E.C.N.	ZONE	REV	DESCRIPTION	DATE	BY	APPROVALS CK	ME	EE	PE
95-227		B	CORRECT NOTE 9 ABOUT MAIN BOARD	08/30/95	LCD				JW
95-217		C	CORRECT DISPLAY CONNECTOR	10/09/95	LCD				TS
T991731		D	INCORPORATE CHANGES FROM EC #'S 98E0497, 97E0864, 97E139B, AND 97E161B.	09/14/99	DK	JLM	NJR	NJR	JLM

BALANCED TO UNBALANCED INPUT STAGE

GAIN STAGE

FRONT PANEL

LAST VOLTAGE AMP

OUTPUT BOARD

PRE-DRIVER

HIGH-SIDE NPN DRIVER AND OUTPUT

LOW-SIDE NPN DRIVER AND OUTPUT

REAR PANEL OUTPUT

HIGH-SIDE PNP DRIVER AND OUTPUT

LOW-SIDE PNP DRIVER AND OUTPUT

HIGH-SIDE ERROR AMP

VOLTAGE TRANSLATOR STAGE

ODEP

HIGH FREQUENCY FEEDBACK

LOW FREQUENCY FEEDBACK

FAULT CIRCUIT

TURN ON DELAY AND FAULT OUTPUT

DC/LF PROTECT

STEREO-MONO SWITCH (S4)

CHANNEL 1 LAST USED	CHANNEL 1 OBSOLETED
C162	125-128,142,158
C316	308,314
D135	102-107,116-118
D312	300,309-312
E101	
L302	
N102	100
PTC301	300
Q135	
Q319	
R199	R178
R354	
R543	
U104	

COMMON LAST USED	COMMON OBSOLETED
C7	3,5,6
D7	
R19	2,3,5,6,9,13-16
S4	1
U2	

NOTES :

1. ALL RESISTORS ARE IN OHMS, 1/4W, 5% UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
3. ALL DIODES ARE 1N4148 UNLESS OTHERWISE SPECIFIED.
4. ON J500 AND J700 THE STRIPED WIRE GOES TO PIN 12 OF THE BOARD AND THE PIN NUMBERS MOLDED ON THE CABLE SOCKET ARE REVERSED FROM THE PIN NUMBERS ON THE BOARD AND THE SCHEMATIC.
5. STANDARD UNIT HAS R18 OPEN. INSTALL JUMPER IN R18 TO DISABLE CHANNEL 2 SIGNAL INDICATOR LIGHT IN PARALLEL MONO MODE.
6. CHANNEL 2 PRE-DRIVER BASES LOOP THROUGH STEREO-MONO SWITCH S4, SECTIONS E AND F.
7. CHANNEL 1 SHOWN. FOR CHANNEL 2 ADD 100 TO REFERENCE DESIGNATORS. (EXAMPLE : CHANNEL 1 R101 WOULD BE CHANNEL 2 R201.) CONNECTOR AND IC PIN NUMBERS FOR CHANNEL 2 ARE SHOWN IN PARENTHESIS WHERE THEY DIFFER FROM CHANNEL 1. EXCEPTIONS ARE CHAN 1 J500 CORRESPONDS TO CHAN 2 J700, AND CHAN 1 J600 CORRESPONDS TO CHAN 2 J800.
8. MODULE DOCUMENTS AND RESISTOR MATRIX FOR R175 (R275) AND R177 (R277)

MODULE	R175 (R275)	R177 (R277)
MA3600VZ 120V 60HZ — 043382-3 REV A	2.26K 1%	4.87K 1%
MA3600VZ 100V 50/60HZ — 043396-3 REV A	2.49K 1%	5.49K 1%
MA3600VZ 230V 50/60HZ — 043397-1 REV A	2.55K 1%	5.62K 1%
MA3600VZ HSA1 — 043395-5 REV A	11.8K 1%	5.49K 1%

9. MODULE DOCUMENTS AND P.C. BOARDS FOR THIS SCHEMATIC ARE AS FOLLOWS:
   MAIN ..... D0825-B OR D0828-7
   OUTPUT ... 043387-2 AND P10423-5 REV B

