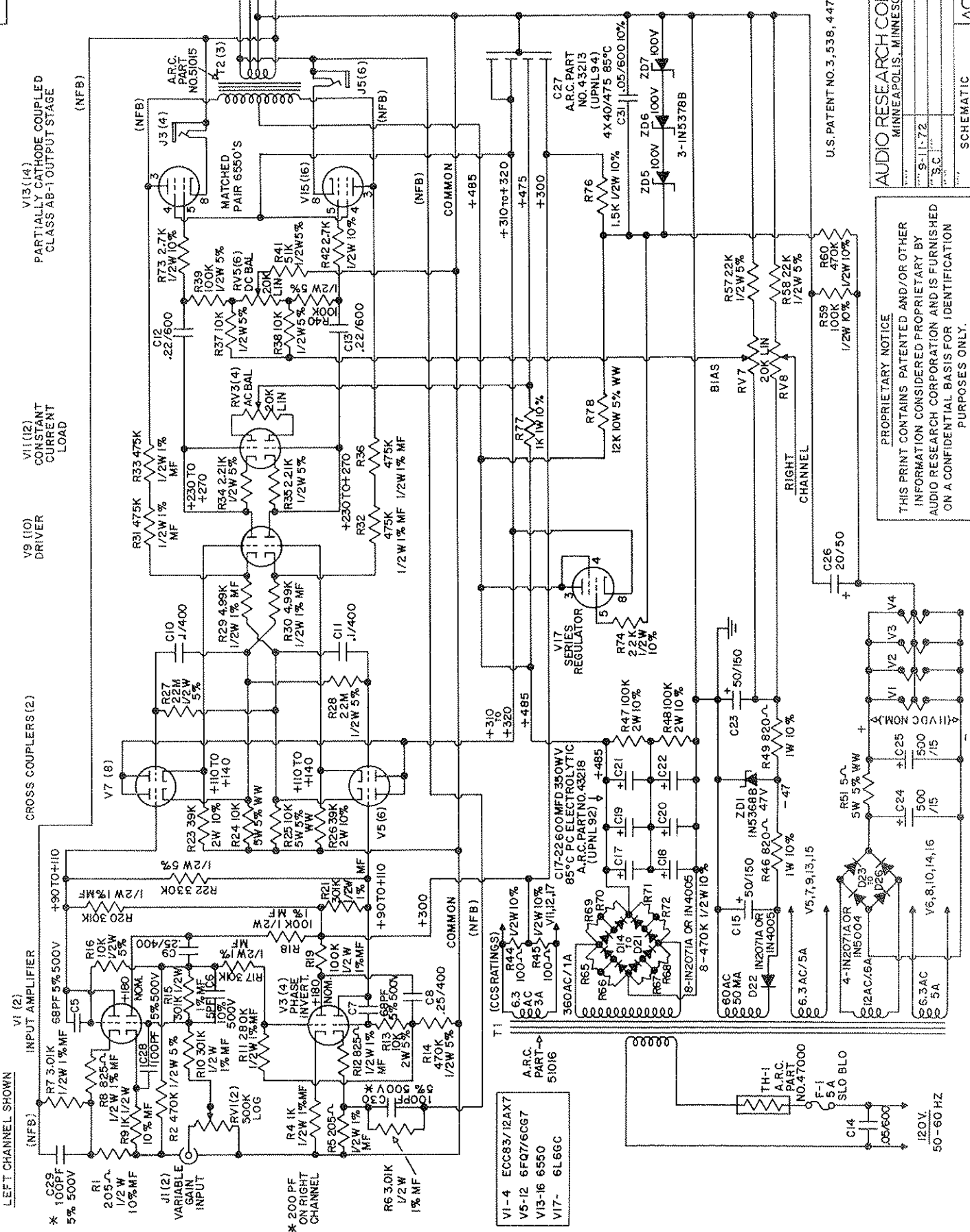


audio research

H I G H D E F I N I T I O N[®]

