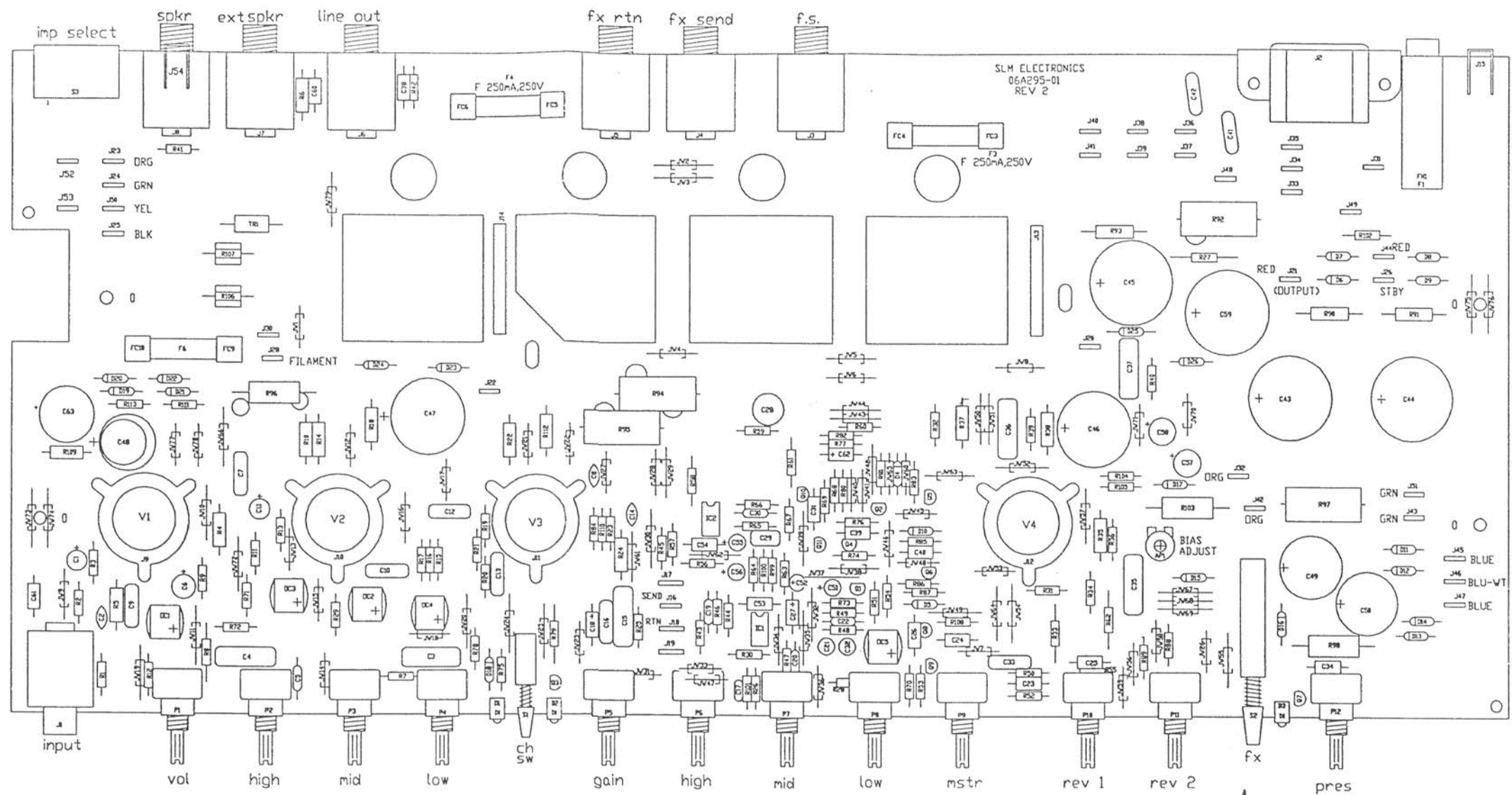


A				B			C			D			E		
DESIGNATOR	PART #	DESCRIPTION		DESIGNATOR	PART #	DESCRIPTION	DESIGNATOR	PART #	DESCRIPTION	DESIGNATOR	PART #	DESCRIPTION	DESIGNATOR	PART #	DESCRIPTION
AP1	71-253-25	25K	TRIM	F6	23-307-01	6 1/4A SB FUSE	Q9	96R175-01	J175	R90	78-224-01	220K 1W	R91	78-224-01	220K 1W
C1	12R684-50	.68	50V	FC3-6	23-926-02	CLIP	Q10	96R175-01	J175	R92	78-151-05	150 5W	R93	78-224-01	220K 1W
C2	10R221-04	220pF	400V	FC9-10	23-926-02	CLIP	Q11	96R175-01	J175	R94	78-852-05	8.5K 5W	R95	78-852-05	8.5K 5W
C3	10-473-10	.047	400V	FH1	23-346-01	FUSE HOLDER	R1	76-105-01	1M	R96	78-103-03	10K 2W	R97	78-047-05	47 5W
C4	10-473-10	.047	400V	IC1	37-532-01	NESS532	R2	76-473-01	47K	R98	78-101-01	100 2W	R99	76-470-01	47
C5	10A222-11	.0022	100V	IC2	37-532-01	NESS532	R3	76-152-01	1.5K	R100	76-470-01	47	R101	76-473-01	47K
C6	12R226-50	22	50V	J1	39-119-01	T/S JACK	R4	77-104-02	100K 1/2W	R102	76-474-01	470K	R103	78-472-01	4.7K 2W
C7	10-223-10	.022	400V	J2	17-604-01	AC CONN	R5	77-104-02	100K 1/2W	R104	76-103-01	10K	R105	76-153-01	15K
C8	10-471-52	470pF	500V	J3	39-117-01	T/R/S JACK	R6	77-100-01	10 1/2W	R106	76-471-01	470	R107	76-471-01	470
C9	10-102-10	.001	400V	J4	39-116-01	T/S JACK	R7	76-472-01	4.7K	R108	76-471-01	470	R109	77-100-01	10 1/2W
C10	10-223-10	.022	400V	J5	39-116-01	T/S JACK	R8	76-473-01	47K	R110	76-474-01	470K	R111	76-331-01	330
C11	12R684-50	.68	50V	J6	39-116-01	T/S JACK	R9	76-152-01	1.5K	R112	77-104-02	100K 1/2W	R113	76-331-01	330
C12	10-223-10	.022	400V	J7	39-116-01	T/S JACK	R10	77-104-02	100K 1/2W	S1	88-302-03	DPDT SWITCH	S2	88-303-02	4PDT SWITCH
C13	10-223-10	.022	400V	J8	39-116-01	T/S JACK	R11	76-102-01	1K	S3	88-214-02	DPDT SWITCH	TR1	73-401-01	SI DAC 120V
C14	10R221-04	220pF	400V	J9	17-451-09	T/S JACK	R12	76-104-01	100K	JW1-72	76-000-05	JUMPER	JW73-76	76-007-01	JUMPER
C15	10-473-10	.047	400V	J10	17-451-09	T/S JACK	R13	76-152-01	1.5K	JW77-79	76-000-05	JUMPER			
C16	10-223-10	.022	400V	J11	17-451-09	T/S JACK	R14	77-104-02	100K 1/2W						
C17	10R472-01	.0047	100V	J12	17-451-09	T/S JACK	R15	76-104-01	100K						
C18	12A105-51	1uF	50V	J13	17-104-13	.100 SOCKET	R16	76-224-01	220K						