UNUSED ELEMENTS

AMP IDENTIFYING RESISTOR

PRINTS TO
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SCHEM, MA3600VZ MAIN/OUTPUT

DRAWN	LCD	01/17/95	APPROVED BY :			DO NOT SCALE PRINT
CHECKED	JLM	9-15-99	ME			SUPERSEDES
SCALE	NONE		EE			E.C.N.
PROJ	D255		PE	JW	05/17/95	C.P.N. SHEET 1 OF 2 J0675-9 REV D
NEXT ASSEMBLY						

BALANCED TO UNBALANCED INPUT STAGE

FROM PIP CARD CH2- P1-4 CH2+ P1-5

R610 10K 1%
C238 47PF
R609 10K 1%
P201-3
P201-4 SHIELD NC
C233 27PF
C239 47PF
R611 10K 1%
R612 200 C.M.R.
R613 10K 1%
U204D 33079
R212 49.9K 1%
R208 NOT USED
-15V
J2-13 BGS1
R217 47K
J200 CH 2 INPUT
S2A
R614 24 5W
C259 0.01 100V
GROUND LIFT

FRONT PANEL
GAIN STAGE
5K LIN LEVEL
J201-3 J201-1 J201-2
P201-1
R276 11.8K 1%
P201-2
R275 SEE NOTE 8
R277 SEE NOTE 8
R274 11.8K 1%
C245 47PF
C244 100 35V
U204C 33079
R615 NOT USED
-15V
S3B S3C GAIN S3A

LAST VOLTAGE AMP
J2-11
R218 3.3M
+VCC2
D230
D231
D223 NOT USED
R200 820
C243 470PF
R209 75
J700-7 J700-10
R617 75
Q205 MPSW92
Q204 MPSW92
U205 COLLECTOR
SEE NOTE 6
D209
J700-7 FPNPNZ
J700-9 J700-2 J700-3

OUTPUT BOARD

PRE-DRIVER
P700-7 P700-10
C415 220PF
Q417 2SC3298B
C424 0.022
Q401 MJL3281A
L401 470UH
R424 13K
R400 130
P400-4 P400-3
R401 100
R402 0.2 0.50W
Q402 Q403 Q404
D485 MR822
D415 1N4004
R437 22
R438 22
D401 TN4004
D402 TN4004
D403 TN4004
D404 TN4004
R429 51
R425 2.2K
C407 0.001
Q410 TIP47
C408 0.01
R427 390
R426 250 HIGH SIDE BIAS
R403 0.33 5W
R404 0.33 5W
R405 0.33 5W
L400 2.5uH
R411 5.6 5W
R431 5.6 5W
C416 0.1 250V
C402 0.1 250V
R432 NOT USED
R433 NOT USED
R434 NOT USED
R412 2.7 2W
D407 MR822
REAR PANEL OUTPUT RED BLACK
C401 0.047
D408 MR822
R446 NOT USED
R447 NOT USED
R448 NOT USED
R414 2.7 2W
C403 0.1
-VCC2
LOW-SIDE NPN DRIVER AND OUTPUT
Q412 MJL3281A
Q409 Q410 Q411
R421 0.2 0.50W
R449 22
R450 22
R451 22
R435 0.50W
R436 0.50W
R418 0.33 5W
R416 0.33 5W
R417 0.33 5W
R443 51
C419 0.001
C411 NOT USED
R444 2K
R445 750
R423 250 LOW SIDE BIAS
Q400 TIP47
R415 0.33 5W
R419 0.33 5W
R420 0.33 5W
R452 22
R453 22
R454 22
R422 22
Q413 Q414 Q415
Q416 MJL1302A
N/C
LOW-SIDE PNP DRIVER AND OUTPUT
P700-8 P700-1 P400-2 P400-1 P700-4 P700-11 P800-11 P800-3 P800-8 P800-1 P800-5