3900 ANNAPOLIS LANE NORTH / PLYMOUTH, MINNESOTA 55447-5447 / PHONE: 763-577-9700 FAX 763-577-0323

D51 POWER AMPLIFIER
SCHEMATICS & CHASSIS/TUBE
LAYOUT



1- ALLOW 15 MINUTE WARMUP
 2- SET BIAS TO MIN. THD AT 50 MA. IDLE PER TUBE OR NOM. 50 MA.
 3- SET DC BAL. TO EQUAL IDLE CURRENT PER TUBE.
 4- SET AC BAL. TO MIN. THD AT 75 W. AT 1KHZ (< 1%, .05 TO .07 NOM.).
 5- IF WITHOUT DISTORTION MEASURING EQUIPMENT, SET ALL 4 OUTPUT TUBES TO 50 MA EACH AFTER 30 MINUTE WARMUP.

- V1-4 ECC83/12AX7
- V5-12 6FQ7/6CG7
- V13-16 6X4
- V17- 6L6GC

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AUDIO RESEARCH CORPORATION
 MINNEAPOLIS, MINNESOTA

U.S. PATENT NO. 3,538,447

SCHEMATIC
 DUAL 51 AMPLIFIER

ACE-395

LEFT CHANNEL SHOWN (RIGHT CHANNEL TUBE PINS, WHERE DIFFERENT, ARE IN PARENTHESIS)

V13 (14)
PARTIALLY CATHODE COUPLED
CLASS AB-1 OUTPUT STAGE
(NFB)