C19	10A682-01	.0068	50V	J14	17-104-13	.100 SOCKET	R17	76-272-01	2.7K						
C20	10A222-11	.0022	100V	J15	51-149-01	GNDLUG	R18	77-224-02	221K 1/2W						
C21	12R225-51	2.2 NP	50V	J16	17-836-01	TAB	R19	76-474-01	470K						
C22	10A221-11	220pF	100V	J17	17-836-01	TAB	R20	76-104-01	100K						
C23	10A473-11	.047	100V	J18	17-894-01	TAB	R21	76-272-01	2.7K						
C24	10A473-11	.047	100V	J19	17-894-01	TAB	R22	77-224-02	221K 1/2W						
C25	10A473-11	.047	100V	J20	17-835-01	TAB	R23	76-152-01	1.5K						
C26	10A473-11	.047	100V	J21	17-835-01	TAB	R24	77-683-02	68.1K 1/2W						
C27	12A105-51	1uF	50V	J22	17-835-01	TAB	R25	76-223-01	22K						
C28	12R226-81	22 NP	50V	J23	17-835-01	TAB	R26	76-470-01	47						
C29	10-104-03	.1	100V	J24	17-836-01	TAB	R27	78-224-01	220K 1W						
C30	10A101-21	100pF	200V	J25	17-836-01	TAB	R28	76-103-01	10K						
C31	10A473-11	.047	100V	J26	17-836-01	TAB	R29	76-105-01	1M						
C32	12R105-51	1 NP	50V	J27	17-836-01	TAB	R30	76-154-01	150K						
C33	10-223-10	0.022	400V	J28	17-836-01	TAB	R31	76-105-01	1M						
C34	10A473-11	.047	100V	J29	17-836-01	TAB	R32	76-104-01	100K						
C35	10-473-10	.047	400V	J30	17-836-01	TAB	R33	76-472-01	4.7K						
C36	10-473-10	.047	400V	J31	17-836-01	TAB	R34	76-682-01	6.8K						
C37	10-473-10	.047	400V	J32	17-836-01	TAB	R35	77-681-02	681 1/2W						
C38	10A473-11	.047	100V	J33	17-836-01	TAB	R36	76-105-01	1M						
C39	10A104-01	.1	50V	J34	17-836-01	TAB	R37	77-823-02	82.5K 1/2W						
C40	10A104-01	.1	50V	J35	17-836-01	TAB	R38	77-104-02	100K 1/2W						
C41	10-332-01	.0033	UL	J36	17-836-01	TAB	R39	76-224-01	220K						
C42	10-332-01	.0033	UL	J37	17-836-01	TAB	R40	76-224-01	220K						
C43	12-107-94	100	350V	J38	17-836-01	TAB	R41	76-223-01	22K						
C44	12-107-94	100	350V	J39	17-836-01	TAB	R42	76-152-01	1.5K						
C45	12-107-94	100	350V	J40	17-836-01	TAB	R43	76-334-01	330K						
C46	12-476-42	47	450V	J41	17-836-01	TAB	R44	76-224-01	220K						
C47	12-476-42	47	450V	J42	17-836-01	TAB	R45	76-470-01	47						
C48	12-106-95	10	450V	J43	17-836-01	TAB	R46	76-472-01	4.7K						
C49	12-228-32	2200	35V	J44	17-836-01	TAB	R47	76-223-01	22K						