PRE-DRIVER
P700-12
C413 0.47
HIGH-SIDE PNP DRIVER AND OUTPUT
C409 NOT USED
R428 13K
Q419 2SA1308B
R413 130
L402 470UH
C405 0.022
Q405 MJL1302A
R409 22
Q406 Q407 Q408
R410 100
D416 1N4004
D417 1N4004
R440 22
R441 22
R442 22
D418 MR822
D408 MR822
C412 220PF
P800-4 P800-2 P800-9 P800-10
P800-12
P5-1
J5-1

HIGH FREQUENCY FEEDBACK
LOW FREQUENCY FEEDBACK

VOLTAGE TRANSLATOR STAGE
U200 BASE
U200 COLLECTOR
U201 EMITTER
U204 PIN 5
TP2-1
J2-9
IOC1
R213 4.87K 1%
U204B 33079
D208 D222
R294 49.9K 1%
C253 0.1
R203 49.9K 1W 1%
C201 28PF
R202 510
C246 82PF
R279 1K 1%
Q212 2N4125
Q213 2N4125
C240 12PF
C241 12PF
R284 2.67K 1%
R205 2.67K 1%
R211 11.8K 1%
R207 91K
R210 91K
C205 27PF
C206 27PF
D214 1SS143
D215 1SS143
R269 100K
R261 47
R272 100K
R262 47
Q203 2N4125
U202 EMITTER
U203 COLLECTOR
U203 BASE
C208 27PF
C218 27PF
C247 NOT USED
R280 470
D212
Q201 MPSW92
Q202 MPSW42
D213
R239 820
R240 75
D232
D233
C248 470PF
R803 47 0.50W

HIGH-SIDE ERROR AMP
C200 100 35V
R201 2.49K 1%
+15V
R208 11.8K 1%
R206 11.8K 1%
-15V

PIP INTERCONNECT BOARD
22 PIN EDGE CONNECTOR
CH1+ 1
CH1- 2
GND 3
CH2+ 4
CH2- 5
GND 6
GND 7
-24V 8
BGS2 9
GND 10
A02 11
+24V 12
A01 13
ES1 14
GND 15
RS1 16
RS2 17
ODEP1 18
ODEP2 19
BGS1 20
+VCC2 21
+VCC1 22
ES2
5 PIN WIRE CABLE OR CONNECTOR
BLACK WIRE CH1+ BLACK WIRE
RED WIRE CH1- RED WIRE
BARE WIRE GND BARE WIRE
GREEN WIRE CH2+ GREEN WIRE
WHITE WIRE CH2- WHITE WIRE
16 PIN DIP CONNECTOR
ODD COLOR WIRE
A02 — 16
A01 — 15
+24V — 14
ES1 — 13
GND — 12
RS2 — 11
+VCC2 — 10
ODEP1 — 9
+VCC1 — 8
ODEP2 — 7
BGS1 — 6
ES2 — 5