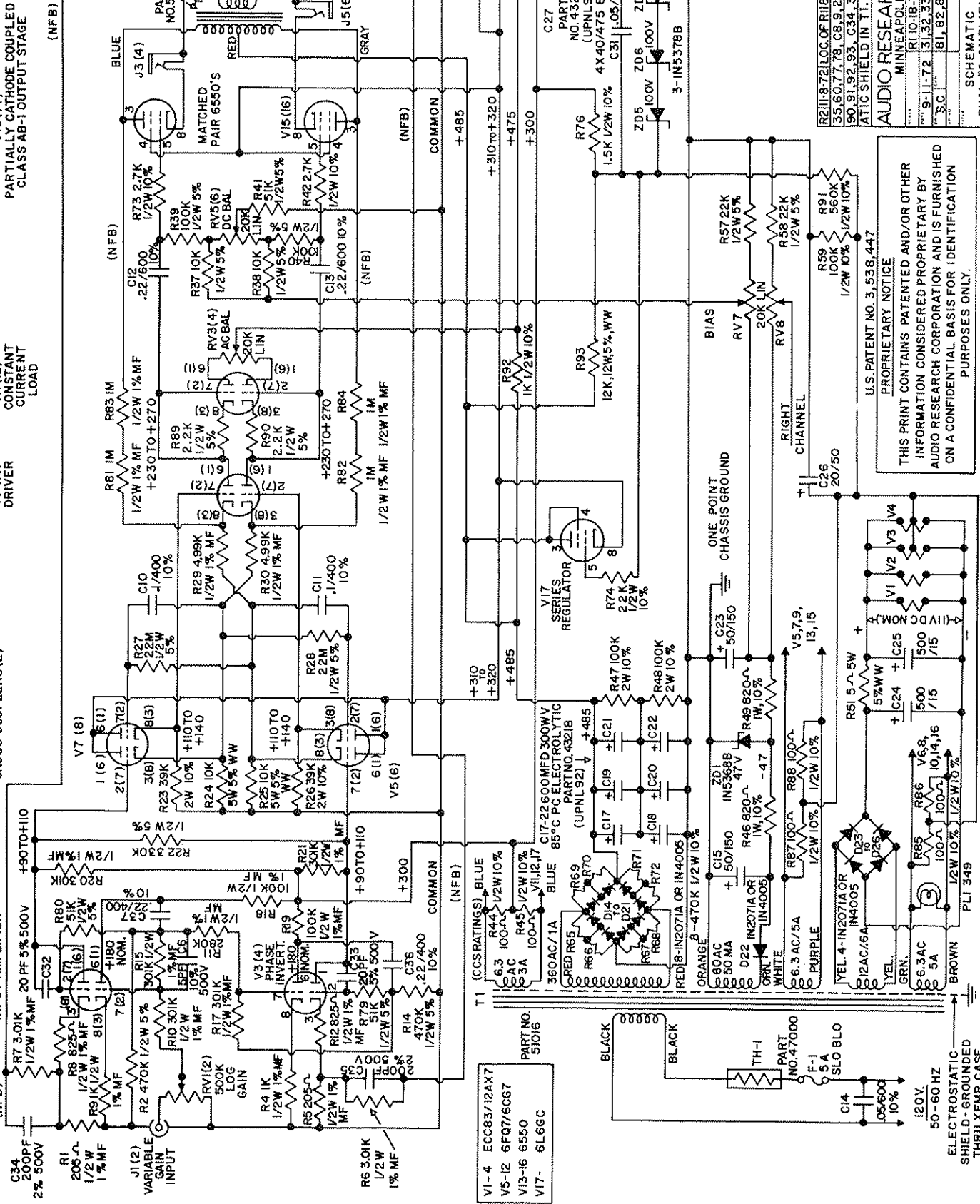
VII (12)
CONSTANT CURRENT
LOAD

V9 (10)
DRIVER

CROSS COUPLERS (2)

V1 (2)
INPUT AMPLIFIER

V3 (4)
PHASE
INVERTER



VI-4 ECC83/12AX7
 V5-12 6FQ7/6CG7
 V13-16 6550
 V17- 6L6GC

PART NO.
51016

T1 (CG RATINGS) BLUE
 6.3 100-0.5
 6.3 100-1
 6.3 100-1.5
 360AC/1A
 RED R65
 RED R66
 RED R67
 RED R68
 RED R69
 RED R70
 RED R71
 RED R72
 RED R73
 RED R74
 RED R75
 RED R76
 RED R77
 RED R78
 RED R79
 RED R80
 RED R81
 RED R82
 RED R83
 RED R84
 RED R85
 RED R86
 RED R87
 RED R88
 RED R89
 RED R90
 RED R91
 RED R92
 RED R93
 RED R94
 RED R95
 RED R96
 RED R97
 RED R98
 RED R99
 RED R100

ORANGE 470K 1/2W 10%
 C15 50/150
 D22 IN2071A OR
 6.3AC/5A
 PURPLE
 V5,7,9
 13,15
 R51 5-0.5W
 5% WW
 C24 +C25
 500
 /15
 V1 V2 V3 V4
 10V DC
 YEL 4-IN2071A OR
 IN4005
 6.2AC/6A
 GRN.
 6.3AC
 5A
 BROWN
 P1 349

C27
 PART
 NO 43213
 (UPNL94)
 4X40/475 85°C
 1.5K 1/2W 10%
 C31 105/600 10%
 ZD5 ZD6 ZD7
 100V 100V 100V
 3-IN5378B

BIAIS
 CHASSIS GROUND
 ONE POINT
 BIAS
 RV7
 20K LIN
 RV8
 20K LIN
 R57 22K
 1/2W 5%
 R58 22K
 1/2W 5%
 R59 100K
 1/2W 10%
 R91 560K
 1/2W 10%