C50	12-228-32	2200	35V	J45	17-836-01	TAB	R48	76-471-01	470						
C51	12R476-12	47	16V	J46	17-836-01	TAB	R49	76-333-01	33K						
C52	12R476-12	47	16V	J47	17-836-01	TAB	R50	76-224-01	220K						
C53	10A473-11	.047	100V	J48	17-836-01	TAB	R51	76-224-01	220K						
C54	10A473-11	.047	100V	J49	17-836-01	TAB	R52	76-474-01	470K						
C55	12R476-12	47	16V	J50	17-836-01	TAB	R53	76-224-01	220K						
C56	12R476-12	47	16V	J51	17-836-01	TAB	R54	76-224-01	220K						
C57	12R106-10	10	100V	J52	17-836-01	TAB	R55	76-474-01	470K						
C58	12R106-10	10	100V	J53	17-836-01	TAB	R56	76-334-01	330K						
C59	12-107-94	100	350V	J54	51-149-01	GNDLUG	R57	76-224-01	220K						
C60	10A473-11	.047	100V	DC1	66-102-01	VTLSC6 OPTO	R58	76-102-01	1K						
C61	10A473-11	.047	100V	DC2	66-102-01	VTLSC6 OPTO	R59	76-104-01	100K						
C62	12A105-51	1	50V	DC3	66-102-01	VTLSC6 OPTO	R60	76-331-01	330						
C63	12-478-11	4700	10V	DC4	66-102-01	VTLSC6 OPTO	R61	76-103-01	10K						
D1	21-507-01	AMBER	LED	DC5	66-102-01	VTLSC6 OPTO	R62	76-332-01	3.3K						
D2	21-501-01	RED	LED	P1	70-105-21	1ML	R63	76-224-01	220K						
D3	21-503-01	YELLOW	LED	P2	70-306-01	250KL	R64	76-104-01	100K						
D4	21A146-01	1N746	3.3V	P3	70-503-22	50KA	R65	76-332-01	3.3K						
D5	21A146-01	1N746	3.3V	P4	70-254-22	250KA	R66	76-333-01	33K						
D6	21A407-01	1N4007		P5	70-105-22	1MA	R67	76-272-01	2.7K						
D7	21A407-01	1N4007		P6	70-306-01	250KL	R68	76-104-01	100K						
D8	21A407-01	1N4007		P7	70-306-01	250KL	R69	76-105-01	1M						
D9	21A407-01	1N4007		P8	70-503-22	50KA	R70	76-105-01	1M						
D10	21A754-01	1N754	6.8V/.5W	P9	70-105-22	1MA	R71	76-471-01	470						
D11	21A407-01	1N4007		P10	70-133-01	50KL	R72	76-471-01	470						
D12	21A407-01	1N4007		P11	70-133-01	50KL	R73	76-223-01	22K						
D13	21A407-01	1N4007		P12	70-203-23	20KRA	R74	76-223-01	22K						
D14	21A407-01	1N4007		Q1	96RS10-01	2N5210	R75	76-471-01	470						
D15	21A440-01	1N4740	10V/1W	Q2	96RS10-01	2N5210	R76	76-104-01	100K						
D16	21A440-01	1N4740	10V/1W	Q3	96RS10-01	2N5210	R77	76-104-01	100K						
D17	21A407-01	1N4007		Q4	96RS10-01	2N5210	R78	76-472-01	4.7K						
D18</															

