15 AND R16 WERE 680 OHMS. PWN

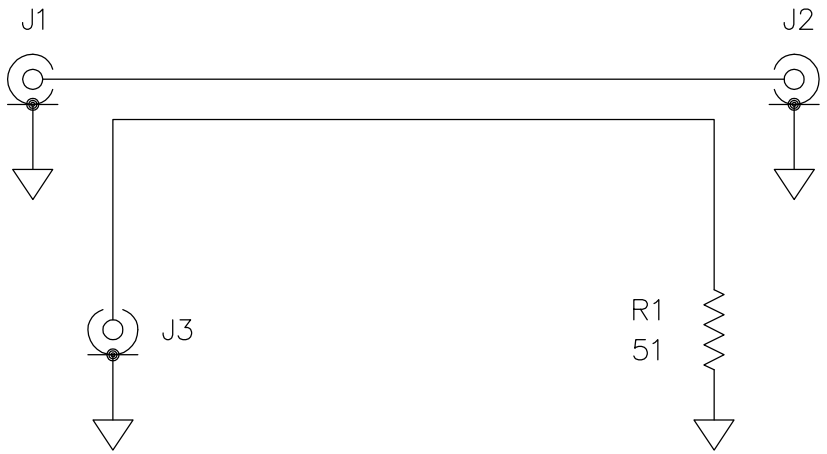
REV	ECO	DESCRIPTION	BY
D0	20110444	CHANGE R3 FROM A 2.2 OHM RESISTOR TO C47, SM., CAP., 100PF, 500WVDC. CHANGE R6 FROM A 2.2 OHM RESISTOR TO C48, SM., CAP., 100PF, 500WVDC. CHANGE R4 FROM A 2.2 OHM RESISTOR TO 1590600OSMT, SM., RES., 10 OHM 5% 1/8W. CHANGE R5 FROM A 2.2 OHM RESISTOR TO 1590600OSMT, SM., RES., 10 OHM 5% 1/8W. CHANGE C17 FROM A 47PF CAP, FIXED CERAMIC, 47 PF TO 1590616OSMT, SM., CAP., .001 UF, 50 WVDC. CHANGE C18 FROM A 47PF CAP, FIXED CERAMIC, 47 PF TO 1590616OSMT, SM., CAP., .001 UF, 50 WVDC. ADD C23, 1301246, SM. CAP, 47MF, 50V, LOW ESR. ADD C24, 1301246, SM. CAP, 47MF, 50V, LOW ESR. ADD C25, 1590616ISMT, SM., CAP., .01 UF, 50 WVDC. ADD C26, 1590616ISMT, SM., CAP., .01 UF, 50 WVDC. PWN	RJ 04/18/02

MATERIAL

FINISH

TITLE AMPLIFIER MODULE

DWN	PWN	04/01/02	DWG. NO. 51-5379-309-00 WSP
CHK	LRT	04/03/02	REV D0
REL	LRT	04/03/02	SCALE D SHEET 1 OF 1



REV	ECO	DATE	APV

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MATERIAL
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FINISH
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TITLE
SCHEMATIC, UHF COUPLER ASSEMBLY (1227–1316)

DWN	SJM	2/16/94	DWG. NO.		REV
CHK	DWB	4/11/94	1227–3316		0
REL	DWB	4/11/94	A	SCALE — —	SHEET 1 OF 1

J40 Receiver

RCVR_IF_OUT 2B
Add Hole for Cable LO2 5B
RF_SPARE_2 8B
Add Hole for Cable LO1 11B
RCVR_MUTE 13A
BANDSWITCH 13B
RCVR_ALC_FAULT 14A
SPARE_AIN_1 14C
RCVR_PLL_LOCK 15A
SPARE_AIN_2 15C
RCVR_ALC_VOLTAGE 16A
RCVR_INTERLOCK 16C
SPARE_DIN_4 17A
SPARE_DIN_5 17B
SPARE_DOUT_2 17C
System +12Vdc_C3 18A
System +12Vdc_C3 18B
System +12Vdc_C3 18C
System -12Vdc_C1 19A
System -12Vdc_C1 19B
System -12Vdc_C1 19C
System_Serial+ 20B
System_Serial- 20C
MOD_10_MHz_INPUT 22B
RCVR_RF_IN 25B
28B
31B