U.S. PATENT NO. 3,838,447
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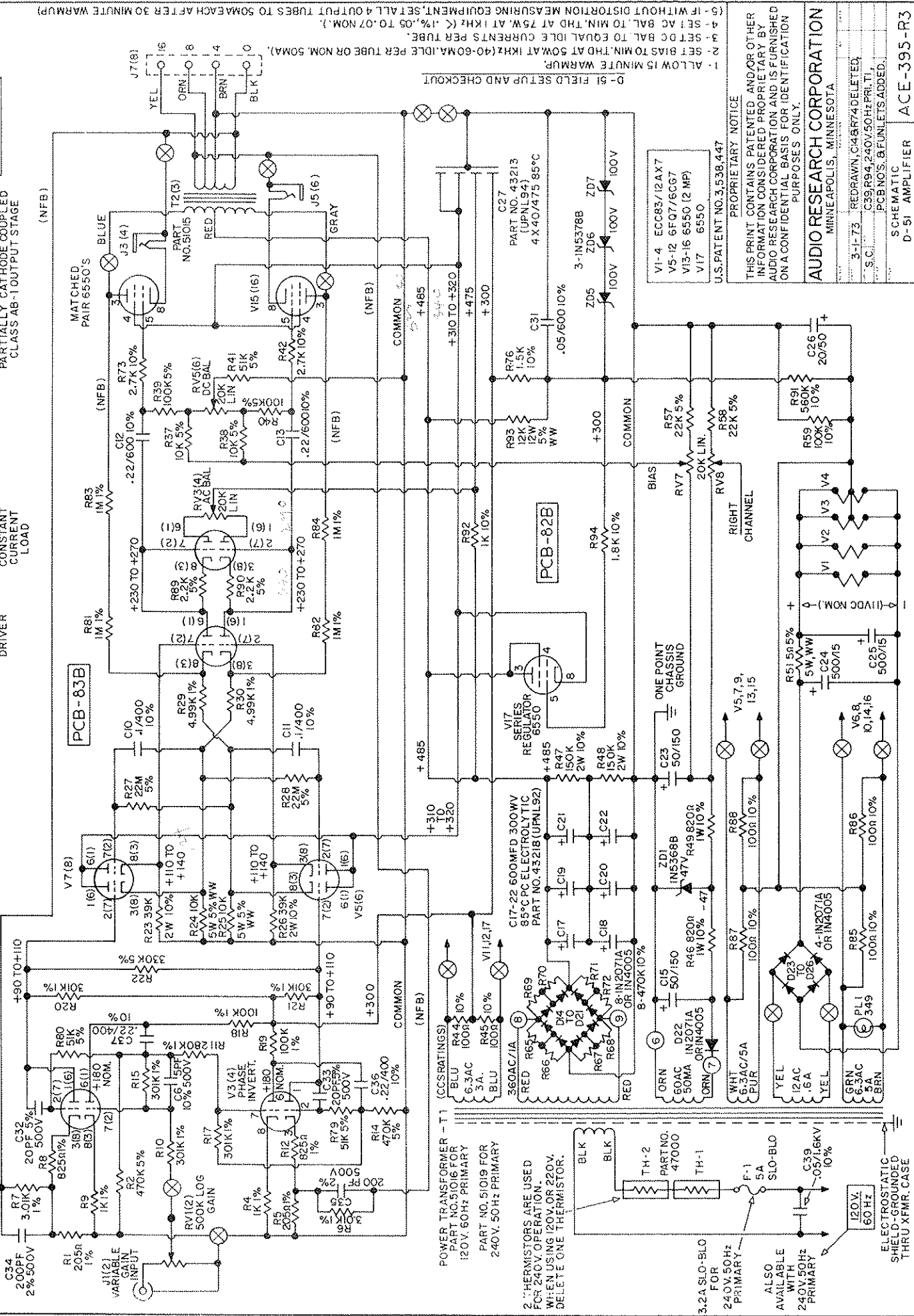
R2111-8-72 LOC. OF R11817 REVERSED. DELETE R34.
 35 60.77.78. C8.9.29.30. ADD R85.86.87.88.89.
 90.91.92.93. C34.35.36.37. ADD ELECTROST-
 ATIC SHIELD IN T1.
AUDIO RESEARCH CORPORATION
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 RI 1018-72 | DELETE C5,7,28,R13,16.
 9-11-72 | 31-32,33,36. ADD C32,33,R79,80.
 81,82,83,84.
 SC

DUAL 51 FIELD SETUP AND CHECKOUT
 - ALLOW 15 MINUTE WARMUP
 - SET BIAS TO MIN. THD AT 50W AT 1KHZ (4-6 MA IDEAL PER TUBE OR NOM. 50MA).
 - SET DC BAL. TO EQUAL IDLE CURRENT PER TUBE.
 - SET AC BAL. TO MIN. THD AT 5W AT 1KHZ (2, 1%, 0.5 TO 0.7NM).
 - IF WITHOUT DISTORTION MEASURING EQUIPMENT, SET ALL 4 OUTPUT TUBES TO 50 MA EACH AFTER 30 MINUTE WARMUP.