# SERVICE



**TUBE INSTALLATION :**

DESIGNATOR	PART #	DESCRIPTION
V1	95-127-01	12AX7
V2	95-127-01	12AX7
V3	95-127-01	12AX7
V4	95-127-01	12AX7

**MISCELLANEOUS HARDWARE:**

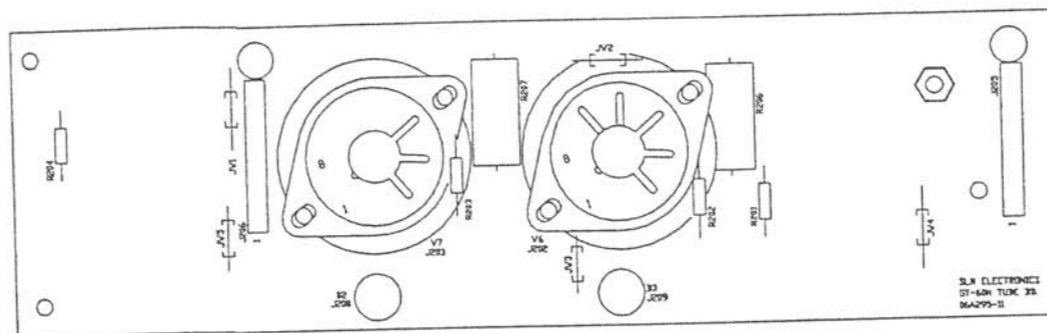
QUANTITY	PART #	DESCRIPTION
1	06A295-01	PCB
2	30-638-53	SCREW
2	30-700-01	NUT
2	45-224-01	BUTTON

REV	DATE	BY	CHK'D	DESCRIPTION
K	08/25/98	WFB		96 > 96R PER ECR980925-02
J	6/24/98	WFB		12 > 12R, 96 > 96R PER E980080, DEL FUSE INFO PER E980063 SKIPPED 2 REVS TO MATCH SCHEMATIC
7	09/05/97	SWR		SCHEMATIC CHANGED. PICTORIAL NOT AFFECTED. PER ECO #970453
6	08/11/97	DDA		CHANGES MADE TO SCH. PICT. NOT AFFECTED. PER ECO #970404.
5	02/04/97	SWR		ADDED J52, J53, & J54. PER ECO #960572.
4	03/04/96	SWR		CHANGES PER ECOS #E950122 AND #E950049.
3	04/07/95	SWR		CHANGED F6 FROM:23-306-01 TO:23-307-01 PER ECO #950004A.
2	02/22/95	JCJ		CHG'D OC1-5 FROM 66-101-01 TO 66-102-01 PER ECO# E0545
1	10/31/94	JCJ		CHG'D R41, R104, R105, & OC1_OC5 PER ECO'S #E0417 & #E0499.
1	01/05/95	SWR		

Released By  
*SE*  
10112198

SIGNATURES:		DATE:	1880 BORMAN DR. ST. LOUIS, MISSOURI 63143	
DRAWN:	REM	04/21/94		
CHK'D:			PROJECT NAME: BV-60H	
APP'D:			DRAWING NAME: MAIN BD. PICTORIAL	
ORIGINAL ISSUED:	04/21/94	DRAWING NO. 07P295-51/-55 REV. K_		
PLOT DATE:	10/06/98	SCALE: NTS SHEET: 1 OF 3		
PLOT TIME:	12:00:31			
FILE NAME:	29551PK_			





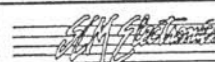
DESIGNATOR PART # DESCRIPTION

J201	NOT USED	
J202	17-450-08	TUBE SOCKET
J203	17-450-08	TUBE SOCKET
J204	NOT USED	
J205	17-101-13	13 PIN HEADER
J206	17-101-13	13 PIN HEADER
J207	NOT USED	
J208	17-582-01	LAMP HOLDER
J209	17-582-01	LAMP HOLDER
J210	NOT USED	
V5	NOT USED	
V6	97-916-02	6L6GT TUBE
V7	97-916-02	6L6GT TUBE
V8	NOT USED	