MOD_EXTERNAL_CW_PRESENT
MOD_OUTPUT_SIGNAL_LEVEL
MOD_AURAL_DEVIATION_LEVEL
MOD_INTERLOCK
MOD_BASEBAND_AUDIO(+)
MOD_BASEBAND_AUDIO(-)
MOD_COMPOSITE_AUDIO(-)
MOD_COMPOSITE_AUDIO(+)
MOD_SAP/PRO_AUDIO(+)
MOD_SAP/PRO_AUDIO(-)
MOD_VIDEO(-)
MOD_VIDEO(+)
MOD_STATION_ID_CONTROL
System +12Vdc_C4
System -12Vdc_C1
SPARE_AUX_I/O_3
SPARE_AUX_I/O_4
MOD_CW_IF_INPUT
MOD_PLL_UNLOCKED

J41A Modulator

J41B

System +12Vdc_C4 25B
System -12Vdc_C1 26B
MOD_VISUAL_IF_INPUT 3C
MOD_AURAL_IF_OUTPUT 6C
MOD_VISUAL_IF_OUTPUT 17C
MOD_AURAL_IF_INPUT 23C
System +12Vdc_C4 25C
System -12Vdc_C1 26C
MOD_COMBINED_IF_OUTPUT 28C
MOD_10_MHz_INPUT 30C

J41C

913642

J42A IF Processor

System +12Vdc_C4
System -12Vdc_C1
SPARE_AUX_I/O_3
SPARE_AUX_I/O_4
System +12Vdc_C4
System -12Vdc_C1

J42B

MOD_COMBINED_IF_OUTPUT 32B
IF_PROCS_IF_2_UC 1C

J42C

V4204
IF_PROCS_ALC_AUTO_MANUAL_SW 6C
IF_PROCS_MODULATION_PRESENT 7C
IF_PROCS_INPUT_FAULT 8C
IF_PROCS_SELECTED_IF_SOURCE 9C
IF_PROCS_MUTE_COMMAND 10C
IF_PROCS_ALC_VOLTAGE 11C
IF_PROCS_INTERLOCK 12C
IF_PROCS_BOARD_TYPE 13C
IF_PROCS_IF_SIGNAL_SELECT 14C
System +12Vdc_C4 16C
System -12Vdc_C1 18C
IF_PROCS_MODULATED IF INPUT 21C
IF_PROCS_IF_POWER_CTRL 24C
IF_PROCS_DLC_VOLTAGE 30C

913642

J43 Upconverter

IF_PROCS_IF_2_UC 2B
Add Hole for Cable LO 2 5B
RF_SPARE_1 8B
Add Hole for Cable LO 1 11B
UC_AFC_VOLTAGE 13A
SPARE_AUX_I/O_3 13B
BANDSWITCH 13C
UC_EXTERNAL_REF_INDICATOR 14A
UC_AGC_#1_VOLTAGE 14C
UC_PLL_LOCK_INDICATOR 15A
UC_AGC_#2_VOLTAGE 15C
IF_PROCS_ALC_VOLTAGE 16A
UC_INTERLOCK 16C
UC_SERIAL_CLOCK 17A
UC_SERIAL_DATA 17B
UC_SERIAL_LOGIC_ENABLE 17C
System +12Vdc_C5 18A
System +12Vdc_C5 18B
System +12Vdc_C5 18C
System -12Vdc_C1 19A
System -12Vdc_C1 19B
System -12Vdc_C1 19C
System_Serial+ 20B
System_Serial- 20C
EXT_10_MHz_INPUT 22B
UC_RF_OUTPUT 25B
SYSTEM_10_MHz_OUTPUT 28B
MOD_10_MHz_INPUT 31B

RCVR_IF_OUT — J13 BNC — RECEIVER IF OUT
RCVR_RF_IN — J12 BNC — RECEIVER RF IN
RF_SPARE_2 — J14 BNC — RF SPARE 2
RF_SPARE_1 — J15 BNC — RF SPARE 1