⊗ DENOTES P.C. BOARD FUNNELTS.
 (6)

ALL RESISTORS 1/2 WATT AND ALL CAPACITORS IN MF. EXCEPT AS NOTED.
 V13 (4) PARTIALLY CAT HOPE COUPLED CLASS AB-1 OUTPUT STAGE
 V11 (2) CONSTANT CURRENT LOAD
 V9 (10) DRIVER
 CROSS COUPLERS (2)
 V1 (2) INPUT AMPLIFIER

LEFT CHANNEL SHOWN (RIGHT CHANNEL TUBE PINS, WHERE DIFFERENT, ARE IN PARENTHESIS)
 V7 (8)
 V5 (6)
 V3 (4) PHASE INVERT.
 V1 (2) INPUT AMPLIFIER



1. ALLOW 15 MINUTE WARMUP
 2. GET BIAS TO MIN. THD AT 50MA. IDLE PER TUBE OR NOM. 50MA.
 3. GET DC BAL. TO EQUAL IDLE CURRENTS PER TUBE.
 4. GET AC BAL. TO MIN. THD AT 75W. AT 1KHZ. (<1%, .05 TO .07 NOM.)
 5. IF WITHOUT DISTORTION MEASURING EQUIPMENT, SET ALL 4 OUTPUT TUBES TO 50MA EACH AFTER 30 MINUTE WARMUP.

6-51 FIELD SETUP AND CHECKOUT

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3-1-73 REDRAWN C148R74 DELETED
 S.C. C39, R94, 240V/50HZ PRI. T1
 PCB NOS. 6 FUNNELTS ADDED.