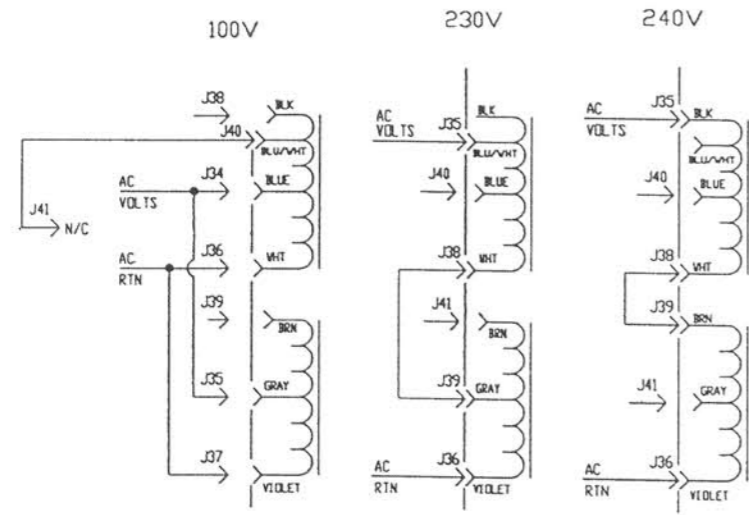
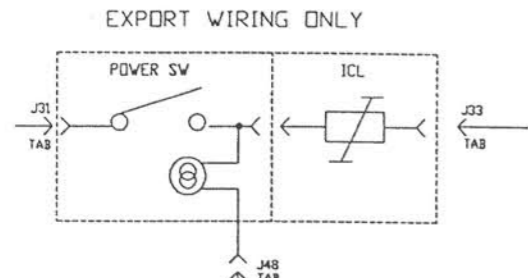
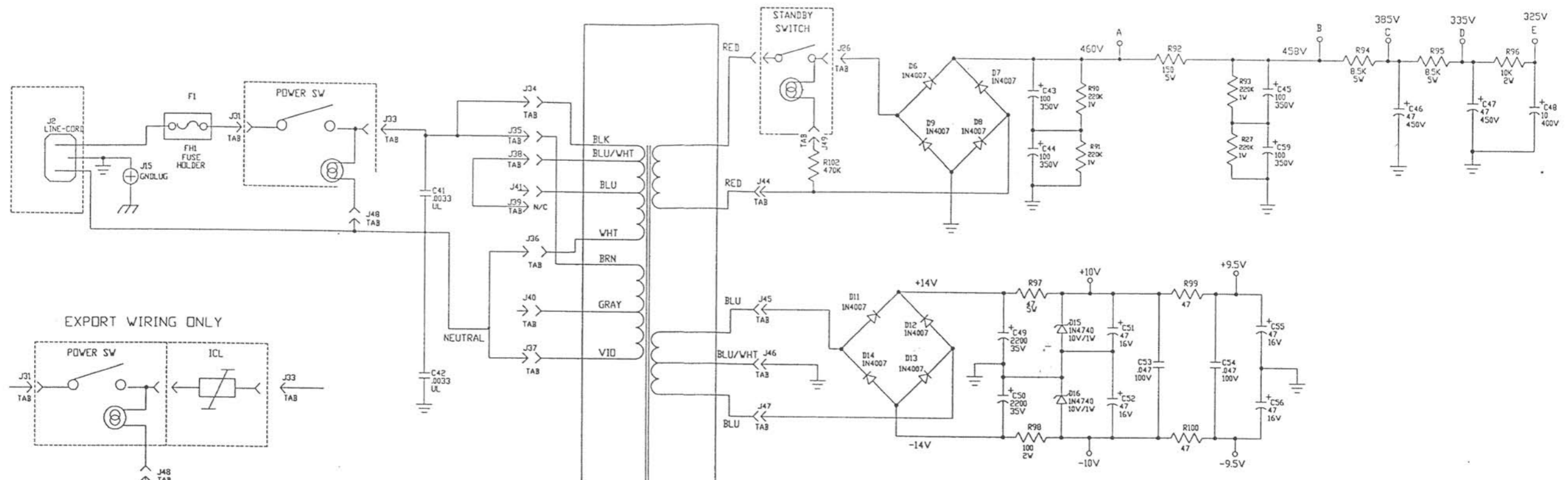
R201	76-152-01	1.5K
R202	76-152-01	1.5K
R203	76-152-01	1.5K
R204	76-152-01	1.5K
R205	NOT USED	
R206	78-471-05	470 5W
R207	78-471-05	470 5W
R208	NOT USED	
JW1	76-000-05	JUMPER
JW2	76-000-05	JUMPER
JW3	76-000-05	JUMPER
JW4	76-000-05	JUMPER
JW5	76-000-05	JUMPER
B1	NOT USED	
B2	49-211-01	6.3V LAMP
B3	49-211-01	6.3V LAMP
B4	NOT USED	

QTY.	MISC.	
9	30-638-53	6-32 x 3/8" SCREW
5	85-133-01	6-32 x 15/16" HEX
1	06A295-11	PRINTED CIRCUIT BOARD



SIGNATURES:	DATE:	 1880 BORNAN DR. ST. LOUIS, MISSOURI 63143
DRAWN: LMA	04/03/96	
CHK'D: GM	04/04/96	PROJECT NAME:
APP'D: GM	04/04/96	BV-60H
ORIGINAL ISSUED:	04/04/96	DRAWING NAME:
PLOT DATE:	04/03/96	TUBE BD. PICTORIAL
PLOT TIME:	23:16:11	DRAWING NO. 07P295-16
FILE NAME:	29516PO_	REV. -
		SCALE: - SHEET: 1 OF 1