J44A Control

RMT_INTERLOCK_ISOLATED_RTN 1A
System +12Vdc_C3 2A
System -12Vdc_C2 3A
System -12Vdc_C1 4A
System +12Vdc_C6 5A
System +12Vdc_C5 6A
System +12Vdc_C4 7A
RMT_TRANSMITTER_STATE 9A
RMT_INTERLOCK 10A
RMT_AUX_I/O_1 11A
RMT_RF_SYSTEM_INTERLOCK 12A
RMT_SET_TO_OPERATE_CMD 13A
RMT_SET_TO_STAND-BY_CMD 14A
RMT_POWER_RAISE 15A
RMT_POWER_LOWER 16A
RMT_SYSTEM_REFLECTED_PWR 17A
RMT_SYSTEM_VISUAL_PWR 18A
RMT_SYSTEM_AURAL_PWR 19A
SYSTEM_REFLECTED_PWR 21A
SYSTEM_VISUAL_PWR 22A
SYSTEM_AURAL_PWR 23A
UC_PLL_LOCK_INDICATOR 24A
UC_AFC_VOLTAGE 25A
UC_AGC_#1_VOLTAGE 26A
UC_AGC_#2_VOLTAGE 27A
UC_INTERLOCK 28A
UC_SERIAL_CLOCK 29A
UC_SERIAL_DATA 30A
UC_SERIAL_LOGIC_ENABLE 31A
UC_EXTERNAL_REF_INDICATOR 32A

J44B

System_Serial- 1B
System +12Vdc_C3 2B
System -12Vdc_C2 3B
System -12Vdc_C1 4B
System +12Vdc_C6 5B
System +12Vdc_C5 6B
System +12Vdc_C4 7B
RCVR_INTERLOCK 9B
RCVR_ALC_FAULT 10B
RCVR_PLL_LOCK 11B
SPARE_DIN_4 12B
SPARE_DIN_5 13B
PA_VISUAL_POWER 14B
PA_AURAL_POWER 15B
PA_REFLECTED_POWER 16B
SPARE_AIN_1 17B
SPARE_AIN_2 18B
RCVR_ALC_VOLTAGE 19B
RCVR_MUTE 21B
SPARE_DOUT_2 22B
RMT_SPARE_1 23B
RMT_SPARE_2 24B
Auto_Test_1 25B
Auto_Test_2 26B
SCADA_232_B_IN 30B
SCADA_232_A_IN 31B
SCADA_485- 32B

J44C

System_Serial+ 1C
System +12Vdc_C3 2C
System -12Vdc_C2 3C
System -12Vdc_C1 4C
System +12Vdc_C6 5C
System +12Vdc_C5 6C
System +12Vdc_C4 7C
MOD_EXTERNAL_CW_PRESENT 9C
MOD_OUTPUT_SIGNAL_LEVEL 10C
MOD_AURAL_DEVIATION_LEVEL 11C
MOD_PLL_UNLOCKED 12C
MOD_INTERLOCK 13C
MOD_STATION_ID_CONTROL 14C
IF_PROCS_ALC_AUTO_MANUAL_SW 16C
IF_PROCS_MODULATION_PRESENT 17C
IF_PROCS_INPUT_FAULT 18C
IF_PROCS_SELECTED_IF_SOURCE 19C
IF_PROCS_MUTE_COMMAND 21C
IF_PROCS_ALC_VOLTAGE 22C
IF_PROCS_INTERLOCK 23C
IF_PROCS_BOARD_TYPE 24C
IF_PROCS_IF_POWER_CTRL 25C
IF_PROCS_DLC_VOLTAGE 26C
SCADA_232_B_OUT 30C
SCADA_232_A_OUT 31C
SCADA_485+ 32C

SPARE_TB_D_DIN_[1..8]