SCHEMATIC
 D-51 AMPLIFIER ACE-395-R3

V1-4 ECC83/12AX7
 V5-12 6F07/6CG7
 V13-16 6550 (2 MF)
 V17 6550

POWER TRANSFORMER - T1
 PART NO. 51016 FOR 120V. 60HZ PRIMARY
 PART NO. 51019 FOR 240V. 50HZ PRIMARY

2. THERMISTORS ARE USED FOR 240V OPERATION. WHEN USING 120V OR 220V, DELETE ONE THERMISTOR.

3. 2A SLO-BLO FOR 240V. 50HZ PRIMARY
 ALSO AVAILABLE WITH 240V. 50HZ PRIMARY

120V. 60HZ
 ELECTROSTATIC SHIELD-GROUNDED THRU XFMR. CASE

3.2A SLO-BLO FOR 240V. 50HZ PRIMARY

ALSO AVAILABLE WITH 240V. 50HZ PRIMARY

120V. 60HZ
 ELECTROSTATIC SHIELD-GROUNDED THRU XFMR. CASE

3.2A SLO-BLO FOR 240V. 50HZ PRIMARY

ALSO AVAILABLE WITH 240V. 50HZ PRIMARY

120V. 60HZ
 ELECTROSTATIC SHIELD-GROUNDED THRU XFMR. CASE

3.2A SLO-BLO FOR 240V. 50HZ PRIMARY

ALSO AVAILABLE WITH 240V. 50HZ PRIMARY

120V. 60HZ
 ELECTROSTATIC SHIELD-GROUNDED THRU XFMR. CASE

3.2A SLO-BLO FOR 240V. 50HZ PRIMARY

ALSO AVAILABLE WITH 240V. 50HZ PRIMARY

120V. 60HZ
 ELECTROSTATIC SHIELD-GROUNDED THRU XFMR. CASE

3.2A SLO-BLO FOR 240V. 50HZ PRIMARY

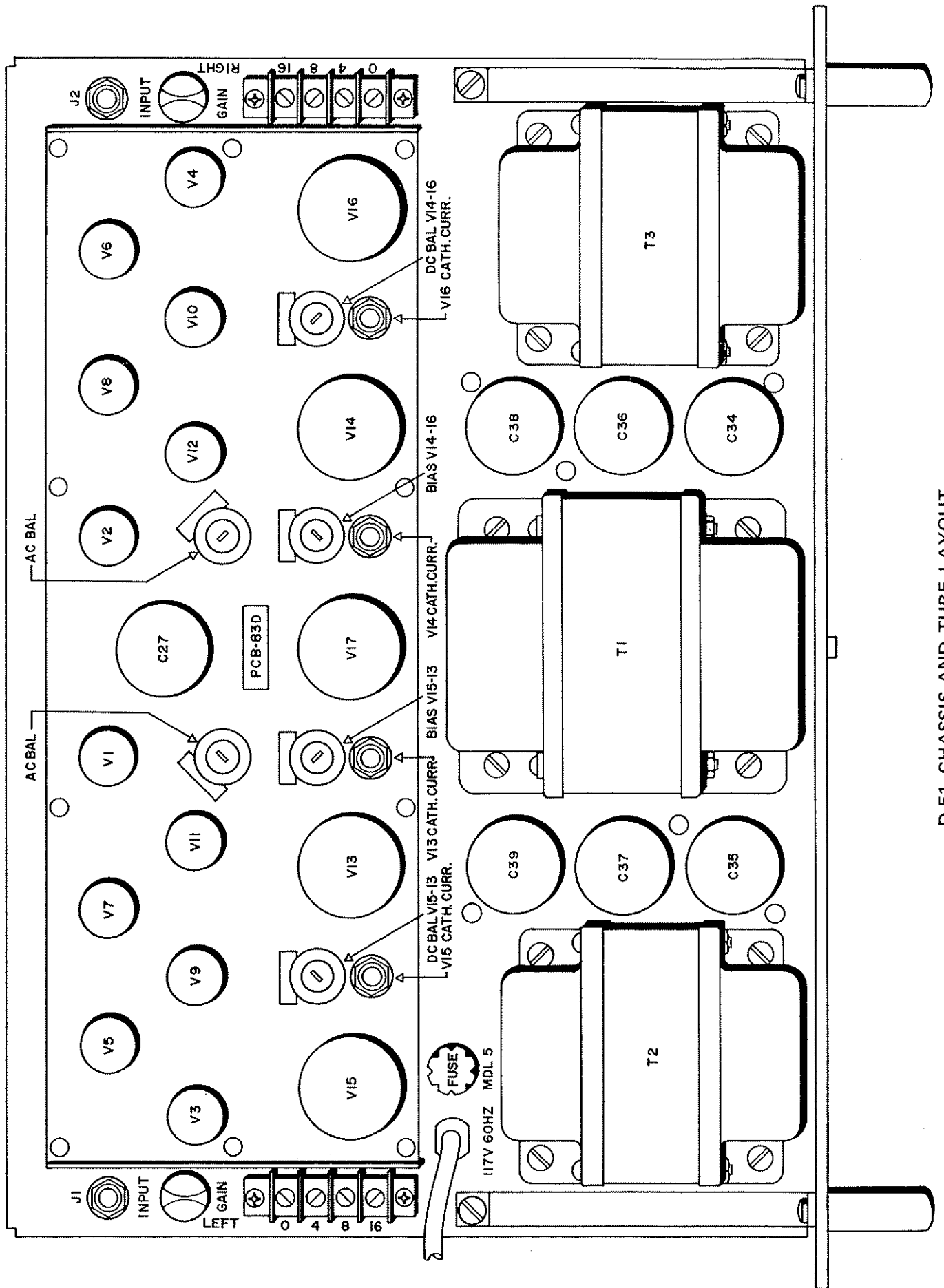
ALSO AVAILABLE WITH 240V. 50HZ PRIMARY

120V. 60HZ
 ELECTROSTATIC SHIELD-GROUNDED THRU XFMR. CASE

3.2A SLO-BLO FOR 240V. 50HZ PRIMARY

ALSO AVAILABLE WITH 240V. 50HZ PRIMARY

120V. 60HZ
 ELECTROSTATIC SHIELD-GROUNDED THRU XFMR. CASE



D-51 CHASSIS AND TUBE LAYOUT