**EXPORT WIRING**

- NOTES**
- 1) CAUTION: SHOCK HAZARD!! THIS UNIT CONTAINS HAZARDOUS VOLTAGE. DISCONNECT POWER AND BE SURE POWER SUPPLY IS DISCHARGED BEFORE TOUCHING INTERNAL PARTS.
  - 2) UNLESS NOTED, RESISTOR VALUES IN OHMS, 1/4W-5% TOL. CAPACITOR VALUES IN MICROFARADS, 50V-10% TOL.
  - 3) VOLTAGES ARE MEASURED WITH 1 MEGOHM OSCILLOSCOPE AND 10 MEGOHM DIGITAL VOLTMETER.
  - 4) CHASSIS GROUND  $\uparrow$  DIRTY GROUND  $\downarrow$  SIGNAL GROUND  $\pm$
  - 5) BLU/WHT LEAD NOT ON EARLY PRODUCTION 94-650-21 TRANSFORMERS WHEN USING THE 94-650-21 FOR 230V. WIRE THE TRANSFORMER BLACK LEAD TO J35.

- BIAS CALIBRATION PROCEDURE**
- 1) CONNECT UNIT TO PROPER AC LINE VOLTAGE.
  - 2) ALLOW UNIT TO WARM UP AT LEAST 5 MINUTES.
  - 3) WITH NO SIGNAL APPLIED ADJUST AP1 FOR 85 WATTS (0.8A DOMESTIC) DRAW FROM THE LINE.
  - 4) ALTERNATE METHOD: WITH ENOUGH SIGNAL (CLEAN) TO JUST CLIP OUTPUT ADJUST AP1 FOR SLIGHT CROSSOVER DISTORTION VISIBLE ON OSCILLOSCOPE TRACE.

**CAUTION:**  
THIS SCHEMATIC IS PROVIDED FOR USE BY QUALIFIED PERSONNEL. TO AVOID RISK OF ELECTRIC SHOCK, REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. DO NOT PERFORM ANY SERVICING BEYOND THAT EXPLAINED IN THE OPERATING INSTRUCTIONS.

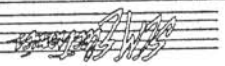
**TEST POINT CHART**

T.P. #	D.C. VOLTAGE NO SIGNAL (V)	SIGNAL, CHANNEL 1 ACTIVE (V <sub>P-P</sub> )	SIGNAL, CHANNEL 2 ACTIVE (V <sub>P-P</sub> )
1	205	0.3	0.3
2	215	0.02	0.02
3	215	0.03	2.2
4	185	---	0.14
5	200	---	105
6	215	---	130 (CLIPPED)
7	0	6	
8	0	2 V/.03V <sub>P-P</sub> SIGNAL FROM REV.	
9	0	0.6	
10	0	1.7	
11	265	22	15 (CLIPPED)
12	0	12	7.5 (CLIPPED)
13	---	0.2VDC	10VDC
14	---	10VDC	0.2VDC
15	---	0.2VDC (FX ON)	10VDC (FX OFF)

1 KHz SIGNAL @ INPUT; ALL CONTROLS @ '10', EXCEPT CHANNEL 2 GAIN, HIGH, MASTER @ '5' AND REVERB, PRESEMC @ '0'. 8 OHM LOAD.