MAIN BOARD
P1
1 CH1+
2 CH1-
3 GND
4 CH2-
5 CH2+
J2
ODD COLOR WIRE
A02 — 16
A01 — 15
+24V — 14
GND — 13
BGS2 — 12
RS1 — 11
-24V — 12
RS2 — 10
+VCC2 — 11
ODEP1 — 10
+VCC1 — 9
ODEP2 — 8
ES2 — 7
BGS1 — 6
P11
1 +24V
2 GND
3 -24V
4 ENABLE
5 GND
TP1
1 ES1
2 AMP ID RES
3 OPEN
4 -15V
5 -ODEP
6 LOW SIDE BIAS
7 - FAULT SENSE
8 + FAULT SENSE
9 RS1
10 +ODEP
TP2
1 ES2
2 AMP ID RES
3 OPEN
4 -15V
5 -ODEP
6 LOW SIDE BIAS
7 - FAULT SENSE
8 + FAULT SENSE
9 RS2
10 +ODEP
J500(J700)
LOW SIDE BIAS 1
+ FAULT SENSE 2
CURRENT LIMIT SENSE 3
+NPN SENSE 4
-ODEP 5
+ODEP 6
+VCC 7
(500) CH1 + LS DRIVE 8
(700) CH2 + LS DRIVE 9
+LVA 9
+VCC 10
-NPN SENSE 11
(500) CH1 HI FREQ FEEDBACK 12
(700) CH2 HI FREQ FEEDBACK
J600(J800)
OPEN 1
- FAULT SENSE 2
-PNP SENSE 3
- CURRENT SENSE 4
-VCC 5
-PTC 6
+PTC 7
(600) CH1 - LS DRIVE 8
(800) CH2 - LS DRIVE 9
-LVA 9
-VCC 10
+PNP SENSE 11
HI SIDE FAULT SENSE 12
P5
1 CH1 LOW FREQ FB
2 GND
3 CH2 LOW FREQ FB
OUTPUT BOARD
J500(J700)
LOW SIDE BIAS 1
+ FAULT SENSE 2
CURRENT LIMIT SENSE 3
+NPN SENSE 4
-ODEP 5
+ODEP 6
+VCC 7
(500) CH1 + LS DRIVE 8
(700) CH2 + LS DRIVE 9
+LVA 9
+VCC 10
-NPN SENSE 11
(500) CH1 HI FREQ FEEDBACK 12
(700) CH2 HI FREQ FEEDBACK
J600(J800)
OPEN 1
- FAULT SENSE 2
-PNP SENSE 3
- CURRENT SENSE 4
-VCC 5
-PTC 6
+PTC 7
(600) CH1 - LS DRIVE 8
(800) CH2 - LS DRIVE 9
-LVA 9
-VCC 10
+PNP SENSE 11
HI SIDE FAULT SENSE 12
DISPLAY BOARD
J3
ODD COLOR WIRE
A02 — 1
A01 — 2
+24V — 3
ES1 — 4
GND — 5
BGS2 — 6
RS1 — 7
-24V — 8
RS2 — 9
+VCC2 — 10
ODEP1 — 11
+VCC1 — 12
ODEP2 — 13
ES2 — 14
BGS1 — 15
CONTROL BOARD
J5
ODD COLOR WIRE
A02 — 16
A01 — 15
+24V — 14
ES1 — 13
GND — 12
GND — 11
BGS2 — 10
RS1 — 9
-24V — 8
RS2 — 7
+VCC2 — 6
ODEP1 — 5
+VCC1 — 4
ODEP2 — 3
ES2 — 2
BGS1 — 1
CONNECTOR CHART

ODEP
C236 470PF
+NPN
R225 100
R224 11K 1%
+15V
C256 0.1
+VCC2
R223 24K 0.50W
+VCC2
C254 0.1 250V
-VCC2
+15V
+15V
R229 100K
R241 150K
R228 13K
C234 0.022
Q206 2N4125
-15V
R221 100K -ODEP
R222 200K
C255 0.1
U200 2SA1349
R226 100
R227 11K 1%
-NPN
R256 1.3K
-15V
R252 11.8K 1%
Q217 2961
Q218 2961
R267 1K 1%
R260 976 1%
-15V
-15V
TP2-5
J800-6
J700-5
N201
N201A 9.55K
N201B 27.4K
N201C 19.6K
N201D 19.6K
N201E 27.4K
N201F 9.55K
C212 0.47 63V
C213 12 35V
C214 100 35V
C215 100 35V
C216 12 35V
C217 0.47 63V
P800-8
P700-5
PTC401 100 C
R430 102
S200 LM334
P700-6
P800-7
J800-7
J700-8
+15V
+15V
R270 1K 1%
R271 953 1%
R258 11.8K 1%
Q219 2N4125
Q220 2N4125
TP2-10
C235 0.022
+15V
Q209 2961
R231 13K
R230 100K
R242 150K
-15V
-15V
R605 510K
R604 510K
R257 1.3K
R616 1M
D229 1N3070
+VCC2
R215 510K
R238 11K 1%
PIP ODEP
J2-7
C232 0.001
+PNP
R232 100K +ODEP
R233 270K
-15V
U203 2SC3381
R234 24K 0.50W
-VCC2
R237 100
R235 100
R236 11K 1%
C237 470PF
-PNP