TB02 BASE BAND AUDIO

MOD_BASEBAND_AUDIO(+) 1
MOD_BASEBAND_AUDIO(-) 2
3
MOD_COMPOSITE_AUDIO(+)
MOD_COMPOSITE_AUDIO(-)
MOD_SAP/PRO_AUDIO(+)
MOD_SAP/PRO_AUDIO(-)
MOD_VIDEO(+)
MOD_VIDEO(-)
MOD_VISUAL_IF_INPUT
MOD_AURAL_IF_INPUT
MOD_CW_IF_INPUT
IF_PROCS_MODULATED IF INPUT
EXT_10_MHz INPUT
SYSTEM_10_MHz_OUTPUT
MOD_VISUAL_IF_OUTPUT
MOD_AURAL_IF_OUTPUT
UC_RF_OUTPUT
RMT_TRANSMITTER_STATE
RMT_INTERLOCK
RMT_INTERLOCK_ISOLATED_RTN
RMT_AUX_I/O_1
RMT_RF_SYSTEM_INTERLOCK
RMT_SET_TO_OPERATE_CMD
RMT_SET_TO_STAND-BY_CMD
RMT_POWER_RAISE
RMT_POWER_LOWER
RMT_SYSTEM_REFLECTED_PWR
RMT_SYSTEM_VISUAL_PWR
RMT_SYSTEM_AURAL_PWR
RMT_SPARE_1
RMT_SPARE_2
System +12Vdc_C6
System -12Vdc_C2
IF_PROCS_IF_SIGNAL_SELECT
IF_PROCS_DLC_VOLTAGE
UC_AGC_#2_VOLTAGE
SYSTEM_REFLECTED_PWR
SYSTEM_VISUAL_PWR
SYSTEM_AURAL_PWR
System +12Vdc_C6
System -12Vdc_C2

J3 BNC COMPOSITE AUDIO
J4 BNC SAP/PRO AUDIO
J7 BNC VIDEO INPUT
J17 BNC VIDEO LOOP-THRU
J11 BNC SYSTEM 10 MHz OUTPUT
L1 .27uH
C1 .001
J10 BNC EXTERNAL 10 MHz INPUT
J18 BNC VISUAL IF LOOP-THRU INPUT
J19 BNC AURAL IF LOOP-THRU INPUT
J5 BNC CW IF INPUT
J6 BNC MODULATED IF INPUT
J8 BNC VISUAL IF LOOP-THRU OUTPUT
J9 BNC AURAL IF LOOP-THRU OUTPUT
J23 BNC UPCONVERTER RF OUTPUT

C2 .01, C3 .01, C4 .01, C5 .01, C6 .01, C7 .01, C8 .01, C9 .01
C10 .01, C11 .01, C12 .01, C13 .01, C14 .01
C15 .01, C16 .01, C17 .01, C18 .01, C19 .01, C20 .01, C21 .01, C22 .01, C23 .01, C24 .01

TB30

TB31

J32 SCADA (Input / Loop-Thru)

SCADA_485+ 1
SCADA_485- 2
SCADA_485+ 4
SCADA_485- 5
SCADA_232_A_IN 7
SCADA_232_A_OUT 8
GND 9
GND 10
95123-2881

J33 SCADA (Input / Loop-Thru)

SCADA_485+ 1
SCADA_485- 2
SCADA_485+ 4
SCADA_485- 5
SCADA_232_B_IN 7
SCADA_232_B_OUT 8
GND 9
GND 10
95123-2881

J34 System RS-485 Serial

UC_AGC_#2_VOLTAGE 1
System_Serial+ 4
System_Serial- 5
GND 9
GND 10
95123-2881

J52

PA_VISUAL_POWER 1
KEY 2
PA_AURAL_POWER 3
PA_REFLECTED_POWER 4
RTN 5

Related Part Numbers:
ASSY: 1304047
SCH: 1304049
PCB: 1304048
STENCIL: 1304050

REMOVED KEY REF FOR TB30 & TB31. JKF

REV	ECO	DATE	APV
B0	20111491	8/16/04	DB

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MATERIAL -----

FINISH -----

TITLE SCH, BACKPLANE BOARD, V2, LX (1304047)

DWN	DB	5/3/04	DWG. NO. 1304049 REV B0
CHK	DB	5/3/04	
REL	DB	5/3/04	D SCALE - - - SHEET 1 OF 1