**SEE SHEET 1 OF 2 FOR REVISION HISTORY**

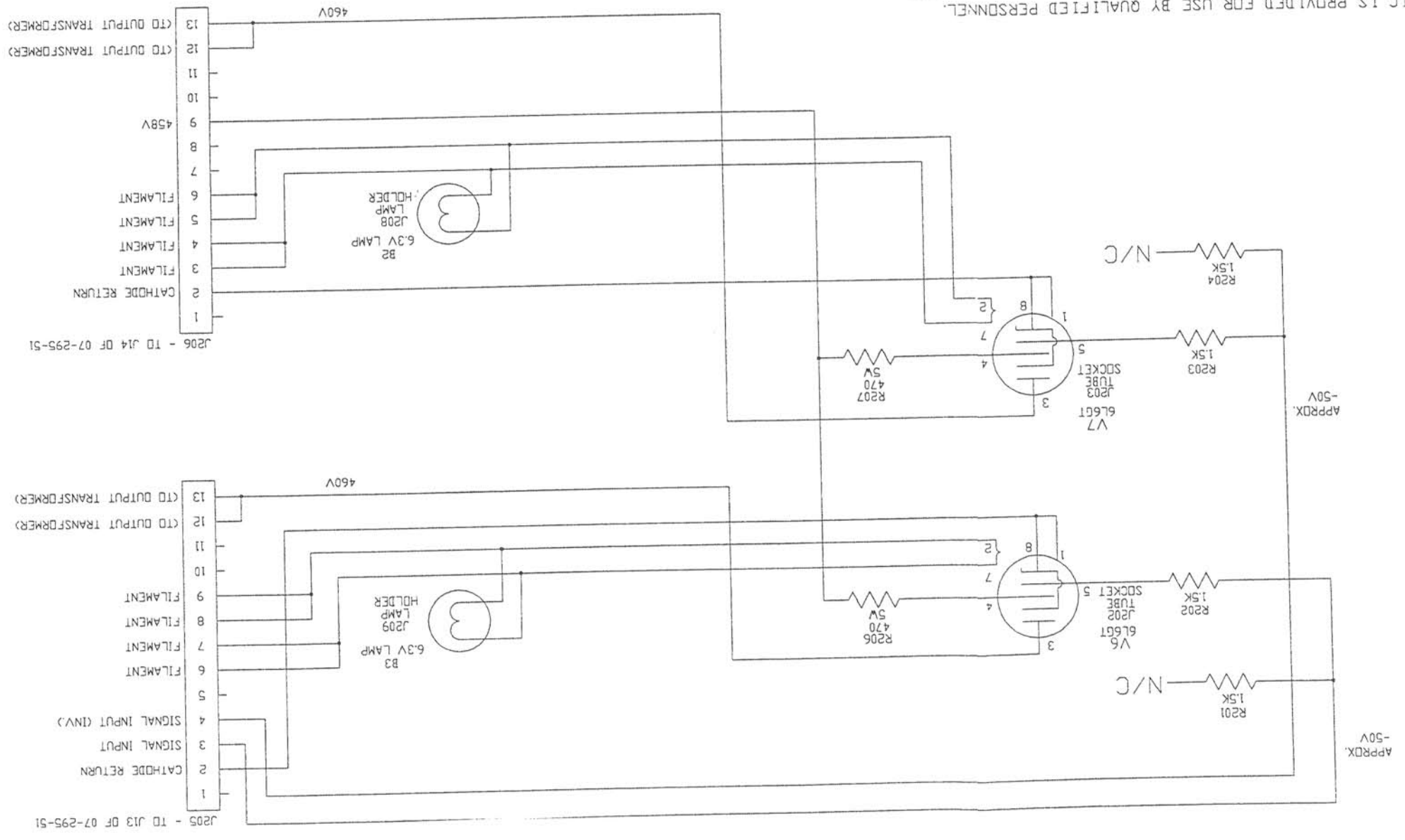
SIGNATURES:	DATE:	 T. B. BORSLEM DR. ST. LOUIS, MISSOURI 63168
DRAWN: REM	04/25/94	
CHK'D:		PROJECT NAME:
APP'D:		BV-60H
ORIGINAL ISSUED:	04/25/94	DRAWING NAME:
PLOT DATE:	10/06/98	MAIN BD. SCHEMATIC
PLOT TIME:	12:05:18	DRAWING NO. 07S295-51/-55 REV. K_
FILE NAME:	29551HK_	SCALE: NTS SHEET: 2 OF 2

DATE:	04/03/96	SIGNATURES:	
DRAWN:	LMA		
CHK'D:	GM		
AP'D:	GM		
ORIGINAL ISSUED:	04/04/96		
PLOT DATE:	04/03/96		
PLOT TIME:	23:14:41		
FILE NAME:	29516H01		
SCALE:	1:1	SHEET:	1 OF 1
DRAWING NO.	07S295-16	REV.	-
DRAWING NAME:	TUBE BD. SCHEMATIC		
PROJECT NAME:	BV-60H		
 M880 BOMAN DR. ST. LOUIS, MISSOURI 83148			



- NOTES
- 1) CAUTION: SHOCK HAZARD! THIS UNIT CONTAINS HAZARDOUS VOLTAGE. DISCONNECT POWER AND BE SURE POWER SUPPLY IS DISCHARGED BEFORE TOUCHING INTERNAL PARTS.
  - 2) UNLESS NOTED, RESISTOR VALUES IN OHMS, 1/4W-5% TOL. CAPACITOR VALUES IN MICROFARADS, 50V-10% TOL.
  - 3) VOLTAGES ARE MEASURED WITH 1 MEGOHM OSCILLOSCOPE AND 10 MEGOHM DIGITAL VOLTMETER.
  - 4) CHASSIS GROUND  $\nabla$  DIRTY GROUND  $\nabla$  SIGNAL GROUND  $\nabla$