DC/LF PROTECT
AO2 J2-16
R214 4.87K 1%
R284 470K
R206 2.7M
C207 0.33 63V
CH2 FB
C219 0.47
+10V
-10V
U202C LM339
U202D LM339
R836 47
D234 1N4004
U233 COL
R837 10K
Q235 MPSA43
D236 1N4004
R644 20K
U234 COL
R838 10K
Q236 MPSA93
R645 20K

FAULT CIRCUIT
FPNPNZ
R254 56
TP2-8
CH2 FB
Q226 2N4125
R243 470
R245 470
R244 470
C202 100 35V
Q227 2N4123
TP2-7
FPPNP2
R260 56
U201 H11C2
N/C
+NPN
R263 56
+NPN
R264 470
Q220 2N4125
R266 470
C209 100 35V
+PNP
R265 470
Q229 2N4123
Q238 2N4125
+PNP
R273 56
TURN ON DELAY AND FAULT OUTPUT
+15V
+15V
R287 3.3K
R288 3.3K
E200 RED
E201 RED
D200
D201
R280 2M
R606 1.5K
C210 2.2 50V
-15V
TP3
R626 10K 1%
+15V
U202A LM339
R632 10K 1%
-15V
R293 10K 1%
R600 27K
-15V
J2-5
RS2
TP2-9
D228 NOT USED
CATHODE D228
P11-4

PRE-DRIVER
J700-7
+VCC2
C220 0.1
+15V
R246 11.8K 1%
C222 33PF
D227 1SS143
Q233 COL
Q215 MPS8097
D219
Q221 2N4123
R247 0
R283 47K
J700-8
J700-1
C250 NOT USED
R248 1.91K 1%
C252 100PF
C261 33PF
-VCC2
TP2-6
LOW-SIDE ERROR AMP
J700-4
J700-11
-NPN
+PNP
D224
Q214 2N4123
R299 10K 1%
R298 3.9K
-15V
D225
Q223 2N4125
R297 10K 1%
R296 3.9K
R295 47
+15V
C257 27PF
R259 13K
C223 470PF
C203 0.022
+15V
U204A
33079
C204 0.022
-15V
C211 0.001
+NPN
R600 300K
-PNP
R601 300K
CH2 FB
R255 47K
N202
2
1
33K
33K
R253 0
2.64K
2.85K
+VCC2
C231 12PF
C229 47PF
3
5
4
7
C230 12PF
J800-3
C251 0.01
C260 100PF
Q234 COL
J800-8
J800-1
N/C
R249 5.1 0.50W
Q216 PN4250A
VCC2
R251 11.8K 1%
C262 33PF
D220
Q222 2N4125
D226 1SS143
R291 47K
R292 47K
R635 1
C221 0.1
-15V
C224 33PF
J800-5
-VCC2
PRE-DRIVER
+15V
R627 3.9K
R638 10K 1%
Q231 2N4125
Q232 2N4125
Q233 2N4125
U233 COL
R628 10K 1%
R633 10K 1%
R629 47K
U200 BASE
U203 BASE
R634 10K 1%
R631 47K
U234 COL
Q234 2N4123
R632 10K 1%
-15V

CHANNEL 2

LAST USED	OBSOLETED
C262	225-228,242,258
C416	400,414,415
D235	202-207,216-218
D412	400,409-412
E201	
L402	
N202	200
PTC401	400
Q236	
Q419	
R299	R278
R454	
R643	
U204	

FRONT PANEL
ON
OFF J11-4
-15V
POWER SWITCH

UNUSED ELEMENT
U202B LM339
TP2-3
R12
TP2-2
TP2-4
-15V

PRINTS TO
G

CROWN INTERNATIONAL, INC.
1718 WEST MISHAWAKA ROAD ELKHART, IN. 46517 PHONE (219) 294-8000

SCHEM, MA3600VZ MAIN/OUTPUT

DRAWN	LCD	01/17/95	APPROVED BY :			DO NOT SCALE PRINT
CHECKED			ME			SUPERSEDES
SCALE	NONE		EE			E.C.N.
PROJ	D255		PE	JW	05/17/95	C.P.N. SHEET 2 OF 2
NEXT ASSEMBLY						J0675-9 REV D