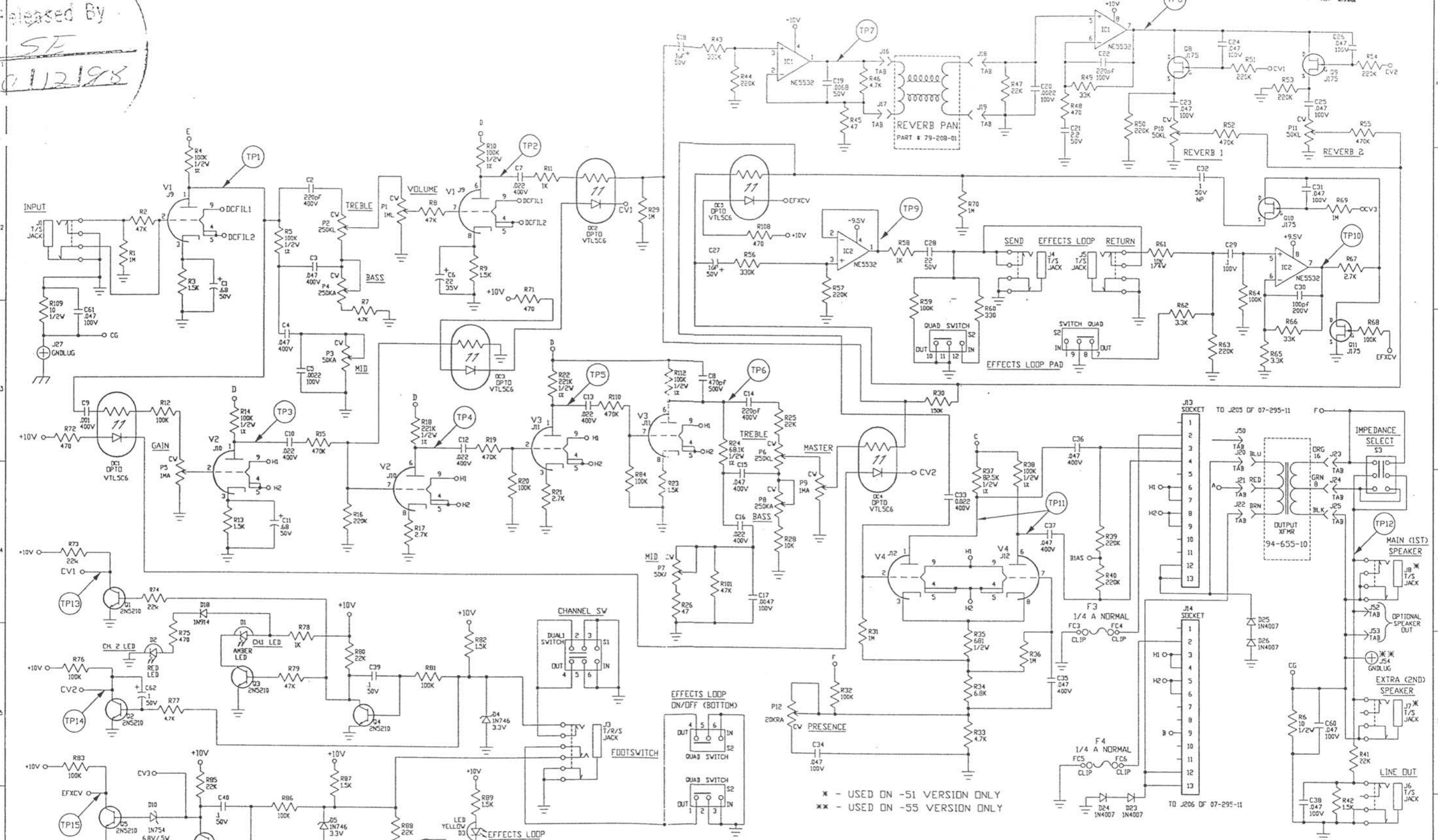
CAUTION: THIS SCHEMATIC IS PROVIDED FOR USE BY QUALIFIED PERSONNEL. TO AVOID RISK OF ELECTRIC SHOCK, REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. DO NOT PERFORM ANY SERVICING BEYOND THAT EXPLAINED IN THE OPERATING INSTRUCTIONS.



Released By

SF  
10/12/98

# SERVICE



\* - USED ON -51 VERSION ONLY  
 \*\* - USED ON -55 VERSION ONLY

REV	DATE	BY	CHK'D	DESCRIPTION
6	08/11/97	DDA		MADE CHANGES PER MARKUP. PER 970404
5	02/04/97	SWR		ADDED J52, J53, & J54. PER ECO #860572.
4	03/04/96	SWR		CHANGED PER ECOS #E950122 AND #E950049.
3	04/07/95	SWR		CHANGED F6 FROM 23-306-01 TO 23307-01 PER ECO #050004A.
2	02/22/95	JCJ		CHG'D OC1-5 FROM 66-101-01 TO 66-102-01 PER ECO #E0545.
1	10/31/94	JCJ		CHG'D R41, R104, R105, & OC1-OC5 PER ECO'S #E0417 & #E0499.
7	09/05/97	SWR		CHANGED NOTE #5 ON SHEET 2 OF 2. PER ECO #97453.

SIGNATURES:	DATE:
REM	04/25/94
CHK'D:	
APP'D:	
ORIGINAL ISSUED:	04/25/94
PLOT DATE:	10/06/98
PLOT TIME:	12:05:18
FILE NAME:	29551HK_

PROJECT NAME:	DRAWING NAME:
BV-60H	MAIN BD. SCHEMATIC
DRAWING NO. 07S295-51/-55	REV. K_
SCALE: NTS	SHEET: 1 OF 2

TIBBO BORMANN DR.  
 ST. LOUIS, MISSOURI  
 63168